Detailed Project Report

FOR

UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE 2, GURGAON

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REPORT

PROJECT REPORT FOR UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE 2, GURGAON

1. INTRODUCTION

- Guru gram with its physical location on NH8, closer proximity to International airport has made it as the favorite destination for MNC's BPO companies, IT companies etc. It is Gurugram that has initiated organized retail boom in Delhi and NCR in the form of malls. Haryana Government has the vision and the commitment to provide quality infrastructure in Gurugram. HUDA is the major infrastructure development agency for town level development, which is responsible to provide planned development and growth of Gurugram.
- The final development plan 2031 AD of Guru gram, Manesar Urban Complex plan has been notified by the Govt. of Haryana
- Guru gram Manesar Urban complex Development plan has been approved by the town and country planning department of Haryana, for a population of 42 Lacs spread over more than 33872 Hectare area

2. GURUGRAM URBAN COMPLEX DEVELOPMENT PLAN

- The development plans of Gurugram were prepared & published for 2001, 2011, 2021, 2025 & 2031.

Figure1

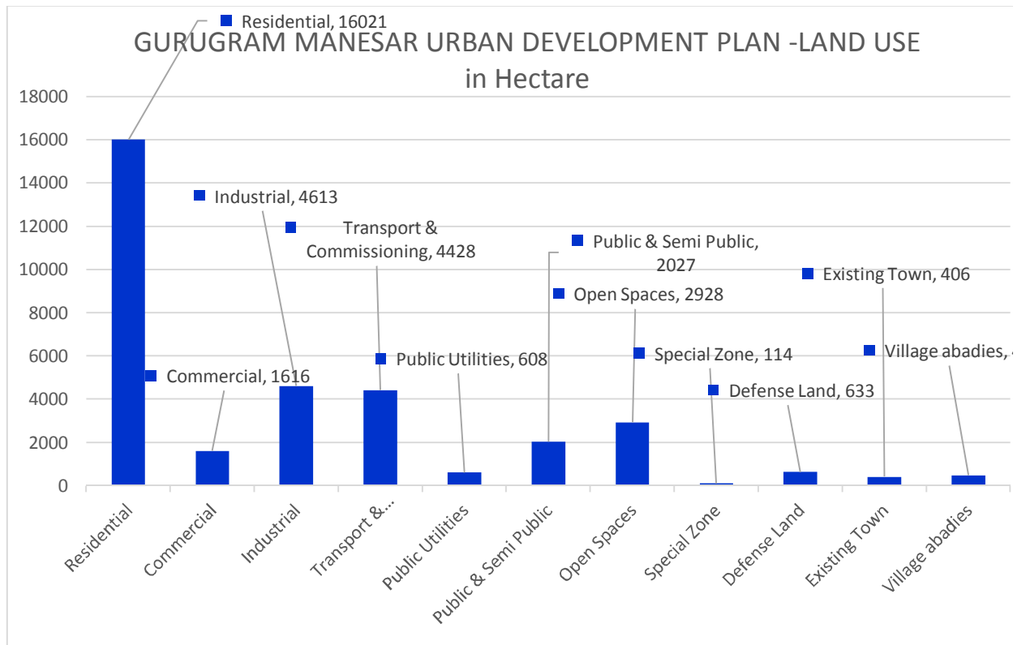


Table:-1

	Master Plan 2031	Area	
		Hectare	Acre
1	Residential	16021	39587.9
2	Commercial	1616	3993.14
3	Industrial	4613	11398.7
4	Transport & Commissioning	4428	10941.6
5	Public Utilities	608	1502.37
6	Public & Semi Public	2027	5008.72
7	Open Spaces	2928	7235.09
8	Special Zone	114	281.694
9	Defense Land	633	1564.14
10	Existing Town	406	1003.23
11	Village abadies	478	1181.14
	Grand Total	**33872**	**83698**

- Population increase is in almost every development plan since 2001.
- Population increase is from 20 lacs to 42 lacs. as per development plan 2031
- It is apprehended that the ultimate population will reach 62 Lacs for the proposed development plan area as assessed on the basis of present bye laws and permissible density including amendments announced so far.
- Director Town & Country planning has revised the permissible FAR also in certain pockets along the MRTS, Also some additional floor has been proposed to be allowed in HUDA sectors.

3. SCOPE OF WORK

Work No: EEVIII/MCG/2017/22639 Dt. 27-04-2017

The Govt. of Haryana has now decided to take over these colonies and as such wanted to assess the infrastructure improvement cost.

Work order for consultancy services for up-gradation of Infra structure i.e. Roads, Water Supply ,Sewerage, Storm Water, Drainage, Rain water Harvesting, Street Light, etc for the DLF Phase 2 colony was issued by MCG

The scope of work consists of the following:

i. Deficient Infra structure(Estimating & Costing)

ii. Additional Infra structure required/Augmentation of Infrastructure to meet the Present day demand.(Estimating & Costing)

iii. Special repair required.(Estimating & Costing)

iv. O & M required for 5 Years.(Estimating & Costing)

v. Additional constructions , if any

4. BRIEF DESCRIPTION OF DLF PHASE-2AREA,GURUGRAM

Table:-2

DLF Phase 2	**Area**		
Description	**Acres**	**Sqm**	Hectare
Total Area of Scheme	488.004	1974867	197.487
To be planned Later on	0.000	0	0.000
Area under Group Housing	22.843	92442	9.244
Net Area Planned	465.161	1882425	188.243
Area under Plots	236.343	956437	95.644
Area under Shopping Commercial	9.161	37073	3.707
Area under Utilities	28.950	117156	11.716
Area under Greens	19.520	78995	7.900
Area under Roads & open spaces	171.187	692764	69.276
Total	488.004	1974867	197.487

- DLF Phase 2 is one of the oldest residential complex developed by DLF group.
- The development started in 80's
- Total area developed **:488.0 Acres**

5. BRIEF DESCRIPTION OF ACTION TAKEN

- M/S Ky Consultants Pvt. Ltd did the preliminary exercise and requested the authorities to make available the record of existing infrastructure.
- Reference was made to MCG Authorities to make available the basic data vide memo No. KY/F-42/601-605 Dt. 05-05-2017,
  No. KY/F-42/737-741 Dt. 28-06-2017
- The details requested are summarized as under
  a. Service Estimates approved by Town & Country Planning Department Govt. of Haryana.
  b. Partial occupation Certificates/ Total completion Certificate if granted with details
  c. Completion drawings/As built drawings at the time of issuance of partial completion certificate/completion certificate
  d. Any work executed here after by Colonizer .
  e. As built drawings of various services
- Approved estimates were made available at much later date on 11-07-2017
- Survey was started on 21-06-2017- to assess the present status of infrastructure.
- All the Roads were surveyed & videography was conducted(CD attached) **Annexure A**
- The Sample survey of Various Infrastructure services & its satisfaction level was carried out in Phase ll placed at **(Annexure B)**
- Meetings were held with various RWAs of DLF Phase2 on 11-07-2017 at Community Centre DLF Phase 2 (copy enclosed at **Annexure C)**

6. INVENTRY OF INFRASTRUCTURE & PRESENT STATUS

6.1. **Roads:-** The Following is the inventory of roads in DLF Phase 2

Table:-3

ROW Roads	DLF Phase 2
	Length in M
9 M wide Roads	3682
12 M wide Roads	26417
15 m wide Roads	330
18 M wide Roads	4690
24 M wide Roads	424
Total	35543

- The Carriage way widths are varying. 9 Mtr roads have 3.66 Mtr wide, 12 Mtr road has 4.88 Mtr wide, 15 Mtr vide has 6.7 Mtr wide, 18 Mtr has 6.70 Mtr wide & 24 Mtr road have 9.20 Mtr vide carriage way.
- All roads are having flexible pavement
- The Road network is being repaired with patch on internal roads & carpeting on some major roads by the agency maintaining the same..
- The CDs of video graphy of the visible infrastructure has been prepared and enclosed with the report CDs at (Annexure –A).
- The Road Plan is attached are **Annexure 'D'**.

Present Road Conditions



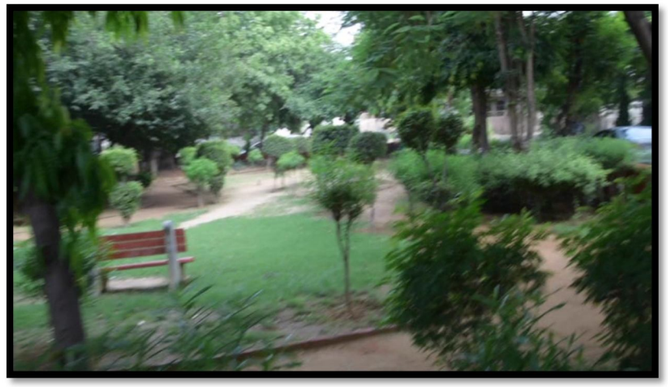




6.2. Horticulture:-

- There are 15 No. parks in DLF Phase 2 as per details tabulated below
- Total Area of developed parks 11 Acres
- Boundary wall & wire fencing done
- Pathway provided
- More than 122 Nos. Benches provided in all Parks.
- Total 25 Nos. Play equipment provided in 8 No. parks
- Total 74 nos..light poles are functional in parks





6.3. Drainage System:-

6.3.1 Open Drains have been provided in DLF Phase 2

Table:- 4

(Drain of different Size)	
Size in mm	Length in M
230mmX230 mm	**27444**
230mmX450 mm	**5935**
345mmX450 mm	**1231**
345mmX675 mm	**2074**
450mmX675 mm	**1151**
675mmX900 mm	**848**
Sub Total	38683

- The open drains are silted at places in spite of their claim of cleaning the same. At many places Residents have blocked the drains at Entry gates or the capacity has reduced to less than 50%
- The CDs of video graphic survey of roads & drain infrastructure have been prepared and enclosed with the report.









6.3.2 Disposal of Storm Water:-

- The drains have been laid with 4 no out falls
- Three no. outfalls are towards National High Way No. 8
- RCC Box Drain is laid along NH8 for ultimate disposal in Leg 2 of Master storm water drainage of Gurugram.
- Fourth outfall is towards Mehrauli Road.
- In addition to above mentioned outfalls, some direct connections in Master storm water drain on 60 M wide master Road & master drain also exist..
- Master drainage system is laid on 60 M Wide main Road is part of Master out fall Leg no.1.
- RCC Box Drain is laid along60 M Wide main Road upto NH8 for ultimate disposal in Leg 1
- The existing storm water network of DLF II as received is attached at **Annexure E.**
- Some Residents of block N have also reported the flooding of the area.

6.4. Water Supply:-

- The area was developed in phases.
- Originally the 465.161 Acre Area was approved for development in year 1983.
- A proposal for 488.0 acres was approved superseding all other proposals
- For Plotted Area two no boosting station in Block P, Block L & Block X are constructed.
- Separate Boosting Station is available for Group Housing Area in 3 No.Group Housing Campus Namely Beverly Park 1, Beverly Park 2. & Oak Wood Estate.
- The infrastructure created at 3 Nos boosting stations are tabulated below.

Table:-5

	Name of Zone	Area Block Served	Rising Main		OHSR'S			UG Tanks		Pumping Machinery		
			Length	Size	Nos	Capacity	Height	Nos	Capacity	Nos	LPS	Head
			M	mm	Nos	KL	M		KL			
Zone 1	Block p	Block P,Q M & N	763	250	1	681	30	3	2262	1 2	40 100	50 50
Zone 2	Block L	Block K,J,L & LBlock extension	795	250	1	681	30	3	2043	1 2	40 100	50 50
Zone 3	Block X		500	100				1	250	1	10 HP	
Group Housing Beverley 1	Block L extension	Group Housing	150	100				1	250			
Group Housing Beverley 2	Block L	Group Housing	150	100			30	1	220			
Group Housing Oak Wood Estate	Block P	Group Housing	150	100				1	220			

- Water supply is being received from Tube Wells & Canal based water supply from HUDA source.
- At the time of development in year 1983 the only available source of water was from Tube wells.
- Originally 26 No. Tube well were drilled for total area and were operational.
- Present availability of water from tube well source has been reduced considerably
- 6Nos. connections have been released by HUDA Authorities for canal water as per details given below.

Table: 6

Rising Main		
Length of Rising Main	Existing Length	Size of Pipe
	M	mm
HUDA Source-Block L	763	250
HUDA Source-Block P	795	250
Extension in Cyber Park-Block X	500	100
Group Housing 1(Beverly Park 1)-	150	100
Group Housing 2(Beverly Park 2)-	150	100
Group Housing 3(Oak wood state)(-	200	100

Distribution Net Work

- The existing Water supply distribution network as received is attached at **Annexure F.**
- The pipes were laid in late 80,s at that time CI Class LA pipes AC pipe, PVC Pipes, HDPE Pipes were used in urban areas as per approved service estimate.

Table:- 7

Size of Pipe Line	Existing Length in M
75mm i/d	15798
100 mm i/d	8223
150 mm i/d	7366
200 mm i/d	2141
250 mm i/d	180
300 mm i/d	1194
350 mm i/d	555
Total	35457





- The existing sewerage network as received is attached at **Annexure G.**







6.5. Sewerage System:-

- Internal sewerage lines have been laid of SW Pipes The inventory is as under.

Table:- 8

Size of Pipe	Existing Length
200 mm i/d	29365
250 mm i/d	723
300 mm i/d	83
400 mm i/d	1876
500 mm i/d	0
600 mm i/d	300
TOTAL	**32347**

6.6. Electrification & Street light:-

6.6.1 Street Light

- Existing Street Light system is summarized below

Table 9:-:

S. No.	Block	Tube Road 36 W	S/V-70	S/V-150	LED	Total
1	Block-K	51	95	8	17	171
2	Block-L	161	62	29	3	255
3	Block-N	85	14	21	4	124
4	Block-Q	50	2	0	8	60
5	Block J	90	42	55	5	192
6	Block-P	60	31	0	6	97
7	Block-M	137	61	39	20	257
	Total	634	307	152	63	1156

- The street light has no separate feeder and connected with the distribution Transformers it self
- Street lights are functioning at Site.
- Energy saving device are not provide.
- Total Tube roads: 634 Nos.
- Total SV70 : 307
- Total SV150 :152
- Total LED : 63
- Total SV400 : 10

6.6.2 Electrification

- The electrification work stands handed over to DHBVN which is maintaining the system.





6.7. Community Buildings



7. SAMPLE SURVEY OF SATISFACTION LEVEL CARRIED OUT BY KY CONSULTANTS FROM THE RESIDENTS

The Sample Survey was done by team of KY Consultants to assess the satisfaction level of Residents with regard to Roads, Water supply, Sewerage, Storm water drainage & street lighting.

7.1. Roads:-.

- The details are annexed at **Annexure B.**
- As per survey conducted 60% residents Consider Road condition is good.
- 40% residents consider Road condition is not satisfactory

7.2. Drains:-

- As per sample survey conducted 42% residents Consider condition of drains as Good
- As per survey 58% residents said condition of drains is not satisfactory

7.3. Water Supply

- As per sample survey conducted 63% residents consider water supply condition is Good while.
- 37% residents consider water supply condition is not satisfactory.

7.4. Sewerage System:-

- As per Sample Survey.
- As per survey conducted 84% residents consider Sewerage system condition is good.
- 16% residents consider it the satisfactory.

7.5. Cleaning of Area

- As per sample survey conducted 79% residents consider Sewerage system condition is good
- 21% residents consider it the satisfactory.

7.6. Street Lights

- As per sample survey conducted 53% residents consider condition is good.
- 47% residents consider Street Light condition is not satisfactory.

7.7. Electrification

- As per sample survey conducted 37% residents consider condition is good.
- 63% residents consider condition is not satisfactory.
- However the Electrification work is being maintained by DHBVN and is outside the scope of work.
- The deficiencies and pointed out by RWAs and as noticed in sample survey with regard to Electrification needs to be refer to DHBVN.

8. INFRASTRUCTURE SATISFACTION LEVEL SURVEY(Meeting with RWAs)

- Meetings were also held with the representative of the RWAs
- Difficulties being experienced by various welfare associations were received as per details given below

  i. Progressive Residents Association of DLF Phase 2 on11-07-2017
- The detailed representation is annexed at **Annexure H**.
- Summary of the difficulties faced by residents as brought out by various Residents Welfare Organization (Within scope of work of consultants) is annexed at **Annexure** I and also reproduced below.

	Name of RWAs
Description of deficiency	**As per RWA Progressive Residents Association of DLF-II**
Water Supply	While the general supply of water leaves a lot to be desired with very less water being provided compared to the 156 ltrs of water per person that is to be provided with 135 ltrs of it through taps, Q Block and some parts of P Block which lie on higher levels get extremely scanty water supply and have to depend on tankers very often.
Rain Water	Gulmohar Marg is the pivotal road for residents of L-Block and extension block, this road is low lying and right next to the Green belt on NH-8. During the rainy season this low lying key road gets totally water logged with 2-3 feet of water and we have to press in services of 2 water pumps to pump out the water.
Hospital	Private is a large Hospital with a wal on the main MG Road. For the security interests of DLF_II, we feel direct gate to the service road on MG Road should be provided for them.
Drainage	A large part of N Block is low lying. While earlier the natural flow of water used to empty the water into 2 natural storm water nallahs, they have now been covered and the level of the natural gradient changed wherein now Cyber City has come into that area and the level has been increased by over 6 feet.
Sewerage	DLF II was supposed to have been developed and handed over nearly 3 decades ago. We are quite sure that every equipment has certain life including sewage lines and booster pumps. There are even guidelines as per CPHEEO Manual and other policy documents.
Roads	DLF II largely has roads with appropriate slopes leading water to fall at sides which used to get to the drains that were constructed in 1993. Overtime these drains have been blocked making way for Parking in certain vacant plots or the height of these drains have been elevated by the residents. These have lead certain points in the colony getting water flooded.

Parks	Parks in DLF II need to be better maintained and a large tract of land/park with thin population be earmarked for children to play in.
Electricity	We have been informed a number of times that the number of transformers have to be augmented specially since here are many illegal commercial operations and guest houses running in DLF II and the Government not being able to stop the same. We were also informed that the overall infrastructure of wiring etc. is again and needs to be upgraded, in fact most of it supposed to go underground.
	Social Infra Structure
Gates	The colony has 6 official gates, there are many residents and others who would like to open up other, new gates for their individual convenience
	Since these buildings create a lot of traffic and JCM gate is our main gate too, we propose that they get direct access from the new service road which has just come up and has been carved out of DLF-II land.
Entry & Exit	Every commercial building is supposed to have a separate entry and exit for the basement. DLF-II has a commercial centre, Central Arcade where only one extremely narrow ramp is available for basement due to which people do not like to park their vehicles inside the basement leading to huge traffic.
Entrance	Earlier, the entrance of the colony on the NH-8 side was right on the main NH-8 after the buffer zone (known as JCM Gate.
Buildings	These buildings have a back entrances which open up onto very narrow, 9 mtrs. Internal roads. These buildings have illegally occupied residential plots or open land to park their vehicles which leads to total chaos and practically render these roads useless to the residents especially of that area.
Shopping Centre	DLF was to provide us a shopping centre just behind Nestle Building. This shopping Centre has been ready for over 2 decades but not made operational. We request the same to be made operational and be handed over.
Boundary Wall	DLF -II is a small colony with a boundary wall all around. However, this wall has been breached in many places and is extremely low in some due to which security is a major issue.
	The wall has been totally breached at the corner juncture of IFFCO Chowk due to the new flyover which is coming up eating up the Green mandatory buffer zone as per Government guidelines for National Highways.
Club	A Club is to be constructed in DLF II. The land for the same too has been identified and some construction done nearly 5-6 years back. This is on the main Akashneem Marg. It is requested the same be completed immediately and handed over to the RWA.
	While there has been a lot of focus on the physical infrastructure of DLF II, we also need to focus on the manpower infrastructure. There are many workers who have spent their entire lives working in DLF II. These people have indepth and irreplaceable knowledge about the area and can resolve issues much faster than any other person due to that knowledge.
	DLF has been collecting a non-construction charge which is extremely high and an item which is meant to be capitalized as it is the only colonizer to charge the same.

9. OBSERVATION

9.1. Roads

1. Some major roads are repaired & carpeted recently. However on other roads patchwork is being done for last 7 to 8 years
2. Re carpeting of roads is pending on large no of roads.
3. The berms are encroached at many places.
4. Most internal roads need re carpeting

9.2. Water Supply

1. Assessment of Water Demand of the colony has been done with filling in
2. Breakup of water demand in two parts, Fresh water demand from canal water & tube well water.
3. Availability of fresh water from Tube well is questionable as such. How to fill The gap from surface water source(Canal Water)
4. To check availability & supply of canal water
5. Horticulture & Road side plantation : Requirement of water demand and possibility if it can be fed from Treated waste water/ recycled water
6. To check the size of Rising Main from HUDA source to respective Boosting stations.
7. To check the size , quantity & capacity of appurtenances at Boosting Station
   a. Pump size & capacity.
   b. Power back up for pumps.
8. Capacity of storage tank required and available to be checked based on present & future requirement
9. Distribution network to be checked for supplying revised demand to consumers keeping in view the Hydraulic & static level difference. To achieve desired terminal Head at consumer end.
10. Cleaning of Water Storage Tank required.
11. Some of the EWS plots seen with more no of floors then the permissible.
12. Some unauthorized connection Noticed.

9.3. Use of Treated waste water

1. At present no treated waste water distribution system exists.
2. Possibility of its use to meet the Horticulture demand of common areas, Indi dual plots and flushing requirements

9.4. Sewage Collection System

1. To assess the waste water generation.

2. To check the capacity of existing sewerage System to meet increased load due to higher population growth in the area.
3. One time cleaning of total system required
4. Possibility of creating STP to meet Horticulture water demand and release the over loading on sewer system beyond this point.

9.5. Storm Water Drainage.

1. To study the storm water system at site, assess the deficiencies in the system and suggest remedial measures.
2. The Storm water outfall exist at 5 locations.
3. Storm water system not connected to Outfall system at places & needs detailed study
4. Cleaning of internal drains, in spite they are being cleaned in some sections.
5. Increasing the carrying capacity of drains by addition of Masonry work on sides & top of internal drains based on requirements, and plastering the same.

9.6. Rain Water Harvesting

1. Rain water harvesting system has been provided partly.
2. Water harvesting system not functional to its capacity.
3. Detailed proposal needs to be prepared after Runoff calculation.

9.7. Parks, Play Grounds, Open Areas& Green Belts

.1. Parks needs regular and routine maintenance.
.2. Augmentation of Horticulture & Road side plantation needed
.3. Boundary wall & fencing need repaireds at many places.

9.8. Electric Supply

1. Power supply partly satisfactory. The electrification work stands handed over to DHBVN and O & M is being looked after by DHBVN.

10. SOME OTHER ISSUES OUTSIDE THE SCOPE OF WORK BUT RAISED BY THE RWA IN ANNEXURE:- H&I

10.1. Representations of RWAs are enclosed.

10.2. Social Infra structure problems NEED to be looked into by MCG/HUDA/ Town & Country planning Department, Govt of Haryana. They are enumerated in the representation of various RWAs at Annexure H&I.

10.3. Community Centers & Mis appropriation of Public Assets

1. Community center being utilized as clubs : issue raised by some RWAs
2. Entry gate problems : issues raised by some RWAs
3. Incomplete Buildings : list given by RWA's are enclosed in the representation of RWAs at **Annexure H&I**

10.4. Commercial space

1. Commercial space do not have adequate parking. Issue raised by some RWAs.

11. ANALYSIS OF INFRASTRUCTURE PROVIDED

11.1. Zone Wise Breakup of Area

Table-10

DLF Phase 2	Area		
Description	Acres	Sqm	Hectare
Total Area of Scheme	488.004	1974867	197.487
To be planned Later on	0.000	0	0.000
Area under Group Housing	22.843	92442	9.244
Net Area Planned	465.161	1882425	188.243
Area under Plots	236.343	956437	95.644
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Area under Utilities	28.950	117156	11.716
Area under Greens	19.520	78995	7.900
Area under Roads & open spaces	171.187	692764	69.276
Total	488.004	1974867	197.487

11.2. Plot Details

- Total no of Plots: 3228 Nos...

11.3. Population Assessment

11.3.1. Population as per Service Estimates

- Approved service estimates are based on population density at 9 persons per dwelling unit
- Only 71 no big dwelling units are based on population density at 13.5 persons per dwelling unit
- Population of plotted area as per approved service estimates =3157*9+71*13.5=29372persons
- Population of Group Housing area as per approved service estimates =300*22.843=6853persons

11.3.2. Population as per Prevailing Norms

- Population density at 13.5 persons per dwelling unit for General category plots
- Population density at 9 persons per dwelling unit for EWS plots
- Population of plotted area as per revised HUDA Norms =3228*13.5=43758persons
- Population of Group Housing area as per approved service estimates ==22.843*300=6853persons

11.3.3. Maximum Permissible Population as per Prevailing Norms

- Population density at 120 persons per acre
- Proposed Area : 588 Acres
- Prospective Population : 120 x 588 = 58560persons
- Increase in population on account of increase in FAR of area around MRTS : 35% increase in population of new construction & part of existing development
  58560*35%=20496 persons
- Assume 75% diversity factor since major construction work has been completed in area= 20496*75%=15372 persons.
- Total Population = 58560+15372=73932 persons
- Population of Group Housing area as per approved service estimates =300*22.843=6853persons
- Prospective population in plotted area = 73932-6853=67079 persons say 67000 persons.

11.3.4. Based on the above assessed population the new system have been designed & existing system checked.

12. PROPOSAL FOR AUGMENTATION OF INFRASTRUCTURE

The proposal has have been prepared under 3 heads

a. Deficiency/special repair

b. Addl Infra required for up gradation

c. O&M

12.1. Roads

12.1.1. Existing Road Net work

Table-11

ROW Roads	DLF Phase 2
	Length in M
9 M wide Roads	3682
12 M wide Roads	26417
15 M wide Roads	330
18 M wide Roads	4690
24 M wide Roads	420
Total	35543

12.1.2. Proposal for deficient infrastructure including periodical special repair of Road

- The berms are encroached , which needs to be removed
- Dressing of berms of all roads including disposal of surplus soil from the Road, since the berms are undulated at places and is difficult to walk.
- 50 BM on Major roads (18 & 24 m roads) proposed in view of tests carried out as per IRC 81.
- Leveling course on damaged Roads with BM to remove undulations in roads..
- 30mm Bituminous Concrete (BC) has been proposed on all the Roads as the riding quality needs improvement due to periodic patch work (excluding the road recently provided with wearing coat).
- Painting lines on Roads with Thermo plastic paints on both sides & marking of Center Lines on Major roads.& pedestrian crossing.

12.1.3. Additional.

1. The road shoulders were not given any treatment except leveling and dressing of same, as per approved service estimate.
2. Now it is proposed as under to increase the capacity of Roads& provision for slow moving traffic & pedestrian on major Roads.

Table-12

ROW Roads	DLF Phase 2
	Proposal
9 M wide Roads (These are lanes)	Paver Blocks on one side having width of 1.5 M, towards drain side with end blocks
12 M wide Roads(These are lanes)	Paver Blocks on both side having width of 1.5 M, on either side with end blocks
18 M wide Roads	Paver Blocks on both side having width of 2.0 M, on either side with end blocks
24 M wide Roads	Paver Blocks on both side having width of 2.0 M, on either side with end blocks

3. Thickness of paver block has been proposed as 80 mm thick and laid over 150 mm thick Granular Sub Base.

12.1.4. Operation and Maintenance

1. Operation and Maintenance is regular feature however costing has been done for 5 Yrs.
2. The scope of Maintenance work covers followings Sub Heads
   - A. Establishment.
   - B. Material.

12.2. WATER SUPPLY

12.2.1. Design as per present requirement.

- Total Water Demand : 14827 KL as per details in Design Profile

Plotted Area

- Total Water Demand Plotted Area :13749KL
- Total Fresh Water Demand : 11769KL
- Total Recycled Water Demand : 1980 KL
- Fire Fighting Demand :819 KL

Group Housing Area

- Total Water Demand Group Housing Area :1078KL
- Total Fresh Water Demand : 970KL
- Total Recycled Water Demand : 108KL
- Fire Fighting Demand Group Housing Area : 262KL

Water demand

Block P

Table-13

Water Demand	Block P for Zone 1	Water Available from Tube well Source
Total Water Demand	**6186**	
Fresh Water Demand	5295	480 (Negligible)
Recycled Water Demand	891	
Fire Fighting Demand	368	

- **Block L**

Table-14

Abstract of Water Demand	Block L for Zone 2	Water Available from Tube well
Total Water Demand in KL	7107	
Total Fresh Water Demand in KL	6084	
Total Recycled Water Demand in KL	1023	
Total Fire Fighting Demand in KL	423	

- **Block X**

Table-15

Abstract of Water Demand	Block X for Zone 2	Water Available from Tube well
Total Water Demand in KL	456	
Total Fresh Water Demand in KL	390	
Total Recycled Water Demand in KL	66	
Total Fire Fighting Demand in KL	27	

- **Group Housing Area**

Table-16

	Area	**Water Demand**	**Fresh Water Demand**	**Recycled Water Demand**	**Fire Fighting Demand**
	Acre	KL			KL
Group Housing 1(Beverly Park 1)	8.836	417	375	42	101
Group Housing 2(Beverly Park 2)	7.286	344	309	35	84
Group Housing 3(Oak wood state)(	6.722	317	285	32	77
	22.843	1078	969	109	262

- Initially Water demand was met with 26no. Tube wells drilled in the area.
- Now only 50% Tube wells are operative with reduced discharge others are not functional.
- Availability of water has reduced considerably.
- The demand is to be met with canal based Water Supply from HUDA

The survey of the area and discussions with RWA

- Water supply system needs a review
- The existing water supply system is analyzed to find out remedial measures starting from Rising Main form HUDA source Tube wells water works & distribution system.

12.2.2. Rising Main and connections with HUDA water supply lines

Table-17

Name of Zone	Water Works	Area Block Served	Rising Main	
			Length	Size
			M	mm
Zone 1	Block p	Block P,Q M & N	763	250
Zone 2	Block L	Block K,J,L & L Block extension	795	250
Zone 3	Block X		500	100
Group Housing Beverley 1	Block L extension	Group Housing	150	100
Group Housing Beverley 2	Block L	Group Housing	150	100
Group Housing Oak Wood Estate	Block P	Group Housing	150	100

- The calculations in design profile reveal that size of rising main connecting water works with the sources provided are in order when continuous water supply is maintained from main HUDA source.
- At present water supply from HUDA mains is deficient water is being supplied for limited period.

12.2.3. Proposal

- The continuous water supply shall be made available to the colony on 24x7 basis from municipal trunk water lines/HUDA Lines.

12.2.4. Appurtenances at Boosting Station Block B Zone 1 & G Zone 2

12.2.4.1 OHSR

- Block P is having an O.H.S.R. of 681 KL capacity,30 M staging Height
- Block L is having an O.H.S.R. of 681 KL capacity,30 M staging Height
- As per calculation done in design profile **Additional OHSR is not required**.

12.2.4.2 UG Tank

- Mass curve for 24 hrs requirement has been drawn for Block P,L & X respectively in design profile.
- **Additional capacity of RCC UG tank not required in Block P**

- **Additional capacity of RCC UG tank not required in Block L**
- **Additional capacity of RCC UG tank not required in Block L**

12.2.4.3 Pumping Machinery

Pumping required as per design

- Existing Machinery is old. Complete replacement of pumping machinery is proposed in the proposal. However the automation provisions have been made in the additional work.
- Water Supply has been designed on 24x7 Hours supply

12.2.4.4 Machinery Requirement(Deficient infrastructure)

Table 18

Pumping Machinery Required in Block P Zone 1 and Block L Zone -2	Block P	Block L	
Provide2 pump to meet total demand 40 lps with 60 m head.45BHP	2	2	No's
Provide1 pump to meet total demand 80lps with60 m head,85 BHP	1	1	No's
Provide 1 pump as stand bye100 lps with 60 m 110 BHP	1	1	No's
Block X			
Provide2 pump to meet total demand10 lps with45 m head.10BHP		2	No's
Provide1 pump to meet total demand 15lps with45 m head,15 BHP		1	No's
Power Backup Required in Block P Zone 1 , Block L Zone -2			
Provide one generating set of 250 k VA as100% Power back up arrangements to run two pumps average demand at Zone 1 & 2		2	No's
Block X			
Provide one generating set of 50 k VA as100% Power back up arrangements to run two pumps average demand each at Zone3		1	No's

12.2.4.5 Distribution Net Work(Analysis)

- The present System laid is for estimated population as per approved scheme. When checked for ultimate population as shown in design profile the distribution system is **sufficient to cater for the Addl population**.
- The existing System laid is of CI Class LA, PVC pipes as per approved estimate.
- Now as per guidelines in CPHEU manual minimum size of pipe is 100 mm i/d.
- The system was laid with CI, AC and HDPE pipe as per permission at the time of approval.
- The original system was laid keeping in view the 26 No. Tube wells. Now only 50% Tube wells are working with reduced discharge.
- Some tube wells were connected to respective Boosting Stations, while others were directly connected with distribution network.
- Now the canal base water supply is made available & connected with rising main from HUDA line to Boosting Station.

12.2.4.6 Conclusion

- The supply is intermittent supply & required quantity of water is not reaching to consumers.
- Shortage on account of reduced discharge is to be met from Canal water supply.
- The levels of various boosting stations and minimum/maximum ground levels are as under.
- The Boosting Station of Block P is at 236.24 m
- The Boosting Station of Block L is at 241.48 m
- The Boosting Station of Block X is at 239.25 m
- Minimum ground level in DLF Phase 2 is 233.14 m
- Maximum ground level in DLF Phase 2 is 244.35m
- Variation in ground level is 11.21 m.
- The significant variation in ground levels is also responsible for inadequate supply in certain pockets.
- The conditions are deteriorating due to decline in the discharge from tube well source.
- The distribution network has been checked keeping in view the constraints defined above in design statement of Water Supply
- Total Length of existing Distribution Net Work : 35457 M

12.2.4.7 Proposal

- Existing pipe network is capable of achieving 24 x7 water supply. The improvement in water supply can be achieved by continuous inflow of Municipal water.
- The replacement of balance 75 mm i/d pipes will be carried out under Additional Work which can be taken up at a later date.

- 70 No Fire Hydrants are proposed be installed as a part of deficient work.
- 100 mm i/d 280 Mtr DI K7 Pipe is proposed for connecting the fire hydrant

12.2.4.8 Deficient Infra Structure

1. The replacement of pumping machinery.

Table 19

Pumping Machinery Required in Block P-Zone 1, Block L-Zone 2&Block X Zone 3		
Provide2 pump to meet total demand 40 lps with 60 m head.45BHP	4	No's
Provide1 pump to meet total demand 60lps with 60 m head 65 BHP	2	No's
Provide 1 pump as stand bye100 lps with 60 m 110 BHP	2	No's
Provide2 pump to meet total demand10 lps with45 m head.10BHP	2	No's
Provide1 pump to meet total demand 15lps with45 m head,15 BHP	1	No's
Provide one generating set of 250 k VA as100% Power back up arrangements to run two pumps average demand Zone 1 & 2	2	No's
Provide one generating set of 50 k VA as100% Power back up arrangements to run two pumps average demand each at Zone3	1	No's

2. Installation of fire hydrant.

12.2.4.9 Additional Infra Structure

To improve the Distribution system all 75mm dia pipe line is proposed to be replaced with 100 mm DI K-7 pipe line as Additional work. Also about 2000 mm 150 mm to improve the terminal Head.

Table20

Additional Pipe Line	Length of Pipe
DI K-7 Pipe	**M**
100 mm i/d pipe	15798
150 mm i/d pipe	2000

12.2.4.10 Replacement of pipes(Additional Infrastructure)

1. Major demand of replacement of existing distribution network was made by various RWA.s the above proposal will meet the requirements.
2. As per Pipe Material Selection Hand Book for Water Supply & Sewerage published by National Environmental Engineering Research Institute Nagpur The life of pipe is as under

   DI pipes with lining : >50 years

   HDPE pipes more than : >50 years

   UPVC pipes more than : >50 years

Hence it is recommended that the existing DI/ CI pipe of adequate size may not be replaced on A/c of being old. However the pipes of 75mm dia may be replaced with 100 mm to cater for the additional population as a part of additional infrastructure.

Additional provision for automation of the system has also been made in the additional infrastructure.

12.2.4.11 Operation and Maintenance

1. Operation and Maintenance calculated for 5 Yrs.
2. The scope of Maintenance work covers followings Sub Heads
   - A. Establishment.
   - B. Repairing
   - C. Consumable
   - D. Electrical Charges

12.3. Recycled water distribution (Addl Infrastructure) Proposal

12.3.1. The provision for recycled water distribution did not exist in the original proposal approved 30 yrs ago. Hence No work under this sub head is under deficient work

1. Presently more than 70% houses have been constructed. No house owner will dismantle the existing structure to provide for dual plumbing system as such the provision of recycled water has been made as additional infrastructure and only for horticulture purposes.
2. The treatment plant of 2.00 MLD on SBR technology is proposed to be constructed at suitable location in Green Belt along NH8
3. Recycling system will generate for 1980 KL of treated waste water to be treated and distributed for Horticulture Purposes in the DLF Phase 2 area.

12.3.2. Raw Waste Water Pumping Arrangement & Sewage Treatment Plant

Table-21

Raw Waste Water Pumping Arrangement		
Raw Water Wet Well 4 m internal Diameter depth 1 m below of outfall sewr depth=5 M	1	Nos
Dry well on top of wet well 2.4 m above Plinth Level	1	Nos
Raw sewage pumping main 200 mm i/d 20 m length	20	M
Raw sewage to be lifted with 3 no Vertical submersible pumps of 25 Litre/Second ,Head 7 m 5HP motor	3	Nos
One generating set of 20 k VA as100% Power back up arrangements	1	Nos
Sewage Treatment Plant of 2 MLD Capacity based on SBR Technology	1	Nos

12.3.3. UG Tank for treated waste water.(Addl Infrastructure)

- Capacity of RCC UG tank : 660KL

12.3.4. Pumping Machinery(For treated waste water(Addl Infrastructure)

Table 22

Pumping Machinery Required		
Provide1 pump to meet total demand 12 lps with35 m head,10BHP	1X1	No's
Provide2 pump to meet total demand 25 lps with35 m head,20 BHP	2x1	No's
Provide1 pump to meet total demand 40 lps with35 m head 25 BHP	1x1	No's
Provide one generating set of 100 k VA as100% Power back up arrangement to run two pumps average demand	1x1	No's

Provision for automation of the pumping machinery has been made as a part of this work

Distribution Net Work (for treated waste water) Addl Infrastructure

Table 23

	Additional Length	Gate valve	Sluice Valves	Scour Valves	Air valve
	M	Nos.	Nos.	Nos.	Nos.
50mm i/d	1980	495			
63mm i/d	990	165			
75mm i/d	2648				
100 mm i/d	8201		61	6	
150 mm i/d	1880				6
200 mm i/d	482				
250 mm i/d	881				
300 mm i/d	57				
No. of Sprinklers				165	Nos.
No. of Lawn Hydrants 75 mm i/d				126	Nos.

12.4. Sewerage

12.4.1 Waste Water Collection System

- Total 32347 Mtr Waste Water collection system has been provided in the area.
- The Collection System is designed as per population of 29372 persons as per approved estimates. Presently the sewage system is working and no major complaints are noticed.
- Now the population estimation is 67000 Persons.
- Existing waste water collection network is redesigned for assessed population.
- The existing system at large is sufficient to take the load of Additional population. Only amendment proposed is 1094 m Additional Line of Various Sizes as per design profile.
- The estimated Waste water : 9.195 MLD
- Now it is proposed that 1980 KLD water will be withdrawn Near NH 8 outfall, treated and used to meet Horticulture demand of DLF Phase 2

12.4.2 Proposal

Deficient Infra Structure

1. One time De-silting and cleaning of sewer in 100% length of major sewers and approximately 50% length of internal sewers.
2. Repairing of existing man holes.

12.4.3 Additional Infra Structure

1. 1094 Mtr Additional pipe line.

Table24

Size of Pipe	Existing Length	Additional Proposed Length
200 mm i/d	29365	0
250 mm i/d	723	181
300 mm i/d	83	379
400 mm i/d	1876	0
500 mm i/d	0	435
600 mm i/d	300	99
Total	**32347**	**1094**

2. Construction of Sewage Treatment Plant one module of 2.0 MLD capacity based on Sequential Batching Reactor Technology.

12.4.4 Operation and Maintenance

1. Operation and Maintenance calculated for 5 Yrs.
2. The scope of Maintenance work covers followings Sub Heads
   A. Establishment.
   B. Repairing
   C. Consumable

12.5. Storm Water Drainage.

12.5.1 Existing Arrangements

Internal Storm Water Drainage System:-

- Total 38683 Mtr Length for Storm Water Drainage open drains/ has been provided in the area. The breakup of the same is as under:-

Table:-25

ABSTRACT OF LENGTH STORM WATER	
Size	**Length**
230mmX230 mm	**27444**
230mmX450 mm	**5935**
345mmX450 mm	**1231**
345mmX675 mm	**2074**
450mmX675 mm	**1151**
675mmX900 mm	**848**
Total	**38683**

12.5.2 Analysis

- The drains have been laid with 4 no out falls
- Three no. outfall is towards National High Way No. 8
- RCC Box Drain is laid along NH8 for ultimate disposal in Leg 2 of Master storm water drainage of Gurugram.
- Fourth outfall is towards Mehrauli Road.
- In addition to above mentioned outfall direct connection at many points in Master storm water drain laid on 60 M wide master Road.

12.5.3 Proposal

12.5.3.1 Deficient Infra Structure

- Desilting and cleaning of Storm Water / Drain in 100 % length of Major drains and 50% Length of internal drains
- Repairing of existing drain.

Connectivity of external drains of DLF Phase 2 with master proposal of HUDA

N Block Area

- It is proposed that 600 mm i/d RCC pipe NP 3 length 250 M, is laid for connecting the trunk drain where ever not connected in N Block
- The drainage system in part of N Block is not functional due to lack of coordination among various agencies involved.

Master Storm drainage

- Although not covered under present scope of work but it is desirable to solve the drainage problem of the area covering DLF Phase 1, Part of DLF Phase 2, DLF Phase 3 Nathupur, Sikanderpur. The capacity & levels of outfall system existing as on date requires technical audit and remedial measures be implemented to solve the drainage problem of upstream area.

Area sloping Towards NH 8

- Although internal drains have been laid in DLF Phase 2 but not efficiently connected with outfall system of HUDA.
- The external HUDA system needs to be cleaned and properly maintained.

12.5.3.2 Recharge wells (Special repairs)/deficient work

- The outfall system of HUDA is developed on the assumption of Average Runoff at 1/8" rain fall /hrs if runoff is calculated as per rational method given in the sewerage and drainage manual, is much more and as such It is bound to cause some flooding in the area, It is proposed to provide rain water harvesting structures to absorb the additional quantity of runoff.
- Design of recharge wells

Table:- 26

Rain Water Recharge Scheme ,DLF Phase 2		
Description of Area	Acres	Sqm.
Area to be developed	197.5	Hectare
Impervious factor	52.61%	
Effective impervious Area	103.9	Hectare
Average Annual Rain Fall	596	mm
Intensity of Rain fall	23.74	mm/Hr
Duration of Rain Fall	15	Minutes
Duration of Rainy Season	39	Days
No of rainy days in a year with moderate to heavy rain fall	21	Days
No of rainy days in a year with low rain fall	18	Days
Average Coefficient of Imperviousness	0.5662	
Depth of Water Table from Ground Level	20-30	M

able:- 27

Estimation of Run off		
Rational Method		
Anticipated Run off (M^3/Hour)	13968	(M3/Hour)
Anticipated Run off (Cumecs)	3.88	(Cumecs)
Anticipated Run off (Cusecs)	136.58	(Cusecs)
Internal Drainage Arrangement @6.25 mm Rain fall/Hr		
AverageRain fall @6.25mm/Acre/Hour	6.25	mm/Acre/Hour
Anticipated Run off (M^3/Hour)	12343	(M3/Hour)
Anticipated Run off (Cumecs)	3.43	(Cumecs)
Anticipated Run off (Cusecs)	121	(Cusecs)
Out fall Drainage Arrangement@3.12 mm Rain fall/Hr		
Average Rain fall @3.12mm/Acre/Hour	3.12	mm/Acre/Hour
Anticipated Run off(M3/Hour)	6162	(M3/Hour)
Anticipated Run off(Cumecs)	1.71	(Cumecs)
Anticipated Run off (Cusecs)	60	(Cusecs)

- The Area is sub divided in 4 categories as per details given below

Table:- 28

Total Quantity of Recharge with one Injection Well (Assuming 15KL /Hr for 43 Hrs) in parks & other suitable area	3010.0	Klitres
Total Quantity of Recharge with one Injection Well (Assuming 15KL /Hr for 43 Hrs) in Building Area	227.0	Klitres
Total Quantity of Recharge with one Recharge Pit in Building Area	65.8	Klitres

Table:- 29

	Recharge Wells		Nos .of Recharge wells required	Nos. of Recharge wells Proposed	
1	**No. of Recharge Wells proposed for Roof Top Area of Plots to be constructed by individual plot holders**	65422/65.8	3228 no of Plots	3228(By Plot Owners	Nos.
2	**No. of Recharge Wells proposed for Roof Top Area of other Buildings/ Community Building**	24062/227	106	106	Nos.
3	**No. of Recharge Wells proposed ,open area**	178320/3010	60	60	Nos.
4	**No. of Recharge Wells proposed ,Green area**	18665/3010	6	6	Nos.

Note:- **Item No 1** :-3228Nos Recharge well to be constructed by individual Plot Holders.

Item No 2 :-106 Recharge well to be constructed by the agency who have constructed the community building & infrastructure.

Item No 3 & 4 Proposal under the project.

Existing Recharge pit 22 Nos need repairs and redevelopment.

Table:-30

Location of existing Recharge wells	No. of Recharge well	Unit
ANM ROAD	3	Nos.
BVM -43 Road	1	Nos.
Block J	2	Nos.
Block K	2	Nos.
Block L	4	Nos.
Block M	3	Nos.
Block N	4	Nos.
Madhya Marg	1	Nos.
P-3 Road	1	Nos.
Q-2 Road	1	Nos
Sub Total	22	Nos.

As such additional Rain water harvesting structures required are 66-22 = 44

Operation and Maintenance

1. Operation and Maintenance calculated for 5 Yrs.
2. The scope of Maintenance work covers followings Sub Heads
   A. Establishment.
   B. Desilting/repairing/Material

12.5.4 Horticulture & Landscaping/Parks

Deficient Work

1. Repair of Boundary Wall
2. Repair of painting of Planning equipment's
3. Repair of replacement of Benches
4. Leveling & repairs of existing Jogging parks.

Addl work

Plantation of 444 Tree and 227 Shrubs

1. Construction of Boundary Wall
2. Construction of 6 Nos Gates

12.5.5 Solid Waste management(Addl Infrastructure)

- As per details given in Design profile for solid waste management estimated Generation of Solid Waste is 40 Ton/day
- The total no of dwelling units in plotted area is 3228 Nos.
- The total no of dwelling units in Group Housing area is 1370 Nos.
- It is estimated 50% of the Solid waste generated will de compostable waste.
- 30% waste will be recyclable.
- 20 % waste will be inert Cart material.

12.5.5.1 Proposal

It is proposed to have 2 Nos Bins in each house for solid waste disposal. One will contain compostable waste & other Non-compostable Normally in India recyclable material like steel, iron & bottles/glass are disposed of kabaries hence the remaining material is collected in the Second Bin

12.5.5.2 Appurtenance

- Appurtenance required are as under.
  3. Collection bin for Domestic area. 22619 +2824=25443Nos.
  4. Collection bin for Utility area. : 150Nos
  5. Primary collection Centres: 15Nos.
  6. Motorized Tricycles: 6 Nos.
  7. Hydraulic Vehicles: 1 Nos.

12.6. STREET LIGHT

12.6.1 Present scenario

- The existing street lighting system is in working condition.
- 36Watt Tube light,70 Watt and 150Watt Sodium vapour fittings are installed on PCC poles.
- The power supply for street lighting is fed through LT overhead system.
- The LT overhead system is fed through common distribution transformer of various rating installed in different blocks of the area.
- Street lighting panel board are also in working condition.
- In some part of the area LED luminaires are provided and are in working condition.

Proposal & recommendation

- In view of the above , it is proposed to replace the Tube lights and Sodium vapour fitting to its equivalent energy efficient LED street light Luminaire.
- Thus, It is recommended to replace the existing CFL and HPSV luminaires to its equivalent LED Luminaires as under:-

Table:- 31

Existing luminaires	Equivalent LED luminaire
36 watt FTL	**20 Watt**
70Watt HPSV	**40 Watt**
150 Watt HPSV	**90 Watt**

- The Provision have been taken in the DPR for replacing the existing Street light fittings as mentioned above with its equivalent LED luminaires and their accessories required to make the system complete in all respects.
- The present day energy and Maintenance cost have been added for next 5 Yrs with up-graded system.
- It has also been reported that DHBVN is also taking up the project to upgrade the electrification & Street Light work of planet. In case their proposal get matured, Thus replacement of luminaires with LED luminaires be dropped.

13. FINAL RECOMMENDATION AND CONCLUDING OBSERVATION

- The final recommendation on the basis of which the details have been worked out are based on the survey conducted, feed back from individual residents and the RWAs is surmised below

Roads

1. The Condition of the road in general can be said to be tolerable except few roads which need Major repairs. However to improve the riding quality of road which were so far being provided with patch work over the years have been provided with a layer of wearing coat of 30mm BC as per on MORT&H specifications. The roads which have been recently provided with a wearing coat have been left out for the time being. The major roads have also been provided with 50 mm BM as strengthening as required after Testing of crust as per IRC 81
2. The area between the drain & the road edge is katcha and at places undulating. The provision has been made to level the area, So that it can be used as a shoulder by pedestrians & cycles
3. Keeping in view the multifold increase in no of vehicles the carriage ways have been proposed to be provided with the hard shoulders, under the head of Addl work
   a. 9 Mtr road/lanes with 1.5 m hard shoulder on one side i.e towards drain side.
   b. 2 mtr road withs 1.5 m hard shoulders on both side.
   c. 18 & 24 Mtr wide roads with 2 mtr hard shoulders on both sides.

Water Supply

Based on the feedback from various quarters, It is observed the quality of service of water supply needs to be improved for the present & future requirement of assessed population. .

An exercise for calculating the water demand for the total area, based on the assessed ultimate population that can be accommodated, in this planned development has been carried out. The original 26 Nos Tube wells were drilled, the basis of which the area was planned, have either become defunct or the discharge has reduced substantially. As such the available supply from these tube wells has now been ignored. The authorities have already released 3 Nos water connections to DLF phase 2 for the existing 3 Nos Boosting Stations for plotted area and 3 Nos water connections for 3 NO. Group housing Areas

1. Recommendation have been given to replace the old machinery at the boosting station with improved head & discharge.
2. Distribution Network do not require major additional lines to boost the terminal head.
3. The water supply hours can also be increased or even made 24x7.
4. The Qty of supply from the canal water source is proposed to be increased.

Sewerage

1. One time cleaning & desilting of system is proposed.
2. Some Repairing of Manholes is required.
3. It is further proposed to construct 2.0 MLD STP for treatment of waste water & use in phase 2 for Horticulture purpose**.**

Storm Water Drainage

The Internal open drains are provided and are also being cleaned but in spite of the same they are choked at places. They require cleaning & rehabilitation, at places they need to be raised & plastered throughout the length.

The Rain water harvesting structure are also proposed for absorbing the runoff from road, While individual house owners are also required to make their rain water harvesting structures functional to arrest the runoff. This is an enforcement matter, to be handled by the authority.

Recycled water

The STP of 2.0 MLD is proposed for treatment of sewerage water. The recycled water distribution system is also proposed to supply the treated water for use in Horticulture in parks & green belt, **as** additional works.

Street Lighting & Electrification

The electrification work is being looked after by DHBVN and as such the Augmentation of the same is not a part of this proposal. As regards street lights are concerned, the existing street light fixtures are proposed to be replaced with the LED fixtures of required wattage & capacity. It has also come to the Knowledge that DHVBN is taking up the Augmentation of electrification work under a separate head along with the S/L. In case that project gets the green signal the S/L up gradation may be dropped from the present proposal.

Horticulture & Landscape works

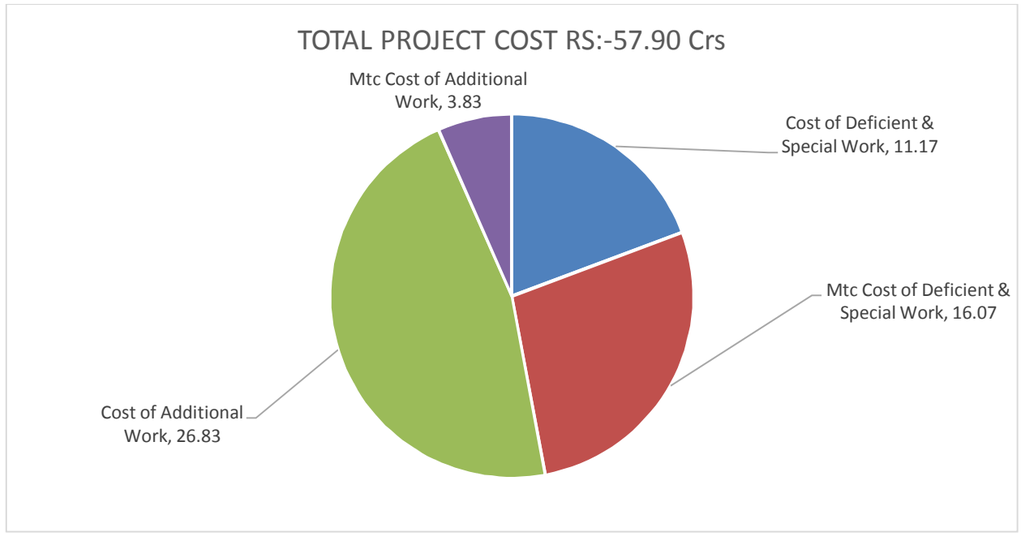
There exists lot of plantation in the colony, Moreover it is further being augmented by local RWAs. Some parks need up-gradation. The proposal includes repair of Boundary walls & its reconstruction where ever required with up gradation such as walkway & provision of some appurtenance. The green belt along Gurugram Faridabad road is also proposed to be fenced with grill wall fencing.

The community center/Community buildings

The details of community Building as sanctioned in the original layout plan is attached in Annexures. The community center as Constructed needs some minor repairs in block K.

14. PROJECT COST

Total Project cost including 5 Yrs Maintenance: - Rs:-578969387 Say in **Rs 57.90** The sub head wise details are as under.



15. SPECIFICAIONS

The work will be executed by the agency deputed for the purpose as per PWD specifications

16. The time required for completion of work shall be 1 year for deficient work and another 5 year for additional infrastructure & remaining in Phase-II.

COSTING

NAME OF WORK: Strengthening and Repair of roads, Water supply, Sewerage & Storm Water Drainage in DLF Phase II, Gurgaon										
ABSTRACT OF COST										
Sr No		**Description**	**Deficient Infra Structure**	**Special Repairing**	**O & M**	**Total**	**Additional Infra Structure**	**O&M**	**Total**	**Grand Total**
1	SUB WORK NO 1	ROAD	0	54851979	1426152	56278131	78978500	1426152	80404652	136682783
2	SUB WORK NO 2	HORTICULTURE	0	1643960	42744	1686704	5485919	142633	5628553	7315257
2	SUB WORK NO 3	WATER SUPPLY	9399890	1400000	122949024	133748914	35971077	17534554	53505631	187254546
3	SUB WORK NO 4	SEWERAGE	0	4817556	9593490	14411046	73927936	0	73927936	88338982
4	SUB WORK NO 5	STORM WATER DRAINAGE	1381788	25215152	3159955	29756896	7669581	0	7669581	37426477
5	SUB WORK NO 6	RECYCLING	0	0	0	0	27382415	15673620	43056035	43056035
6	SUB WORK NO 7	SOLID WASTE MANAGEMENT	0	0	0	0	24475800	1223790	25699590	25699590
7	SUB WORK NO 8	STREET LIGHT	0	0	15852216	15852216	9308126	465406	9773532	25625749
	Sub Total		**10781678**	**87928647**	**153023582**	**251733907**	**263199354**	**36466156**	**299665510**	551399417
	Add 3% of Contingency Charges		323450	2637859	4590707	7552017	7895981	1093985	8989965	16541982
	Add 1% of Designing Charges		107817	879286	1530236	2517339	2631994	364662	2996655	5513994
	Add 1% of QC/QA		107817	879286	1530236	2517339	2631994	364662	2996655	5513994
	Total		**11320762**	**92325079**	**160674761**	**264320602**	**276359321**	**38289464**	**314648785**	578969387
	Say in Crores		**1.13**	**9.23**	**16.07**	**26.43**	**27.64**	**3.83**	**31.46**	**57.90**

SUB WORK NO 1		ROAD WORK					
Sub Head No:-1		ROAD WORK(STRENTHENING &SPECIAL REPAIR)					
SR/ITEM NO.	**Description**	**Quantity**	**Unit**	**Rate (Rs.)**	**Ceiling Premium**	**Effective Rates**	**Amount (Rs.)**
1/ HSR 6.2	Earth work excavation in ordinary soil exclusive of compensation of earth-						
(b)	Earth-work undressed with a combined lead upto 15 metres including breaking of clods	15573	100Cum	586.60	425%	3079.65	479648
3/NS	Providing & applying Tack coat @ 0.25 to 0.3 kg per sqm. of bitumen emulsion (rapid setting) as per MORT&H specifications for Road & Bridge works 2013 (Fifth Revision) clause No. 503 of section 500 complete to the the satisfaction of Engineer -in-Charge. (all roads)	178672	Sqm	19.00	0%	19.00	3394768
4/NS	Providing, laying & compaction of B.M. Bituminous Macadam) with grading - 2 as per table No. 500.10 and minimum 3.3% bitumen of 60/70 grade as per MORT&H specifications for Road & Bridge works 2013 (Fifth Revision) clause 507.1 to 507.8 as per approved mix design for all leads & lifts etc complete in all respects to the satisfaction of the Engineer- in-Charge.	1200	CUM	5875.00	0%	5875.00	7050000
5/NS	Providing, laying & compacting Bituminous Concrete(B.C.) as per MORT&H specifications for Road & Bridge works 2013 (Fifth Revision). clause No. 509.1 to 509.8 with minimum of 5.4% bitumen content of 60/70 grade 2% filler material, (cement / lime) to the requirement of the specifications for grading No. 2 of Table No. 500.18 as per approved mix design including rolling etc complete in all respects for all leads & lifts to the satisfaction of the Engineer-in-Charge.	4549.30	Cum	8741.00	0%	8741.00	39762809
6/NS	Providing & Laying of hot applied thermoplastic compound 2.5 mm thick, including reflect arising glass beeds@ 250 gm/sqm area thickness of 2.5 mm in exclusive of surface applied glass beeds as per IRC 35 the finished surface to be leveled uniform and free for streaks holes	7780.50	SQM	526.00	0%	526.00	4092806
	Sub Total						54780031
	ADD 15% Price Escalation on HSR Items						71947
	Total						**54851979**

SUB WORK NO 2			HORTICULTURE WORKS (SPECIAL REPAIR)					
S.No	**HSR Item No**	**Description**	**Quantity**	**Unit**	**Rate (Rs.)**	**Ceiling Premium**	**Effective Rates**	**Amount (Rs.)**
2	NS 2	Repair of existing Boundry wall with Grill Wall	1996	260	nos	0%	260	518960
3	LS	Repair & painting of for swings & jhulla	8.0	25000	parks	0%	25000	200000
4	LS	Repair & replacement of benches	14.0	20000	parks	0%	20000	280000
5	LS	Provision for levelling and repair of existing Jogging tracks	14.0	30000	parks	0%	30000	420000
6	LS	Provision for jungle clearance levelling of parks a	15.0	15000	parks	0%	15000	225000
		TOTAL						1643960
	SCOPE OF WORK							
	1. Sufficient nos. of plants exist.							
	2. Additional plants if required can be planted by the RWAs							
	3 . Other repair works is part of this sub head.							

SUB WORK NO 3A		WATER SUPPLY (DEFICIENT WORK)			
Sr. No.	**Sub Head No**	**Sub Head Name**			**Total Amount in Rs**
	Sub Head No:-1	**Installation of Fire Hydrant**			3202284
	Sub Head No:-2	**Replacement of machinery and Ancilary work**			6197606
	Total				9399890
	Sub Head No. -1	**Installation of Fire Hydrant**			
Sr No	**Description**	**Quantity**	**Unit**	**Rate in Rs.**	**Amount in Rs.**
1/NS	Providing, stringing, cutting and jointing, laying of D.I. pipe duly zinc coated & bitumen coated outside of the pipe with cement mortar lining inside conforming to specification no. 8329-2000 including all type of specials wherever required i.e. cost of Tees, Collars, Reducer , bends etc. laying the same in the trenches to correct alignment including cartage to site of work complete in all respect including testing &commissioning to the satisfaction of the Engineer in Charge				
	For Fire Hydrant (Class - K7)				
	100 mm i/d	280	Mtr	1009	282520
2/NS	Providing, stringing, cutting and jointing, laying of D.I. Double flanged pipe (Class K-9) duly zinc coated & bitumen coated outside of the pipe with cement mortar lining inside conforming to specification no. 8329-2000 including all type of specials wherever required i.e. cost of Tees, Collars, Reducer , bends etc. laying the same in the trenches to correct alignment including cartage to site of work complete in all respect including testing &commissioning to the satisfaction of the Engineer in Charge.				
	150mm	90	Mtr	2098	188820
	200mm	20	Mtr	2638	52760
3/NS	Providing & fixing fire hydrants with jointing material i.e nut bolts & any other items duly IS marked Conforming to specification including loading, unloading handling , re-handling stacking etc. complete in all respects to the satisfaction of the Engineer-in-Charge				
	100 mm i/d	70	Nos.	10964	767480
4/28.13	Providing and fixing Cast iron kinatic air valve of size given below marked with IS:14845 including Carriage , loading, unloading ,stacking handling ,rehandling etc. drilling , tapping ,screwing in valves connections complete in all respect to satisfaction of Engineer in charge				
	100 mm i/d	**2**	Nos.	3408	6816
5/28.10	Providing and fixing cast iron double flanged sluice valve P.N-1.6 marked with is:14846 including nuts &bolts marked with IS:1363 rubber sheet marked with IS: 638 etc. carriage loading, unloading, stacking handling, re-handling etc. complete in all respect to the satisfaction of Engineer-in-Charge.(Make AARKO,VENUS, LEADER,BIR,PANJA,UPADHAY)				
	FOR WATER WORKS				
	150 mm i/d	**18**	Nos.	6280	113040
	200 mm i/d	**4**	Nos.	10940	43760

6/NS	Providing and fixing cast iron double flanged Scour Valve P.N-1.6 marked with is:14846 including nuts &bolts marked with IS:1363 rubber sheet marked with IS: 638 etc. carriage loading, unloading, stacking handling, re-handling etc. complete in all respect to the satisfaction of Engineer-in-Charge.(Make AARKO,VENUS, LEADER,BIR,PANJA,UPADHAY)				
	150 mm i/d	**9**	Nos.	6280	56520
	200 mm i/d	**2**	Nos.	10940	21880
7/28.10A/	Providing and fixing cast iron double flanged swing check type reflux (non return)valve PN1.6 marked with IS:5312 including nuts & bolt marked with IS 6313 rubber sheet marked with IS 638 etc carriage loading, unloading stacking, handling rehandling etc. complete in all respect to the satisfaction of Engineer-in-Charge.				
	For existing Water works				
	150 mm i/d	9	Nos.	6202	55818
	200 mm i/d	2	Nos.	10056	20112
8/ 6.8(a) HSR	Excavation for pipe lines running under pressure in trenches and pits, in open areas, where disposal of surplus earth is done along with the alignment and restoration of unmetalled or unpaved surface to it's original condition, in ordinary soil. a) without timbering and shoring upto 1.5 metres depth	373	cum	10.30	3842
9/ 6.7	Earth work in excavation in foundation , trenches,of under ground structures,sullage drains etc. and other similer works in ordinary soil including dressing of botom and sides,to correct levels and templets,cutting of trees and bushes, dewatering of rain water,diversion of traffic,fixing and mainantences of caution boards,and night siganals,crossing over trenches for access to houses,watching,staking of excavated soil,clear from the edge of excavation,and subsequent filling	259	cum	9.32	2414
10/NS based on schedule	Construction of **(Sluice Valve Haudis)** masonry chambers of 90 cm x 90 cm x160 cm, inside with first class brick work in cement mortor 1:4 (1 cement and 4 coarse sand) for sluice valves, with CI surface box 100 mm top diametre, 160 mm bottom diametre and 180 mm deep (inside with chained lid and RCC top slab 1:2:4 mix, including necessary excavation in foundation, base concrete 1:4:8 and inside plastering in !:3 cement mortor12 mm thick finished with a floating coat of neat cement	72	Nos.	16180	1164960
11/NS	Providing and fixing Indicating Arrow Plates, Fire Hydrant, Lawn Hydrant & Sluice valve complete in all respect.	72	Nos.	508.00	36576
12/NS	Providing & fixing D.I Double flanged bent Tee, Pubble collar & reducer packing etc, including cartage to site of work complete in all respect	500	kg	140	69850
	Add 370 % Ceiling Premium on item No 7,8			6256	23146
	Sub TOTAL				2910314
13/NS	Provision for reparing of Dismentling of floor due to installation of pumping Machinery complete in all respect			10%	291031
	ADD 15% Price Escalation on HSR Items				**938**
	TOTAL				**3202284**

Sub Head No 2		Replacement of machinery			
Sr No	**Description**	**Quantity**	**Unit**	**Rate in Rs.**	**Amount**
1/NS	Providing errection and commissioning of Horizontal Centrifugal type Split Casing Pumps for operation, AC supply capable of giving following discharge with a various head and BHP including motor electric cable earthing and other required accessories etc complete in all respect.				
	Block P at Boosting Station				
	40 LPS With 60 Mtr Head (45 BHP)	2	each	571480	1142960
	60 LPS With 60 Mtr Head (65 BHP)	1	each	604298	604298
	100 LPS With 60 Mtr Head (65 BHP)	1	each	708804	708804
	Block L at Boosting Station				
	40 LPS With 60 Mtr Head (45 BHP)	2	each	571480	1142960
	60 LPS With 60 Mtr Head (65 BHP)	1	each	604298	604298
	100 LPS With 60 Mtr Head (65 BHP)	1	each	708804	708804
	Block X at Boosting Station				
	Block X at Boosting Station				
	10 LPS With 45 Mtr Head (10 BHP)	2	each	420421	840842
	15 LPS With 45 Mtr Head (15 BHP)	1	each	444640	444640
	Sub Total				6197606
	Sub Work No. - 3B	**Special Repair and Cleaning**			
Sr No	**Description**	**Quantity**	**Unit**	**Rate in Rs.**	**Amount in Rs.**
1/NS	Provision for repairing and replacement pipe/special of some existing pipes were required for smooth running of Water Supply System in block P.L & X Complete in all respect.	LS			500000
2/NS	Provision for repairing of existing structures i.e. boosting chamber, UGT ,boundary wall , footpath of water works Block P.L & X and dismantling of flooring ETC	LS			500000
3/NS	Cleaning of Tank	LS			400000
	TOTAL				**1400000**

SUB WORK NO 4		WASTE WATER (SPECIAL REPAIRING)			
Sr. No.	No. of Sub Head	Name of sub head			Total Amount
1	Sub Head No.1	Disilting and cleaning of Existing Chowked Sewer with repairing			4817556
	Sub Total				4817556
	Sub Head No. 1	**Disilting and cleaning of Existing Chowked Sewer with repairing**			
Sr No	Description	Quantities	Unit	Rate	Amount in Rs
1	Cleaning /desilting of existing chowed sewer line with alied work of various sizes with dependinig upon the extent of silt/blockage by Machanized system using machine with water recycling system including lifting of carriage desilting material from site to 1 Km Complete in all respect				
	Size				
	200 mm i/d	14683	Mtr	200	2936500
	250 mm i/d	723	Mtr	245	177135
	300 mm i/d	83	Mtr	265	21995
	400 mm i/d	1876	Mtr	375	703500
	600 mm i/d	300	Mtr	585	175500
	Sub total				4014630
2	Provision for repairing of manhole , raising of manhole at some places & missing of manhole cover and dismentling slab etc where required complete in all respect.		15% of total cost		602195
3	Provision for 5% unforseen item on cost for repair				200732
	Sub total				4817556

SUB WORK NO 5						STORM WATER DRAINAGE DEFICIENT WORK			
Sub Head No. 1						Storm Water Drainage			
Sr. No.	Description					Quantity	Unit	Rate in Rs	Amount in Rs.
1 / 6.10	Excavation of trenches in streets, lanes or in open areas for storm sewer, sewers running by gravity and manholes to full depths as shown in drawings including shoring, timbering of poling boards, frame system type, dressing to correct sections and dimensions, according to templates and levels, dewatering, provision for diversion of traffic, cutting trees and bushes, etc. night signals, profiles pegs, sight rails, boning rods, crossing over trenches for access to the houses, watching, fencing etc., fixing and maintenance of caution boards, refilling of trenches, watering of refill, in 15 cm layers, ramming and restoration of unmetalled or unpaved surface to original condition and removal of surplus soil from site of work upto a lead of 1 Km in ordinary soil								
	FOR PIPES SIZE OF								
	(c) for depth of excavation exceeding 2 mtrs not exceeding 3 mtrs below ground level					760	cum	19.19	14588
	FOR ROAD GULLIES & MANHOLES WITH AVERAGE DEPTH								
	(a) for depth of excavation not exceeding 2 mtrs below ground level					71	cum	11.89	844
	FOR MANHOLES WITH AVERAGE DEPTH								
	(b) for depth of excavation exceeding 2 mtrs not exceeding 3 mtrs below ground level					50	cum	19.19	968
	Total								16400
2/NS	Providing, Lowering, laying, cutting (cut surface to be uniformly finished), jointing with rubber rings marked with IS: 5382 and testing of Spigot and socketted **RCC NP3** sulphate resisting cement marked with IS: 12330 and specials into trenches for all depths including carriage, loading, unloading etc. complete in all respects to the satisfaction to the Engineer in charge.								
	600 mm / id					250	mtr	2440.00	610000
3 / 10.40+**Note - (V) (e) (2)**	Cement concrete 1:3: 6 with stone aggregate 20 mm nominal size in foundation & plinth								
	600 mm / id		0.2354	250	58.9				
	Total				59	59	Cum	516.9	30420
4/NS	Construction of Rectangular standard brick masonry manhole chamber in 1:5 cement stone dust mortar C.C. 1:2:4 in benching, 12mm thick cement stone dust plaster water tight 1:2 cement stone dust mortar with a floating coat of neat cement and finished with two coats reinforced cement concrete slab with supplying and fixing heavy duty SFRC manhole cover & frame and PVC step complete								
	600 mm / id				2.50	9	Nos.	25873	232857

Sr. No.	Description	Quantity	Unit	Rate in Rs	Amount in Rs.
5/29.87	Construction Brick masonry road gully chambers as per standard drawing (as per sizes given below) including dressing of beds and sides of chamber to exact profiles, 15 cm thick lime concrete 16:24:100 (as per specified in item No.10.6) in foundation, 1st. Class brick work laid in cement sand mortar 1:5:40 mm thick cement concrete 1:2:4 topping inside the chamber with a floating coat of 1.5 mm thick neat cement laid in one operation to the topping the entire 12 mm in thickness of 1:2 cement sand plaster and finished with a floating coat of near cement 1 mm thick left absolutely smooth polished and correct to templates including labour for fixing the C.I. road gully grating and frame including painting with coal tar (as specified in item No.29.48 complete and to the requirement of the Engineer-in-Charge)				
	a) Single Road Gully Chamber (i) size 610 mm x 457 mm x 1105 mm	9	Nos.	490	4410
	b) Double Road Gully Chamber (ii) Size 1448 mm x 457 mm x 1105 mm	9	Nos.	822	7398
6/NS	Providing & Fixing Covers & Frames for Single and Double road gully chamber complete in all respect.				
	a) Single Road Gully Chamber (i) size 610 mm x 457 mm x 1105 mm	9	Each	1221	10989
	b) Double Road Gully Chamber (ii) Size 1448 mm x 457 mm x 1105 mm	9	Each	2442	21978
	Add 370 % Celling Premium on item no 1	16400			60680
	Add 450 % Celling Premium on item no 3 & 5	42228			190024
	Total of sub head				**1201555**
Add 15% on account of variation in Price Index during Implementation					180233
Grand Total					**1381788**

SUB WORK NO 5					STORM WATER DRAINAGE SPECIAL REPAIR			
Sub Head No 2					Storm water Drainage/Pipe Line Desilting and reparing of existing storm water system			
Sr No	Description				Quantity	Unit	Rate	Amount in Rs
1	Cleaning desilting of existing chocked storm water lines/drains of diffrence sizes machanized system and manual complete in all respect including carriage of desilting material 5 Km form the site. Complete in all respect wherever the drain are chocked.							
	Size	Length	Qty					
	230 x 230 mm	13722	5.18	710	710	Cum	158	112198
	230 x 450 mm	2968	10.24	304	304	Cum	158	48000
	345 x 675 mm	2074	22.20	460	460	Cum	158	72748
	345 x 450 mm	1231	17.18	211	211	Cum	158	33405
	450 x 675mm	1151	23.63	272	272	Cum	158	42964
	675x 900 mm	848	67.50	572	572	Cum	158	90439
2/15.5+15.75	12 mm thick cement plaster 1:4&Cement rendering on plaster 1 mm thick.							
	Size			Qty for 100 Mtr				
	230 x 230 mm	27444		146.2	40123	sqm	16.95	680087
	230 x 450 mm	5935		195.4	11597	sqm	16.95	196569
	345 x 675 mm	2074		257.6	5343	sqm	16.95	90557
	350 x 450 mm	1231		206.9	2547	sqm	16.95	43171
	450 x 675mm	1151		267.6	3080	sqm	16.95	52207
	675x 900 mm	848		340.5	2887	sqm	16.95	48942
	Add 500% Ceiling Premium							5557667
3/11.23	First class brick work laid in cement, stone dust (from crusher) motor 1:5 in foundation and plinth. Where required for drain of Zone 1 & 3. 5% of the total length of 38683 Km 38683*0.05*2*0.23*0.75 (for existing drain)				379	Cum	427.7	162264
	Add 600% Ceiling Premium							973585

Sr No	Description	Quantity	Unit	Rate	Amount in Rs
4/10.42	Cement Concrete 1:1.5:3 with stone aggregate 20 mm nominal size in foundation and plinth (38683 x 5%) 1934x0.45x0.15	131	cum	702.50	91708
	Add 450% Ceiling Premium				412685
5/10.38	Cement concrete 1 : 4 : 8 with stone aggregate 20 mm Nominal size in foundation and plinth. 1934*0.90*0.1	174	Cum	420.00	73105
	Add 450% Ceiling Premium				328973
6/29.11	First class brick on edge 11.50 cm thick laid in reimbursement in and on 1:5 cement sand mortar as above 2x31594x.115	8897	SQm	51.90	461759
	Add 450% Ceiling Premium				2077915
7	5% Unforseen item of the above total cost for missing manhole, dismentling slab etc	5%			122104
8	Construction of some drain / laying of RCC pipe wherever required and diversion of SW drains & connecting with another existing storm water for smooth running of system	LS			2000000
9	Construction of Recharge wells	44	Nos	376000	16544000
10	Repair of existing recharge wells	22	Nos	40000	880000
	Sub Total				31197054
	ADD 15% Price Escalation on HSR Items				687299
	Total				**32884733**

SUB WORK NO 1		ROAD WORK ADDITIONAL INFRASTRUCTURE					
Sub Head No:-1		ROAD WORK					
SR/Item No.	**Description**	**Quantity**	**Unit**	**Rate (Rs.)**	**Ceiling Premium**	**Effective Rates**	**Amount (Rs.)**
1/4.1 (a)	Loading and unloading of (a)Stone (building or pitching),sand, bajri, shingle, spalls, bricks-bats, brick ballast and stone metal shifting of dismentaled material						
	Earth work	27229	Cum	3.88	450%	21.34	581067
2/5.2 (a)	Carriage or material (mettaled roads),Lead more than 0.48 km. excludingLoading, unloading and stacking Same as 4.1 (a) with a lead of 5KM						
(b)	Earth work	27229	Cum	21.00	450%	115.50	3144950
3/9.5	Centring and shuttering for faces of walls, partitions, retaining walls, well steining and the like (vertical or battering) including attached pilasters, buttresses etc.	17143	Cum	54.85	275%	205.69	3526144
4/10.38	Cement concrete 1 : 4 : 8 with stone aggregate 20 mm Nominal size in foundation and plinth.	1387	Cum	420.00	450%	2310.00	3203970
5/ 10.79 +10.95	Cement concrete 1:1.5:3 with stone aggregate 20 mm nominal size for reinforced concrete work but excluding steel-reinforcement centring and shuttering in foundation and plinth.	1733	Cum	245.00	450%	1347.50	2335218
6/10.159	Providing and laying 80mm thick interlocking paver blocks of all shades & colors in design mix cement concrete M-35 over a bed of 25 mm thick fine sand complete in all respect as per Haryana PWD specification to the stisfaction of the Engineer -in -charge.	90049	Sqm	450.00	10%	495.00	44574255
7/24.1	Preparation of sub grade, including trenching, rough dressing of spoil final dressing of earth,to given levels and camber, watering, rolling with road roller, and compacting the bed	90049	100sqm	92.45	370%	434.52	391281
8/NS	Supplying laying & compaction of Granular Sub Baseas per grading No. 2 of table 400-2 in uniform layers as specified in deawings and as per MORT&H specifications for road & brisge works 2013 (RevisionV) clause 401 of section 400 complete in all respects(compacted thickness) for all leads and lifts to the satisfaction of the Engineer-in-Charge	13591	Cum	924.00	0%	924.00	12558084
	Sub total						70314967
	ADD 15% Price Escalation on HSR Items						**8663533**
	Total						**78978500**

SUB WORK NO --2			HORTICULTURE WORKS ADDITIONAL INFRASTRUCTURE					
S.No	**HSR Item No**	**Description**	**Quantity**	**Unit**	**Rate (Rs.)**	**Ceiling Premium**	**Effective Rates**	**Amount (Rs.)**
1	NS 1	Supply, planting & maintenance of plants till completion of project of Plants of minimum height of 1.5 mtr including cost of digging pits 75 cm dia & 75 cm deep, supply & laying of FYM 0.19 cum, ant termite 10 ml, DAP 100gm /deoiled neem cake and plant the same, complete in all respect. As per design and drawings to the satisfaction of Engineer-in-Charge.	444	Rate per month	103.00	0%	103.00	45732
2	NS 2	Supply ,planting & maintenance of ornamental Shrubs of minimum height of 1.2 mtr including cost of digging pits 60 cm dia & 60 cm deep, supply & laying of FYM/deoiled neem cake and plant the same, complete in all respect as per design & drawings to the satisfaction of Engineer-in-Charge. .	227	Rate per month	69.00	0%	69.00	15663
3	NS 3	Maintenance for trees planted included watering & replacement for casualties etc. for a period of 24 months from the date of completion of original works complete in all respects as per specifications & to the satisfaction of Engineer-in-Charge.	5328	Rate per month	7.76	0%	7.76	41345
4	NS 4	Maintenance for shrubs planted included watering & replacement for casualties etc. for a period of 24 months from the date of completion of original works complete in all respects as per specifications & to the satisfaction of Engineer-in-Charge.	2724	Rate per month	7.47	0%	7.47	20348
5	NS 5	Construction of Boundary wall with brick pillar and railing. BW-1 along the green belt	1632	Mtr	2980	0%	2980.00	4863360
6	NS 7	Construction of Brick entry gate as per design no 2	6	Nos	83245	0%	83245.09	499471
		Sub Total						5485919

	SUB WORK NO. 3	WATER SUPPLY (ADDITIONAL INFRASTRUCTURE)			
Sr. No.	**Sub Head No.**	**Sub Head Name**			**Total Amount in Rs.**
1	**Sub Head No:-1**	**Replacement of Existing Water Pipe Lines and Additional Pipe Line**			28097884
2	**Sub Head No:-2**	**Gen Set**			7873193
	Total				35971077
	Sub Head No. - 1	**Additional Rising Main**			
Sr No	**Description**	**Quantity**	**Unit**	**Rate in Rs.**	**Amount in Rs.**
1/NS	Providing, stringing, cutting and jointing, laying of D.I. pipe duly zinc coated & bitumen coated outside of the pipe with cement mortar lining inside conforming to specification no. 8329-2000 including all type of specials wherever required i.e. cost of Tees, Collars, Reducer , bends etc. laying the same in the trenches to correct alignment including cartage to site of work complete in all respect including testing &commissioning to the satisfaction of the Engineer in Charge.				
	Class - K7				
	100 mm i/d replaced in place 75 mm i/d	15960	Mtr	1009	16103640
	200 mm i/d pipe	2000	Mtr	1809	3618000
2 /28.10	Providing and fixing cast iron double flanged sluice valve P.N-1.6 marked with is:14846 including nuts &bolts marked with IS:1363 rubber sheet marked with IS: 638 etc. carriage loading, unloading, stacking handling, re-handling etc. complete in all respect to the satisfaction of Engineer-in-Charge (Make AARKO,VENUS, LEADER,BIR,PANJA,UPADHAY)				
	100 mm i/d	70	Nos.	4068	284760
	150 mm i/d	**15**	Nos.	6280	94200
3/ 28.13	Providing and fixing Cast iron kinatic air valve of size given below marked with IS:14845 including Carriage , loading, unloading ,stacking handling ,rehandling etc. drilling , tapping ,screwing in valves connections complete in all respect to satisfaction of Engineer in charge				
	100 mm i/d	**5**	Nos.	3408	17040
4/NS	Providing and fixing cast iron double flanged Scour Valve P.N-1.6 marked with is:14846 including nuts &bolts marked with IS:1363 rubber sheet marked with IS: 638 etc. carriage loading, unloading, stacking handling, re-handling etc. complete in all respect to the satisfaction of Engineer-in-Charge.(Make AARKO,VENUS, LEADER,BIR,PANJA,UPADHAY)				
	100mm i/d	**5**	Nos.	4068.00	20340

Sr No	Description	Quantity	Unit	Rate in Rs.	Amount in Rs.
5 / 6.8(a) HSR	Excavation for pipe lines running under pressure in trenches and pits, in open areas, where disposal of surplus earth is done along with the alignment and restoration of unmetalled or unpaved surface to it's original condition, in ordinary soil. a) without timbering and shoring upto 1.5 metres depth	16783	cum	10.30	172865
6/ 6.7	Earth work in excavation in foundation , trenches,of under ground structures,sullage drains etc. and other similer works in ordinary soil including dressing of botom and sides,to correct levels and templets,cutting of trees and bushes, dewatering of rain water,diversion of traffic,fixing and mainantences of caution boards,and night siganals,crossing over trenches for access to houses,watching,staking of excavated soil,clear from the edge of excavation,and subsequent filling	394	cum	9.32	3672
7/NS based on schedule	Construction of **(Sluice Valve Haudis)** masonry chambers of 90 cm x 90 cm x160 cm, inside with first class brick work in cement mortor 1:4 (1 cement and 4 coarse sand) for sluice valves, with CI surface box 100 mm top diametre, 160 mm bottom diametre and 180 mm deep (inside with chained lid and RCC top slab 1:2:4 mix, including necessary excavation in foundation, base concrete 1:4:8 and inside plastering in 1:3 cement mortor12 mm thick finished with a floating coat of neat cement	95	Nos.	16180	1537100
8/NS	Providing and fixing Indicating Arrow Plates, Lawn Hydrant & Sluice valve complete in all respect.	95	Nos.	508	48260
9/NS	Provision for surface box for sluice valve including cartage to site of work complete in all respect.	95	Nos.	964	91580
10/NS	Provision for restoring the dismentling connection with providing, laying, jointing GI pipe house connection from existing pipe line up to house boundary complete in all respect	1330	Nos	1772	2356760
11/NS	Provision for Automation of Machinery for water works	3	Nos	1000000	3000000
12/NS	Provision for special i.e Tee, Band, Peddal Collar, and reducer complete in all respect	500	Kg	140	70000
	Add 370 % Ceiling Premium on item No 6,7	176537			653187
	Sub TOTAL				28071404
	ADD 15% Price Escalation on HSR Items				**26481**
	TOTAL				**28097884**

Sub Head No 2		Construction of Gen Set			
Sr No	**Description**	**Quantity**	**Rate**	**Unit**	**Amount**
1/NS	**Block P**				
	Supply of 220 Kva DG Set (3 Phase) comprising of Kirlosker make Engine , coupled to 415Volts, 220 Kva Alternator mounted on common base frame along with other accessorie i.e. Control Panel, Fuel Tank, Battery with leads & AVM Pads etc. complet in all respect.				
	1 No 220 KVA Gen Set	1	Nos	1941920	1941920
2/NS	**Block L**				
	Supply of 220 Kva DG Set (3 Phase) comprising of Kirlosker make Engine , coupled to 415Volts, 220 Kva Alternator mounted on common base frame along with other accessorie i.e. Control Panel, Fuel Tank, Battery with leads & AVM Pads etc. complet in all respect.				
	1 No 220 KVA Gen Set	1	Nos	1941920	1941920
3/NS	**Block X**				
	Supply of 50 Kva DG Set (3 Phase) comprising of Kirlosker make Engine , coupled to 415Volts,50 Kva Alternator mounted on common base frame along with other accessorie i.e. Control Panel, Fuel Tank, Battery with leads & AVM Pads etc. complet in all respect.	1	Nos	688082	688082
4/NS	Automation of Machinery	LS			1500000
5/NS	Design, Supply Installation of Electro Magnetic Flow water Meter and pressure gauges with PLC SCADA connected Consisting the following				
	Multipara Meter Data Loggin				
	Programme and summary reports				
	Data Intergraty verification				
	Triggering sampler enabiling				
	Complete with Flow Link Software				
	Multible simultaneous flow technologies analog output USB interface				
	300 mm i/d pipe)	2	Each	598099	1196198
	350 mm i/d pipe)	1	Each	605073	605073
	Sub Total				7873193

SUB WORK NO 4		WASTE WATER (ADDITIONAL INFRASTRUCTURE)			
Sr. No.	No. of Sub Head	Name of sub head			Total Amount
	Sub Head No.1	Improvement of Sewerage System			8327936
	Sub Head No.2	Waste Water treatment plant			65600000
	Sub Total				73927936
Sub Head No. 1		**Improvement of Sewerage System**			
Sr. No.	**Description**	**Quantity**	**Rate**	**Unit**	**Amount**
1 / 6.10	Excavation of Trenches in Streets, Lanes or in open area for storm sewer, sewers running by gravity and manholes to full depth as shown in drawings including shoring as shown in drawings including showring, timbring of poling boards, frame system type, removal of surpls soil, from site of work up to lead of 1 km ordinary soil.				
	FOR PIPES SIZE OF				
	(a) for depth of excavation not exceeding 2 mtrs below ground level	278	11.89	cum	3303
	(b) for depth of excavation not exceeding 3 mtrs below ground level	672	19.19	cum	12888
	(c) for depth of excavation not exceeding 4.5 mtrs below ground level	3151	21.14	cum	66621
	(c) for depth of excavation not exceeding 6 mtrs below ground level	696	25.29	cum	17600
	FOR MANHOLES WITH AVERAGE DEPTH				
	(b) for depth of excavation not exceeding 3 mtrs below ground level	104	19.19	cum	1993
	(c) for depth of excavation not exceeding 4.5 mtrs below ground level	378	21.14	cum	7989
	(c) for depth of excavation not exceeding 6 mtrs below ground level	90	25.29	cum	2277
	Add 370%				**416877**
2/ NS	Providing Lowering ,cutting, jointing & testing RCC pipe with HDPE lining class NP-3 as per IS No 458-2003 with spigot and socketed joinyts manufactures with ISI marked as per ISI 12330 with rubber rings with ISI marked, antitermite as requirement at site, into trenches, for all depths and laying out the same to correct alignment, gradients and levels including dressing and trimming and cutting of concrete beds and sides of trenches, if required, jointed with rubber rings in trenches and jonted with 1:1 1/2 cement sand mortar and with end dowe's filled with 1:1 1/2 cement sand mortar and finshing the joints at an angle of 45 degree with faces of spigot of socket joints cutting and finishing the cut surface to a uniform finish etc as fully described in HSR item NO 29.38, 29.44, 29.45 & 29.46 including cartage, loading and unloading complete in all respect. The internal diameter of the sewer being.				
	300mm i/d connecting pipe	200	3234	mtr	646748
	250mm i/d	181	2703	mtr	489315
	300mm i/d	379	3234	mtr	1225587
	500mm i/d	435	4643	mtr	2019888
	600mm i/d	99	5111	mtr	505940

Sr. No.	Description			Quantity	Rate	Unit	Amount
3/10.40	Cement concrete 1 : 3 : 6 with stone aggregate 20 mm Nominal size in a foundation and plinth.						
	Size	length	cum/mtr				
	300mm connecting pipe	200	0.349	70			
	250mm	181	0.093	17			
	300mm	379	0.1289	49			
	500mm	435	0.1956	85			
	600mm	99	0.2354	23			
	TOTAL			244	516.9		126124
	Add 450% C.P.						567556
4/NS BASED ON SCGEDULE	Construction of Rectangular standard brick masonry manhole chamber in 1:5 cement stone dust mortar C.C. 1:2:4 in benching, 12mm thick cement stone dust plaster water tight 1:2 cement stone dust mortar with a floating coat of neat cement and finished with two coats reinforced cement concrete of M20 for slab with supplying and fixing heavy duty SFRC manhole cover & frame and PVC step complete						
	300 mm i/d connecting Pipe upto 1.75m depth			**5**	**18209**	**Nos**	91046
	250 mm i/d upto 1.75 m depth			**3**	**21827**	**Nos**	65482
	250 mm i/d upto 2.5 m depth			**2**	**25929**	**Nos**	51857
	250 mm i/d upto 3.25 m depth			**2**	**29940**	**Nos**	59880
	300 mm i/d upto 1.75 m depth			3	22022	**Nos**	66065
	300 mm i/d upto 2.50 m depth			4	26033	**Nos**	104132
	300 mm i/d upto 3.25 m depth			5	30134	**Nos**	150671
	300 mm i/d upto 400m depth			2	34146	**Nos**	68291
	500 mm i/d upto 4.0 m depth			9	46187	**Nos**	415683
	500 mm i/d upto 4.75m depth			3	54667	**Nos**	164001
	600 mm i/d upto 3.75 m depth			1	30385	**Nos**	30385
	600 mm i/d upto 4.0 m depth			2	34396	**Nos**	68792
5/NS	Provision for dismentaling manhole and restorage the same where additional sewer connected with existing sewer system			1			500000
	Sub Total						**7946991**
	Add 15% Price on HSR				**2539635**		**380945**
	GRAND TOTAL						**8327936**

Sub Head No. -2		**Waste Water treatment plant**			
Sr. No.	**Description**	**Quantity**	**Rate**	**Unit**	**Amount**
1	**Design, Construction, Erection, Testing, Commissioning of 2 MLd STP based on SBR Technology with civil work, mechnicla work, electrical work, piping work dry well on top of the wet well, 3 no submersible pump for lifting of sewerage water or 20 KVA Gen Set as per required capacity along with PLC scada system complete in all respect**	2	MLD	32800000	65600000

SUB WORK NO 6		RECYCLING ADDITIONAL INFRASTRUCTURE			
Sr No	**No. of Sub Head**	**Name of sub head**			**Total Amount in Rs**
1	Sub Head No.1	**Distribution System**			20522580
2	Sub Head No.2	**Structure at Pumping Station**			6859835
	Total				**27382415**
Sub Head No. 1		**Distribution Net Work**			
Sr No	**Description**	**Quantity**	**Unit**	**Rate**	**Amount**
1/NS	Providing, laying, jointing and cutting of HDPE PIPE PE100 (PN 10) trenches to correct alignment and gradient including cost of jointing material and special as well as carriage loading unloading stacking, handling, re-handling testing and commissioning etc. complete in all respect to the satisfaction of the Engineer-in-Charge.				
	50 mm i/d	1980	M	114	225720
	63 mm i/d	990	M	173	171270
	75 mm i/d	2648	M	240	635520
	110 mm i/d	8201	M	491	4026691
	160 mm i/d	1880	M	1018	1913840
	200 mm i/d	482	M	1587	764934
2/NS	Providing, stringing, cutting and jointing, laying of D.I. pipe (Class K-7) duly zinc coated & bitumen coated outside of the pipe with cement mortar lining inside conforming to specification no. 8329-2000 including all type of specials wherever required i.e. cost of Tees, Collars, Reducer , bends etc. laying the same in the trenches to correct alignment including cartage to site of work complete in all respect including testing &commissioning to the satisfaction of the Engineer in Charge.				
	250 mm i/d	881	Mtr	2459	2166379
	300 mm i/d	57	Mtr	3064	174650
3/28.10	Providing and fixing cast iron double flanged sluice valve P.N-1.6 marked with is:14846 including nuts &bolts marked with IS:1363 rubber sheet marked with IS: 638 etc. carriage loading, unloading, stacking handling, re-handling etc. complete in all respect to the satisfaction of Engineer-in-Charge.(Make AARKO,VENUS, LEADER,BIR,PANJA,UPADHAY)				
	100 mm i/d	61	Nos	4068	248148
	150 mm i/d	13	Nos	6280	81640
	200 mm i/d	4	Nos	10940	43760
	250 mm i/d	5	Nos	17148	85740
	300 mm i/d	1	Nos	20838	20838

4/NS	Providing and fixing cast iron double flanged Scour Valve P.N-1.6 marked with is:14846 including nuts &bolts marked with IS:1363 rubber sheet marked with IS: 638 etc. carriage loading, unloading, stacking handling, re-handling etc. complete in all respect to the satisfaction of Engineer-in-Charge.(Make AARKO,VENUS, LEADER,BIR,PANJA,UPADHAY)				
	100 mm i/d	6	Nos	4068	24408
5/28.134	Providing and fixing cost iron kinatic air valves of size given below marked with IS: 14845 including carriage , loading , unloading ,stacking,handling,re-handling etc. drilling ,tapping ,screwing in valved connection complete in all respect to the satifaction of Enginer -in -Charge				
	100 mm i/d	6	Nos.	3408.00	20448
30/NS	Providing and fixing butterfly Value including jointing Material and Cartage to site of work				
	50 mm i/d	495	Nos.	2353.00	1164735
	63 mm i/d	165	Nos.	2625.00	433125
6/NS	Providing & fixing fire hydrants with jointing material i.e nut bolts & any other items duly IS marked Conforming to specification including loading, unloading handling , re-handling stacking etc. complete in all respects to the satisfaction of the Engineer-in-Charge	126	Nos.	10964.00	1381464
7 / 6.8(a) HSR	Excavation for pipe lines running under pressure in trenches and pits, in open areas, where disposal of surplus earth is done along with the alignment and restoration of unmetalled or unpaved surface to it's original condition, in ordinary soil. a) without timbering and shoring upto 1.5 metres depth	11717	cum	10.30	120685
8/ 6.7	Earth work in excavation in foundation , trenches,of under ground structures,sullage drains etc. and other similer works in ordinary soil including dressing of botom and sides,to correct levels and templets,cutting of trees and bushes, dewatering of rain water,diversion of traffic,fixing and mainantences of caution boards,and night siganals,crossing over trenches for access to houses,watching,staking of excavated soil,clear from the edge of excavation,and subsequent filling	982	cum	9.32	9152
9 /NS	Construction of (Sluice Valve Haudis) masonry chambers of 90 cm x 90 cm x160 cm, inside with first class brick work in cement mortor 1:4 (1 cement and 4 coarse sand) for sluice valves, with CI surface box 100 mm top diametre, 160 mm bottom diametre and 180 mm deep (inside with chained lid and RCC top slab 1:2:4 mix, including necessary excavation in foundation, base concrete 1:4:8 and inside plastering in !:3 cement mortor12 mm thick finished with a floating coat of neat cement	222	Nos.	16180	3591931
10/NS	Providing & Fixing of C.I. Spindle type Sprinkler with 65 mm outlet ccomplete with nut & bolt and rubber insertion etc & masonry chamber complete in all respect.	165	Nos.	3835	632775
11/NS	Providing and fixing Indicating Arrow Plates, Fire Hydrant, Lawn Hydrant & Sluice valve complete in all respect.	222	Nos.	530	117660
12/NS	Provision for surface box for sluice valve & fire hydrant including cartage to site of work complete in all respect.	222	Nos.	964	214008
13/NS	Design, Supply Installation of Electro Magnetic Flow water Meter and pressure gauges with PLC SCADA connected Consisting the following				
	Multipara Meter Data Loggin				
	Programme and summary reports				

	Data Intergraty verification				
	Triggering sampler enabiling				
	Complete with Flow Link Software				
	Multible simultaneous flow technologies analog output USB interface				
	300 mm i/d pipe)	1	Nos.	598099	598099
14/NS	Providing and fixing Pressure Gauge	4	Nos	20000	80000
15/NS	Provision for Automation of Machinery for water works	1	Nos	1000000	1000000
	Add 370% Ceiling Premium on item no 7,8			129837	480398
	Sub Total				**20428018**
	ADD 15% Price Escalation on HSR Items			**630411**	**94562**
	Total				**20522580**

Sub Head No 2			Structure of Pumping Station		
Sr No	**Description**	**Quantity**	**Rate**	**Unit**	**Amount**
1/NS	Construction of RCC Under Ground Tank of flowing size below invert of sewer including inlet, outlet & overflow arrangement alongwith glass brick where required and fixing of C.I. Cover for cleaning of tank complete.				
	Block -P & L	660	Kl	4500	2970000
2/NS	Construction of Pump Chamber of 12 m x 6 and varanda for the pumping machinery complete.	72	sq mtr	15000	1080000
3/NS	Providing errection and commissioning of Centrifugal type Vertical Split Casing Pumps for operation, AC supply capable of giving 12 LPS discharge with a head of 35 mtrs and having a motor of 10 BHP including motor electric cable earthing and other required accessories etc complete in all respect.	1	each	387290	387290
4/NS	Providing errection and commissioning of Centrifugal type Vertical Split Casing Pumps for operation, AC supply capable of giving 25 LPS discharge with a head of 35 mtrs and having a motor of 20 BHP including motor electric cable earthing and other required accessories etc complete in all respect.	2	each	458840	917680
4/NS	Providing errection and commissioning of Centrifugal type Vertical Split Casing Pumps for operation, AC supply capable of giving 40 LPS discharge with a head of 35 mtrs and having a motor of 25 BHP including motor electric cable earthing and other required accessories etc complete in all respect.	1	each	492826	492826
4/NS	Supply of 100 Kva DG Set (3 Phase) comprising of Kirlosker make Engine , coupled to 415Volts, 100 Kva Alternator mounted on common base frame along with other accessorie i.e. Control Panel, Fuel Tank, Battery with leads & AVM Pads etc. complet in all respect.	2	each	1012039	1012039
	Sub Total				6859835

SUB WORK NO 7		SOLID WASTE MANAGEMENT ADDITIONAL INFRASTRUCTURE			
Sr. No.	**Description**	**Quantity**	**Unit**	**Rate in Rs.**	**Amount in Rs.**
1	Provision of tools & plants like Trycycles/ Handcarts etc.				
(a)	Handcarts of size1.2m*0.6m*0.6m with single wheel at the front and sports at the back as per the design.	200.00	Nos	5500	1100000
(b)	Provision for Bins for dwelling unit				
i)	Capacity of 8 Kg	25443	Nos	600	15265800
ii)	Capacity of 16 Kg	150	Nos	1000	150000
(c)	Motorized Trycycles provided with the 50CC petrol engine and the bin size of 1.5m *1.2m*0.75m with the cover as per design	6	Nos	37500	225000
2	Construction of Primary collection centers by providing platform of size 134 Cum Capacity as per design (But to be provided	15	Nos	349000	5235000
3	Purchase of Hydraulic vehicles for lifting of Bins & Transportation of garbage.	1	Nos	2500000	2500000
	Sub Total				**24475800**

SUB WORK NO 8		STREET LIGHT ADDITIONAL INFRASTRUCTURE			
Sr No	Description	Quantity	Unit	Rate	Amount in Rs
1	Supply,Erection,testing & commissioning of LED Street light Luminaire with minimum 2000 Lumen output at an efficacy of minimum 100 Lumen/Watt at system level (maximum wattage rating of luminaire 20watt), having ingress protection of IP66 for optic compartment and IP66 control gear compartment, a Pressure die cast aluminium painted housing, individual photometric lenses for each LEDs., Toughened glass protector having minimum impact resistance of IK05, universal electronic driver having operate voltage of 140-280V, minimum internal surge protection of 3kV with an external surge protection of 10KV,power factor ≥ 0.95 with THD<10%, Life time of 50000 Hours @ L70.CRI of 5700K.Colour Rendering Index >70, and warm White light. LEDs Make:- CREE/NICHIA/LUMILEDS Luminaire Make:-Philips/Bajaj/Osram/wipro	634.00	No.	3831.00	2428854
2	Supply,Erection,testing & commissioning of LED Street light Luminaire with minimum 4000 Lumen output at an efficacy of minimum 100 Lumen/Watt at system level (maximum wattage rating of luminaire 40watt), having ingress protection of IP66 for optic compartment and IP66 control gear compartment, a Pressure die cast aluminium painted housing, individual photometric lenses for each LEDs., Toughened glass protector having minimum impact resistance of IK05, universal electronic driver having operate voltage of 140-280V, minimum internal surge protection of 3kV with an external surge protection of 10KV,power factor ≥ 0.95 with THD<10%, Life time of 50000 Hours @ L70.CRI of 5700K.Colour Rendering Index >70, and warm White light .LEDs Make:- CREE/NICHIA/LUMILEDS Luminaire Make:-Philips/Bajaj/Osram/Wipro	307.00	No.	7653.00	2349471
3	Supply,Erection,testing & commissioning of LED Street light Luminaire with minimum 9000 Lumen output at an efficacy of minimum 100 Lumen/Watt at system level (maximum wattage rating of luminaire 90watt), having ingress protection of IP66 for optic compartment and IP66 control gear compartment, a Pressure die cast aluminium painted housing, individual photometric lenses for each LEDs., Toughened glass protector having minimum impact resistance of IK05, universal electronic driver having operate voltage of 140-280V, minimum internal surge protection of 3kV with an external surge protection of 10KV,power factor ≥ 0.95 with THD<10%, Life time of 50000 Hours @ L70.CRI of 5700K.Colour Rendering Index >70, and warm White light. LEDs Make:- CREE/NICHIA/LUMILEDS Luminaire Make:-Philips/Bajaj/Osram/Wipro	152.00	No.	14751.00	2242152
4	Supply,erection and necessary connection of 2.5sqmm (80/0.20mm) 1.1KV Grade 3core PVC insulated, sheathed copper conductor circular flexible wire	5465.00	No.	73.00	398945
5	Supply and Erection of 50mm diameter 1 meter Long GI bracket (B-class) making an angle 10° to 15° with horizontal plane for mounting street light fitting on GI bracket on PCC/metallic pole with 2nos. 50mm x 6mm MS clamp including cost of fabrication,painting,cutting welding,nut & bolts etc. including making necessary connection with all labour and material required to complete the job in all respects upto the entire satisfaction of Engineer-In-Charge of the work.	1093.00	No.	1728.00	1888704
	Sub Total				9308126

MANTAINANCE COST FOR 5 YEARS			
(Special Repair)		**ROADS**	**Horticulture**
CAPITAL COST		**54851979**	**1643960**
1% OF CAPITAL COST		**548520**	**16440**
1ST YEAR	**10%**	**54852**	**1644**
2nd YEAR	**25%**	**137130**	**4110**
3rd YEAR	**50%**	**274260**	**8220**
4th YEAR	**75%**	**411390**	**12330**
5th YEAR	**100%**	**548520**	**16440**
		1426152	**42744**

MANTAINANCE COST FOR 5 YEARS			
Additional works		**ROADS**	**Horticulture**
CAPITAL COST		**78978500**	**5485919**
1% OF CAPITAL COST		**789785**	**54859**
1ST YEAR	**10%**	**54852**	**5486**
2nd YEAR	**25%**	**137130**	**13715**
3rd YEAR	**50%**	**274260**	**27430**
4th YEAR	**75%**	**411390**	**41144**
5th YEAR	**100%**	**548520**	**54859**
		1426152	**142633**

OPERATION AND MAINTENANCE							
Maitenance for Defeicent Infrastructure & Special Repair							
		Establishment Cost	Repair Cost	Consumable Store	Energy Charges	**Sub Total for 1 Year**	**Mtc For 5 Years**
1	Road	0	0	0	0	**0**	**1426152**
1	Water Supply	6886026	687180	1069935	15946664	**24589805**	**122949024**
2	Sewerage	900466	991032	27200	0	**1918698**	**9593490**
3	Storm water	240125	375866	**16000**	0	**631991**	**3159955**
4	Street Light		93081	0	3077362	**3170443**	**15852216**
	Sub Total					**30310937**	**152980838**

Maitenance for Additional Infra Structure One Year							
OPERATION AND MAINTENANCE							
Maitenance for Additional Infra Structure							
	Description	Establishment Cost	Repair Cost	Consumable Store	Energy Charges	**Sub Total for 1 Year**	**Mtc For 5 Years**
1	Water Supply	0	92750	3414161	0	**3506911**	**17534554**
2	Recycling	1080559	269061.249	477431	1307673	**3134724**	**15673620**
3	Solid Waste Management	24475800				**244758**	**1223790**
4	Street Light		93081			**93081**	**465406**
	Sub Total					**6886393**	**34431964**

ANALYSIS OF RATES

Analysis of Rate for Providing **Tack Coat** with 25 kg per 100 sqmtr on existing prime coat with emulsion (slow grade) bitumen for Gurgaon					
Area = 3500 sq mtr				Unit	P. Sqm
SR. No.	Description	Quantity	Unit	Rate in Rs.	Amount in Rs
a	Emulsion (Slow Setting)				
	25 kg / 100 sqm	0.875	MT	65768	57547.00
b	Labour for 3500 sqm Mtr				
i	Mate	0.08		232	18.56
ii	Mazdoor	2		232	464.00
	Add 21.50% Contractor Profit				104
c)/	Machinery				
	Mechnical broom	2.8	Hrs	347.3	972.44
	Air Compresser 170/250 cfm	2.8	Hrs	311.06	870.97
	Emulsion pressure distributor	2	Hrs	779.16	1558.32
	Over Head Charges @ 5 % (a+c)				3047
	Add 10 % contractor profit on c				645
	Grand Total				65227
	Rate per sq mtr 65227/3500				19.00

Analysis for providing & laying **Bitumenous Macadum** using crushed agregate of specified grading premixed with bitumenous binder 3.3% by weight of total mix and transporting the mixed material to site laying with hydrostatic paver finisher to required grade, level & alignment & rolling with smooth wheeld and tandom rollers etc complet as per MORTH Specifications Clause 504.1 for Gurgaon

Considering:					
1. Density of compacted material as 2200 kg per cum					
2. Out put of Hot Mix Plant = 450 MT per day					
3. Density of grit = 1600 kg / cum or 450/2.2 = 204.55 or Say 205cum per day					
4. Bitumen @3.3% by weight i.e. 450 x 3.3/100 = 14.85 MT					
OUTPUT 205(450 TONNE)					
Net Weight of Bajri = 450-14.85 = 435.15 or 435.15 / 1.5 = 290.1 cum Grade I Meterial				P Cum	
Aggregate	Gauge 37.5mm-25mm	15% Cum	43.52	930.00	40469
Aggregate	Gauge 25mm-10mm	45% Cum	130.55	930.00	121407
Aggregate	Gauge 10-5 mm	25% Cum	72.53	930.00	67448
	Gauge 5 mm & Below	15%	43.52	990.00	43080
Bitumen 60/70 (3.30%)		M.T	14.85	34674	514909
Total A					787313
Labour					
Labour and Machinery As per (24.32 HSR)		450 M.T @ Rs. 101.40			45630
Add Extra for lead of 10 K.Mtrs 450(19+7.5)/1.6					7453
Add 370% premium on labour i.e. is on Rs. 45630					168831
Add 450% premium on carriage i.e. on Rs. 7453					33539
Total B					255453
SubTotal A+B					1042766
Add 5 % over head charges					52138
					1094904
Add 10 % C.P.					109490
Grand Total					1204394
Per cum = 1204060/205					5875

Analysis of Rates for Providing and Laying of **Bituminous Concrete** (B.C) as per MOST 509 and table 500.18 - grading II. for Gurgaon					
	Total Weight of Mix (Based on daily production capacity)	450 MT			
	Total Volume of Mix taking density as 2.35 gms / cc	204.55 cum			
	Weight of bitumen : 5.4%	24.30 MT			
	Weight of aggregate : 450-24.30	425.7 MT			
	Taking Density of aggregate	1.5T / Cum			
	Volume of aggregate	283.8 Cum			
		For Per CUM			
	OUTPUT=191CUM(450 T)				
Sr. No. / HSR No.	Description	Qty	Rate	Unit	Amount in Rs.
1	Material (A)				
	i) 13.2 mm 10mm (30%)				
	283.80 x 0.3	85.14	930.00	Cum	79180
	ii) 10.0 mm t5mm (25%)				
	283.8 x 0.25	70.95	930.00	Cum	65984
	iii) 43%5mm& below	122.034	990.00	Cum	120814
	Bitumen of grade 60/70 As on 16-05-2017	24.3	34674	MT	842578
	Add 2% filler material 425.7x 2/100 = 8.55 MT	8.514	4400	MT	37462
	Total A				1146017
	Labour (B)				
2 / 24.33	Laying as per HSR -24.33 (a)	450	122.2	MT	54990
3 / 5.2 C(iii)	Carriage of Mix Material from Hot Mix Plant to site of work with an av. Extra lead of 10.00 Km (19+7.5)/1.6 = 16.56	450	16.56	MT	7453
	Add 370 % Premium on item No. 2 on Rs. 54990/-				203463
	Add 450 % Premium on item No. 3 on Rs.10264/-				33539
	Total B				299445
	Add 5 % over Head Charges(A+B)				72273
	Grand Total				1517735
	add 10% C P				151774
	TOTAL				1669509
	Rate Per Cum = 1669188/ 191				8741

Analysis of Rate for Providing Road marking with hot applied thermoplastic compound with Reflectorising Glass Beads on Bituminous Surface as per MORT&H specification 803					
Unit Sqm	Taking output =640 sqm				
Sr. No.	Description	Quantity	Unit	Rate in Rs.	Amount in Rs
a	Labour				
	Mate	0.300	day	319	95.75
	Mazdoor	1.5	day	259.03	388.55
	Add 21.50% Contractor Profit				104
b	Machinery				
	Road Marking Machine @ 80Sqm per hour	10	Hour	444	4444.60
	Tractor Trolley	0.5	Hour	240.6	120.31
c	Material				
	Hot applied thermoplastic compound	1500	Lt	170	255000.00
	Reflectorising glass beads	150	kg	210	31500.00
d	Add 5% over head charges(b+c)				14553
	Add 10% Contractor Profit (b+c+d)				30562
	Sub Total				336768
	Per Sqm Mtr				526.20
					526.00

Analysis of Rate for Laying GSB					
Sr. No.	**Description**	**Unit**	**Qty**	**Rate**	**Amount**
1	Granular sub Base with Close Graded Material				
	By Mix in Place Method				
	Construction of Granular sub base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401				
	Unit = cum				
a)	Labour (Taking output = 300 cum x 1.60 = 480)				
	Mate	day	0.48	398	191
	Mazdoor skilled	day	2.00	398	796
	Mazdoor unskilled	day	6.00	398	2388
b)	Machinery				
	Motor Grader 110 HP @ 50 cum	hour	4.00	2100	8400
	Vibratory roller 8-10 tonne	hour	4.00	650	2600
	Tractor - Rotavator	hour	6.00	138	825
	Water tanker 6 KL capacity	hour	2.00	138	275
©	Material				
	Close graded Granular sub base Material as per table 400-1				
	For grading - I Material				
	53 mm to 9.5 mm @ 50 per cent	cum	192	676	129792
	9.5 mm to 2.36 mm @ 20 per cent	cum	76	676	51376
	2.36 mm below @ 30 per cent	cum	115.2	676	77875
	Cost of Water	KL	18	20	360
	Total				274878
(d)	Contractor's Profit @ 15% on (a+b)				2321
	Cost for 300 cum				277199
	Cost for per cum				924
	Say Rs. Per cum				**924.00**

Analysis of rate for planting of ornamental tree well grown three year old and 6" to 7" high		
Sr No.	**Description**	**Amount in Rs.**
1	Digging of holes in all king of soil & refilling the same with the excavated earth mixed with well decayed farm manure 3:1 ratio (cost of well decayed farm yard manure to be paid separately holes 0.60mtr dia & 0.60 mtr deep) (HSR Item 33.21 (ii) 2.40 each (Labour rate)	2.40
	Add 500% C.P	12.00
2	Cost of farm yard manure (HSR ITEM NO 33.1) 1/3th Qty of PITS EXCAVATED 22/7 x 0.30x0.30 x 0.60 x 1/3 = 0.042 Cum @ 61.60/- Cum	3.4848
	Add 400% C.P	13.94
3	Cost of 3 year old 6' to 7' high well grown@ Rs 50.00 each	50.00
4	Carriage charge from Nursery to site of work	5.00
5	Labour of Planting of plant	5.00
6	Provision for anti termite	5.00
	Sub Total	96.82
	Add 10% contractor profit on item no. 3 to 6	6.50
	Total cost of each plant	**103.32**
	Say Rs.	**103.00**

Analysis of rate for Planting Shrubs 2 to 3 Yrs old 3" high		
Sr No.	**Description**	**Amount in Rs.**
1	Digging of holes in all king of soil & refilling the same with the excavated earth mixed with well decayed farm manure 3:1 ratio (cost of well decayed farm yard manure to be paid separately holes 0.60mtr dia & 0.45 mtr deep) (HSR Item 33.21 (ii) (Labour rate) (2.4/0.6*0.45 = Rs. 1.80)	1.80
	Add 500% C.P	9.00
2	Cost of farm yard manure (HSR ITEM NO 33.1) 1/3th Qty of PITS EXCAVATED 22/7 x 0.30x0.30 x 0.45 x 1/3 = 0.042 Cum @ 61.60/- Cum	2.6136
	Add 400% C.P	10.45
3	Cost of Plant 3' height(2 to 3 yrs old) well grown @ Rs 30 each	30.00
4	Labour of Planting of Shrubs	5.10
5	Provision for estimate cost LS	3.00
6	Carriage of Plant at site	3.00
	Sub Total	64.97
	Add 10% contractor profit on item no. 3 to 6	4.11
	Total cost of each plant	**69.08**
	Say Rs.	**69.00**

Analysis of rate for maintenance of shrub plant per month		
Sr No.	**Description**	**Amount in Rs.**
1	Cost of maintenance for shrub plant per month, one mali will maintain 3500 shrub. Payment for one mali Rs. 10340.00 10% Supervision Rs. 1034.00 9951.00 i.e. Rs. 11374/3500 = 3.25	3.25
2	Watering to plants for three times in month 20 ltr water each time @ Rs. 1.00 each time	3.00
3	Add LS for insectiside and spray	0.25
	Total	6.50
	Add 10% contractor profit	0.65
	Add 5% Over Head Charges	0.32
	Per month	**7.47**

Analysis of rate for maintenance of road side tree per month				
Sr No.	**Description**			**Amount in Rs.**
1	Cost of maintenance for tree plant per month, one mali will maintain 3000 tree. Payment for one mali Rs. Rs. 10340.00 10% Supervision Rs. 1034.00 9951.00 i.e. Rs. 11374/3500 = 3.25			3.25
2	Watering to plants for three times in month, 20 ltr water each time @ Rs. 1.00 each time			3.00
3	Add LS for insectiside and spray			0.50
	Cost			6.75
	Add 10% contractor profit			0.67
	Add 5% Over Head Charges			0.34
			Per month	**7.76**

Details for Boundary Wall (BW -1)					Length
Sr. No. / HSR No.	Description	Qty. For 100 Meter Length	Unit	Rate	Amount
1/6.6	Earth work in excavation in foundatons & plinth for structure work. 100 x 0.675 x 0.75 =	50.625	cum	11.08	560.93
2/10.38	Cement Concrete 1:8:16 with brick ballast 40 mm nominal size in foundatin and plinth 100 x0.675 x 0.15 = 10.13	10.13	cum	420	4252.50
3/11.24	First class brick work laid in cement stone dust (from crusher) 1:4 in foundation and plinth				
	1 x 100 x 0.575 x 0.15	8.63			
	1 x 100 x 0.46 x 0.15	6.90			
Wall	1 x 100 x 0.345 x 0.15	5.18			
	1 x 100 x 0.230 x 0.15	3.45			
	1 x 100 x 0.230 x 0.41 (0.30 + 0.11)	9.43			
Pillars	29 x 1.00 x 0.23 x 0.875 (1-0.125)	5.84			
	Total	39.42	cum	444.65	17526.44
4/10.114	D.P.C. 40mm thick of cement concrete 1:2:4 with 2 coats of bitumen				
	100 x 0.230	23.00	sq.mtr	35.05	806.15
5 / 15.5	12 mm Cement Plaster 1:4				
	Lower wall 100 x 0.45	45.00			
	Piller 29 x 1.00 x 1.20	34.80			
	Piller Sides 29 x 2 x 0.23 x 1.2	16.01			
	Top 29x1x0.35	10.15			
	TOP OF DPC 29*2.5*0.23	16.68			
	Total	122.63	sq.mtr	12.7	1557.44
6 / 15.10	15 mm Cement Plaster 1:4				
	Lower wall 100 x 0.45	45.00			
	Piller 29 x 1.00 x 1.20	34.80			
	Total	79.80	sq.mtr	15.65	1248.87

7 / 10.41	Cement Concret 1:2:4 with stone aggregate 20 MM nominal size in foundation & Plinth Pillers 29 x 1.00 x 0.287 x 0.0625 = 0.520 29 x 1.00 x 0.35 x 0.0625= 0.634 Walls1 x 71 x 0.23 x 0.04 = 0.653 Total = 1.80	1.80	cum	615.6	1108.08
8 / 16.61	Finishing walls with exterior decotative cement based paints such as snowcem, robbiacem, etc on new work, two coats to give an even shade. Total of Item 5 & 6 = 202.43	202.43	sq.mtr	7.25	1467.64
9/ 18.12	Wrought iron and mild steel (using angles, flats, square bars, tee and channels) ladders grills, grating frames, window guards, iron doors openable or fixed stair case or parapet or any other type of railing, gates and tee guards etc., including cost of screws and welding rods or bolts and nuts complete fixed in position				
	For Railing on wall				
	16 mm dia bars				
	29 x 15 x 1.0 = 435				
	Top of the Railing 29x8x0.15= 34.80				
	469 mtr @ 1.58 Kg/mtr	741.02			
	50 mm wide MS sheet, 6mm thick				
	29 x 2 x 2.5 = 145 mtr x 2.25 Kg/mtr = 326.25 kg	326			
	Angle iron frame of size 40 x 40 x 5 mm, 29 x 4.90mtr @ 3kg / mtr =426.3 kg	448			
	Hole fasts (29 x 7 x 0.30) = 60.90 mtr@ 2.25 Kg/mtr	137			
	Sub Total	1652			
	Add 5% wastage	83			
	Total (in Kg)	1735	qtl	1040.4	18050.07
10/ 16.25	Applying priming coat with cement primer in all shades on newly plastered surfaces	202.43	sq mtr	4.15	840.10
11/16.9	Applying priming coat (2 x 71 x 1.20 = 170.4 sqm)	170.4	sqm	3.15	536.76
12/16.17	Painting two coat on new steel work	170.4	sqm	7	1192.80
	Add 425 % premium on item no. 1	560.93			2384
	Add 450% perimum on item no. 2,4, 7	6166.73			27750
	Add 600% perimum on item no 3	17526.44			105159
	Add 500 % premium on item no. 9,5& 6 on Rs.	20856.38			104282
	Add 230 % premium on item no. 8, 10 , 11 & 12	4037.30			9286
	Total				298008
	Cost per 100 mtr of length				298008
	Cost per mtr length				2980.08
	say				2980

Detail of Main Entry Gate design 1									
Sr No	Description					Quantity	Unit	Rate	Amount
1/6.6	Earth Work								
	2	2.10	1.5	1.35		8.505	Cum	11.081	94
	Add 425 % C.P								401
2/10.38	C.C 1.4.8								
	2	2.10	1.5	0.1		0.63	cum	420	265
	Add 450 % C.P								1191
3/10.86	R.C.C 1.1.5.3 Column								
	2	0.75	0.45	0.75		0.50625			
	2	0.75	0.45	2.1		1.4175			
						1.924	cum	1101.85	2120
	Add 450 % C.P								9539
4/10.90	R.C.C 1.1.5.3 Footing								
	2	1.8	1.2	0.2		0.864			
	(1.8+0.75) /2 =1.27	(1.2+0.45)/2 =0.825		(0 + 0.30)/2 = 0.15					
	2	1.27		0.825	0.15	0.314			
						1.178	cum	687.1	810
	Add 450 % C.P								3643
5/10.95	Extra for using 1:1.5:3 instead of 1:2:4 over item no					3.710	cum	86.9	322
	Add 450 % C.P								1451
6/14.95	Granite Stone (0.75 + 0.45) = 1.20								
	2	2	1.2	2.1		14.400			
	top	2	0.75	0.45		0.675			
7/15.4	Plaster					15.08	sqm	390	5879
	2	2	1.2	2.1		14.400			
	top	2	0.75	0.45		0.675			
						15.08	sqm	15	226
	Add 500 % C.P								1131
8/16.17+ 16.09	Painting two coat excluding priming coat with ready mixed paint for new iron work.								
	Both Sides of gates	(2 x1.8)	3.6	1.5		5.4	sqm	9	49
	Add 230 % Celling Premium								696
	Provision written & printing name of firm on front &					LS			5000
9/18.12	Wrought iron and mild steel (using angles, flats, square					1	no.		
1	Material for 3.6 Mtr Gate								
	Hollow Sections (150mmX75mmX3mm)								
	Hotizontals Length(m)								
	2	3	1.75		10.5				
	Verticles Length(m) excluding horizontal								
	2	2	1.05		4.2				
	Total Length(m)				14.7				
	14.70m @ 13.33kg / m = 229.68					195.95			
	Hollow section(40mmx40mmx3 mm)								
	2	4	1.05		8.4				
	8.4m @ 3.481kg/m					29.24			
	M.S Sheet 2 mm								
	2	1.8	0.9		3.24				
	7.85 kg x 2=15.70								

	15.70*3.24				50.87			
					276.06	Kg		
	Add 5% wastage				13.80	Kg		
	Total Weight				289.86	Kg		
	289.86Kg /100 = 2.90 Qtl				2.90	Qtl	1040.35	3017
	Add C.P 500%							15085
10/18.22	Steel							
	3.102 * 110 kg/cum				3.41	qtl	917.05	3129
	Add 500 % C.P							15646
11/LS	Hold Fast complete with M.S plate including fixing in				6	no	300	1800
12/LS	Providing & fixing Sliding bold with nut screws etc				1	no	300	300
13/LS	Providing & fixing tower bolts in center of gate				1	no	200	200
14/LS	Providing & fixing handles LUMP - SUM				2	no	400	800
	SUM OF HSR ITEMS 69691							
	Total							72791
	Add 15% for esclation due to expected higher rates i.e. on Rs. 69691							10453.65
	Say							83245

Absract of Rates DI Pipes K7					
Sr. No.	Description	Basic Rate	Rates inclusive of GST	Rate in Rs.	Unit
1	100 mm i/d Pipe	695.76	821	1009	M
2	150 mm i/d pipe	1007.63	1189	1459	M
3	200 mm i/d Pipe	1249.15	1474	1809	M
4	250 mm i/d Pipe	1698.31	2004	2459	M
5	300 mm i/d Pipe	2116.10	2497	3064	M
6	350 mm i/d Pipe	2761.02	3258	4004	M
7	400 mm i/d Pipe	3178.81	3751	4613	M
8	450 mm i/d Pipe	0.00	0	5193	M
9	500 mm i/d Pipe	4486.44	5294	6516	M
10	600 mm i/d Pipe	5866.10	6922	8522	M
11	700 mm i/d Pipe	8132.20	9596	11785	M
12	800 mm i/d Pipe	10154.24	11982	14699	M
13	900 mm i/d Pipe	12439.83	14679	17989	M
14	1000 mm i/d Pipe	15416.10	18191	22268	M

Analysis of Rates for D.I Pipe Zink coated Class k-7 (size 100mm/id)					
For 100 Mtr Length					
	A) Material				
	Supply of D.I. pipe Class (K-7) Zink coated outside and cement lining inside 100 mm/id pipes (D S& D rates)	100	Mtr	695.76	69576.00
	GST @18%				12524
	Amount				82100
	Cost of Specials at 10%				6958
	Add 10% Contractor Profit+5% Over Head Charges				10436
	Total **(A)**				**99494**
	B) Laying Work				
1/28.1 (b)	Stringing out D.I pipes and specials castings along trenches to correct alignment & cartage from Divisional store or nearest railway station to site of work and return the pieces to stores of the size 100mm/id	100	mtr	1.135	113.50
2/28.3 (b)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 100 mm/id	2	per cut	3.5	7.00
3/28.6 (b)	Jointing D.I Socketed pipes, valves & specials and chipping of the filling the surface to a uniform finish of the size 100 mm/id	25	Each Nos	6.1	152.50
	Total 1 to 3				273.00
	Add 380% C.P on Rs. 273				1037.40
	Total (B)				**1310.40**
	Total (A+B)				100804.08
	Cost per mtr				**1009.00**

Analysis of Rate for Providing & Fixing cast iron **Fire Hydrant** as per Is 909 with 80 mm outlet complete with nut & bolt and rubber packing etc complete in all respect.					
Sr. No.	Description	Quantity	Unit	Rate	Amount
1	Cost of Cast iton Fire Hydrant complete	1	No.	8240.00	8240.00
	Exise Duty 12.36%				1018.46
	TOTAL				**9258.46**
	Add 5.5% C.S.T				**463.00**
2	Loading & unloading ,insurance & Octroi at 3%				277.75
3	Add 10% Contractor profit				925.85
4/28.11	Labour charges for fixing of fire Hydrent	1	No.	9.70	9.70
5	Add 300% Ceiling Premiumon				29.10
	TOTAL				**10963.86**
	Say Rs.				**10964.00**

Analysis of Rates for D.I Double Flanged Pipe Zink coated Class k-9 (size 150mm/id)					
	Description	Unit	Qty	Rate	Amount
	A) Material				
	Supply of D.I. pipe Class (k-9) Zink coated outside and cement lining inside 150 mm/id pipes (D S& D rates)	Mtr	100	1733	173300
	Add 10% contractor profit				17330
	Add 10% Cost of specials				17330
	Total (A)				207960
	B) Laying Work				
1/28.1 (d)	Stringing out D.I pipes and specials castings along trenches to correct alignment & cartage from Divisional store or nearest railway station to site of work and return the pieces to stores of the size 150mm/id	mtr	100	1.84	184
2/28.3 (d)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 150 mm/id	per cut	2	5.25	11
3/28.6 (d)	Jointing D.I Socketed pipes, valves & specials and chipping of the filling the surface to a uniform finish of the size 150 mm/id	Each Nos	25	7.25	181
	Total 1 to 3				376
	Add 380% C.P on Rs. 375.75				1428
	Total (B)				1804
	Total (A+B)				209764
	Cost per mtr				**2098**

Analysis of Rates for D.I Double Flanged Pipe Zink coated Class k-9 (size 200 mm/id)					
	For 100 Mtr Length				
	Description	Unit	Qty	Rate	Amount
	A) Material				
	Supply of D.I. pipe Class (k-9) Zink coated outside and cement lining inside 250 mm/id pipes (D S& D rates)	Mtr	100	2179	217900
	Add 10% contractor profit				21790
	Add 10% Cost of specials				21790
	Total (A)				261480
	B) Laying Work				
1/28.1 (f)	Stringing out D.I pipes and specials castings along trenches to correct alignment & cartage from Divisional store or nearest railway station to site of work and return the pieces to stores of the size 300mm/id	mtr	100	2.69	269
2/28.3 (f)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 300 mm/id	per cut	2	6.65	13
3/28.6 (f)	Jointing D.I Socketed pipes, valves & specials and chipping of the filling the surface to a uniform finish of the size300 mm/id	Each Nos	25	7.5	188
	Total 1 to 3				470
	Add 380% C.P on Rs. 627.85				1785
	Total (B)				2255
	Total (A+B)				263735
	Cost per mtr				**2638**

kinatic air valve				
Sr. No.	Size of Pipe	Basic Rates as per HSR	Permisible Celing Premium	Total Rate
	mm i/d	Rs.		Rs.
1	80	2824	10%	3106
2	100	3098	10%	3408
3	150	7514	10%	8265
4	200	13267	10%	14594

Sluice Valves as per HSR of item 28.10				
Sr. No.	Size of Pipe	Basic Rates as per HSR	Permisible Celing Premium	Total Raite
	mm i/d	Rs.		Rs.
1	80	2573	10%	2830
2	100	3698	10%	4068
3	150	5709	10%	6280
4	200	9945	10%	10940
5	250	15589	10%	17148
6	300	18944	10%	20838
7	350	30395	10%	33435
8	400	41120	10%	45232
9	450	48981	10%	53879
10	500	66911	10%	73602
11	600	95126	10%	104639

Non ReturnValves				
Sr. No.	Size of Pipe	Basic Rates as per HSR ,28.14A	Permisible Celing Premium	Total Raite
	mm i/d	Rs.		Rs.
1	80	2485	10%	2734
2	100	3362	10%	3698
3	150	5638	10%	6202
4	200	9142	10%	10056
5	250	14032	10%	15435
6	300	17008	10%	18709
7	350	34630	10%	38093
8	400	40933	10%	45026
9	450	49547	10%	54502
10	500	78296	10%	86126
11	600	102991	10%	113290

Analysis of rate for **(Sluice Valve Haudi)**masonry chamber 90x90x160 cm, inside with 75 class designation brick work in cement mortor 1:4 (1 cement mortor 1:4coarse sand)for sluice valves, with CI surface box 100mm top dia m, 160 mm bottom dia m and 180mm deep (inside with chained lid and RCC top slab 1:2:4 mix, necessary excavation foundation concrete 1:4:8 and inside plasting with cement mortor 1:3, 12 mm thick finished with a floating coat of neat cement comlete.

Sr. No. / HSR No.	Description				Qty	Unit	Rate	Amount
1 / 6.7	Earth work in excavation in foundation & plinth							
	Nos	L	W	D				
	1	1.59	1.59	1.75	4.42	cum	9.32	**41.23**
2/10.36	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
	Nos	L	W	D				
	1	1.36	1.36	0.225	0.42	cum	385.25	**160.33**
3/11.24	First class brick work laid in cement, stone dust (from							
	Nos	L	W	D				
	2	2.26	0.23	1.53	1.59			
	2	2.26	0.23	1.53	1.59			
	Sub Total				3.17	cum	444.65	**1409.89**
4/10.41	Cement Concrete 1:2:4 with stone aggregate 20mm nominal size in foundation and plinth							
	Nos	L	W	D				
Bottom	1	0.9	0.9	0.05	0.041			
For coping	2	2.26	0.23	0.0750	0.078			
For coping	2	2.26	0.23	0.075	0.078			
					0.196	cum	615.6	**120.93**
5 / (15.4+15.75)	12mm thick cement plaster 1:3 with cement rendering 1mm thick							
		L		D				
Sides		3.6		1.53	5.49			
Bottom		0.9		0.90	0.81			
					6.30	sqm	19.25	**121.28**
6 / 10.82	Cement concrete 1:2:4 with stone aggregate 20mm							
	Nos	L		D				
	1	1.36	1.36	0.18	0.333	cum	997.90	**332.23**
7 / 18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
					0.37	qtl	917.05	**335.84**
	Total							
	Add 370% on item No. 1				41.23			**152.56**
	Add450% on item No. 2,4,&6				613.48			**2760.67**
	Add 500% on item No.5				121.28			**606.38**
	Add 600% on item No. 3				1409.89			**8459.32**
	Add 500% on item No. 7				336			**1679.21**
	Total Cost							**16179.87**
	Say Rs.							**16180.00**

Analysis of rate for Providing & **indicator arrow plate** boards of over all sizes 1100 mm height and 450 mm width thickness 25 mm manufactures by M- 30 grade reinforced cement concrete vibro compacted in cased in 25 x 30 mm steel strips as per design					
Sr. No.	Description	Qty	Unit	Rate in Rs.	Amount in Rs.
1	Precast RCC arrow plate of overall size. 1100 mm Height x 450 mm width & Thickness 25 mm, manufactured by M-30 grade of concrete and suitably reinforced & manufactured by vibro compaction process and encased in 25*3 mm mild steel strip as per photograph	1	No.	290.00	290.00
	Less 5% Discount				-14.50
	Cost				275.50
	Add 12.5% Excise duty				34.44
	Add 13.125 % VAT				40.68
	3% loading, unloading & Cartage charges on Rs. 275.50+34.44				9.30
	10% Contractor profit				30.99
	Total				390.91
2 / 6.6	Earth work in excavation in foundatons & plinth for structure work. 100 x .75 x 0.6 = 45				
	0.30 x 0.30 x 0.45	0.041	cum	11.08	0.45
3 / 10.41	Cement concrete 1:2:4 for fixing the board				
	0.450 x 0.30 x 0.30	0.041			
	Deduction 0.45x0.45x0.035	0.007			
		0.034	cum	615.60	20.88
	Total				412.23
	Add 425% C.P on item No. 2	0.45			1.91
	Add 450% C.P on item No. 3	20.88			93.94
	Total Cost				508.09
	Say Rs.				508.00

Providing & fixing DI Special with jointing material including cartage loading & unloading to site of work complete in all respect					
	150 to 600 mm				
	Description	**Quantity**	**Unit**	**Rate in Rs.**	**Amount in Rs.**
	Material				
	Cost of 1 Kg D.i Special	1	Each	130.00	130
	Rebate 15%				111
	Add 5% Vat				6
	Carriage from Plantex work to site 3% including insurance octrai etc				3
	Add 10% Contractor profit				11
	Total				130
	The Provision Jointing Material such as bolts, rubber packing etc shall be provided by the Contractor				7
	Labour				
	As per DSR				3
	Add 10% Celling premium				0
	Total Cost Rs				140

Providing errection and commissioning of Centerfigual type Horizontal Split Casing Pumps for operation, AC supply capable of giving 60 LPS discharge with a head of 60 mtrs and having a motor of 65BHP including motor electric cable earthing and other required accessories etc complete in all respect

Sr. No.	Description	Qty.	Unit	Rate in Rs.	Amount in Rs.
1	Centerfigual type Horizontal Split Pumps & Motors of 40 lps capacity with 40 Mtr head 60BHP complete in all respecty	1	Nos.	310500.00	310500.00
2	Pannel Board	1	Nos.	118000.00	118000.00
	Sub Total				428500.00
	Discount 10%				42850.00
3	Net Cost				385650.00
	18% GST				69417.00
4	10% Contactors Profit				38565.00
5	Labour				
	15% Installation Charges on Net Cost				57847.50
6	Sundries				10000.00
7	Constrution foundation of Machinery complete at site including all material				10000.00
					571479.50
				Say	**571480.00**

Providing errection and commissioning of Centerfigual type Horizontal Split Casing Pumps for operation, AC supply capable of giving 60 LPS discharge with a head of 60 mtrs and having a motor of 65BHP including motor electric cable earthing and other required accessories etc complete in all respect

Sr. No.	Description	Qty.	Unit	Rate in Rs.	Amount in Rs.
1	Centerfigual type Horizontal Split Pumps & Motors of 60 lps capacity with 40 Mtr head 60BHP complete in all respecty	1	Nos.	336000.00	336000.00
2	Pannel Board	1	Nos.	118000.00	118000.00
	Sub Total				454000.00
	Discount 10%				45400.00
3	Net Cost				408600.00
	18% GST				73548.00
4	10% Contactors Profit				40860.00
5	Labour				
	15% Installation Charges on Net Cost				61290.00
6	Sundries				10000.00
7	Constrution foundation of Machinery complete at site including all material				10000.00
					604298.00
				Say	**604298.00**

Providing errection and commissioning of Centerfigual type Horizontal Split CasingPumps for operation, AC supply capable of giving100LPS discharge with a head of 40 mtrs and having a motor of 110 BHP including motor electric cable earthing and other required accessories etc complete in all respect

Sr. No.	Description	Qty.	Unit	Rate in Rs.	Amount in Rs.
1	Centerfigual type Horizontal Split Pumps & Motors of 100 lps capacity with 40m head 110 BHP complete in all respecty	1	Nos.	415000.00	415000.00
2	Pannel Board	1	Nos.	141609.60	141609.60
	Sub Total				556609.60
	Discount 10%				55660.96
3	Net Cost				500948.64
	18% GST				62618.58
3	10% Contactors Profit				50094.86
4	Labour				
	15% Installation Charges				75142.30
5	Sundries				10000.00
6	Constrution foundation of Machinery complete at site including all material				10000.00
					708804.38
				Say	**708804.00**

Providing errection and commissioning of Centerfigual type Horizontal Split CasingPumps for operation, AC supply capable of giving15LPS discharge with a head of 45mtrs and having a motor of15BHP including motor electric cable earthing and other required accessories etc complete in all respect. (As per analysis of rate as per price List) At Water Works for Baliawas.

Sr. No.	Description	Qty.	Unit	Rate in Rs.	Amount in Rs.
1	Pumps & Motors of15lps capacity with 45m head	1	Nos.	263000.00	263000.00
2	Pannel Board	1	Nos.	78900.00	78900.00
	Sub Total				341900.00
	Discount 10%				34190.00
3	Sub Total				307710.00
	18% GST				55387.80
	Total				363097.80
3	10% Contactors Profit				30771.00
4	Labour				
	10% Installation Charges				30771.00
5	Sundries				10000.00
6	Constrution foundation of Machinery complete at site				10000.00
					444639.80
				Say	**444640.00**

Providing errection and commissioning of Centerfigual type Horizontal Split CasingPumps for operation, AC supply capable of giving10LPS discharge with a head of 45mtrs and having a motor of 10BHP including motor electric cable earthing and other required accessories etc complete in all respect. (As per analysis of rate as per price List) At Water Works for Baliawas.

Sr. No.	Description	Qty.	Unit	Rate in Rs.	Amount in Rs.
1	Pumps & Motors of 10 lps capacity with 40m head	1	Nos.	248000.00	248000.00
2	Pannel Board	1	Nos.	74400.00	74400.00
	Sub Total				322400.00
	Discount 10%				32240.00
3	Sub Total				290160.00
	18% GST				52228.80
	Total				342388.80
3	10% Contactors Profit				29016.00
4	Labour				
	10% Installation Charges				29016.00
5	Sundries				10000.00
6	Constrution foundation of Machinery complete at site				10000.00
				Total	420420.80
				Say	**420421**

Analysis Rate of 250 mm i/d RCC pipe with HDPE lining class NP3 complete		
	Description	Rate
1	Material & Labour	
	RCC pipe with HDPE lining	2500
	Discount 20 %	500
	Sub Total	2000
	Add 12.36% Excise Duty	247
	Sub Total	2247
	Add 5% Vat	112
	Add Contractor profit 10%	225
	Add Cartage 3%	67
	labour	
3	Laying, Jointing & cutting of pipelines as per HSR	47
	Add CP 10%	4.7
	Grand Total	**2703**

Analysis Rate of 300 mm i/d RCC pipe with HDPE lining class NP3 complete		
	Description	Rate
1	Material & Labour	
	RCC pipe with HDPE lining	3000
	Discount 20 %	600
	Sub Total	2400
	Add 12.36% Excise Duty	297
	Sub Total	2697
	Add 5% Vat	135
	Add Contractor profit 10%	270
	Add Cartage 3%	81
	labour	
3	Laying, Jointing & cutting of pipelines as per HSR	47
	Add CP 10%	4.7
	Grand Total	**3234**

Analysis Rate of 400 mm i/d RCC pipe with HDPE lining class NP3 complete		
	Description	Rate
1	Material & Labour	
	RCC pipe with HDPE lining	3750
	Discount 20 %	750
	Sub Total	3000
	Add 12.36% Excise Duty	371
	Sub Total	3371
	Add 5% Vat	169
	Add Contractor profit 10%	337
	Add Cartage 3%	101
	labour	
3	Laying, Jointing & cutting of pipelines as per HSR	58
	Add CP 10%	5.8
	Grand Total	**4041**

Analysis Rate of 450 mm i/d RCC pipe with HDPE lining class NP3 complete		
	Description	Rate
1	Material & Labour	
	RCC pipe with HDPE lining	4050
	Discount 20 %	810
	Sub Total	3240
	Add 12.36% Excise Duty	400
	Sub Total	3640
	Add 5% Vat	182
	Add Contractor profit 10%	364
	Add Cartage 3%	109
	labour	
3	Laying, Jointing & cutting of pipelines as per HSR	65
	Add CP 10%	6.5
	Grand Total	**4367**

Analysis Rate of 500 mm i/d RCC pipe with HDPE lining class NP3 complete		
	Description	Rate
1	Material & Labour	
	RCC pipe with HDPE lining	4300
	Discount 20 %	860
	Sub Total	3440
	Add 12.36% Excise Duty	425
	Sub Total	3865
	Add 5% Vat	193
	Add Contractor profit 10%	387
	Add Cartage 3%	116
	labour	
3	Laying, Jointing & cutting of pipelines as per HSR	75
	Add CP 10%	7.5
	Grand Total	**4643**

Analysis Rate of 600 mm i/d RCC pipe with HDPE lining class NP3 complete		
	Description	Rate
1	Material & Labour	
	RCC pipe with HDPE lining	4730
	Discount 20 %	946
	Sub Total	3784
	Add 12.36% Excise Duty	468
	Sub Total	4252
	Add 5% Vat	213
	Add Contractor profit 10%	425
	Add Cartage 3%	128
	labour	
3	Laying, Jointing & cutting of pipelines as per HSR	85
	Add CP 10%	8.5
	Grand Total	**5111**

Analysis Rate of 700 mm i/d RCC pipe with HDPE lining class NP3 complete		
	Description	Rate
1	Material & Labour	
	RCC pipe with HDPE lining	5216
	Discount 20 %	1043.2
	Sub Total	4172.8
	Add 12.36% Excise Duty	516
	Sub Total	4689
	Add 5% Vat	234
	Add Contractor profit 10%	469
	Add Cartage 3%	141
	labour	
3	Laying, Jointing & cutting of pipelines as per HSR	95
	Add CP 10%	9.5
	Grand Total	**5637**

Analysis Rate of 800 mm i/d RCC pipe with HDPE lining class NP3 complete		
	Description	Rate
1	Material & Labour	
	RCC pipe with HDPE lining	6140
	Discount 20 %	1228
	Sub Total	4912
	Add 12.36% Excise Duty	607
	Sub Total	5519
	Add 5% Vat	276
	Add Contractor profit 10%	552
	Add Cartage 3%	166
	labour	
3	Laying, Jointing & cutting of pipelines as per HSR	105
	Add CP 10%	10.5
	Grand Total	**6628**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 300mm i/d						No. of Man Holes	5	Average Depth in Meters	1.20
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.19	1.59	0.25	0.87	cum	420.00	366
2	11.30	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thickness of pipe +0.085)-0.18				
		2	1.73	0.23	1.13	0.90			
		2	1.13	0.23	1.13	0.59			
		Deduct for Circular Area							
		2	3.142	0.030625	0.23	0.04			
		Sub Total				1.44	cum	481.45	694
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	0.91	0.23	0.23	0.096	cum	47.80	5
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.30+0.025+0.085+0.025				
		1	1.5	0.9	0.435	0.587			
	-	2	1.5	0.45	0.075	0.101			
		1	1.5	0.3	0.175	0.079			
		1	1.5	0.04		0.053			
	-	2	1.5	0.00117		0.003			
						0.553	cum	705.05	390
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		0.62	2.98	sqm	16.60	49
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		0.62	2.98	sqm	4.25	13
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17
8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472

9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	4.20	8
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				2.00	Each.	90.00	180
		Add 450 % C.P. on Item No. 1 , 4, & 8					1228.07		5526
		Add 500 % C.P. on Item No. 5 , 6					62.05		310
		Add 600 % C.P. on Item No.2,3					699.04		4194
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20
		Add 500 % C.P. on Item No.9					777.67		3888
		Add450% C.P. on Item No.10. on Rs.					8.40		38
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					180.00		0
		Total							**18209**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 250mm i/d						No. of Man Holes	3	Average Depth in Meters	1.75
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.42	1.82	0.25	1.10	cum	420.00	462
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.13	0.23	0.25	0.13			
		2	1.845	0.345	0.11	0.14			
		2	1.245	0.345	0.11	0.09			
		Deduct for Circular Area							
		2	3.142	0.0225	0.23	0.033			
		Sub Total				0.53	cum	489.50	260
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	0.83	0.23	0.23	0.088	cum	47.80	4
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.25+0.025+0.085+0.025				
		1	1.5	0.9	0.385	0.520			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.3	0.175	0.079			
	-	1	1.5	0.04		0.053			
		2	1.5	0.00117		0.003			
						0.486	cum	705.05	342
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		1.22	5.86	sqm	16.60	97
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		1.22	5.86	sqm	4.25	25
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17

8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472
9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	4.20	8
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				4.00	Each.	90.00	360
		Add 450 % C.P. on Item No. 1 , 4, & 8					1277.32		5748
		Add 500 % C.P. on Item No. 5 , 6					122.10		610
		Add 600 % C.P. on Item No.2,3					1100.02		6600
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20
		Add 500 % C.P. on Item No.9					777.67		3888
		Add450% C.P. on Item No.10. on Rs.					8.40		38
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					360.00		0
		Total							**21827**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m					for 250mm i/d	No. of Man Holes	0	Average Depth in Meters	2.50
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.42	1.82	0.25	1.10	cum	420.00	462
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	1.00	0.80			
		2	1.13	0.23	1.00	0.52			
		2	1.845	0.345	0.11	0.14			
		2	1.245	0.345	0.11	0.09			
		Deduct for Circular Area							
		2	3.142	0.0225	0.23	0.033			
		Sub Total				1.52	cum	489.50	743
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	0.83	0.23	0.23	0.088	cum	47.80	4
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.25+0.025+0.085+0.025				
		1	1.5	0.9	0.385	0.520			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.3	0.175	0.079			
	-	1	1.5	0.04		0.053			
		2	1.5	0.00117		0.003			
						0.486	cum	705.05	342
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		1.97	9.46	sqm	16.60	157
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		1.97	9.46	sqm	4.25	40
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17
8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				

		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472
9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	4.20	8
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				7.00	Each.	90.00	630
		Add 450 % C.P. on Item No. 1 , 4, & 8					1277.32		5748
		Add 500 % C.P. on Item No. 5 , 6					197.16		986
		Add 600 % C.P. on Item No.2,3					1583.01		9498
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20
		Add 500 % C.P. on Item No.9					777.67		3888
		Add450% C.P. on Item No.10. on Rs.					8.40		38
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					630.00		0
		Total							**25929**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 250mm i/d						No. of Man Holes	0	Average Depth in Meters	3.25
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.42	1.82	0.25	1.10	cum	420.00	462
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	1.75	1.39			
		2	1.13	0.23	1.75	0.91			
		2	1.845	0.345	0.11	0.14			
		2	1.245	0.345	0.11	0.09			
		Deduct for Circular Area							
		2	3.142	0.0225	0.23	0.033			
		Sub Total				2.50	cum	489.50	1226
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	0.83	0.23	0.23	0.088	cum	47.80	4
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.25+0.025+0.085+0.025				
		1	1.5	0.9	0.385	0.520			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.3	0.175	0.079			
	-	1	1.5	0.04		0.053			
		2	1.5	0.00117		0.003			
						0.486	cum	705.05	342
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		2.72	13.06	sqm	16.60	217
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		2.72	13.06	sqm	4.25	55
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17
8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				

		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472
9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	4.20	8
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				9.00	Each.	90.00	810
		Add 450 % C.P. on Item No. 1 , 4, & 8					1277.32		5748
		Add 500 % C.P. on Item No. 5 , 6					272.22		1361
		Add 600 % C.P. on Item No.2,3					2066.00		12396
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20
		Add 500 % C.P. on Item No.9					777.67		3888
		Add450% C.P. on Item No.10. on Rs.					8.40		38
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					810.00		0
		Total							**29940**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 300mm i/d						No. of Man Holes	3	Average Depth in Meters	1.75
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.42	1.82	0.25	1.10	cum	420.00	462
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thick ness of pipe				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.13	0.23	0.25	0.13			
		2	1.845	0.345	0.11	0.14			
		2	1.245	0.345	0.11	0.09			
		Deduct for Circular Area							
		2	3.142	0.030625	0.23	0.044			
		Sub Total				0.52	cum	489.50	254
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	0.91	0.23	0.23	0.096	cum	47.80	5
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.30+0.025+0.085+0.025				
		1	1.5	0.9	0.435	0.587			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.3	0.175	0.079			
	-	1	1.5	0.04		0.053			
		2	1.5	0.00117		0.003			
						0.553	cum	705.05	390
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		1.17	5.62	sqm	16.60	93
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		1.17	5.62	sqm	4.25	24
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17

8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472
9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	4.20	8
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				4.00	Each.	90.00	360
		Add 450 % C.P. on Item No. 1 , 4, & 8					1324.92		5962
		Add 500 % C.P. on Item No. 5 , 6					117.09		585
		Add 600 % C.P. on Item No.2,3					1094.67		6568
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20
		Add 500 % C.P. on Item No.9					777.67		3888
		Add450% C.P. on Item No.10. on Rs.					8.40		38
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					360.00		0
		Total							**22022**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 300mm i/d						No. of Man Holes	0	Average Depth in Meters	2.50
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.42	1.82	0.25	1.10	cum	420.00	462
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thick ness of pipe				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	1.00	0.80			
		2	1.13	0.23	1.00	0.52			
		2	1.845	0.345	0.11	0.14			
		2	1.245	0.345	0.11	0.09			
		Deduct for Circular Area							
		2	3.142	0.030625	0.23	0.044			
		Sub Total				1.51	cum	489.50	737
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	0.91	0.23	0.23	0.096	cum	47.80	5
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.30+0.025+0.085+0.025				
		1	1.5	0.9	0.435	0.587			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.3	0.175	0.079			
	-	1	1.5	0.04		0.053			
		2	1.5	0.00117		0.003			
						0.553	cum	705.05	390
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		1.92	9.22	sqm	16.60	153
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		1.92	9.22	sqm	4.25	39
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17
8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			

						0.435	cum	1084.80	472
9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	4.20	8
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				6.00	Each.	90.00	540
		Add 450 % C.P. on Item No. 1 , 4, & 8					1324.92		5962
		Add 500 % C.P. on Item No. 5 , 6					192.15		961
		Add 600 % C.P. on Item No.2,3					1577.66		9466
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20
		Add 500 % C.P. on Item No.9					777.67		3888
		Add450% C.P. on Item No.10. on Rs.					8.40		38
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					540.00		0
		Total							**26033**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 300mm i/d						No. of Man Holes	0	Average Depth in Meters	3.25
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.42	1.82	0.25	1.10	cum	420.00	462
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thick ness of pipe				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	1.75	1.39			
		2	1.13	0.23	1.75	0.91			
		2	1.845	0.345	0.11	0.14			
		2	1.245	0.345	0.11	0.09			
		Deduct for Circular Area							
		2	3.142	0.030625	0.23	0.044			
		Sub Total				2.49	cum	489.50	1220
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	0.91	0.23	0.23	0.096	cum	47.80	5
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.30+0.025+0.085+0.025				
		1	1.5	0.9	0.435	0.587			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.3	0.175	0.079			
	-	1	1.5	0.04		0.053			
		2	1.5	0.00117		0.003			
						0.553	cum	705.05	390
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		2.67	12.82	sqm	16.60	213
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		2.67	12.82	sqm	4.25	54
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17
8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			

						0.435	cum	1084.80	472
9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	4.20	8
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				9.00	Each.	90.00	810
		Add 450 % C.P. on Item No. 1 , 4, & 8					1324.92		5962
		Add 500 % C.P. on Item No. 5 , 6					267.21		1336
		Add 600 % C.P. on Item No.2,3					2060.65		12364
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20
		Add 500 % C.P. on Item No.9					777.67		3888
		Add450% C.P. on Item No.10. on Rs.					8.40		38
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					810.00		0
		Total							**30134**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 300mm i/d						No. of Man Holes	0	Average Depth in Meters	4.00
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.42	1.82	0.25	1.10	cum	420.00	462
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thick ness of pipe				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	2.50	1.99			
		2	1.13	0.23	2.50	1.30			
		2	1.845	0.345	0.11	0.14			
		2	1.245	0.345	0.11	0.09			
		Deduct for Circular Area							
		2	3.142	0.030625	0.23	0.044			
		Sub Total				3.48	cum	489.50	1703
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	0.91	0.23	0.23	0.096	cum	47.80	5
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.30+0.025+0.085+0.025				
		1	1.5	0.9	0.435	0.587			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.3	0.175	0.079			
	-	1	1.5	0.04		0.053			
		2	1.5	0.00117		0.003			
						0.553	cum	705.05	390
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		3.42	16.42	sqm	16.60	273
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		3.42	16.42	sqm	4.25	70
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17
8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472

9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	4.20	8
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				11.00	Each.	90.00	990
		Add 450 % C.P. on Item No. 1 , 4, & 8					1324.92		5962
		Add 500 % C.P. on Item No. 5 , 6					342.27		1711
		Add 600 % C.P. on Item No.2,3					2543.64		15262
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20
		Add 500 % C.P. on Item No.9					777.67		3888
		Add450% C.P. on Item No.10. on Rs.					8.40		38
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					990.00		0
		Total							**34146**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 500mm i/d						No. of Man Holes	9	Average Depth in Meters	4.00
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.65	2.05	0.25	1.36	cum	420.00	570
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.13	0.23	0.25	0.13			
		2	1.845	0.345	0.75	0.95			
		2	1.245	0.345	0.75	0.64			
		2	1.96	0.46	1.63	2.94			
		2	1.36	0.46	1.63	2.04			
		Deduct for Circular Area							
		2	3.142	0.087025	0.345	0.19			
		Sub Total				6.72	cum	489.50	3288
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.29	0.345	0.23	0.204	cum	47.80	10
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.50+0.045+0.085+0.045				
		1	1.5	0.9	0.675	0.911			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.5	0.285	0.214			
		1	1.5	0.10		0.147			
	-	2	1.5	0.00081		0.002			
					0.5745	0.6490	cum	705.05	458
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		3.200	15.36	sqm	16.60	255
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		3.20	15.36	sqm	4.25	65
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	17

8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472
9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	11.00	22
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				11.00	Each.	90.00	990
				Add 450 % C.P. on Item No. 1 , 4, & 8			1500.41		6752
				Add 500 % C.P. on Item No. 5 , 6			320.26		1601
				Add 600 % C.P. on Item No.2,3			4134.16		24805
				Add 120 % C.P. on Item No. 7 on Rs.			16.88		20
				Add 500 % C.P. on Item No.9			777.67		3888
				Add450% C.P. on Item No.10. on Rs.			22.00		99
				Add5% C.P. on Item No.11. on Rs.			1200.00		60
		Add0% C.P. on Item No.12 on Rs.					0.00		0
		Total							**46187**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 500mm i/d						No. of Man Holes	3	Average Depth in Meters	4.75
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.65	2.05	0.25	1.36	cum	420.00	570
2	11.25+Note	First class brick work laid in cement, stone dust (from crusher) mortar 1:3 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.13	0.23	1.32	0.69			
						1.737	cum	481.25	836
	Depth 1.5 M<5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.13	0.23	0.25	0.13			
		2	1.845	0.345	0.75	0.95			
		2	1.245	0.345	0.75	0.64			
		2	1.96	0.46	2.38	4.29			
		2	1.36	0.46	2.38	2.98			
		Deduct for Circular Area							
		2	3.142	0.087025	0.345	0.19			
		Sub Total				9.01	cum	489.50	4410
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.29	0.345	0.23	0.204	cum	47.80	10
4	10.42 +Note (V) (e) (ii)	Cement Concrete Grade 1;1.5;3 with stone aggregate of nominal size 20 mm in Foundation & Plinth +Note (V) (e) (ii)							
		Nos	L	W	D=Dia of pipe 0.50+0.045+0.085+0.045				
		1	1.5	0.9	0.675	0.911			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.5	0.285	0.214			
		1	1.5	0.10		0.147			
	-	2	1.5	0.00081		0.002			
					0.5745	0.6490	cum	705.05	458
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		3.950	18.96	sqm	16.60	315
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		3.95	18.96	sqm	4.25	81
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					

		1	1.5	0.9		1.35	sqm	12.50	17
8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472
9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	778
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	11.00	22
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				13.00	Each.	90.00	1170
				Add 450 % C.P. on Item No. 1 , 4, & 8			1500.41		6752
				Add 500 % C.P. on Item No. 5 , 6			395.32		1977
				Add 600 % C.P. on Item No.2,3			5255.50		31533
				Add 120 % C.P. on Item No. 7 on Rs.			16.88		20
				Add 500 % C.P. on Item No.9			777.67		3888
				Add450% C.P. on Item No.10. on Rs.			22.00		99
				Add5% C.P. on Item No.11. on Rs.			1200.00		60
				Add0% C.P. on Item No.12 on Rs.			0.00		0
		Total							**54667**

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Sr.No	Size	Price		
1	350	1065		
2	400	1364		
3	450	1685		
4	500	1854		
5	600	2440		
6	700	3090		
7	800	3697		
8	900	3922.1		
9	1000	4851.25		
10	1200	5894		
11	1400	6300.35		
12	1600	9400.8		
13	1800	11683.9		

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 600mm i/d						No. of Man Holes	13	Average Depth in	2.50
Sr. No.	**HSR.No.**	**Description**				**Qty**	**Unit**	**Rate**	**Amount**
1	10.38	Cement Concrete 1:4:8 with stone aggregate 20mm nominal size in foundation and plinth							
		Nos	L	W	D				
		1	2.19	1.59	0.25	0.87	cum	420.00	365.62
2	11.30	First class brick work laid in cement, stone dust (from crusher) mortar 1:5 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thick ness of pipe +0.085)-0.18				
		2	1.73	0.23	2.49	1.98			
		2	1.13	0.23	2.49	1.29			
		Deduct for Circular Area							
		2	3.142	0.15	0.23	0.21			
		Sub Total				3.06	cum	502.45	1538.31
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.08	0.23	0.23	0.115	cum	47.80	5.47
4	10.65	Design mix cement concrete of grade M-20 with minimum cement contents 405 Kg/cum in foundation and plinth.							
		Nos	L	W	D=Dia of pipe 0.6+0.085+0.085+0.085				
		1	1.5	0.9	0.855	1.15			
		1	1.5	0.45	0.075	0.05			
	-	1	1.5	0.6	0.3	0.27			
	-	1	1.5	0.14		0.21			
						0.72	cum	737.60	533.09
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		1.56	7.49	sqm	16.60	124.30
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		1.56	7.49	sqm	4.25	31.82
7	29.43	Extra over the rate for cement concrete work for making and finishing benching and complicated floor work in manholes							
		Nos	L	W					
		1	1.5	0.9		1.35	sqm	12.50	16.88
8	10.82+10.95(a)	Cement concrete 1:2:4 with stone aggregate 20mm nominal size for R.C.C. works in slabs excluding steel reinforcement but including centering and shuttering + extra over item if 1:1.5:3 is used instead of 1:2:4							
		Nos	L		D				
		1	1.96	1.36	0.18	0.480			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.435	cum	1084.80	472.40

9	18.22	Cold twisted dfarmed bar for RCC work where not included in the complete rate for RCC including bending, binding & placing in position							
		Nos	L	W					
		For top slab							
		12 mm dia bar							
		12	2.43	0.89	25.95				
		1	2.086	0.89	1.86				
		1	1.735	0.89	1.54				
		1	1.645	0.89	1.46				
		1	1.714	0.89	1.53				
		1	2.011	0.89	1.79				
		2	1.493	0.89	2.66				
		4	1.31	0.89	4.66				
		1	0.908	0.89	0.81				
		1	0.784	0.89	0.70				
		7	3.33	0.89	20.75				
		1	2.839	0.89	2.53				
		1	2.488	0.89	2.21				
		1	2.395	0.89	2.13				
		1	2.464	0.89	2.19				
		1	2.755	0.89	2.45				
		4	1.91	0.89	6.80				
		1	3.122	0.89	2.78				
					84.80	0.85	qtl	917.05	777.67
10	29.57 (7)	Providing masonry plug to ends of sewrs of all type/s with 11:43 cm thick brick wall in cement sand mortar 1:7 with 12mm thick cement plaster 1:6				2.00	Nos	16.00	32.00
11	Based on New HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening				1.00	Each.	1200.00	1200.00
12	Based on New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				5.00	Each.	90.00	450.00
		Add 450 % C.P. on Item No. 1 , 4, & 8					1371.10		6169.97
		Add 500 % C.P. on Item No. 5 , 6					156.12		780.62
		Add 600 % C.P. on Item No.2,3					1543.78		9262.69
		Add 120 % C.P. on Item No. 7 on Rs.					16.88		20.25
		Add 500 % C.P. on Item No.9					777.67		3888.34
		Add450% C.P. on Item No.10. on Rs.					32.00		144.00
		Add5% C.P. on Item No.11. on Rs.					1200.00		60.00
		Total							**25873.00**

Analysis of Rate for Recharge wells					
Sr. No. / HSR No.	Description of Items	Quantity	Unit	Rate in Rs.	Amount in Rs.
	Recharge Well				
1/NS	Boring of tubewells having minimum of 200mm dia with suitable Rig	46.00	M	1300.00	59800
2/NS	Providing & Fixing of M.S. / PVC slotted pipe (Strainer Pipe) of Size 150 mm dia	10.00	M	1338.19	13382
3/NS	Providing & Fixing of M.S. / PVC pipe (Blind Pipe) of Size 150 mm dia.	35.00	M	1462.22	51178
4/NS	Providing & pouring Gravel (5 to 10 mm size)=0.25 m around pipes in the Pit. (i) No. of Recharge Well i.e.1*((3.142*(0.20)^2-(0.15)^2*3.142)*(Length of Strainer pipe i.e.10mtr+(Length of blind pipe i.e.35mtr+1)) =6.825 (ii) No. of Recharge Well i..e1*1/4*0.20*3.142*(3.5)^2-(No. of Recharge Well i..e1*3.142*(0.15)^2*1/4) = 2.39 Total 6.29	9.22	Cum	2262.04	20845
5/NS	Cost of coarse sand(1.5mm to 2 mm size) with depth of 0.25mm with filling **No. of Recharge Well i..e1*1/4*0.25*3.142*(3.5)^2-(No. of Recharge Well i.e.1*3.142*(0.15)^2*1/4) = 2.39**	2.39	Cum	1551.00	3707
6/NS	Cost of Stone Aggregate (20 to 25 mm size) with depth of 0.25mm with cost of filling in the well. **No. of Recharge Well i..e1*1/4*0.25*3.142*(3.5)^2-(No. of Recharge Well i..e1*3.142*(0.15)^2*1/4) = 2.39**	2.39	Cum	1231.21	2943
7/NS	Supplying, filling & spreading Brick Ballast (25 to 50 mm size) with depth of 0.5 m **No. of Recharge Well i..e1*1/4*0.5*3.142*(4)^2-(No. of Recharge Well i..e1*3.142*(0.15)^2*1/4)**	6.27	Cum	632.31	3965
8/NS	Providing & fixing of Bail Plug for 150mmi/d Pipe	1.00	No.	400.00	400
9/NS	Providing &fixing of Pipe cap for 150mmi/d Pipe	1.00	No.	400.00	400
10/H.S.R. No.6.7	Earth Work in Excavation in foundations, trenches, of under ground structures, slullage drains, etc., and other similar works, and disposal of surplus soil and directed with in a lead of 30 mtrs for depth upto 2 mtrs below N.G.L (i) 3.142*(3.5+0.23)^2*Depth of Pit i.e.4.3*No. of Recharge Well i..e1 = 188cum	188.00	Cum	9.32	1752
	Add 370% C.P.				6483
12/H.S.R. No. 10.38	Cement Concrete 1:4:8 with Stone aggregate20 mm nominal Size in Foundation & Plinth 2*22/7*1.865*0.23*0.150 = 0.40 Cum	0.40	Cum	420.00	170
	Add 450%C.P.				764
13/HSR No.11.28 +11.43	First Class Brick Work laid in cement,stone dust (from crusher) mortar 1: 5 in first storey upto 4 mtrs above plinth level+Extra for circular brick work 2*22/7*2.865*2.20*0.230 = 9.11 Cum	9.11	Cum	582.85	5311
	Add600%C.P.				31867

Sr. No. / HSR No.	Description of Items	Quantity	Unit	Rate in Rs.	Amount in Rs.
14/HSR No.15.5	12 mm thick Plaster 1:4 2*22/7*2.865*2.20 = 39.62 Cum	39.62	Sq mtr	12.70	503
	Add 500%C.P.				2516
15/HSR No. 10.82+10 .95	Cement Concrete 1:2:4 with stone aggregate 20mm nominal size for reinforced concrete work in slabs with inclination not exceeding25 degree with horizontal excluding steel reinforcement, but including centering and shuttering laid in position complete in all respect.+(a) extra over item Nos. 10.79 to 10.94, if 1:1.5:3 mix is used, instead of 1:2:4 22/7*(1.95)^2*0.150 = 1.79 cum\	1.79	Cum	1084.80	1945
	Add 450%C.P.				8751
16/HSR No. 18.22	Fe-500 TMT steel bars of the company's TISCO, SAIL, RINL or IISCO for RCC works, where not included in the complete rate of RCC including bending, binding and placing in position complete. @ of 1 Qtl / cum i.e. 1.79 cum x 1 = 1.79 Qtl	1.79	Qtl	917.05	1644
	Add 500%C.P.				8220
17/HSR 29.94	Providing & Fixing SFRC Manhole Covers & Frames marked with IS 12592 including setting the same to correct lines and levels in 1:2 cement sand morter over manholes including carriage, loading unloading, staking, handling, rehandling, complete in all respect extra heavy duty set (EHD 35) 560 mm clear opening	2.00	Nos	1200.00	2400
18/ HSR 29-28	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS:10910 on 12 mm dia steel bar conforming to IS 1786 having minimum cross section as 23 mm x 25 mm and overall minimum length 263 mm and width as 165 mm with space between protruded legs having 2 mm tread on top surface by ribbing on chequering besides necessary and adequate anchoring projections on tall length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacturer's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20 mm nominal size) complete as per design.	4.00	Nos	90.00	360
	Add 5%C.P.				120
19/NS	Providing & Fixing of stone slab 6*1200m*600mm	4.32	Sq mtr	260.00	1123
	Total (A)				**230547**

DETAIL OF COLLECTION CENTRE										
Sr. No.	**HSR.No.**	**DESCRIPTION**	**No.**	**L**	**B**	**H**	**Qty**	**Unit**	**Rate**	**Amt.**
1	6.6	Earth work in excavation in foundation, trenches etc in all kinds of soils not exceeding 2 metres depth including dressing of bottom and sides of trenches stacking the excavated soil clear from the edge of excavation and subsequent filling around masonry in 15 cm layers with compaction including disposal of all surplus soil, as directed within a lead of 30 metres	2	7.50	0.75	0.3	3.38			
	(i)	Central Wall	1	7.30	0.75	0.3	1.64			
	(ii)	Circular Wall	1.57	8.15	0.75	0.3	2.88			
	(iii)	Under Drain		8.30	0.7	0.18	1.05			
							8.94	Cum	11.08	99
		Add 425% Ceiling Premium								421
2	10.38	Cement concrete 1:4:8 with stone aggregate 20 mm nominal size in foundation and plinth.								
		Outer Wall	2	7.50	0.750	0.10	1.13			
		Central Wall	1	6.50	0.750	0.10	0.49			
		Circular Wall	1.57	8.15	0.750	0.10	0.96			
		Under Drain		8.30	0.700	0.18	1.05			
		In between		8.30	0.300	0.10	0.25			
							3.87	Cum	420.00	1625
		Add 450% Ceiling Premium								7314
3	10.86	**R.C.C Lintel 1:1.5:3**								
		Outer Side Right & Left	2	7.50	0.600	0.200	1.80			
		Central Wall	1	6.50	0.600	0.200	0.78			
		Circular Wall	1.57	8.20	0.600	0.200	1.54			
							4.12			
		Above Ground level	2	7.50	0.150	2.400	5.40			
		Central Wall	1	6.50	0.150	1.000	0.98			
		Circular Wall	1.57	8.20	0.150	2.400	4.63			
		Drain wall	2	8.30	0.500	0.100	0.83			
							15.96	Cum	1101.9	17586
		Add 450% Ceiling Premium								79135
4	10.82	Slab	1	8.30	0.5	0.1	**0.415**	Cum	997.9	419
		Add 450% Ceiling Premium								1886
5		Glazed tile on wall								
		Side wall	2	7.50	2.000		30.00			
		Central Wall	2	6.50	1		13.00			
		Circular wall	1.57	8.00	1.800		22.61			
							65.61	Cum	270.65	17757

Sr. No.	HSR.No.	DESCRIPTION	No.	L	B	H	Qty	Unit	Rate	Amt.
6		**Plaster 1:4**								
		Side wall	4	7.50	2.100		63.00			
		Central Wall	2	6.50	1		13.00			
		Circular wall	1.57	8.00	1.800		22.61			
		Out side	1.57	8.30	2.400		31.27			
							129.88	Cum	12.7	1649
		Add 500% Ceiling Premium								8247
7	14.62	**Kotah Stone flooring**								
		Front portion	1	7.50	8		60.00			
		Inside portion	1.57	0.25	8	8	25.12			
							85.12	Cum	201.95	17190
		Add 250% Ceiling Premium								42975
8	14.1	Cement Concrete 1:8:16								
		Front portion	1	7.50	8		60.00			
		Inside portion	1.57	0.25	8	8	25.12			
							85.12	Cum	36.95	3145
		Add 400% Ceiling Premium								12581
9	18.18	Rolling Shutter	2	4.00	1.800		**14.40**	Cum	401.75	5785
		Add 500% Ceiling Premium								28926
10	16.51	Distempering								
		outside	2	7.50	2.400		36.00	Cum		
		outside circular	1.57	8.30	2.4		31.27	Cum		
							67.27	Cum	3.95	266
		Add 230% Ceiling Premium								611
11	16.54	Dry Distempering					**67.27**	Cum	6.9	464
		Add 230% Ceiling Premium								1068
12	18.22	Cold twisted deformed bars					**18.01**	Cum	917.05	16516
		Add 500% Ceiling Premium								82580
		Total								348246
		Say in Lacs								3.49

(NS-1) Rate analysis for Supply, Erection,testing and commissioning of 20watt LED Street light luminaire made of pressure die cast housing with toughned glass and individual LEDs with secondary optics having IP 66 protection, with all other accessories etc. at site including all applicable taxes,levies & duties, Transportation etc.	
Description	**Price**
Supply Part	
Basic/Quoted price (A)	4000.00
Discount (30%) (B)	1200.00
Price after discount (C)	2800.00
Add CGST/SGST/ISGST @ 12% (D), on (C)	336.00
Add 3% Transportaion,insurance,handling, loading-unloading at FOR destination (E) on (C)	84.00
Add 10% contractor profit & 5% overheads charges (Total-15%) (F) on Total amount (C)	420.00
Total Amount of supply of material at site (G)=C+D+E+F	3640.00
SAY	3640.00
Erection,Testing & Commissioning Part	
Erection Charges @ Rs.38 with C.P. 270% above (H) as per HSR-31.30-III, (xiv-d) plus 15% above for market price escalation	161.69
Add 18% CGST/SGST/ISGST (I) on erection part (H)	29.10
Total Amount of Erection,Testing & commissioning of material at site (J)	190.79
SAY	191.00
Total amount of Supply at site, Erection,Testing & commissioning of material (K)=G+J	3831.00

(NS-2) Rate analysis for Supply, Erection,testing and commissioning of 40watt LED Street light luminaire made of pressure die cast housing with toughned glass and individual LEDs with secondary optics having IP 66 protection, with all other accessories etc. at site including all applicable taxes,levies & duties, Transportation etc.	
Description	**Price**
Supply Part	
Basic/Quoted price (A)	8200.00
Discount (30%) (B)	2460.00
Price after discount (C)	5740.00
Add CGST/SGST/ISGST @ 12% (D), on (C)	688.80
Add 3% Transportaion,insurance,handling, loading-unloading at FOR destination (E) on (C)	172.20
Add 10% contractor profit & 5% overheads charges (Total-15%) (F) on Total amount (C)	861.00
Total Amount of supply of material at site (G)=C+D+E+F	7462.00
SAY	7462.00
Erection,Testing & Commissioning Part	
Erection Charges @ Rs.38 with C.P. 270% above (H) as per HSR-31.30-III, (xiv-d) plus 15% above for market price escalation	161.69
Add 18% CGST/SGST/ISGST (I) on erection part (H)	29.10
Total Amount of Erection,Testing & commissioning of material at site (J)	190.79
SAY	191.00
Total amount of Supply at site, Erection,Testing & commissioning of material (K)=G+J	7653.00

(NS-3) Rate analysis for Supply, Erection,testing and commissioning of 90watt LED Street light luminaire made of pressure die cast housing with toughned glass and individual LEDs with secondary optics having IP 66 protection, with all other accessories etc. at site including all applicable taxes,levies & duties, Transportation etc.	
Description	**Price**
Supply Part	
Basic/Quoted price (A)	16000.00
Discount (30%) (B)	4800.00
Price after discount (C)	11200.00
Add CGST/SGST/ISGST @ 12% (D), on (C)	1344.00
Add 3% Transportaion,insurance,handling, loading-unloading at FOR destination (E) on (C)	336.00
Add 10% contractor profit & 5% overheads charges (Total-15%) (F) on Total amount (C)	1680.00
Total Amount of supply of material at site (G)=C+D+E+F	14560.00
SAY	14560.00
Erection,Testing & Commissioning Part	
Erection Charges @ Rs.38 with C.P. 270% above (H) as per HSR-31.30-III, (xiv-d) plus 15% above for market price escalation	161.69
Add 18% CGST/SGST/ISGST (I) on erection part (H)	29.10
Total Amount of Erection,Testing & commissioning of material at site (J)	190.79
SAY	191.00
Total amount of Supply at site, Erection,Testing & commissioning of material (K)=G+J	14751.00

(NS-4) Rate analysis for Supply, Erection of 3 core 2.5 sqmm Cu flexible cable with all other accessories etc. at site including all applicable taxes,levies & duties, Transportation etc.	
Description	**Price**
Supply Part	
Basic/Quoted price (A)	46.93
Discount (00%) (B)	0.00
Price after discount (C)	46.93
Add CGST/SGST/ISGST @ 28% (D), on (C)	13.14
Add 3% Transportaion,insurance,handling, loading-unloading at FOR destination (E) on (C)	1.41
Add 10% contractor profit & 5% overheads charges (Total-15%) (F) on Total amount (C)	7.04
Total Amount of supply of material at site (G)=C+D+E+F	68.52
SAY	69.00
Erection,Testing & Commissioning Part	
Erection Charges (H) @ 5% on Total amount of Supply (G)	3.45
Add 18% CGST/SGST/ISGST (I) on erection part (H)	0.62
Total Amount of Erection,Testing & commissioning of material at site (J)	4.07
SAY	4.00
Total amount of Supply at site, Erection,Testing & commissioning of material (K)=G+J	73.00

(NS-5) Rate analysis for Supply, Erection of Single arm GI Bracket with all other accessories etc. at site including all applicable taxes,levies & duties, Transportation etc.	
Description	**Price**
Supply Part	
Basic/Quoted price (A) including cost of clamps and hardware	1200.00
Discount (00%) (B)	0.00
Total cost (C)	1200.00
Add CGST/SGST/ISGST @ 18% (D), on (C)	216.00
Add 3% Transportaion,insurance,handling, loading-unloading at FOR destination (E) on (C)	36.00
Add 10% contractor profit & 5% overheads charges (Total-15%) (F) on Total amount (C)	180.00
Total Amount of supply of material at site (G)=C+D+E+F	1632.00
SAY	1632.00
Erection,Testing & Commissioning Part	
Erection Charges (H) @ 5% on Total amount of Supply (G)	81.60
Add 18% CGST/SGST/ISGST (I) on erection part (H)	14.69
Total Amount of Erection,Testing & commissioning of material at site (J)	96.29
SAY	96.00
Total amount of Supply at site, Erection,Testing & commissioning of material (K)=G+J	1728.00

BACKUP QUANTITIES

Details of Quantities DLF Phase II (Special repair)							
Sr No	Description	Road Width	L	W	Average Ht.	No of Lane	Quantity
1	**Cleaning of ROAD BERM**	9	3284	4	0.1		1314
		12	23073	5	0.1		11537
		15	192	6	0.1		115
		18	2182	7	0.1		1527
		24	424	8	0.1		339
	Total Quatity						14832
	Add 5% Extra						**742**
	Total Quatity						**15573**
2	**TACK COAT UNDER BC**	Road Width	Length	W			Quantity
	Main Road	9	3284	3.66			12019
		12	23073	4.88			112596
		15	192	6.70			1286
		18	2182	6.70			14619
		24	424	9.20			3901
	Total Quatity						144422
	Add 5% Extra						**7221**
	Total Quatity						**151643**
	Total Quatity						**178672**
3	**50 mm BM**	Road Width	Length	W	H		Quantity
	Main Road	18	2182	6.70	0.05		730.97
		24	424	9.20	0.05		195.04
	Total Quatity						926
	Add 5% Extra						**46**
	Total Quatity						972
	Add additional qty of BM for depression area						227
	Total Quatity						1200
4	**30 mm BC on**	Road Width	Length	W	H		Quantity
	On damage+Non Existing Roads	9	3284	3.66	0.03		360.58
		12	23073	4.88	0.03		3377.89
		15	192	6.70	0.03		38.59
		18	2182	6.70	0.03		438.58
		24	424	9.20	0.03		117.02
	Total Quatity						4333
	Add 5% Extra						**217**

	Total Quatity						**4549**
5	**Road Marking Strip central line**	Carriage Way	Length	No of Lines	Width		Quantity
		12	23073	1.00	0.10		2307
		15	192	2.00	0.10		38
		18	2182	1.00	0.10		218
		24	424	1.00	0.10		42
	Total Quatity						2606
	Total Quatity						7781

Details of Quantities DLF Phase II							
Sub Head No 3			ADDITIONAL INFRASTRUCTURE				
Sr No	Description	Road Width	L	W	Average Ht.	No of Lane	Quantity
1(A)	**Excavation of ROAD BERM for pavers**	9	3284	1.50	0.25	1	1232
		12	23073	1.50	0.25	2	17305
		15	192	1.75	0.25	2	168
		18	2182	2.00	0.25	2	2182
		24	424	2.00	0.25	2	424
b	**Excavation of side beam for pavers**	9	3284	0.3	0.28	1	276
		12	23073	0.3	0.28	2	3876
		15	192	0.3	0.28	2	32
		18	2182	0.3	0.28	2	367
		24	424	0.3	0.28	2	71
	Total Quatity						25932
	Add 5% Extra						**1297**
	Total Quatity						**27229**
2	Centring and shuttering for faces of walls for end block						
		9	3284		0.28	2	1839.04
		12	23073		0.28	2	12920.9
		15	192		0.28	2	107.52
		18	2182		0.28	2	1221.92
		24	424		0.28	2	237.44
	Total Quatity						16327
	Add 5% Extra						**816**
	Total Quatity						**17143**
3	**Cement concrete 1 : 4 : 8 with stone aggregate 20 mm Nominal size for LOCKING BLOCKS**	Carriage Way	Length	B	HT	No of Lines	
	Main Road	9	3284	0.30	0.08	1.00	79
		12	23073	0.30	0.08	2.00	1108
		15	192	0.30	0.08	2	9
		18	2182	0.30	0.08	2.00	105
		24	424	0.30	0.08	2.00	20
	Total Quatity						1321
	Add 5% Extra						**66**
	Total Quatity						**1387**
4	**LOCKING BLOCKS**	Carriage Way	Length	No of Lines			

	Main Road	9	3284	1.00			3284
		12	23073	2.00			46146
		15	192	2.00			384
		18	2182	2.00			4364
		24	424	2.00			848
	Total Quatity						55026
	Add 5% Extra						**2751**
	Total Quatity						**57777**
	Qty of conc.1:1.5:3		**57777**	**0.15**	**0.2**		**1733**
5	**80MM TH. PAVERS**	Carriage Way	Length	No of Lines	Width		Quantity
	Main Road	9	3284	1	1.50		4926
		12	23073	2	1.50		69219
		15	192	2	2.00		768
		18	2182	2	2.00		8728
		24	424	2	2.50		2120
	Total Quatity						85761
	Add 5% Extra						**4288**
	Total Quatity						**90049**
6	**Sub Grade**	Road Width	Length	W	H	No of Lane	Quantity
		9	3284	1.50		1	4926
		12	23073	1.50		2	69219
		15	192	2.00		2	768
		18	2182	2.00		2	8728
		24	424	2.50		2	2120
	Total Quatity						85761
	Add 5% Extra						**4288**
	Total Quatity						**90049**
7	**GSB**						
		9	3284	1.50	0.15	1	739
		12	23073	1.50	0.15	2	10383
		15	192	2.00	0.15	2	115
		18	2182	2.00	0.15	2	1309
		24	424	2.50	0.15	2.5	398
	Total Quatity						12944
	Add 5% Extra						**647**
	Total Quatity						**13591**

Detail of QUANTITIES OF HORTICULTURE

							Status			urniture light pole e						PROPOSED WORK										
S.No	Park no.	Road No	Status of park	LENGTH	WIDTH	AREA in acres	Wire fancing	Boundary wall	athway	Benche	play equipment	light pole	No of gate		lenth of B WALL WITH BRICK WALL	lenth of B WALL WITH WALL FENCING WORK	No of gate Proposed		LENGTH OF GATE	lenth of B WALL WITH BW I	No of Trees	No of shrubs	PAVER BLOCK AREA			Brick Edging in FLOWER BED	LENGTH OF KERB	
													Design 1	Design 2			Design 1	Design 2					L	B	QTY			QTYof KERB
1	J4	J4	Developed	72+91	61+41	1.08	No	Yes	Yes	14	4	6	1		265		0	1	7		44	22	115	1.5	172.5		230	6.9
2	J11	J11	Developed	107+113	39+0	0.67	No	Yes	Yes	6	1	6	1	0	259		0	0	3		27	14	145	1.5	217.5	196	290	8.7
3	K7	K7	Developed	88+95	39+0	0.14	No	Yes	Yes	10	3	6	1	0	222		0	0	3		6	3			0	672	0	0
4	K16	K16	Developed	85+30	52+75	0.75	No	Yes	Yes	10	3	5	1	0	242			0	3		30	15			0	147	0	0
5	L15	L15	Developed	190+194	37+0	1.45	Yes	No	No	0	0	0	2	0		421		1	7	414	59	30			0		0	0
6	L18	L18	Developed	56+39	49+7	0.28	Yes	No	No	3	3	3	1	0		148		0	3	145	11	6			0		0	0
7	L30	L30	Developed	90+102	14+26	0.46	No	Yes	Yes	4	4	5	1	0	232			0	3		19	10			0		0	0
8	M2	M2	Developed	51	42	0.51	Yes	Yes	Yes	19	4	3	1	0		186		0	3	183	21	11			0		0	0
9	M13	M13	Developed	56	88	1.22	Yes	Yes	Yes	20	3	12	2	0		288		1	7	281	49	25			0		0	0
10	N6	N6	Developed	124+106	33+39	0.95	No	Yes	Yes	12	0	5	1	0	302			1	7		38	19	161	1.5	241.5		322	9.66
11	N11	N11	Developed	50	21	0.28	No	Yes	Yes	2	0	0	1	0	142			0	3		11	6	131	1.5	196.5		262	7.86
12	P2	P2	Developed	42	40	0.42	Yes	No	Yes	8	0	5	1	0		164		0	3	161	17	9	227	1.5	340.5		454	13.62
13	P6	P6	Developed	53+56	18+50	1.07	Yes	No	No	4	0	5	2	0		177		1	7	170	43	22			0		0	0
14	P8	P8	Developed	63+102	52+64	0.45	Yes	No	No	2	0	5	1	0		281		0	3	278	18	9			0		0	0
15	Q4	Q4	Developed	100+116	28+87	1.27	No	Yes	Yes	8	0	8	2	0	332		1	1	7		51	26			0		0	0
						11	0	0	0	122	25	74	19	0	1996	1665	1	6	69	1632	444	227	779	7.5	1168.5	1015	1558	46.74
										14	8																	

EXCAVATION DETAILS

1 / 6.8(a)	**Excavation** for pipe lines running under pressure in trenches and pits, in open areas, where disposal of surplus earth is done along with the alignment and restoration of unmetalled or unpaved surface to it's original condition, in ordinary soil. a) without timbering and shoring upto 1.5 metres depth							
	Dia of Pipe	Length of Trench				Width of Trench	Depth of Trench	Quantity of Earth Work
	mm	Mtrs			Mtrs	Mtrs	Mtrs	Cum
	Size	length			Rising Main			
	100	280				0.71	1.30	258
	150	90				0.76	1.35	92
	200	20				0.81	1.40	23
	Total Qty							373
2 / 6.7	Earth work in excavation in foundation , trenches,of under ground structures,sullage drains etc. and other similer works in ordinary soil including dressing of botom and sides,to correct levels and templets,cutting of trees and bushes, dewatering of rain water,diversion of traffic,fixing and mainantences of caution boards,and night siganals,crossing over trenches for access to houses,watching,staking of excavated soil,clear from the edge of excavation,and subsequent filling							
	Sluice Valve							Quantity of Earth Work
Sr No	Size		Pipe	Rising Ma	L	W	D	
	mm i/d							
1	150			0	1.59	1.59	1.750	0.0
2	400		0		1.89	1.89	2.000	0.00
	Scour Valve							
1	100		0		1.59	1.59	1.425	0.00
	Fire Hydrants							
1	100		70		1.59	1.59	1.425	252.18
	DoubleAir Valves							
1	100		2		1.59	1.59	1.425	7.21
2	200				1.59	1.59	1.425	0.00
	Sub Total							259.00

Excavation Detail of Water Supply Additional work								
1 / 6.8(a)	**Excavation** for pipe lines running under pressure in trenches and pits, in open areas, where disposal of surplus earth is done along with the alignment and restoration of							
	Dia of Pipe	Length of Trench				Width of Trench	Depth of Trench	Quantity of Earth Work
	mm	Mtrs			Mtrs	Mtrs	Mtrs	Cum
	Size	length			Rising Main			
	100	15960				0.71	1.30	14731
	150	2000				0.76	1.35	2052
	Total Qty							16783
2 / 6.7	Earth work in excavation in foundation , trenches,of under ground structures,sullage							
	Sluice Valve							Quantity of Earth Work
Sr No	Size		Pipe	Rising Ma	L	W	D	
	mm i/d							
	100		70		1.59	1.59	1.750	309.69
	150		15	0	1.59	1.59	1.750	66.36
	Scour Valve							
1	100		5		1.59	1.59	1.425	0.00
	Fire Hydrants							
1	100		0		1.59	1.59	1.425	0.00
	Kinetic Air Valves							
	100		5		1.59	1.59	1.425	18.01
	Sub Total							394.00

Size of Pipe		Existing Length	Additional Proposed Length	No. of Man Holes				
				Avg Depth <1.75	Avg Depth >1.75<2.50	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0	Avg Depth >4.0<4.75
200 mm i/d	200	29365	0					
250 mm i/d	250	723	181	3.00	2.00	2.00		
300 mm i/d	300	83	379	3.00	4.00	5.00	2.00	
400 mm i/d	400	1876	0					
500 mm i/d	500	0	435				9.00	3.00
600 mm i/d	600	300	99			1.00	2.00	
TOTAL		**32347**	**1094**	**6**	**6**	**8**	**13**	**3**

Excavation Details Sewerage									Rate	Amount
1 / 6.10	**Excavation of Trenches in Streets, Lanes or in open area for storm sewer, sewers running by gravity and manholes to full depth as shown in drawings including shoring as shown in drawings including showring, timbring of poling boards, frame system type, removal of surpls soil, from site of work up to lead of 1 km ordinary soil.**									
	FOR PIPES SIZE OF						Qty	Unit		
	(a) for depth of excavation not exceeding 2 mtrs below ground level									
	Refer to Appurtenances Statement									
	Internal Diameter	Thick ness of Pipe	L	W	D	Qty				
	MM	MM	M	M	M	M^3				
300mm i/d	300	25	200	0.950	1.325	251.75				
				0.550	0.237	26.07				
	Total						277.82	cum	11.89	3303
	(b) for depth of excavation not exceeding 3 mtrs below ground level									
	Refer to Appurtenances Statement									
	Internal Diameter	Thick ness of Pipe	L	W	D	Qty				
	MM	MM	M	M	M	M^3				
250mm i/d	250	25	76	0.900	1.875	128.25				
				0.550	0.237	9.91				
250mm i/d	250	35	54	0.920	2.69	133.39				
				0.70	0.27	10.09				
300mm i/d	300	35	76	0.970	1.94	142.65				
				0.70	0.27	14.20				
300mm i/d	300	35	133	0.970	2.69	346.39				
				0.70	0.27	24.86				
							671.59			
	(c) for depth of excavation not exceeding 4.5mtrs below ground level									
	Refer to Appurtenances Statement									
	Internal Diameter	Thick ness of Pipe	L	W	D	Qty				
	MM	MM	M	M	M	M^3				
250 mm i/d	250	25	51	0.900	4.13	189.34				

				0.55	0.237	6.65				
300 mm i/d	300	25	124	0.950	3.38	397.58				
				0.55	0.237	16.16				
300 mm i/d	300	25	46	0.950	4.13	180.26				
				0.55	0.237	6.00				
500 mm i/d	500	85	325	1.270	4.19	1727.36				#REF!
				1.00	0.246	79.95				
600 mm i/d	600	85	44	1.370	3.445	207.66				
				1.000	0.246	10.82				
600 mm i/d	600	85	55	1.370	4.195	316.09				
				1.000	0.246	13.53				
	Total						3151.40	cum	19.19	60475
	(c) for depth of excavation not exceeding 6mtrs below ground level									
	Refer to Appurtenances Statement									
	Internal Diameter	Thick ness of Pipe	L	W	D	Qty				
	MM	MM	M	M	M	M^3				
500 mm i/d	500	85	110	1.270	4.88	681.04				
				0.55	0.246	14.88				
	Total						695.92	cum	21.14	14712
	FOR MANHOLES WITH AVERAGE DEPTH						4797			
	(b) for depth of excavation not exceeding 3 mtrs below ground level									
		In Meters								
		No.	L	W	D	Qty				
		No.	M	M	M	M^3				
250 mm i/d	1.75	3.00	2.19	1.59	2.11	22.04				
250 mm i/d	2.50	2.00	2.19	1.59	2.86	19.92				
300 mm i/d	1.75	3.00	2.19	1.59	2.11	22.04				
300 mm i/d	2.50	4.00	2.19	1.59	2.86	39.84				
	Total						103.84	cum	19.19	1993
	(c) for depth of excavation not exceeding 4.5mtrs below ground level									
		In Meters								
			L	W	D	Qty				
		No.	M	M	M	M^3				
250 mm i/d	4.00	2	2.19	1.59	4.36	30.36				

300 mm i/d	4.00	2	2.19	1.59	4.36	30.36				
500mm i/d	4.00	11	2.42	1.82	4.36	211.24				
500mm i/d	4.75	4	2.42	1.82	5.11	90.03				
600mm i/d	3.25	1	2.42	1.82	3.61	15.90				
600mm i/d	4.00	2	2.42	1.82	4.36	38.41				
	Total						377.89	cum	21.14	7989
	(d) for depth of excavation not exceeding 6 mtrs below ground level									
500mm i/d	4.75	4	2.42	1.82	5.11	90.03				
		In Meters					90.03			

Excavation Details								
Sr. No.	**Description**							**Qty.**
1 / 6.10	Excavation of trenches in streets, lanes or in open areas for storm sewer, sewers running by gravity and manholes to full depths as shown in drawings including shoring, timbering of poling boards, frame system type, dressing to correct sections and dimensions, according to templates and levels, dewatering, provision for diversion of traffic, cutting trees and bushes, etc. night signals, profiles pegs, sight rails, boning rods, crossing over trenches for access to the houses, watching, fencing etc., fixing and maintenance of caution boards, refilling of trenches, watering of refill, in 15 cm layers, ramming and restoration of unmetalled or unpaved surface to original condition and removal of surplus soil from site of work upto a lead of 1 Km in ordinary soil							
	FOR PIPES SIZE OF							
	(b) for depth of excavation exceeding 2 mtrs not exceeding 3 mtrs below ground level							
	600 mm i/d		L	W		D	Qty	
		600	250	1.37	1.80	2.04	699	
				1.000		0.246	62	
	Total							**760**
	FOR ROAD GULLIES & MANHOLES WITH AVERAGE DEPTH							
	(a) for depth of excavation not exceeding 2 mtrs below ground level							
	Refer to Appurtenances Statement		In Nos.					
	Road Gullies							
	Single Road Gullies	9	1.748		1.217	1.105	21	
	Double Road Gullies	9	2.56		1.960	1.105	50	
	Total						71.00	
	FOR MANHOLES WITH AVERAGE DEPTH							
	(b) for depth of excavation exceeding 2 mtrs not exceeding 3 mtrs below ground level						In mtrs	
			L		W	D	Qty	
	Refer to Appurtenances Statement		In mtrs					
	600 mm / id							
	2.50	9	2.79		2.190	2.91	160	109.6
							160	110
	Total							**50**

ABSTRACT OF LENGTH STORM WATER	
Size	**Length**
230mmX230 mm	**27444**
230mmX450 mm	**5935**
345mmX450 mm	**1231**
345mmX675 mm	**2074**
450mmX675 mm	**1151**
675mmX900 mm	**848**
Total	**38683**

SUB WORK NO.1	Details of reparing of Drain for 100 mtr length of various size						
S.NO/HSR NO	**Description**	**Qty**	**Unit**	**Rate**			**Amount**
2/15.5+15.75	12 mm thick cement plaster 1:4&Cement rendering on plaster 1 mm thick.						
	Length of .23x0.230 m wide Drain						
	1*100*(2*0.386+0.23+0.23+0.23)	146.2	**SQM**	**16.95**	**2478.09**	12390.45	14868.54
	Length of 0.23X0.450M wide Drain						
	1*100*(2*0.632+0.23+0.23+0.23)	195.4	**SQM**	**16.95**	**3312.03**	16560.15	19872.18
	Length of 0.35X.45M wide Drain						
	1*100*(2*0.632+0.345+0.23+0.23)	206.9	**SQM**	**16.95**	**3506.955**	17534.775	21041.73
	Length of 0.45X0.675M wide Drain						
	1*100*(2*0.883+0.45+0.23+0.23)	267.6	**SQM**	**16.95**	**4535.82**	22679.1	27214.92
	Length of 0.675X1.2M wide Drain						
	1*100*(2*1.135+0.675+0.23+0.23)	340.5	**SQM**	**16.95**	**5771.475**	28857.375	34628.85
	Length of 0.23Mx0.345 wide Drain						
	1*100*(2*0.504+0.23+0.23+0.23)	171.8	**SQM**	**16.95**	**2912.01**	14560.05	17472.06
	Length of 0.23Mx0.345 wide Drain						
	1*100*(2*0.883+0.35+0.23+0.23)	257.6	**SQM**	**16.95**	**4366.32**	21831.6	26197.92
Details of Disilting of Drain for 100 mtr length of various size							
2	Desilting						
	Length of .23x0.230 m wide Drain						
	100*(0.23+.460)/2*0.15	5.175	**SQM**	**158**	**817.65**		
	Length of 0.23X0.450M wide Drain						
	100*(0.230+0.680)/2*0.225	10.2375	**SQM**	**158**	**1617.525**		
	Length of 0.35X.45M wide Drain						
	100*(0.35+0.795)/2*0.30	17.175	**SQM**	**158**	**2713.65**		
	Length of 0.45X0.675M wide Drain						
	100*(0.45+1.125)/2*0.30	23.625	**SQM**	**158**	**3732.75**		
	Length of 0.675X0.9M wide Drain						
	100*(0.675+1.575)/2*0.6	67.5	**SQM**	**158**	**10665**		
	Length of 0.23X0.345M wide Drain						
	100*(0.230+0.575)/2*0.225	9.06	**SQM**	**158**	**1430.8875**		
	Length of 0.345X0.675M wide Drain						

S.NO/HSR NO	Description	Qty	Unit	Rate			Amount
	100*(0.345+1.135)/2*0.3	22.2	**SQM**	**158**	**3507.6**		
3	Provision for reparing of drain & raising of hight upto ground level where required in brick work in 1:5	967	**cum**	**427.7**	**413741.0482**	2482446.3	2896187.3
4	Provision for unforseen item	lum-sump			**500000**	3000000	3500000
5	First class brick on edge 11.50 cm thick laid in reimbursement in and on 1:5 cement sand mortar as above 2x56079x.115	8897.09	sqm	51.9	**461758.97**	2770553.8	3232312.8

Description	50mm o/d	63mm o/d	75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	TOTAL LENGTH
	M	M	M	M	M	M	M	M	M
AC Pipe Line class 25 (Mazza)	1980	990	2648	8201	1880	482	881	57	17119
Gate valve	495	165	0	0	0	0	0	0	660
Sluice Valves	0	0	0	61	13	4	5	1	84
Scour Valves	0	0	0	6	0	0	0	0	0
Sprikler	165	0	0	0	0	0	0	0	165
Air valve	0	0	0	0	6	0	0	0	6
Lawn Hydrant	0	126	0	0	0	0	0	0	126

EXCAVATION DETAIL OF RECYCLING						
1 / 6.8(a)	Excavation for pipe lines running under pressure in trenches and pits, in open areas, where disposal of surplus earth is done along with the alignment and restoration of unmetalled or unpaved surface to it's original condition, in ordinary soil. a) without timbering and shoring upto 1.5 metres depth				Depth of Trench	
	Dia of Pipe	Length of Trench	Outer Dia of Pipe	Width of Trench	Mtrs	Qty
	mm	Mtrs		Mtrs		
	For Distribution	Zone 1				
	50 mm i/d	1980	50	0.65	1.25	1608.75
	63 mm i/d	990	63	0.66	1.26	829.00
	110 mm i/d	8201	110	0.71	1.31	7627.75
	160 mm i/d	1880	160	0.76	1.36	498.20
	200 mm i/d	482	210	0.81	1.41	1006.19
	250 mm i/d	881	250	0.85	1.45	70.25
	300 mm i/d	57	300	0.90	1.50	76.95
						11717.08
1 / 6.7	Earth work in excavation in foundation , trenches,of under ground structures,sullage drains etc. and other similer works in ordinary soil including dressing of botom and sides,to correct levels and templets,cutting of trees and bushes, dewatering of rain water,diversion of traffic,fixing and mainantences of caution boards,and night siganals,crossing over trenches for access to houses,watching,staking of excavated soil,clear from the edge of excavation,and subsequent filling					
	Sluice Valve				D	
Sr No	Size	Total	L	W		Qty
	mm i/d					
1	100	61	1.59	1.59	1.750	269.87
2	150	13	1.59	1.59	1.750	57.51
3	200	4	1.59	1.59	1.750	17.70
4	250	5	1.59	1.59	1.750	22.12
	300	1	1.59	1.59	1.750	4.42
	Scour Valve					
1	100	6	1.59	1.59	1.750	26.55
2	150	0	1.59	1.59	1.750	0.00
	Kinetic Air Valves					
1	100	6	1.59	1.59	1.750	26.55
	150	0	1.59	1.59	1.750	0.00
	Fire Hydrants					
1	100	126	1.59	1.59	1.750	557.45
	Sub Total					982.17

Bill of Quantities		
Covered Bin for Residential Area		
Population Served	67000	
Population in one dwelling Unit	7-8	Persons
No. of dwelling Unit	10980	Units
No. of bins required per dwelling unit(Capacity of each Bin =8 Kg (20Cum)	2	Nos
Quantity proposed to be lifted	26.95	MT
Total No. of bins required	21960	
Total No. of bins required with 3% added extra	22619	Nos
Group Hosing Area		
Population Served	6853	
Population in one dwelling Unit	5	Persons
No. of dwelling Unit	1370.6	Units
No. of bins required per dwelling unit(Capacity of each Bin =8 Kg (20Cum)	2	Nos
Quantity proposed to be lifted	2.55	MT
Total No. of bins required	2741.2	
Total No. of bins required with 3% added extra	2824	Nos
Covered Bin for Utility Area		
Quantity proposed to be lifted	3.47	MT
No. of bins required per dwelling unit(Capacity of each Bin =24 Kg(60Cum)	24	Kg.
Total No. of bins required	145	Nos.
Total No. of bins provided	150	Nos.
Construction of Primary collection centers by providing platform of size 134 Cum Capacity as per design	7.7	MT
Capacity of one Collection Centre	134	Cum
	53.6	Kg.
Assumming 10 times utilisation of one unit	536	Kg.
Total No. of Centres required	14	Nos.
Total No. of Centres provided	15	Nos.
Motorized Trycycles provided with the 50CC petrol engine and the bin size of 1.5m *1.2m*0.75m with the cover as per design	26953	Kg.
Capacity of one Moterised tricle=1.5*1.2*0.75*1000	1350	Cum
	540	Kg.
Assuming 10 trips in a day		
Capacity of one Moterised tricle=1.5*1.2*0.75*1000	13500	Cum
	5400	Kg.
Total No. of Moterised triclerequired	5	Nos.
Total No. of Moterised tricleprovided	6	Nos.

Hydraulic Vehicle							
Quantity proposed to be lifted						40696	Kg.
Capacity of one Hydraulic Vehicle						7500	Kg.
						3000	Cum
Assumming 10 times utilisation of one unit						30000	Kg.
Total No. of Vehicles required						1	Nos.
Total No. of Vehiclesprovided						1	Nos.

BENKELMAN BEAM TEST

Hitech Construction Technologies

Consultancy, Research & Technology Transfer Forum for Sustainable Construction in India

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Website: http://www.HCT.co.in

BENKELMAN BEAM DEFLECTION TEST AT DIFFERENT EXISTING BITUMAN ROAD LOCATIONS AT DLF, PHASE 2, GURUGRAM (HARYANA)

FOR

M/s K Y CONSULTANTS
303-304
STAR TOWER

GURUGRAM

FINAL REPORT
HTC/SP-02
JULY 2017

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1.0 Introduction

M/S K Y Consultants, approached Hitech construction Technologies (HCT) to undertake the Testing of existing flexible pavements of Roads of DLF Phase 1, 2 and 3 at Guru gram using Benkelman Beam deflection Method as laid down in IRC : 81-1997 which describes Guidelines for STRENGTHENING OF FLEXIBLE ROAD PAVEMENTS USING BANKELMAN BEAM DEFLECTION TECHNIQUE

Accordingly HTC took up the Job work as per work order dated 23rd July 2017 with the following scope of work:

2.0 Scope of the Work:

To carry out In-situ BBD Test using slender beam of 3.66m long pivoted at a distance of 2.44m from the tip & placing the probe between dual wheels of loaded truck as per IRC – 81-1997. Temperature measurement by making 45 mm deep &10mm diameter hole in pavement as per IRC-81. A Standard Truck having a rear axle weighing 8170kg fitted with dual tyre.

The section of roads is 24mtr & 18mtr wide carriageway for medium traffic in DLF Phase-2, Gurugram, Haryana.

3.0 Investigations carried out:

3.1 Benkelman Beam Deflection

In the present investigation section of roads The existing roads structure are evaluated through Benkelman Beam Deflection technique as per IRC 81: 1997 **(Guidelines for strengthening of flexible road pavement using Benkelman Beam Deflection technique.)**

3.2 Methodology for Evaluation

3.2.1 Background of method

Development of method such as Benkelman Beam Deflection method for evaluation of structural capacity of existing flexible pavement and also for estimation and design of overlays for strengthening of any weak pavement before and after overlaying. Keeping in view the other parameter like temperature, subgrade soil type and moisture content and their influence on pavement deflection and service behavior method is being extensively used in India to strengthening existing flexible road pavements of different categories.

3.2.2 Basic Principle of Deflection Method adopted

Both pavement condition survey and actual deflection measurement as required in IRC guideline s for strengthening of flexible road pavements using BENKELMAN BEAM DEFLECTION TECHNIQUE was done. In the pavement condition survey drainage is reported to be poor during rainy season. Bitumen topping as surfacing course is found to vary considerably from 20 at few locations to maximum of 35 mm average being 25 mm.

Soil condition and Soil Data:

As the deflection measurement was made in the month of July 2017 when the pavement condition is in its weakest condition therefore **seasonal correction is required in deflection measurement** and the soil classification is confirmed as silty/sandy with medium plasticity followed by moisture content & Atterberg limit.

The procedure for soil collection was made as under:

Made a test pit in the shoulder to a depth up to 15 cm below the sub-grade level and collected the soil sample with the help of auger beneath the deflection point. These are the points which are at 0.6 m to 0.9m distance from the edge of the pavement.

The soil under the pavement structure is tested As per IS-2720 and the results are found as under.

1. Natural Moisture content = 6.2 % - 6.9 %
2. Liquid limit = 22.5 % -24 %
3. Plastic limit = 16.5 % - 17.5 %
4. Plasticity index = between 6.0 – 6..5

3.2.3 Procedure adopted for measurement of Deflection

This method is used to know the deflection of the existing pavement to evaluate the strengthening requirement of existing flexible road pavement.

Equipment used for evaluation:-

1. Thermometer
2. Auger
3. Mandrel
4. Glycerol
5. Truck
6. Benkelman Beam
7. Dial gauge
8. Tape

Three types of data are required for the deflection as under:-

Temperature data:

The procedure for determining the temperature is as under.
A. A hole has to be drilled into the pavement with the help of mandrel. The depth of the hole is 45mm and the diameter of the hole at the top is 1.25cm.
B. The hole has to be filled with glycerol and the temperature has to be recorded after 5 minutes with the thermometer (range of temperature between 0 – 100 degree centigrade)
C. The temperature readings are made at each location of deflection measurement.

Truck specifications for conducting the test:

Rear axle weight of the truck = 8170 kg
Tyre pressure = 5.6kg/cm2
Spacing between the tyre walls = 30 – 40 mm

Procedure:

1. Pavement condition survey was made for dividing road section randomly
2. 6 points have been selected in DLF phase –II at 18 mtr road
3. The point on the pavement to be tested is selected and marked at 60 cm from the edge of road as required.

4 The dual wheels of the truck are centered above the selected point.

5 The probe of the Benkelman beam is inserted between the dual and placed on the selected point.

6 The locking pin is removed from the beam and the legs are adjusted so that the plunger of the beam is in contact with the stem of the dial gauge. The beam pivot arms are checked for free movement.

7 The dial gauge is fixed and initial reading is recorded when the rate of deformation is equal or less than 0.025mm/ min

8 The truck is driven slowly up to 270 cm distance and stopped; an intermediate reading is recorded at specified rate of recovery.

9 The truck is driven forward up to 9 mtr. And the final reading is recorded at specified Rate of recovery.

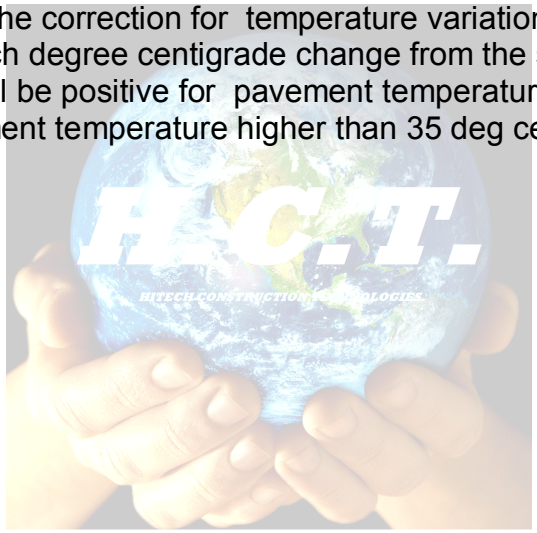
10 Pavement temperature is recorded hourly by means of inserting the thermometer in the standard hole filled up with glycerol.

3.2.4 Pavement Condition Survey:

This phase of operation consists primarily of visual observations supplemented by simple measurements for rut –depth using a 3metre straight edge. Based on these road length shall be classified in accordance with the criteria as per IRC-81 , Table 1.
No single cracking was found during visual observation in above mentioned road in the wheel track but rutting are found between 12mm to 18mm. So the classifications as per pavement condition are categorized as **Fair.**

CORRECTION OF TEMPERATURE:

As the temperature of the site was between 33.5 to 37.0 degree centigrade and the temperature of pavement was 34 to 39.5 degree centigrade thus the correction is required as per IRC-81
Clause no-4.4.3 &4.4.4. The correction for temperature variation on deflection values should be 0.01mm for each degree centigrade change from the standard temperature 35 deg. And the correction will be positive for pavement temperature lower than 35deg. As well as negative for pavement temperature higher than 35 deg centigrade.



Record of pavement deflection data 18 Mtr wide road of DLF Phase – 2. Gurugram

	Name of road :-	Akashneem marg, Dakshin marg, Jacaranda marg and Madhya marg					
	Date and time of observation :	24-25 July 2017 from 10 am to 5 Pm					
	Air temperature:	34deg.C to 39.5 deg.C					
	Temp. correction is applied	Yes					
	Least count of dial gauge:	0.01mm					
S. No	Location of test point **Road between Plots**	Pavement temp in degree c	Dial gauge reading in mm			Actual Pavement deflection XT in mm	Rebound Deflection in mm 2 x XT
			Initial	Intermediate	Final		
1.	In front of H No. 47 LHS Jacaranda marg.	38	10..5	7.3	5.86	0.89	1.79
2.	In front of H No. 61 Madhya marg.	36	10.6	6.6	5.19	3.19	6.39
3.	In front of H No. 18 Jacaranda marg.	39.5	14.2	8.5	6.87	5.17	10.34
4.	In front of H No. 48 Akashneem marg.	34	11.7	7.2	5.65	3.08	6.16
5.	In front of H No. 39A Akashneem marg.	34.5	10.5	5.7	4.40	4.63	9.26
6.	In front of H No. 30 Dakshin marg.	34.5	12.1	7.1	5.05	2.17	4.34

Actual Pavement deflection XT = XA + 2.91Y = 2(Initial – Final) + 2.91{ 2(Final – Intermediate) }
Rebound Deflection = 2 XT
Mean Def. x' = ∑ x/n
Stand. Dev. σ = √∑ (x – x')^2 /n-1

Mean Deflection = x' = 1.79+6.39+10.34+6.16+9.26+4.34/6
= 6.38
Stand. Dev. = √ (1.79-6.38)^2 + (6.39 - 6.38)^2 + (10.34 – 6.38)^2 + (6.16 – 6.38)^2 +(9.26 – 6.38)^2+
(4.34- 6.38)^2 /5

= √ (21.06+0.0001+6.89+ 15.68+0.04+8.29) /5

= √51.96/5 = √10.39 = 3.22
Characteristic deflection, Dc = x' + σ where x' mean deflection in mm & σ is std. dev. in mm **Thus the Dc (Characteristic deflection) = 6.38 +3.22 = 9.6mm Temperature correction =**
-0.065mm, Total Deflection = 9.6 – 0.065 = 9.535mm.

Seasonal correction:- As per IRC: 81-1997 From Figs. 2 to 7, adopted Fg-2 for Sandy/Silty and gravel soil for low rainfall areas less than 1300mm annually, moisture correction factor for 6.55 % moisture is 1.06 . **Thus the final deflection is 9.535 – 1.06 = 8.475 mm**

Pavement Thickness :-

GSB- 78 - 85mm
WBM- 75 -90mm
BITUMINOUS CONCRETE- 45 – 50mm

Conclusion:

As per pavement survey for above mentioned road and data achieved for deflection measurement the pavement condition falls on **fair category** and the deflection is 8.475mm. It is suggested that strengthening of pavement is required for the mark road as specified by consultant in drawing for DLF Phase –II Gurugram.

Photo vision for visual and technical investigation for BBD test at DLF Phase – II, Gurugram.







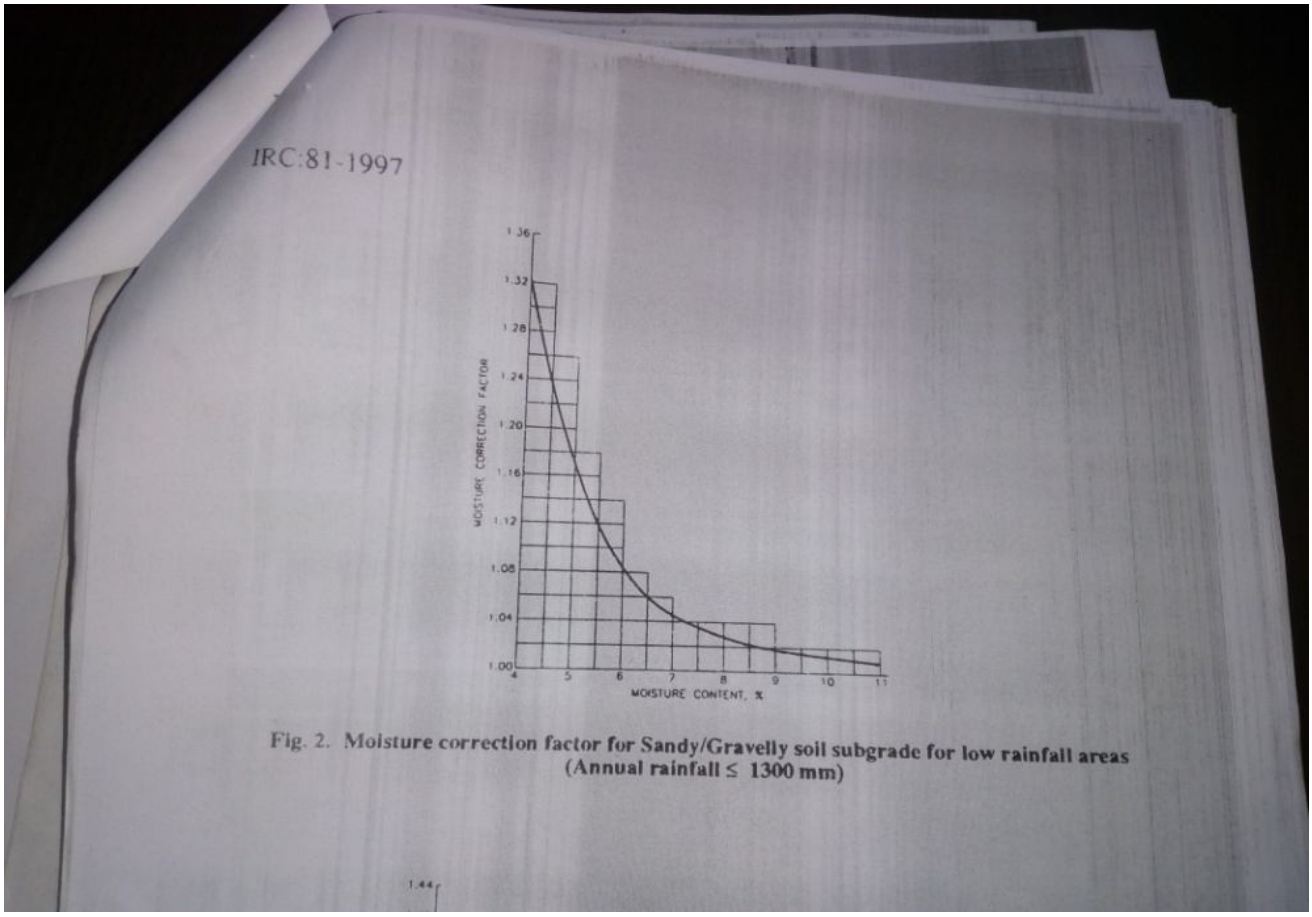






Prepared by Hitech Construction Technologies

Image for visual and technical investigation for Moisture Correction Factor



Prepared by Hitech Construction Technologies

ANNEXURES

ANNEXURE-A (VIDEO GRAPHY

ANNEXURE-B (SURVERY DATA)

DETAILS OF QUANTITY

D.L.F PHASE II

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK K															
1	1		9	3.66	2.7	2.7									
2	2		12	4.88	4.0	3.1									
3	3		12	4.88	4.2	2.9									
4	4		9	3.66	2.65	2.75									
5	5		12	4.88	4.1	3.1									
6	5A		12	4.88	4.3	2.9									
7	6														
8	7		12	4.88	4.0	3.1									Not At Site
9	8		12	4.88	4.2	2.9									
10	9		12	4.88	4.1	3.1									
11	10		12	4.88	4.15	3.0									
12	11		12	4.88	4.3	2.90									
13	12		12	4.88	4.2	2.9									
14	12A		12	4.88	4.1	3.0									
15	13		12	4.88	4.2	2.9									
16	14		12	4.88	4.3	2.8									

DETAILS OF QUANTITY

D.L.F. PHASE II

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK K															
1	15		12	4.88	4.2	2.9									
2	16		12m	4.88	4.1	3.0									
3	17		12	4.88	4.3	2.8									
4	18		12	4.88	4.1	3.0									
5	19		12	4.88	4.2	2.9									
6	20		12	4.88	4.2	2.9									
7			18	6.7	6.3	5.0									
8															
9															
10															
11															
12															
13															
14															
15															
16															

DETAILS OF QUANTITY

D.L.F PHASE 2nd II nd Phase

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT T SIDE	KERB not at site	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK L															
1	1		12	4.88	4.0	3.1	x	x	x	x	x	x	x	½ ✓	✓
2	2		12	4.88	4.2	2.9	x	x	x	x	x	x	x	x	x
3	3		12	4.88	4.2	2.9	x	x	x	x	x	x	x	✓	
4	4		12	4.88	4.0	3.1	x	x	x	x	x	x	x	x ✓	½
5	5		12	4.88	4.1	3.0	x	x	x	x	x	x	x	✓	
6	6		9	3.66	2.8	2.8	x	x	x	x	x	x	x	✓	
7	6A		9	3.66	2.7	2.9	x	x	x	x	x	x	x	✓	
8	7		9	3.66	2.65	2.75	x	x	x	x	x	x	x	x	x
9	8		9	3.66	2.7	2.9	x	x	x	x	x	x	x	x	x ?
10	9		9	3.66	2.8	.26	x	x	x	x	x	x	x	✓	
11	10		9	3.66	2.7	2.7	x	x	x	x	x	x	x	✓	
12	11		9	3.66	2.68	2.75	x	x	x	x	x	x	x	✓	
13	12		9	3.66	2.8	2.6	x	x	x	x	x	x	x	x	x Green Carpet
14	13		12	4.88	4.2	2.9	x	x	x	x	x	x	x	✓	
15	14		12	4.88	4.2	2.9	x	x	x	x	x	x	x	x ✓	
16	15		18	6.10	6.4	5.0	x	x	x	x	x	x	x	✓	

DETAILS OF QUANTITY

D.L.F PHASE II and Phase

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK L															
1	16		12	4.88	4.1	3.0	X	X	X	X	X	~	~	X	
2	17		12	4.88	4.15	3.1	X	X	X	X	X	X	X	~	
3	17A		12	4.88	4.3	2.95	X	X	X	X	X	X	~	~	
4	18		12	4.88	4.2	3.0	~	~	X	~	~	~	~	~	
5	19		12	4.88	4.1	3.0	X	X	X	X	~	X	X	~	
6	20						X	X	X	X	X		X		Not MTS/L Not AT SITE
7	21														
8	22		12	4.88	4.0	3.1	X	X	X	X	X	X	X	~	
9	23		12	4.88	4.2	2.9	X	X	X	X	X	X	X	~	
10	24		12	4.88	4.2	2.9	~	~	X	X	X	X	X	~	
11	25		12	4.88	4.3	2.8	X	X	X	X	X	X	X	X	
12	26		12	4.88	4.0	3.1	X	X	X	X	X	X	X	X	
13	26A		12	4.88	4.1	3.0	X	X	X	X	X	~	X	X	
14	27		12	4.88	4.2	2.9	X	X	X	X	X	X	X	X	
15	28		12	4.88	4.3	2.8	~	X	X	X	X	X	X	~	
16	29		12	4.88	4.4	2.7	X	X	~	X	~	~	X	~	

DETAILS OF QUANTITY

D.L.F. PHASE IInd Phase

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
	BLOCK L														
1	30		12	4.88	4.3	2.8	✗	✗	✗	✗	✗	✗	✗	✓	
2	31		12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✗	✗	✓	
3	32		9	3.66	2.7	2.7	✗	✗	✗	✗	✗	✗	✗	✓	
4	[redacted]							✗	✗	✗	✗	✗	✗	✗	
5			12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✗	✗	✓	~~Approx. 300 m not Constd~~ App. 300 not Constd
6															
7															
8															App. 150 m Road Damage by NHAI
9															
10															
11															
12															
13															
14															
15															
16															

Gulmohar Lotus

An Undertaking in

DETAILS OF QUANTITY

D.L.F PHASE II and Phase

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT T SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
	BLOCK M														
1	1		12	4.2	2.9										
2	2		12	4.3	2.85										
3	3		12	4.1	3.0										
4	4		12	4.0	3.2										
5	5		12	4.2	2.9										
6	6		12 12	4.15	3.0										
7	7		12	4.0	3.1										
8	8		12	4.2	2.9										
9	9		12	4.4	2.7										
10	10		12	4.2	2.9										
11	11		12	4.3	2.8										
12	11A		12	4.1	3.0										From carpet
13	12		12	4.2	2.9										
14	13		12	4.0	3.1										
15	14		12	4.2	2.9										
16	15		12	4.2	2.9										
	1A		12												
	1B		12												

Andulation in Complete Block

DETAILS OF QUANTITY

D.L.F PHASE II

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK N				4.88	4.0	3.2									
1	1		12	4.88	4.0	3.2									
2	2		12	4.88	4.2	2.9									
3	3		12	4.88	4.1	3.1									
4	4		12	4.88	4.15	3.0									
5	5		12	4.88	4.2	2.95									
6	6		12	4.88	4.2	2.95									
7	7		12	4.88	4.3	2.9									
8	8		9	3.66	2.65	2.75									Brush Cutter
9	9		9	3.66	2.7	2.7									
10	10		9	3.66	2.6	2.8									
11	11		9	3.66	2.65	2.75									
12	12		12	4.88	4.2	2.9									
13	13		12	4.88	4.0	3.1									Brush Cutter
14	14		12	4.88	4.2	2.9									
15	15		12	4.88	4.2	2.9									
16	1A		12	10.5	0	1.5	1 Side								

DETAILS OF QUANTITY

D.L.F. PHASE II

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK N															
1	1B		12	4.88	4.3	2.9	✓	✓	✓	✓	✓	✓	✓	✓ ✓	
2	1C		12	4.88	4.2	2.95	✓	✓	✓	✓	✓	✓	✓	✓ ✓	
3	3A		12	4.88	4.3	2.9	✓	✓	✓	✓	✓	✓	✓	✓ ✓	
4	8		18	6.7	6.4	4.9	✓	✓	✓	✓	✓	✓	✓	✓ ✓	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															

Jacaranda Marg

Andhadhun in carpet Sector

DETAILS OF QUANTITY

D.L.F PHASE II

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK P															
1	1		12	4.88	4.20	2.9									
2	2		12	4.88	4.19	2.95									
3	3		12	4.88	4.4	2.72									
4	4		12	4.88	4.0	3.15									
5	5		12	4.88	4.20	2.92									
6	6		12	4.88	4.15	3.0									
7	7		12	4.88	4.20	2.95									
8	8		12	4.88	4.25	2.85									
9	9		12	4.88	4.3	2.85									
10	10		12	4.88	4.0	3.15									
11	11		18	6.7	6.1	5.2									
12	[illegible]		18	6.7	6.3	5.0									
13															
14															
15															
16															

Boygainvilla madhyam marg

Good ?

Undulation in Complete Section

DETAILS OF QUANTITY

D.L.F PHASE II

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
	BLOCK Q														Existing undulation Shall be as per approved drawings
1	1		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
2	2		12	4.88	4.0	3.2	✓	✓	✓	✓	✓	✓	✓	✓	
3	3		12	4.88	4.3	2.85	✓	✓	✓	✓	✓	✓	✓	✓	
4	4		12	4.88	4.15	3.0	✓	✓	✓	✓	✓	✓	✓	✓	
5	5		12	4.88	4.2	2.95	✓	✓	✓	✓	✓	✓	✓	✓	
6	6		12	4.88	4.18	3.0	✓	✓	✓	✓	✓	✓	✓	✓	
7	7		12	4.88	4.25	2.85	✓	✓	✓	✓	✓	✓	✓	✓	
8 → Poorvi Marg	8		12	~~3.66~~ 4.88	4.3	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
9	9		9	3.66	2.7	2.7	✓	✓	✓	✓	✓	✓	✓	✓	
10	2A		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
11 Akashneem Marg	~~8~~		~~23.5, 8 9.5, 0.8~~	~~6.4~~		4.9	✓	✓	✓	✓	✓	✓	✓	✓	
~~12~~ →			23.5, 18	9.1, 18	7.15, 4.5	7.2, 5.5	✓	✓	✓	✓	✓	✓	✓	✓	
13															
14															
15															
16															

DETAILS OF QUANTITY

D.L.F PHASE II

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT T SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK J															
1	1		12	4.88	4.2	2.9	×	×	×	×	×	×	×	✓	
2	2		12	4.88	4.2	2.9	×	×	×	×	×	×	×	✓	
3	3		12	4.8	4.3	2.85	×	×	×	×	×	×	×	✓	
4	4		12	4.88	4.0	3.1	×	×	×	×	×	×	×	✓	
5	5		12	4.88	4.2	2.85	×	×	×	×	×	×	×	✓	
6	6		12	4.88	4.1	3.1	×	×	×	×	×	×	×	× ×	Fresh Carpet
7	7		12	4.88	4.3	2.9	×	×	×	×	×	×	×	✓	
8	8		12	4.88	4.0	3.1	×	×	×	×	×	×	×	× ×	Fresh Carpet
9	9		12	4.88	4.2	2.85	×	×	×	×	×	×	×	✓	
10	10		9	3.66	2.67	2.7	×	×	×	×	×	×	×	✓	~~J9 A - J14 Fresh Carpet~~
11	11		12	4.88	4.3	2.85	×	×	×	×	×	×	×	✓	J9 A - J14 Fresh Carpet
12	12		12	4.88	4.15	3.0	×	×	×	×	×	×	×	✓	
13	13		12	4.88	4.1	3.1	×	×	×	×	×	×	×	× ✓	
14	14		9	3.66	2.7	2.7	×	×	×	×	×	×	×	✓	
15	J9A		18	6.7	6.1	5.2	×	^	^	×	×	×	×	✓	
16															

Bougainvilla

DETAILS OF QUANTITY

D.L.F PHASE II

Sr. No.	Road No.	Length IN MTRS.	ROW	METAL WIDTH	BERM LEFT SIDE	BERM RIGHT SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK X															
1	1		14.5	7.5		3.7	2side	x	x	~	~	~	~	~	
2	2		9	3.66	2.7	2.7	1side	x	x	x	x	x	x	~	
3	3		14.5	7.5			2side	x	x	x	x	x	x	~	X
4	4		9	3.16	2.7	2.7	1side	x	~	x	x	x	x	~	
5	5		9	3.66	2.7	2.7	1side	x	x	x	x	x	x	~	
6	6		9	3.66	2.7	2.7	1side	x	x	x	x	x	x	x	
7	7		(18)	7.5		2.5	2side	x	~	x	x	x	x	x	
8	8		9	3.66	2.7	2.7	1side	~	~	~	x	x	x	~	✓
9															
10															
11															
12															
13															
14															
15															
16															

SURVEY OF D.L.F PHASE III

Blocks_____

Road_____ Date 21/06/17

Frorm_____ To_____

Sr No	House No	Condition of Road	Water supply Pressure Satisfactory	Hrs of Water supply		Sewerage System Satisfactory or not	Storm Water Drainage Satisfactory or not	Cleaning of Area	Street Light Satisfactory or not	Electrification (Voltage) Satisfactory or not	Signature
			Yes/No	Morning	Evening	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
1.	Q1/19 Aashis Khera	Not Good	No	6:30-7:30	5:00-6:00	Yes	No	Yes	Yes	No	
2.	Q2/23 Rohit	Not Good	Yes			~~No~~ Yes	No	No	No	No	
3.	P5/1 Shiv Kapoor	Not Good	Yes			Yes	Yes	Yes	Yes	No	
4.	P10/5 Gurpreet Kaur	Good	No			No	No	Yes	Yes	No	
5.	P10/3 Arun Rakhega	Good	No			No	No	Yes	Yes	No	Rawat Ji servant
6.	61 Akashneem marg Rajesh Chopra	Good	Yes			Yes	No	No	Yes	Yes	

SURVEY OF D.L.F PHASE ____

Blocks _____

Road _____

Frorm _____ To _____ Date _____

Sr No	House No	Condition of Road	Water supply Pressure Satisfactory	Hrs of Water supply		Sewerage System Satisfactory or not	Storm Water Drainage Satisfactory or not	Cleaning of Area	Street Light Satisfactory or not	Electrification (Voltage) Satisfactory or not	Signature
			Yes/No	Morning	Evening	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
7.	J1/8 Vikram Bhatia	Good	No			Yes	Yes	Yes	No	No	
8	J2/8 Harish Anand	Not Good	No			Yes	No	Yes	No	No	
9	N3/28 Mehq Tamejq	Good	Yes			Yes	No	Yes	Yes	Yes	Vinod Servent
10	N3/20 Surender Kumar Bhatia	Good	Yes			Yes	Yes	Yes	No	No	
11	K-9/ID ~~Faiz~~ Taranjeet Singh		Yes			Yes	Yes	Yes	No	Yes	Pitambar Servent
12	K-9/44 Saroj Jain		Yes			No	Yes	Yes	No	Yes	

SURVEY OF D.L.F PHASE ____

Blocks_____

Road_____ Date_____

Frorm_____To_____

Sr No	House No	Condition of Road	Water supply Pressure Satisfactory	Hrs of Water supply		Sewerage System Satisfactory or not	Storm Water Drainage Satisfactory or not	Cleaning of Area	Street Light Satisfactory or not	Electrification (Voltage) Satisfactory or not	Signature
			Yes/No	Morning	Evening	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
13	K-1/3 Deepak		Yes			Yes	Yes	No	Yes	No	
14	L-1/26		Yes			Yes	No	Yes	Yes	No	
15	L-6/9 Vikram Sikka		Yes			Yes	No	No	No	No	
16	M-1/10 Mr. Grover		Yes			Yes	No	Yes	No	Yes	
17	M-10/2 Arvind Sangra		No			Yes	No	Yes	No	No	
18	~~X-89~~ X-38 Ramesh Kumar Mehra		Yes			Yes	Yes	Yes	Yes	Yes	

SURVEY OF D.L.F. PHASE

Blocks_____

Road_____ Date_____

Frorm_____ To_____

Sr No	House No	Condition of Road	Water supply Pressure Satisfactory	Hrs of Water supply		Sewerage System Satisfactory or not	Storm Water Drainage Satisfactory or not	Cleaning of Area	Street Light Satisfactory or not	Electrification (Voltage) Satisfactory or not	Signature
			Yes/No	Morning	Evening	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
19		X-29/30 MR.R.K.Bassi	Yes			Yes	Yes	Yes	Yes	Yes	

ANNEXURE-C (RWA MEETING)

PROGRESSIVE RESIDENTS' ASSOCIATION OF DLF II

Regd.No.HR/018/2013/00321(HARYANA ACT NO. 1 OF 2012)
N-6/12,DLF CITY II,GURGAON-122002
Phone No: 0124-4012305,e-mail :pradlf2@gmail.com, Website: www.pradlf.com
Facebook Page: www.facebook.com/ProgressiveResidentsAssociationofDLFII

To,
M/s KY Consultants
Gurgaon

11th July, 2017

Sub: Our meeting during the interaction with residents and RWAs of DLF City Phase II on the 11th of July, 2017

Dear Sirs,

We refer to the above mentioned meeting convened by you to understand the issues facing the colony as well as lacking from the perspective of handover and commitments given by the developers M/s. DLF Universal Ltd. or any of their subsidiaries.

In this regard, on the onset itself, I would like to place on record the wonderful and orderly meeting that was conducted by you and also the decent work done by DLF till now in the colony

I would also like to state that we had requested a set of documents which must have been signed between the Government and DLF from time to time to define the infrastructure that must have been committed by DLF and agreed by the Government to be completed at the time of handing over of the colony. Unfortunately we were told that these documents are currently not available thus we once again officially would like to state that we will require the same before we are in a position to list out the deficiencies or incomplete work by the Developers at the time of handing over. Nevertheless, since we are the RWA operating in DLF II, we have, with our experience have felt there are certain deficiencies which have been felt by us which are as under:

1. The colony has 6 official gates, there are many residents and others who would like to open up other, new gates for their individual convenience, we would like to ensure that we have only these 6 gates inside and one gate outside our direct control to be available as the cost of securing more gates is very high. We would like all other illegal gates to be closed and blocked including the one for Beverly Park which has been opened some or the other time without the knowledge of DLF II RWA or residents on K-4. A map with the 6 gates and the other gate just outside is being attached. The 6 official gates and the gate just outside are marked on the map as 1-7. The Beverly Park entry is marked as 8
2. From our understanding, every commercial building is supposed to have a separate entry and exit for the basement. DLF II has a commercial centre, Central Arcade where only one extremely narrow ramp is available for basement due to which people do not like to park their vehicles inside the basement leading to huge traffic chaos on the narrow 18 mtr Dakshin Marg. Central Arcade is marked on Map as 9.

3. Gulmohar Marg is the pivotal road for residents of L Block and L extension block, this road is low lying and right next to the Green belt on NH8. During the rainy season this low lying key road gets totally water clogged with 2-3 feet of water and we have to press in services of 2 water pumps to pump out the water. On close examination, it has been realized that this happens due to there being no exit for the water to the Green belt and then onto the 3 culverts built to take the water across the NH 8 to the main storm water pipes. Unfortunately the culverts too are blocked more often than not. This problem is further increased for the residents of affected blocks as the main gate near Privat Hospital has been largely blocked due to the the underpass construction on the MG Road. A proper solution for this is needed in short as well as long term. The area of Dakshin Marg has been marked as 10 in the map

4. Privat is a large Hospital with a wall on the main MG Road. For the security interests of DLF II, we feel a direct gate to the Service road on MG Road should be provided for them as a provision for the same had already been made. This area is marked as 11 on the map

5. A large part of N block is low lying. While earlier the natural flow of water used to empty the water into 2 natural storm water nallahs, they have now been covered and the level of the natural gradient changed wherein now CyberCity has come into that area and the level has been increased by over 6 feet. This leads to a lot of water clogging and water entering into the houses of residents. We do know DLF has taken some steps to mitigate the position however the water still gets clogged thus a technical evaluation of the same is needed and long term solution provided. The area is marked as 12 on the map

6. Earlier, the entrance of the colony on the NH 8side was right on the main NH 8 after the buffer zone (known as JCM Gate). Since the illegal conversion of our Community Centre land and Commercial Shopping Centre Land into what are now some of the biggest building like DLF Square and Atria, our entrance has been pushed back. We would like to get this examined if this has been done legally or illegally and get our rightful entrance and land. This has been already marked on the map at gate number 4

7. Since these building create a lot of traffic and JCM gate is our main gate too, we propose that they get direct access from the new service road which has just come up and has been carved out of DLF II land.

8. These buildings have a back entrances which open up onto very narrow, 9mtrs internal roads. These buildings have illegally occupied residential plots or open land to park their vehicles which leads to total chaos and practically render these roads useless to the residents specially of that area. A photo of the gate and that of the parking is attached for ready reference. It is requested

that these gates be closed and the illegal parkings be removed as they cause traffic and security issues. The entrances have been marked as 13 and 14

9. DLF was to provide us a Shopping Centre just behind Nestle Building. This Shopping Centre has been ready for over 2 decades but not made operational. We request the same to be made operational and be handed over. This has been marked as 15 on the map

10. DLF II is a small colony with a boundary wall all around. However this wall has been breached in many places and is extremely low in some due to which security is a major issue. We request that this wall be repaired and the height of the same be raised to at least 6 feet with 2 feet of barbed wire

11. The wall has been totally breached at the corner juncture of IFFCO Chawk due to the new flyover which is coming up eating up the Green mandatory buffer zone as per Government guidelines for National Highways. This can lead to fast moving vehicles involved in any unfortunate accidents crashing through into a house. Thus it is requested that a good, fortified, concrete wall of good height be built there to safeguard the life and property of the residents. This area has been marked 16 on the map.

12. A Club is to be constructed in DLF II. The land for the same too has been identified and some construction done nearly 5-6 years back. This is on the main Akashneem Marg. It is requested the same be completed immediately and handed over to the RWA. This area is marked as 17 on the map. Similarly a designated Dispensary is needed in DLF II

13. DLF II largely has roads with appropriate slops leading water to fall at sides which used to get to the drains that were constructed in 1993. Overtime these drains have been blocked making way for Parking in certain vacant plots or the height of these drains have been elevated by the residents. These have lead certain points in the colony getting water flooded. There are many front lawns/gardens which people have made which does not leave space for footpath or parking their vehicles. There is a need to redo these drains and the roads needs to be properly carpeted again. Our suggestion is elevating these drains with a hole appropriately covered leading to water going inside them and temporary tiles with perpetration of grass as footpaths. This would ensure contribution to the water table as well. A good example can be seen at K-15/4 for the same

14. Parks in DLF II need to be better maintained and a large tract of land/park with thin population be earmarked for children to play in

15. While the general supply of water leaves a lot to be desired with very less water being provided compared to the 156 ltrs of water per person that is to be provided with 135 ltrs of it through taps, Q block and some parts of P block which lie on higher levels get extremely scanty water supply and have to depend on tankers very often. This has to be examined and mitigated along with the overall supply of water. We would also like to request a review of the number of bore wells and storage tanks and see if they are adequate to meet our requirements at least for the next 3 decades

16. Similarly we have been informed a number of times that the number of transformers have to be augmented specially since the there are many illegal commercial operations and guest houses running in DLF II and the Government not being able to stop the same. We were also informed that the overall infrastructure of wiring, etc. is aging and needs to be upgraded, in fact most of it supposed to go underground. The above needs a full technical evaluation so that the residents get adequate and uninterrupted electricity supply

17. While there has been a lot of focus on the physical infrastructure of DLF II, we also need to focus on the manpower infrastructure. There are many workers who have spent their entire lives working in DLF II. These people have indepth and irreplaceable knowledge about the area and can resolve issues much faster than any other person due to that knowledge. We propose that a plan to integrate them within the system along with the RWA and MCG be worked out to mitigate the pains of handing over

18. DLF II was supposed to have been developed and handed over nearly 3 decades ago. We are quite sure that every equipment has certain life including sewage lines and booster pumps. There are even guidelines as per CPHEEO Manual and other policy documents. We would request this be thoroughly examined

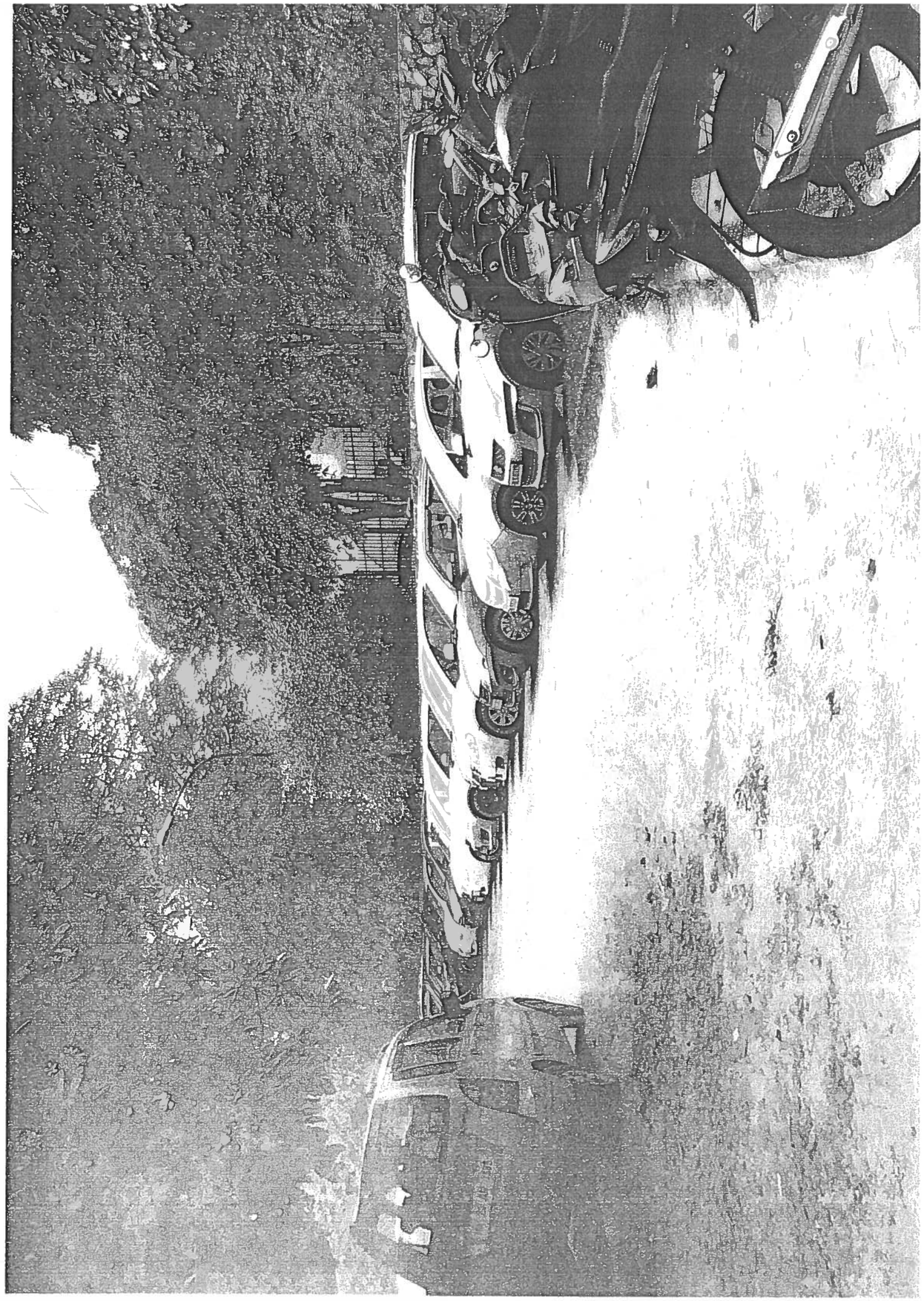
19. DLF has been collecting a non construction charge which is extremely high and an item which is meant to be capitalized as it is the only colonizer to charge the same. We demand that the same be handed over to MCG and the money be used for further development of the colony

One suggestion that we would like to give for handing over of all colonies is that a formal role for RWAs be defined. Currently due to the multiplicity of RWAs in the private colonies, once hand over happens there will be many stakeholders and unless there is one body it will be hard for proper planning to take place. We suggest that wherever there is multiplicity of RWAs, MCG and ROS jointly set up a new RWA and conduct elections of the body within 3 months of the formation. MCG may like to deal with only this regulated body with proper functioning as an RWA while others can continue to function the way they like. We had even written a letter dated 26th April, 2017 to this effect to the Hon. Chief Minister which was later on picked up by the press.

We are once again thankful that we have been given a formal opportunity to highlight the issues which need to be taken into account at the time of handover. However, as stated earlier, we could do a much more thorough job in case we have a copy of the license agreement and other relevant documents which will give us a better insight into the commitments made by the Developers DLF and help you and through you MCG to better manage a smooth handing over. As such without the same, it is hard for the RWA or the residents to take responsibility for the same.

Thanking you,
Yours Sincerely
For Progressive Residents Association of DLF II
Gupta
Umesh Gupta
President

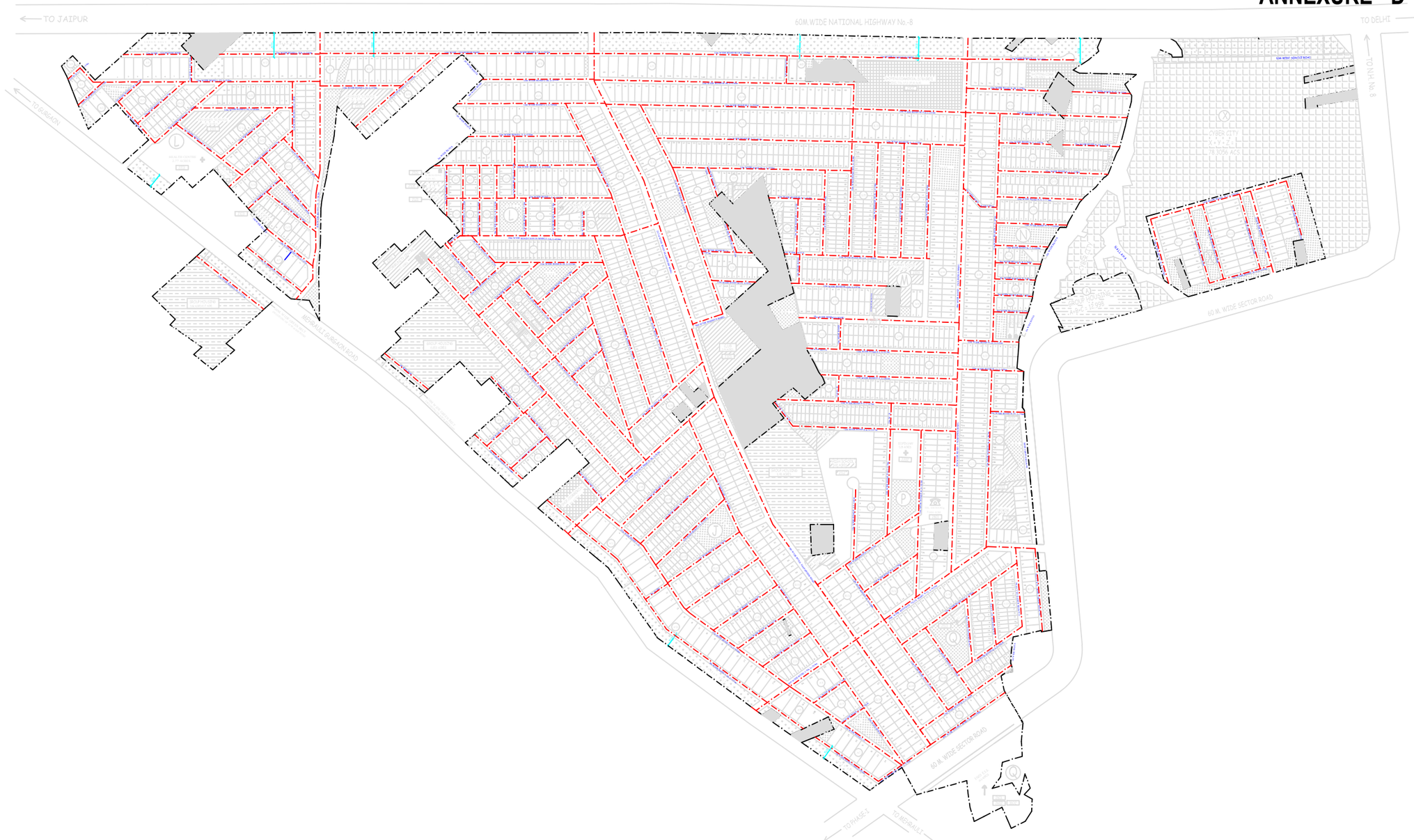
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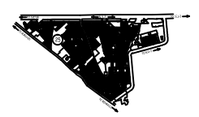


ANNEXURE-D (EXISTING ROAD PLAN)

ANNEXURE - D

DLF
BUILDING INDIA





KEY PLAN

LEGEND:-

ROAD DETAIL PLAN

ROAD LAY-OUT PLAN

N

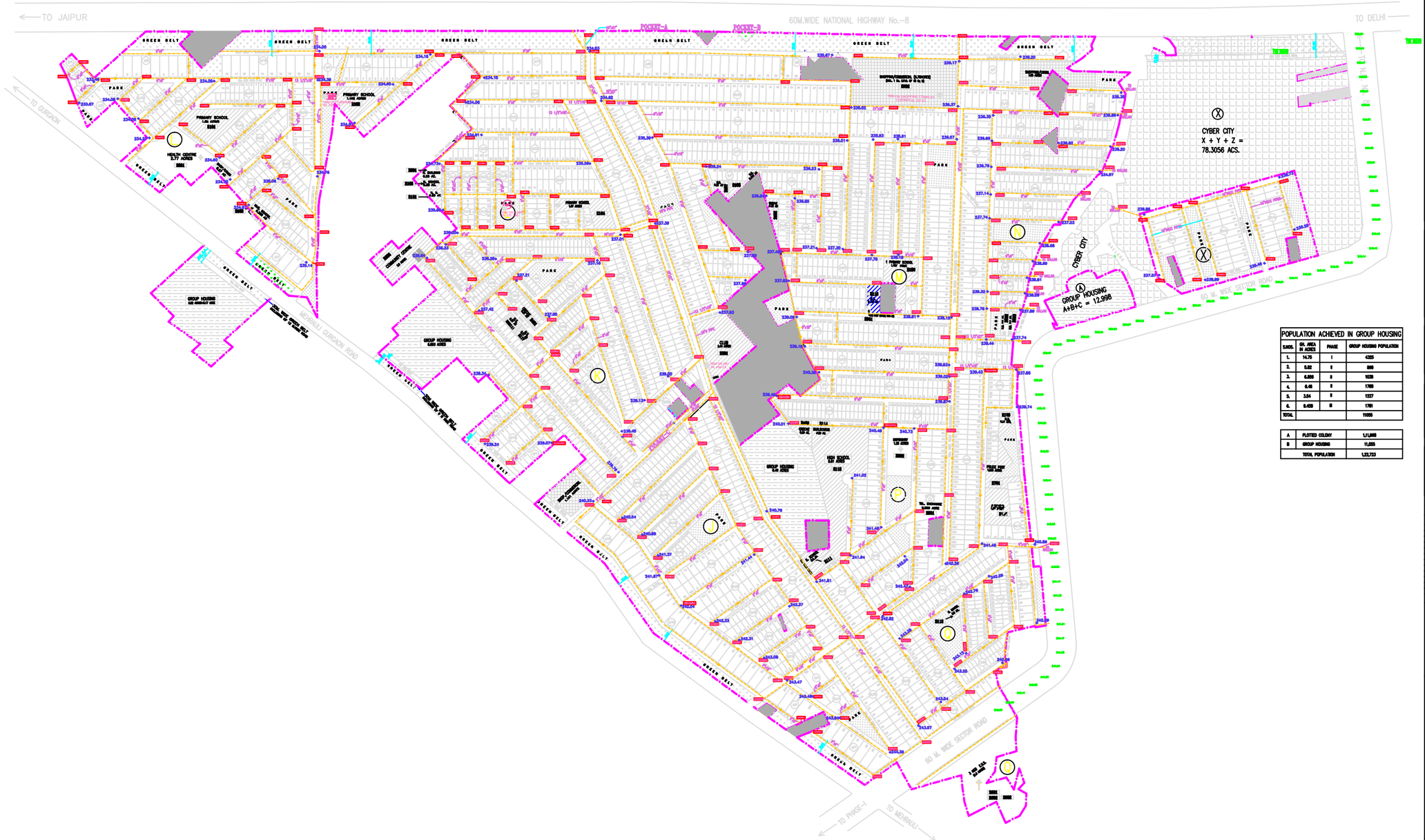
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REVISED LAYOUT PLAN
DLF CITY PHASE-II, GURGAON.

TRUE COPY OF THE LAYOUT PLAN APPROVED BY DTCP ALONGWITH ISSUANCE OF LICENCE NOS. 75 & 76 OF 2004. DATED 03.06.2004

ANNEXURE-E (EXISTING DRAINAGE)

ANNEXURE - E



POPULATION ACHIEVED IN GROUP HOUSING

S.NOS.	GR. AREA IN ACRES	PHASE	GROUP HOUSING POPULATION
1.	14.75	I	4325
2.	5.82	II	860
3.	6.856	II	1630
4.	6.46	II	1760
5.	3.54	II	1237
6.	8.459	III	1761
TOTAL			11055

A	PLOTTED COLONY	1,11,668
B	GROUP HOUSING	11,055
	TOTAL POPULATION	1,22,723

TRUE COPY OF THE LAYOUT PLAN APPROVED BY DTCP ALONGWITH ISSUANCE OF LICENCE NOS 75 & 76 OF 2004 DATED 03-06-2004

dlf

DETAILS OF PLOTS

TYPE	SIZE WIDTH	SIZE DEPTH	AREA IN SQM.	PHASE I NOS.	PHASE I AREA IN SQM.	PHASE II NOS.	PHASE II AREA IN SQM.	PHASE III NOS.	PHASE III AREA IN SQM.	TOTAL NOS.	TOTAL AREA IN SQM.
A	18.00	45.00	810.00	152	1389600.00	111	94995.00	25	20655.00	288	1504750.00
A1	18.00	45.00	810.00	-	-	-	-	12	9720.00	12	9720.00
A3	18.00	45.00	720.00	-	-	-	-	12	8640.00	12	8640.00
A	18.00	38.00	570.00	-	-	68	38760.00	-	-	68	38760.00
B1	13.50	36.00	472.50	-	-	59	27885.00	-	-	59	27885.00
B7	16.575	27.00	455.00	32	14560.24	-	-	-	-	32	14560.24
B4	13.50	25.00	422.50	-	-	-	-	28	11830.00	28	11830.00
B	15.00	30.00	450.00	1707	768040.00	327	137340.00	646	272250.00	2680	1177630.00
B	12.00	30.00	360.00	188	66960.00	659	234624.00	239	76680.00	1020	344400.00
B2	12.00	25.00	300.00	118	33960.00	-	-	-	-	118	33960.00
B5	12.575	21.00	264.00	-	-	69	18221.25	-	-	69	18221.25
C1	11.00	24.00	264.00	259	68904.00	231	60984.00	716	189024.00	1147	302988.00
C	10.44	24.00	250.56	259	62424.24	703	176064.48	-	-	1037	272328.72
C2	10.00	22.00	220.00	133	29260.00	-	-	111	24420.00	244	53680.00
B	10.00	21.00	210.00	-	-	355	74550.00	-	-	355	74550.00
B1	9.50	21.00	199.50	-	-	340	67830.00	59	11800	399	79630.00
F	9.25	20.27	187.53	453	84939.39	211	39569.53	-	-	664	124508.92
G	9.00	17.00	153.00	-	-	-	-	302	37905.00	302	37905.00
E	7.333	17.00	125.10	53	7006.30	89	10008.89	-	-	142	17015.19
G	6.00	18.00	125.07	-	-	-	-	281	35265.37	281	35265.37
G1	7.333	17.00	125.02	102	20253.24	-	-	-	-	102	20253.24
G3	6.00	14.02	91.13	133	12128.29	-	-	-	-	133	12128.29
E	4.00	12.00	60.00	-	-	-	-	688	34680.00	688	34680.00
E	4.00	12.00	59.60	63	2520.00	-	-	2428	121200.00	2491	123420.00
	TOTAL			3939	4260940.60	3229	953705.63	5462	883534.33	12340	3098180.56
	AREA IN ACRES				305.67		235.05		219.82		760.57

DETAILS OF AREAS

DESCRIPTION	PHASE-I	PHASE-II	PHASE-III	TOTAL	STAGE	
TOTAL AREA OF LAND	588.838	466.38	454.394	1509.102		
TO BE PLANNED LATER ON	-	-	1.8335	1.8335		
AREA UNDER GROUP HOUSING	14.760	22.643	9.46	47.053		
NET PLANNED AREA	573.878	443.417	443.0965	1460.1665		
AREA UNDER PLOTS	303.67	235.05	219.82	760.57	59.49 %	54.66 %
AREA UNDER SHOPPING/COMMERCIAL	11.824	8.581	38.423	58.355	3.996	
TOTAL SALEBLE AREA	315.394	244.041	249.349	808.475		

DETAILS OF AREA UNDER SHOPPING /COMMERCIAL SITES

PHASE-I	3.30 + 2.11 + 2.274 + 4.04	= 11.824 ACS.
PHASE-II	0.27 + 5.76 + 1.191 + 1.85	= 8.581 ACS.
PHASE-III	33.09 + 0.328 + 1.152 + 0.39 + 3.45	= 38.423 ACS.
	TOTAL =	58.355 ACS.

DETAILS OF NEW PLOTS

TYPE	PHASE-I 13.5	PHASE-I NEW	PHASE-I TOTAL	PHASE-II 13.5	PHASE-II NEW	PHASE-II TOTAL	PHASE-III 13.5	PHASE-III NEW	PHASE-III TOTAL	TOTAL 13.5	TOTAL NEW	TOTAL TOTAL	RAGE
GENERAL	2720	-	2720	2220	-	2220	1691	-7	1684	6633	-7	6946	
M.P.H.L.	701	-	701	969	-	969	1352	-	1352	3022	-	3122	35.35 %
E.W.S.	178	-	178	-	-	-	2438	-	2438	2802	-	2802	21.69 %
TOTAL	3600	-	3600	3220	-	3220	5489	-7	5482	12337	-7	12340	

POPULATION ACHIEVED IN PLOTTED COLONY

PHASE – I	(3696 X 6) + (42 X 13.5)	= 33111 PERSONS
PHASE – II	(3157 X 6) + (38 X 13.5) + (3 X 13.5)	= 20304 PERSONS
PHASE – III	(5432 X 6) + (37 X 13.5) – (7 X 13.5)	= 48293 PERSONS
TOTAL		= 111988 PERSONS

DETAILS OF INFRASTRUCTURE PROVIDED

SNO.	DESCRIPTION	PHASE-I REQUIRED	PHASE-I PROVIDED	PHASE-I NO.	PHASE-II REQUIRED	PHASE-II PROVIDED	PHASE-II NO.	PHASE-III REQUIRED	PHASE-III PROVIDED	PHASE-III NO.	TOTAL REQUIRED	TOTAL PROVIDED	TOTAL NO.
1	CRECHE	01	1	03	0	00	0	12	0	12	13	01	12
2	NURSERY SCHOOL	15	03	12	5	00	5	47	02	45	67	05	62
3	PRIMARY SCHOOL	09	1	08	5	1	5	25	2	23	39	04	35
4	HIGH SCHOOL	03	1	02	3	02	01	07	1	06	13	04	09
5	CULTIVATIONAL CENTRE	03	01	02	3	1	2	07	01	06	13	03	10
6	DISPENSARY	03	1	02	3	01	2	06	1	05	12	03	09
7	HEALTH CENTRE	02	1	01	2	02	0	04	1	03	08	04	04
8	RELIGIOUS BUILDING	03	1	02	3	1	2	06	1	05	12	03	09
9	ELECTRIC SUB STATION	03	1	02	4	1	3	05	1	04	12	03	09
10	TEL. FACILITY/EXCHANGE	03	1	02	3	1	2	04	1	03	10	03	07
11	POLICE POST	03	1	02	3	02	1	05	1	04	11	04	07
12	SUB POST OFFICE	03	1	02	3	1	2	05	1	04	11	03	08
	TOTAL	46	03	35	0	57	01	138	04	142	134		

LEGEND:-

1. SCHEME BOUNDARY
2. UNLICENCED POCKETS SHOWN AS
3. INCIDENTAL GREENS/PARKS SHOWN AS
4. AREA FOR WHICH NEW LICENCE GRANTED ON 31-3-2004 (0.875 ACS)
5. AREA WHERE PLANNING REVISED

KEY PLAN

DRAINAGE

FOR DLF UNIVERSAL LTD

Authorised Signatory

N

ARCHITECT/TOWN PLANNER

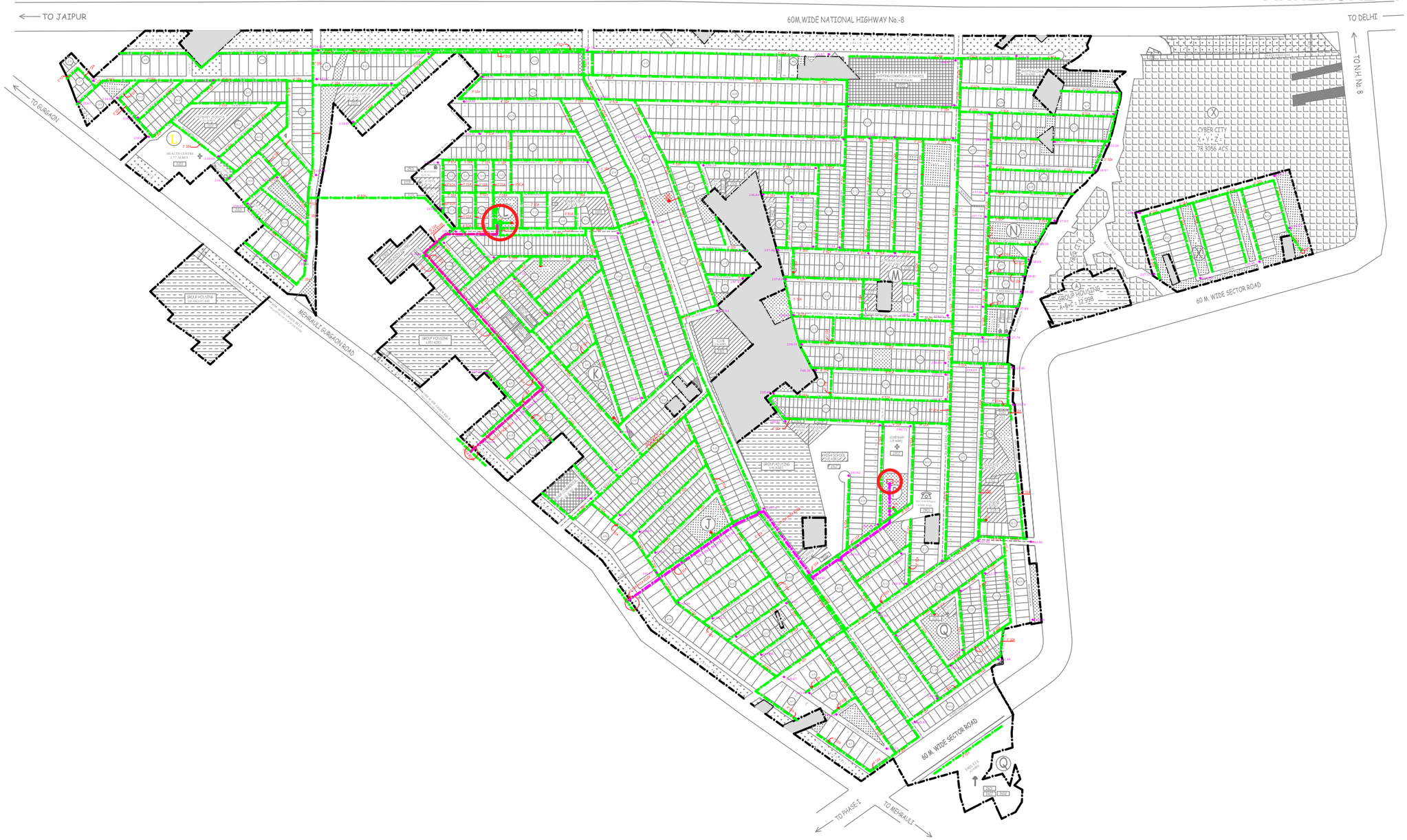
SCALE : 1:2500 | DATE : NOV. 2005 | DWG.NO. R-09

REVISED LAYOUT PLAN
DLF CITY PHASE-II, GURGAON.

ANNEXURE-F (EXISTING W/S)

ANNEXURE - F

DLF
BUILDING INDIA



KEY PLAN

LEGEND:-

WATER SUPPLY LINE

WATER SUPPLY LAY-OUT PLAN

CHECKED BY	N	APPROVED BY
SCALE : 1:2500	DATE : NOV, 2015	DWG NO. R-01

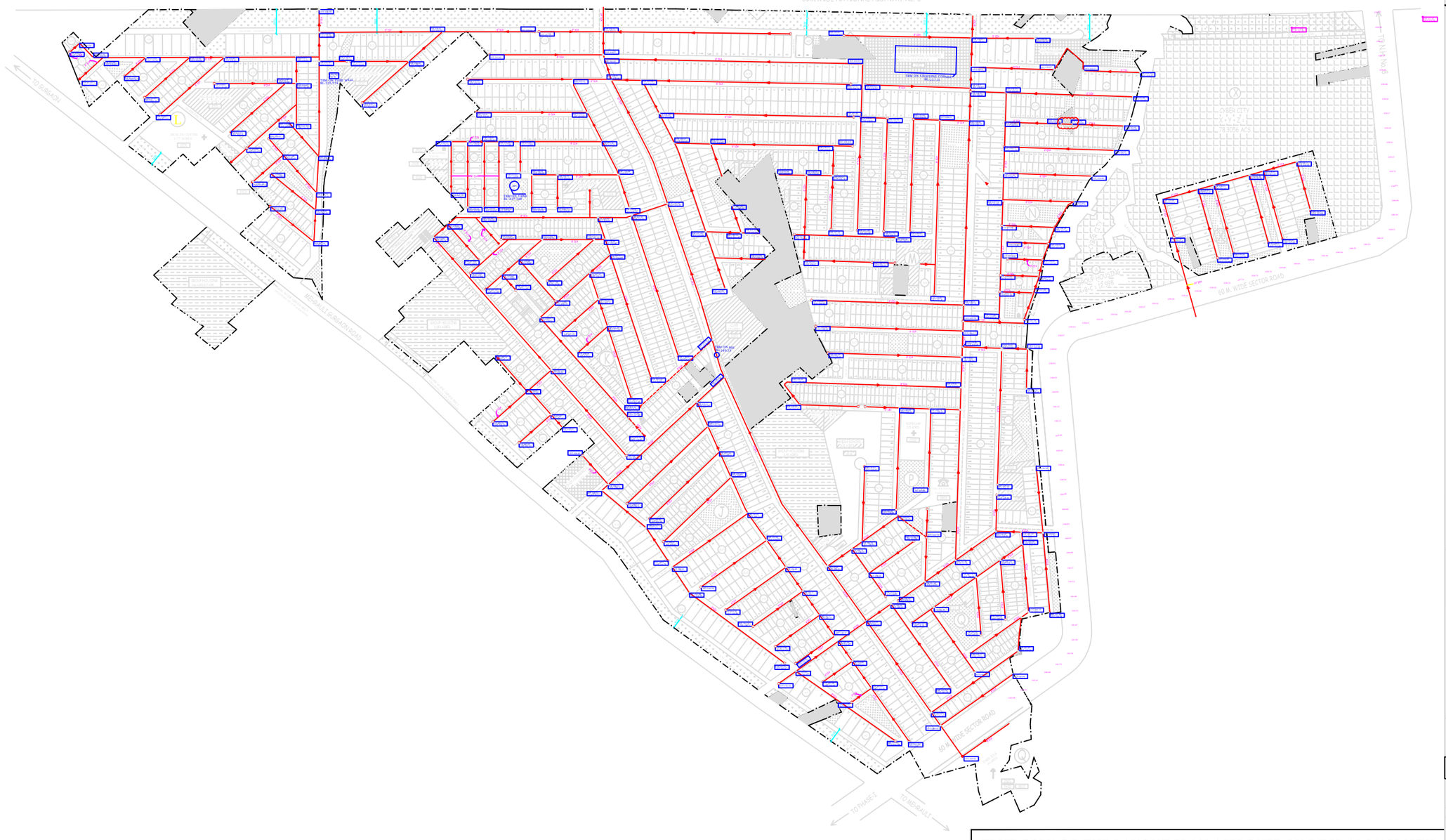
REVISED LAYOUT PLAN
DLF CITY PHASE-II, GURGAON.

TRUE COPY OF THE LAYOUT PLAN APPROVED BY DTCP ALONGWITH ISSUANCE OF LICENCE NOS. 75 & 76 OF 2004. DATED 03.06.2004

ANNEXURE-G (EXISTING SEWERAGE)

ANNEXURE - G

DLF
BUILDING INDIA



KEY PLAN

LEGEND:-

SEWERAGE LINE

SEWERAGE LAY-OUT PLAN

N

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REVISED LAYOUT PLAN
DLF CITY PHASE-II, GURGAON.

TRUE COPY OF THE LAYOUT PLAN APPROVED BY DTCP ALONGWITH ISSUANCE OF LICENCE NOS. 75 & 76 OF 2004. DATED 03.06.2004

ANNEXURE-H

(REPRESENTATIVE RWA)

Name of RWAs DLF Phase 2, Gurugram		
Description of deficiency	**Progressive Residents Association of DLF-II**	Sh. Umesh Gupta , President
Gates	The colony has 6 official gates, there are many residents and others who would like to open up other, new gaes for their individual convenience	
Entry & Exit	Every commercial building is supposed to have a separate entry and exit for the basement . DLF-II has a commercial centre, Central Arcade where only one extremely narrow ramp is available for basement due to which people do not like to park their vehicles inside the basement leading to huge traffic .	
Rain Water	Gulmohar Marg is the pivotal road for residents of L-Block and extension block, this road is low lying and right next to the Green belt on NH-8. During the rainy season this low lying key road gets totally water logged with 2-3 feet of water and we have to press in services of 2 water pumps to pump out the water.	
Hospital	Private is a large Hospital with a wal on the main MG Road. For the security interests of DLF_II, we feel direct gate to the service road on MG Road should be provided for them.	
Drainage	A large part of N Block is low lying. While earlier the natural flow of water used to empty the water into 2 natural storm water nallahs, they have now been covered and the level of the natural gradient changed wherein now Cyber City has come into that area and the level has been increased by over 6 feet.	
Entrance	Earlier, the entrance of the colony on the NH-8 side was right on the main NH-8 after the buffer zone (known as JCM Gate.	
	Since these buildings create a lot of traffic and JCM gate is our main gate too, we propose that they get direct access from the new service road which has just come up and has been carved out of DLF-II land.	
Buildings	These buildings have a back entrances which open up onto very narrow, 9 mtrs. Internal roads. These buildings have illegally occupied residential plots or open land to park their vehicles which leads to toal chaos and practically render these roads useless to the residentsspeically of that area.	
Shopping Centre	DLF was to provide us a shopping centre just behind Nestle Building. This shopping Centre has been ready for over 2 decades but not made operational. We request the same to be made operational and be handed over.	
Boundary Wall	DLF -II is a small colony with a boundary wall all around. However, this wall has been breached in many places and is extremely low in some due to which security is a major issue.	
	The wall has been totally breached at the corner juncture of IFFCO Chowk due to the new flyover which is coming up eating up the Green mandatory buffer zone as per Government guidelines for National Highways.	
Club	A Club is to be cnstructed in DLF II. The land for the same too has been identified and some construction done nearly 5-6 years back. This is on the main Akashneem Marg. It is requested the same be completed immediately and handed over to the RWA.	
Roads	DLF II largely has roads with appropriate slops leading water to fall at sides which used to get to the drains that were constructed in 1993. Overtime these drains have been blocked making way for Parking in certain vacant plots or the height of these drains have been elevated by the residents. These have lead certain points in the colony getting water flooded.	
Parks	Parks in DLF II need to be better maintained and a large tract of land/park with thin population be earmarked for children to play in.	
Water Supply	While the general supply of water leaves a lot to be desired with very less water being provided compared to thye 156 ltrs of water per person that is to be provided with 135 ltrs of it through taps, Q Block and some parts of P Block which lie on higher levels get extremely scanty water supply and have to depend on tankers very often.	
Electricity	We have beeninformed a number of times that the number of transformers have to be augmented specially since tghere are many illegal commercial operations and guest houses running in DLF II and the Government not being able to stop the same. We were also informed that the overall infrastructure of wiring etc. is again and needs to be upgraded, in fact most of it supposed to go underground.	
	While there has been a lot of focus on the physical infrastructure of DLF II, we also need to focus on the manpower infrastructure. There are many workers who have spent their entire lives working in DLF II. These people have indepth and irreplaceable knowledge about the area and can resolve issues much faster than any other person due to that knowledge.	
	DLF II was supposed to have been developed and handed over nearly 3 decades ago. We are quite sure that every equipment has certain life including sewage lines and booster pumps. There are even guidelines as per CPHEEO Manual and other policy documents.	
	DLF has been collecting a non construction charge which is extremely high and an item which is meant to be capitalized as it is the only colonizer to charge the same.	

ANNEXURE –I (SUMMARY OF REPRESENTATION)

Enclosure by Ramesh 22/6/17

ABEMHC

A-Block Extension Mutual Help Community
Regd. Office : A-48/20, DLF Phase – I, Gurgaon (Haryana)
Pin Code - 122002. E-mail – abemhc@gmail.com

PRWS
PROGRESSIVE RESIDENTS WELFARE SOCIETY (REGD.)
A 51/3, PHASE I, DLF CITY, GURGAON, HARYANA 122002
TEL : 9582336313 E MAIL : prws.hr@gmail.com

16-06-2017

The Municipal Commissioner,
Municipal Corporation.
Gurgaon.

Ref. *Your Memo No MCG/TP/STP/TP/2017/31148 dt. 8/6/17*

Representation from A-Block Extension Mutual Help Community (Regd.) and Progressive Residents Welfare Society (Regd.) .

Sir,
In the last meeting held on 16-5-17 in your office, called to discuss the takeover program of Licensed Colonies, including DLF Ph-1,2,3, both the above Associations jointly submitted their willingness to maintain *the Block whenever MCG takes over.*

In the meeting we were introduced to KY Consultants who were appointed by your office to carry out a survey of the area, Block wise, and note down the deficiencies of the colonizer, namely DLF, besides submitting the additional requirements of the Blocks now needed. The Consultants were to contact the respective and Active RWA's in this regard. We had then submitted our representation alongwith contact details so that we could be contacted when the need arise.

Unfortunately, we have come to know that the above exercise by KY Consultants have already been completed by sitting in DLF, Shopping Mall office, and without any discussion with any Block's RWA's.

Such an action does not go well with the interests of the RWA's representing the aspirations of the Residents. There are several areas which have to be looked into and the problems which remain un-solved till date.

Moreover, certain issues are such which cannot be addressed by DLF office in Shopping Mall. An example is the unilateral decision taken by the higher authorities in DLF which permitted a full fledged school to come up, by the name of KUNSKAPPSKALON School, and which has become a grave hazard to the Block's residents. The school is situated at the dead end of the Block with only the same entry and exit points. Just imagine the plight of the residents when the narrow lanes have to take the burden of 300 cars and 20 big buses coming in and out every day. Besides there are buses of other schools also.

Our block's sewage is also not connected to the main sewer line at MG road (following the natural slope) but is instead pumped uphill for half a kilometre before reaching the main sewer line on the sector road. This is a disaster waiting to happen and all our fears & complaints have fallen of deaf DLF ears.

DLF has also not built the Club they promised on land allocated for non-commercial activities and is instead running commercial clubs on land not permitted for commercial activities. We are clear & can prove that DLF has to complete a lot of works before it is given a completion by the MCG and other authorities.

Dlf Office in Shopping Mall have expressed their inability to do anything in the matter. Even school administration does not care to our woes. Then whom should we go to. We are sure your Consultant would not have taken note of this.

Similarly, we have the Revenue Road which passes through the middle of the Block and which the villagers use day and night. Here Security has taken a hit. There have been several cases of thefts and cars stolen. Villagers can be seen roaming even at late night, young boys and girls use the Block's dark areas, behind *Mega Mall, for their own entertainment, illegal parking of tempos, building of an illegal Temple and its* congestion creating Bhandaras, narrow widths of metalled roads, not carpeted since last more than 16 years, etc are a few nuisances needs to be addressed.

SIR, our above apprehensions are also shared by Residents of other Blocks. In the best interest of the Residents & the MCG with a view to avoid instability in the Blocks after takeover, which will result in more pain, it is critical to meet with the Block's RWA'S and get a comprehensive view of the requirements/ actions *required in the present scenario*

Yours Sincerely

R.K. Jain
Secretary, ABEMHC

Milin Kapoor
Gen. Secretary, PRWS

DLF QUTAB ENCLAVE RESIDENTS WELFARE ASSOCIATION (REGD.)

Regd No 767 of 1988 1989 (Act XXI of 1860) and re-registered under HRRS Act 2012 Reg No 1269 of 2014
BB-8, Qutab Plaza, DLF Qutab Enclave Phase-I, Gurgaon-122002
Tel: 0124-2387845, Email:qerwa2013.15@gmail.com.

M/s. Ky Consultant Pvt Ltd,
303-304, DLF Star Tower Sector 30,
Gurugram.

7th June, 2017.

Sub: Work order Memo No. MCG/EE-VIII/2017/22704 dated 27/04/2017 from Municipal Corporation Gurugram for consultancy service for Planning, Designing for Infrastructure, Development i.e, Roads, Water Supply, Sewerage, Storm Water Drainage, Rain Water Harvesting, Street Light Electrification for Private Colonies i.e, DLF Phase I, II, III.

Dear Sir,

Wide work order Memo No. MCG/EE-VIII/2017/22704 dated 27/04/2017 from Municipal Corporation Gurgugram, you have been requested to prepare the DPR of DLF Phase I, II, III as per the approval of worthy commissioner, Municipal Corporation Gurgaon and as per scope of work given there under.

In this respect we have met you at your office on 4th May, 2017, and explained that we are the Registered Association ever since 1988, to look after the welfare and maintenance of entire DLF Phase I to V. and help and assist you. Further on 16th May 2017 at the meeting of Deputy Commissioner along with Municipal Commissioner and other officers at the office of Deputy Commissioner, you have explained that by middle of June 2017 you will prepare the draft DPR and before preparation you will visit the area of DLF Phase I, II & III and meet the Association as well as examine the deficiency yourself personally. However till date even after repeatedly trying to contact you, we could not get any information about the progress of the entrusted job to you.

At the meeting of Deputy Commissioner's office on 16th May 2017 as desired, we have submitted a detailed survey report identifying the deficit infrastructure in DLF licensed colony DLF Phase I, II & III, and also the complete details of capacity of water supply and status of maintenance charges. We are enclosing herewith a copy of the same detailed survey report submitted to the Deputy Commissioner for your record and ready reference before preparing the DPR. Further it is requested to kindly let us give a chance to meet you at your convenience and earliest so that further a detailed discussions can be done.

Our intention is only to assist you in preparing a correct and authenticated DPR for DLF City Phase I, II & III.

Waiting for an early intimation or call, we remain,

Sincerely yours,

R.S. Rathee
President
9810110426

Encl: details survey report of identifying the deficit infrastructure in DLF Phase I, II & III.
cc: to Municipal Commissioner, Gurgaon Municipal Corporation

DLF QUTAB ENCLAVE RESIDENTS WELFARE ASSOCIATION (REGD.)

Regd. No 767 of 1988-1989 (Act XXI of 1860) and re-registered under HRRS Act 2012 Reg. No. 1269 of 2014

BB-8, Qutab Plaza, DLF Qutab Enclave Phase-I, Gurgaon-122002

Tel: 0124-2387845, Email:qerwa2013.15@gmail.com.

16th May, 2016

To,
Municipal Commissioner,
Municipal Corporation Gurgaon
Sector-34, Info City, Gurgaon

Sub: Submission of detailed survey report identify the deficit infrastructure in DLF Ltd licensed colony namely DLF Ph-I, II, III & IV.

Dear Sir,

As desired by you, we are pleased to submit the detailed survey report within our knowledge and means, identifying the deficit infrastructure, non completion of the community amenities/facilities even after more than 30 years of the initial license being given to the licensed builder M/s DLF Ltd (earlier known as DLF Universal Ltd).

The complete details are given Phase wise as follows:-

1. Annexure 1 for DLF Ph-1
2. Annexure 2 for DLF Ph-2
3. Annexure 3 for DLF Ph-3
4. Annexure 4 for DLF Ph-4
5. Present Capacity of Water Supply in DLF Phase-1 to 4
6. Status of Maintenance Charges DLF Phase-1 to 4

Hope, you will do the needful for which these details are requested therein.

Thanking you

Sincerely yours

R.S.Rathee
President
9810110426

DLF QUTAB ENCLAVE RESIDENTS WELFARE ASSOCIATION Reg. No. 1269 of 2014

Enclosed as above

SURVEY FOR IDENTIFICATION OF DEFICIT INFRASTRUCTURE IN LICENSED COLONIES GURGAON

DLF PHASE-2 (ANNEXURE-2)

Name of RWA:-	DLF QUTAB ENCLAVE RESIDENTS' WELFARE ASSOCIATION (REGISTERED)			
Address with Email Id & Telephone No	BB-8, BASEMENT, QUTAB PLAZA, ASHOK CRESCENT, DLF PHASE-1, GURGAON-122002			
Whether Registered or not	REGISTERED			
If yes, registering authority and registration number/date	REGN. 767 OF 1988-89 AND RE-REGISTRATION NO. 1269 OF 2014			
Total No. of RWA's in the Colony	NIL			
Name of Licensed Colony				
License No./ Date	14-20/1982 DATED 24.08.1982			
Nos. of Plots/Flats	3220-PLOTS/ 400- FLATS			
Total Population residing in Colony	31380			
Status of Existing Infrastructure	Total Requirement	Total Received	Gaps/Deficiencies	Infrastructure Deficit
Water Supply	1.6 MGD	1 MGD	0.6 MGD = 27 Lac litres	Underground water tanks & Boosting Station yet to be constructed for L Block Extension & Q Block.
Drainage	There is no provision on drainage on Dakshini Marg to Akashneem Marg to the National Highway. The same problem also persists at Dakshin Marg Near Central Arcade market.			
Sewerage	ok			
Electricity	40 MVA	15 MVA	25 MVA	Electric Sub-Station constructed.
Street light	50% of Street lights are not working and need to be installed LED lights			

DLF QUTAB ENCLAVE RESIDENTS WELFARE ASSOCIATION * Reg. No. 1269 of 2014

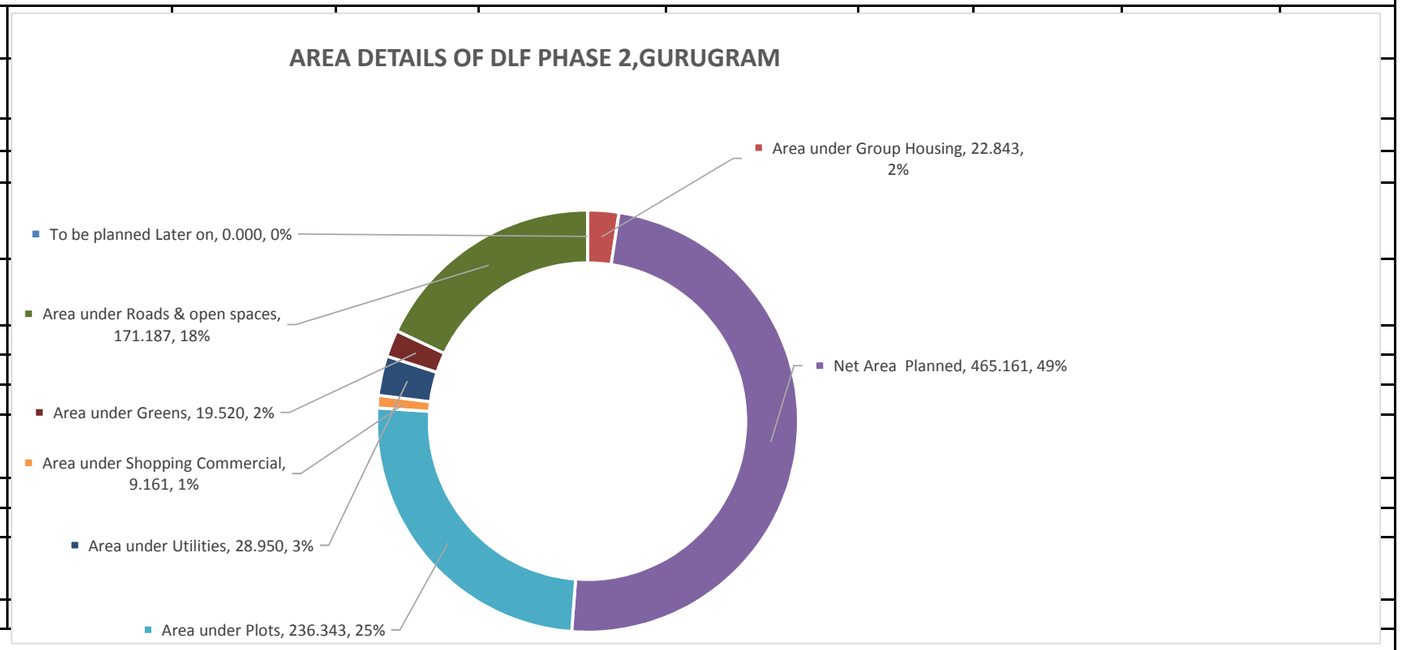
Roads	Re-carpeting of roads is pending for 2 decades. Signage required in entire DLF 2			
Other Mandatory Services like Security etc	Compound wall not constructed.			
Horticulture	Green Belt encroached along the National Highway and adjoining DF Atria Building. Boundary wall of except few parks are not constructed. Installation of High mask lights and rain shelter/huts to be provided in parks. Lights required at corners of all parks.			
Rain Water Harvesting	Drainage system is not connected to the Rain Water pits. Constructed pits are not operational.			
Sewerage Treatment Plant (STP)	STP is yet to be constructed in all blocks.			
Details of Social Infrastructure	**Total No. of Sites**	**Constructed**	**Not constructed**	**Remarks**
Community Centre	1	1	Nil	Run by DLF as profit making centre.
Club	2	Not Operational. Only Structure is constructed to occupy the site.		
Schools	**Total**	**Constructed**	**Not constructed**	**Remarks**
Creche	3	1	2	
Nursery	12	6	6	
Primary	5	3	2	
High School	1	1	NIL	
Religious Buildings	3	1	1	1 is under construction.
Dispensary	1	0	1	Not operational
Health Centre	1	1	NIL	
Electrical Sub-Station	3	2	1	
Sub Post Office	2	1	1	
Telephone Ex-change	1	1	NIL	
Police Post	1	1	NIL	

DLF QUTAB ENCLAVE RESIDENTS WELFARE ASSOCIATION * Reg. No. 1269 of 2014

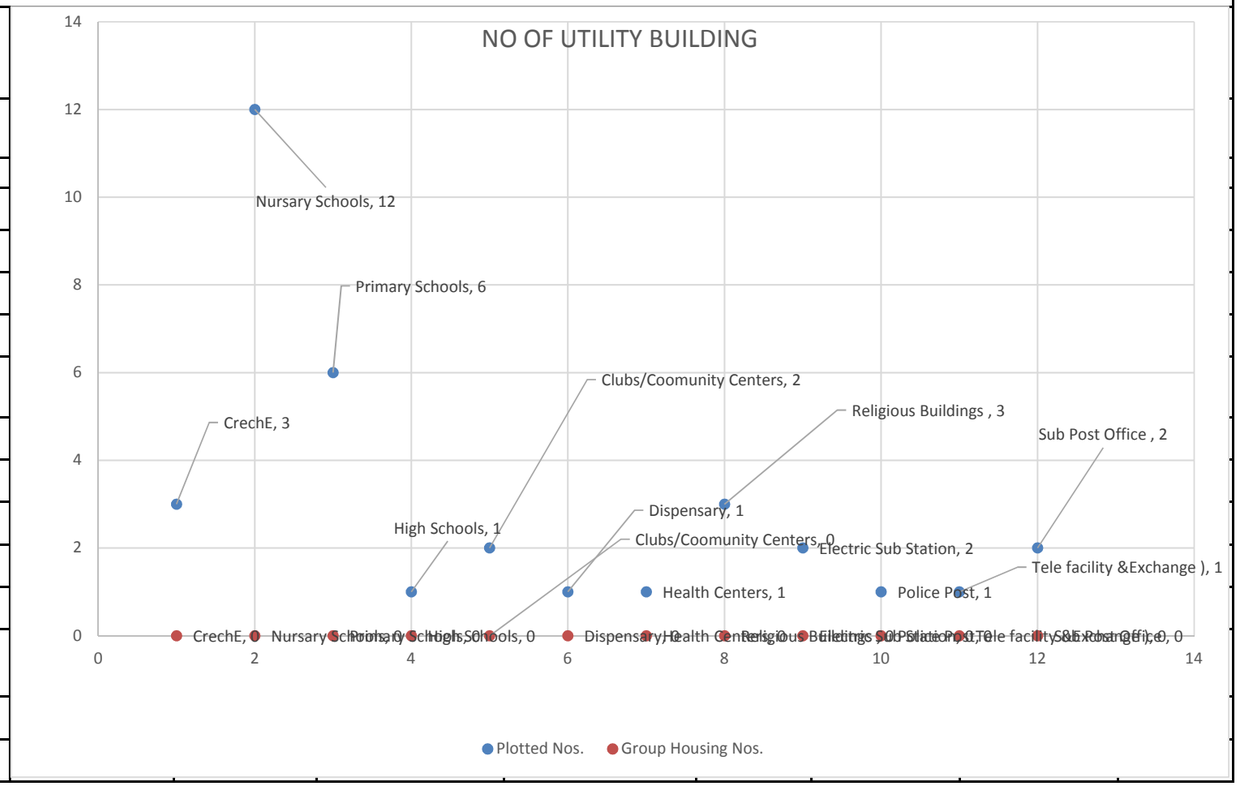
DESIGN PROFILE & STATEMENTS

DESIGN PROFILE (DLF Phase 2 Gurugram)

	Description	DLF Phase 2		
1.000	**Area**			
1.001		**Acres**	**Sqm**	Hectare
1.002	Total Area of Scheme	488.004	1974867	197.487
1.003	To be planned Later on	0.000	0	0.000
1.004	Area under Group Housing	22.843	92442	9.244
1.005			0	0.000
1.006	Net Area Planned	465.161	1882425	188.243
1.007	Area under Plots	236.343	956437	95.644
1.008	Area under Shopping Commercial	9.161	37073	3.707
1.009	Area under Utilities	28.950	117156	11.716
1.010	Area under Greens	19.520	78995	7.900
1.011	Area under Roads & open spaces	171.187	692764	69.276
1.012	Total	488.004	1974867	197.487



1.013	**Area Under Utility**				
1.014	**Description**	**Phase 2**			
1.015		Plotted	Group Housing	**Area of Each Unit**	**Utility Area Phase 1**
1.016		Nos.	Nos.		**Acres**
1.017	CrechE	3	0	0.2	0.6
1.018	Nursary Schools	12	0	0.4	4.8
1.019	Primary Schools	6	0	1	6
1.020	High Schools	1	0	5	5
1.021	Clubs/Coomunity Centers	2	0	2	4
1.022	Dispensary	1	0	1.25	1.25
1.023	Health Centers	1	0	1	1
1.024	Religious Buildings	3	0	0.5	1.5
1.025	Electric Sub Station	2	0	2	4
1.026	Police Post	1	0	0.2	0.2
1.027	Tele facility &Exchange)	1	0	0.2	0.2
1.028	Sub Post Office	2	0	0.2	0.4
1.029	Sub Total of Utility	35	0		28.95



1.030	DETAILS OF PLOTS				DLF PHASE 2								
1.031	**Type**	**L(m)**	**B(m)**	**Unit Area**	**No.**	**Total Area**	**Area in Acres**						
1.032	A	19	45	855.00	111	94905.00	23.452						
1.033	A2	18	45	810.00	0	0.00	0.000						
1.034	A3	18	40	720.00	0	0.00	0.000						
1.035	A1	15	38	570.00	68	38760.00	9.578						
1.036	B2	13.5	35	472.50	**58**	27405.00	6.772						
1.037	B7	16.575	27.15	450.01	0	0.00	0.000						
1.038	B4	13	32.5	422.50	0	0.00	0.000						
1.039	B1	15	28	420.00	327	137340.00	33.938						
1.040	B	12	28	336.00	617	207312.00	51.228						
1.041	B6	12	25	300.00	0	0.00	0.000						
1.042	C6	12.575	21	264.08	69	18221.18	4.503						
1.043	C1	11	24	264.00	231	60984.00	15.069						
1.044	C	10.44	24	250.56	758	189924.48	46.931						
1.045	C5	10	22.5	225.00	0	0.00	0.000						
1.046	D	10	21	210.00	358	75180.00	18.577						
1.047	D1	8.56	21	179.76	340	61118.40	15.103						
1.048	F	8.25	20.27	167.23	211	35285.00	8.719						
1.049	G1	8	17.06	136.48	0	0.00	0.000						
1.050	G	7.333	17.06	125.10	80	10008.08	2.473						
1.051	G6	6.6	18.95	125.07	0	0.00	0.000						
1.052	G4	7.328	17.06	125.02	0	0.00	0.000						
1.053	G3	6.5	14.02	91.13	0	0.00	0.000						
1.054	E	4	12.5	50.00	0	0.00	0.000						
1.055	E	4	12.5	50.00	0	0.00	0.000						
1.056					3228	956443.14	236.342621						
1.057	Estimation of Population in area s of various land use has been sumarised below,												
1.058	The data has been collected from adopted practice in Haryana PWD, Public Health,Haryana Urban Development Authority,Haryana State Industrial& Infrastructure Development Corporation.												
1.059	Additional Data for Non Residential services has been taken from National Building Code& Manuals published by Ministry of Urban Develoment ,Govt of India.												
2.000	**NORMS OF POPULATION AS PER AVERAGE FAMILY SIZE**						(Adopted in Haryana)						
2.001	Occupancy						No. of Dwelling Units/Plot	No. of Persons /Family	Total No. of Persons /Plots				
2.002							Nos.	Nos.	Nos.				
2.003	Residential Plots						3	4.5	13.5	Nos.			
2.004	EWS Plots						2	4.5	9	Nos.			
2.005	Population Density in PlottedcArea						100	Perons per Acre					
2.006	Population Density inGroup Housing						250	Perons per Acre					
2.007	Population Density inGroup Housing						300	Perons per Acre					
2.008	**Non Residential Buildings /Plots**												
2.009	Commercial	1 person per 20 sqm area for working population & 200persons visiting population											
2.010	Institutional	1 person per 40 sqm area for working population & 200 person Floating population											
2.011	Police Post	1 person per 40 sqm area for working population & 200 persos visiting population											
2.012	Dispensery	1 person per 40 sqm area for working population & 200 persosvisiting population											
2.013	Water Works	1person per 400sqm area &5% visiting users											
2.014	Electric Sub Station	1person per 400 sqm area & 200persons visiting users											
2.015	STP	1person per 400 sqm area & 5%persons visiting users											
2.016	Solid Waste Management	1person per 400 sqm area & 5%personsvisiting users											
2.017	Open , Green & Road Area	1person per 3693 sqm area & 5%persons Floating users											

2.018	**Estimated Population**							Population DLF Phase 2					
2.019	**DETAILS OF PLOTS**	**DLF Phase 2**				**Population Density as per service Estimates**	**Population Density as per HUDA Norms**	**Population as per service Estimates**	**Population as per present HUDA norms**				
2.020	**Type**	**No. of Plots**						**Nos.**					
2.021	A	**71**				13.5	13.5	958.5	959				
2.022	A2	**40**				9	13.5	360	540				
2.023	A3	**0**				9	13.5	0	0				
2.024	A1	**68**				9	13.5	612	918				
2.025	B2	**58**				9	13.5	522	783				
2.026	B7	**0**				9	13.5	0	0				
2.027	B4	**0**				9	13.5	0	0				
2.028	B1	**327**				9	13.5	2943	4415				
2.029	B	**617**				9	13.5	5553	8330				
2.030	B6	**0**				9	13.5	0	0				
2.031	C6	**69**				9	13.5	621	931				
2.032	C1	**231**				9	13.5	2079	3118				
2.033	C	**758**				9	13.5	6822	10233				
2.034	C5	**0**				9	13.5	0	0				
2.035	D	**358**				9	13.5	3222	4833				
2.036	D1	**340**				9	13.5	3060	4590				
2.037	F	**211**				9	13.5	1899	2848				
2.038	G1	**0**				9	13.5	0	0				
2.039	G	**80**				9	13.5	720	1080				
2.040	G6	**0**				9	13.5	0	0				
2.041	G4	**0**				9	13.5	0	0				
2.042	G3	**0**				9	13.5	0	0				
2.043	E	**0**				9	9	0	0				
2.044	E	**0**				9	9	0	0				
2.045		**3228**						**29372**	43578				
2.046							71*13.5+(3228-71)*9	29372	3228*13.5				
2.047	Population of Group Housing (G.H.) @ 300 Persons per Acre.							6852.9	6852.9				
2.048	Max Population Density permissible as per Guidelines of Town & Country Planning Department, Govt. of Haryana				120	Persons Per Acre							
2.049	Population Projections						DLF Phase 2						
2.050	Total Area of Scheme						488.00						
2.051	Group Housing Area						22.843						
2.052	Plotted Area						465.16						
2.053	Population as per service Estimates						29372						
2.054	Max Permissible Population						120						
2.055	Max Population permissible as per Guidelines of Town & Country Planning Department, Govt. of Haryana						58560						
2.056	Increase in population on account of increase in FAR of area arround MRTS 35% increase population in new construction & part of renovation work in already constructed						20496						
2.057	Assume75% diversity factor since major construction work has been completed in area						15372						

2.058	Total population						73932					
2.059												
2.060	Population Accomdated in Group Housing Area						6853					
2.061	Estimated population in Plotted Area						67079					
2.062	Say						67000					
3.000	**WATER ALLOWANCE**				**Adopted Practce of Water Demand as adopted by Haryana Public Health, Haryana Urban Development Authority,,Haryana State Industrial& Infrastructure Development Corporation.**							
3.001	Description					Norms Adopted	Unit					
3.002	Water Demand forGreen Area											
3.003	Water Demand Green Area with Rough Grassing					15000	Litre/Acre					
3.004	Water Demand Green Area with With Regular interval					20000	Litre/Acre					
3.005	Green Area with Lush Green Grassing					25000	Litre/Acre					
3.006	Water DemandRoad area for Road Side Plantation assumingRoad Paved Area =60%,GreenArea of Berms=40%											
3.007	Road area demand with lean Plantation Work					6000	Litre/Acre					
3.008	Road area demand with ModratePlantation Work					8000	Litre/Acre					
3.009	Road area demand with Modrate Plantation Work & Grassing of Berm					10000	Litre/Acre					
3.010	Water DemandRoad area for Circulation Area											
3.011	Water DemandRoad area for Circulation assumingPaved Area =90%,GreenArea =10%					2500	Litre/Acre					
3.012	Water DemandRoad area for Circulation assumingPaved Area =80%,GreenArea =20%					5000	Litre/Acre					
3.013	Water DemandRoad area for Circulation assumingPaved Area =60%,GreenArea =40%					10000	Litre/Acre					
3.014	Description			Population Per Dwelling Unit	Working Population Per Dwelling Unit	Water required per dwelling Unit						
3.015	CrechE			100	5	10000	Litre/Dwelling Unit					
3.016	Nursary Schools			150	8	10000	Litre/Dwelling Unit					
3.017	Primary Schools			700	35	50000	Litre/Dwelling Unit					
3.018	High Schools			1000	50	150000	Litre/Dwelling Unit					
3.019	Clubs/Coomunity Centers			500	25	50000	Litre/Dwelling Unit					
3.020	Dispensary			100	5	25000	Litre/Dwelling Unit					
3.021	Health Centers			100	5	10000	Litre/Dwelling Unit					
3.022	Religious Buildings			200	10	10000	Litre/Dwelling Unit					
3.023	Electric Sub Station			15	5	10000	Litre/Dwelling Unit					
3.024	Police Post			20	5	10000	Litre/Dwelling Unit					
3.025	Tele facility &Exchange)			20	5	10000	Litre/Dwelling Unit					
3.026	Sub Post Office			20	5	10000	Litre/Dwelling Unit					
3.027	Sub Total			20	5	10000	Litre/Dwelling Unit					
3.028	Water Demand ofWater Works	Norms adopted in Haryana Public Health, Haryana Urban Development Authority	25000	20000	25000	Litre/Acre						
3.029	Water Demand of STP	As adopted practise in Haryana Public Health, Haryana Urban Development Authority	25000	20000	25000	Litre/Acre						
3.030	Water Demand of Solid Waste	As adopted practise in Haryana Public Health ,Haryana Urban Development Authority	25000	25000	25000	Litre/Acre						

3.100	**ESTIMATION OF POPULATION AND WATER DEMAND**												
3.101	**DLF Phase 2**												
3.102	**Estimation of Population in area s of various land use has been sumarised below,**												
3.103	**Total Water Demand**											**Waste Water Estimation**	
3.104	**Area under Plots**			**DLF Phase 2**			Norms of Users based on NBC & Manual of Water Supply , HSIIDC Norms & Details in Devloment plan	Water Allowance	**DLF Phase 2**	**Total Dmand**	**DLF Phase 2**		
3.105				Acres				L/ Acre	L				
3.106				Nos.				L/ Capita					
3.107	**Area under Plots**			**236.343**									
3.108	**Work Area**			142			60%				90%		
3.109	**Circulation Area**			47			20%	2500	118171	118171	106354	118171	
3.110	**Open& Green Area within Plot**			47			20%	25000	1181713	1181713		1181713	
3.111	Population			67000.00					9045000	9045000	8140500	9045000	
3.112	Floating Popolation			3350					150750	150750	135675	150750	
3.113	**Area under Group Housing**			**22.843**						0		0	
3.114	**Work Area**			**9.137**			**40%**			0		0	
3.115	**Circulation Area**			**9.137**			**40%**	**2500**	**22843**	22843	20559	22843	
3.116	**Open& Green Area within Plot**			5			20%	25000	114215	114215		114215	
3.117	Working Population			6853.00					925155	925155	832640	925155	
3.118	Floating Popolation			343					15435	15435	13892	15435	
3.119	**Area under Shopping Commercial**			**9.161**						0		0	
3.120	**Work Area**			**5.497**			**60%**	**25000**	**86209**	86209	77588	86209	
3.121	**Circulation Area**			**1.832**			**20%**	**2500**	**4581**	4581	4123	4581	
3.122	**Open& Green Area within Plot**			2			20%	25000	45805	45805		45805	
3.123	Working Population			1854.00			1 person per 20 sqm area for working population & 200persons visiting population		83430	83430	75087	83430	
3.124	Visiting Popolation			200					9000	9000	8100	9000	
3.125	**Area Under Utility**									0		0	
3.126	**CrechE**			**0.600**						0		0	
3.127	**No. of Dwelling Units**			**3.000**						0		0	
3.128	**Work Area**			**0.360**			**60%**	**10000**	**12525**	12525	11273	12525	
3.129	**Circulation Area**			**0.120**			**20%**	**2500**	**300**	300	270	300	
3.130	**Open& Green Area within Plot**			0			20%	25000	3000	3000		3000	
3.131	Working Population			300.00					13500	13500	12150	13500	
3.132	Visiting Popolation			15					675	675	608	675	

3.133	**Nursary Schools**	**4.800**						0		0
3.134	**No. of Dwelling Units**	**12.000**						0		0
3.135	**Work Area**	**2.880**			**60%**	**10000**	**8280**	8280	7452	8280
3.136	**Circulation Area**	**0.960**			**20%**	**2500**	**2400**	2400	2160	2400
3.137	**Open& Green Area within Plot**	1			20%	25000	24000	24000		24000
3.138	Working Population	1800.00					81000	81000	72900	81000
3.139	Visiting Popolation	96					4320	4320	3888	4320
3.140	**Primary Schools**	**6.000**						0		0
3.141	**No. of Dwelling Units**	**6.000**						0		0
3.142	**Work Area**	**4.800**			**80%**	**50000**	**85050**	85050	76545	85050
3.143	**Circulation Area**	**0.600**			**10%**	**2500**	**1500**	1500	1350	1500
3.144	**Open& Green Area within Plot**	1			10%	25000	15000	15000		15000
3.145	Working Population	4200.00					189000	189000	170100	189000
3.146	Visiting Popolation	210					9450	9450	8505	9450
3.147	**High Schools**	**5.000**						0		0
3.148	**No. of Dwelling Units**	**1.000**						0		0
3.149	**Work Area**	**4.000**			**80%**	**150000**	**89000**	89000	80100	89000
3.150	**Circulation Area**	**0.500**			**10%**	**2500**	**1250**	1250	1125	1250
3.151	**Open& Green Area within Plot**	1			10%	25000	12500	12500		12500
3.152	Working Population	1000.00					45000	45000	40500	45000
3.153	Visiting Popolation	50					2250	2250	2025	2250
3.154	**Clubs/Coomunity Centers**	**4.000**						0		0
3.155	**No. of Dwelling Units**	**2.000**						0		0
3.156	**Work Area**	**1.200**			**30%**	**50000**	**27750**	27750	24975	27750
3.157	**Circulation Area**	**2.000**			**50%**	**2500**	**5000**	5000	4500	5000
3.158	**Open& Green Area within Plot**	1			20%	25000	20000	20000		20000
3.159	Working Population	1000.00					45000	45000	40500	45000
3.160	Visiting Popolation	50					2250	2250	2025	2250
3.161	**Dispensary**	**1.250**						0		0
3.162	**No. of Dwelling Units**	**1.000**						0		0
3.163	**Work Area**	**0.375**			**30%**	**25000**	**12462.5**	12463	11216	12463
3.164	**Circulation Area**	**0.625**			**50%**	**2500**	**1562.5**	1563	1406	1563
3.165	**Open& Green Area within Plot**	0			20%	25000	6250	6250		6250
3.166	Working Population	100.00					4500	4500	4050	4500
3.167	Visiting Popolation	5					225	225	203	225
3.168	**Health Centers**	**1.000**						0		0
3.169	**No. of Dwelling Units**	**1.000**						0		0
3.170	**Work Area**	**0.300**			**30%**	**10000**	**2025**	2025	1823	2025
3.171	**Circulation Area**	**0.500**			**50%**	**2500**	**1250**	1250	1125	1250
3.172	**Open& Green Area within Plot**	0			20%	25000	5000	5000		5000
3.173	Working Population	100.00					1500	1500	1350	1500
3.174	Visiting Popolation	5					225	225	203	225
3.175	**Religious Buildings**	**1.500**						0		0
3.176	**No. of Dwelling Units**	**3.000**						0		0

3.177	**Work Area**	**0.450**			**30%**	**10000**	**10275**	10275	9248	10275
3.178	**Circulation Area**	**0.750**			**50%**	**2500**	**1875**	1875	1688	1875
3.179	**Other ,Open& Green Area**	0			20%	25000	7500	7500		7500
3.180	Habitation	600.00					9000	9000	8100	9000
3.181	Visiting Popolation	30					1350	1350	1215	1350
3.182	**Electric Sub Station**	**4.000**						0		0
3.183	**No. of Dwelling Units**	**2.000**						0		0
3.184	**Work Area**	**1.200**			**30.00%**	**10000**	**3100**	3100	2790	3100
3.185	**Circulation Area**	**2.400**			**60.00%**	**2500**	**6000**	6000	5400	6000
3.186	**Other ,Open& Green Area**	0			10.00%	25000	10000	10000		10000
3.187	Habitation	30.00					450	450	405	450
3.188	Visiting Popolation	10					450	450	405	450
3.189	**Police Post**	**0.200**						0		0
3.190	**No. of Dwelling Units**	**1.000**						0		0
3.191	**Work Area**	**0.060**			**30.00%**	**10000**	**8675**	8675	7808	8675
3.192	**Circulation Area**	**0.120**			**60.00%**	**2500**	**300**	300	270	300
3.193	**Other ,Open& Green Area**	0			10.00%	25000	500	500		500
3.194	Habitation	20.00					300	300	270	300
3.195	Visiting Popolation	5					225	225	203	225
3.196	**Tele facility &Exchange)**	**0.200**						0		0
3.197	**No. of Dwelling Units**	**1.000**						0		0
3.198	**Work Area**	**0.060**			**30.00%**	**10000**	**8675**	8675	7808	8675
3.199	**Circulation Area**	**0.120**			**60.00%**	**2500**	**300**	300	270	300
3.200	**Other ,Open& Green Area**	0			10.00%	25000	500	500		500
3.201	Habitation	20.00					300	300	270	300
3.202	Visiting Popolation	5					225	225	203	225
3.203	**Sub Post Office**	**0.400**						0		0
3.204	**No. of Dwelling Units**	**2.000**						0		0
3.205	**Work Area**	**0.120**			**30.00%**	**10000**	**17350**	17350	15615	17350
3.206	**Circulation Area**	**0.240**			**60.00%**	**2500**	**600**	600	540	600
3.207	**Other ,Open& Green Area**	0			10.00%	25000	1000	1000		1000
3.208	Habitation	40.00					600	600	540	600
3.209	Visiting Popolation	10					450	450	405	450
3.210	Area under Roads	171.187				10000	1711870	1711870		1711870
3.211	Area under Green Belt	19.520				25000	488004	488004		488004
3.212	Area Under U.D.	0.000				25000	0	0	0	0
3.213	Total	488.004		0.000			14827181	14827181	10062292	14827181

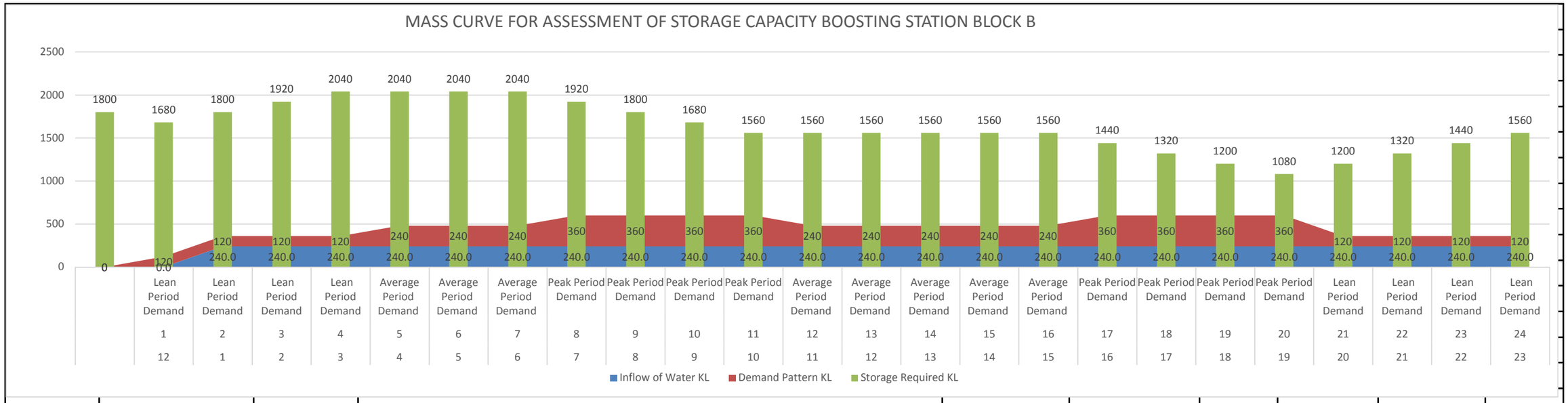
3.214	**Absract of Water Demand**											
3.215	Description			DLF Phase2								
3.216				Revised Value	Block P	Block L	Block X	Group Housing 1(Beverly Park 1)	Group Housing 2(Beverly Park 2)	Group Housing 3(Oak wood	Original Value	**Additional**	
3.217	Total WaterDemand in KL			14827									
3.218	Plotted Area WaterDemand in KL			13749	6186	7107	456						
3.219	Total Fresh Watert Demand in KL			11769	5295.00	6084	390				8600	**3169**	KL
3.220	Total Recycled Watert Demand in KL			1980	891.00	1023.00	66.00				0	**1980**	KL
3.221	Population(Plotted Area)			67000							29371.5	**37629**	Nos
3.222	Population(GH Area)			6853							6853	**0**	Nos
3.223	Total Fresh Watert Demand in KL(Group Housing Area)			970							970	**0**	KL
3.224	Total Recycled Watert Demand in KLGroup Housing Area)			108							108	**0**	KL
3.225	Total Fire Fihting Demand in KL			1081	486	558	36				804	**277**	KL
3.226	Group Housing Fire Fihting Demand in KL			262	118	135	9				262	**0**	KL
3.227	Plotted Area Fire Fihting Demand in KL			819	368	423	27				542	**277**	KL
3.228	Waste Water Generation			10062									KL
3.229	Plotted Area			9195									KL
3.230	Group Housing Area			867									KL
3.300	**Source of Water**												
3.301	The fresh water demand is met from two sources												
3.302	Tube well Source												
3.303	In Gurgaon Town the initial water requirement is met from Tube well source												
3.304	Canal Based Water Supply												
3.305	Canal based water from HUDA/Municipal source												
3.306	Tube well Source												
3.307	total 65 No. tube wells were installed by DLF IN Phase 1,2 & 3												
3.308	At present hardliy 20 No. of Tubewells are functional after availabilty of water from Canal source												
3.309	The initial discharge was 5500 gallons per hour i.e. 30000 litre per Houur which has reduced to 10000 Litre oer Hour												
3.310	Existing Appurtances of Water Supply Phase wise is summarised as under												

	DLF Phase 2												
3.400	**Rising Main**												
3.401	Two no Boosting Station are located in Block L& P respectively												
3.402	One no rising main of 10" (250 mm i/d),L=763 M has been laid from HUDA Line to Boosting station Block L												
3.403	One no rising main of 10" (250 mm i/d),L 795 M has been laid from HUDA Line to Boosting station Block P												
3.404	OHSR												
3.405	Over Head Service Reservoir of 681 KL capacity ,30 m staging Height is constructed in Boosting Station Block L									=	681	KL	
3.406	Over Head Service Reservoir of790 KL capacity ,30 m staging Height is constructed in Boosting Station Block P									=	681	KL	
3.407									Total	=	1362	KL	
3.408	**Under Ground Tank**												
3.409	Under Ground Service Reservoir of 681 KL capacity is constructed at location Cassia Marg / L-9,L Block									=	680	KL	
3.410	Under Ground Service Reservoir of 681 KL capacity is constructed at location Cassia Marg / L-9,L Block									=	680	KL	
3.411	Under Ground Service Reservoir of 681 KL capacity is constructed at location Cassia Marg / L-9,L Block									=	680	KL	
3.412	Under Ground Service Reservoir of 681 KL capacity is constructed at location P-6/P-7 ,Block P									=	681	KL	
3.413	Under Ground Service Reservoir of 681 KL capacity is constructed at location P-6/P-7 ,Block P									=	681	KL	
3.414	Under Ground Service Reservoir of 900 KL capacity is constructed at location P-6/P-7 ,Block P									=	900	KL	
3.415	Under Ground Service Reservoir of 250 KL capacity is constructed at location ,Block X									=	250	KL	
3.416									Total	=	4552	KL	
3.417	Distribution Net Work												
3.418	Original Distribution net work is laid based on Tubewell base supply & Boosting Station												
3.419	Now some tubewells have been dried due to fall in Water Table												
3.420	Now canal Base water supply is available & being supplied to cosumers												
3.421	**Problems Experienced by Consumers**												
3.422	**Possible Reasons of deficiency in Water Supply System**												
3.423	Water supply distribution is disturbed due to following reasons												
3.424	On account ofsignificant varriation in ground level in Phase 1&2												
3.425	Imbalance at the time of change from Tubewell base water supply to canabases water supply												
3.426	Insufficient quantum of water available from Canal Source												
3.427	To ascertain the reasons of deficiency the the audit of existing availble facility Technical Audit is done in susequent paras												
3.428	Rising Main												

3.429	Length of Rising Main from HUDA Source to Boosting Station												
3.430		Name of Water Supply Line	Length of Water Supply Line	Fresh Water Demand	Cumulative Discharge	Design Discharge at 120% of Net Quantity	Pumping hours for discharge	Pipe Size	Total loss per 1000 mtr.	Fall	Hydraulic level Average Value	Formation Level	Head Available
3.431		1	2	3	4	5	6	7	8	9	10	11	12
3.432	**DLF Phase2**	**0**											
3.433	**HUDA Source**	**Block L**	**763**	6084.00	6.084	**7.3008**	24	250	1.7223	14.2			
3.434	**HUDA Source**	**Block P**	**795**	5295.00	5.295	**6.354**	24	250	1.4989	11.0			
3.435	**Extension in Cyber Park**		**500**	390.00	0.390	**0.468**	24	**100**	0.6900	7.6			
3.436		Acre											
3.437	Group Housing 1(Beverly Park 1)	8.836	150	417	0.417	**0.5004**	24	**100**	0.7378	8.6			
3.438	Group Housing 2(Beverly Park 2)	7.286	150	344	0.344	**0.4128**	24	**100**	0.6086	6.1			
3.439	Group Housing 3(Oak wood state)(	6.722	200	317	0.317	**0.3804**	24	**100**	0.5609	5.2			
3.440		22.843											
3.441	Length of Rising Main			Existing Length	Size of Pipe	Remarks							
3.442				M	mm								
3.443	HUDA Source	Block L	HUDA Source-Block L	763	250	Additional pipe not required							
3.444	HUDA Source	Block P	HUDA Source-Block P	795	250	Additional pipe not required							
3.445	Extension in Cyber Park	Block X	Extension in Cyber Park-Block X	500	100	Additional pipe not required							
3.446	Group Housing 1(Beverly Park 1)		Group Housing 1(Beverly Park 1)-		100	Additional pipe not required							
3.447	Group Housing 2(Beverly Park 2)		Group Housing 2(Beverly Park 2)-		100	Additional pipe not required							
3.448	Group Housing 3(Oak wood state)(		Group Housing 3(Oak wood state)(-		100	Additional pipe not required							

3.500	**Design of Water Works(DLF Phase 2)**										
3.501	Fresh water distribution is provided from Three No. Boosting Station										
3.502	DLF Phase 2 - Located in Block P					5295	KL				
3.503	Net Water Demand					5295	KL				
3.504	Size of OHSR@ 1/4 of Net Water Demand					1324	KL				
3.505	Size of OHSR Existing					681	KL				
3.506	Size of UGT@ 1/3 of Net Water Demand					1765	KL				
3.507	Fire Fighting Demand					368	KL				
3.508	Total Capacity required					2133	KL				
3.509	Total CapacityExisting					2262	KL				
3.510	Balance Capacity Required					-129	KL				
3.511	Provide UGT in Two Compartments another to meet water demand , size 12m x9 mx3.6m+12m x 9m x 3.0 m					0	KL				
3.512	Total Capacity provided					0	KL				
3.513	Less for concrete walls & columns					0	KL				
3.514	Net Capacity provided					0	KL				
3.515	Design of Pumping Machinary										
3.516	Pumping Macinary will be designed for supplying water in Zone 1										
3.600	PUMPING STATION		**Zone 1(Block P)**								
3.601	Total Average Flow		=	5295	KL						
3.602	Average Hourly Flow		=	240	KL						
3.603	Peak Flow Factor		=	1.5							
3.604	Peak Flow		=	7943	KL						
3.605	water demand Lean Period=0.5 times Average Hourly flow		=	120	KL	33	LPS				
3.606	Average HouryDemand		=	240	KL	67	LPS				
3.607	water demand Peak Period=1.5times Average Hourly Demand		=	360	KL	100	LPS				

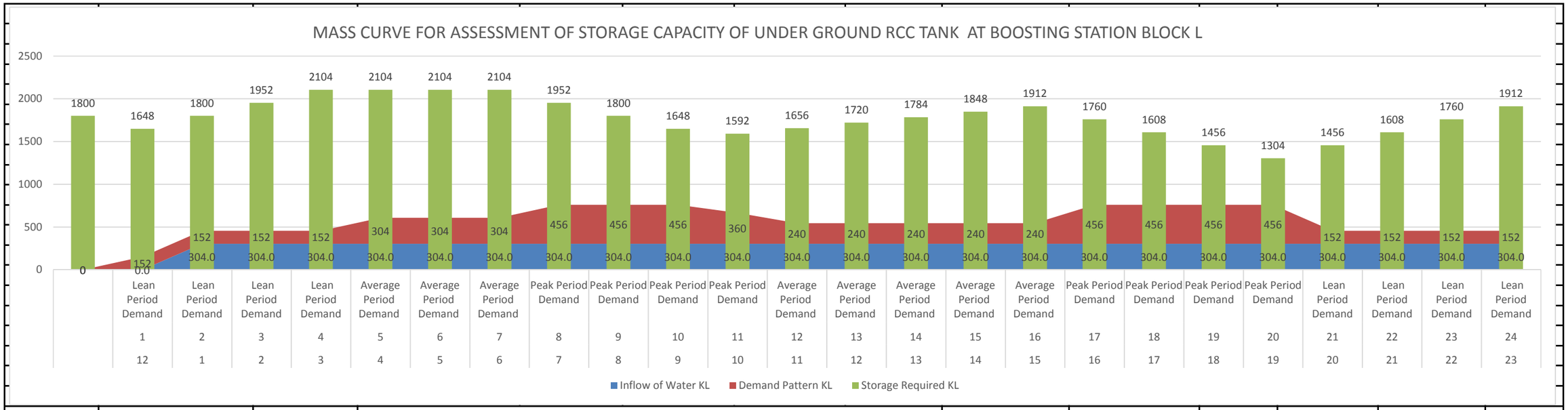
3.608	Capacity of Balancing Tank									
3.609	**From**	**To**		Inflow of Water	Demand Pattern	Storage Required				
3.610	Hrs	Hrs		KL	KL	KL				
3.611						1800				
3.612	12	1	Lean Period Demand		120	1680				
3.613	1	2	Lean Period Demand	240.0	120	1800				
3.614	2	3	Lean Period Demand	240.0	120	1920				
3.615	3	4	Lean Period Demand	240.0	120	2040				
3.616	4	5	Average Period Demand	240.0	240	2040				
3.617	5	6	Average Period Demand	240.0	240	2040				
3.618	6	7	Average Period Demand	240.0	240	2040				
3.619	7	8	Peak Period Demand	240.0	360	1920				
3.620	8	9	Peak Period Demand	240.0	360	1800				
3.621	9	10	Peak Period Demand	240.0	360	1680				
3.622	10	11	Peak Period Demand	240.0	360	1560				
3.623	11	12	Average Period Demand	240.0	240	1560				
3.624	12	13	Average Period Demand	240.0	240	1560				
3.625	13	14	Average Period Demand	240.0	240	1560				
3.626	14	15	Average Period Demand	240.0	240	1560				
3.627	15	16	Average Period Demand	240.0	240	1560				
3.628	16	17	Peak Period Demand	240.0	360	1440				
3.629	17	18	Peak Period Demand	240.0	360	1320				
3.630	18	19	Peak Period Demand	240.0	360	1200				
3.631	19	20	Peak Period Demand	240.0	360	1080				
3.632	20	21	Lean Period Demand	240.0	120	1200				
3.633	21	22	Lean Period Demand	240.0	120	1320				
3.634	22	23	Lean Period Demand	240.0	120	1440				
3.635	23	24	Lean Period Demand	240.0	120	1560				
3.636				5520	5760	2040				



3.637	Capacity of Underground tank storage Tank required as per mass curve	=	2040	KL			
3.638	Capacity of Underground tank storage Tank required as per Norms(8 Hours capacityof Total Demand)11333*8/24=3778 KL	=	1765	KL			
3.639	Storage Capacity required to meetFire Fighting Demand	=	368	KL			
3.640	Total Capacity required	=	2133	KL			
3.641	Total Capacity Existing		2262	KL			
3.642	Total Capacity provided	=	0	KL			
3.643			Hence OK				
3.644	Pumping Machinery						
3.645	Runing Hours of Lean Period	=	8		Hrs		
3.646	Runing Hours of Average Period	=	8		Hrs		
3.647	Runing Hours of Peak Period	=	8		Hrs		
3.648	Capacity of Pump Required during Lean Period	=	120		KL / Hr.		
3.649		=	33		Litre Per Second		
3.650	Capacity of PumpProvided during Lean Period	=	40		Litre Per Second		
3.651	BHP of Motor=40*40/(75*0.75)		42.7	45	BHP		
3.652	Capacity of Pump Required during Avwerage Period	=	240		KL / Hr.		
3.653		=	67		Litre Per Second		
3.654	Capacity of PumpProvided during Average Period	=	80		Litre Per Second		
3.655	BHP of Motor=70*40/(75*0.0.75)		85.3	85	BHP		
3.656	Capacity of Pump Required during Peak Period	=	360		KL / Hr.		
3.657		=	100		Litre Per Second		
3.658	Capacity of PumpProvided during PeakPeriod	=	100		Litre Per Second		

3.659	BHP of Motor=100*40/(75*0.75)					106.7	110	BHP		
3.660	Quantity of Water pumped during Lean Period				=	1152		KL		
3.661	Quantity of Water pumped during Average Period Period				=	2304		KL		
3.662	Quantity of Water pumped during Peak Period				=	2880		KL		
3.663	Total Quantity of Water pumped during24 Hrs.				=	6336		KL		
3.664	Total Quantity of Water required during24 Hrs.				=	5295		KL		
3.665						Hence OK				
3.666	ZONE 1(Block P)									
3.667	Provide2 pump to meet total demand 40 lps with60 m head.40BHP					2	2.0	Nos		
3.668	Provide1 pump to meet total demand 60lps with60 m head,65 BHP					1	1.0	Nos		
3.669	Provide 1 pumpas stand bye100 lps with 60 m 110 BHP					1	1.0	Nos		
3.670	Power Backup		During Lean Period	During Average Demand						
3.671	No. of pumps to run simultaneously	=	1.00	1	Nos.					
3.672	BHP of Two pumps	=	45.00	85	BHP					
3.673	kw	=	33.57	63.41	kw					
3.674	k Va	=	41.96	79.26	k Va					
3.675	C urrent	=	76.30	144.11	A					
3.676	Initial Current	=	190.74	360.28	A					
3.677	k Va	=	83.93	158.53	k Va					
3.678	Capacity of Generator Required	=		242.45	k Va					
3.679	Capacity of Generator provided	=		250.00	k Va					
3.680										
3.681	520 k VA as100% Power back up arrangements to run two pumps average demand with 45HP Motor +85HP Motor				250	k VA				
3.700	**Zone 2(Block L)**									
3.701	Net Water Demand		6084		KL					
3.702	Size of OHSR@ 1/4 of Net Water Demand		1521		KL					
3.703	Size of OHSR Existing		681		KL					
3.704	Size of UGT@ 1/3 of Net Water Demand		2028		KL					
3.705	Fire Fighting Demand		423		KL					
3.706	Total Capacity required		2451		KL					
3.707	Total CapacityExisting		2040		KL					
3.708	Balance Capacity Required		Nil		KL					
3.709	Total Average Flow		=	6084	KL					
3.710	Average Hourly Flow		=	304	KL					
3.711	Peak Flow Factor		=	1.5						
3.712	Peak Flow		=	9126	KL					
3.713	water demand Lean Period=0.5 times Average Hourly flow		=	152	KL					
3.714	Average HouryDemand		=	304	KL					
3.715	Peakwater demand Peak Period=1.5times Average Hourly Demand		=	456	KL					
3.716	Mass Curve for assessment of Storage capacity									

3.717	**From**	**To**		Inflow of Water	Demand Pattern	Storage Required							
3.718	Hrs	Hrs		KL	KL	KL							
3.719						1800							
3.720	12	1	Lean Period Demand		152	1648							
3.721	1	2	Lean Period Demand	304.0	152	1800							
3.722	2	3	Lean Period Demand	304.0	152	1952							
3.723	3	4	Lean Period Demand	304.0	152	2104							
3.724	4	5	Average Period Demand	304.0	304	2104							
3.725	5	6	Average Period Demand	304.0	304	2104							
3.726	6	7	Average Period Demand	304.0	304	2104							
3.727	7	8	Peak Period Demand	304.0	456	1952							
3.728	8	9	Peak Period Demand	304.0	456	1800							
3.729	9	10	Peak Period Demand	304.0	456	1648							
3.730	10	11	Peak Period Demand	304.0	360	1592							
3.731	11	12	Average Period Demand	304.0	240	1656							
3.732	12	13	Average Period Demand	304.0	240	1720							
3.733	13	14	Average Period Demand	304.0	240	1784							
3.734	14	15	Average Period Demand	304.0	240	1848							
3.735	15	16	Average Period Demand	304.0	240	1912							
3.736	16	17	Peak Period Demand	304.0	456	1760							
3.737	17	18	Peak Period Demand	304.0	456	1608							
3.738	18	19	Peak Period Demand	304.0	456	1456							
3.739	19	20	Peak Period Demand	304.0	456	1304							
3.740	20	21	Lean Period Demand	304.0	152	1456							
3.741	21	22	Lean Period Demand	304.0	152	1608							
3.742	22	23	Lean Period Demand	304.0	152	1760							
3.743	23	24	Lean Period Demand	304.0	152	1912							
3.744				6992	6880	2104							

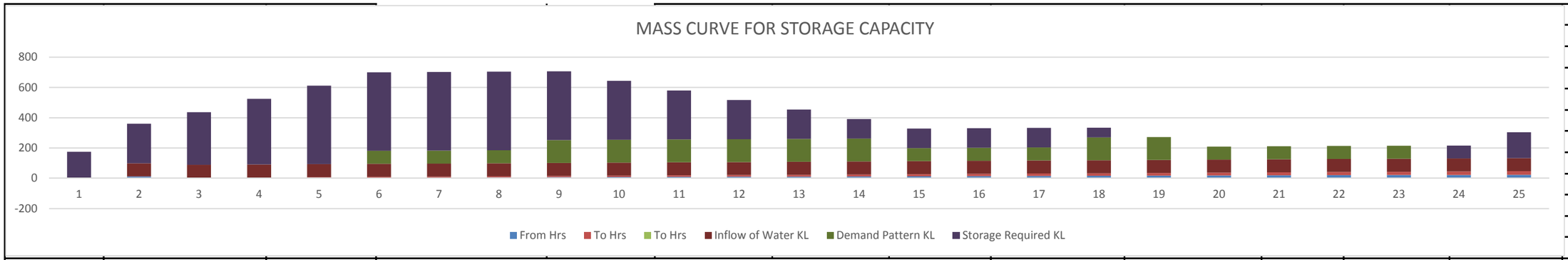


3.745	Capacity of Underground tank storage Tank required as per mass curve	=	2104	KL			
3.746	Capacity of Underground tank storage Tank required as per Norms(8 Hours capacityof Total Demand)11333*8/24=3778 KL	=	2028	KL			
3.747	Storage Capacity required to meetFire Fighting Demand	=	423	KL			
3.748	Total Capacity required	=	2451	KL			
3.749	Total Capacity Existing		2040	KL			
3.750	Total Capacity provided	=	nil	KL			
3.751			Hence OK				
3.752	Pumping Machinery	Zone 2					
3.753	Runing Hours of Lean Period	=	8	Hrs			
3.754	Runing Hours of Average Period	=	8	Hrs			
3.755	Runing Hours of Peak Period	=	8	Hrs			
3.756	Capacity of Pump Required during Lean Period	=	152	KL / Hr.			
3.757		=	42	Litre Per Second			
3.758	Capacity of PumpProvided during Lean Period	=	40	Litre Per Second			
3.759	BHP of Motor=15*40/(75*0.75)		42.7	45		BHP	
3.760	Capacity of Pump Required during Avwerage Period	=	304	KL / Hr.			
3.761		=	84	Litre Per Second			
3.762	Capacity of PumpProvided during Average Period	=	80	Litre Per Second			
3.763	BHP of Motor=30*40/(75*0.75)		85.3	85		BHP	
3.764	Capacity of Pump Required during Peak Period	=	456	KL / Hr.			
3.765		=	127	Litre Per Second			
3.766	Capacity of PumpProvided during PeakPeriod	=	100	Litre Per Second			
3.767	BHP of Motor=40*40/(75*0.75)		106.7	110		BHP	
3.768	Quantity of Water pumped during Lean Period	=	1152	KL			
3.769	Quantity of Water pumped during Average Period Period	=	2304	KL			
3.770	Quantity of Water pumped during Peak Period	=	2880	KL			
3.771	Total Quantity of Water pumped during24 Hrs.	=	6336	KL			
3.772	Total Quantity of Water required during24 Hrs.	=	6084	KL			
3.773			Hence OK				

3.800	**ZONE 2(Block L)**									
3.801	Provide2 pump to meet total demand 40 lps with60 m head.40BHP					2	1.0	Nos.		
3.802	Provide1 pump to meet total demand 80lps with60 m head85 BHP					1	1.0	Nos.		
3.803	Provide 1 pumpas stand bye100 lps with 60 m 110 BHP					1	1.0	Nos.		
3.804	Power Backup									
3.805	No. of pumps to run simultaneously	=	1.00	1	Nos.					
3.806	BHP of Two pumps	=	45.00	85.00	BHP					
3.807	kw	=	33.57	63.41	kw					
3.808	k Va	=	41.96	79.26	k Va					
3.809	Current	=	76.30	144.11	A					
3.810	Initial Current	=	190.74	360.28	A					
3.811	k Va	=	83.93	158.53	k Va					
3.812	Capacity of Generator Required	=		242.45	k Va					
3.813	Capacity of Generator provided	=		242.45	k Va					
3.814	Provideone one generating set of 120 k VA as100% Power back up arrangements to run 2 pump average demand with 10HP Motor				Zone 2	242.5	250	k VA		
3.900	**ZONE 3(Block X)**									
3.901	Net Water Demand		390		KL					
3.902	Size of UGT@ 1/3 of Net Water Demand		130		KL					
3.903	Fire Fighting Demand		27		KL					
3.904	Total Capacity required		157		KL					
3.905	Total CapacityExisting		250		KL					
3.906	Balance Capacity Required		Nil		KL					
3.907	Capacity of Pump Required during Avwerage Period				=	16	KL / Hr.			
3.908					=	5	Litre Per Second			
3.909	Capacity of PumpProvided during Average Period				=	10	Litre Per Second			
3.910	BHP of Motor=30*40/(75*0.75)					8.0	10		BHP	
3.911	Capacity of Pump Required during Avwerage Period				=	33	KL / Hr.			
3.912					=	9	Litre Per Second			
3.913	Capacity of PumpProvided during Average Period				=	15	Litre Per Second			
3.914	BHP of Motor=30*40/(75*0.75)					12.0	15		BHP	
3.901	Provide2 pump to meet total demand10 lps with45 m head10BHP					2	1.0		Nos.	
3.902	Provide1 pump to meet total demand20 lps with45 m head 15BHP					1	1.0		Nos.	
3.903										
3.904	Power Backup									
3.905	No. of pumps to run simultaneously	=	1.00	1	Nos.					
3.906	BHP of Two pumps	=	10.00	15.00	BHP					
3.907	kw	=	7.46	11.19	kw					
3.908	k Va	=	9.33	13.99	k Va					
3.909	Current	=	16.95	25.43	A					
3.910	Initial Current	=	42.39	63.58	A					
3.911	k Va	=	18.65	27.98	k Va					
3.912	Capacity of Generator Required	=		46.63	k Va					
3.913	Capacity of Generator provided	=		50.00	k Va					
3.914	Provideone one generating set of 50k VA as100% Power back up arrangements to run 2 pump average demand with 10HP Motor +15HP Motor				Block X	46.6	50	k VA		

4.000	**DLF Phase 2 - Located in Group Housing**												
4.001	Net Water Demand								1078		KL		
	Fresh Water Demand								970		KL		
	Recycled Water Demand								108		KL		
4.002	Fire Fighting Demand								262		KL		
4.003		Area	Water Demand	Fresh Water Demand	Recyled Water Demand	Fire Fighting Demand	Total Capacity of	ExistingCapacity of UGT Required	Existing Size of Rising Main				
4.004		Acre	KL			KL	KL	KL	mm/i/d				
4.005	Group Housing 1(Beverly Park 1)	8.836	417	375	42	101	240	250	100				
4.006	Group Housing 2(Beverly Park 2)	7.286	344	309	35	84	199	220	100				
4.007	Group Housing 3(Oak wood state)(	6.722	317	285	32	77	183	220	100				
4.008		22.843	1078	969	109	262							

4.100	**RECYCLED WATER SUPPLY**												
4.101	Net Recycled Water Demand							1980		KL			
4.102	Size of UGT@ 1/3 of Net Water Demand							660		KL			
4.103	Provide UGT in Two Compartments to meet Recycled water demand , size 12m x12 mx3.6m							702		KL			
4.104	Total Capacity provided							702		KL			
4.105	Less for concrete walls & columns							3		KL			
4.106	Net Capacity provided							699		KL			
4.107	Design of Pumping Machinary												
4.108	**PUMPING STATION**												
4.109	Total Average Flow							=	1980	KL			
4.110	Average Hourly Flow							=	86	KL			
4.111	Peak Flow Factor							=	1.5				
4.112	Peak Flow							=	2970	KL			
4.113	water demand Lean Period=0.5 times Average Hourly flow							=	43.00	KL	11.944		
4.114	Average HouryDemand							=	86.00	KL	23.889		
4.115	Recycle water demand Peak Period=1.5times Average Hourly Demand							=	151.00	KL	41.944		
4.116	Capacity of Balancing Tank												
4.117	**From**	**To**			Inflow of Water	Demand Pattern	Storage Required						
4.118	Hrs	Hrs			KL	KL	KL						
4.119							175						
4.120	12	1	Lean Period Demand		86.0		261						
4.121	1	2	Lean Period Demand		86.0		347						
4.122	2	3	Lean Period Demand		86.0		433						
4.123	3	4	Lean Period Demand		86.0		519						
4.124	4	5	Average Period Demand		86.0	86	519						
4.125	5	6	Average Period Demand		86.0	86	519						
4.126	6	7	Average Period Demand		86.0	86	519						
4.127	7	8	Peak Period Demand		86.0	151	454						
4.128	8	9	Peak Period Demand		86.0	151	389						
4.129	9	10	Peak Period Demand		86.0	151	324						
4.130	10	11	Peak Period Demand		86.0	151	259						
4.131	11	12	Peak Period Demand		86.0	151	194						
4.132	12	13	Peak Period Demand		86.0	151	129						
4.133	13	14	Average Period Demand		86.0	86.0	129						
4.134	14	15	Average Period Demand		86.0	86.0	129						
4.135	15	16	Average Period Demand		86.0	86	129						
4.136	16	17	Peak Period Demand		86.0	151	64						
4.137	17	18	Peak Period Demand		86.0	151	-1						
4.138	18	19	Average Period Demand		86.0	86.00	-1						
4.139	19	20	Average Period Demand		86.0	86.00	-1						
4.140	20	21	Average Period Demand		86.0	86.00	-1						
4.141	21	22	Average Period Demand		86.0	86.00	-1						
4.142	22	23	Lean Period Demand		86.0		85						
4.143	23	24	Lean Period Demand		86.0		171						



4.144				2064	2068	519			
4.145									
4.146	Capacity of Underground tank storage Tank required as per mass curve			=	519	KL			
4.147	Capacity of Underground tank storage Tank required as per Norms(8 Hours capacityof Total Demand)			=	660	KL			
4.148	Total Capacity provided			=	660	KL			
4.149					Hence OK				
4.150	Pumping Machinery								
4.151	Runing Hours of Lean Period			=	0		Hrs		
4.152	Runing Hours of Average Period			=	11		Hrs		
4.153	Runing Hours of Peak Period			=	7		Hrs		
4.154	Capacity of Pump Required during Lean Period			=	43		KL / Hr.		
4.155				=	12		Litre Per Second		
4.156	Capacity of PumpProvided during Lean Period			=	12		Litre Per Second		
4.157	BHP of Motor=8*45/(75*0.6)				7.5	10	BHP		
4.158	Capacity of Pump Required during Average Period			=	86		KL / Hr.		
4.159				=	24		Litre Per Second		
4.160	Capacity of PumpProvided during Average Period			=	25		Litre Per Second		
4.161	BHP of Motor=16*45/(75*0.75)				15.6	20	BHP		
4.162	Capacity of Pump Required during Peak Period			=	151		KL / Hr.		
4.163				=	42		Litre Per Second		
4.164	Capacity of PumpProvided during PeakPeriod			=	40		Litre Per Second		
4.165	BHP of Motor=24*45/(75*0.75)				24.9	25	BHP		
4.166	Quantity of Water pumped during Lean Period			=	0		KL		
4.167	Quantity of Water pumped during Average Period Period			=	990		KL		
4.168	Quantity of Water pumped during Peak Period			=	1008		KL		
4.169	Total Quantity of Water pumped during24 Hrs.			=	1998		KL		
4.170	Total Quantity of Water required during24 Hrs.			=	1980		KL		
4.171					Hence OK				
4.172	Provide1 pump to meet total demand 12 lps with35 m head,10BHP				1	1.0	Nos		
4.173	Provide1 pump to meet total demand 25 lps with35 m head,20 BHP				2	1.0	Nos		
4.174	Provide1 pump to meet total demand 40 lps with35 m head1,25 BHP				1	1.0	Nos		

4.175	Power Backup	During Lean Period		During Average Demand					
4.176	No. of pumps to run simultaneously	=	1.00	1	Nos.				
4.177	BHP of Two pumps	=	20.00	25	BHP				
4.178	kw	=	14.92	18.65	kw				
4.179	k Va	=	18.65	23.31	k Va				
4.180	C urrent	=	33.91	42.39	A				
4.181	Initial Current	=	84.77	105.97	A				
4.181	k Va	=	37.30	46.63	k Va				
4.181	Capacity of Generator Required	=		83.93	k Va				
4.181	Capacity of Generator provided	=		100.00	k Va				
4.181	Provideone one generating set of 62.5 k VA as100% Power back up arrangements to run two pumps average demand with 30HP Motor each.						100	k VA	

4.200	DISTRIBUTION NET WORK (RECYCLED WATER SUPPLY)												
4.201	Name of Road	Length of Pipe line	self	previous	total	Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head		
4.202	1	2	3	4	5	6	7	8	9	10	11		
4.203													
4.204		M	KLD	KLD	KLD	LPM	mm	M	M	M	M		
4.205													
4.206	STP1-A218	57	7.98	1972	1980	2062.50	300.00	0.00	0.08	0.08	29.92		
4.207	**A218-A179**	**322**	**45.06**	**382**	**427**	**444.89**	**150.00**	**0.00**	**0.80**	**0.88**	**29.12**		
4.208	A179-Green Belt	255	35.68	346	382	397.95	100.00	0.01	3.69	4.57			
4.209	Green Belt-Internal	50	7.00	0	7	7.29	75.00	0.00	0.00	4.57	25.43		
4.210	Green Belt-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	4.57	25.43		
4.211	Green Belt-A 162 a	80	11.20	321	332	346.20	100.00	0.01	0.89	5.46	24.54		
4.212	A 162 a-Green Belt internal	50	7.00	0	7	7.29	75.00	0.00	0.00	5.46	24.54		
4.213	A 162 a-A162'a	318	44.50	270	314	327.25	100.00	0.01	3.20	8.67	21.33		
4.214	A162'a-A162	51	7.14	263	270	280.90	100.00	0.01	0.39	9.05	**20.95**		
4.215	**A162-A147**	**384**	**53.74**	**25**	**79**	**81.92**	**100.00**	**0.00**	**0.30**	**9.35**	**20.65**		
4.216	A147-A47	128	17.91	7	25	25.95	100.00	0.00	0.01	9.36	20.64		
4.217	A47-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	9.37	**20.63**		
4.218	**A162-A170**	**195**	**27.29**	**235**	**263**	**273.46**	**100.00**	**0.01**	**1.41**	**10.46**	**19.54**		
4.219	A170-Green Belt internal	50	7.00	0	7	7.29	75.00	0.00	0.00	10.47	19.53		
4.220	A170-A174	254	35.54	23	58	60.79	100.00	0.00	0.11	10.58	19.42		
4.221	A174-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	10.58	19.42		
4.222	A174-A175	63	8.82	7	16	16.47	100.00	0.00	0.00	10.58	19.42		
4.223	A175-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	10.58	19.42		
4.224	A170-A167	256	35.82	134	170	176.96	100.00	0.00	0.83	11.29	18.71		
4.225	A167-Park	50	7.00	79	86	89.21	100.00	0.00	0.05	11.34	**18.66**		
4.226	A147-A154	196	27.43	21	48	50.44	100.00	0.00	0.06	11.35	18.65		
4.227	A154-Park A	50	7.00	0	7	7.29	75.00	0.00	0.00	11.35	18.65		
4.228	A154-Park B	50	7.00	7	14	14.58	100.00	0.00	0.00	11.35	18.65		
4.229	Park B-Park C	50	7.00	0	7	7.29	75.00	0.00	0.00	11.35	18.65		
4.230	A218-A198	379	53.04	568	621	647.07	200.00	0.00	0.46	0.54	**29.46**		
4.231	A198-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.55	29.45		
4.232	A198-A180	147	20.57	240	261	271.86	150.00	0.00	0.15	0.69	29.31		
4.233	A180-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.69	29.31		
4.234	**A180-A132**	**160**	**22.39**	**7**	**29**	**30.61**	**100.00**	**0.00**	**0.02**	**0.71**	**29.29**		
4.235	A132-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.71	**29.29**		
4.236	**A180-A223**	**48**	**6.72**	**197**	**204**	**212.53**	**150.00**	**0.00**	**0.03**	**0.72**	**29.28**		
4.237	A223-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.72	29.28		
4.238	A223-A247	33	4.62	52	57	59.04	100.00	0.00	0.01	0.73	29.27		
4.239	A248-A247	56	7.84	44	52	54.23	100.00	0.00	0.02	0.75	29.25		
4.240	A248-A256	266	37.22	7	44	46.06	100.00	0.00	0.07	0.82	29.18		
4.241	A256-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.83	29.17		

4.242	A223-A226	106	14.83	119	134	139.21	150.00	0.00	0.03	0.75	29.25		
4.243	A226-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.75	29.25		
4.244	A226-A229	163	22.81	89	112	116.47	100.00	0.00	0.24	0.99	29.01		
4.245	A229-A233	365	51.08	38	89	92.71	100.00	0.00	0.36	1.35	28.65		
4.246	A233-A240	221	30.93	7	38	39.50	100.00	0.00	0.04	1.39	**28.61**		
4.247	A240-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.39	28.61		
4.248	**A198-A261**	**375**	**52.48**	**248**	**300**	**312.68**	**150.00**	**0.00**	**0.48**	**1.03**	**28.97**		
4.249	A261-A262	76	10.64	237	248	258.01	100.00	0.01	0.49	1.52	28.48		
4.250	A262-A255	119	16.65	51	67	70.26	100.00	0.00	0.07	1.59	28.41		
4.251	A255-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.59	28.41		
4.252	A255-A244	213	29.81	14	44	45.63	100.00	0.00	0.06	1.65	**28.35**		
4.253	A244-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.65	28.35		
4.254	A244-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.65	28.35		
4.255	A262-A269	236	33.03	137	170	176.67	100.00	0.00	0.76	2.28	27.72		
4.256	A269-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	2.28	27.72		
4.257	A269-A276	113	15.81	114	130	134.98	100.00	0.00	0.22	2.50	**27.50**		
4.258	A276-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	2.50	27.50		
4.259	A276-A115	126	17.63	89	107	111.22	100.00	0.00	0.17	2.67	27.33		
4.260	A115-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	2.50	27.50		
4.261	**A115-A116**	**107**	**14.97**	**67**	**82**	**85.57**	**100.00**	**0.00**	**0.09**	**2.76**	**27.24**		
4.262	A116-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	2.76	27.24		
4.263	A116-A121	127	17.77	42	60	62.68	100.00	0.00	0.06	2.82	27.18		
4.264	A121-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	2.82	27.18		
4.265	A121-Park B	50	7.00	0	7	7.29	75.00	0.00	0.00	2.82	27.18		
4.266	A121-A122'	153	21.41	7	28	29.59	100.00	0.00	0.02	2.84	**27.16**		
4.267	A122'-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	2.84	27.16		
4.268	A218-A217	382	53.46	870	924	962.23	250.00	0.00	0.33	0.41	29.59		
4.269	A217-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.41	29.59		
4.270	A217-Green Belt	50	7.00	0	7	7.29	75.00	0.00	0.00	0.41	29.59		
4.271	A217-A78	370	51.78	805	856	891.97	250.00	0.00	0.28	0.68	29.32		
4.272	A78-A79	129	18.05	786	805	838.03	250.00	0.00	0.09	0.77	29.23		
4.273	A79-Green Belt	50	7.00	0	7	7.29	75.00	0.00	0.00	0.69	29.31		
4.274	A78-A76	60	8.40	771	779	811.94	200.00	0.00	0.11	0.80	**29.20**		
4.275	A76-A77	171	23.93	30	54	56.12	100.00	0.00	0.07	0.86	29.14		
4.276	A77-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.86	29.14		
4.277	A77-A45	114	15.95	7	23	23.91	100.00	0.00	0.01	0.87			
4.278	A45-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	0.87	29.13		
4.279	**A76-A75**	**43**	**6.02**	**711**	**717**	**747.07**	**200.00**	**0.00**	**0.07**	**0.94**	**29.06**		
4.280	**A75-A43**	**74**	**10.36**	**189**	**199**	**207.58**	**100.00**	**0.00**	**0.32**	**1.26**	**28.74**		
4.281	A43-A40	61	8.54	180	189	196.79	100.00	0.00	0.24	1.50	**28.50**		
4.282	**A40-A40'**	**115**	**16.09**	**62**	**78**	**81.63**	**100.00**	**0.00**	**0.09**	**1.59**	**28.41**		
4.283	A40'-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.59	28.41		
4.284	A40'-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.59	28.41		
4.285	A40'-A37	245	34.29	14	48	50.29	100.00	0.00	0.08	1.67	28.33		
4.286	A37-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.67	28.33		
4.287	A37-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.67	28.33		
4.288	**A40-A32**	**159**	**22.25**	**80**	**102**	**106.27**	**100.00**	**0.00**	**0.20**	**1.86**	**28.14**		
4.289	A32-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.87	28.13		
4.290	**A32-A28**	**83**	**11.61**	**61**	**73**	**75.80**	**100.00**	**0.00**	**0.06**	**1.92**	**28.08**		
4.291	**A28-A27**	**94**	**13.15**	**14**	**27**	**28.28**	**100.00**	**0.00**	**0.01**	**1.93**	**28.07**		
4.292	A27-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.93	28.07		

4.293	A27-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.93	28.07		
4.294	**A28-A20**	**193**	**27.01**	**7**	**34**	**35.42**	**100.00**	**0.00**	**0.03**	**1.96**	**28.04**		
4.295	A20-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	1.96	28.04		
4.296	**A75-A73**	**60**	**8.40**	**504**	**512**	**533.23**	**150.00**	**0.00**	**0.21**	**2.17**	**27.83**		
4.297	**A73-Park**	**50**	**7.00**	**0**	**7**	**7.29**	**75.00**	**0.00**	**0.00**	**2.17**	**27.83**		
4.298	**A73-A47**	**378**	**52.90**	**444**	**497**	**517.19**	**150.00**	**0.00**	**1.23**	**3.40**	**26.60**		
4.299	A47-A48	100	13.99	430	444	462.09	150.00	0.00	0.26	3.67	26.33		
4.300	**A48-Park**	**50**	**7.00**	**0**	**7**	**7.29**	**75.00**	**0.00**	**0.00**	**3.41**	**26.59**		
4.301	A48-A18	258	36.10	387	423	440.23	150.00	0.00	0.62	4.29	25.71		
4.302	**A18-Park**	**50**	**7.00**	**0**	**7**	**7.29**	**75.00**	**0.00**	**0.00**	**4.29**	**25.71**		
4.303	A47-A12	86	12.03	367	380	395.33	150.00	0.00	0.17	4.46	25.54		
4.304	A12-A14	144	20.15	18	38	40.09	100.00	0.00	0.03	4.49	25.51		
4.305	A14-A99	81	11.34	7	18	19.10	100.00	0.00	0.00	4.50	25.50		
4.306	A99-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	4.50	25.50		
4.307	A12-A10	21	2.94	326	329	342.71	100.00	0.01	0.23	4.69	25.31		
4.308	A10-A10'	142	19.87	7	27	27.99	100.00	0.00	0.02	4.71	**25.29**		
4.309	A10'-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	4.70	25.30		
4.310	A10-A7	62	8.68	291	299	311.66	100.00	0.01	0.57	5.28	24.72		
4.311	A7-A4'	357	49.96	14	64	66.62	100.00	0.00	0.19	5.47	24.53		
4.312	A4'-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	5.47	24.53		
4.313	A4'-Park B	50	7.00	0	7	7.29	75.00	0.00	0.00	5.47	24.53		
4.314	A7-A81	304	42.54	184	227	236.00	100.00	0.01	1.09	6.56	23.44		
4.315	A81-A84	199	27.85	7	35	36.30	100.00	0.00	0.01	6.57	**23.43**		
4.316	A84-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	6.57	23.43		
4.317	A81-A108	76	10.64	139	149	155.39	100.00	0.00	0.19	6.76	23.24		
4.318	A108-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	6.76	23.24		
4.319	A108-A107	100	13.99	41	55	57.72	100.00	0.00	0.04	6.80	23.20		
4.320	A107-Park	50	7.00	34	41	43.15	100.00	0.00	0.01	6.81	23.19		
4.321	A107-A1	48	6.72	0	7	7.00	75.00	0.00	0.00	6.80	**23.20**		
4.322	A1-Park	50	7.00	21	28	28.86	100.00	0.00	0.01	6.80	23.20		
4.323	A1-A101	48	6.72	14	21	21.57	100.00	0.00	0.00	6.80	**23.20**		
4.324	A101-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	6.80	23.20		
4.325	A101-Park B	50	7.00	0	7	7.29	75.00	0.00	0.00	6.80	23.20		
4.326	A108-A109	66	9.24	67	76	79.30	100.00	0.00	0.05	6.80	23.20		
4.327	A109-A110	56	7.84	59	67	69.68	100.00	0.00	0.03	6.84	23.16		
4.328	A110-A94	53	7.42	52	59	61.51	100.00	0.00	0.02	6.86	23.14		
4.329	A94-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	6.86	23.14		
4.330	A94-A96	172	24.07	21	45	46.50	100.00	0.00	0.05	6.91	23.09		
4.331	A96-A96'	97	13.57	7	21	21.43	100.00	0.00	0.01	6.91	23.09		
4.332	A96'-Park	50	7.00	0	7	7.29	75.00	0.00	0.00	6.92	23.08		

4.333	Description	50mm o/d	63mm o/d	75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	TAL LENGTH			
4.334		M	M	M	M	M	M	M	M	M	M		
4.335	AC Pipe Line class 25 (Mazza)	1980	990	2648	8201	1880	482	881	57	17119			
4.336	Gate valve	495	165	0						660			
4.337	Sluice Valves	0	0		61	13	4	5	1	84			
4.338	Scour Valves				6								
4.339	Sprikler	165								165			
4.340	Air valve					6				6			
4.341	Lawn Hydrant		126							126			
4.342	**PIPE & SPECIALS WITHEN PUMP CHAMBER RECYCLING**												
4.343													
4.344		0		8LPS ,35 M,		16LPS ,35 M,		24LPS ,35 M,					
4.345	No. of Pumps			2		1		1					
4.346				150 mm i/d	100 mm i/d	150 mm i/d	100 mm i/d	200 mm i/d	150 mm i/d				
4.347	Sluice Valves			4		4		4					
4.348	Non Return Valves			2		1		1					
4.349	Scour Valves				2		1		1				
4.350	DI pipe Double Flanged 150 mm i/d			20		10		10					
4.351	DI pipe Double Flanged 250mm i/d			25		25		25					
4.352	90 ^{0} Bend			1		2		1					
4.353	Puddle Coller			1		2		1					
4.354	Reducer150 nn x 125 mm			1		2		1					
4.355	Reducer150 nn x 100mm			1		2		1					
4.356	TEE 250 mm *250 mm*150mm			1		2		1					
4.357	Pressure Gauge			1		2		1					
4.358	Flow Meter			1		2		1					
4.359	Water Indiccater			1		2		1					

5.000	**STORM WATER DRAINAGE**												
5.001	**Estimation of Run off & Design of Recharge Well**												
5.002	**Break up of AreDLF Phase 2**												
5.003	Area under Plots		Total Area		Roof Top Area of,Residential	Open Area	Green Area	Roof Top Area Institutional,Utility & other building	Open Area	Green Area			
5.004								60%	10%	30%			
5.005			Sqm.	Acre									
5.006	Area under Plots		956437	236.343	40%	30%	30%	94.54	70.9028	70.90			
5.007	Area under Group Housing		92442	22.843	40%	40%	20%	9.14	9.1372	4.57			
5.008	Area under Shopping Commercial		37073	9.161	60%	20%	20%	5.50	1.8322	1.83			
5.009	Area Under Utility		117156	28.95	60%	20%	20%	17.37	5.79	5.79			
5.010	Area under Roads		692764	171.187	0%	80%	20%	0.00	136.9496	34.24			
5.011	Area under Green Belt		78995	19.520	0%	0%	100%	0.00	0	19.52			
5.012	Area Under U.D.		0	0.000	0%	70%	30%	0.00	0	0.00			
5.013	Total		1974866	488.004	72%	64.00%	16%	126.541	224.612	136.851			
5.014	Impervious factor				52.61%								
5.015	Length of Catchment & farthest		Time of Concentration										
5.016	Length of Catchment		Farthest distance	Time of initial entry	Time of inlet in minute (Velocity 0.6M/Sec	Upstream flow length in drain	Flow time in drain assuming velocity 0.81 m/Sec.	Total Time of flow	Rain fall Intensity at 196.9623/t^0.4901				
5.017	2765		500	15	13.89	2765	46	75.0	23.74				
5.018	Table 3.3 for Run offCoefficients reproduced from Manual on Sewerage & Sewage Treatment												
5.019	Duration in Minutes	10	20	30	45	60	75	90	100	120	135	150	
5.020	Weighted Average Run off Coefficients												
5.021	Impervious	0.525	0.588	0.642	0.700	0.74	0.771	0.795	0.813	0.828	0.84	0.85	
5.022	60% Impervious	0.365	0.427	0.477	0.531	0.569	0.598	0.622	0.641	0.656	0.671	0.682	
5.023	40% Impervious	0.285	0.346	0.3655	0.446	0.482	0.512	0.535	0.554	0.571	0.585	0.597	
5.024	Pervious	0.125	0.185	0.23	0.277	0.312	0.33	0.382	0.382	0.399	0.414	0.429	
5.025	Coefficient of Run off from Table 3.3 (Manual on Sewerage & Sewage Treatment)					52.61%	0.512+(0.0.598-0.512)*(52.61%-40%} /(60%-40%)				0.566		
5.026	Roof Top Area of,Residential					64%	0.512+(0.0.598-0.512)*(64%-40%} /(60%-40%)				0.615		
5.027	Roof top Area of Group Housing					64%	0.512+(0.0.598-0.512)*(64%-40%} /(60%-40%)				0.615		
5.028	Roof Top Area Institutional,Utility & other building					64%	0.512+(0.0.598-0.512)*(64%-40%} /(60%-40%)				0.615		
5.029	Road , Parking					72%	0.512+(0.0.598-0.512)*(72%-40%} /(60%-40%)				0.650		
5.030	GreenArea					16%	0.512+(0.0.598-0.512*(16%-0%} /(40%-0%)				0.112		
5.031	Rain Fall Contributing towards Recharge wells / Master drainage System												
5.032	Description	Duration of Rain	Total Daily Rain fall	Total Rain fall	Effective Rain Fall	No of Days	Rain Fall Contributing towards Recharge well	Total	Rain Fall Contributing towards Master drainage System				
5.033		Hrs.	mm	mm	mm	Nos	mm	mm	mm				
5.034	Heavy Rain fall	1	44	44	35.2	1	10.96	8.768	26.432				
5.035	Moderate Rain fall	9	19.4	174.6	139.68	6	7.12	51.264	88.416				
5.036	Average Rain fall	16.5	13.7	226.05	180.84	14	10.96	144.672	36.168				
5.037	Below Average Rain fall	17	8.9	151.3	121.04	18	7.12	96.832	24.208				
5.038	Total	43.5	13.7	596.0	477.000	39	9.04	302.000	175.000				

5.039	Rain Water Recharge Scheme,DLF Phase2												
5.040	Description of Area								Acres		Sqm.		
5.041	Area to be developed								197.5		Hectare		
5.042	Impervious factor								52.61%				
5.043	Effective impervious Area								103.9		Hectare		
5.044	Average Annual Rain Fall								596		mm		
5.045	Intensity of Rain fall								23.74		mm/Hr		
5.046	Duration of Rain Fall								15		Minutes		
5.047	Duration of Rainy Season								39		Days		
5.048	No of rainy days in a year with moderate to heavy rain fall								21		Days		
5.049	No of rainy days in a year with low rain fall								18		Days		
5.050	Average Coefficent of Imperviousness								0.5662				
5.051	Depth of Water Table from Ground Level								20-30		M		
5.052	**Estimation of Run off**												
5.053	Rational Method												
5.054	Anticipated Run off (M^3/Hour)									13968	(M3/Hour)		
5.055	Anticipated Run off (Cumecs)									3.88	(Cumecs)		
5.056	Anticipated Run off (Cumecs)									136.58	(Cusecs)		
5.057	Internal Drainage Arrangement @6.25 mm Rain fall/Hr												
5.058	AverageRain fall @6.25mm/Acre/Hour									6.25	mm/Acre/Hour		
5.059	Anticipated Run off (M^3/Hour)									12343	(M3/Hour)		
5.060	Anticipated Run off (Cumecs)									3.43	(Cumecs)		
5.061	Anticipated Run off (Cusecs)									121	(Cusecs)		
5.062	Out fall Drainage Arrangement@3.12 mm Rain fall/Hr												
5.063	AverageRain fall @3.12mm/Acre/Hour									3.12	mm/Acre/Hour		
5.064	Anticipated Run off(M3/Hour)									6162	(M3/Hour)		
5.065	Anticipated Run off(Cumecs)									1.71	(Cumecs)		
5.066	Anticipated Run off (Cusecs)									60	(Cusecs)		
5.067	Break up of Area					Total Quantum of Rain fall							
5.068		Area		Co-efficient Runoff	Rainfall	Quantity of Rain Water	Heavy Rain fall	Moderate Rain fall	Average Rain fall	Below Average Rain fall	Total		
5.069		Sqm	Acres		Mtr	M^3	M^3	M^3	M^3	M^3	M^3		
5.070	Area under Plots												
5.071	Roof Top Area Residential Plots	382574.89	94.54	0.615	0.477	280667	20722	82229	106460	71256	280667		
5.072	Open Area	286931.17	70.90										
5.073	Green Area	286931.17	70.90										
5.074	Area under Group Housing												
5.075	Roof Top Area Group Housing	382574.89	9.14	0.615	0.477	280667	20722	82229	106460	71256	280667		
5.076	Open Area	286931.17	9.14										
5.077	Green Area	286931.17	4.57										
5.078	Area under Shopping Commercial												
5.079	Roof Top Area Group Housing	382574.89	5.50	0.640	0.477	291981	21557	85544	110751	74128			

5.080	Open Area	286931.17	1.83								291981		
5.081	Green Area	286931.17	1.83										
5.082	Area Under Utility												
5.083	Roof Top Area Utility	382574.89	17.37	0.640	0.477	291981	21557	85544	110751	74128			
5.084	Open Area	286931.17	5.79								291981		
5.085	Green Area	286931.17	5.79										
5.086	Road , Parking												
5.087	Open Area	382574.89	136.95	0.720	0.477	229935	16977	67366	87217	58376			
5.088	Green Area	286931.17	34.24								229935		
5.089	Area under Green Belt	286931.17	19.52	0.160	0.477	21899	1617	6416	8306	5560	21899		
5.090			488.00			1397130	103152	409328	529946	354704	1397130		
5.091	Quantum of Water Absorbed by Each Injection well from plot area												
5.092													
5.093		Quantm of Rain fall stored inStorage Pit	Quantm of Rain fall will be charged during 30 Minute at 15 KL/Hr,	Quantm of Rain fall Stored in Drain during 30 minutes	Total Quantum in 43 Hrs								
5.094	Heavy Rain fall	1.0	0.000	0.5	65.8								
5.095	Moderate Rain fall	1.0	0.000	0.5	65.8								
5.096	Average Rain fall	1.0	0.000	0.5	65.8								
5.097	Below Average Rain fall	1.0	0.000	0.5	65.8								
5.098	Total	1.0	0.000	0.5	65.8								
5.099													
5.100	Quantum of Water Absorbed by Each Injection well from plot area												
5.101													
5.102		Quantm of Rain fall stored inStorage Pit	Quantm of Rain fall will be charged during 15Minute at 15 KL/Hr,	Quantm of Rain fall Stored in Drain during 90 minutes	Total Quantum in 43 Hrs								
5.103	Heavy Rain fall	1.0	3.750	0.5	227.0								
5.104	Moderate Rain fall	1.0	3.750	0.5	227.0								
5.105	Average Rain fall	1.0	3.750	0.5	227.0								
5.106	Below Average Rain fall	1.0	3.750	0.5	227.0								
5.107	Total	1.0	3.750	0.5	227.0								

5.108	Quantum of Water Absorbed by Each Injection well												
5.109													
5.110		Quantm of Rain fall stored inStorage Pit	Quantm of Rain fall will be charged during 90 Minute at 15 KL/Hr,	Quantm of Rain fall Stored in Drain during 90 minutes	Total Quantum in 43 Hrs								
5.111	Heavy Rain fall	20.0	23.0	27	3010.0								
5.112	Moderate Rain fall	20.0	23.0	27	3010.0								
5.113	Average Rain fall	20.0	23.0	27	3010.0								
5.114	Below Average Rain fall	20.0	23.0	27	3010.0								
5.115	Total	20.0	23.0	27	3010.0								
5.116													
5.117	Design of Recharge Well												
5.118	Total annual Rainfall					477			mm				
5.119	Description					Area			Coefficient of				
5.120						SQM	Acre	Hectare	Runoff				
5.121	Area under Plots				95	382575	94.54	38.3	0.566				
5.122	Area under other Building				32	129514	32.00	13.0	0.615				
5.123	Open Area				224.612	908965	224.61	90.9	0.650				
5.124	Green Area				136.851	553813	136.85	55.4	0.112				
5.125					488.004	1974866	488.004	197.487					
5.126	Anticipated Run off from Roof Top Area						0.566*477*382575/1000				103332		
5.127	Anticipated Run off from Roof Top Area of Other Building					Coefficient of Runoff*Total	0.615*477*129514/1000				38006		
5.128	Anticipated Run off fromOpen Area						0.650*477*908965/1000				281651		
5.129	Anticipated Run off from green area						0.112*477*553813/1000				29481		
5.130	No. of Days of Rainfall =< Average Rainfall								34	Days			
5.131	No. of Days of Rainfall > Average Rainfall								9	Days			
5.132	Duration of Max Rainfall								15	Minutes			
5.133	Recharge Wells Required to absorb run off from Road Top Area ,Utility Area & Other Area												
5.134	Total Quantity of Recharge with one Injection Well (Assuming 15KL /Hr for 1hrs in 43 Hrs) in parks & other suitable area								3010.0	Klitres			
5.135	Total Quantity of Recharge with one Injection Well (Assuming 15KL /Hr for 1hrs in 43 Hrs) inBuilding Area								227.0	Klitres			
5.136	Total Quantity of Recharge with one Recharge Pit inBuilding Area								65.8	Klitres			
5.137	Estimated Rain fall contributing towards recharge well								302	mm			
5.138	Estimated Rain fall in WARE House Area								477	mm			
5.139	Anticipated Run off from Roof Top Area						0.566*302*382575/1000				65422		
5.140	Anticipated Run off from Roof Top Area of Other Building					Coefficient of Runoff*Total	0.615*302*129514/1000				24062		
5.141	Anticipated Run off fromOpen Area						302*908965/1000				178320		
5.142	Anticipated Run off from green area						0.112*302*553813/1000				18665		
5.143	Recharge Wells					Nos.of Recharge wells required			Nos.of Recharge wells				
5.144	No. of Recharge Wells proposedfor Roof Top Area of Plots					65422/65.8		995	3228	Nos.			
5.145	No. of Recharge Wells proposedfor Roof Top Area of other Buildings					24062/227		106	106	Nos.			
5.146	No. of Recharge Wells proposedf ,open area					178320/3010		60	60	Nos.			
5.147	No. of Recharge Wells proposedf ,Green area					18665/3010		6	6	Nos.			

6.000	**SOLID WASTE MANAGEMENT**												
6.001	ESTIMATION OFSOLID WASTE												
6.002	Appurtenances Solid Waste												
6.003	Description	Area			Solid waste generation /capita	Estimated Solid Waste							
6.004													
6.005		Sqm	Hectare	Acre	Kg./ Capita,Kg./10Sq m	KG	MT						
6.006	**Area under Plots**	956465.4837	95.647	**236.34**									
6.007	**Work Area**	573879.2902	57.388	**141.81**	0.30	17216.0	17.22						
6.008	**Circulation Area**	191293.0967	19.129	**47.27**	0.05	956.0	0.96						
6.009	**Open& Green Area within Plot**	191293.0967	19.129	**47.27**	0.10	1913.0	1.91						
6.010	**Population**	271145285.3	27114.529	**67000.00**	0.1	6700.0	6.70						
6.011	**Floating Popolation**	13557264.27	1355.726	**3350.00**	0.05	168.0	0.17						
6.012	**Area under Group Housing**	92444.35451	9.244	**22.84**									
6.013	**Work Area**	36977.7418	3.698	**9.14**	0.40	1479.0	1.48						
6.014	**Circulation Area**	36977.7418	3.698	**9.14**	0.05	185.0	0.19						
6.015	**Open& Green Area within Plot**	18488.8709	1.849	**4.57**	0.10	185.0	0.19						
6.016	**Working Population**	27733711.05	2773.371	**6853.00**	0.1	685.0	0.69						
6.017	**Floating Popolation**	1388101.983	138.810	**343.00**	0.05	17.0	0.02						
6.018	**Area under Shopping Commercial**	37074.05909	3.707	**9.16**									
6.019	**Work Area**	22244.43545	2.224	**5.50**	0.30	667.0	0.67						
6.020	**Circulation Area**	7414.811817	0.741	**1.83**	0.05	37.0	0.04						
6.021	**Open& Green Area within Plot**	7414.811817	0.741	**1.83**	0.10	74.0	0.07						
6.022	**Working Population**	7503035.208	750.304	**1854.00**	0.1	185.0	0.19						
6.023	**Visiting Popolation**	809388.9114	80.939	**200.00**	0.05	10.0	0.01						
6.024	**Area Under Utility**	0	0.000	**0.00**									
6.025	**CrechE**	2428.166734	0.243	**0.60**									
6.026	**No. of Dwelling Units**	12140.83367	1.214	**3.00**									
6.027	**Work Area**	1456.90004	0.146	**0.36**	0.10	15.0	0.02						

6.028	**Circulation Area**	485.6333468	0.049	**0.12**	0.10	5.0	0.01						
6.029	**Open& Green Area within Plot**	485.6333468	0.049	**0.12**	0.10	5.0	0.01						
6.030	**Working Population**	1214083.367	121.408	**300.00**	0.1	30.0	0.03						
6.031	**Visiting Popolation**	60704.16835	6.070	**15.00**	0.05	1.0	0.00						
6.032	**Nursary Schools**	19425.33387	1.943	**4.80**									
6.033	**No. of Dwelling Units**	48563.33468	4.856	**12.00**									
6.034	**Work Area**	11655.20032	1.166	**2.88**	0.10	117.0	0.12						
6.035	**Circulation Area**	3885.066775	0.389	**0.96**	0.10	39.0	0.04						
6.036	**Open& Green Area within Plot**	3885.066775	0.389	**0.96**	0.10	39.0	0.04						
6.037	**Working Population**	7284500.202	728.450	**1800.00**	0.1	180.0	0.18						
6.038	**Visiting Popolation**	388506.6775	38.851	**96.00**	0.05	5.0	0.01						
6.039	**Primary Schools**	24281.66734	2.428	**6.00**									
6.040	**No. of Dwelling Units**	24281.66734	2.428	**6.00**									
6.041	**Work Area**	19425.33387	1.943	**4.80**	0.10	194.0	0.19						
6.042	**Circulation Area**	2428.166734	0.243	**0.60**	0.05	12.0	0.01						
6.043	**Open& Green Area within Plot**	2428.166734	0.243	**0.60**	0.10	24.0	0.02						
6.044	**Working Population**	16997167.14	1699.717	**4200.00**	0.1	420.0	0.42						
6.045	**Visiting Popolation**	849858.3569	84.986	**210.00**	0.05	11.0	0.01						
6.046	**High Schools**	20234.72278	2.023	**5.00**									
6.047	**No. of Dwelling Units**	4046.944557	0.405	**1.00**									
6.048	**Work Area**	16187.77823	1.619	**4.00**	0.30	486.0	0.49						
6.049	**Circulation Area**	2023.472278	0.202	**0.50**	0.05	10.0	0.01						
6.050	**Open& Green Area within Plot**	2023.472278	0.202	**0.50**	0.10	20.0	0.02						
6.051	**Working Population**	4046944.557	404.694	**1000.00**	0.1	100.0	0.10						
6.052	**Visiting Popolation**	202347.2278	20.235	**50.00**	0.05	3.0	0.00						
6.053	**Clubs/Coomunity Centers**	16187.77823	1.619	**4.00**									
6.054	**No. of Dwelling Units**	8093.889114	0.809	**2.00**									
6.055	**Work Area**	4856.333468	0.486	**1.20**	0.30	146.0	0.15						

6.056	**Circulation Area**	8093.889114	0.809	**2.00**	0.05	40.0	0.04						
6.057	**Open& Green Area within Plot**	3237.555645	0.324	**0.80**	0.10	32.0	0.03						
6.058	**Working Population**	4046944.557	404.694	**1000.00**	0.1	100.0	0.10						
6.059	**Visiting Popolation**	202347.2278	20.235	**50.00**	0.05	3.0	0.00						
6.060	**Dispensary**	5058.680696	0.506	**1.25**									
6.061	**No. of Dwelling Units**	4046.944557	0.405	**1.00**									
6.062	**Work Area**	1517.604209	0.152	**0.38**	0.30	46.0	0.05						
6.063	**Circulation Area**	2529.340348	0.253	**0.63**	0.05	13.0	0.01						
6.064	**Open& Green Area within Plot**	1011.736139	0.101	**0.25**	0.10	10.0	0.01						
6.065	**Working Population**	404694.4557	40.469	**100.00**	0.1	10.0	0.01						
6.066	**Visiting Popolation**	20234.72278	2.023	**5.00**	0.05	0.0	0.00						
6.067	**Health Centers**	4046.944557	0.405	**1.00**									
6.068	**No. of Dwelling Units**	4046.944557	0.405	**1.00**									
6.069	**Work Area**	1214.083367	0.121	**0.30**	0.20	24.0	0.02						
6.070	**Circulation Area**	2023.472278	0.202	**0.50**	0.05	10.0	0.01						
6.071	**Open& Green Area within Plot**	809.3889114	0.081	**0.20**	0.10	8.0	0.01						
6.072	**Working Population**	404694.4557	40.469	**100.00**	0.1	10.0	0.01						
6.073	**Visiting Popolation**	20234.72278	2.023	**5.00**	0.05	0.0	0.00						
6.074	**Religious Buildings**	6070.416835	0.607	**1.50**									
6.075	**No. of Dwelling Units**	12140.83367	1.214	**3.00**									
6.076	**Work Area**	1821.125051	0.182	**0.45**	0.20	36.0	0.04						
6.077	**Circulation Area**	3035.208418	0.304	**0.75**	0.05	15.0	0.02						
6.078	**Other ,Open& Green Area**	1214.083367	0.121	**0.30**	0.10	12.0	0.01						
6.079	**Habitation**	2428166.734	242.817	**600.00**	0.1	60.0	0.06						
6.080	**Visiting Popolation**	121408.3367	12.141	**30.00**	0.05	2.0	0.00						
6.081	**Electric Sub Station**	16187.77823	1.619	**4.00**									
6.082	**No. of Dwelling Units**	8093.889114	0.809	**2.00**									
6.083	**Work Area**	4856.333468	0.486	**1.20**	0.20	97.0	0.10						

6.084	**Circulation Area**	9712.666936	0.971	**2.40**	0.05	49.0	0.05						
6.085	**Other ,Open& Green Area**	1618.777823	0.162	**0.40**	0.10	16.0	0.02						
6.086	**Habitation**	121408.3367	12.141	**30.00**	0.1	3.0	0.00						
6.087	**Visiting Popolation**	40469.44557	4.047	**10.00**	0.05	1.0	0.00						
6.088	**Police Post**	809.3889114	0.081	**0.20**									
6.089	**No. of Dwelling Units**	4046.944557	0.405	**1.00**									
6.090	**Work Area**	242.8166734	0.024	**0.06**	0.20	5.0	0.01						
6.091	**Circulation Area**	485.6333468	0.049	**0.12**	0.05	2.0	0.00						
6.092	**Other ,Open& Green Area**	80.93889114	0.008	**0.02**	0.10	1.0	0.00						
6.093	**Habitation**	80938.89114	8.094	**20.00**	0.1	2.0	0.00						
6.094	**Visiting Popolation**	20234.72278	2.023	**5.00**	0.05	0.0	0.00						
6.095	**Tele facility &Exchange)**	809.3889114	0.081	**0.20**									
6.096	**No. of Dwelling Units**	4046.944557	0.405	**1.00**									
6.097	**Work Area**	242.8166734	0.024	**0.06**	0.20	5.0	0.01						
6.098	**Circulation Area**	485.6333468	0.049	**0.12**	0.05	2.0	0.00						
6.099	**Other ,Open& Green Area**	80.93889114	0.008	**0.02**	0.10	1.0	0.00						
6.100	**Habitation**	80938.89114	8.094	**20.00**	0.1	2.0	0.00						
6.101	**Visiting Popolation**	20234.72278	2.023	**5.00**	0.05	0.0	0.00						
6.102	**Sub Post Office**	1618.777823	0.162	**0.40**									
6.103	**No. of Dwelling Units**	8093.889114	0.809	**2.00**									
6.104	**Work Area**	485.6333468	0.049	**0.12**	0.20	10.0	0.01						
6.105	**Circulation Area**	971.2666936	0.097	**0.24**	0.05	5.0	0.01						
6.106	**Other ,Open& Green Area**	161.8777823	0.016	**0.04**	0.10	2.0	0.00						
6.107	**Habitation**	161877.7823	16.188	**40.00**	0.1	4.0	0.00						
6.108	**Visiting Popolation**	40469.44557	4.047	**10.00**	0.05	1.0	0.00						
6.109	**Area under Roads**	692784.2979	69.278	**171.19**	0.1	6928.0	6.93						
6.110	**Area under Green Belt**	78997.00526	7.900	**19.52**	0.10	790.0	0.79						
6.111	**Area Under U.D.**	0	0.000	**0.00**	0.10	0.0	0.00						
6.112	**Total**	1974924.245	197.492	**488.00**		**40696.00**	**40.70**						

6.113	**Bill of Quantities**											**0.00**	**0.00**
6.114	Covered Bin for Residential Area												
6.115	Population Served									67000			
6.116	Population in one dwelling Unit									7-8	Persons		
6.117	No. of dwelling Unit									10980	Units	40.70	
6.118	No. of bins required per dwelling unit(Capacity of each Bin =8 Kg (20Cum)									2	Nos		
6.119	Quantity proposed to be lifted									26.95	MT		
6.120	Total No. of bins required									21960			
6.121	Total No. of bins required with 3% added extra									22619	Nos		
6.122	Group Hosing Area												
6.123	Population Served									6853			
6.124	Population in one dwelling Unit									5	Persons		
6.125	No. of dwelling Unit									1370.6	Units		
6.126	No. of bins required per dwelling unit(Capacity of each Bin =8 Kg (20Cum)									2	Nos		
6.127	Quantity proposed to be lifted									2.55	MT		
6.128	Total No. of bins required									2741.2			
6.129	Total No. of bins required with 3% added extra									2824	Nos		
6.130	Covered Bin for Utility Area												
6.131	Quantity proposed to be lifted									3.47	MT		
6.132	No. of bins required per dwelling unit(Capacity of each Bin =24 Kg(60Cum)									24	Kg.		
6.133	Total No. of bins required									145	Nos.		
6.134	Total No. of bins provided									150	Nos.		
6.135	Construction of Primary collection centers by providing platform of size 134 Cum Capacity as per design									7.7	MT		
6.136	Capacity of one Collection Centre									134	Cum		
6.137										53.6	Kg.		
6.138	Assumming 10 times utilisation of one unit									536	Kg.		
6.139	Total No. of Centres required									14	Nos.		
6.140	Total No. of Centres provided									15	Nos.		
6.141	Motorized Trycycles provided with the 50CC petrol engine and the bin size of 1.5m *1.2m*0.75m with the cover as per design									26953	Kg.		
6.142	Capacity of one Moterised tricle=1.5*1.2*0.75*1000									1350	Cum		
6.143										540	Kg.		
	Assuming 10 trips in a day												
6.144	Capacity of one Moterised tricle=1.5*1.2*0.75*1000									13500	Cum		
6.145										5400	Kg.		
6.146	Total No. of Moterised triclerequired									5	Nos.		
6.147	Total No. of Moterised tricleprovided									6	Nos.		
	Hydraulic Vehicle												
6.148	Quantity proposed to be lifted									40696	Kg.		
6.149	Capacity of one Hydraulic Vehicle									7500	Kg.		
6.150										3000	Cum		
6.151	Assumming 10 times utilisation of one unit									30000	Kg.		
6.152	Total No. of Vehicles required									1	Nos.		
6.153	Total No. of Vehiclesprovided									1	Nos.		

DESIGN STATEMENT OF WATER

WATER SUPPLY PHASE 2

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
	Boosting Station Block L						13749									
1	UGT-A1	11	241.48	241.48	241.48	0	4.27	4.27	6181.38	6185.65	6443.39	350	0.0056	0.062	0.062	29.94
2	A1-A2	203	241.48	240.73	241.105	0.375	78.72	78.72	4335.99	4414.71	4598.66	350	0.0030	0.612	0.673	29.70
3	A2-A3	65	240.73	240.49	240.61	0.87	25.2	25.2	150.45	175.65	182.97	150	0.0005	0.031	0.093	30.78
4	A3-A4	206	240.49	240.01	240.25	1.23	79.88	79.88	70.57	150.45		150	0.0000	0.000	0.093	31.14
5	A4-A5	182	240.01	239.4	239.705	1.775	70.57	70.57	0	70.57	73.51	100	0.0006	0.115	0.208	31.57
							0									
6	A2-A6	75	240.73	240.73	240.73	0.75	29.08	29.08	4131.26	4160.34	4333.69	350	0.0027	0.202	0.876	29.87
7	A6-A7	47	240.73	239.87	240.3	1.18	18.22	18.22	3087	3105.22	3234.60	250	0.0081	0.380	1.256	29.92
8	A7-A5	249	239.87	239.4	239.635	1.845	96.55	96.55	23.27	119.82	124.81	100	0.0017	0.421	1.677	30.17
9	A5-A9	60	239.4	240.36	239.88	1.6	23.27	23.27	0	23.27	24.24	75	0.0003	0.020	1.697	29.90
10	A7-A10	52	239.87	239.02	239.445	2.035	20.16	20.16	2947.02	2967.18	3090.81	250	0.0074	0.386	1.642	30.39
11	A10-A9	250	239.02	240.36	239.69	1.79	96.94	96.94	39.55	136.49	142.18	100	0.0022	0.538	2.180	29.61
12	A9-A11	102	240.36	239.19	239.775	1.705	39.55	39.55	0	39.55	41.20	100	0.0002	0.022	2.202	29.50
							0			0						
13	A10-A12	21	239.19	238.83	239.01	2.47	8.14	8.14	2802.39	2810.53	2927.64	250	0.0067	0.141	1.783	30.69
14	A13-A12	65	238.83	239.43	239.13	2.35	25.2	25.2	20.55	45.75	47.66	75	0.0012	0.075	1.858	30.49
15	A14-A13	53	239.43	237.85	238.64	2.84	20.55	20.55	0	20.55	21.41	75	0.0003	0.014	1.872	30.97
							0									
16	A12-A15	33	238.83	238.83	238.83	2.65	12.8	12.8	2743.84	2756.64	2871.50	250	0.0065	0.214	1.997	30.65
17	A16-A15	250	238.83	239.13	238.98	2.5	96.94	96.94	68.25	165.19	172.07	150	0.0004	0.106	2.104	30.40
18	A16-A17	53	239.13	239.09	239.11	2.37	20.55	20.55	0	20.55	21.41	75	0.0003	0.014	2.118	30.25
19	A16-A11	68	239.13	239.19	239.16	2.32	26.37	26.37	21.33	47.7	49.69	150	0.0000	0.003	2.107	30.21
20	A18-A11	55	239.19	239.09	239.14	2.34	21.33	21.33	0	21.33	22.22	100	0.0001	0.004	2.110	30.23
							0									
21	A15-A19	27	238.83	238.15	238.49	2.99	10.47	10.47	2568.18	2578.65	2686.09	250	0.0057	0.155	2.152	30.84
22	A20-A19	68	238.15	238.44	238.295	3.185	26.37	26.37	702.24	728.61	758.97	150	0.0066	0.452	2.604	30.58
23	A20-A21	49	238.44	237.74	238.09	3.39	19	19	0	19	19.79	75	0.0002	0.011	2.615	30.78
24	A20-A22	60	238.44	238.76	238.6	2.88	23.27	23.27	659.97	683.24	711.71	150	0.0059	0.354	2.957	29.92
25	A22-A23	67	238.76	237.89	238.325	3.155	25.98	25.98	10.08	36.06	37.56	75	0.0007	0.050	3.007	30.15
26	A23-A24	26	237.89	238.26	238.075	3.405	10.08	10.08	0	10.08	10.50	75	0.0001	0.002	3.009	30.40
27	A25-A22	68	238.26	238.87	238.565	2.915	26.37	26.37	597.54	623.91	649.91	150	0.0050	0.339	3.296	29.62
28	A25-A26	80	238.87	238.81	238.84	2.64	31.02	31.02	43.82	74.84	77.96	75	0.0029	0.230	3.526	29.11
29	A26-A27	33	238.81	238.69	238.75	2.73	12.8	12.8	31.02	43.82	45.65	75	0.0011	0.035	3.561	29.17
30	A28-A27	80	238.69	238.69	238.69	2.79	31.02	31.02	0	31.02	32.31	75	0.0006	0.045	3.606	29.18
							0			0						
31	A25-A28	34	238.87	238.69	238.78	2.7	13.18	13.18	509.52	522.7	544.48	150	0.0036	0.122	3.418	29.28
32	A28-A29	29	238.69	237.74	238.215	3.265	11.25	11.25	498.27	509.52	530.75	150	0.0034	0.099	3.518	29.75
33	A29-A30	100	237.74	238.58	238.16	3.32	38.78	38.78	73.67	112.45	117.14	75	0.0061	0.610	4.128	29.19
34	A30-A31	61	238.58	237.03	237.805	3.675	23.65	23.65	50.02	73.67	76.74	75	0.0028	0.170	4.298	29.38
35	A31-A32	129	237.03	237.74	237.385	4.095	50.02	50.02	0	50.02	52.10	75	0.0014	0.176	4.473	29.62
							0			0						
36	A29-A32	54	237.74	237.74	237.74	3.74	20.94	20.94	364.88	385.82	401.90	150	0.0020	0.110	3.628	30.11
37	A32-A33	52	237.74	237.14	237.44	4.04	20.16	20.16	344.72	364.88	380.08	100	0.0133	0.691	4.319	29.72
38	A33-A34	175	237.14	237.14	237.14	4.34	67.86	67.86	0	67.86	70.69	100	0.0006	0.103	4.423	29.92
39	A33-A35	45	237.14	236.79	236.965	4.515	17.45	17.45	259.41	276.86	288.40	100	0.0080	0.359	4.678	29.84
40	A35-A36	212	236.79	234.97	235.88	5.6	82.21	82.21	93.06	175.27	182.57	100	0.0034	0.725	5.403	30.20
41	A36-A37	70	234.97	235.2	235.085	6.395	27.14	27.14	65.92	93.06	96.94	75	0.0043	0.301	5.704	30.69
42	A37-A38	117	235.2	236.92	236.06	5.42	45.37	45.37	0	45.37	47.26	75	0.0011	0.133	5.837	29.58
43	A37-A39	53	235.2	235.86	235.53	5.95	20.55	20.55	0	20.55	21.41	75	0.0003	0.014	5.718	30.23

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
							0			0						
44	A35-A40	66	236.79	235.66	236.225	5.255	25.59	25.59	58.55	84.14	87.65	100	0.0009	0.058	4.736	30.52
45	A40-A41	32	235.66	235.66	235.66	5.82	12.41	12.41	25.98	38.39	39.99	100	0.0002	0.007	4.743	31.08
46	A41-A42	67	235.66	236.81	236.235	5.245	25.98	25.98	0	25.98	27.06	75	0.0004	0.027	4.770	30.48
47	A40-A43	52	235.66	236.35	236.005	5.475	20.16	20.16	0	20.16	21.00	100	0.0001	0.003	4.739	30.74
							0			0						
48	A19-A47	25	238.15	238.15	238.15	3.33	9.69	9.69	1829.88	1839.57	1916.22	200	0.0091	0.227	2.379	30.95
49	A47-A48	74	238.15	238.81	238.48	3	28.69	28.69	991.54	1020.23	1062.74	200	0.0031	0.226	2.605	30.39
50	A49-A48	116	238.81	238.81	238.81	2.67	44.98	44.98	126.42	171.4	178.54	100	0.0033	0.194	2.799	29.87
51	A49-A51	81	238.81	238.33	238.57	2.91	31.41	31.41	0	31.41	32.72	75	0.0006	0.043	2.841	30.07
52	A49-A17	59	238.81	238.33	238.57	2.91	22.88	22.88	72.13	95.01	98.97	100	0.0011	0.128	2.926	29.98
53	A17-A18	86	238.33	239.09	238.71	2.77	33.35	33.35	38.78	72.13	75.14	100	0.0007	0.057	2.983	29.79
54	A18-A50	100	239.09	237.82	238.455	3.025	38.78	38.78	0	38.78	40.40	75	0.0008	0.085	3.068	29.96
							0			0						
55	A48-A52	76	238.81	238.81	238.81	2.67	29.47	29.47	790.67	820.14	854.31	200	0.0020	0.155	2.760	29.91
56	A52-A53	33	238.81	238.81	238.81	2.67	12.8	12.8	0	12.8	13.33	75	0.0001	0.004	2.764	29.91
57	A52-A54	66	238.81	238.18	238.495	2.985	25.59	25.59	752.28	777.87	810.28	200	0.0018	0.122	2.882	30.10
58	A54-A55	161	238.18	235.91	237.045	4.435	62.43	62.43	28.31	90.74	94.52	100	0.0010	0.163	2.926	31.51
59	A55-A56	73	235.91	235.91	235.91	5.57	28.31	28.31	0	28.31	29.49	75	0.0005	0.035	2.916	32.65
							0			0						
60	A54-A57	54	238.18	238.18	238.18	3.3	20.94	20.94	640.6	661.54	689.10	150	0.0056	0.300	3.182	30.12
61	A57-A58	161	238.18	235.91	237.045	4.435	62.43	62.43	28.31	90.74	94.52	100	0.0010	0.163	3.344	31.09
62	A58-A59	73	235.91	235.93	235.92	5.56	28.31	28.31	0	28.31	29.49	75	0.0005	0.035	3.379	32.18
63	A57-A60	54	238.18	237.75	237.965	3.515	20.94	20.94	528.92	549.86	572.77	150	0.0039	0.213	3.395	30.12
64	A60-A61	236	237.75	235.93	236.84	4.64	91.51	91.51	0	91.51	95.32	100	0.0010	0.242	3.637	31.00
65	A60-A62	52	237.75	237.3	237.525	3.955	20.16	20.16	417.25	437.41	455.64	150	0.0026	0.134	3.529	30.43
66	A62-A63	176	237.3	236.01	236.655	4.825	68.25	68.25	47.7	115.95	120.78	75	0.0065	1.137	4.666	30.16
67	A63-A64	60	236.01	235.82	235.915	5.565	23.27	23.27	24.43	47.7	49.69	75	0.0012	0.075	4.740	30.82
68	A64-A65	63	235.82	235.32	235.57	5.91	24.43	24.43	0	24.43	25.45	75	0.0004	0.023	4.763	31.15
							0			0						
69	A62-A66	54	237.3	237.21	237.255	4.225	20.94	20.94	280.36	301.3	313.85	150	0.0013	0.070	3.599	30.63
70	A66-A67	115	237.21	236.67	236.94	4.54	44.59	44.59	66.7	111.29	115.93	75	0.0060	0.688	4.287	30.25
71	A67-A206	60	236.67	236.23	236.45	5.03	23.27	23.27	0	23.27	24.24	75	0.0003	0.020	4.307	30.72
72	A67-A68	60	236.23	236.84	236.535	4.945	23.27	23.27	20.16	43.43	45.24	75	0.0010	0.063	4.350	30.60
73	A68-A69	52	236.23	236.84	236.535	4.945	20.16	20.16	0	20.16	21.00	75	0.0003	0.013	4.363	30.58
							0									
74	A66-A70	48	237.21	237.49	237.35	4.13	18.61	18.61	150.46	169.07	176.11	150	0.0004	0.021	3.620	30.51
75	A70-A71	14	237.49	237.49	237.49	3.99	5.43	5.43	52.73	58.16	60.58	75	0.0018	0.025	3.645	30.34
76	A71-A68	115	237.49	236.23	236.86	4.62	44.59	44.59	0	44.59	46.45	75	0.0011	0.127	3.772	30.85
77	A72-A71	21	237.49	237.49	237.49	3.99	8.14	8.14	0	8.14	8.48	75	0.0000	0.001	3.646	30.34
							0									
78	A70-A50	59	237.49	237.82	237.655	3.825	22.88	22.88	69.42	92.3	96.15	100	0.0010	0.062	3.682	30.14
79	A50-A50a	46	237.82	237.82	237.82	3.66	17.84	17.84	51.58	69.42	72.31	100	0.0006	0.028	3.710	29.95
80	A50a-A51	100	237.82	238.33	238.075	3.405	38.78	38.78	12.8	51.58	53.73	75	0.0014	0.144	3.854	29.55
81	A51-A51a	33	238.33	238.33	238.33	3.15	12.8	12.8	0	12.8	13.33	75	0.0001	0.004	3.858	29.29
							0									
82	A47-A73	378	238.15	236.57	237.36	4.12	146.58	146.58	663.07	809.65	843.39	150	0.0081	3.052	5.431	28.69
83	A73-A56	73	236.57	235.91	236.24	5.24	28.31	28.31	62.43	90.74	94.52	75	0.0041	0.299	5.730	29.51
84	A56-A59	53	235.91	235.93	235.92	5.56	20.55	20.55	41.88	62.43	65.03	75	0.0021	0.109	5.839	29.72
85	A59-A61	55	235.93	235.93	235.93	5.55	21.33	21.33	20.55	41.88	43.63	75	0.0010	0.054	5.893	29.66
86	A61-A64	53	235.93	235.82	235.875	5.605	20.55	20.55	0	20.55	21.41	75	0.0003	0.014	5.907	29.70
							0									
87	A74-A73	57	236.57	236.33	236.45	5.03	22.1	22.1	550.23	572.33	596.18	150	0.0042	0.242	5.673	29.36
88	A43-A74	68	236.33	236.35	236.34	5.14	26.37	26.37	160.92	187.29	195.09	100	0.0039	0.263	5.936	29.20
89	A43-A39	253	236.35	235.86	236.105	5.375	98.1	98.1	62.82	160.92	167.63	75	0.0119	2.998	8.934	26.44

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
90	A39-A44	39	235.86	235.35	235.605	5.875	15.12	15.12	47.7	62.82	65.44	75	0.0021	0.081	9.015	26.86
91	A44-A45	123	235.35	235.35	235.35	6.13	47.7	47.7	0	47.7	49.69	75	0.0012	0.153	9.168	26.96
							0			0						
92	A74-A75	8	236.33	236.37	236.35	5.13	3.1	3.1	359.84	362.94	378.06	150	0.0018	0.015	5.688	29.44
93	A75-A65	236	236.37	235.32	235.845	5.635	91.51	91.51	0	91.51	95.32	75	0.0042	0.983	6.671	28.96
94	A75-A76	42	236.37	236.77	236.57	4.91	16.29	16.29	252.04	268.33	279.51	100	0.0075	0.316	6.004	28.91
95	A76-A77	152	236.77	235.35	236.06	5.42	58.94	58.94	0	58.94	61.40	75	0.0018	0.280	6.284	29.14
96	A76-A78	61	236.77	235.35	236.06	5.42	23.65	23.65	169.45	193.1	201.15	75	0.0166	1.013	7.017	28.40
97	A78-A79	204	235.35	236.2	235.775	5.705	79.1	79.1	0	79.1	82.40	75	0.0032	0.649	7.666	28.04
98	A78-A80	233	236.2	235.67	235.935	5.545	90.35	90.35	0	90.35	94.11	75	0.0041	0.948	7.965	27.58
							0									
99	A6-A81	284	240.73	242.26	241.495	-0.015	110.13	110.13	915.91	1026.04	1068.79	300	0.0004	0.122	0.997	28.99
100	A81-A108	91	242.26	242.47	242.365	-0.885	35.29	35.29	136.09	171.38	178.52	75	0.0133	1.212	2.209	26.91
101	A108-A106	79	242.47	242.04	242.255	-0.775	30.63	30.63	73.28	103.91	108.24	75	0.0053	0.416	2.626	26.60
102	A106-A107	52	242.04	242.04	242.04	-0.56	20.16	20.16	0	20.16	21.00	75	0.0003	0.013	2.639	26.80
103	A106-A105	137	242.04	242.04	242.04	-0.56	53.12	53.12	0	53.12	55.33	75	0.0015	0.208	2.834	26.61
104	A108-A109	83	242.47	242.82	242.645	-1.165	32.18	32.18	0	32.18	33.52	75	0.0006	0.050	2.259	26.58
							0			0						
105	A81-A82	83	242.26	241.46	241.86	-0.38	32.18	32.18	712.35	744.53	775.55	300	0.0002	0.020	1.017	28.60
106	A82-A98	274	241.46	239.74	240.6	0.88	106.25	106.25	100.05	206.3	214.90	75	0.0188	5.144	6.161	24.72
107	A98-A13	86	239.74	240.86	240.3	1.18	33.35	33.35	0	33.35	34.74	75	0.0006	0.055	6.216	24.96
108	A98-A99	57	239.74	239.74	239.74	1.74	22.1	22.1	44.6	66.7	69.48	75	0.0023	0.132	6.293	25.45
109	A99-A100	29	239.74	239.74	239.74	1.74	11.25	11.25	0	11.25	11.72	75	0.0001	0.002	6.295	25.44
110	A99-A14	86	239.74	237.85	238.795	2.685	33.35	33.35	0	33.35	34.74	75	0.0006	0.055	6.351	26.33
							0									
111	A82-A82a	5	241.46	240.86	241.16	0.32	1.94	1.94	504.11	506.05	527.14	300	0.0001	0.001	1.018	29.30
112	A82a-A83	55	240.86	240.86	240.86	0.62	21.33	21.33	482.78	504.11	525.11	300	0.0001	0.006	1.024	29.60
113	A83-A84	45	240.86	240.86	240.86	0.62	17.45	17.45	53.51	70.96	73.92	300	0.0000	0.000	1.024	29.60
114	A84-A85	138	240.86	240.86	240.86	0.62	53.51	53.51	0	53.51	55.74	75	0.0015	0.213	1.237	29.38
							0			0						
115	A83-A86	38	240.86	240.86	240.86	0.62	14.74	14.74	397.08	411.82	428.98	150	0.0023	0.088	1.112	29.51
116	A86-A87	146	240.86	242.49	241.675	-0.195	56.61	56.61	61.66	118.27	123.20	100	0.0017	0.241	1.353	28.45
117	A87-A88	20	242.49	242.49	242.49	-1.01	7.76	7.76	53.9	61.66	64.23	100	0.0005	0.010	1.362	27.63
118	A88-A89	37	242.49	242.49	242.49	-1.01	14.35	14.35	39.55	53.9		100	0.0000	0.000	1.362	27.63
119	A89-A90	57	242.49	243.25	242.87	-1.39	22.1	22.1	17.45	39.55	41.20	75	0.0009	0.050	1.413	27.20
120	A90-A95	45	243.25	243.25	243.25	-1.77	17.45	17.45	0	17.45	18.18	75	0.0002	0.009	1.421	26.81
							0			0						
121	A86-A91	54	240.86	242.29	241.575	-0.095	20.94	20.94	257.87	278.81	290.43	150	0.0011	0.061	1.172	28.73
122	A91-A89	139	242.29	242.49	242.39	-0.91	53.9	53.9	0	53.9	56.15	75	0.0016	0.217	1.389	27.70
123	A91-A92	59	242.29	242.76	242.525	-1.045	22.88	22.88	181.09	203.97	212.47	150	0.0006	0.037	1.209	27.75
124	A92-A90	139	242.76	243.25	243.005	-1.525	53.9	53.9	0	53.9	56.15	75	0.0016	0.217	1.427	27.05
125	A92-A93	73	242.76	242.76	242.76	-1.28	28.31	28.31	98.88	127.19	132.49	150	0.0003	0.019	1.228	27.49
126	A93-A94	41	242.76	242.76	242.76	-1.28	15.9	15.9	82.98	98.88	103.00	150	0.0002	0.007	1.235	27.48
127	A94-A95	120	242.76	243.25	243.005	-1.525	46.53	46.53	17.45	63.98	66.65	75	0.0021	0.258	1.493	26.98
128	A95-A96	45	243.25	243.25	243.25	-1.77	17.45	17.45	0	17.45	18.18	75	0.0002	0.009	1.502	26.73
129	A94-A110	49	242.76	243.28	243.02	-1.54	19	19	0	19	19.79	75	0.0002	0.011	1.246	27.21
							0									
130	A1-A101	40	241.48	241.48	241.48	0	15.51	15.51	1751.16	1766.67	1840.28	150	0.0342	1.370	1.432	28.57
131	A101-A3	218	241.48	240.49	240.985	0.495	84.53	84.53	0	84.53	88.05	75	0.0036	0.784	2.216	28.28
132	A101-A102	83	241.48	241.94	241.71	-0.23	32.18	32.18	1634.45	1666.63	1736.07	150	0.0307	2.551	3.983	25.79
133	A102-A103	144	241.94	241.02	241.48	0	55.84	55.84	0	55.84	58.17	75	0.0017	0.240	4.223	25.78
134	A102-A104	17	241.94	241.78	241.86	-0.38	6.59	6.59	1572.02	1578.61	1644.39	150	0.0278	0.473	4.455	25.16
135	A104-A105	68	241.78	241.78	241.78	-0.3	26.37	26.37	148.12	174.49	181.76	75	0.0138	0.936	5.391	24.31
136	A105-A109	67	241.78	242.88	242.33	-0.85	25.98	25.98	122.14	148.12	154.29	75	0.0102	0.681	6.072	23.08
137	A109-A110	70	242.88	243.28	243.08	-1.6	27.14	27.14	62.82	89.96	93.71	75	0.0040	0.283	6.355	22.05
138	A110-A111	162	243.28	243.54	243.41	-1.93	62.82	62.82	0	62.82	65.44	75	0.0021	0.336	6.691	21.38

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			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
139	A109-A112	83	242.88	242.9	242.89	-1.41	32.18	32.18	0	32.18	33.52	75	0.0006	0.050	6.122	22.47
							0									
140	A104-A113	78	241.78	241.81	241.795	-0.315	30.25	30.25	1367.28	1397.53	1455.76	150	0.0222	1.730	6.186	23.50
141	A113-A112	135	241.81	242.9	242.355	-0.875	52.35	52.35	1314.93	1367.28	1424.25	150	0.0213	2.876	9.061	20.06
142	A112-A114	5	242.9	242.57	242.735	-1.255	1.94	1.94	1312.99	1314.93	1369.72	150	0.0198	0.099	9.161	19.58
143	A114-A115	67	242.57	242.88	242.725	-1.245	25.98	25.98	339.68	365.66	380.90	150	0.0019	0.124	9.285	19.47
144	A115-A116	110	242.88	243.42	243.15	-1.67	42.65	42.65	60.88	103.53	107.84	150	0.0002	0.020	9.304	19.03
145	A116-A117	157	243.42	243.84	243.63	-2.15	60.88	60.88	0	60.88	63.42	100	0.0005	0.076	9.380	18.47
							0									
146	A115-A118	62	242.88	243.28	243.08	-1.6	24.04	24.04	212.11	236.15	245.99	150	0.0008	0.051	9.336	19.06
147	A118-A119	79	243.28	243.48	243.38	-1.9	30.63	30.63	0	30.63	31.91	75	0.0005	0.043	9.379	18.72
148	A118-A120	68	243.28	243.45	243.365	-1.885	26.37	26.37	155.11	181.48	189.04	150	0.0005	0.034	9.370	18.74
149	A120-A121	59	243.45	243.84	243.645	-2.165	22.88	22.88	0	22.88	23.83	75	0.0003	0.019	9.389	18.45
150	A120-A122	144	243.45	244.35	243.9	-2.42	55.84	55.84	76.39	132.23	137.74	150	0.0003	0.041	9.411	18.17
151	A122-A122a	63	244.35	244.35	244.35	-2.87	24.43	24.43	51.96	76.39	79.57	100	0.0007	0.046	9.457	17.67
152	A122a-A123	134	244.35	243.84	244.095		51.96	51.96	0	51.96		75		0.000	9.457	20.54
							0									
153	A114-A124	232	242.57	243.97	243.27	-1.79	89.96	89.96	148.14	238.1	248.02	150	0.0008	0.194	9.355	18.86
154	A124-A125	38	243.97	243.97	243.97	-2.49	14.74	14.74	19.78	34.52	35.96	100	0.0002	0.006	9.361	18.15
155	A125-A122	51	243.97	244.35	244.16	-2.68	19.78	19.78	0	19.78	20.60	100	0.0001	0.003	9.364	17.96
							0									
156	A124-A111	80	243.97	243.54	243.755	-2.275	31.02	31.02	82.6	113.62	118.35	150	0.0002	0.017	9.372	18.35
157	A111-A96	51	243.54	243.25	243.395	-1.915	19.78	19.78	62.82	82.6	86.04	150	0.0001	0.006	9.378	18.71
158	A96-A96a	104	243.25	243.25	243.25	-1.77	40.33	40.33	22.49	62.82	65.44	150	0.0001	0.007	9.385	18.84
159	A96a-A88	58	243.25	242.49	242.87	-1.39	22.49	22.49	0	22.49	23.43	75	0.0003	0.018	9.403	19.21
160	A279-A114	135	241.81	242.57	242.19	-5.95	52.35	52.35	656.88	709.23	738.78	150	0.0001	0.012	9.173	14.88
161	A270-A279	171	240.76	241.81	241.285	-5.045	66.31	66.31	590.57	656.88	684.25	200	0.0014	0.231	9.403	15.55
162	A270-A269	61	240.76	241.03	240.895	-4.655	23.65	23.65	566.92	590.57	615.18	150	0.0005	0.030	9.433	15.91
163	A269-A269a	60	241.03	241.03	241.03	-4.79	23.27	23.27	77.17	100.44	104.63	150	0.0000	0.001	9.434	15.78
164	A269a-A268	130	241.03	241.67	241.35	-5.11	50.41	50.41	26.76	77.17	80.39	150	0.0000	0.001	9.435	15.45
165	A268-A271	69	241.67	242.04	241.855	-5.615	26.76	26.76	0	26.76	27.88	75	0.0004	0.029	9.464	14.92
166	A269-A272	67	241.03	241.44	241.235	-4.995	25.98	25.98	440.5	466.48	485.92	150	0.0029	0.195	9.628	15.38
167	A272-A271	192	241.44	242.04	241.74	-5.5	74.45	74.45	26.76	101.21	105.43	75	0.0001	0.014	9.641	14.86
168	A271-A273	69	242.04	242.33	242.185	-5.945	26.76	26.76	0	26.76	27.88	75	0.0000	0.000	9.642	14.41
169	A272-A274	67	241.44	241.44	241.44	-5.2	25.98	25.98	313.31	339.29	353.43	150	0.0016	0.108	9.736	15.06
170	A274-A273	170	241.44	242.33	241.885	-5.645	65.92	65.92	23.65	89.57	93.30	75	0.0040	0.681	10.417	13.94
171	A273-A275	61	242.33	242.31	242.32	-6.08	23.65	23.65	0	23.65	24.64	75	0.0003	0.021	10.437	13.48
	-										0.00					
172	A274-A276	60	241.44	242.37	241.905	-5.665	23.27	23.27	200.47	223.74	233.06	150	0.0007	0.045	10.482	13.85
173	A276-A275	150	242.37	242.31	242.34	-6.1	58.16	58.16	21.71	79.87	83.20	75	0.0032	0.486	10.968	12.93
174	A275-A277	56	242.31	243.08	242.695	-6.455	21.71	21.71	0	21.71	22.61	75	0.0003	0.016	10.498	13.05
	-															

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
175	A276-A278	60	242.37	242.57	242.47	-6.23	23.27	23.27	97.33	120.6	125.63	150	0.0002	0.014	10.496	13.27
176	A278-A277	132	242.57	243.08	242.825	-6.585	51.19	51.19	24.43	75.62	78.77	75	0.0029	0.386	10.883	12.53
177	A277-A116	63	243.08	243.42	243.25	-7.01	24.43	24.43	0	24.43	25.45	75	0.0004	0.023	10.519	12.47
178	A278-A114	56	242.57	242.57	242.57	-6.33	21.71	21.71	0	21.71	22.61	150	0.0000	0.001	10.883	12.79
				Min	235.085											
	Sub total	**15952**		**Max**	**244.35**		**6186**									**12.47**
							0									
179	UGT-A126	8	236.24	236.24	236.24	0	3.1	3.1	4563.72	4566.82	4757.10	300	0.0007	0.006	0.006	29.99
180	A126-A127	204	236.24	236.89	236.565	-0.325	79.1	79.1	4484.62	4563.72	4753.88	300	0.0007	0.149	0.155	29.52
181	A127-A128	20	236.89	236.57	236.73	-0.49	7.76	7.76	2043.56	2051.32	2136.79	200	0.0000	0.000	0.155	29.36
182	A128-A129	42	236.57	236.57	236.57	-0.33	16.29	16.29	0	16.29	16.97	75	0.0000	0.000	0.155	29.52
183	A128-A130	56	236.57	236.48	236.525	-0.285	21.71	21.71	2005.56	2027.27	2111.74	200	0.0109	0.609	0.764	28.95
184	A130-A131	75	236.48	235.8	236.14	0.1	29.08	29.08	0	29.08	30.29	75	0.0005	0.037	0.802	29.30
185	A130-A132	42	235.8	236.48	236.14	0.1	16.29	16.29	1960.19	1976.48	2058.83	200	0.0104	0.436	1.200	28.90
186	A132-A133	75	236.48	235.8	236.14	0.1	29.08	29.08	0	29.08	30.29	75	0.0005	0.037	1.238	28.86
187	A132-A134	50	236.48	235.99	236.235	0.005	19.39	19.39	1911.72	1931.11	2011.57	200	0.0099	0.497	1.698	28.31
188	A134-A135	75	235.99	235.61	235.8	0.44	29.08	29.08	0	29.08	30.29	75	0.0005	0.037	1.735	28.71
189	A134-A136	37	235.99	235.56	235.775	0.465	14.35	14.35	1868.29	1882.64	1961.08	200	0.0095	0.351	2.049	28.42
190	A136-A137	75	235.56	235.61	235.585	0.655	29.08	29.08	0	29.08	30.29	75	0.0001	0.004	2.053	28.60
191	A136-A138	33	235.56	235.56	235.56	0.68	12.8	12.8	1826.41	1839.21	1915.84	200	0.0091	0.300	2.348	28.33
192	A138-A139	75	235.56	235.56	235.56	0.68	29.08	29.08	0	29.08	30.29	75	0.0001	0.004	2.352	28.33
193	A138-A140	96	235.56	236	235.78	0.46	37.23	37.23	0	37.23	38.78	75	0.0001	0.008	2.357	28.10
194	A138-A141	12	235.56	236	235.78	0.46	4.65	4.65	1755.45	1760.1	1833.44	200	0.0084	0.101	2.449	28.01
195	A141-A142	41	236	236	236	0.24	15.9	15.9	98.89	114.79	119.57	100	0.0002	0.007	2.456	27.78
196	A142-A143	105	236	237.09	236.545	-0.305	40.72	40.72	0	40.72	42.42	75	0.0009	0.098	2.553	27.14
197	A142-A144	45	236	236.84	236.42	-0.18	17.45	17.45	40.72	58.17	60.59	100	0.0004	0.020	2.476	27.34
198	A144-A145	105	236.84	237.44	237.14	-0.9	40.72	40.72	0	40.72	42.42	75	0.0009	0.098	2.573	26.53
	-						0									
199	A141-A146	327	236	234.79	235.395	0.845	126.8	126.8	1513.86	1640.66	1709.02	200	0.0008	0.259	2.708	28.14
200	A146-A147	19	234.79	234.79	234.79	1.45	7.37	7.37	318.74	326.11	339.70	200	0.0004	0.007	2.715	28.74
201	A147-A148	95	234.79	235.06	234.925	1.315	36.84	36.84	59.33	96.17	100.18	75	0.0046	0.434	3.149	28.17
202	A148-A149	60	235.06	234.8	234.93	1.31	23.27	23.27	0	23.27	24.24	75	0.0003	0.020	3.168	28.14
203	A148-A150	45	235.06	235.02	235.04	1.2	17.45	17.45	18.61	36.06	37.56	75	0.0001	0.004	3.152	28.05
204	A150-A152	48	235.02	234.97	234.995	1.245	18.61	18.61	0	18.61	19.39	75	0.0000	0.001	3.153	28.09
	-						0									
205	A147-A151	34	234.79	234.82	234.805	1.435	13.18	13.18	209.39	222.57	231.84	200	0.0000	0.001	2.715	28.72
206	A151-A150	124	234.82	235.02	234.92	1.32	48.08	48.08	0	48.08	50.08	75	0.0013	0.157	2.872	28.45
207	A151-A153	66	234.82	235.14	234.98	1.26	25.59	25.59	135.72	161.31	168.03	75	0.0013	0.085	2.800	28.46
208	A153-A152	173	235.14	234.97	235.055	1.185	67.08	67.08	0	67.08	69.88	75	0.0023	0.406	3.205	27.98
209	A153-A154	38	235.14	235.14	235.14	1.1	14.74	14.74	53.9	68.64	71.50	75	0.0024	0.093	2.893	28.21
210	A154-A155	139	235.14	235.14	235.14	1.1	53.9	53.9	0	53.9	56.15	75	0.0016	0.217	3.110	27.99
	-						0				0.00					
211	A146-A156	50	234.79	234.76	234.775	1.465	19.39	19.39	1168.36	1187.75	1237.24	200	0.0040	0.202	2.910	28.56
212	A156-A157	107	234.76	234.88	234.82	1.42	41.49	41.49	70.58	112.07	116.74	75	0.0061	0.649	3.559	27.86
213	A157-A149	52	234.88	234.8	234.84	1.4	20.16	20.16	50.42	70.58	73.52	75	0.0026	0.134	3.693	27.71
214	A149-A158	60	234.8	234.8	234.8	1.44	23.27	23.27	27.15	50.42	52.52	75	0.0014	0.083	3.775	27.66

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
215	A158-A159	41	234.8	234.6	234.7	1.54	15.9	15.9	0	15.9	16.56	75	0.0002	0.007	3.782	27.76
216	A158-A160	29	234.8	234.78	234.79	1.45	11.25	11.25	0	11.25	11.72	75	0.0001	0.002	3.778	27.67
	-						0									
217	A156-A161	180	234.76	234.39	234.575	1.665	69.8	69.8	986.49	1056.29	1100.30	200	0.0033	0.586	3.495	28.17
218	A161-A177	177	234.39	234.6	234.495	1.745	68.63	68.63	87.63	156.26	162.77	150	0.0004	0.068	3.563	28.18
219	A177-A178	125	234.6	234.81	234.705	1.535	48.47	48.47	0	48.47	50.49	75	0.0013	0.161	3.724	27.81
220	A177-A179	101	234.6	234.15	234.375	1.865	39.16	39.16	0	39.16	40.79	75	0.0009	0.087	3.651	28.21
	-						0									
221	A161-A162	6	234.39	234.39	234.39	1.85	2.33	2.33	827.9	830.23	864.82	200	0.0021	0.012	3.508	28.34
222	A162-A162a	69	243.25	236.89	240.07	-3.83	26.76	26.76	166.35	193.11	201.16	150	0.0006	0.039	3.547	22.62
223	A162a-A221	197	236.89	236.81	236.85	-0.61	76.39	76.39	89.96	166.35	173.28	75	0.0126	2.483	6.030	23.36
224	A221-A222	232	236.81	236.38	236.595	-0.355	89.96	89.96	0	89.96	93.71	75	0.0003	0.072	6.102	23.54
225	A162-A163	54	234.39	234.37	234.38	1.86	20.94	20.94	613.85	634.79	661.24	150	0.0051	0.278	3.786	28.07
226	A163-A164	46	234.37	234.65	234.51	1.73	17.84	17.84	271.05	288.89	300.93	150	0.0012	0.055	3.841	27.89
227	A164-A157	49	234.65	234.88	234.765	1.475	19	19	0	19	19.79	75	0.0002	0.011	3.852	27.62
228	A164-A165	13	234.65	234.58			5.04	5.04	247.01	252.05	262.55	150	0.0009	0.012	3.853	26.15
229	A165-A159	174	234.58	234.6	234.59	1.65	67.47	67.47	85.7	153.17	159.55	150	0.0004	0.064	3.917	27.73
230	A159-A166	127	234.6	234.27	234.435	1.805	49.25	49.25	36.45	85.7	89.27	75	0.0037	0.469	4.386	27.42
231	A166-A167	48	234.27	234.27	234.27	1.97	18.61	18.61	17.84	36.45	37.97	75	0.0008	0.036	4.422	27.55
232	A167-A168	46	234.27	234.08	234.175	2.065	17.84	17.84	0	17.84	18.58	75	0.0002	0.009	4.395	27.67
	-						0				0.00					
233	A165-A169	188	234.58	234.16	234.37	1.87	72.9	72.9	20.94	93.84	97.75	75	0.0044	0.821	4.674	27.20
234	A169-A166	54	234.16	234.27	234.215		20.94	20.94	0	20.94	21.81	75	0.0003	0.015	4.688	25.31
	-						0									
235	A163-A170	147	234.37	234.05	234.21	2.03	57	57	267.96	324.96	338.50	100	0.0107	1.577	5.363	26.67
236	A170-A169	69	234.05	234.16	234.105	2.135	26.76	26.76	0	26.76	27.88	75	0.0004	0.029	5.392	26.74
237	A170-A171	70	234.05	233.86	233.955	2.285	27.14	27.14	214.06	241.2	251.25	100	0.0062	0.432	5.795	26.49
238	A171-A168	123	233.86	234.08	233.97	2.27	47.7	47.7	44.21	91.91	95.74	75	0.0042	0.517	6.312	25.96
239	A168-A172	60	234.08	234.08	234.08	2.16	23.27	23.27	20.94	44.21	46.05	75	0.0011	0.065	6.377	25.78
240	A172-A173	54	234.08	233.66	233.87	2.37	20.94	20.94	0	20.94	21.81	75	0.0003	0.015	6.391	25.98
	-						0									
241	A171-A173	78	233.86	233.66	233.76	2.48	30.25	30.25	91.9	122.15	127.24	75	0.0071	0.555	6.350	26.13
242	A173-A174	98	233.66	233.4	233.53	2.71	38	38	53.9	91.9	95.73	75	0.0042	0.412	6.761	25.95
243	A174-A175	53	233.4	233.67	233.535	2.705	20.55	20.55	0	20.55	21.41	75	0.0003	0.014	4.687	28.02
244	A174-A176	86	233.4	233.14	233.27	2.97	33.35	33.35	0	33.35	34.74	75	0.0006	0.055	6.817	26.15
245	A127-A180	10	236.89	236.89	236.89	-0.65	3.88	3.88	2429.42	2433.3	2534.69	300	0.0021	0.021	0.176	29.17
246	A180-A223	59	236.89	237.16	237.025	-0.785	22.88	22.88	1385.13	1408.01	1466.68	200	0.0055	0.327	0.503	28.71
247	A223-A224	30	237.16	237.16	237.16	-0.92	11.63	11.63	802.31	813.94	847.85	200	0.0000	0.000	0.503	28.58
248	A224-A230	136	237.16	237.16	237.16	-0.92	52.74	52.74	0	52.74	54.94	100	0.0004	0.050	0.553	28.53
249	A224-A225	89	237.16	237.16	237.16	-0.92	34.51	34.51	715.06	749.57	780.80	200	0.0017	0.153	0.657	28.42
250	A225-A226	18	237.16	237.16	237.16	-0.92	6.98	6.98	708.08	715.06	744.85	200	0.0016	0.028	0.685	28.40
251	A226-A140	91	237.16	236.25	236.705	-0.465	35.29	35.29	37.61	72.9	75.94	75	0.0027	0.249	0.934	28.60
252	A140-A143	52	236.25	236.25	236.25	-0.01	20.16	20.16	17.45	37.61	39.18	75	0.0008	0.042	0.976	29.01

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
253	A143-A145	45	236.25	237.44	236.845	-0.605	17.45	17.45	0	17.45	18.18	75	0.0002	0.009	0.984	28.41
	-										0.00					
254	A226-A227	55	236.25	237.21	236.73	-0.49	21.33	21.33	613.85	635.18	661.65	200	0.0013	0.070	0.755	28.76
255	A227-A230	47	237.21	237.58	237.395	-1.155	18.22	18.22	17.06	35.28	36.75	100	0.0002	0.008	0.763	28.08
256	A230-A231	44	237.58	237.65	237.615	-1.375	17.06	17.06	0	17.06	17.77	100	0.0000	0.002	0.757	27.87
257	A227-A228	50	237.21	237.43	237.32	-1.08	19.39	19.39	559.18	578.57	602.68	200	0.0011	0.053	0.808	28.11
258	A228-A228a	115	237.43	237.35	237.39	-1.15	44.59	44.59	0	44.59	46.45	75	0.0011	0.127	0.935	27.92
259	A228-A229	59	237.43	237.42	237.425	-1.185	22.88	22.88	491.71	514.59	536.03	200	0.0009	0.051	0.859	27.96
260	A229-A232	176	237.42	238.32	237.87	-1.63	68.25	68.25	423.46	491.71	512.20	150	0.0032	0.564	1.423	26.95
261	A232-A233	38	238.32	238.32	238.32	-2.08	14.74	14.74	408.72	423.46	441.10	150	0.0000	0.000	1.423	26.50
262	A233-A234	55	238.32	238.78	238.55	-2.31	21.33	21.33	387.39	408.72	425.75	150	0.0002	0.013	1.436	26.25
263	A234-A235	67	238.78	239.07	238.925	-2.685	25.98	25.98	361.41	387.39	403.53	150	0.0002	0.015	1.451	25.86
264	A235-A236	95	239.07	239.45	239.26	-3.02	36.84	36.84	324.57	361.41	376.47	150	0.0002	0.019	1.470	25.51
265	A235-A237	37	239.07	239.07	239.07	-2.83	14.35	14.35	310.22	324.57	338.09	150	0.0002	0.006	1.457	25.71
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266	A234-A238	5	238.78	238.78	238.78	-2.54	1.94	1.94	308.28	310.22	323.15	100	0.0011	0.005	1.442	26.02
267	A238-A239	95	238.78	238.34	238.56	-2.32	36.84	36.84	271.44	308.28	321.13	100	0.0010	0.099	1.541	26.14
268	A238-A240	97	238.78	239.24	239.01	-2.77	37.61	37.61	0	37.61	39.18	100	0.0002	0.019	1.461	25.77
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269	A233-A241	255	238.32	239.76	239.04	-2.8	98.88	98.88	134.95	233.83	243.57	100	0.0006	0.160	1.583	25.62
270	A241-A242	51	239.76	240.35	240.055	-3.815	19.78	19.78	0	19.78	20.60	75	0.0002	0.012	1.596	24.59
271	A242-A243	83	240.35	240.35	240.35	-4.11	32.18	32.18	82.99	115.17	119.97	75	0.0064	0.529	2.113	23.78
272	A242-A244	24	240.35	240.33	240.34	-4.1	9.31	9.31	73.68	82.99	86.45	75	0.0035	0.083	1.679	24.22
273	A244-A245	55	240.33	240.54	240.435	-4.195	21.33	21.33	0	21.33	22.22	75	0.0003	0.015	2.128	23.68
274	A244-A246	135	240.33	240.33	240.33	-4.09	52.35	52.35	0	52.35	54.53	75	0.0015	0.200	1.879	24.03
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275	A223-A247	27	237.16	237.43	237.295	-1.055	10.47	10.47	560.72	571.19	594.99	200	0.0010	0.028	1.907	27.04
276	A247-A248	64	237.43	237.85	237.64	-1.4	24.82	24.82	535.9	560.72	584.08	150	0.0041	0.262	2.169	26.43
277	A248-A231	82	237.85	237.65	237.75	-1.51	31.8	31.8	39.16	70.96	73.92	100	0.0006	0.053	1.960	26.53
278	A231-A228a	52	237.65	237.35	237.5	-1.26	20.16	20.16	19	39.16	40.79	100	0.0002	0.011	2.180	26.56
279	A228a-A249	49	237.35	237.35	237.35	-1.11	19	19	0	19	19.79	100	0.0001	0.003	1.963	26.93
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280	A248-A250	57	237.85	238.07	237.96	-1.72	22.1	22.1	442.84	464.94	484.31	150	0.0029	0.165	2.334	25.95
281	A250-A249	108	238.07	238.07	238.07	-1.83	41.88	41.88	44.6	86.48	90.08	150	0.0000	0.001	2.335	25.83
282	A249-A251	6	238.07	238.07	238.07	-1.83	2.33	2.33	0	2.33	2.43	75	0.0000	0.000	2.334	25.84
283	A251-A232	68	238.07	238.07	238.07	-1.83	26.37	26.37	15.9	42.27	44.03	75	0.0001	0.007	2.342	25.83
284	A251-A252	41	238.07	238.38	238.225	-1.985	15.9	15.9	0	15.9	16.56	75	0.0000	0.001	2.334	25.68
	-										0.00					
285	A250-A253	58	238.07	238.45	238.26	-2.02	22.49	22.49	333.87	356.36	371.21	150	0.0002	0.011	2.345	25.63
286	A253-A252	85	238.45	238.38	238.415	-2.175	32.96	32.96	62.82	95.78	99.77	150	0.0002	0.013	2.359	25.47
287	A252-A254	162	238.38	239.45	238.915	-2.675	62.82	62.82	0	62.82	65.44	100	0.0005	0.083	2.428	24.90
288	A254-A255	79	239.45	239.58	239.515	-3.275	30.63	30.63	207.46	238.09	248.01	100	0.0060	0.476	2.905	23.82
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289	A253-A256	175	238.45	239.21	238.83	-2.59	67.86	67.86	139.6	207.46	216.10	150	0.0006	0.113	2.459	24.95
290	A256-A254	9	239.21	239.45	239.33	-3.09	3.49	3.49	136.11	139.6	145.42	100	0.0022	0.020	2.479	24.43
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291	A254-A257	284	239.45	239.13	239.29	-3.05	110.13	110.13	25.98	136.11	141.78	100	0.0021	0.608	3.087	23.86
292	A257-A256	67	239.13	239.21	239.17	-2.93	25.98	25.98	0	25.98	27.06	100	0.0000	0.001	3.088	23.98
293	A180-A181	46	236.89	236.81	236.85	-0.61	17.84	17.84	1003.57	1021.41	1063.97	300	0.0004	0.020	0.195	29.19

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
	-															
294	A181-A258	328	236.81	239	237.905	-1.665	127.19	127.19	25.2	152.39	158.74	100	0.0026	0.866	1.061	27.27
295	A258-A257	65	239	239.13	239.065	-2.825	25.2	25.2	0	25.2	26.25	100	0.0000	0.000	1.061	26.11
296	A181-A198	65	237.01	237.39	237.2	-0.96	25.2	25.2	0	25.2	26.25	300	0.0000	0.000	0.196	28.84
	-															
297	A198-A259	222	237.39	237.93	237.66	-1.42	86.08	86.08	90.35	176.43	183.78	300	0.0000	0.000	1.061	27.52
298	A259-A260	85	237.93	238.86	238.395	-2.155	32.96	32.96	31.8	64.76	67.46	300	0.0000	0.000	1.061	26.78
299	A260-A258	66	238.86	239	238.93	-2.69	25.59	25.59	0	25.59	26.66	100	0.0000	0.000	1.062	26.25
	-															
300	A260-A261	82	238.86	239.17	239.015	-2.775	31.8	31.8	0	31.8	33.13	300	0.0000	0.000	1.062	26.16
301	A261-A262	70	239.17	239.57	244	-7.76	27.14	27.14	396.67	423.81	441.47	100	0.0125	0.876	1.938	20.30
302	A262-A255	119	239.57	239.58	239.575	-3.335	46.14	46.14	26.76	72.9	75.94	100	0.0000	0.001	1.938	24.73
303	A255-A241	69	239.58	239.76	239.67	-3.43	26.76	26.76	0	26.76	27.88	100	0.0000	0.000	1.938	24.63
	-															
304	A262-A263	54	239.57	239.97	239.77	-3.53	20.94	20.94	302.83	323.77	337.26	100	0.0001	0.008	1.946	24.52
305	A263-A245	244	239.97	240.54	240.255	-4.015	94.61	94.61	39.94	134.55	140.16	100	0.0021	0.511	2.457	23.53
306	A245-A264	51	240.54	240.89	240.715	-4.475	19.78	19.78	20.16	39.94	41.60	75	0.0009	0.046	1.992	23.53
307	A264-A266	52	240.89	241.37	241.13	-4.89	20.16	20.16	0	20.16	21.00	75	0.0003	0.013	2.005	23.11
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308	A263-A265	57	239.97	240.32	240.145	-3.905	22.1	22.1	146.18	168.28	175.29	100	0.0032	0.181	2.127	23.97
	-															
309	A265-A267	53	240.32	240.54	240.43	-4.19	20.55	20.55	125.63	146.18	152.27	150	0.0003	0.018	2.145	23.67
310	A267-A266	206	240.54	241.37	240.955	-4.715	79.88	79.88	17.06	96.94	100.98	100	0.0011	0.235	2.380	22.91
311	A266-A268	44	241.37	241.67	241.52	-5.28	17.06	17.06	0	17.06	17.77	75	0.0000	0.000	2.145	22.58
	-															
312	A267-A269	74	240.54	241.03	240.785	-4.545	28.69	28.69	0	28.69	29.89	150	0.0000	0.000	2.145	23.31
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313	A261-A270	266	239.17	240.76	239.965	-3.725	103.15	103.15	0	103.15	107.45	350	0.0000	0.001	1.062	25.21
314	A198-A194	229	237.39	234.62	236.005	0.235	88.8	88.8	1748.45	1837.25	1913.80	200	0.0091	2.077	2.272	27.96
315	A194-A199	84	234.62	234.62	234.62	1.62	32.57	32.57	1036.89	1069.46	1114.02	150	0.0135	1.135	1.331	30.29
316	A199-A200	322	234.62	235.52	235.07	1.17	124.86	124.86	271.83	396.69	413.22	100	0.0155	4.997	8.293	22.88
317	A200-A65	120	235.52	235.52	235.52	0.72	46.53	46.53	225.3	271.83	283.16	75	0.0313	3.755	12.048	18.67
318	A65-A214	51	235.52	235.52	235.52	0.72	19.78	19.78	205.52	225.3		75	0.0000	0.000	12.048	18.67
319	A214-A215	530	235.52	234.62	235.07	1.17	205.52	205.52	0	205.52	214.08	75	0.0000	0.000	12.048	19.12
	-									0						
320	A199-A201	75	234.62	235.39	235.005		29.08	29.08	611.12	640.2		150	0.0000	0.000	1.331	28.67
321	A201-A202	203	235.39	235.39	235.39	0.85	78.72	78.72	78.72	157.44	164.00	100	0.0028	0.569	1.900	28.95
322	A202-A64	203	235.39	236.01	235.7	0.54	78.72	78.72	0	78.72	82.00	75	0.0032	0.640	1.971	28.57
	-										0.00					
323	A201-A203	69	235.39	235.39	235.39	0.85	26.76	26.76	426.92	453.68	472.58	150	0.0028	0.191	1.521	29.33
324	A203-A204	65	235.39	236.24	235.815	0.425	25.2	25.2	145.41	170.61	177.72	100	0.0002	0.016	1.538	28.89
325	A204-A205	68	236.24	236.24	236.24	0	26.37	26.37	0	26.37	27.47	75	0.0004	0.028	1.566	28.43
326	A204-A206	253	236.24	236.23	236.235	0.005	98.1	98.1	20.94	119.04	124.00	100	0.0017	0.423	1.960	28.04
327	A206-A63	54	236.23	236.23	236.23	0.01	20.94	20.94	0	20.94	21.81	75	0.0003	0.015	1.581	28.43

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
	-															
328	A203-A207	193	235.39	237.59	236.49	-0.25	74.84	74.84	181.47	256.31	266.99	150	0.0010	0.185	1.766	27.98
329	A207-A208	58	237.59	237.59	237.59	-1.35	22.49	22.49	43.82	66.31	69.07	150	0.0001	0.005	1.770	26.88
330	A208-A209	69	237.59	237.59	237.59	-1.35	26.76	26.76	0	26.76	27.88	75	0.0004	0.029	1.800	
331	A208-A210	44	237.59	237.59	237.59	-1.35	17.06	17.06	0	17.06	17.77	150	0.0000	0.000	1.771	26.88
	-															
332	A207-A211	63	237.59	237.99	237.79	-1.55	24.43	24.43	90.73	115.16	119.96	150	0.0000	0.000	1.771	26.68
333	A211-A212	93	237.99	237.99	237.99	-1.75	36.06	36.06	0	36.06	37.56	75	0.0007	0.069	1.840	26.41
334	A211-A213	61	237.99	237.93	237.96	-1.72	23.65	23.65	31.02	54.67	56.95	100	0.0004	0.024	1.795	26.48
335	A213-A259	80	237.93	237.93	237.93	-1.69	31.02	31.02	0	31.02	32.31	75	0.0006	0.045	1.885	26.42
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336	A181-A182	75	236.81	236.38	236.595	-0.355	29.08	29.08	796.9	825.98	860.40	200	0.0002	0.012	0.207	29.44
337	A182-A131	125	236.38	236.16	236.27	-0.03	48.47	48.47	292.41	340.88	355.08	75	0.0037	0.456	0.664	29.31
338	A131-A133	53	236.16	235.8	235.98	0.26	20.55	20.55	271.86	292.41	304.59	75	0.0027	0.146	0.810	29.45
339	A133-A133a	20	235.8	235.61	235.705	0.535	7.76	7.76	264.1	271.86	283.19	75	0.0024	0.048	0.858	29.68
340	A133a-A183	68	235.61	235.45	235.53	0.71	26.37	26.37	0	26.37	27.47	75	0.0000	0.002	0.860	29.85
341	A133a-A135	37	235.61	235.61	235.61	0.63	14.35	14.35	223.38	237.73	247.64	75	0.0019	0.069	0.929	29.70
342	A135-A184	68	235.61	235.36	235.485	0.755	26.37	26.37	0	26.37	27.47	75	0.0000	0.002	0.931	29.82
343	A135-A137	37	235.61	235.61	235.61	0.63	14.35	14.35	182.66	197.01	205.22	75	0.0013	0.049	0.980	29.65
344	A137-A185	68	235.61	234.69	235.15	1.09	26.37	26.37	0	26.37	27.47	75	0.0000	0.002	0.931	30.16
345	A137-A139	37	235.61	235.61	235.61	0.63	14.35	14.35	141.94	156.29	162.80	75	0.0009	0.032	0.963	29.67
346	A139-A186	68	235.61	234.69	235.15	1.09	26.37	26.37	0	26.37	27.47	75	0.0000	0.002	0.965	30.12
347	A139-A188	37	235.66	235.66	235.66	0.58	14.35	14.35	101.22	115.57	120.39	75	0.0005	0.018	0.949	29.63
348	A188-A188a	45	235.66	235.696	235.678	0.562	17.45	17.45	0	17.45	18.18	75	0.0000	0.001	0.950	29.61
349	A188-A187	68	235.66	234.73	235.195	1.045	26.37	26.37	57.4	83.77	87.26	75	0.0035	0.241	1.190	29.86
350	A187-A186	37	234.73	234.69	234.71	1.53	14.35	14.35	43.05	57.4	59.79	75	0.0018	0.065	1.255	30.28
351	A186-A185	37	234.69	234.69	234.69	1.55	14.35	14.35	28.7	43.05	44.84	75	0.0010	0.038	1.293	30.26
352	A185-A184	37	234.69	235.36	235.025	1.215	14.35	14.35	14.35	28.7	29.90	75	0.0005	0.018	1.311	29.90
353	A184-A183	37	235.36	235.45	235.405	0.835	14.35	14.35	0	14.35	14.95	75	0.0001	0.005	1.316	29.52
354	A182-A189	38	236.38	235.56	235.97	0.27	14.74	14.74	441.28	456.02	475.02	200	0.0007	0.026	0.233	30.04
355	A189-A183	168	235.56	235.45	235.505	0.735	65.14	65.14	107.8	172.94	180.15	100	0.0033	0.560	0.794	29.94
356	A183-A190	60	235.45	234.91	235.18	1.06	23.27	23.27	84.53	107.8	112.29	75	0.0056	0.339	1.132	29.93
357	A190-A191	84	234.91	234.91	234.91	1.33	32.57	32.57	0	32.57	33.93	75	0.0006	0.052	1.184	30.15
358	A190-A192	134	234.91	235.22	235.065	1.175	51.96	51.96	0	51.96	54.13	75	0.0001	0.015	3.793	27.38
	-										0.00					
359	A189-A192	58	235.56	235.22	235.39	0.85	22.49	22.49	245.85	268.34	279.52	200	0.0000	0.001	3.794	27.06
360	A192-A193	76	235.22	235.13	235.175	1.065	29.47	29.47	216.38	245.85	256.09	200	0.0002	0.017	3.811	27.25
361	A193-A194	68	235.13	234.62	234.875	1.365	26.37	26.37	0	26.37	27.47	75	0.0000	0.002	3.813	27.55
362	A193-A195	212	235.13	234.06	234.595	1.645	82.21	82.21	107.8	190.01	197.93	100	0.0040	0.842	4.653	26.99
363	A195-A196	71	234.06	234.15	234.105	2.135	27.53	27.53	80.27	107.8	112.29	100	0.0014	0.099	4.751	27.38
364	A196-A197	207	234.15	234.15	234.15	2.09	80.27	80.27	0	80.27	83.61	100	0.0008	0.167	4.918	27.17
365	A194-A197	57	234.62	234.62	234.62	1.62	22.1	22.1	656.89	678.99	707.28	150	0.0058	0.332	5.083	26.54
366	A197-A215	10	234.62	234.62	234.62	1.62	3.88	3.88	191.95	195.83	203.99	75	0.0170	0.170	5.088	26.53
367	A215-A216	48	234.62	234.53	234.575	1.665	18.61	18.61	173.34	191.95	199.95	75	0.0164	0.788	5.877	25.79
368	A216-A217	427	234.53	235.67	235.1	1.14	165.58	165.58	0	165.58	172.48	75	0.0125	5.335	11.212	19.93
369	A216-A218	20	234.53	234.53	234.53	1.71	7.76	7.76	0	7.76	8.08	75	0.0000	0.001	11.213	20.50

Sr No.	Name of Road	Length	Ground Level			Static Level Diference	Total Fresh Water Demand	Net Water Demand			Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
			Upper End Node	Lower End Node	Average Value			self	previous	total						
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M
	-															
370	A197-A218	45	234.62	234.53	234.575	1.665	17.45	17.45	443.61	461.06	480.27	150	0.0028	0.128	5.046	26.62
371	A218-A179	310	234.53	234.15	234.34	1.9	120.21	120.21	97.72	217.93	227.01	75	0.0208	6.442	11.488	20.41
372	A179-A162a	252	234.15	234	234.075	2.165	97.72	97.72	0	97.72	101.79	75	0.0047	1.186	12.673	19.49
	-															
373	A218-A219	8	234.53	234.53	234.53	1.71	3.1	3.1	222.58	225.68	235.08	150	0.0008	0.006	12.679	19.03
374	A219-A220	566	234.53	234	234.265	1.975	219.48	219.48	3.1	222.58	231.85	150	0.0007	0.418	13.098	18.88
375	A220-A162a	8	234	234	234	2.24	3.1	3.1	0	3.1	3.23	150	0.0000	0.000	13.098	19.14
		18329		**Min**	**233.14**		**7107**									
				Max	243.25											
376	UGT-A280	159	239.25	238.73	238.99	0.26	61.65	61.65	394.34	455.99	474.99	150	0.0028	0.443	0.443	29.82
377	A280-A281	71	238.73	238.89	238.81	0.44	27.53	27.53	366.81	394.34	410.77	150	0.0021	0.151	9.324	21.12
378	A281-A282	151	238.89	239.46	239.175	0.075	58.55	58.55	0	58.55	60.99	100	0.0000	0.001	9.325	20.75
379	A281-A283	30	238.89	238.78	238.835	0.415	11.63	11.63	296.63	308.26	321.10	150	0.0014	0.041	9.365	21.05
380	A283-A284	150	238.78	239.45	239.115	0.135	58.16	58.16	0	58.16	60.58	100	0.0000	0.001	9.366	20.77
381	A283-A285	73	238.78	238.55	238.665	0.585	28.31	28.31	210.16	238.47	248.41	150	0.0008	0.061	9.427	21.16
382	A285-A286	150	238.55	239.05	238.8	0.45	58.16	58.16	0	58.16	60.58	100	0.0004	0.067	9.494	20.96
383	A285-A287	35	238.55	238.23	238.39	0.86	13.57	13.57	138.43	152	158.33	150	0.0004	0.013	9.507	21.35
384	A287-A288	148	238.23	238.89	238.56	0.69	57.39	57.39	0	57.39	59.78	100	0.0004	0.064	9.571	21.12
385	A287-A289	75	238.23	236.86	237.545	1.705	29.08	29.08	51.96	81.04	84.42	150	0.0001	0.009	9.579	22.13
386	A289-A290	134	236.86	237.3	237.08	2.17	51.96	51.96	0	51.96	54.13	150	0.0000	0.007	9.586	22.58
											0.00					
	-	**1176**					**456**			**11208.46**						**32.6536**
	-	**35457**					**13749**			**11208.46**						**18.6721**
	-						.									
	-						Size	75	100	150	200	300	350.0000			
	-						Existing	15798	8223	7366	2141	1194	555.0000			

Design Statement Sewerage

Sr No.	Name of Sewer	Length of Sewer Pipe Line	Waste Water Estimation	Net Waste Water Estimation			Total discharge @ 3 times Average Flow			Velocity	Flow	Existing Size of Sewer	Size of sewer line	Slope	Length	Fall	Formation Level		Invert Level		Depth		
			9195	self	previous	total											Upper end	Lower end	Upper end	Lower end	Upper end	Lower end	Avg
		M	KL	KLD	KLD	KLD	KLD	MLD	Cumec.	M/sec	Cu.m.	mm	mm		M	M	M	M	M	M	M	M	M
1	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	24	25	26
1	A162-A162a	51	14	14.00	744.4	758.38	2275.1	2.28	0.0263	0.68	0.027	200	250	400	51	0.13	234.36	234.00	230.42	230.29	3.94	3.71	3.82
2	A162a-A220(DISPOSAL-1)	47	13	13.00	979.5	992.47	2977.4	2.98	0.0345	0.69	0.039	200	300	500	47	0.09	234.00	232.80	230.80	230.55	3.20	2.25	2.72
3	A263-A262	54	15	15.00	629.0	644.00	1932.0	1.93	0.0224	0.68	0.027	200	250	400	54	0.14	239.97	239.57	237.92	237.72	2.05	1.85	1.95
4	A262-A261	76	22	22.00	798.0	820.00	2460.0	2.46	0.0285	0.69	0.039	200	300	500	76	0.15	239.57	239.17	237.72	237.68	1.85	1.49	1.67
5	A180-A181	70	20	20.00	1046.0	1066.00	3198.0	3.20	0.0370	0.69	0.039	200	300	500	70	0.14	236.89	237.01	234.91	234.41	1.98	2.60	2.29
6	A181-A198	77	22	22.00	1152.0	1174.00	3522.0	3.52	0.0408	1.12	0.063	200	300	190	77	0.41	237.01	237.39	234.41	233.89	2.60	3.50	3.05
7	A198-A194	280	80	80.00	3083.0	3163.00	9489.0	9.49	0.1098	0.75	0.117	400	500	850	280	0.33	237.39	234.62	233.89	231.54	3.50	3.08	3.29
8	A201-A199	76	22	22.00	685.0	707.00	2121.0	2.12	0.0245	0.68	0.027	200	250	400	76	0.19	235.39	235.18	233.99	233.80	1.40	1.38	1.39
9	A199-A194	63	18	18.00	828.0	846.00	2538.0	2.54	0.0294	0.69	0.039	200	300	500	63	0.13	235.18	234.62	233.80	231.54	1.38	3.08	2.23
10	A194-A215	44	13	13.00	4571.0	4584.00	13752.0	13.75	0.1592	0.80	0.180	400	600	950	44	0.05	234.62	234.59	231.54	231.25	3.08	3.34	3.21
11	A215-A197	8	2	2.00	4912.0	4914.00	14742.0	14.74	0.1706	0.80	0.180	400	600	950	8	0.01	234.59	234.58	231.25	231.21	3.34	3.37	3.36
12	A197-A218	47	13	13.00	4980.0	4993.00	14979.0	14.98	0.1734	0.80	0.180	400	600	950	47	0.05	234.58	234.53	231.21	231.13	3.37	3.40	3.39
13	A6-A7	46	13	13.00	812.0	825.00	2475.0	2.48	0.0286	0.69	0.039	250	300	500	46	0.09	241.06	239.87	237.64	236.61	3.42	3.26	3.34
14	A74-A75	7	2	2.00	2370.0	2372.00	7116.0	7.12	0.0824	0.75	0.117	400	500	850	7	0.01	236.33	236.37	231.83	231.82	4.50	4.55	4.52
15	A75-A76	43	12	12.00	2433.0	2445.00	7335.0	7.34	0.0849	0.75	0.117	400	500	850	43	0.05	236.37	236.37	231.82	231.77	4.55	4.60	4.57
16	A76-A78	60	17	17.00	2559.0	2576.00	7728.0	7.73	0.0894	0.75	0.117	400	500	850	60	0.07	236.37	236.17	231.77	231.61	4.60	4.56	4.58
17	A78-A78'(DISPOSAL-3)	45	13	13.00	2687.0	2700.00	8100.0	8.10	0.0938	0.75	0.117	400	500	850	45	0.05	236.17	234.97	231.61	231.56	4.56	3.41	3.99
	Total	**1094**																					

Design Statement Sewerage

Sr No.	Name of Sewer	Length of Sewer Pipe Line	Length of sewer Line																		
			Sewer Pipe Line 250 mm i/d					Sewer Pipe Line 300 mm i/d						Sewer Pipe Line 500 mm i/d				Sewer Pipe Line 600 mm i/d			
			Length	Avg Depth	Avg Depth <1.75	Avg Depth >1.75<2.50	Avg Depth >3.25<4.0	Length	Avg Depth	Avg Depth <1.75	Avg Depth >1.75<2.50	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0	Length 500 MM I/D	Avg Depth	Avg Depth >3.25<4.0	Avg Depth >4.0<4.75	Length	Avg Depth	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0
		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1	3	4	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
1	A162-A162a	51	51	3.82			51														
2	A162a-A220(DISPOSAL-1)	47						47	2.72			47									
3	A263-A262	54	54	1.95		54.00															
4	A262-A261	76						76	1.67	76.00											
5	A180-A181	70						70	2.29		70										
6	A181-A198	77						77	3.05			77									
7	A198-A194	280												280	3.29	280					
8	A201-A199	76	76	1.39	76.00																
9	A199-A194	63						63	2.23		63										
10	A194-A215	44																44.00	3.21	44.00	
11	A215-A197	8																8.00	3.36		8.00
12	A197-A218	47																47.00	3.39		47.00
13	A6-A7	46						46	3.34	0.00			46								
14	A74-A75	7												7	4.52		7				
15	A75-A76	43												43	4.57		43				
16	A76-A78	60												60	4.58		60				
17	A78-A78'(DISPOSAL-3)	45												45	3.99	45					
	Total	**1094**	181.00	3.82	76.00	54.00	51.00	379.00	3.34	76.00	133.00	124.00	46.00	435.00	4.58	325.00	110.00	99.00	3.39	44.00	55.00

Design Statement Sewerage

Sr No.	Name of Sewer	Length of Sewer Pipe Line	Manhole											
			No. of Man Holes 250mm			No. of Man Holes 300mm				No. of Man Holes 500mm		No. of Man Holes 600mm		Total manhole
			Avg Depth <1.75	Avg Depth >1.75<2.5	Avg Depth >3.25<4.0	Avg Depth <1.75	Avg Depth >1.75<2.50	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0	Avg Depth >3.25<4.0	Avg Depth >4.0<4.75	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0	
		M	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.
1	3	4	46	47	48	49	50	51	52	53	54	55	56	57
1	A162-A162a	51			2									2
2	A162a-A220(DISPOSAL 1)	47						2						2
3	A263-A262	54		2										2
4	A262-A261	76				3								3
5	A180-A181	70					2							2
6	A181-A198	77						3						3
7	A198-A194	280								9				9
8	A201-A199	76	3											3
9	A199-A194	63					2							2
10	A194-A215	44										1		1
11	A215-A197	8											0	
12	A197-A218	47											2	2
13	A6-A7	46							2					2
14	A74-A75	7												
15	A75-A76	43									1			1
16	A76-A78	60									2			2
17	A78-A78'(DISPOSAL-3)	45												
	Total	**1094**	3.00	2.00	2.00	3.00	4.00	5.00	2.00	9.00	3.00	1.00	2.00	36.00

Recycling Phase 2

Sr No.	Name of Road	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	Net Water Demand			Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
								self	previous	total						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		M	M	M	M	M	M	KLD	KLD	KLD	LPM	mm	M	M	M	M
							1980									
1	STP1-A218	57	245.85	245.29	245.57	0.28	7.98	7.98	1972	1980.00	2062.50	300.00	0.0014	0.082	0.082	29.92
2	A218-A179	322	245.29	245.35	245.32	-0.03	45.06	45.06	382.03	427.09	444.89	150.00	0.0025	0.795	0.878	29.12
3	A179-Green Belt	255	245.35	244.61	244.98	0.37	35.68	35.68	346.35	382.03	397.95	100.00	0.0145	3.691	4.569	25.43
4	Green Belt-Internal	50	244.61	244.61	244.61		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.570	25.43
5	Green Belt-Park	50	244.61	244.61	244.61		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.570	25.43
6	Green Belt-A 162 a	80	244.61	242.19	243.4	1.21	11.20	11.20	321.16	332.36	346.20	100.00	0.0112	0.895	5.463	24.54
7	162 a-Green Belt interr	50	242.19	242.19	242.19		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	5.465	24.54
8	A 162 a-A162'a	318	242.19	242.68	242.435	-0.245	44.50	44.50	269.66	314.16	327.25	100.00	0.0101	3.204	8.667	21.33
9	A162'a-A162	51	242.68	242.19	242.435	0.245	7.14	7.14	262.53	269.66	280.90	100.00	0.0076	0.387	9.055	20.95
10	A162-A147	384	243.97	243.73	243.85	0.12	53.74	53.74	24.91	78.65	81.92	100.00	0.0008	0.298	9.352	20.65
11	A147-A47	128	243.97	243.23	243.6	0.37	17.91	17.91	7.00	24.91	25.95	100.00	0.0001	0.012	9.364	20.64
12	A47-Park	50	243.23	243.23	243.23		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	9.366	20.63
13	A162-A170	195	242.19	244.61	243.4	-1.21	27.29	27.29	235.24	262.53	273.46	100.00	0.0072	1.409	10.464	19.54
14	A170-Green Belt interna	50	244.61	244.61	244.61		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	10.465	19.53
15	A170-A174	254	244.61	243.97	244.29	0.32	35.54	35.54	23	58.35	60.79	100.00	0.0004	0.113	10.577	19.42
16	A174-Park	50	243.97	243.2	243.585	0.385	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	10.579	19.42
17	A174-A175	63	243.2	243.2	243.2		8.82	8.82	7.00	15.81	16.47	100.00	0.0000	0.003	10.579	19.42
18	A175-Park	50	243.44	242.43	242.935	0.505	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	10.581	19.42
19																
20	A170-A167	256	243.97	243.97	243.97		35.82	35.82	134.06	169.89	176.96	100.00	0.0032	0.826	11.290	18.71
21	A167-Park	50	243.97	243.97	243.97		7.00	7.00	78.65	85.64	89.21	100.00	0.0009	0.045	11.335	18.66
22	A147-A154	196	243.97	245.41	244.69	-0.72	27.43	27.43	20.99	48.42	50.44	100.00	0.0003	0.062	11.352	18.65
23	A154-Park A	50	245.41	245.41	245.41		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	11.353	18.65
24	A154-Park B	50	245.41	245.41	245.41		7.00	7.00	7.00	13.99	14.58	100.00	0.0000	0.002	11.353	18.65
25	Park B-Park C	50	245.41	245.41	245.41		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	11.353	18.65
26	A218-A198	379	245.41	245.43	245.42	-0.01	53.04	53.04	568.15	621.19	647.07	200.00	0.0012	0.461	0.544	29.46
27	A198-Park	50	245.43	245.43	245.43		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.546	29.45
28	A198-A180	147	245.35	245.35	245.35		20.57	20.57	240.42	260.99	271.86	150.00	0.0010	0.146	0.690	29.31
29	A180-Park	50	245.35	245.35	245.35		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.691	29.31
30	A180-A132	160	246.12	248.6	247.36	-1.24	22.39	22.39	7.00	29.39	30.61	100.00	0.0001	0.020	0.710	29.29
31	A132-Park	50	248.6	248.6	248.6		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.711	29.29
32	A180-A223	48	245.35	248.9	247.125	-1.775	6.72	6.72	197.31	204.03	212.53	150.00	0.0006	0.030	0.720	29.28
33	A223-Park	50	248.9	248.9	248.9		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.722	29.28

Recycling Phase 2

Sr No.	Name of Road	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	Net Water Demand			Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
								self	previous	total						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
34	A223-A247	33	245.41	246.72	246.065	-0.655	4.62	4.62	52.06	56.68	59.04	100.00	0.0004	0.014	0.734	29.27
35	A248-A247	56	246.72	246.72	246.72		7.84	7.84	44.22	52.06	54.23	100.00	0.0004	0.020	0.754	29.25
36	A248-A256	266	245.41	245	245.205	0.205	37.22	37.22	7.00	44.22	46.06	100.00	0.0003	0.071	0.825	29.18
37	A256-Park	50	245	248.9	246.95		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.827	29.17
38	A223-A226	106	248.9	246.24	247.57	1.33	14.83	14.83	118.81	133.64	139.21	150.00	0.0003	0.0304	0.7503	29.25
39	A226-Park	50	246.24	248.9	247.57		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.752	29.25
40	A226-A229	163	246.24	246.24	246.24		22.81	22.81	89.00	111.81	116.47	100.00	0.0015	0.2424	0.9927	29.01
41	A229-A233	365	246.24	245.41	245.825	0.415	51.08	51.08	37.92	89.00	92.71	100.00	0.0010	0.3558	1.3485	28.65
42	A233-A240	221	245.41	245.41	245.41		30.93	30.93	7.00	37.92	39.50	100.00	0.0002	0.044	1.393	28.61
43	A240-Park	50	245.41	248.9	247.155		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.395	28.61
44	A198-A261	375	248.9	246.82	247.86	1.04	52.48	52.48	247.69	300.17	312.68	150.00	0.0013	0.482	1.026	28.97
45	A261-A262	76	246.82	248.87	247.845	-1.025	10.64	10.64	237.06	247.69	258.01	100.00	0.0065	0.493	1.519	28.48
46	A262-A255	119	248.87	248.67	248.77	0.1	16.65	16.65	50.80	67.45	70.26	100.00	0.0006	0.069	1.588	28.41
47	A255-Park	50	248.67	248.9	248.785		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.590	28.41
48	A255-A244	213	248.9	249.82	249.36	-0.46	29.81	29.81	13.99	43.80	45.63	100.00	0.0003	0.056	1.646	28.35
49	A244-Park	50	249.82	248.9	249.36		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.648	28.35
50	A244-Park	50	248.9	248.9	248.9		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.648	28.35
51	A262-A269	236	248.9	251.34	250.12	-1.22	33.03	33.03	136.58	169.61	176.67	100.00	0.0032	0.759	2.278	27.72
52	A269-Park	50	251.34	248.9	250.12		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.280	27.72
53	A269-A276	113	248.9	249.61	249.255		15.81	15.81	113.77	129.58	134.98	100.00	0.0020	0.221	2.499	27.50
54	A276-Park	50	249.61	248.9	249.255		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.501	27.50
55	A276-A115	126	249.61	250.98	250.295	-0.685	17.63	17.63	89.14	106.77	111.22	100.00	0.0014	0.172	2.671	27.33
56	A115-Park	50	250.98	250.98	250.98		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.503	27.50
					#DIV/0!		0.00	0.00	0.00							
57	A115-A116	107	246.3	247.14	246.72	-0.42	14.97	14.97	67.17	82.14	85.57	100.00	0.0008	0.090	2.761	27.24
58	A116-Park	50	247.14	248.9	248.02		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.763	27.24
59	A116-A121	127	247.14	247.19	247.165	-0.025	17.77	17.77	42.40	60.17	62.68	100.00	0.0005	0.060	2.821	27.18
60	A121-Park	50	247.19	247.19	247.19		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.823	27.18
61	A121-Park B	50	247.19	247.19	247.19		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.823	27.18
62	A121-A122'	153	247.19	247.19	247.19		21.41	21.41	7.00	28.41	29.59	100.00	0.0001	0.018	2.839	27.16
63	A122'-Park	50	247.19	251.25	249.22	-2.03	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.841	27.16
64	A218-A217	382	251.25	251.2	251.225	0.025	53.46	53.46	870.28	923.74	962.23	250.00	0.0009	0.327	0.409	29.59
65	A217-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.411	29.59
66	A217-Green Belt	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.411	29.59
67	A217-A78	370	251.2	250.98	251.09	0.11	51.78	51.78	804.51	856.29	891.97	250.00	0.0007	0.275	0.685	29.32
68	A78-A79	129	251.25	250.98	251.115	0.135	18.05	18.05	786.46	804.51	838.03	250.00	0.0007	0.086	0.770	29.23
69	A79-Green Belt	50	251.2	251.25	251.225	-0.025	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.687	29.31
70	A78-A76	60	251.25	250.16	250.705	0.545	8.40	8.40	771.07	779.46	811.94	200.00	0.0019	0.111	0.796	29.20
71	A76-A77	171	250.16	250.16	250.16		23.93	23.93	29.95	53.88	56.12	100.00	0.0004	0.066	0.862	29.14
72	A77-Park	50	250.16	251.25	250.705	-0.545	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.864	29.14
73	A77-A45	114	251.25	250.97	251.11		15.95	15.95	7.00	22.95	23.91	100.00	0.0001	0.009	0.871	29.13

Recycling Phase 2

Sr No.	Name of Road	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	Net Water Demand			Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
								self	previous	total						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
74	A45-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.873	29.13
75	A76-A75	43	251.25	252.72	251.985		6.02	6.02	711.17	717.19	747.07	200.00	0.0016	0.068	0.939	29.06
76	A75-A43	74	251.25	252.18	251.715	-0.465	10.36	10.36	188.92	199.27	207.58	100.00	0.0043	0.321	1.260	28.74
77	A43-A40	61	252.18	251.64	251.91	0.27	8.54	8.54	180.38	188.92	196.79	100.00	0.0039	0.240	1.500	28.50
78	A40-A40'	115	251.64	251.64	251.64		16.09	16.09	62.27	78.37	81.63	100.00	0.0008	0.089	1.588	28.41
79	A40'-Park	50	251.64	251.25	251.445	0.195	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.590	28.41
80	A40'-Park	50	251.64	251.25	251.445	0.195	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.590	28.41
81	A40'-A37	245	251.25	253.31	252.28		34.29	34.29	13.99	48.28	50.29	100.00	0.0003	0.077	1.665	28.33
82	A37-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.667	28.33
83	A37-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.667	28.33
84	A40-A32	159	251.25	253.31	252.28		22.25	22.25	79.77	102.02	106.27	100.00	0.0013	0.200	1.865	28.14
85	A32-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.867	28.13
86	A32-A28	83	251.25	253.31	252.28		11.61	11.61	61.15	72.77	75.80	100.00	0.0007	0.056	1.920	28.08
87	A28-A27	94	251.25	253.31	252.28		13.15	13.15	13.994	27.15	28.28	100.00	0.0001	0.010	1.931	28.07
88	A27-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.932	28.07
89	A27-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.932	28.07
90	A28-A20	193	251.25	253.31	252.28		27.01	27.01	7.00	34.01	35.42	100.00	0.0002	0.032	1.962	28.04
91	A20-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.964	28.04
92	A75-A73	60	251.25	255.87	253.56	-2.31	8.40	8.40	503.50	511.90	533.23	150.00	0.0035	0.207	2.170	27.83
93	A73-Park	50	255.87	255.87	255.87		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.171	27.83
94	A73-A47	378	245.35	248.83	247.09	-1.74	52.90	52.90	443.61	496.50	517.19	150.00	0.0033	1.234	3.403	26.60
95	A47-A48	100	248.83	248.83	248.83		13.99	13.99	429.61	443.61	462.09	150.00	0.0026	0.265	3.668	26.33
96	A48-Park	50	248.83	255.87	252.35		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	3.405	26.59
97	A48-A18	258	248.83	248.83	248.83		36.10	36.10	386.51	422.62	440.23	150.00	0.0024	0.625	4.293	25.71
98	A18-Park	50	248.83	255.87	252.35		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.295	25.71
99	A47-A12	86	255.87	247.49	251.68		12.03	12.03	367.48	379.52	395.33	150.00	0.0020	0.171	4.464	25.54
100	A12-A14	144	247.49	247.49	247.49		20.15	20.15	18.33	38.48	40.09	100.00	0.0002	0.030	4.493	25.51
101	A14-A99	81	247.49	247.49	247.49		11.34	11.34	7.00	18.33	19.10	100.00	0.0001	0.004	4.498	25.50
102	A99-Park	50	247.49	247.49	247.49		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.499	25.50
							0.00	0.00	0.00							
103	A12-A10	21	248.83	251.19	250.01	-1.18	2.94	2.94	326.06	329.00	342.71	100.00	0.0110	0.230	4.694	25.31
104	A10-A10'	142	251.19	251.83	251.51	-0.32	19.87	19.87	7.00	26.87	27.99	100.00	0.0001	0.015	4.709	25.29
105	A10'-Park	50	251.83	247.49	249.66		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.696	25.30
106	A10-A7	62	247.49	254.26	250.875	-3.385	8.68	8.68	290.51	299.19	311.66	100.00	0.0092	0.571	5.280	24.72
107	A7-A4'	357	254.26	258.24	256.25	-1.99	49.96	49.96	13.99	63.95	66.62	100.00	0.0005	0.189	5.469	24.53
108	A4'-Park	50	247.49	251.25	249.37	-1.88	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	5.470	24.53
109	A4'-Park B	50	254.26	251.25	252.755	1.505	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	5.470	24.53
							0.00	0.00	0.00							
110	A7-A81	304	258.24	258.93	258.585	-0.345	42.54	42.54	184.02	226.56	236.00	100.00	0.0055	1.095	6.563	23.44
111	A81-A84	199	258.93	258.93	258.93		27.85	27.85	7.00	34.84	36.30	100.00	0.0002	0.009	6.572	23.43

Recycling Phase 2

Sr No.	Name of Road	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	Net Water Demand			Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
								self	previous	total						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
112	A84-Park	50	258.93	258.93	258.93		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.574	23.43
113	A81-A108	76	258.93	259.08	259.005	-0.075	10.64	10.64	138.54	149.18	155.39	100.00	0.0025	0.193	6.756	23.24
114	A108-Park	50	259.08	259.08	259.08		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.758	23.24
115	A108-A107	100	259.08	253.35	256.215	2.865	13.99	13.99	41.42	55.42	57.72	100.00	0.0004	0.041	6.797	23.20
116	A107-Park	50	253.35	253.35	253.35		7.00	7.00	34.43	41.42	43.15	100.00	0.0002	0.012	6.808	23.19
117	A107-A1	48	253.35	253.69	253.52	-0.17	6.72	6.72	0.00	6.72	7.00	75.00	0.0000	0.002	6.798	23.20
118	A1-Park	50	253.69	253.69	253.69		7.00	7.00	20.71	27.71	28.86	100.00	0.0001	0.006	6.804	23.20
119	A1-A101	48	253.69	253.69	253.69	0	6.72	6.72	13.99	20.71	21.57	100.00	0.0001	0.003	6.801	23.20
120	A101-Park	50	253.69	253.69	253.69		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.803	23.20
121	A101-Park B	50	253.69	251.25	252.47	1.22	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.803	23.20
122	A108-A109	66	251.25	249.89	250.57	0.68	9.24	9.24	66.89	76.13	79.30	100.00	0.0007	0.048	6.804	23.20
123	A109-A110	56	249.89	249.31	249.6	0.29	7.84	7.84	59.05	66.89	69.68	100.00	0.0006	0.032	6.836	23.16
124	A110-A94	53	249.31	249.31	249.31		7.42	7.42	51.64	59.05	61.51	100.00	0.0005	0.024	6.860	23.14
125	A94-Park	50	249.31	249.31	249.31		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.862	23.14
126	A94-A96	172	249.31	249.89	249.6		24.07	24.07	20.57	44.64	46.50	100.00	0.0003	0.047	6.907	23.09
127	A96-A96'	97	258.24	257.93	258.085	0.155	13.57	13.57	7.00	20.57	21.43	100.00	0.0001	0.006	6.913	23.09
128	A96'-Park	50	257.93	257.93	257.93		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.915	23.08
	Total	**14149**				**2.865**	**1980**									

		Recycling Phase 2																			
Sr No.	Name of Road	Length of Pipe Line						No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves			Lawn Hydrant	Scour Valve	Air valve
		75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d		50 mm i/d	63 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	50 mm i/d	63 mm i/d	75 mm i/d			
1	2	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
		M	M	M	M	M	M	Nos.	M	M	No.	No.	No.	No.	No.				No.	No.	No.
									12.0	6.0						3	1				
1	STP1-A218	0	0	0	0	0	57				0	0	0	0	1			0	1		1
		0	0	0	0	0	0											0			
2	A218-A179	0	0	322	0	0	0		0	0	0	2	0	0	0	0	0	0	1		
3	A179-Green Belt	0	255	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
4	Green Belt-Internal	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	
5	Green Belt-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
6	Green Belt-A 162 a	0	80	0	0	0	0		0	0					0			0	1		
7	162 a-Green Belt interr	50	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1		
8	A 162 a-A162'a	0	318	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
9	A162'a-A162	0	51	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
		0	0	0	0	0	0	0										0			
10	A162-A147	0	384	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
11	A147-A47	0	128	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
12	A47-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
13	A162-A170	0	195	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
14	A170-Green Belt interna	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
15	A170-A174	0	254	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
16	A174-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
17	A174-A175	0	63	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
18	A175-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
19		0	0	0	0	0	0	0										0			
20	A170-A167	0	256	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
		0	0	0	0	0	0	0										0			
21	A167-Park	0	50	0	0	0	0	3	36	18	1	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
		0	0	0	0	0	0	0										0			
22	A147-A154	0	196	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
23	A154-Park A	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
24	A154-Park B	0	50	0	0	0	0	3	36	18	1	0	0	0	0	9	3	0	1		
25	Park B-Park C	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
26	A218-A198	0	0	0	379	0	0		0	0	0	0	2	0	0	0	0	0	1		
27	A198-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
28	A198-A180	0	0	147	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
29	A180-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
30	A180-A132	0	160	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
31	A132-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0	0	0					0			0			
32	A180-A223	0	0	48	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
33	A223-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		

		Recycling Phase 2																			
Sr No.	Name of Road	Length of Pipe Line						No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves			Lawn Hydrant	Scour Valve	Air valve
		75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d		50 mm i/d	63 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	50 mm i/d	63 mm i/d	75 mm i/d			
1	2	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
		0	0	0	0	0	0	0										0			
34	A223-A247	0	33	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
35	A248-A247	0	56	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
36	A248-A256	0	266	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
37	A256-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
38	A223-A226	0	0	106	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
39	A226-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
40	A226-A229	0	163	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
41	A229-A233	0	365	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
42	A233-A240	0	221	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
43	A240-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
44	A198-A261	0	0	375	0	0	0		0	0	0	2	0	0	0	0	0	0	1		
45	A261-A262	0	76	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
46	A262-A255	0	119	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
47	A255-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
48	A255-A244	0	213	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
49	A244-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
50	A244-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
51	A262-A269	0	236	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
52	A269-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
53	A269-A276	0	113	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
54	A276-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
55	A276-A115	0	126	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
56	A115-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
57	A115-A116	0	107	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
58	A116-Park	50	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1		
59	A116-A121	0	127	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
60	A121-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
61	A121-Park B	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
62	A121-A122'	0	153	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
63	A122'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0	0	0					0			0			
64	A218-A217	0	0	0	0	382	0		0	0	0	0	0	2	0	0	0	0	1		
65	A217-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
66	A217-Green Belt	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
67	A217-A78	0	0	0	0	370	0		0	0	0	0	0	2	0	0	0	0	1		
68	A78-A79	0	0	0	0	129	0		0	0	0	0	0	1	0	0	0	0	1		
69	A79-Green Belt	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
70	A78-A76	0	0	0	60	0	0	3	36	18	0	0	1	0	0	9	3	0	1		
71	A76-A77	0	171	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
72	A77-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
73	A77-A45	0	114	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		

		Recycling Phase 2																			
Sr No.	Name of Road	Length of Pipe Line						No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves			Lawn Hydrant	Scour Valve	Air valve
		75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d		50 mm i/d	63 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	50 mm i/d	63 mm i/d	75 mm i/d			
1	2	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
74	A45-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
75	A76-A75	0	0	0	43	0	0		0	0	0	0	1	0	0	0	0	0	1		
		0	0	0	0	0	0	0										0			
76	A75-A43	0	74	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
77	A43-A40	0	61	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
78	A40-A40'	0	115	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
79	A40'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
80	A40'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
81	A40'-A37	0	245	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
82	A37-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
83	A37-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
84	A40-A32	0	159	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
85	A32-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
86	A32-A28	0	83	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
87	A28-A27	0	94	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
88	A27-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
89	A27-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
90	A28-A20	0	193	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
91	A20-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0											0			
92	A75-A73	0	0	60	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
93	A73-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0	0	0					0			0			
94	A73-A47	0	0	378	0	0	0		0	0	0	2	0	0	0	0	0	0	1		
95	A47-A48	0	0	100	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
96	A48-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
97	A48-A18	0	0	258	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
98	A18-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
99	A47-A12	0	0	86	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
100	A12-A14	0	144	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
101	A14-A99	0	81	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
102	A99-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0		0	0					0			0			
103	A12-A10	0	21	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
104	A10-A10'	0	142	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
105	A10'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
106	A10-A7	0	62	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
		0	0	0	0	0	0	0										0			
107	A7-A4'	0	357	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
108	A4'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
109	A4'-Park B	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0		0	0					0			0			
110	A7-A81	0	304	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
111	A81-A84	0	199	0	0	0	0		0	0	1	0	0	0	0	0	0	0			

		Recycling Phase 2																			
Sr No.	Name of Road	Length of Pipe Line						No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves			Lawn Hydrant	Scour Valve	Air valve
		75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d		50 mm i/d	63 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	50 mm i/d	63 mm i/d	75 mm i/d			
1	2	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
112	A84-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
113	A81-A108	0	76	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
114	A108-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
115	A108-A107	0	100	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
116	A107-Park	0	50	0	0	0	0	3	36	18	1	0	0	0	0	9	3	0	1		
117	A107-A1	48	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1		
118	A1-Park	0	50	0	0	0	0	3	36	18	1	0	0	0	0	9	3	0	1		
119	A1-A101	0	48	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
120	A101-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
121	A101-Park B	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
122	A108-A109	0	66	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
123	A109-A110	0	56	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
124	A110-A94	0	53	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
125	A94-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
126	A94-A96	0	172	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
127	A96-A96'	0	97	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
128	A96'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
	Total	**2648**	**8201**	**1880**	**482**	**881**	**57**	**165**	**1980**	**990**	**61**	**13**	**4**	**5**	**1**	**495**	**165**	**0**	**126**	**6**	**6**

Storm Water

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
1	A176	A176'	A176-A176'	37	230	230	230X230	37					
2	A176'	A174	A176'-A174	59	230	230	230X230	59					
3	A175	A174	A175-A174	69	230	230	230X230	69					
4	A174	A173	A174-A173	88	230	230	230X230	88					
5	A168a	A172	A168a-A172	52	230	230	230X230	52					
6	A172	A173	A172-A173	67	230	230	230X230	67					
7	A173	A171	A173-A171	91	230	230	230X230	91					
8	A168	A171	A168-A171	133	230	230	230X230	133					
9	A171'a	A171'	A171'a-A171'	136	230	230	230X230	136					
10	A171'	A171	A171'-A171	51	230	230	230X230	51					
11	A171	A170	A171-A170	70	230	230	230X230	70					
12	A167a	A167	A167a-A167	71	230	230	230X230	71					
13	A167b	A167	A167b-A167	40	230	230	230X230	40					
14	A167	A170	A167-A170	188	230	230	230X230	188					
15	A170	A163	A170-A163	148	230	450	230X450		148				
			-				X						
16	A157''	A157'	A157''-A157'	32	230	230	230X230	32					
17	A160	A149	A160-A149	94	230	230	230X230	94					
18	A148'	A149	A148'-A149	49	230	450	230X450		49				
19	A149	A157'	A149-A157'	83	230	450	230X450		83				
20	A157'	A164	A157'-A164	52	230	450	230X450		52				
			-				X						
21	A169	A165	A169-A165	156	230	230	230X230	156					
22	A166	A159	A166-A159	106	230	230	230X230	106					
23	A159	A165	A159-A165	158	230	230	230X230	158					
24	A165	A164	A165-A164	32	230	230	230X230	32					
25	A164	A163	A164-A163	52	230	450	230X450		52				
26	A163	A162	A163-A162	47	345	450	345X450			47			
			-				X						
27	A157	A156	A157-A156	83	230	230	230X230	83					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
28	A156	A162	A156-A162	202	230	230	230X230	202					
29	A162	A162a	A162-A162a	51	345	450	345X450			51			
			-				X						
30	A179'	A196a	A179'-A196a	140	230	230	230X230	140					
			-				X						
31	A183a	A184	A183a-A184	30	230	230	230X230	30					
32	A184a	A184	A184a-A184	67	230	230	230X230	67					
33	A184	A185	A184-A185	37	230	230	230X230	37					
34	A185a	A185	A185a-A185	67	230	230	230X230	67					
35	A185	A186	A185-A186	34	230	230	230X230	34					
36	A186a	A186	A186a-A186	67	450	675	450X675					67	
37	A186	A187	A186-A187	52	450	675	450X675					52	
38	A188a	A187a	A188a-A187a	36	230	230	230X230	36					
39	A133b	A126a	A133b-A126a	26	230	230	230X230	26					
40	A126	A126a	A126-A126a	68	230	230	230X230	68					
41	A126a	A136a	A126a-A136a	37	230	230	230X230	37					
42	A136	A136a	A136-A136a	68	230	230	230X230	68					
43	A136a	A138a	A136a-A138a	34	230	230	230X230	34					
44	A138	A138a	A138-A138a	72	230	230	230X230	72					
45	A138a	A187a	A138a-A187a	34	230	230	230X230	34					
46	A187a	A187	A187a-A187	69	230	230	230X230	69					
47	A187	A191	A187-A191	109	450	675	450X675					109	
48	A192a	A192b	A192a-A192b	115	230	230	230X230	115					
49	A183b	A192b	A183b-A192b	51	230	230	230X230	51					
50	A192b	A191	A192b-A191	92	230	230	230X230	92					
51	A191	A196a	A191-A196a	232	450	675	450X675					232	
52	A196a	A179	A196a-A179	50	230	230	230X230	50					
53	A177a	A179	A177a-A179	82	230	230	230X230	82					
54	A179	A161'a	A179-A161'a	187	230	230	230X230	187					
55	A178	A177	A178-A177	137	230	230	230X230	137					
56	A177	A161'	A177-A161'	135	230	450	230X450		135				
			-				X						

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
57	A154a	A154	A154a-A154	149	230	230	230X230	149					
58	A154	A153	A154-A153	63	230	230	230X230	63					
59	A150a	A152	A150a-A152	40	230	230	230X230	40					
60	A152	A153	A152-A153	185	230	230	230X230	185					
61	A153	A151	A153-A151	67	230	450	230X450		67				
62	A150	A151	A150-A151	142	230	230	230X230	142					
63	A151	A147	A151-A147	35	230	450	230X450		35				
64	A150b	A148	A150b-A148	38	230	230	230X230	38					
65	A148	A147	A148-A147	114	230	230	230X230	114					
66	A147	A161	A147-A161	278	230	450	230X450		278				
67	A161	A161'	A161-A161'	36	230	450	230X450		36				
68	A161'	A161'a	A161'-A161'a	62	230	450	230X450		62				
69	A161'a	A162a	A161'a-A162a	66	230	450	230X450		66				
70	A162a'	A162a	A162a'-A162a	194	230	230	230X230	194					
71	A162a	A220	A162a-A220	44	345	450	345X450			44			
			-				X						
			-				X						
72	A125''	A125'	A125''-A125'	250	230	230	230X230	250					
73	A125''	A125/1	A125''-A125/1	192	230	230	230X230	192					
74	A124/a	A96a	A124/a-A96a	217	230	230	230X230	217					
75	A96a	A88	A96a-A88	70	230	230	230X230	70					
76	A90	A88	A90-A88	149	230	230	230X230	149					
77	A88	A87	A88-A87	18	230	230	230X230	18					
78	A87	A86	A87-A86	132	230	230	230X230	132					
			-				X						
79	A110	A94	A110-A94	50	230	230	230X230	50					
80	A95	A94	A95-A94	166	230	230	230X230	166					
81	A94	A92	A94-A92	110	230	230	230X230	110					
82	A90	A92	A90-A92	116	230	230	230X230	116					
83	A92	A91	A92-A91	53	230	450	230X450		53				
84	A89	A91	A89-A91	122	230	450	230X450		122				
85	A91	A86	A91-A86	66	230	450	230X450		66				

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
			-				X						
86	A86	A83	A86-A83	34	230	450	230X450		34				
			-				X						
87	A109'	A82a	A109'-A82a	242	230	230	230X230	242					
88	A82	A82a	A82-A82a	63	230	230	230X230	63					
89	A82a	A83	A82a-A83	61	230	450	230X450		61				
			-				X						
90	A83	A84	A83-A84	44	230	450	230X450		44				
91	A85	A84	A85-A84	136	230	230	230X230	136					
92	A84	NALLAH	A84-NALLAH	35	230	450	230X450		35				
			-				X						
93	A84/a	A84'	A84/a-A84'	157	230	230	230X230	157					
94	A84'	A84'/a	A84'-A84'/a	30	230	230	230X230	30					
			-				X						
95	A115/b	A115/a	A115/b-A115/a	542	230	230	230X230	542					
			-				X						
96	A116'/a	A116'	A116'/a-A116'	258	230	230	230X230	258					
97	A116'/b	A116'	A116'/b-A116'	90	230	230	230X230	90					
98	A116'	A116	A116'-A116	54	230	450	230X450		54				
99	A122'	A116	A122'-A116	257	230	230	230X230	257					
100	A116	A115	A116-A115	98	230	450	230X450		98				
101	A122'	A120	A122'-A120	115	230	230	230X230	115					
102	A121	A120	A121-A120	43	230	230	230X230	43					
103	A120	A118	A120-A118	68	230	230	230X230	68					
104	A119	A118	A119-A118	67	230	230	230X230	67					
105	A118	A115	A118-A115	50	230	230	230X230	50					
106	A115	A115/a	A115-A115/a	66	230	450	230X450		66				
			-				X						
107	A115/a	A262/a	A115/a-A262/a	583	345	675	345X675				583		
			-				X						
108	A244/a	A244	A244/a-A244	298	230	230	230X230	298					
109	A277'	A244	A277'-A244	535	230	450	230X450		535				

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
110	A244	A242	A244-A242	24	230	450	230X450		24				
111	A243	A242	A243-A242	84	230	450	230X450		84				
112	A242	A262	A242-A262	240	230	450	230X450		240				
			-				X						
113	A155''	A115'	A155''-A115'	100	230	230	230X230	100					
114	A115'	A278	A115'-A278	60	230	230	230X230	60					
115	A277	A278	A277-A278	121	230	230	230X230	121					
116	A278	A276	A278-A276	60	230	230	230X230	60					
117	a275	a276	a275-a276	140	230	230	230X230	140					
118	A276	A274	A276-A274	60	230	230	230X230	60					
119	A273	A274	A273-A274	160	230	230	230X230	160					
120	A274	A272	A274-A272	68	230	230	230X230	68					
121	A271	A272	A271-A272	180	230	230	230X230	180					
122	A272	A269	A272-A269	56	230	230	230X230	56					
123	A269'	A269	A269'-A269	180	230	230	230X230	180					
124	A269	A267	A269-A267	72	230	230	230X230	72					
125	A266	A267	A266-A267	194	230	230	230X230	194					
126	A267	A265	A267-A265	56	230	230	230X230	56					
127	A264	A265	A264-A265	206	230	230	230X230	206					
128	A265	A263	A265-A263	57	230	230	230X230	57					
129	A245	A263	A245-A263	232	230	230	230X230	232					
130	A263	A262	A263-A262	56	230	230	230X230	56					
			-				X						
131	A262	A262/a	A262-A262/a	74	230	450	230X450		74				
132	A262/a	A261/a	A262/a-A261/a	14	230	450	230X450		14				
			-				X						
133	A111	A109	A111-A109	226	230	230	230X230	226					
134	A109	A114	A109-A114	61	230	230	230X230	61					
135	A124	A114	A124-A114	262	230	450	230X450		262				
			-				X						
136	A114	A279	A114-A279	127	230	450	230X450		127				
137	A105'	A104	A105'-A104	125	230	230	230X230	125					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
138	A104	A279	A104-A279	62	230	230	230X230	62					
			-				X						
139	A279	A261/a	A279-A261/a	568	230	450	230X450		568				
			-				X						
140	A261/a	A261	A261/a-A261	10	230	450	230X450		10				
			-				X						
141	A261	A260	A261-A260	60	230	450	230X450		60				
142	A254	A260	A254-A260	202	230	230	230X230	202					
143	A260	A213/a	A260-A213/a	91	345	450	345X450			91			
			-				X						
144	A212	A213	A212-A213	155	230	230	230X230	155					
145	A213	A213/a	A213-A213/a	63	230	230	230X230	63					
			-				X						
146	A213/a	A215	A213/a-A215	505	345	450	345X450			505			
			-				X						
			-				X						
147	A66	A67	A66-A67	112	230	230	230X230	112					
148	A69	A68	A69-A68	61	230	230	230X230	61					
149	A68/A	A68	A68/A-A68	110	450	675	450X675					110	
150	A68	A67	A68-A67	53	230	230	230X230	53					
151	A67	A206	A67-A206	60	230	230	230X230	60					
152	A63	A206	A63-A206	41	230	230	230X230	41					
153	A206	A204	A206-A204	253	230	230	230X230	253					
154	A205	A204	A205-A204	65	230	230	230X230	65					
155	A204	A203	A204-A203	65	230	230	230X230	65					
			-				X						
156	A211	A207	A211-A207	52	230	230	230X230	52					
157	A209	A208	A209-A208	70	230	230	230X230	70					
158	A210	A208	A210-A208	40	230	230	230X230	40					
159	A208	A207	A208-A207	60	230	230	230X230	60					
160	A207	A203	A207-A203	190	230	230	230X230	190					
			-				X						
161	A203	A201	A203-A201	70	230	230	230X230	70					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
162	A64	A201	A64-A201	295	230	230	230X230	295					
			-				X						
163	A201	A199	A201-A199	74	230	450	230X450		74				
164	A62	A64'	A62-A64'	300	230	230	230X230	300					
165	A64'	A199	A64'-A199	443	230	230	230X230	443					
			-				X						
166	A199	A215	A199-A215	64	450	675	450X675					64	
			-				X						
167	A215	A197	A215-A197	57	450	675	450X675					57	
			-				X						
168	A214	A217'	A214-A217'	185	230	230	230X230	185					
169	A217	A217'	A217-A217'	46	230	230	230X230	46					
170	A217'	A197	A217'-A197	391	230	230	230X230	391					
			-				X						
171	A197	A218	A197-A218	52	230	230	230X230	52					
172	A218'	A218	A218'-A218	427	230	230	230X230	427					
			-				X						
173	A218	A218/a	A218-A218/a	18	230	230	230X230	18					
			-				X						
174	A138/a	A128	A138/a-A128	249	230	230	230X230	249					
175	A129	A128	A129-A128	40	230	230	230X230	40					
			-				X						
176	A128	A198	A128-A198	150	230	230	230X230	150					
			-				X						
177	A241	A233	A241-A233	236	230	230	230X230	236					
			-				X						
178	A237	A235	A237-A235	31	230	230	230X230	31					
179	A236	A235	A236-A235	98	230	230	230X230	98					
180	A235	A234	A235-A234	68	230	230	230X230	68					
			-				X						
181	A239	A238	A239-A238	97	230	230	230X230	97					
182	A240	A238	A240-A238	104	230	230	230X230	104					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
183	A238	A234	A238-A234	10	230	230	230X230	10					
184	A234	A233	A234-A233	55	230	450	230X450		55				
185	A233	A251\a	A233-A251\a	100	230	450	230X450		100				
186	A251\a	A248	A251\a-A248	188	230	230	230X230	188					
187	A55	A251\a	A55-A251\a	240	230	230	230X230	240					
188	A256	A253	A256-A253	168	230	230	230X230	168					
189	A252	A253	A252-A253	81	230	230	230X230	81					
190	A253	A250	A253-A250	59	230	230	230X230	59					
191	A251	A250	A251-A250	103	230	230	230X230	103					
192	A250	A248	A250-A248	50	230	230	230X230	50					
193	A248	A247	A248-A247	64	230	230	230X230	64					
194	A257	A247	A257-A247	276	230	230	230X230	276					
195	A247	A180	A247-A180	83	450	675	450X675					83	
196	A231	A224	A231-A224	184	230	450	230X450		184				
197	A223	A224	A223-A224	31	230	450	230X450		31				
198	A224	A226	A224-A226	106	230	450	230X450		106				
199	A227/A	A227	A227/A-A227	67	230	450	230X450		67				
200	A227/B	A227	A227/B-A227	46	230	450	230X450		46				
201	A227	A226	A227-A226	64	230	450	230X450		64				
202	A226	A145	A226-A145	184	230	450	230X450		184				
203	A229/a	A229	A229/a-A229	173	230	230	230X230	173					
204	A228'	A229	A228'-A229	103	230	450	230X450		103				
205	A229	A145	A229-A145	39	230	230	230X230	39					
206	A145	A142	A145-A142	174	230	230	230X230	174					
207	A143	A142	A143-A142	95	230	230	230X230	95					
208	A142	A140	A142-A140	54	230	230	230X230	54					
209	A226"	A140	A226"-A140	86	230	450	230X450		86				
210	A140	A180	A140-A180	288	230	230	230X230	288					
211	A180	A181	A180-A181	51	450	675	450X675					51	
212	A258	A181	A258-A181	315	230	230	230X230	315					
213	A181	A181/a	A181-A181/a	69	450	675	450X675					69	
214	A181/a	a198	A181/a-a198	18	675	900	675X900						18

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
215	A198	A194	A198-A194	272	675	900	675X900						272
216	A133/a	A133	A133/a-A133	20	230	230	230X230	20					
217	A132	A133	A132-A133	71	230	230	230X230	71					
218	A133/a	A131	A133/a-A131	53	230	230	230X230	53					
219	A130	A131	A130-A131	71	230	230	230X230	71					
220	A131	A182	A131-A182	125	230	230	230X230	125					
221	A182'	A182	A182'-A182	75	345	450	345X450			75			
222	A182	A189	A182-A189	68	345	450	345X450			68			
223	A133a	a189	A133a-a189	232	230	450	230X450		232				
224	A189	A193	A189-A193	143	345	450	345X450			143			
225	A195	A193	A195-A193	202	230	230	230X230	202					
226	A193	A194	A193-A194	68	345	450	345X450			68			
227	A194	A197/a	A194-A197/a	43	675	900	675X900						43
228	A196	A197/a	A196-A197/a	218	230	230	230X230	218					
229	A197/a	A218/a	A197/a-A218/a	92	675	900	675X900						92
230	A218''	A218/a	A218''-A218/a	117	230	230	230X230	117					
231	A218/a	NALLAH	A218/a-NALLAH	56	675	900	675X900						56
			-				X						
232	A280'	A280	A280'-A280	110	230	230	230X230	110					
233	A280'	A281	A280'-A281	71	230	230	230X230	71					
234	A282	A281	A282-A281	151	230	230	230X230	151					
235	A281	A285	A281-A285	105	230	230	230X230	105					
236	A286	A285	A286-A285	149	230	230	230X230	149					
237	A285	A287	A285-A287	37	230	230	230X230	37					
238	A288	A287	A288-A287	150	230	230	230X230	150					
239	A287	A289	A287-A289	73	230	230	230X230	73					
240	A288'	A289	A288'-A289	132	230	230	230X230	132					
241	A289	NALLAH	A289-NALLAH	73	230	230	230X230	73					
			-				X						
			-				X						
242	A81	A6	A81-A6	282	345	675	345X675				282		
243	A4	A3	A4-A3	193	230	230	230X230	193					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
244	A3/a	A3	A3/a-A3	50	230	230	230X230	50					
245	A101'	A3	A101'-A3	212	230	230	230X230	212					
246	A3	A2	A3-A2	71	230	230	230X230	71					
			-				X						
247	A109'/a	A106	A109'/a-A106	167	230	230	230X230	167					
248	A105	A106	A105-A106	134	230	230	230X230	134					
249	A106	A107	A106-A107	76	230	230	230X230	76					
250	A103	A102	A103-A102	159	230	230	230X230	159					
251	A102	A107	A102-A107	165	230	230	230X230	165					
252	A107	A2	A107-A2	170	230	450	230X450		170				
253	A2	A6	A2-A6	61	230	450	230X450		61				
254	A6	A7	A6-A7	61	230	450	230X450		61				
255	A4'	A7	A4'-A7	433	230	230	230X230	433					
256	A7	A10	A7-A10	54	345	675	345X675				54		
257	A9	A9/b	A9-A9/b	24	230	230	230X230	24					
258	A9/a	A9/b	A9/a-A9/b	50	230	230	230X230	50					
259	A9/b	A10	A9/b-A10	242	230	230	230X230	242					
260	A10	A15	A10-A15	54	345	675	345X675				54		
261	A11	A15	A11-A15	292	230	230	230X230	292					
262	A15	A47	A15-A47	66	345	675	345X675				66		
263	A18	A18/b	A18-A18/b	88	230	450	230X450		88				
264	A18/a	A18/b	A18/a-A18/b	62	230	230	230X230	62					
265	A18/b	A47	A18/b-A47	235	230	450	230X450		235				
266	A47	A73	A47-A73	414	345	675	345X675				414		
267	A60	A61	A60-A61	225	230	230	230X230	225					
268	A61	A59	A61-A59	54	230	230	230X230	54					
269	A57	A59	A57-A59	225	230	230	230X230	225					
270	A59	A56	A59-A56	54	230	230	230X230	54					
271	A48	A52	A48-A52	57	230	230	230X230	57					
272	A53	A52	A53-A52	32	230	230	230X230	32					
273	A52	A71'	A52-A71'	60	230	230	230X230	60					
274	A9/c	A50	A9/c-A50	261	230	230	230X230	261					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
275	A51a	A50	A51a-A50	182	230	230	230X230	182					
276	A50	A72	A50-A72	63	230	230	230X230	63					
277	A72	A71	A72-A71	33	230	230	230X230	33					
278	A71a	A71	A71a-A71	49	230	230	230X230	49					
279	A71	A71'	A71-A71'	263	230	230	230X230	263					
280	A71'	A56	A71'-A56	236	230	230	230X230	236					
281	A56	A73	A56-A73	61	230	230	230X230	61					
282	A73	A75	A73-A75	74	230	450	230X450		74				
283	A65'	A75	A65'-A75	218	675	900	675X900						218
			-				X						
284	A39/b	A43	A39/b-A43	123	450	675	450X675					123	
285	A20	A40	A20-A40	400	230	230	230X230	400					
286	A37/b	A40	A37/b-A40	112	230	230	230X230	112					
287	A40	A43	A40-A43	67	230	230	230X230	67					
288	A43	A74	A43-A74	61	230	230	230X230	61					
289	A12	A19	A12-A19	49	230	230	230X230	49					
290	A19/a	A19	A19/a-A19	35	345	675	345X675				35		
291	A19	A74	A19-A74	479	345	675	345X675				479		
292	A74	A75	A74-A75	13	345	675	345X675				13		
293	A75	A76	A75-A76	49	675	900	675X900						49
294	A77	A76	A77-A76	150	230	230	230X230	150					
295	A76	A78	A76-A78	55	675	900	675X900						55
296	A79	A78	A79-A78	214	230	230	230X230	214					
297	A80	A78	A80-A78	220	230	450	230X450		220				
298	A78	A78'	A78-A78'	45	675	900	675X900						45
			-				X						
299	A45	A44	A45-A44	122	230	230	230X230	122					
300	A39/a	A39	A39/a-A39	134	450	675	450X675					134	
301	A37/a	A37	A37/a-A37	127	230	230	230X230	127					
302	A35	A36	A35-A36	238	230	230	230X230	238					
303	A33	A34	A33-A34	177	230	230	230X230	177					
304	A32	A31	A32-A31	163	230	230	230X230	163					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
305	A29	A30	A29-A30	116	230	230	230X230	116					
306	A28	A27	A28-A27	100	230	230	230X230	100					
307	A25	A26	A25-A26	92	230	230	230X230	92					
308	A24'	A24	A24'-A24	87	230	230	230X230	87					
309	A22	A23	A22-A23	90	230	230	230X230	90					
310	A21/a	A21	A21/a-A21	94	345	675	345X675				94		
			-				X						
311	A81/a	A12/a	A81/a-A12/a	396	230	230	230X230	396					
312	A12/a	A13	A12/a-A13	61	345	450	345X450			61			
313	A82'	A13	A82'-A13	284	230	230	230X230	284					
314	A13	A14'	A13-A14'	60	345	450	345X450			60			
315	A99'	A99	A99'-A99	96	230	230	230X230	96					
316	A99	A14'	A99-A14'	80	230	230	230X230	80					
317	A14'	A14	A14'-A14	18	345	450	345X450			18			
TOTAL				**38683**				**27444**	**5935**	**1231**	**2074**	**1151**	**848**

DESIGN STATEMENT OF SEWERAGE

Design Statement Sewerage

Sr No.	Name of Sewer	Length of Sewer Pipe Line	Waste Water Estimation	Net Waste Water Estimation			Total discharge @ 3 times Average Flow			Velocity	Flow	Existing Size of Sewer	Size of sewer line	Slope	Length	Fall	Formation Level		Invert Level		Depth		
			9195	self	previous	total											Upper end	Lower end	Upper end	Lower end	Upper end	Lower end	Avg
		M	KL	KLD	KLD	KLD	KLD	MLD	Cumec.	M/sec	Cu.m.	mm	mm		M	M	M	M	M	M	M	M	M
1	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	24	25	26
1	A162-A162a	51	14	14.00	744.4	758.38	2275.1	2.28	0.0263	0.68	0.027	200	250	400	51	0.13	234.36	234.00	230.42	230.29	3.94	3.71	3.82
2	A162a-A220(DISPOSAL-1)	47	13	13.00	979.5	992.47	2977.4	2.98	0.0345	0.69	0.039	200	300	500	47	0.09	234.00	232.80	230.80	230.55	3.20	2.25	2.72
3	A263-A262	54	15	15.00	629.0	644.00	1932.0	1.93	0.0224	0.68	0.027	200	250	400	54	0.14	239.97	239.57	237.92	237.72	2.05	1.85	1.95
4	A262-A261	76	22	22.00	798.0	820.00	2460.0	2.46	0.0285	0.69	0.039	200	300	500	76	0.15	239.57	239.17	237.72	237.68	1.85	1.49	1.67
5	A180-A181	70	20	20.00	1046.0	1066.00	3198.0	3.20	0.0370	0.69	0.039	200	300	500	70	0.14	236.89	237.01	234.91	234.41	1.98	2.60	2.29
6	A181-A198	77	22	22.00	1152.0	1174.00	3522.0	3.52	0.0408	1.12	0.063	200	300	190	77	0.41	237.01	237.39	234.41	233.89	2.60	3.50	3.05
7	A198-A194	280	80	80.00	3083.0	3163.00	9489.0	9.49	0.1098	0.75	0.117	400	500	850	280	0.33	237.39	234.62	233.89	231.54	3.50	3.08	3.29
8	A201-A199	76	22	22.00	685.0	707.00	2121.0	2.12	0.0245	0.68	0.027	200	250	400	76	0.19	235.39	235.18	233.99	233.80	1.40	1.38	1.39
9	A199-A194	63	18	18.00	828.0	846.00	2538.0	2.54	0.0294	0.69	0.039	200	300	500	63	0.13	235.18	234.62	233.80	231.54	1.38	3.08	2.23
10	A194-A215	44	13	13.00	4571.0	4584.00	13752.0	13.75	0.1592	0.80	0.180	400	600	950	44	0.05	234.62	234.59	231.54	231.25	3.08	3.34	3.21
11	A215-A197	8	2	2.00	4912.0	4914.00	14742.0	14.74	0.1706	0.80	0.180	400	600	950	8	0.01	234.59	234.58	231.25	231.21	3.34	3.37	3.36
12	A197-A218	47	13	13.00	4980.0	4993.00	14979.0	14.98	0.1734	0.80	0.180	400	600	950	47	0.05	234.58	234.53	231.21	231.13	3.37	3.40	3.39
13	A6-A7	46	13	13.00	812.0	825.00	2475.0	2.48	0.0286	0.69	0.039	250	300	500	46	0.09	241.06	239.87	237.64	236.61	3.42	3.26	3.34
14	A74-A75	7	2	2.00	2370.0	2372.00	7116.0	7.12	0.0824	0.75	0.117	400	500	850	7	0.01	236.33	236.37	231.83	231.82	4.50	4.55	4.52
15	A75-A76	43	12	12.00	2433.0	2445.00	7335.0	7.34	0.0849	0.75	0.117	400	500	850	43	0.05	236.37	236.37	231.82	231.77	4.55	4.60	4.57
16	A76-A78	60	17	17.00	2559.0	2576.00	7728.0	7.73	0.0894	0.75	0.117	400	500	850	60	0.07	236.37	236.17	231.77	231.61	4.60	4.56	4.58
17	A78-A78'(DISPOSAL-3)	45	13	13.00	2687.0	2700.00	8100.0	8.10	0.0938	0.75	0.117	400	500	850	45	0.05	236.17	234.97	231.61	231.56	4.56	3.41	3.99
	Total	**1094**																					

Design Statement Sewerage

Sr No.	Name of Sewer	Length of Sewer Pipe Line	Length of sewer Line																		
			Sewer Pipe Line 250 mm i/d					Sewer Pipe Line 300 mm i/d						Sewer Pipe Line 500 mm i/d				Sewer Pipe Line 600 mm i/d			
			Length	Avg Depth	Avg Depth <1.75	Avg Depth >1.75<2.50	Avg Depth >3.25<4.0	Length	Avg Depth	Avg Depth <1.75	Avg Depth >1.75<2.50	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0	Length 500 MM I/D	Avg Depth	Avg Depth >3.25<4.0	Avg Depth >4.0<4.75	Length	Avg Depth	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0
		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1	3	4	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
1	A162-A162a	51	51	3.82			51														
2	A162a-A220(DISPOSAL-1)	47						47	2.72			47									
3	A263-A262	54	54	1.95		54.00															
4	A262-A261	76						76	1.67	76.00											
5	A180-A181	70						70	2.29		70										
6	A181-A198	77						77	3.05			77									
7	A198-A194	280												280	3.29	280					
8	A201-A199	76	76	1.39	76.00																
9	A199-A194	63						63	2.23		63										
10	A194-A215	44																44.00	3.21	44.00	
11	A215-A197	8																8.00	3.36		8.00
12	A197-A218	47																47.00	3.39		47.00
13	A6-A7	46						46	3.34	0.00			46								
14	A74-A75	7												7	4.52		7				
15	A75-A76	43												43	4.57		43				
16	A76-A78	60												60	4.58		60				
17	A78-A78'(DISPOSAL-3)	45												45	3.99	45					
	Total	**1094**	181.00	3.82	76.00	54.00	51.00	379.00	3.34	76.00	133.00	124.00	46.00	435.00	4.58	325.00	110.00	99.00	3.39	44.00	55.00

Design Statement Sewerage

Sr No.	Name of Sewer	Length of Sewer Pipe Line	Manhole											
			No. of Man Holes 250mm			No. of Man Holes 300mm				No. of Man Holes 500mm		No. of Man Holes 600mm		Total manhole
			Avg Depth <1.75	Avg Depth >1.75<2.5	Avg Depth >3.25<4.0	Avg Depth <1.75	Avg Depth >1.75<2.50	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0	Avg Depth >3.25<4.0	Avg Depth >4.0<4.75	Avg Depth >2.50<3.25	Avg Depth >3.25<4.0	
		M	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.	Nos.
1	3	4	46	47	48	49	50	51	52	53	54	55	56	57
1	A162-A162a	51			2									2
2	A162a-A220(DISPOSAL 1)	47						2						2
3	A263-A262	54		2										2
4	A262-A261	76				3								3
5	A180-A181	70					2							2
6	A181-A198	77						3						3
7	A198-A194	280								9				9
8	A201-A199	76	3											3
9	A199-A194	63					2							2
10	A194-A215	44										1		1
11	A215-A197	8											0	
12	A197-A218	47											2	2
13	A6-A7	46							2					2
14	A74-A75	7												
15	A75-A76	43									1			1
16	A76-A78	60									2			2
17	A78-A78'(DISPOSAL-3)	45												
	Total	**1094**	3.00	2.00	2.00	3.00	4.00	5.00	2.00	9.00	3.00	1.00	2.00	36.00

DESIGN STATEMENT OF STORM WATER DRAINAGE

Storm Water

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
1	A176	A176'	A176-A176'	37	230	230	230X230	37					
2	A176'	A174	A176'-A174	59	230	230	230X230	59					
3	A175	A174	A175-A174	69	230	230	230X230	69					
4	A174	A173	A174-A173	88	230	230	230X230	88					
5	A168a	A172	A168a-A172	52	230	230	230X230	52					
6	A172	A173	A172-A173	67	230	230	230X230	67					
7	A173	A171	A173-A171	91	230	230	230X230	91					
8	A168	A171	A168-A171	133	230	230	230X230	133					
9	A171'a	A171'	A171'a-A171'	136	230	230	230X230	136					
10	A171'	A171	A171'-A171	51	230	230	230X230	51					
11	A171	A170	A171-A170	70	230	230	230X230	70					
12	A167a	A167	A167a-A167	71	230	230	230X230	71					
13	A167b	A167	A167b-A167	40	230	230	230X230	40					
14	A167	A170	A167-A170	188	230	230	230X230	188					
15	A170	A163	A170-A163	148	230	450	230X450		148				
			-				X						
16	A157''	A157'	A157''-A157'	32	230	230	230X230	32					
17	A160	A149	A160-A149	94	230	230	230X230	94					
18	A148'	A149	A148'-A149	49	230	450	230X450		49				
19	A149	A157'	A149-A157'	83	230	450	230X450		83				
20	A157'	A164	A157'-A164	52	230	450	230X450		52				
			-				X						
21	A169	A165	A169-A165	156	230	230	230X230	156					
22	A166	A159	A166-A159	106	230	230	230X230	106					
23	A159	A165	A159-A165	158	230	230	230X230	158					
24	A165	A164	A165-A164	32	230	230	230X230	32					
25	A164	A163	A164-A163	52	230	450	230X450		52				
26	A163	A162	A163-A162	47	345	450	345X450			47			
			-				X						
27	A157	A156	A157-A156	83	230	230	230X230	83					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
28	A156	A162	A156-A162	202	230	230	230X230	202					
29	A162	A162a	A162-A162a	51	345	450	345X450			51			
			-				X						
30	A179'	A196a	A179'-A196a	140	230	230	230X230	140					
			-				X						
31	A183a	A184	A183a-A184	30	230	230	230X230	30					
32	A184a	A184	A184a-A184	67	230	230	230X230	67					
33	A184	A185	A184-A185	37	230	230	230X230	37					
34	A185a	A185	A185a-A185	67	230	230	230X230	67					
35	A185	A186	A185-A186	34	230	230	230X230	34					
36	A186a	A186	A186a-A186	67	450	675	450X675					67	
37	A186	A187	A186-A187	52	450	675	450X675					52	
38	A188a	A187a	A188a-A187a	36	230	230	230X230	36					
39	A133b	A126a	A133b-A126a	26	230	230	230X230	26					
40	A126	A126a	A126-A126a	68	230	230	230X230	68					
41	A126a	A136a	A126a-A136a	37	230	230	230X230	37					
42	A136	A136a	A136-A136a	68	230	230	230X230	68					
43	A136a	A138a	A136a-A138a	34	230	230	230X230	34					
44	A138	A138a	A138-A138a	72	230	230	230X230	72					
45	A138a	A187a	A138a-A187a	34	230	230	230X230	34					
46	A187a	A187	A187a-A187	69	230	230	230X230	69					
47	A187	A191	A187-A191	109	450	675	450X675					109	
48	A192a	A192b	A192a-A192b	115	230	230	230X230	115					
49	A183b	A192b	A183b-A192b	51	230	230	230X230	51					
50	A192b	A191	A192b-A191	92	230	230	230X230	92					
51	A191	A196a	A191-A196a	232	450	675	450X675					232	
52	A196a	A179	A196a-A179	50	230	230	230X230	50					
53	A177a	A179	A177a-A179	82	230	230	230X230	82					
54	A179	A161'a	A179-A161'a	187	230	230	230X230	187					
55	A178	A177	A178-A177	137	230	230	230X230	137					
56	A177	A161'	A177-A161'	135	230	450	230X450		135				
			-				X						

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
57	A154a	A154	A154a-A154	149	230	230	230X230	149					
58	A154	A153	A154-A153	63	230	230	230X230	63					
59	A150a	A152	A150a-A152	40	230	230	230X230	40					
60	A152	A153	A152-A153	185	230	230	230X230	185					
61	A153	A151	A153-A151	67	230	450	230X450		67				
62	A150	A151	A150-A151	142	230	230	230X230	142					
63	A151	A147	A151-A147	35	230	450	230X450		35				
64	A150b	A148	A150b-A148	38	230	230	230X230	38					
65	A148	A147	A148-A147	114	230	230	230X230	114					
66	A147	A161	A147-A161	278	230	450	230X450		278				
67	A161	A161'	A161-A161'	36	230	450	230X450		36				
68	A161'	A161'a	A161'-A161'a	62	230	450	230X450		62				
69	A161'a	A162a	A161'a-A162a	66	230	450	230X450		66				
70	A162a'	A162a	A162a'-A162a	194	230	230	230X230	194					
71	A162a	A220	A162a-A220	44	345	450	345X450			44			
			-				X						
			-				X						
72	A125"	A125'	A125"-A125'	250	230	230	230X230	250					
73	A125"	A125/1	A125"-A125/1	192	230	230	230X230	192					
74	A124/a	A96a	A124/a-A96a	217	230	230	230X230	217					
75	A96a	A88	A96a-A88	70	230	230	230X230	70					
76	A90	A88	A90-A88	149	230	230	230X230	149					
77	A88	A87	A88-A87	18	230	230	230X230	18					
78	A87	A86	A87-A86	132	230	230	230X230	132					
			-				X						
79	A110	A94	A110-A94	50	230	230	230X230	50					
80	A95	A94	A95-A94	166	230	230	230X230	166					
81	A94	A92	A94-A92	110	230	230	230X230	110					
82	A90	A92	A90-A92	116	230	230	230X230	116					
83	A92	A91	A92-A91	53	230	450	230X450		53				
84	A89	A91	A89-A91	122	230	450	230X450		122				
85	A91	A86	A91-A86	66	230	450	230X450		66				

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
			-				X						
86	A86	A83	A86-A83	34	230	450	230X450		34				
			-				X						
87	A109'	A82a	A109'-A82a	242	230	230	230X230	242					
88	A82	A82a	A82-A82a	63	230	230	230X230	63					
89	A82a	A83	A82a-A83	61	230	450	230X450		61				
			-				X						
90	A83	A84	A83-A84	44	230	450	230X450		44				
91	A85	A84	A85-A84	136	230	230	230X230	136					
92	A84	NALLAH	A84-NALLAH	35	230	450	230X450		35				
			-				X						
93	A84/a	A84'	A84/a-A84'	157	230	230	230X230	157					
94	A84'	A84'/a	A84'-A84'/a	30	230	230	230X230	30					
			-				X						
95	A115/b	A115/a	A115/b-A115/a	542	230	230	230X230	542					
			-				X						
96	A116'/a	A116'	A116'/a-A116'	258	230	230	230X230	258					
97	A116'/b	A116'	A116'/b-A116'	90	230	230	230X230	90					
98	A116'	A116	A116'-A116	54	230	450	230X450		54				
99	A122'	A116	A122'-A116	257	230	230	230X230	257					
100	A116	A115	A116-A115	98	230	450	230X450		98				
101	A122'	A120	A122'-A120	115	230	230	230X230	115					
102	A121	A120	A121-A120	43	230	230	230X230	43					
103	A120	A118	A120-A118	68	230	230	230X230	68					
104	A119	A118	A119-A118	67	230	230	230X230	67					
105	A118	A115	A118-A115	50	230	230	230X230	50					
106	A115	A115/a	A115-A115/a	66	230	450	230X450		66				
			-				X						
107	A115/a	A262/a	A115/a-A262/a	583	345	675	345X675				583		
			-				X						
108	A244/a	A244	A244/a-A244	298	230	230	230X230	298					
109	A277'	A244	A277'-A244	535	230	450	230X450		535				

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
110	A244	A242	A244-A242	24	230	450	230X450		24				
111	A243	A242	A243-A242	84	230	450	230X450		84				
112	A242	A262	A242-A262	240	230	450	230X450		240				
			-				X						
113	A155''	A115'	A155''-A115'	100	230	230	230X230	100					
114	A115'	A278	A115'-A278	60	230	230	230X230	60					
115	A277	A278	A277-A278	121	230	230	230X230	121					
116	A278	A276	A278-A276	60	230	230	230X230	60					
117	a275	a276	a275-a276	140	230	230	230X230	140					
118	A276	A274	A276-A274	60	230	230	230X230	60					
119	A273	A274	A273-A274	160	230	230	230X230	160					
120	A274	A272	A274-A272	68	230	230	230X230	68					
121	A271	A272	A271-A272	180	230	230	230X230	180					
122	A272	A269	A272-A269	56	230	230	230X230	56					
123	A269'	A269	A269'-A269	180	230	230	230X230	180					
124	A269	A267	A269-A267	72	230	230	230X230	72					
125	A266	A267	A266-A267	194	230	230	230X230	194					
126	A267	A265	A267-A265	56	230	230	230X230	56					
127	A264	A265	A264-A265	206	230	230	230X230	206					
128	A265	A263	A265-A263	57	230	230	230X230	57					
129	A245	A263	A245-A263	232	230	230	230X230	232					
130	A263	A262	A263-A262	56	230	230	230X230	56					
			-				X						
131	A262	A262/a	A262-A262/a	74	230	450	230X450		74				
132	A262/a	A261/a	A262/a-A261/a	14	230	450	230X450		14				
			-				X						
133	A111	A109	A111-A109	226	230	230	230X230	226					
134	A109	A114	A109-A114	61	230	230	230X230	61					
135	A124	A114	A124-A114	262	230	450	230X450		262				
			-				X						
136	A114	A279	A114-A279	127	230	450	230X450		127				
137	A105'	A104	A105'-A104	125	230	230	230X230	125					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
138	A104	A279	A104-A279	62	230	230	230X230	62					
			-				X						
139	A279	A261/a	A279-A261/a	568	230	450	230X450		568				
			-				X						
140	A261/a	A261	A261/a-A261	10	230	450	230X450		10				
			-				X						
141	A261	A260	A261-A260	60	230	450	230X450		60				
142	A254	A260	A254-A260	202	230	230	230X230	202					
143	A260	A213/a	A260-A213/a	91	345	450	345X450			91			
			-				X						
144	A212	A213	A212-A213	155	230	230	230X230	155					
145	A213	A213/a	A213-A213/a	63	230	230	230X230	63					
			-				X						
146	A213/a	A215	A213/a-A215	505	345	450	345X450			505			
			-				X						
			-				X						
147	A66	A67	A66-A67	112	230	230	230X230	112					
148	A69	A68	A69-A68	61	230	230	230X230	61					
149	A68/A	A68	A68/A-A68	110	450	675	450X675					110	
150	A68	A67	A68-A67	53	230	230	230X230	53					
151	A67	A206	A67-A206	60	230	230	230X230	60					
152	A63	A206	A63-A206	41	230	230	230X230	41					
153	A206	A204	A206-A204	253	230	230	230X230	253					
154	A205	A204	A205-A204	65	230	230	230X230	65					
155	A204	A203	A204-A203	65	230	230	230X230	65					
			-				X						
156	A211	A207	A211-A207	52	230	230	230X230	52					
157	A209	A208	A209-A208	70	230	230	230X230	70					
158	A210	A208	A210-A208	40	230	230	230X230	40					
159	A208	A207	A208-A207	60	230	230	230X230	60					
160	A207	A203	A207-A203	190	230	230	230X230	190					
			-				X						
161	A203	A201	A203-A201	70	230	230	230X230	70					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
162	A64	A201	A64-A201	295	230	230	230X230	295					
			-				X						
163	A201	A199	A201-A199	74	230	450	230X450		74				
164	A62	A64'	A62-A64'	300	230	230	230X230	300					
165	A64'	A199	A64'-A199	443	230	230	230X230	443					
			-				X						
166	A199	A215	A199-A215	64	450	675	450X675					64	
			-				X						
167	A215	A197	A215-A197	57	450	675	450X675					57	
			-				X						
168	A214	A217'	A214-A217'	185	230	230	230X230	185					
169	A217	A217'	A217-A217'	46	230	230	230X230	46					
170	A217'	A197	A217'-A197	391	230	230	230X230	391					
			-				X						
171	A197	A218	A197-A218	52	230	230	230X230	52					
172	A218'	A218	A218'-A218	427	230	230	230X230	427					
			-				X						
173	A218	A218/a	A218-A218/a	18	230	230	230X230	18					
			-				X						
174	A138/a	A128	A138/a-A128	249	230	230	230X230	249					
175	A129	A128	A129-A128	40	230	230	230X230	40					
			-				X						
176	A128	A198	A128-A198	150	230	230	230X230	150					
			-				X						
177	A241	A233	A241-A233	236	230	230	230X230	236					
			-				X						
178	A237	A235	A237-A235	31	230	230	230X230	31					
179	A236	A235	A236-A235	98	230	230	230X230	98					
180	A235	A234	A235-A234	68	230	230	230X230	68					
			-				X						
181	A239	A238	A239-A238	97	230	230	230X230	97					
182	A240	A238	A240-A238	104	230	230	230X230	104					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
183	A238	A234	A238-A234	10	230	230	230X230	10					
184	A234	A233	A234-A233	55	230	450	230X450		55				
185	A233	A251\a	A233-A251\a	100	230	450	230X450		100				
186	A251\a	A248	A251\a-A248	188	230	230	230X230	188					
187	A55	A251\a	A55-A251\a	240	230	230	230X230	240					
188	A256	A253	A256-A253	168	230	230	230X230	168					
189	A252	A253	A252-A253	81	230	230	230X230	81					
190	A253	A250	A253-A250	59	230	230	230X230	59					
191	A251	A250	A251-A250	103	230	230	230X230	103					
192	A250	A248	A250-A248	50	230	230	230X230	50					
193	A248	A247	A248-A247	64	230	230	230X230	64					
194	A257	A247	A257-A247	276	230	230	230X230	276					
195	A247	A180	A247-A180	83	450	675	450X675					83	
196	A231	A224	A231-A224	184	230	450	230X450		184				
197	A223	A224	A223-A224	31	230	450	230X450		31				
198	A224	A226	A224-A226	106	230	450	230X450		106				
199	A227/A	A227	A227/A-A227	67	230	450	230X450		67				
200	A227/B	A227	A227/B-A227	46	230	450	230X450		46				
201	A227	A226	A227-A226	64	230	450	230X450		64				
202	A226	A145	A226-A145	184	230	450	230X450		184				
203	A229/a	A229	A229/a-A229	173	230	230	230X230	173					
204	A228'	A229	A228'-A229	103	230	450	230X450		103				
205	A229	A145	A229-A145	39	230	230	230X230	39					
206	A145	A142	A145-A142	174	230	230	230X230	174					
207	A143	A142	A143-A142	95	230	230	230X230	95					
208	A142	A140	A142-A140	54	230	230	230X230	54					
209	A226"	A140	A226"-A140	86	230	450	230X450		86				
210	A140	A180	A140-A180	288	230	230	230X230	288					
211	A180	A181	A180-A181	51	450	675	450X675					51	
212	A258	A181	A258-A181	315	230	230	230X230	315					
213	A181	A181/a	A181-A181/a	69	450	675	450X675					69	
214	A181/a	a198	A181/a-a198	18	675	900	675X900						18

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
215	A198	A194	A198-A194	272	675	900	675X900						272
216	A133/a	A133	A133/a-A133	20	230	230	230X230	20					
217	A132	A133	A132-A133	71	230	230	230X230	71					
218	A133/a	A131	A133/a-A131	53	230	230	230X230	53					
219	A130	A131	A130-A131	71	230	230	230X230	71					
220	A131	A182	A131-A182	125	230	230	230X230	125					
221	A182'	A182	A182'-A182	75	345	450	345X450			75			
222	A182	A189	A182-A189	68	345	450	345X450			68			
223	A133a	a189	A133a-a189	232	230	450	230X450		232				
224	A189	A193	A189-A193	143	345	450	345X450			143			
225	A195	A193	A195-A193	202	230	230	230X230	202					
226	A193	A194	A193-A194	68	345	450	345X450			68			
227	A194	A197/a	A194-A197/a	43	675	900	675X900						43
228	A196	A197/a	A196-A197/a	218	230	230	230X230	218					
229	A197/a	A218/a	A197/a-A218/a	92	675	900	675X900						92
230	A218''	A218/a	A218''-A218/a	117	230	230	230X230	117					
231	A218/a	NALLAH	A218/a-NALLAH	56	675	900	675X900						56
			-				X						
232	A280'	A280	A280'-A280	110	230	230	230X230	110					
233	A280'	A281	A280'-A281	71	230	230	230X230	71					
234	A282	A281	A282-A281	151	230	230	230X230	151					
235	A281	A285	A281-A285	105	230	230	230X230	105					
236	A286	A285	A286-A285	149	230	230	230X230	149					
237	A285	A287	A285-A287	37	230	230	230X230	37					
238	A288	A287	A288-A287	150	230	230	230X230	150					
239	A287	A289	A287-A289	73	230	230	230X230	73					
240	A288'	A289	A288'-A289	132	230	230	230X230	132					
241	A289	NALLAH	A289-NALLAH	73	230	230	230X230	73					
			-				X						
			-				X						
242	A81	A6	A81-A6	282	345	675	345X675				282		
243	A4	A3	A4-A3	193	230	230	230X230	193					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
244	A3/a	A3	A3/a-A3	50	230	230	230X230	50					
245	A101'	A3	A101'-A3	212	230	230	230X230	212					
246	A3	A2	A3-A2	71	230	230	230X230	71					
			-				X						
247	A109'/a	A106	A109'/a-A106	167	230	230	230X230	167					
248	A105	A106	A105-A106	134	230	230	230X230	134					
249	A106	A107	A106-A107	76	230	230	230X230	76					
250	A103	A102	A103-A102	159	230	230	230X230	159					
251	A102	A107	A102-A107	165	230	230	230X230	165					
252	A107	A2	A107-A2	170	230	450	230X450		170				
253	A2	A6	A2-A6	61	230	450	230X450		61				
254	A6	A7	A6-A7	61	230	450	230X450		61				
255	A4'	A7	A4'-A7	433	230	230	230X230	433					
256	A7	A10	A7-A10	54	345	675	345X675				54		
257	A9	A9/b	A9-A9/b	24	230	230	230X230	24					
258	A9/a	A9/b	A9/a-A9/b	50	230	230	230X230	50					
259	A9/b	A10	A9/b-A10	242	230	230	230X230	242					
260	A10	A15	A10-A15	54	345	675	345X675				54		
261	A11	A15	A11-A15	292	230	230	230X230	292					
262	A15	A47	A15-A47	66	345	675	345X675				66		
263	A18	A18/b	A18-A18/b	88	230	450	230X450		88				
264	A18/a	A18/b	A18/a-A18/b	62	230	230	230X230	62					
265	A18/b	A47	A18/b-A47	235	230	450	230X450		235				
266	A47	A73	A47-A73	414	345	675	345X675				414		
267	A60	A61	A60-A61	225	230	230	230X230	225					
268	A61	A59	A61-A59	54	230	230	230X230	54					
269	A57	A59	A57-A59	225	230	230	230X230	225					
270	A59	A56	A59-A56	54	230	230	230X230	54					
271	A48	A52	A48-A52	57	230	230	230X230	57					
272	A53	A52	A53-A52	32	230	230	230X230	32					
273	A52	A71'	A52-A71'	60	230	230	230X230	60					
274	A9/c	A50	A9/c-A50	261	230	230	230X230	261					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
275	A51a	A50	A51a-A50	182	230	230	230X230	182					
276	A50	A72	A50-A72	63	230	230	230X230	63					
277	A72	A71	A72-A71	33	230	230	230X230	33					
278	A71a	A71	A71a-A71	49	230	230	230X230	49					
279	A71	A71'	A71-A71'	263	230	230	230X230	263					
280	A71'	A56	A71'-A56	236	230	230	230X230	236					
281	A56	A73	A56-A73	61	230	230	230X230	61					
282	A73	A75	A73-A75	74	230	450	230X450		74				
283	A65'	A75	A65'-A75	218	675	900	675X900						218
			-				X						
284	A39/b	A43	A39/b-A43	123	450	675	450X675					123	
285	A20	A40	A20-A40	400	230	230	230X230	400					
286	A37/b	A40	A37/b-A40	112	230	230	230X230	112					
287	A40	A43	A40-A43	67	230	230	230X230	67					
288	A43	A74	A43-A74	61	230	230	230X230	61					
289	A12	A19	A12-A19	49	230	230	230X230	49					
290	A19/a	A19	A19/a-A19	35	345	675	345X675				35		
291	A19	A74	A19-A74	479	345	675	345X675				479		
292	A74	A75	A74-A75	13	345	675	345X675				13		
293	A75	A76	A75-A76	49	675	900	675X900						49
294	A77	A76	A77-A76	150	230	230	230X230	150					
295	A76	A78	A76-A78	55	675	900	675X900						55
296	A79	A78	A79-A78	214	230	230	230X230	214					
297	A80	A78	A80-A78	220	230	450	230X450		220				
298	A78	A78'	A78-A78'	45	675	900	675X900						45
			-				X						
299	A45	A44	A45-A44	122	230	230	230X230	122					
300	A39/a	A39	A39/a-A39	134	450	675	450X675					134	
301	A37/a	A37	A37/a-A37	127	230	230	230X230	127					
302	A35	A36	A35-A36	238	230	230	230X230	238					
303	A33	A34	A33-A34	177	230	230	230X230	177					
304	A32	A31	A32-A31	163	230	230	230X230	163					

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Drain	size of drain		Size of Drain (mm)	230mmX230 mm	230mmX450 mm	345mmX450 mm	345mmX675 mm	450mmX675 mm	675mmX900 mm
				M	MM	MM	MM	M	M	M	M	M	M
305	A29	A30	A29-A30	116	230	230	230X230	116					
306	A28	A27	A28-A27	100	230	230	230X230	100					
307	A25	A26	A25-A26	92	230	230	230X230	92					
308	A24'	A24	A24'-A24	87	230	230	230X230	87					
309	A22	A23	A22-A23	90	230	230	230X230	90					
310	A21/a	A21	A21/a-A21	94	345	675	345X675				94		
			-				X						
311	A81/a	A12/a	A81/a-A12/a	396	230	230	230X230	396					
312	A12/a	A13	A12/a-A13	61	345	450	345X450			61			
313	A82'	A13	A82'-A13	284	230	230	230X230	284					
314	A13	A14'	A13-A14'	60	345	450	345X450			60			
315	A99'	A99	A99'-A99	96	230	230	230X230	96					
316	A99	A14'	A99-A14'	80	230	230	230X230	80					
317	A14'	A14	A14'-A14	18	345	450	345X450			18			
TOTAL				**38683**				**27444**	**5935**	**1231**	**2074**	**1151**	**848**

DESIGN STATEMENT OF RECYCLING

Recycling Phase 2

Sr No.	Name of Road	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	Net Water Demand			Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
								self	previous	total						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		M	M	M	M	M	M	KLD	KLD	KLD	LPM	mm	M	M	M	M
							1980									
1	STP1-A218	57	245.85	245.29	245.57	0.28	7.98	7.98	1972	1980.00	2062.50	300.00	0.0014	0.082	0.082	29.92
2	A218-A179	322	245.29	245.35	245.32	-0.03	45.06	45.06	382.03	427.09	444.89	150.00	0.0025	0.795	0.878	29.12
3	A179-Green Belt	255	245.35	244.61	244.98	0.37	35.68	35.68	346.35	382.03	397.95	100.00	0.0145	3.691	4.569	25.43
4	Green Belt-Internal	50	244.61	244.61	244.61		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.570	25.43
5	Green Belt-Park	50	244.61	244.61	244.61		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.570	25.43
6	Green Belt-A 162 a	80	244.61	242.19	243.4	1.21	11.20	11.20	321.16	332.36	346.20	100.00	0.0112	0.895	5.463	24.54
7	162 a-Green Belt interr	50	242.19	242.19	242.19		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	5.465	24.54
8	A 162 a-A162'a	318	242.19	242.68	242.435	-0.245	44.50	44.50	269.66	314.16	327.25	100.00	0.0101	3.204	8.667	21.33
9	A162'a-A162	51	242.68	242.19	242.435	0.245	7.14	7.14	262.53	269.66	280.90	100.00	0.0076	0.387	9.055	20.95
10	A162-A147	384	243.97	243.73	243.85	0.12	53.74	53.74	24.91	78.65	81.92	100.00	0.0008	0.298	9.352	20.65
11	A147-A47	128	243.97	243.23	243.6	0.37	17.91	17.91	7.00	24.91	25.95	100.00	0.0001	0.012	9.364	20.64
12	A47-Park	50	243.23	243.23	243.23		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	9.366	20.63
13	A162-A170	195	242.19	244.61	243.4	-1.21	27.29	27.29	235.24	262.53	273.46	100.00	0.0072	1.409	10.464	19.54
14	A170-Green Belt interna	50	244.61	244.61	244.61		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	10.465	19.53
15	A170-A174	254	244.61	243.97	244.29	0.32	35.54	35.54	23	58.35	60.79	100.00	0.0004	0.113	10.577	19.42
16	A174-Park	50	243.97	243.2	243.585	0.385	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	10.579	19.42
17	A174-A175	63	243.2	243.2	243.2		8.82	8.82	7.00	15.81	16.47	100.00	0.0000	0.003	10.579	19.42
18	A175-Park	50	243.44	242.43	242.935	0.505	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	10.581	19.42
19																
20	A170-A167	256	243.97	243.97	243.97		35.82	35.82	134.06	169.89	176.96	100.00	0.0032	0.826	11.290	18.71
21	A167-Park	50	243.97	243.97	243.97		7.00	7.00	78.65	85.64	89.21	100.00	0.0009	0.045	11.335	18.66
22	A147-A154	196	243.97	245.41	244.69	-0.72	27.43	27.43	20.99	48.42	50.44	100.00	0.0003	0.062	11.352	18.65
23	A154-Park A	50	245.41	245.41	245.41		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	11.353	18.65
24	A154-Park B	50	245.41	245.41	245.41		7.00	7.00	7.00	13.99	14.58	100.00	0.0000	0.002	11.353	18.65
25	Park B-Park C	50	245.41	245.41	245.41		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	11.353	18.65
26	A218-A198	379	245.41	245.43	245.42	-0.01	53.04	53.04	568.15	621.19	647.07	200.00	0.0012	0.461	0.544	29.46
27	A198-Park	50	245.43	245.43	245.43		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.546	29.45
28	A198-A180	147	245.35	245.35	245.35		20.57	20.57	240.42	260.99	271.86	150.00	0.0010	0.146	0.690	29.31
29	A180-Park	50	245.35	245.35	245.35		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.691	29.31
30	A180-A132	160	246.12	248.6	247.36	-1.24	22.39	22.39	7.00	29.39	30.61	100.00	0.0001	0.020	0.710	29.29
31	A132-Park	50	248.6	248.6	248.6		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.711	29.29
32	A180-A223	48	245.35	248.9	247.125	-1.775	6.72	6.72	197.31	204.03	212.53	150.00	0.0006	0.030	0.720	29.28
33	A223-Park	50	248.9	248.9	248.9		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.722	29.28

Recycling Phase 2

Sr No.	Name of Road	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	Net Water Demand			Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
								self	previous	total						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
34	A223-A247	33	245.41	246.72	246.065	-0.655	4.62	4.62	52.06	56.68	59.04	100.00	0.0004	0.014	0.734	29.27
35	A248-A247	56	246.72	246.72	246.72		7.84	7.84	44.22	52.06	54.23	100.00	0.0004	0.020	0.754	29.25
36	A248-A256	266	245.41	245	245.205	0.205	37.22	37.22	7.00	44.22	46.06	100.00	0.0003	0.071	0.825	29.18
37	A256-Park	50	245	248.9	246.95		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.827	29.17
38	A223-A226	106	248.9	246.24	247.57	1.33	14.83	14.83	118.81	133.64	139.21	150.00	0.0003	0.0304	0.7503	29.25
39	A226-Park	50	246.24	248.9	247.57		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.752	29.25
40	A226-A229	163	246.24	246.24	246.24		22.81	22.81	89.00	111.81	116.47	100.00	0.0015	0.2424	0.9927	29.01
41	A229-A233	365	246.24	245.41	245.825	0.415	51.08	51.08	37.92	89.00	92.71	100.00	0.0010	0.3558	1.3485	28.65
42	A233-A240	221	245.41	245.41	245.41		30.93	30.93	7.00	37.92	39.50	100.00	0.0002	0.044	1.393	28.61
43	A240-Park	50	245.41	248.9	247.155		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.395	28.61
44	A198-A261	375	248.9	246.82	247.86	1.04	52.48	52.48	247.69	300.17	312.68	150.00	0.0013	0.482	1.026	28.97
45	A261-A262	76	246.82	248.87	247.845	-1.025	10.64	10.64	237.06	247.69	258.01	100.00	0.0065	0.493	1.519	28.48
46	A262-A255	119	248.87	248.67	248.77	0.1	16.65	16.65	50.80	67.45	70.26	100.00	0.0006	0.069	1.588	28.41
47	A255-Park	50	248.67	248.9	248.785		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.590	28.41
48	A255-A244	213	248.9	249.82	249.36	-0.46	29.81	29.81	13.99	43.80	45.63	100.00	0.0003	0.056	1.646	28.35
49	A244-Park	50	249.82	248.9	249.36		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.648	28.35
50	A244-Park	50	248.9	248.9	248.9		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.648	28.35
51	A262-A269	236	248.9	251.34	250.12	-1.22	33.03	33.03	136.58	169.61	176.67	100.00	0.0032	0.759	2.278	27.72
52	A269-Park	50	251.34	248.9	250.12		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.280	27.72
53	A269-A276	113	248.9	249.61	249.255		15.81	15.81	113.77	129.58	134.98	100.00	0.0020	0.221	2.499	27.50
54	A276-Park	50	249.61	248.9	249.255		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.501	27.50
55	A276-A115	126	249.61	250.98	250.295	-0.685	17.63	17.63	89.14	106.77	111.22	100.00	0.0014	0.172	2.671	27.33
56	A115-Park	50	250.98	250.98	250.98		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.503	27.50
					#DIV/0!		0.00	0.00	0.00							
57	A115-A116	107	246.3	247.14	246.72	-0.42	14.97	14.97	67.17	82.14	85.57	100.00	0.0008	0.090	2.761	27.24
58	A116-Park	50	247.14	248.9	248.02		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.763	27.24
59	A116-A121	127	247.14	247.19	247.165	-0.025	17.77	17.77	42.40	60.17	62.68	100.00	0.0005	0.060	2.821	27.18
60	A121-Park	50	247.19	247.19	247.19		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.823	27.18
61	A121-Park B	50	247.19	247.19	247.19		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.823	27.18
62	A121-A122'	153	247.19	247.19	247.19		21.41	21.41	7.00	28.41	29.59	100.00	0.0001	0.018	2.839	27.16
63	A122'-Park	50	247.19	251.25	249.22	-2.03	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.841	27.16
64	A218-A217	382	251.25	251.2	251.225	0.025	53.46	53.46	870.28	923.74	962.23	250.00	0.0009	0.327	0.409	29.59
65	A217-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.411	29.59
66	A217-Green Belt	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.411	29.59
67	A217-A78	370	251.2	250.98	251.09	0.11	51.78	51.78	804.51	856.29	891.97	250.00	0.0007	0.275	0.685	29.32
68	A78-A79	129	251.25	250.98	251.115	0.135	18.05	18.05	786.46	804.51	838.03	250.00	0.0007	0.086	0.770	29.23
69	A79-Green Belt	50	251.2	251.25	251.225	-0.025	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.687	29.31
70	A78-A76	60	251.25	250.16	250.705	0.545	8.40	8.40	771.07	779.46	811.94	200.00	0.0019	0.111	0.796	29.20
71	A76-A77	171	250.16	250.16	250.16		23.93	23.93	29.95	53.88	56.12	100.00	0.0004	0.066	0.862	29.14
72	A77-Park	50	250.16	251.25	250.705	-0.545	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.864	29.14
73	A77-A45	114	251.25	250.97	251.11		15.95	15.95	7.00	22.95	23.91	100.00	0.0001	0.009	0.871	29.13

Recycling Phase 2

Sr No.	Name of Road	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	Net Water Demand			Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
								self	previous	total						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
74	A45-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	0.873	29.13
75	A76-A75	43	251.25	252.72	251.985		6.02	6.02	711.17	717.19	747.07	200.00	0.0016	0.068	0.939	29.06
76	A75-A43	74	251.25	252.18	251.715	-0.465	10.36	10.36	188.92	199.27	207.58	100.00	0.0043	0.321	1.260	28.74
77	A43-A40	61	252.18	251.64	251.91	0.27	8.54	8.54	180.38	188.92	196.79	100.00	0.0039	0.240	1.500	28.50
78	A40-A40'	115	251.64	251.64	251.64		16.09	16.09	62.27	78.37	81.63	100.00	0.0008	0.089	1.588	28.41
79	A40'-Park	50	251.64	251.25	251.445	0.195	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.590	28.41
80	A40'-Park	50	251.64	251.25	251.445	0.195	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.590	28.41
81	A40'-A37	245	251.25	253.31	252.28		34.29	34.29	13.99	48.28	50.29	100.00	0.0003	0.077	1.665	28.33
82	A37-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.667	28.33
83	A37-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.667	28.33
84	A40-A32	159	251.25	253.31	252.28		22.25	22.25	79.77	102.02	106.27	100.00	0.0013	0.200	1.865	28.14
85	A32-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.867	28.13
86	A32-A28	83	251.25	253.31	252.28		11.61	11.61	61.15	72.77	75.80	100.00	0.0007	0.056	1.920	28.08
87	A28-A27	94	251.25	253.31	252.28		13.15	13.15	13.994	27.15	28.28	100.00	0.0001	0.010	1.931	28.07
88	A27-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.932	28.07
89	A27-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.932	28.07
90	A28-A20	193	251.25	253.31	252.28		27.01	27.01	7.00	34.01	35.42	100.00	0.0002	0.032	1.962	28.04
91	A20-Park	50	251.25	251.25	251.25	0	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	1.964	28.04
92	A75-A73	60	251.25	255.87	253.56	-2.31	8.40	8.40	503.50	511.90	533.23	150.00	0.0035	0.207	2.170	27.83
93	A73-Park	50	255.87	255.87	255.87		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	2.171	27.83
94	A73-A47	378	245.35	248.83	247.09	-1.74	52.90	52.90	443.61	496.50	517.19	150.00	0.0033	1.234	3.403	26.60
95	A47-A48	100	248.83	248.83	248.83		13.99	13.99	429.61	443.61	462.09	150.00	0.0026	0.265	3.668	26.33
96	A48-Park	50	248.83	255.87	252.35		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	3.405	26.59
97	A48-A18	258	248.83	248.83	248.83		36.10	36.10	386.51	422.62	440.23	150.00	0.0024	0.625	4.293	25.71
98	A18-Park	50	248.83	255.87	252.35		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.295	25.71
99	A47-A12	86	255.87	247.49	251.68		12.03	12.03	367.48	379.52	395.33	150.00	0.0020	0.171	4.464	25.54
100	A12-A14	144	247.49	247.49	247.49		20.15	20.15	18.33	38.48	40.09	100.00	0.0002	0.030	4.493	25.51
101	A14-A99	81	247.49	247.49	247.49		11.34	11.34	7.00	18.33	19.10	100.00	0.0001	0.004	4.498	25.50
102	A99-Park	50	247.49	247.49	247.49		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.499	25.50
							0.00	0.00	0.00							
103	A12-A10	21	248.83	251.19	250.01	-1.18	2.94	2.94	326.06	329.00	342.71	100.00	0.0110	0.230	4.694	25.31
104	A10-A10'	142	251.19	251.83	251.51	-0.32	19.87	19.87	7.00	26.87	27.99	100.00	0.0001	0.015	4.709	25.29
105	A10'-Park	50	251.83	247.49	249.66		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	4.696	25.30
106	A10-A7	62	247.49	254.26	250.875	-3.385	8.68	8.68	290.51	299.19	311.66	100.00	0.0092	0.571	5.280	24.72
107	A7-A4'	357	254.26	258.24	256.25	-1.99	49.96	49.96	13.99	63.95	66.62	100.00	0.0005	0.189	5.469	24.53
108	A4'-Park	50	247.49	251.25	249.37	-1.88	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	5.470	24.53
109	A4'-Park B	50	254.26	251.25	252.755	1.505	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	5.470	24.53
							0.00	0.00	0.00							
110	A7-A81	304	258.24	258.93	258.585	-0.345	42.54	42.54	184.02	226.56	236.00	100.00	0.0055	1.095	6.563	23.44
111	A81-A84	199	258.93	258.93	258.93		27.85	27.85	7.00	34.84	36.30	100.00	0.0002	0.009	6.572	23.43

Recycling Phase 2

Sr No.	Name of Road	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	Net Water Demand			Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
								self	previous	total						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
112	A84-Park	50	258.93	258.93	258.93		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.574	23.43
113	A81-A108	76	258.93	259.08	259.005	-0.075	10.64	10.64	138.54	149.18	155.39	100.00	0.0025	0.193	6.756	23.24
114	A108-Park	50	259.08	259.08	259.08		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.758	23.24
115	A108-A107	100	259.08	253.35	256.215	2.865	13.99	13.99	41.42	55.42	57.72	100.00	0.0004	0.041	6.797	23.20
116	A107-Park	50	253.35	253.35	253.35		7.00	7.00	34.43	41.42	43.15	100.00	0.0002	0.012	6.808	23.19
117	A107-A1	48	253.35	253.69	253.52	-0.17	6.72	6.72	0.00	6.72	7.00	75.00	0.0000	0.002	6.798	23.20
118	A1-Park	50	253.69	253.69	253.69		7.00	7.00	20.71	27.71	28.86	100.00	0.0001	0.006	6.804	23.20
119	A1-A101	48	253.69	253.69	253.69	0	6.72	6.72	13.99	20.71	21.57	100.00	0.0001	0.003	6.801	23.20
120	A101-Park	50	253.69	253.69	253.69		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.803	23.20
121	A101-Park B	50	253.69	251.25	252.47	1.22	7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.803	23.20
122	A108-A109	66	251.25	249.89	250.57	0.68	9.24	9.24	66.89	76.13	79.30	100.00	0.0007	0.048	6.804	23.20
123	A109-A110	56	249.89	249.31	249.6	0.29	7.84	7.84	59.05	66.89	69.68	100.00	0.0006	0.032	6.836	23.16
124	A110-A94	53	249.31	249.31	249.31		7.42	7.42	51.64	59.05	61.51	100.00	0.0005	0.024	6.860	23.14
125	A94-Park	50	249.31	249.31	249.31		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.862	23.14
126	A94-A96	172	249.31	249.89	249.6		24.07	24.07	20.57	44.64	46.50	100.00	0.0003	0.047	6.907	23.09
127	A96-A96'	97	258.24	257.93	258.085	0.155	13.57	13.57	7.00	20.57	21.43	100.00	0.0001	0.006	6.913	23.09
128	A96'-Park	50	257.93	257.93	257.93		7.00	7.00	0.00	7.00	7.29	75.00	0.0000	0.002	6.915	23.08
	Total	**14149**				**2.865**	**1980**									

		Recycling Phase 2																			
Sr No.	Name of Road	Length of Pipe Line						No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves			Lawn Hydrant	Scour Valve	Air valve
		75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d		50 mm i/d	63 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	50 mm i/d	63 mm i/d	75 mm i/d			
1	2	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
		M	M	M	M	M	M	Nos.	M	M	No.	No.	No.	No.	No.				No.	No.	No.
									12.0	6.0						3	1				
1	STP1-A218	0	0	0	0	0	57				0	0	0	0	1			0	1		1
		0	0	0	0	0	0											0			
2	A218-A179	0	0	322	0	0	0		0	0	0	2	0	0	0	0	0	0	1		
3	A179-Green Belt	0	255	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
4	Green Belt-Internal	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	
5	Green Belt-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
6	Green Belt-A 162 a	0	80	0	0	0	0		0	0					0			0	1		
7	162 a-Green Belt interr	50	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1		
8	A 162 a-A162'a	0	318	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
9	A162'a-A162	0	51	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
		0	0	0	0	0	0	0										0			
10	A162-A147	0	384	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
11	A147-A47	0	128	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
12	A47-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
13	A162-A170	0	195	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
14	A170-Green Belt interna	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
15	A170-A174	0	254	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
16	A174-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
17	A174-A175	0	63	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
18	A175-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
19		0	0	0	0	0	0	0										0			
20	A170-A167	0	256	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
		0	0	0	0	0	0	0										0			
21	A167-Park	0	50	0	0	0	0	3	36	18	1	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
		0	0	0	0	0	0	0										0			
22	A147-A154	0	196	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
23	A154-Park A	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
24	A154-Park B	0	50	0	0	0	0	3	36	18	1	0	0	0	0	9	3	0	1		
25	Park B-Park C	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
26	A218-A198	0	0	0	379	0	0		0	0	0	0	2	0	0	0	0	0	1		
27	A198-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
28	A198-A180	0	0	147	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
29	A180-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
30	A180-A132	0	160	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
31	A132-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0	0	0					0			0			
32	A180-A223	0	0	48	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
33	A223-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		

		Recycling Phase 2																			
Sr No.	Name of Road	Length of Pipe Line						No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves			Lawn Hydrant	Scour Valve	Air valve
		75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d		50 mm i/d	63 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	50 mm i/d	63 mm i/d	75 mm i/d			
1	2	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
		0	0	0	0	0	0	0										0			
34	A223-A247	0	33	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
35	A248-A247	0	56	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
36	A248-A256	0	266	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
37	A256-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
38	A223-A226	0	0	106	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
39	A226-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
40	A226-A229	0	163	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
41	A229-A233	0	365	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
42	A233-A240	0	221	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
43	A240-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
44	A198-A261	0	0	375	0	0	0		0	0	0	2	0	0	0	0	0	0	1		
45	A261-A262	0	76	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
46	A262-A255	0	119	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
47	A255-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
48	A255-A244	0	213	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
49	A244-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
50	A244-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
51	A262-A269	0	236	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
52	A269-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
53	A269-A276	0	113	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
54	A276-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
55	A276-A115	0	126	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
56	A115-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
57	A115-A116	0	107	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
58	A116-Park	50	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1		
59	A116-A121	0	127	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
60	A121-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
61	A121-Park B	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1	1	1
62	A121-A122'	0	153	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
63	A122'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0	0	0					0			0			
64	A218-A217	0	0	0	0	382	0		0	0	0	0	0	2	0	0	0	0	1		
65	A217-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
66	A217-Green Belt	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
67	A217-A78	0	0	0	0	370	0		0	0	0	0	0	2	0	0	0	0	1		
68	A78-A79	0	0	0	0	129	0		0	0	0	0	0	1	0	0	0	0	1		
69	A79-Green Belt	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
70	A78-A76	0	0	0	60	0	0	3	36	18	0	0	1	0	0	9	3	0	1		
71	A76-A77	0	171	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
72	A77-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
73	A77-A45	0	114	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		

		Recycling Phase 2																			
Sr No.	Name of Road	Length of Pipe Line						No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves			Lawn Hydrant	Scour Valve	Air valve
		75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d		50 mm i/d	63 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	50 mm i/d	63 mm i/d	75 mm i/d			
1	2	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
74	A45-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
75	A76-A75	0	0	0	43	0	0		0	0	0	0	1	0	0	0	0	0	1		
		0	0	0	0	0	0	0										0			
76	A75-A43	0	74	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
77	A43-A40	0	61	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
78	A40-A40'	0	115	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
79	A40'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
80	A40'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
81	A40'-A37	0	245	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
82	A37-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
83	A37-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
84	A40-A32	0	159	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
85	A32-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
86	A32-A28	0	83	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
87	A28-A27	0	94	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
88	A27-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
89	A27-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
90	A28-A20	0	193	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
91	A20-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0											0			
92	A75-A73	0	0	60	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
93	A73-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0	0	0					0			0			
94	A73-A47	0	0	378	0	0	0		0	0	0	2	0	0	0	0	0	0	1		
95	A47-A48	0	0	100	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
96	A48-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
97	A48-A18	0	0	258	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
98	A18-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
99	A47-A12	0	0	86	0	0	0		0	0	0	1	0	0	0	0	0	0	1		
100	A12-A14	0	144	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
101	A14-A99	0	81	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
102	A99-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0		0	0					0			0			
103	A12-A10	0	21	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
104	A10-A10'	0	142	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
105	A10'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
106	A10-A7	0	62	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
		0	0	0	0	0	0	0										0			
107	A7-A4'	0	357	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
108	A4'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
109	A4'-Park B	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0		0	0					0			0			
110	A7-A81	0	304	0	0	0	0		0	0	2	0	0	0	0	0	0	0	1		
111	A81-A84	0	199	0	0	0	0		0	0	1	0	0	0	0	0	0	0			

		Recycling Phase 2																			
Sr No.	Name of Road	Length of Pipe Line						No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves			Lawn Hydrant	Scour Valve	Air valve
		75mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d		50 mm i/d	63 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	50 mm i/d	63 mm i/d	75 mm i/d			
1	2	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
112	A84-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
113	A81-A108	0	76	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
114	A108-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
115	A108-A107	0	100	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
116	A107-Park	0	50	0	0	0	0	3	36	18	1	0	0	0	0	9	3	0	1		
117	A107-A1	48	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1		
118	A1-Park	0	50	0	0	0	0	3	36	18	1	0	0	0	0	9	3	0	1		
119	A1-A101	0	48	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
120	A101-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
121	A101-Park B	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
		0	0	0	0	0	0	0										0			
122	A108-A109	0	66	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
123	A109-A110	0	56	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
124	A110-A94	0	53	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
125	A94-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
126	A94-A96	0	172	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
127	A96-A96'	0	97	0	0	0	0		0	0	1	0	0	0	0	0	0	0	1		
128	A96'-Park	50	0	0	0	0	0	3	36	18	0	0	0	0	0	9	3	0	1		
	Total	**2648**	**8201**	**1880**	**482**	**881**	**57**	**165**	**1980**	**990**	**61**	**13**	**4**	**5**	**1**	**495**	**165**	**0**	**126**	**6**	**6**

DRAWINGS
PROPOSED


TO JAIPUR
60M.WIDE NATIONAL HIGHWAY No.-8
TO DELHI
TO GURGAON
TO N.H. No. 8
MEHRAULI GURGAON ROAD
CYBER CITY
X+Y+Z=
78.3056 ACS.
60 M. WIDE SECTOR ROAD
GROUP HOUSING
A+B+C = 12.998
PRIMARY SCHOOL
1.60 ACRES
HEALTH CENTRE
2.77 ACRES
GROUP HOUSING
6.65 ACRES
GROUP HOUSING
5.49 ACRES
GROUP HOUSING
8.65 ACRES
HIGH SCHOOL
3.60 ACRES
CLUB
3.97 ACRES
COMMUNITY CENTRE
1.21 ACRES
PRIMARY SCHOOL
1.61 ACRES
SCHOOL
3.24 AC.
T.S.
0.81 AC.
T.S.
0.81 AC.
PRIMARY SCHOOL
1.61 ACRES
T.S.
0.81 ACRES
T.S.
0.81 ACRES
T.S.
0.81

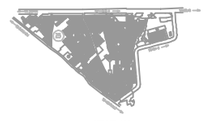
UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE II GURUGRAM

REPAIR OF ROAD OF DEFICIENT WORK OF DLF PHASE- II



LEGEND

	ROAD IN GOOD CONDITION
	9m &12m WIDE ROAD(SP.REPAIR)
	18m WIDE ROAD(SP. REPAIR)
	24m WIDE ROAD (SP. REPAIR)
	BOUNDARY LINE



KEY PLAN

Rev.	Date	Description
Revision		

Concept	Submission	DPR	Tender	GFC	As Buil

Title: REPAIR OF ROAD OF DEFICIENT WORK.

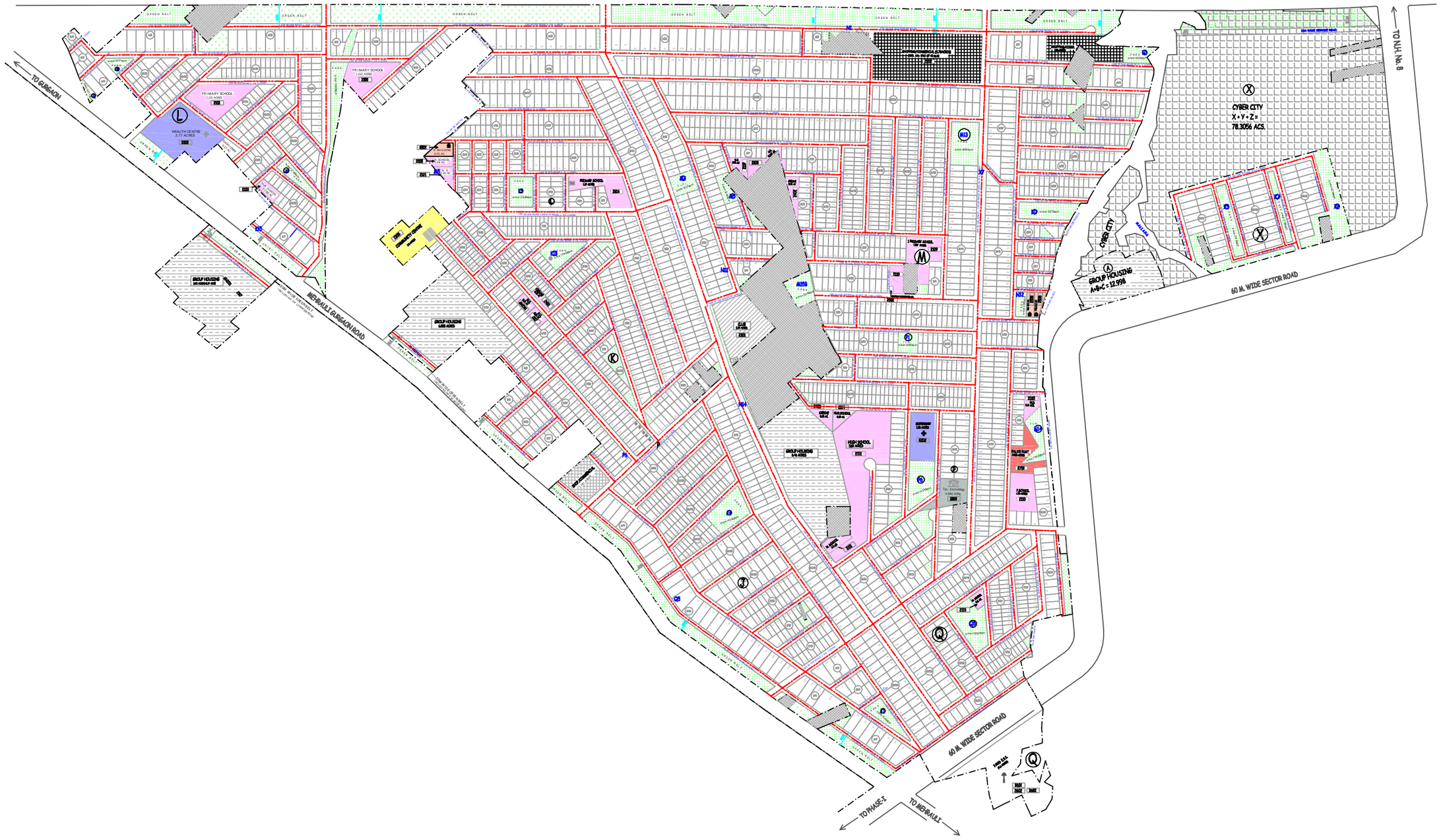
Project: DLF CITY PHASE-II, GURGAON.

Client: Municipal corporation Gurgaon

Consultants: Director infrastructure for ky Consultants Pvt.Ltd
303-304, Star tower
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034713
FAX: 4034714

Services Planned & Designed by: Consultants Pvt. Ltd.

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	

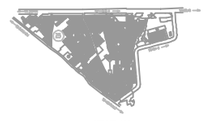


UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE II GURUGRAM

COMMUNITY FACILITIES OF DLF PHASE- II

LEGEND:-

	N.S. P.S H.SCHOOL SR.SEC SH. CRETCH
	COMM.CENTRE
	DISPENCARY HELTH CENTRE..E.S.S.
	R.B
	PARK
	POLICE POST,POLICE STN.
	MINI TEL. EX.,TEL EX.



KEY PLAN

Rev.	Date	Description

Revision

Concept	Submission	DPR	Tender	GFC	As Buil

Title: COMMUNITY FACILITIES

Project: DLF CITY PHASE-II, GURGAON.

Client: Municipal corporation Gurgaon

Consultants: Director infrastructure for ky Consultants Pvt.Ltd
303-304, Star tower
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034713
FAX: 4034714

Services Planned & Designed by: ky Consultants Pvt. Ltd.

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	

UPGRADATION OF AVAILABLE
INFRASTRUCTURE OF DLF PHASE II
GURUGRAM

PARK DETAIL
OF DLF PHASE- II



LEGEND:-

PARKS &GREEN BELT

KEY PLAN

Rev.	Date	Description
Revision		

Concept	Submission	DPR	Tender	GFC	As Buil

Title: PARK DETAIL

Project: DLF CITY PHASE-II, GURGAON.

Client: Municipal corporation Gurgaon

Consultants: Director infrastructure for ky Consultants Pvt.Ltd
303-304, Star tower
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034713
FAX: 4034714

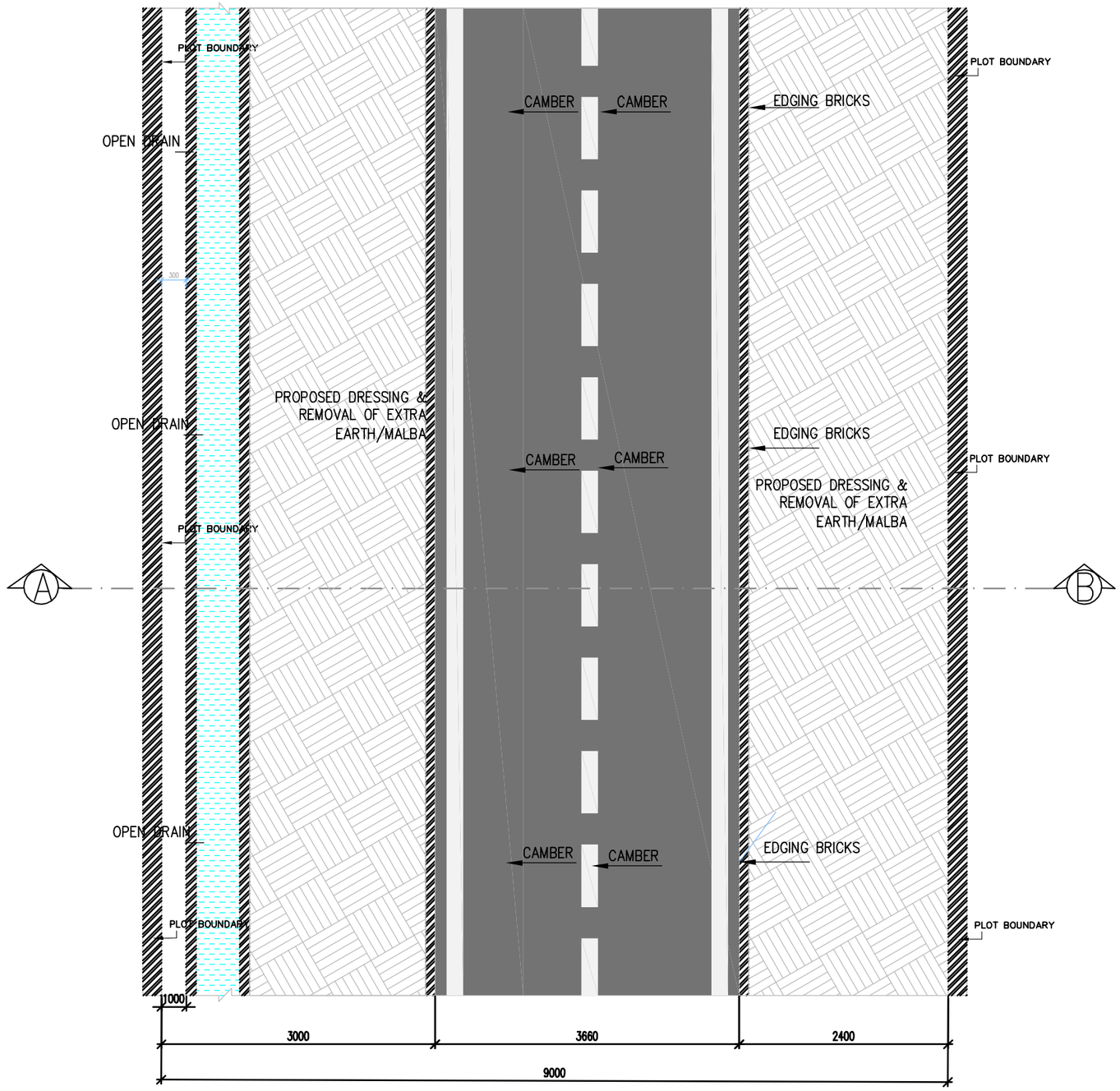
Services Planned & Designed by: ky Consultants Pvt. Ltd.

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	

Drawing No.
DLF/R-2

PLAN OF 9 M
DLF PHASE II

(EXISTING ROAD)



PLAN OF 9 M WIDE ROAD

Note
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

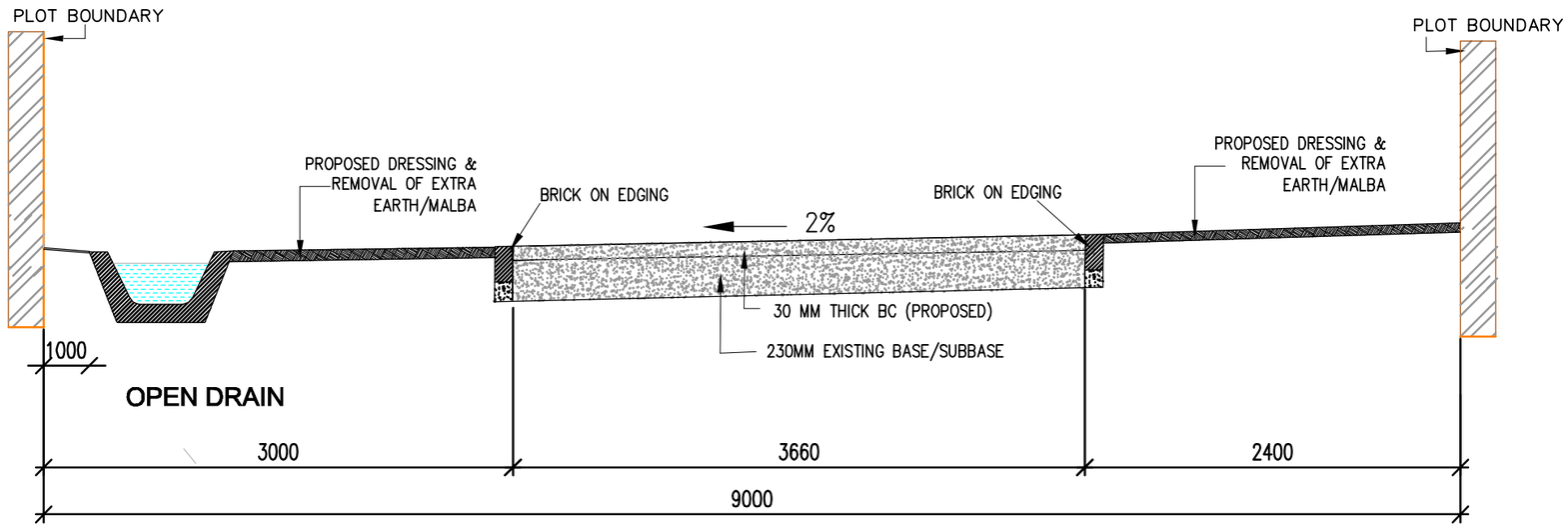
Title: PLAN 9 M. ROAD
Project: DLF PHASE II GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
503-504,DLF STAR TOW
SECTOR-30,Gurgaon- 122
Ph: 01244-4234
FAX: 4234

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/R-2

Drawing No.
DLF/R-3

ROAD SECTION 9 M
DLF PHASE II
(EXISTING ROAD)



A–B FOR 9 M WIDE ROAD

Note
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: ROAD X - SECTION 9M.
Project: DLF PHASE II GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

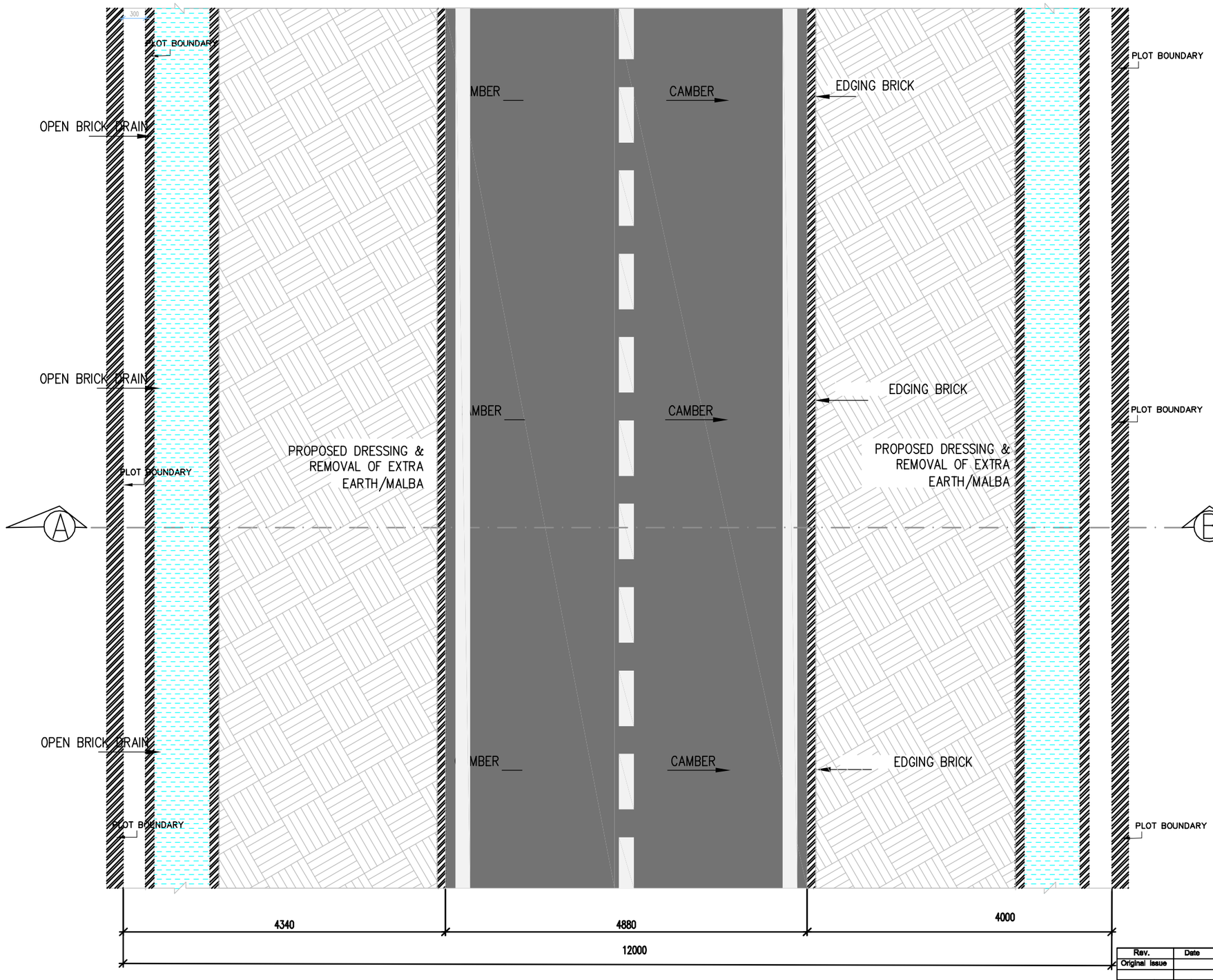
Services Planned & Designed by:
Consultants Pvt. Ltd.
303-304,DLF STAR TOWER
SECTOR-30,Gurgaon- 1220(
Ph: 0124-403471
FAX: 403471

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/R-3

Drawing No.
DLF/R-4

PLAN OF 12 M
DLF PHASE II GURGAON

(EXISTING ROAD)



PLAN OF 12 M WIDE ROAD

Note
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

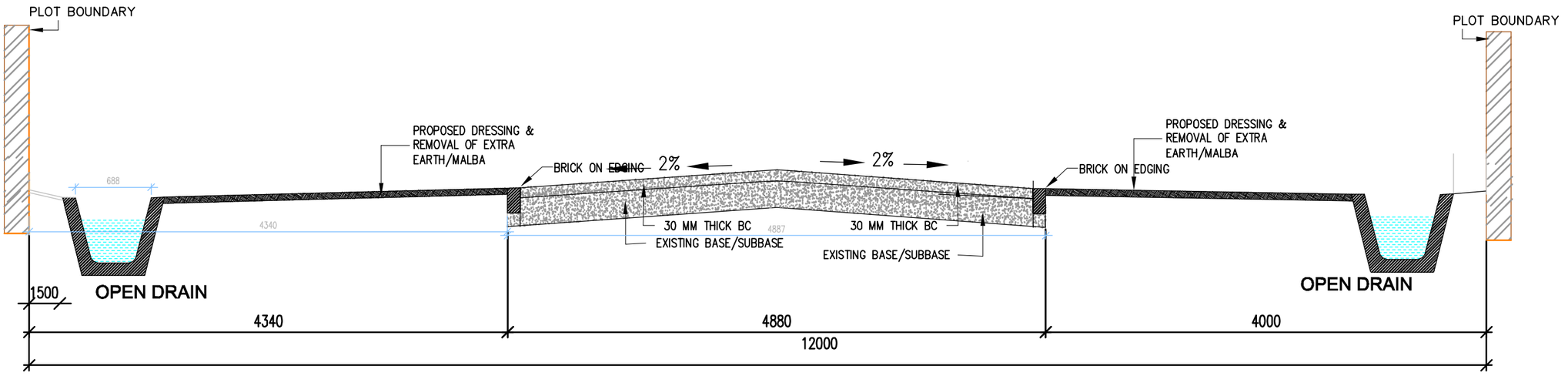
Title: ROAD PLAN 12M.
Project: DLF PHASE II GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
K Consultants Pvt. Ltd.
305-304,DLF STAR TOW
SECTOR-30,Gurgaon- 122
Ph: 0124-4024
FAX: 4034

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/R-4

Drawing No.
DLF/R-5

ROAD SECTION 12 M
DLF PHASE II
(EXISTING ROAD)



A-B FOR 12 M WIDE ROAD

Note
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: ROAD X - SECTION 12M.

Project: DLF PHASE II GURGAON (HR).

Client: MUNICIPAL CORPORATION GURGAON

MCG

Services Planned & Designed by:

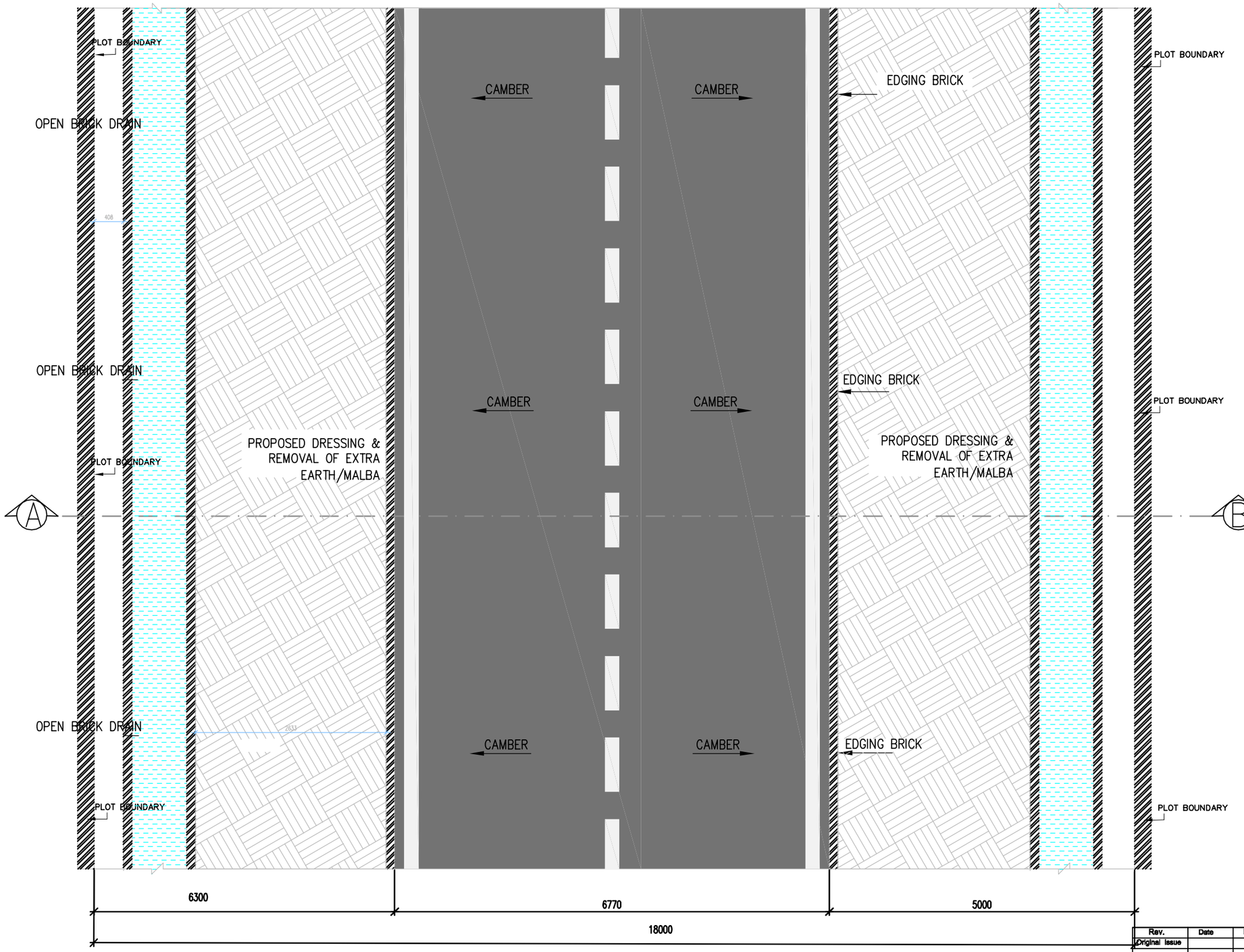
Consultants Pvt. Ltd.

303-304,DLF STAR TOWE
SECTOR-30,Gurgaon- 1220
Ph: 0124-40347
FAX: 40347

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/R-5

PLAN OF 18 M
DLF PHASE II
GURGAON
(EXISTING ROAD)

Drawing No.
DLF/R-6



PLAN OF 18 M WIDE ROAD

Note
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

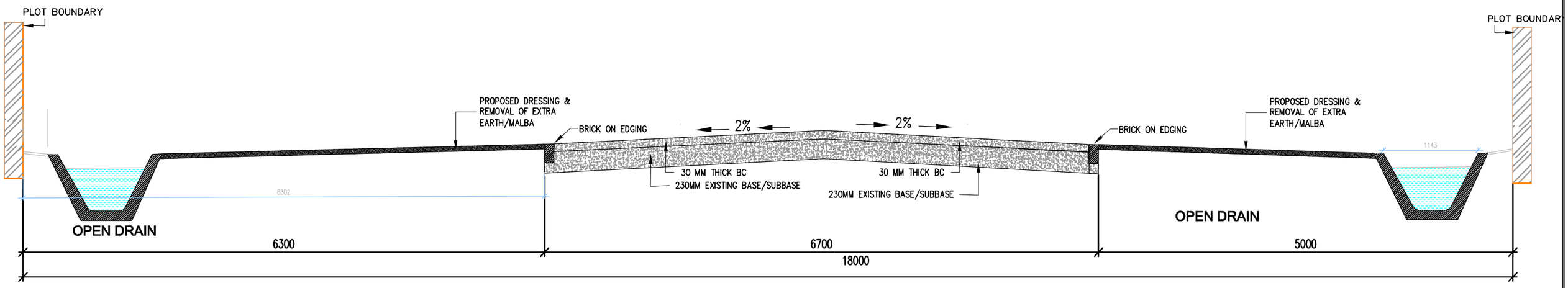
Title: ROAD PLAN 18M.
Project: DLF PHASE II GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
305-304,DLF STAR TOW
SECTOR-30,Gurgaon- 122
Ph: 0124-4034
FAX: 4034

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/R-6

Drawing No.
DLF/R-7

ROAD SECTION 18 M
DLF PHASE II
GURGAON
(EXISTING ROAD)



A–B FOR 18 M WIDE ROAD

Note
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: ROAD X - SECTION 18M.

Project: DLF PHASE II GURGAON (HR).

Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:

Consultants Pvt. Ltd.

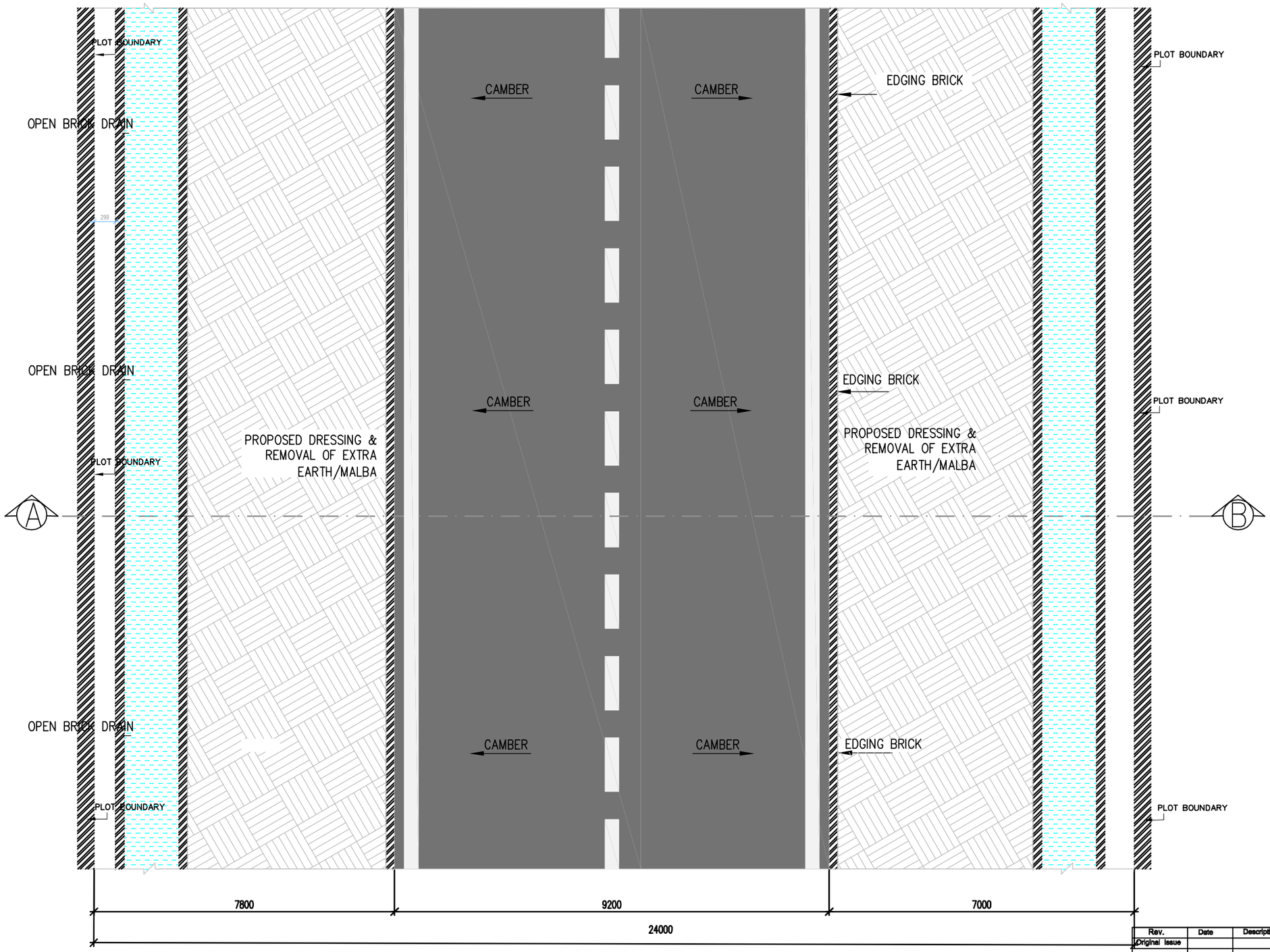
303-304,DLF STAR TOW SECTOR-30,Gurgaon- 122 Ph: 0124-4034 FAX: 4034

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/R-7

Drawing No.
DLF/R-8

PLAN OF 24 M
DLF PHASE II GURGAON

(EXISTING ROAD)



PLAN OF 24 M WIDE ROAD

Note
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: ROAD PLAN 24M
Project: DLF PHASE II GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.

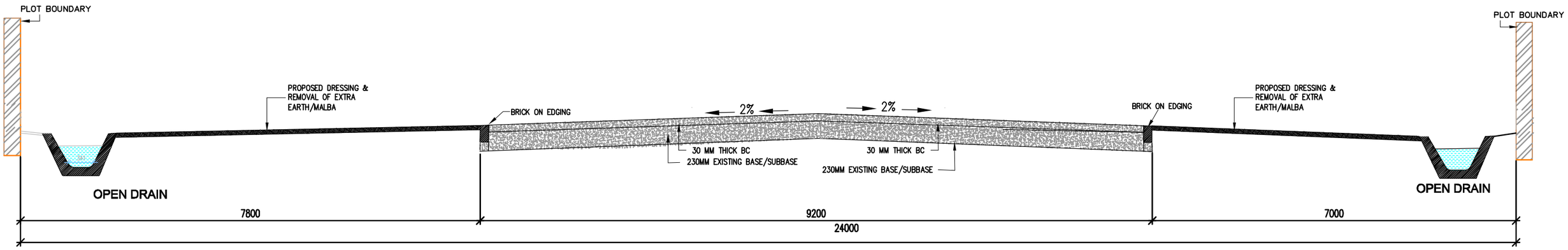
305-304,DLF STAR TOW
SECTOR-30,Gurgaon- 122
Ph: 0124-4034
FAX: 4034

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/R-8

Drawing No.
DLF/R-9

ROAD SECTION 24 M
DLF PHASE II GURGAON

(EXISTING ROAD)



A–B FOR 24 M WIDE ROAD

Note
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Buil

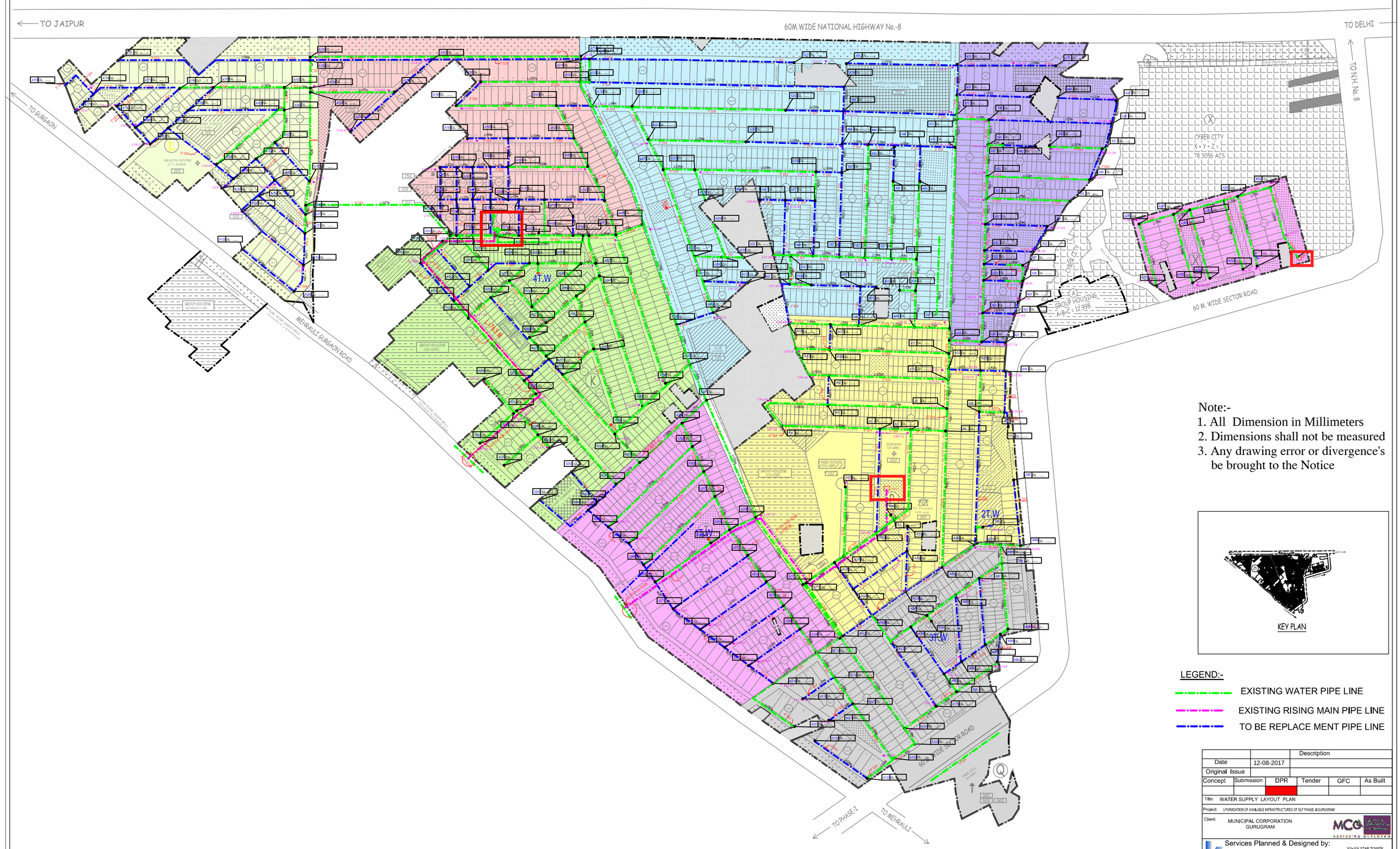
Title: ROAD X - SECTION 24M.
Project: DLF PHASE II GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
303-304,DLF STAR TOW
SECTOR-30,Gurgaon- 12
Ph: 0124-403
FAX: 403

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/R-9

UPGRADATION OF AVAILABLE
INFRASTRUCTURE DLF PHASE II
GURUGRAM
WATER SUPPLY LAYOUT PLAN

Drawing No.
MCG/DLF/W-1



Note:-
1. All Dimension in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergence's be brought to the Notice

LEGEND:-

EXISTING WATER PIPE LINE

EXISTING RISING MAIN PIPE LINE

TO BE REPLACE MENT PIPE LINE

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: WATER SUPPLY LAYOUT PLAN

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE-II GURUGRAM

Client: MUNICIPAL CORPORATION GURUGRAM

MCG NURTURING GURUGRAM

Services Planned & Designed by:

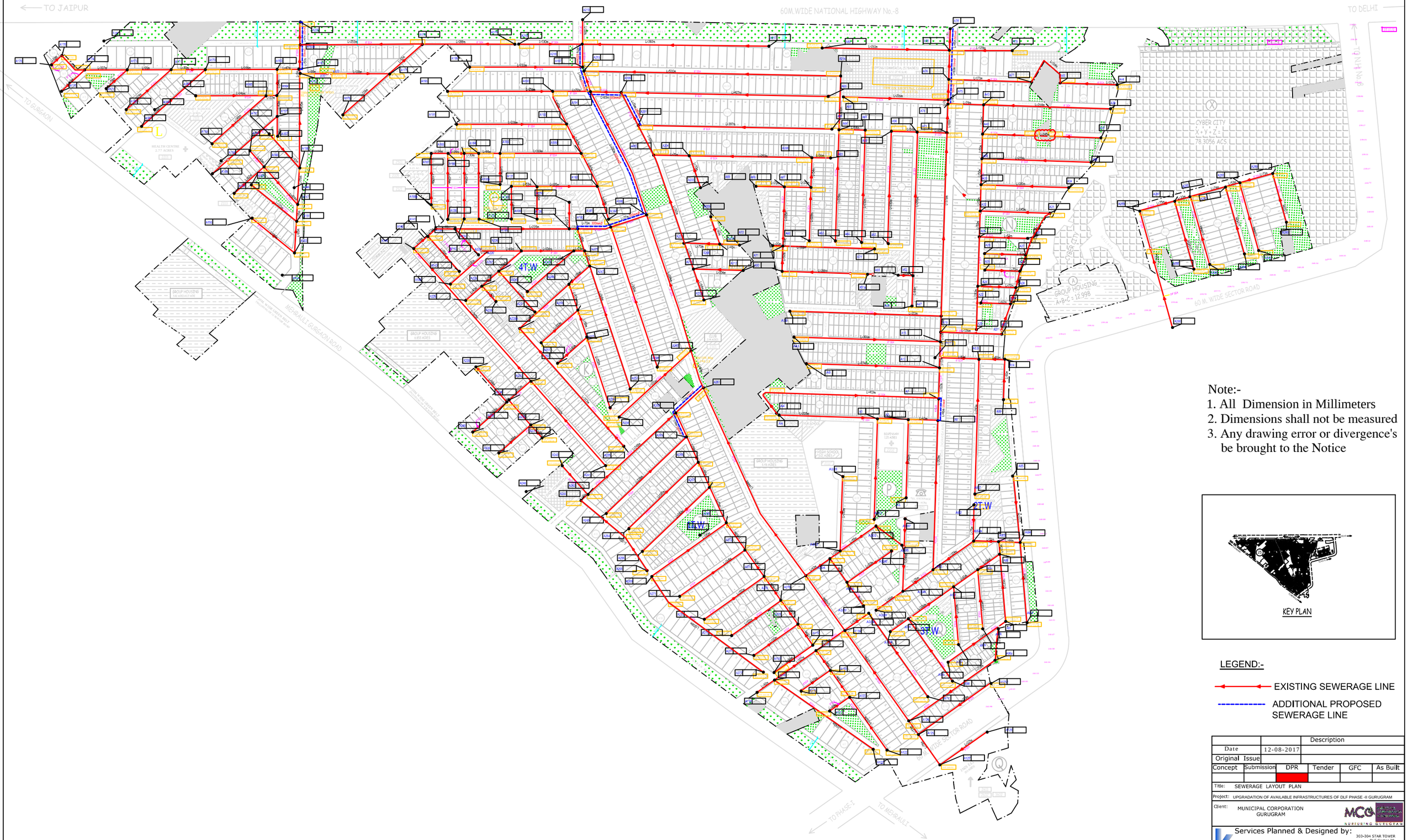
303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Consultants Pvt. Ltd.

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.K. Gupta	Ajay	MCG/DLF/W-1

UPGRADATION OF AVAILABLE
INFRASTRUCTURE DLF PHASE II
GURUGRAM
SEWER LAYOUT PLAN

Drawing No
MCG/DLF/S1



Note:-
1. All Dimension in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergence's be brought to the Notice

LEGEND:-

EXISTING SEWERAGE LINE

ADDITIONAL PROPOSED SEWERAGE LINE

		Description			
Date	12-08-2017				
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: SEWERAGE LAYOUT PLAN

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURUGRAM

Services Planned & Designed by:

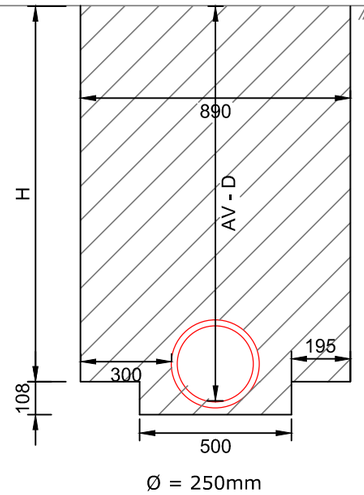
Consultants Pvt. Ltd.
303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.K. Gupta	Ajay	MCG/DLF/S-1

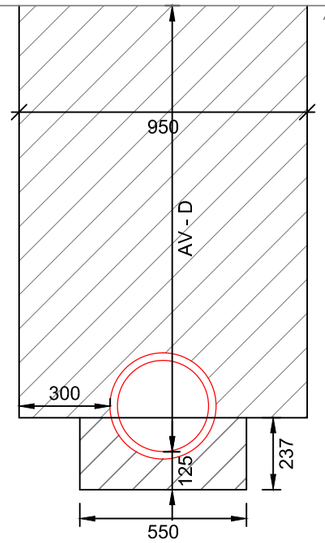
Excavation X-Section
Sewerage System

Drawing No.:
DLF/S2A

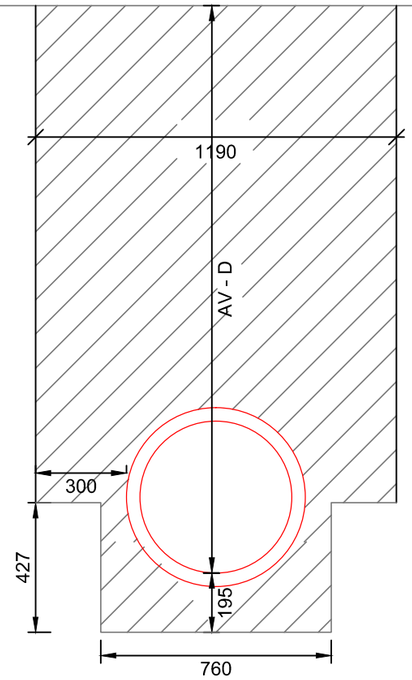
Ground Level



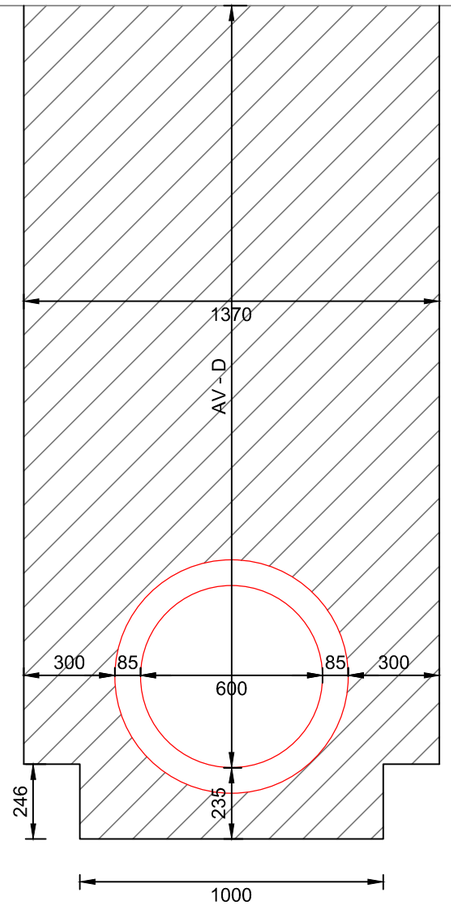
Ø = 250mm



Ø = 300mm



Ø = 500mm



Size 600 MM Ø

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Excavation Manhole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-2A

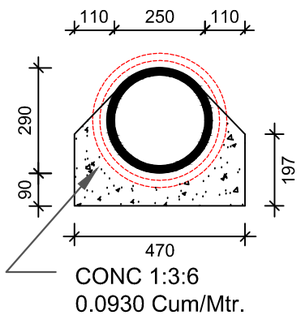
Excavation X-Section Sewerage System 250mmØ,300mmØ, 500mmØ & 600mmØ

UPGRADATION OF AVAILABLE INFRASTRUCTURES
OF DLF PHASE -II GURUGRAM

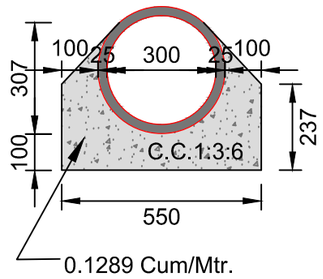
Drawing No.:
DLF/S3

RCC.NP3 Pipes

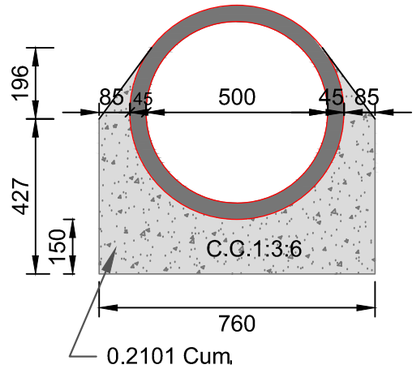
SIZE 250 MM Ø



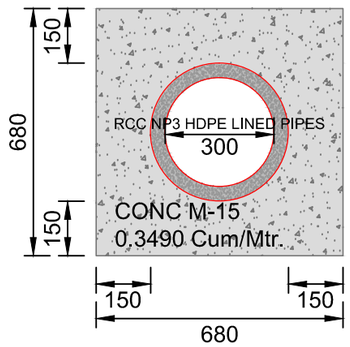
SIZE 300MM Ø RCC NP3 HDPE LINED PIPES



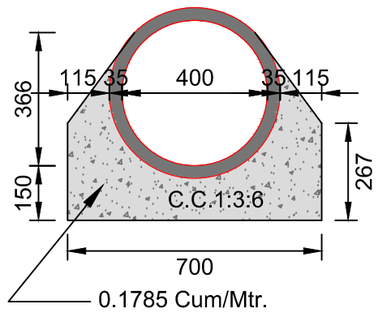
Size 500 MM Ø NP3 HDPE LINED PIPES



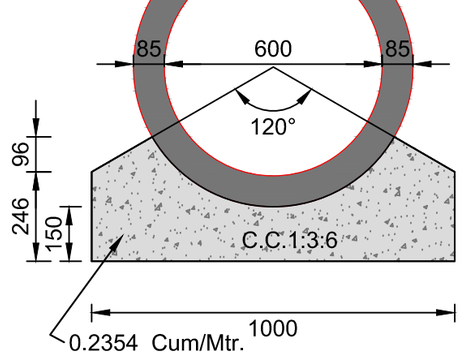
Size of Pipe = 300 mm
Connection Lamp Hole To
Man Hole Const.at Main Line



SIZE 400 MM Ø NP3 HDPE LINED PIPES



Size 600 MM Ø NP3 HDPE LINED PIPES



Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. C.C. 1:3:6 Under Pipes .
4. Cement Shall Be min. 43 Grade.
5. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of R.C.C. Pipe NP-3

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG MUNICIPAL CORPORATION OF GURUGRAM NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

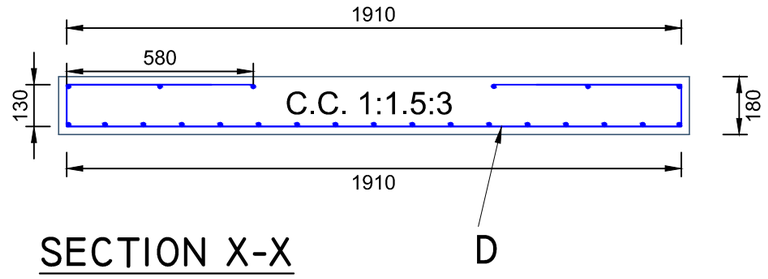
Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

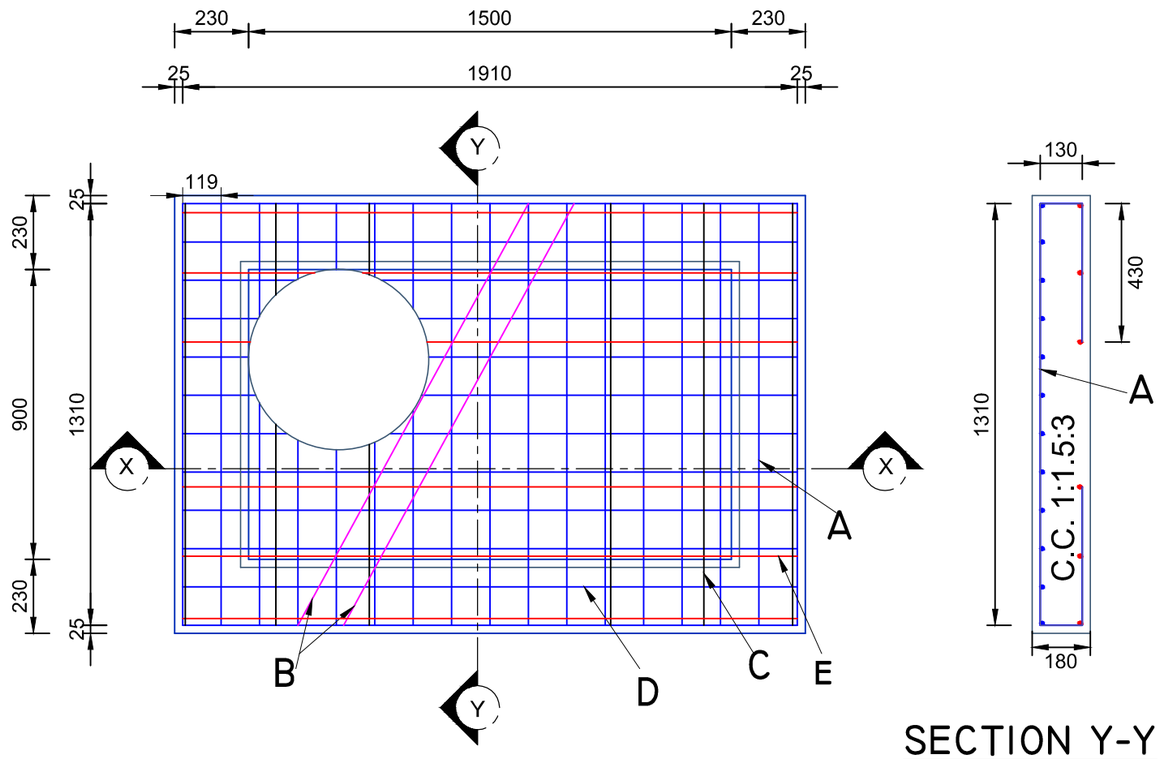
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-3

Detail of Slab
1500 x 900

Drawing No.: DLF/S4A



SECTION X-X



TOP SLAB I500x900

SECTION Y-Y

12mm ϕ 125mm c/c max.

A) 12 no. length (1310+430 x 2+130x2) = 2430 mm
- 1 no. length (430+692+130)=1252,(352 x 2+130) =834
- 1 no. length (430+575+130)=1135,(235 x 2 + 130) =600
- 1 no. length (430+545+130)=1105,(205 x 2 +130) =540
- 1 no. length (430+568+130)=1128,(228 x 2 + 130) =586
- 1 no. length (430+667+130)=1227,(327 x 2 + 130) =784

B) 2 no. length 1493mm

C) 4 no. length 1310mm
- 1 no. length 284mm + 624mm
- 1 no. length 222mm + 562mm

12mm ϕ 125mm c/c max.

D) 7 no. length (1910+580 x 2+130x2) = 3330 mm
- 1 no. length (580+130+1293)=2003,(353x2+130) =836
- 1 no. length (580+130+1176)=1886,(236 x 2 + 130) =602
- 1 no. length (580+130+1145)=1855,(205 x 2 + 130) =540
- 1 no. length (580+130+1168)=1878,(228 x 2 + 130) =586
- 1 no. length (580+130+1265)=1975,(325 x 2 + 130) =780

E) 4 no. length 1910mm
- 1 no. length 1351mm + 411mm
- 1 no. length 1150mm + 210mm

NOTES:-
1. ALL DIMENSIONS IN MILLIMETERS
2. DIMENSIONS SHALL NOT BE MEASURED
3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH RELEVANT ARCH. DRAWING & ANY DISCRI-PANCY NOTICED SHOULD BE GOT CLARIFIED BEFORE EXECUTION.
4. # & Ø SIGN. INDICATE Fe - 500 DEFORMED BARS CONFIRMING TO IS: 1786-1985
5. CONC. MIX SHALL BE (1:1.5:3) FOR SLAB.
6. CLEAR COVER OF MAIN REINFORCEMENT IN SLAB 25 MM, .
7. ONLY 43 GRADE CEMENT OF APPROVED QUALITY SHALL BE USED
8. FOUNDATION SHOULD REST ON FIRM SOIL.
9. WORK TO BE CARRIED OUT AS PER HR. PWD SPECS.
10. ANY DRAWING ERROR OR DIVERGENCES BE BROUGHT TO THE NOTICE

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Slab

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE-II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

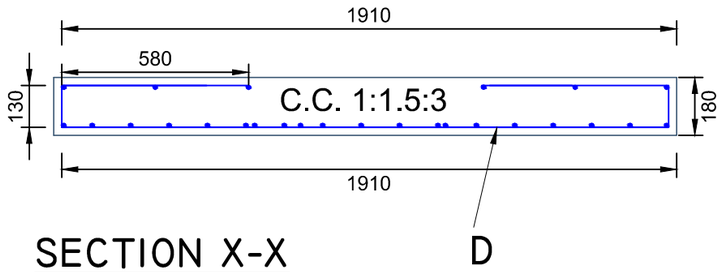
Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

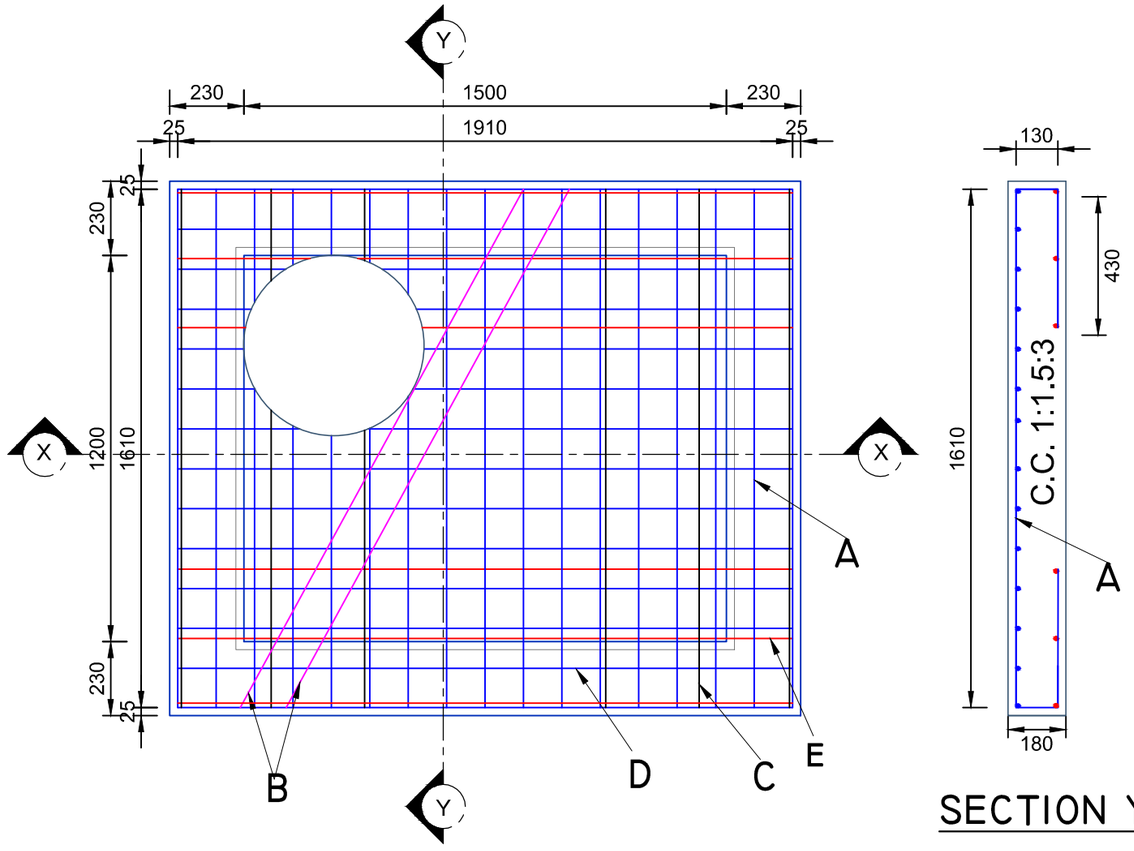
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-4A

Detail of Slab
1500 x 1200

Drawing No.:
DLF/S4B



SECTION X-X



TOP SLAB 1500x1200

SECTION Y-Y

12mm ϕ 125mm c/c max.

A) 12 no. length (1610+430 x 2+130x2) = 2730 mm
1 no. length (430+992+130)=1552,(352 x 2+130) =834
1 no. length (430+875+130)=1435,(235 x 2 + 130) =600
1 no. length (430+845+130)=1405,(205 x 2 +130) =540
1 no. length (430+868+130)=1428,(228 x 2 + 130) =586
1 no. length (430+967+130)=1527,(327 x 2 + 130) =784

B) 2 no. length 1835mm

C) 4 no. length 1610mm
1 no. length 284mm + 924mm
1 no. length 222mm + 862mm

12mm ϕ 125mm c/c max.

D) 9 no. length (2210+580 x 2+130x2) = 3630 mm
1 no. length (580+130+1276)=1986,(336x2+130) =802
1 no. length (580+130+1169)=1879,(229 x 2 + 130) =588
1 no. length (580+130+1145)=1855,(205 x 2 + 130) =540
1 no. length (580+130+1180)=1890,(240 x 2 + 130) =610
1 no. length (580+130+1319)=2029,(379 x 2 + 130) =888

E) 4 no. length 2210mm
1 no. length 1351mm + 411mm
1 no. length 1150mm + 210mm

NOTES:-

1. ALL DIMENSIONS IN MILLIMETERS
2. DIMENSIONS SHALL NOT BE MEASURED
3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH RELEVANT ARCH. DRAWING & ANY DISCRI-PANCY NOTICED SHOULD BE GOT CLARIFIED BEFORE EXECUTION.
4. # & Ø SIGN. INDICATE Fe - 500 DEFORMED BARS CONFIRMING TO IS: 1786-1985
5. CONC. MIX SHALL BE (1:1.5:3) FOR SLAB.
6. CLEAR COVER OF MAIN REINFORCEMENT IN SLAB 25 MM,
7. ONLY 43 GRADE CEMENT OF APPROVED QUALITY SHALL BE USED
8. FOUNDATION SHOULD REST ON FIRM SOIL.
9. WORK TO BE CARRIED OUT AS PER HR. PWD SPECS.
10. ANY DRAWING ERROR OR DIVERGENCES BE BROUGHT TO THE NOTICE

Date	12-08-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Slab

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE-II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

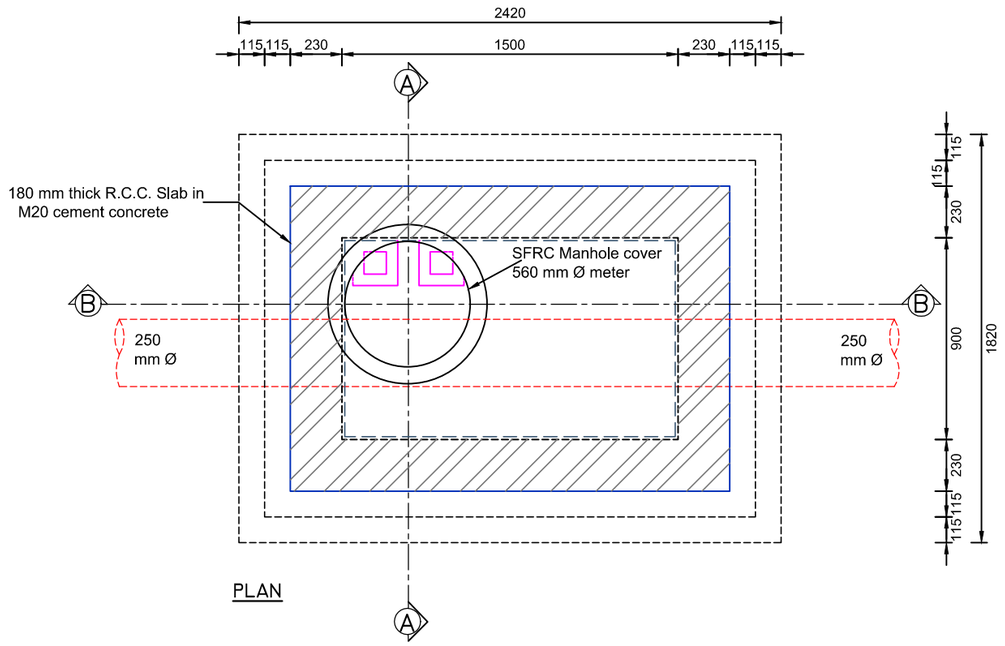
Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd

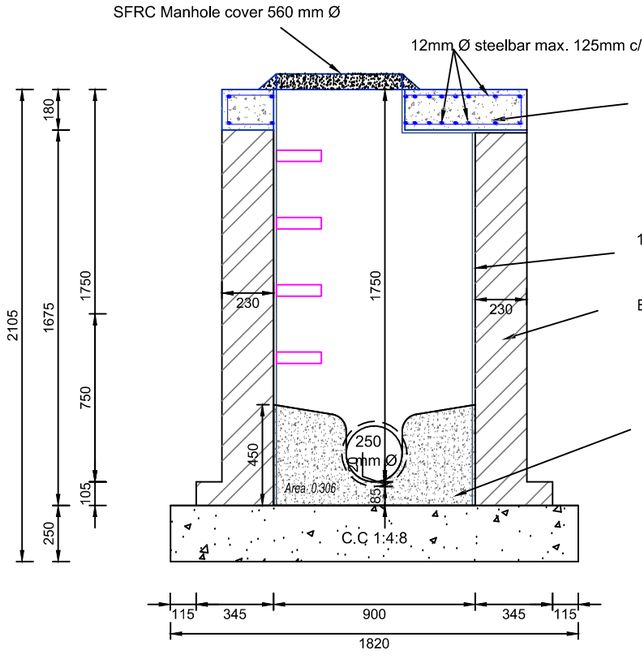
303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-4B

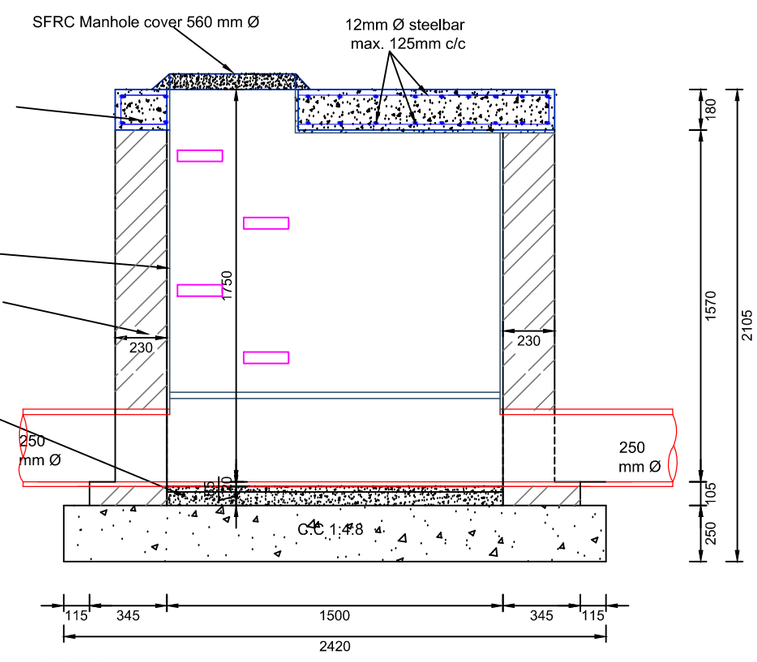
Size : 1500mm x 900 mm
Size of Pipe = 250 mm
Max. Depth = 1750 mm

Drawing No.
DLF/S5A





SECTION A-A



SECTION B-B

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

K Consultants Pvt. Ltd.

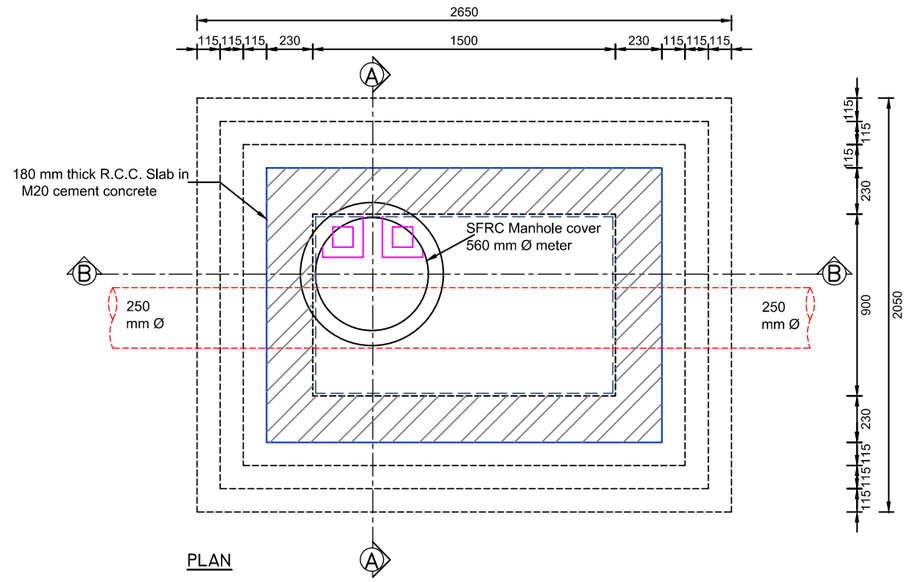
Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

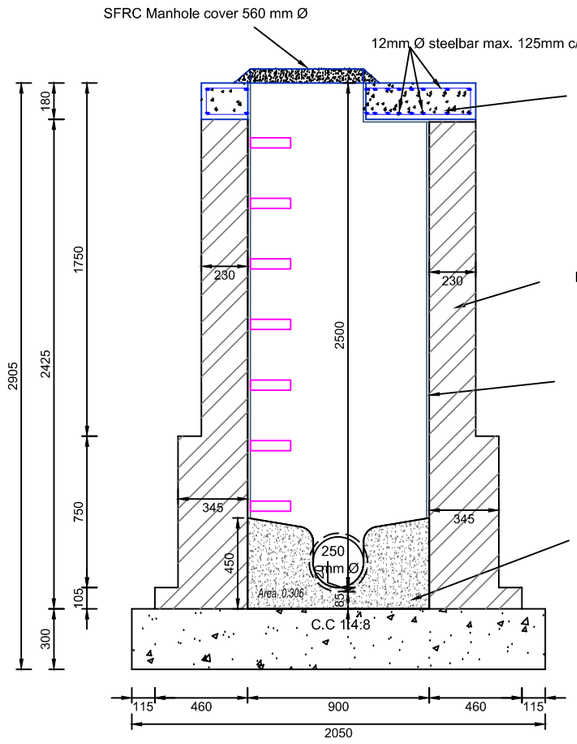
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S5A

Size : 1500mm x 900 mm
Size of Pipe = 250 mm
Max. Depth = 2500 mm

Drawing No. DLF/S5B



PLAN



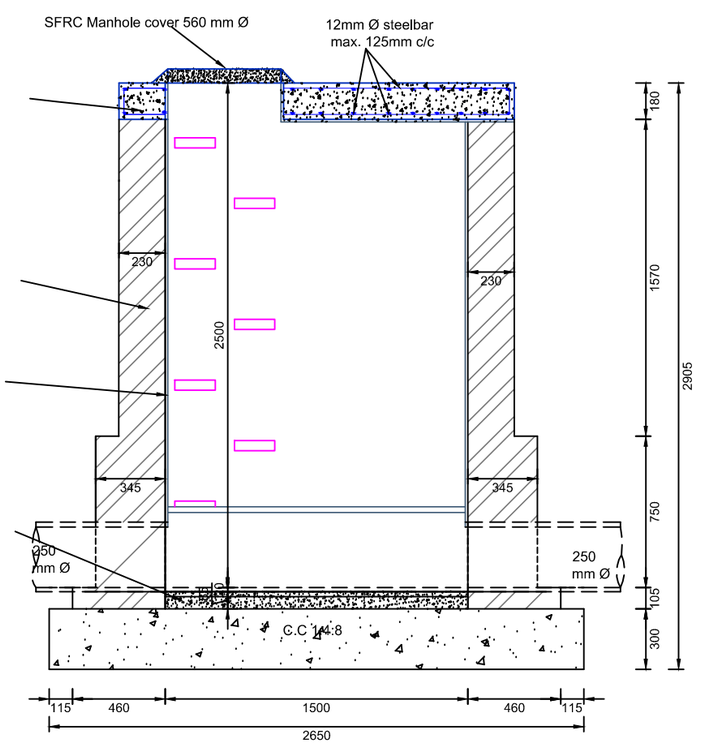
SECTION A-A

180 mm thick R.C.C. Slab 1:1.5:3

Brick work in cement stone dust morter 1:5

12 mm thick Cement sand plaster in 1:2 with 1mm thick neat cement rendering

Benching in cement concrete 1:1.5:3 1 :2 at top laid in slope 1 : 6 towards pipe to be extended upto 50mm above the crown of the pipe rendered with neat coat of cement



SECTION B-B

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames Marked With IS:12597 Set in C.M.1:2 (EHD-35).
8. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG MUNICIPAL CORPORATION GURUGRAM
MUSTERING GURUGRAM

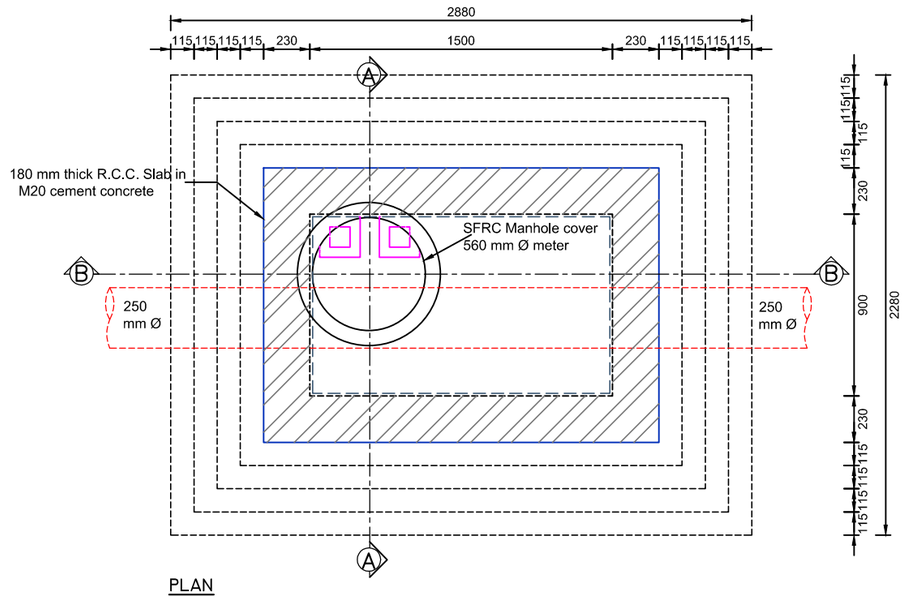
Services Planned & Designed by:
ky Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd

305-306 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

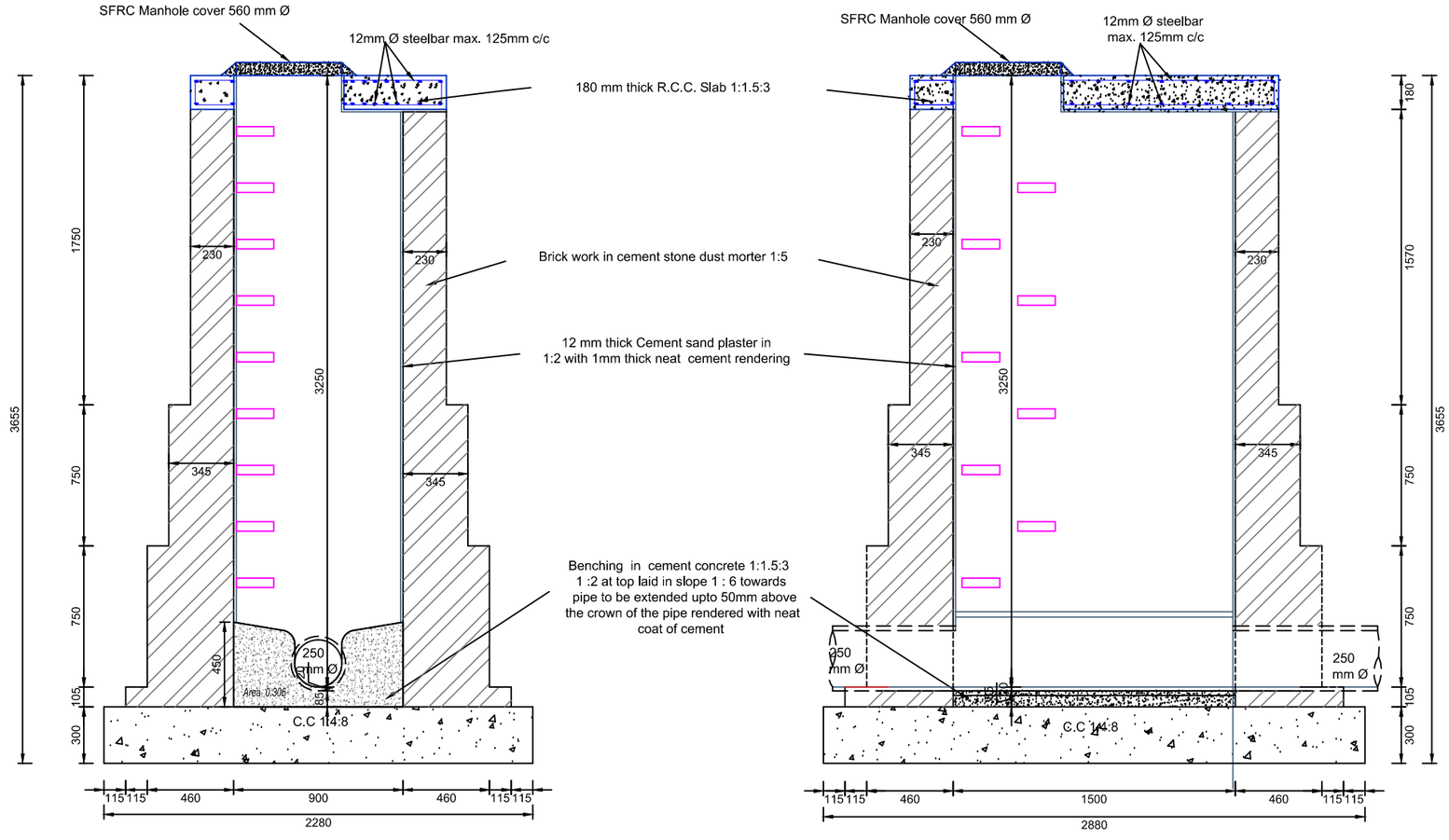
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S5B

Size : 1500mm x 900 mm
Size of Pipe = 250 mm
Max. Depth = 3250 mm

Drawing No.
DLF/S5C



PLAN



SECTION A-A

SECTION B-B

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames Marked With IS:12597 Set in C.M.1:2 (EHD-35).
8. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG MUNICIPAL CORPORATION GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

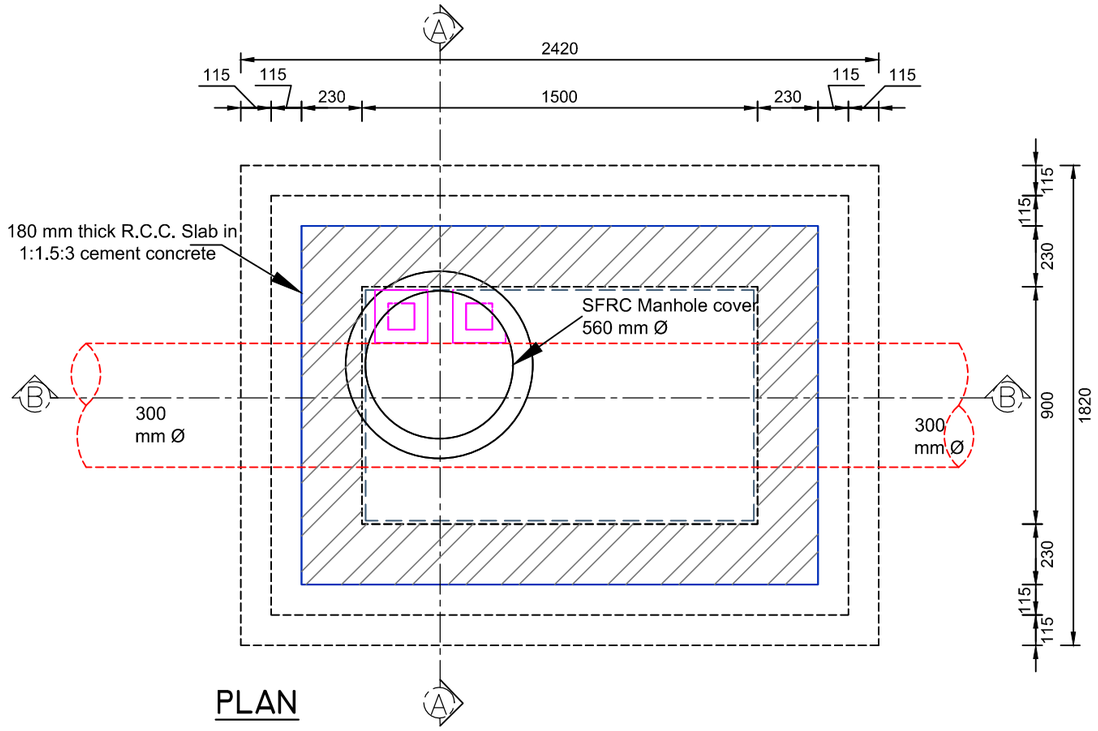
Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4334715
FAX: 4034714

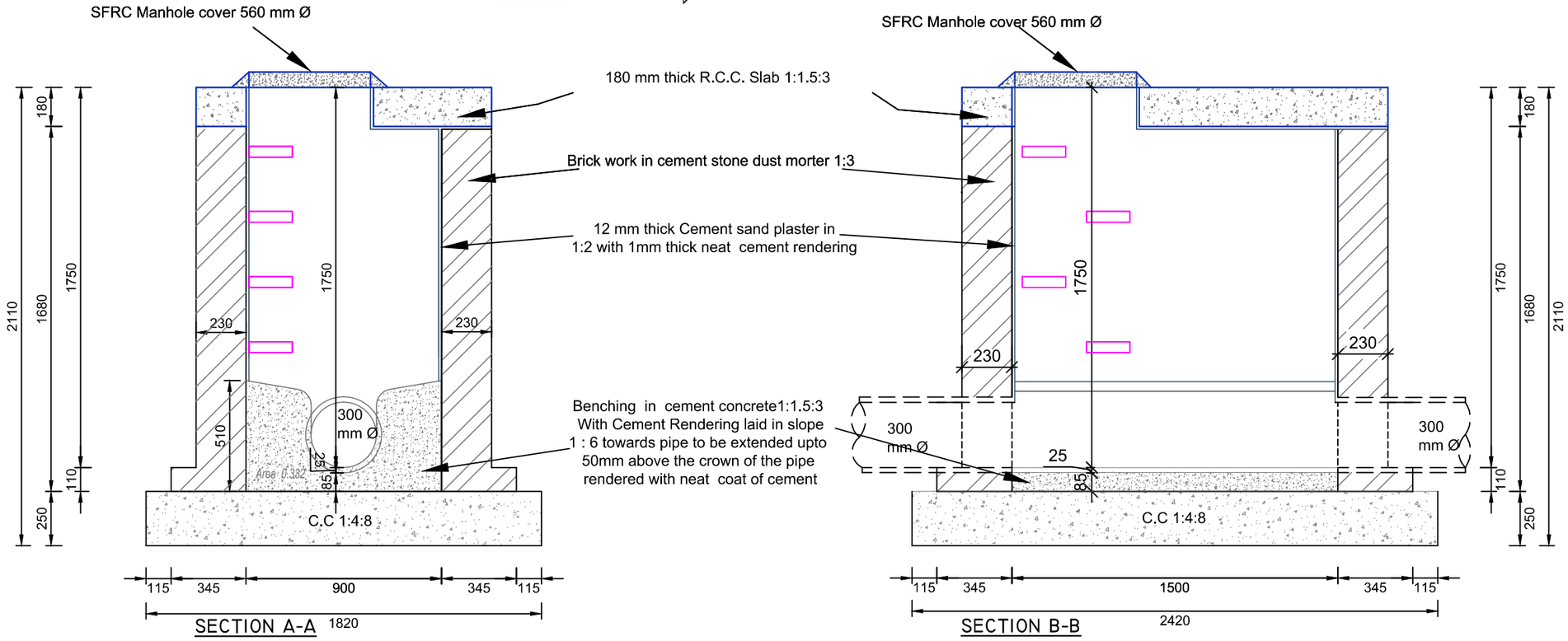
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S5C

Section Sewer Manhole
Size : 1500mm x 900 mm
Size of Pipe = 300 mm
Max. Depth = 1750 mm

Drawing No.
DLF/S6A



PLAN



Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames
   Marked With IS:12597 Set in C.M.1:2 (EHD-35)
8. Any drawing error or divergences
   be brought to the Notice

Date	12-08-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

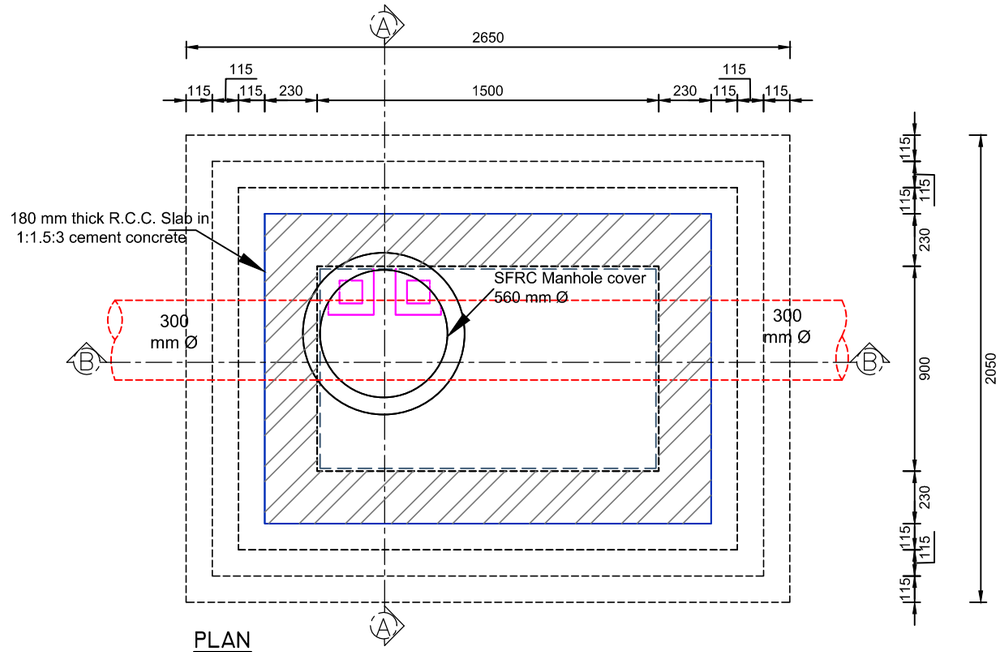
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE-II GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

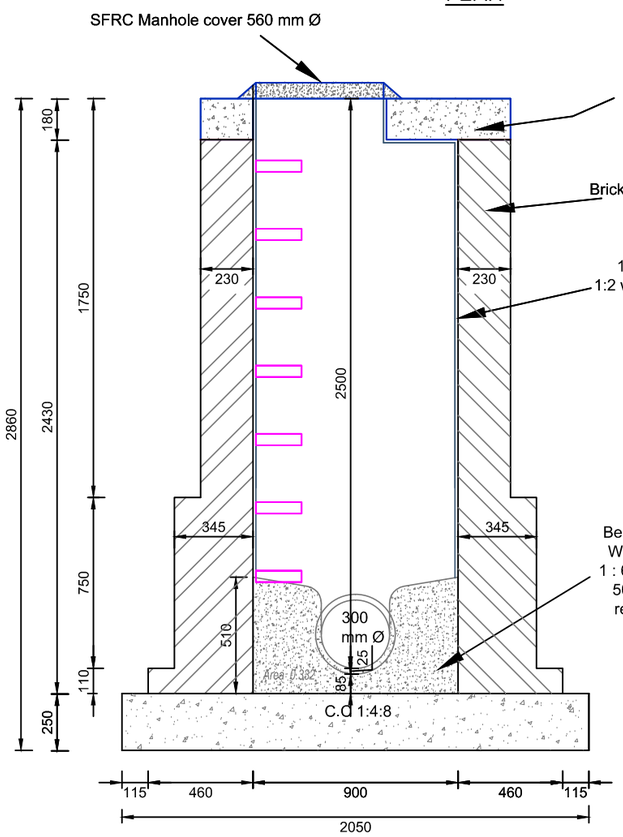
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S6A

Section Sewer Manhole
Size : 1500mm x 900 mm
Size of Pipe = 300 mm
Max. Depth = 2500 mm

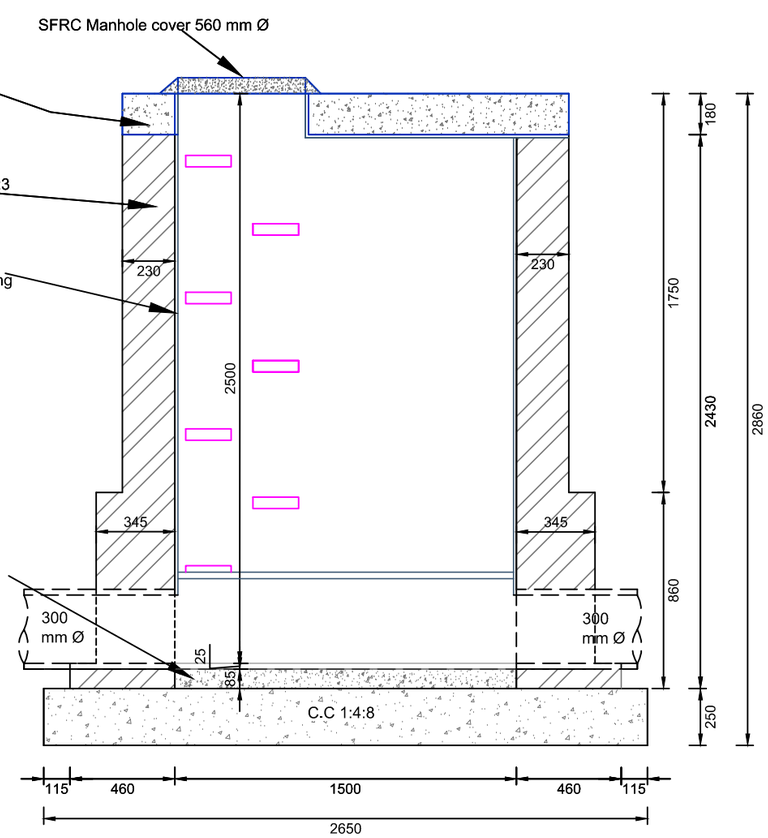
Drawing No.
DLF/S6B



PLAN



SECTION A-A



SECTION B-B

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames Marked With IS:12597 Set in C.M.1:2 (EHD-35).
8. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

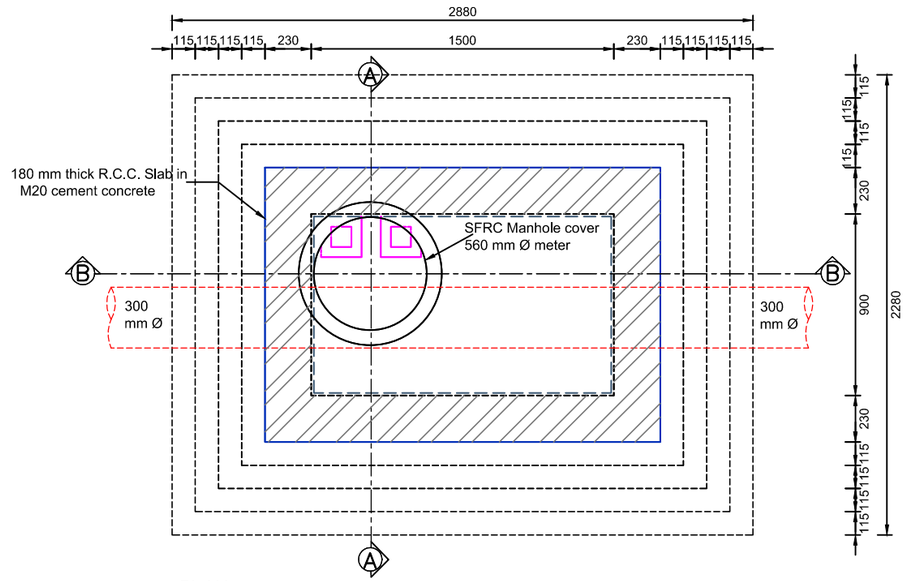
MCG NURTURING GURUGRAM

Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

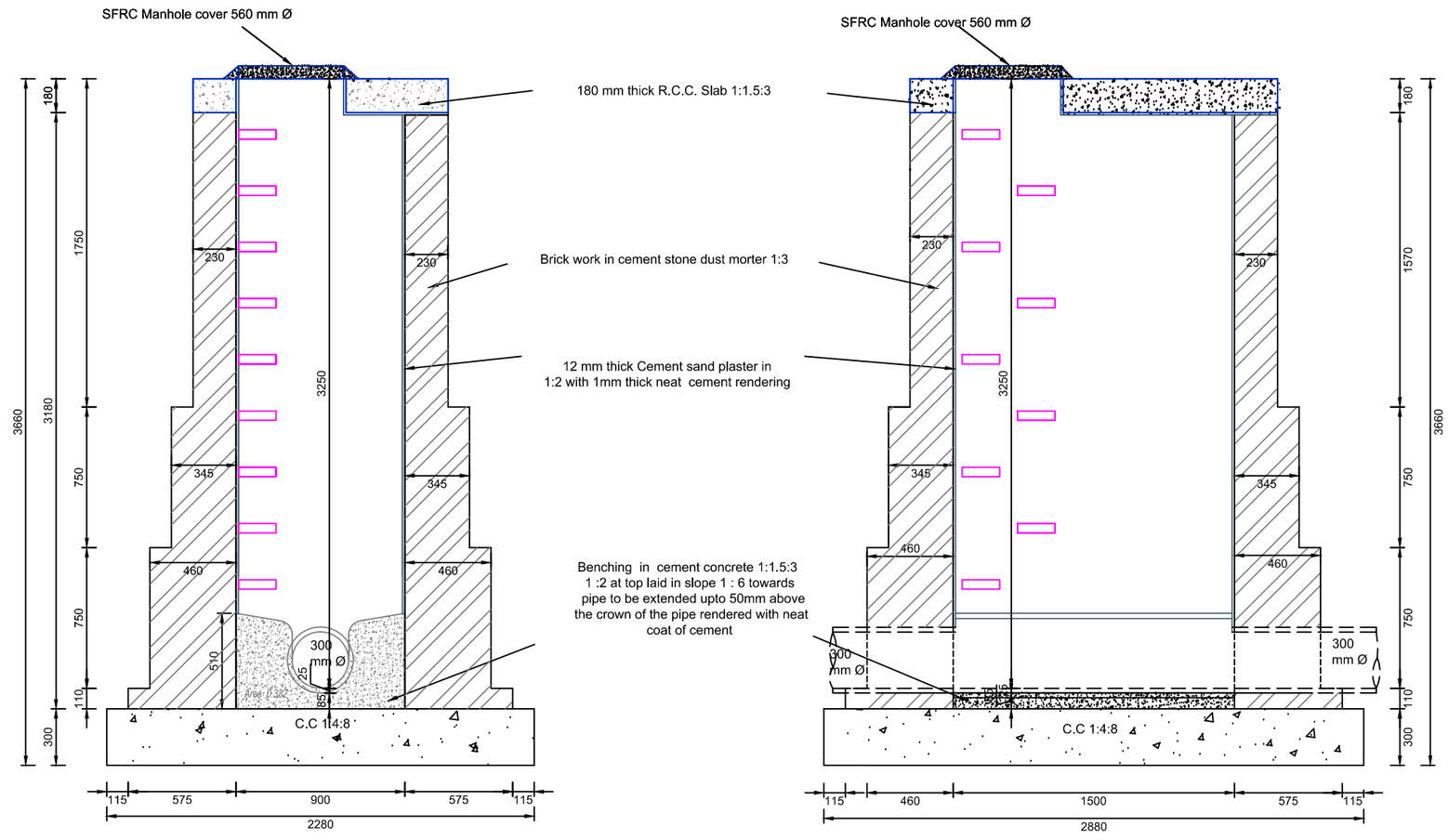
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S6B

Section Sewer Manhole
Size : 1500mm x 900 mm
Size of Pipe = 300 mm
Max. Depth = 3250 mm

Drawing No.
DLF/S6C



PLAN



SECTION A-A

SECTION B-B

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames Marked With IS:12597 Set in C.M.1:2 (EHD-35).
8. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE II GURUGRAM

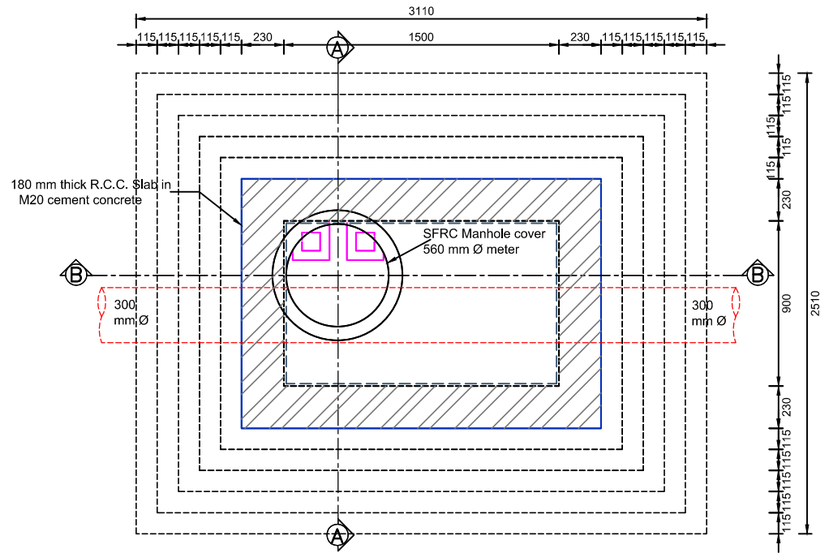
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

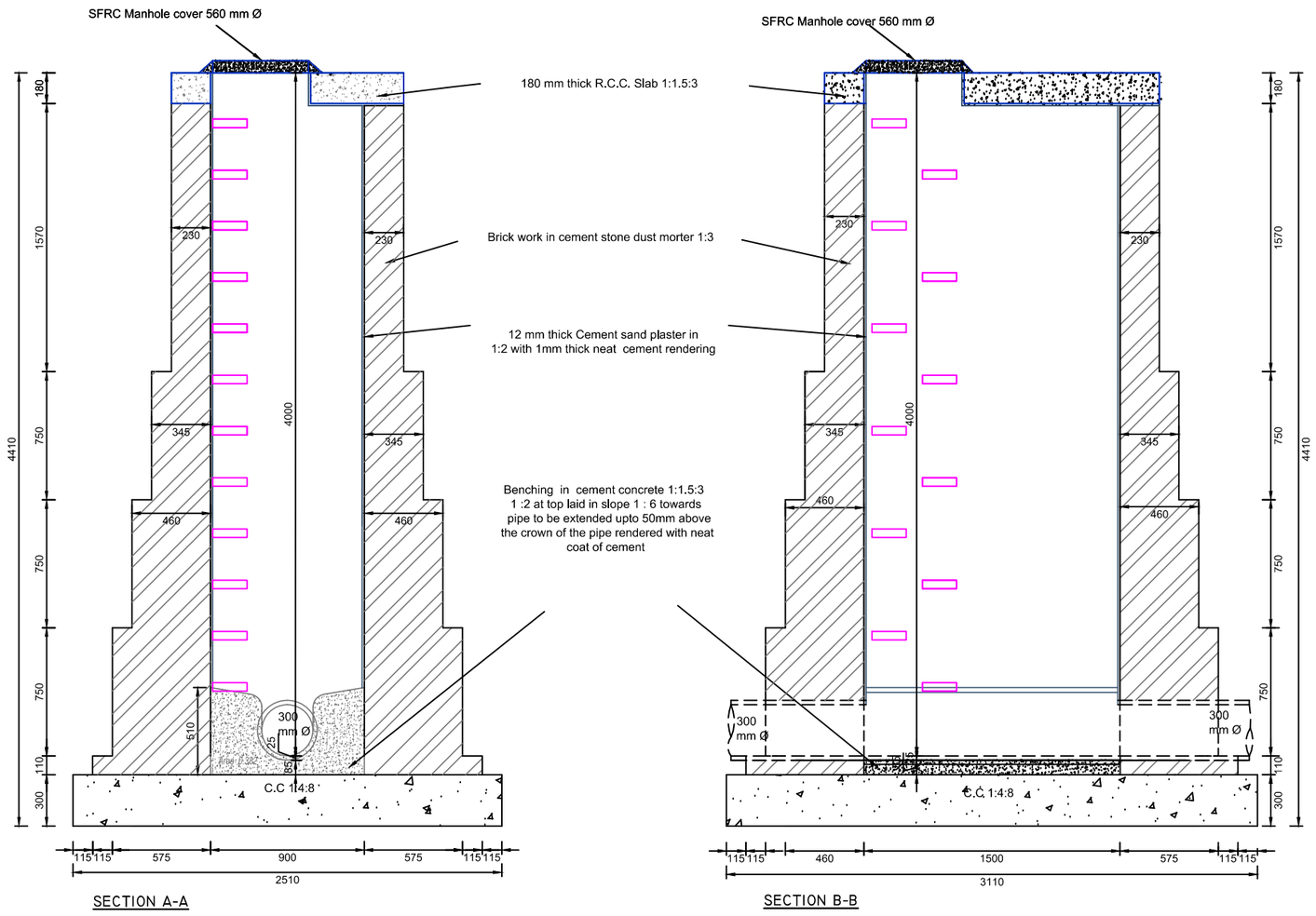
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S6C

Section Sewer Manhole
Size : 1500mm x 900 mm
Size of Pipe = 300 mm
Max. Depth = 4000 mm

Drawing No.
DLF/S6D



PLAN



SECTION A-A

SECTION B-B

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames Marked With IS:12597 Set in C.M.1:2 (EHD-35).
8. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE-II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

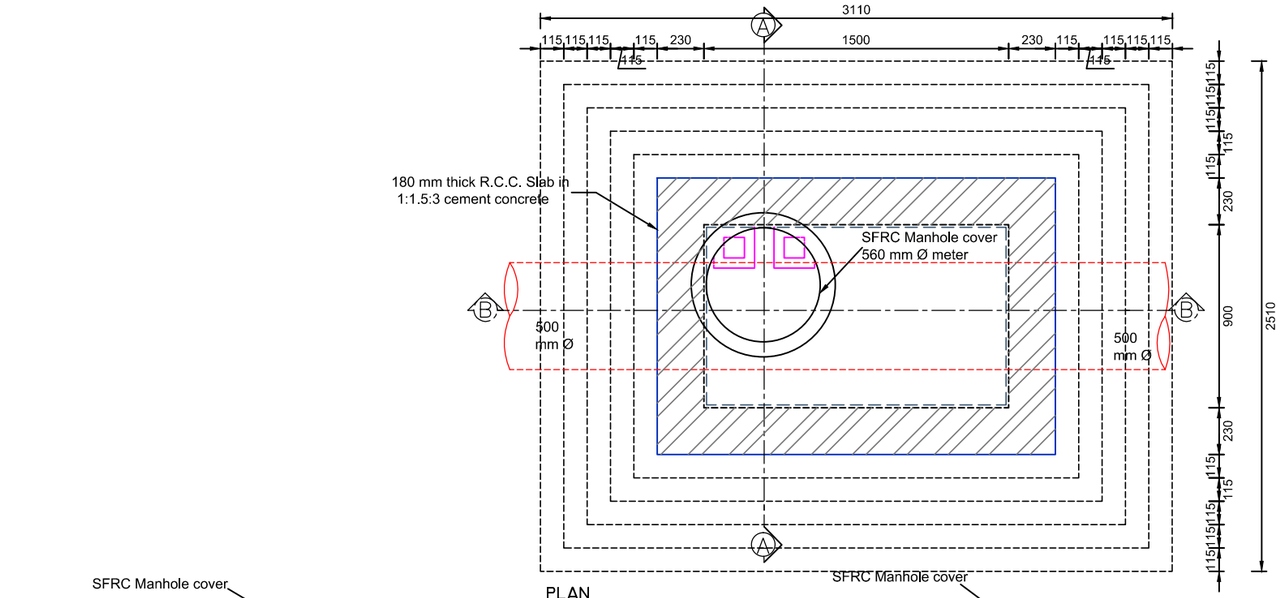
Services Planned & Designed by:
K.K. Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph.: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S6D

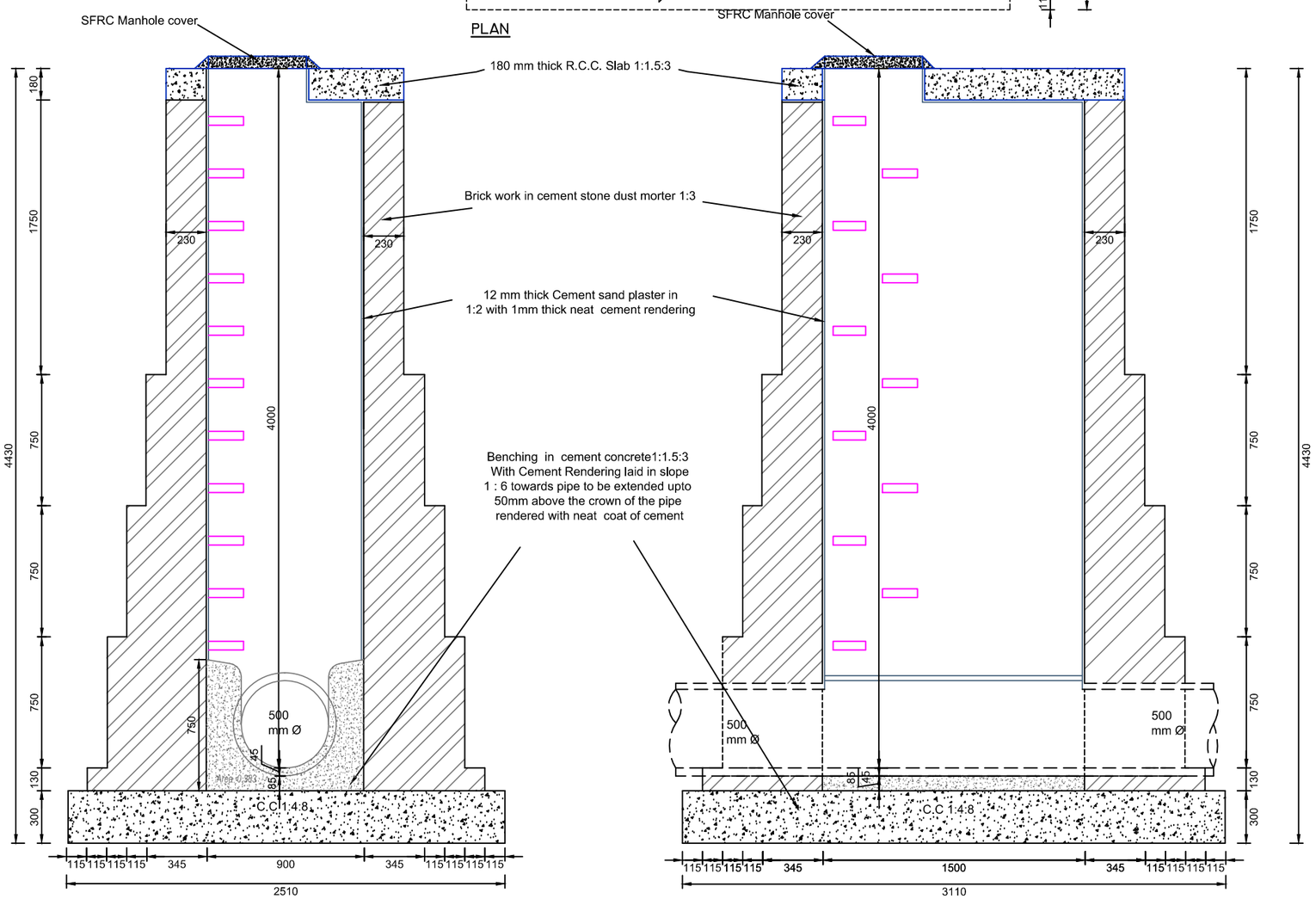
Section Sewer Manhole

Size : 1500mm x 900 mm
Size of Pipe = 500 mm
Max. Depth = 4000 mm

Drawing No. DLF/S7A



PLAN



SECTION A-A

SECTION B-B

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames Marked With IS:12597 Set in C.M.1:2 (EHD-35).
8. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:

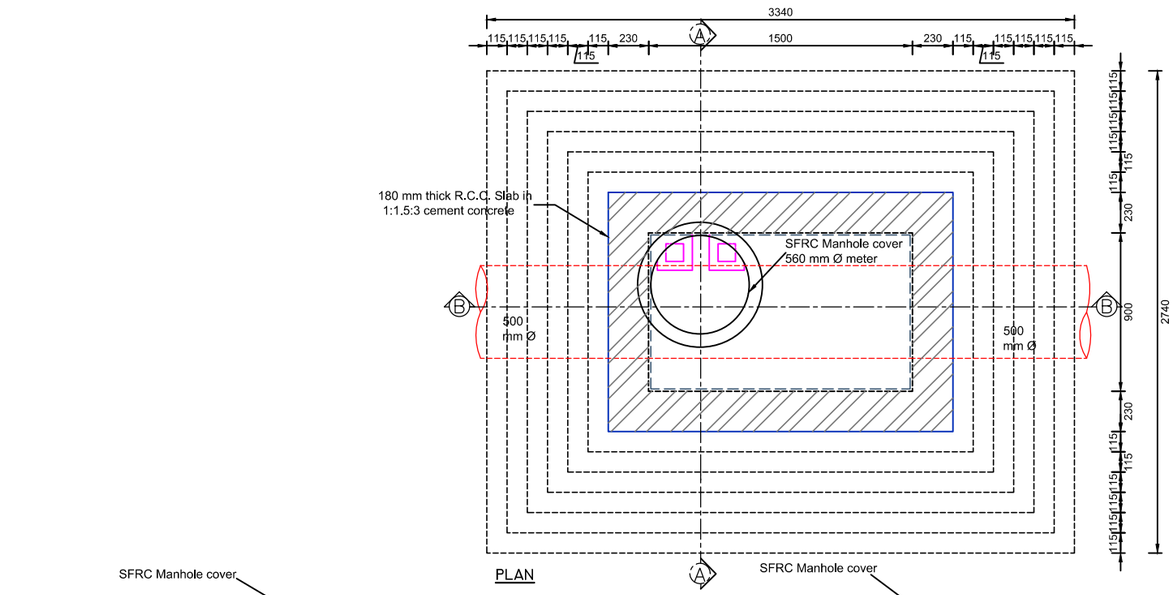
Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034716
FAX 4034714

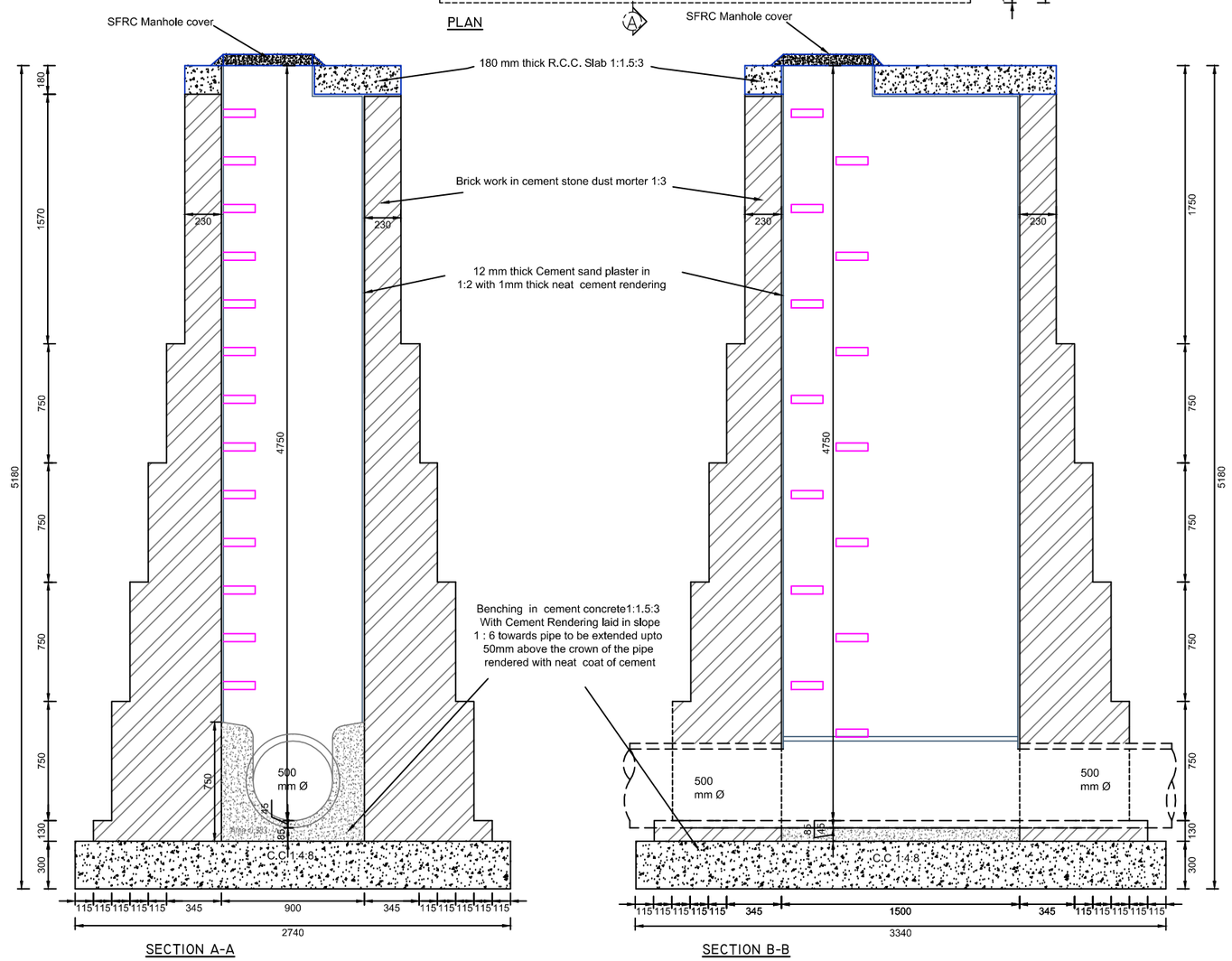
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S7A

Section Sewer Manhole

Size : 1500mm x 900 mm
Size of Pipe = 500 mm
Max. Depth = 4750 mm

Drawing No.
DLF/S7B





Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames Marked With IS:12597 Set in C.M.1:2 (EHD-35).
8. Any drawing error or divergences be brought to the Notice

Date	12-08-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

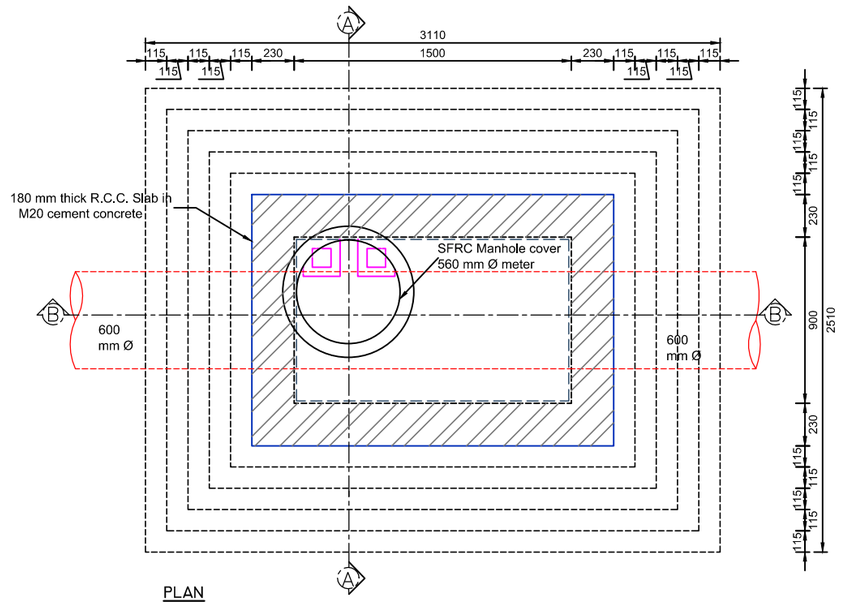
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
ky Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER DLF Sector 30, Gurgaon- 122001 Ph: 0124-4034715 FAX: 4034714

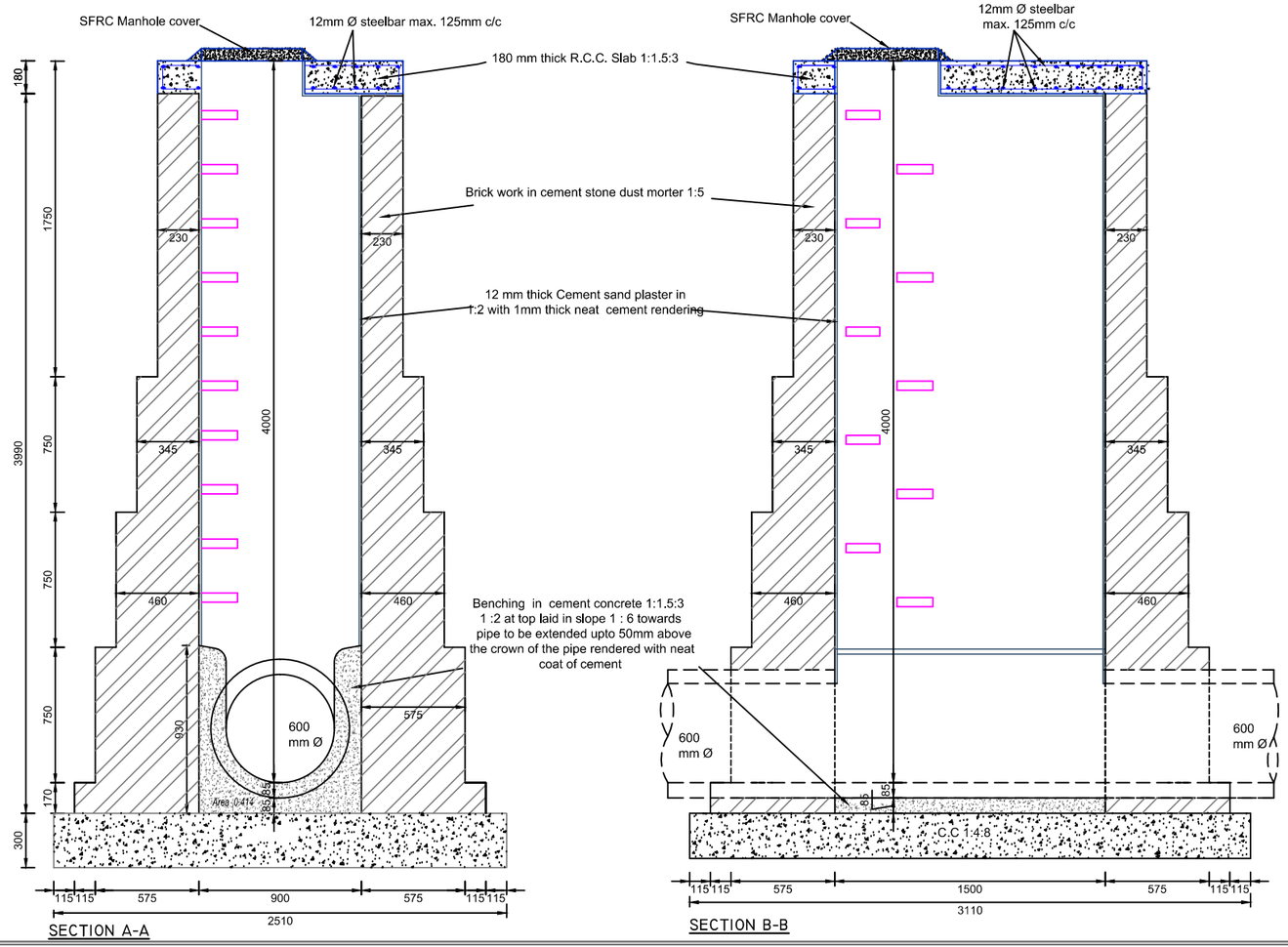
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S7B

Section Sewer Manhole
Size : 1500mm x 900 mm
Size of Pipe = 600 mm
Av. Depth = 4000mm

Drawing No.:
DLF/S8A



PLAN



SECTION A-A

SECTION B-B

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Manhole slab in C.C. 1:1.5:3
4. Cement Shall Be min. 43 Grade.
5. Slab Details Refer, Drawing No 'DLF/S4A'
6. S.W. Pipe A Grade IS Marked Shall Be Used.
7. SFRC Man Hole Cover & Frames
   Marked With IS:12597 Set in C.M.1:2 (EHD-35).
8. Any drawing error or divergences
   be brought to the Notice

Date	12-08-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

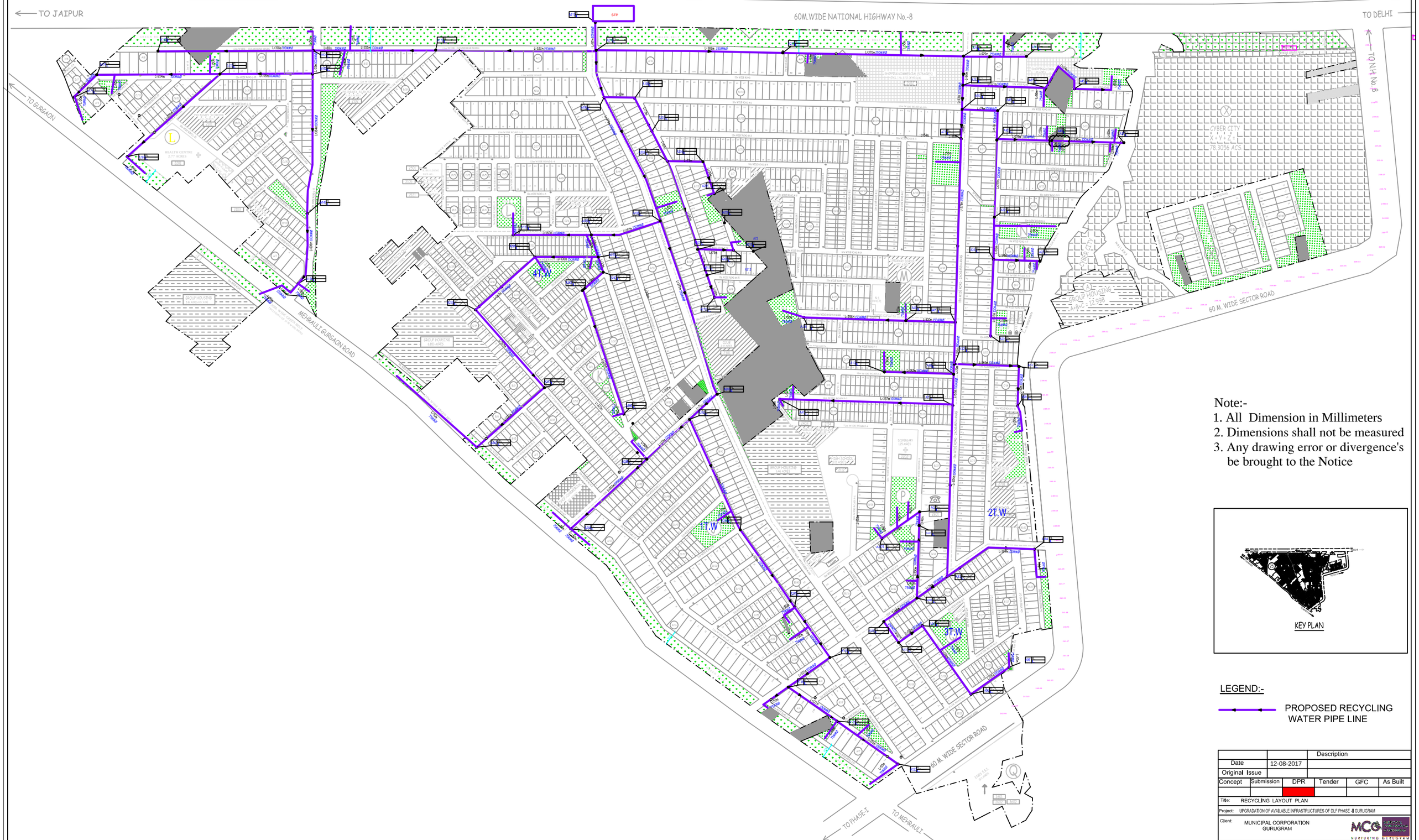
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -I GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For Ky Consultants Pvt.Ltd
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-8A

UPGRADATION OF AVAILABLE
INFRASTRUCTURE DLF PHASE II
GURUGRAM
RECYCLING LAYOUT PLAN

Drawing No.
MCG/DLF/RC-1



Note:-
1. All Dimension in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergence's be brought to the Notice

LEGEND:-

PROPOSED RECYCLING WATER PIPE LINE

		Description			
Date	12-08-2017				
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: RECYCLING LAYOUT PLAN

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURUGRAM

Services Planned & Designed by:

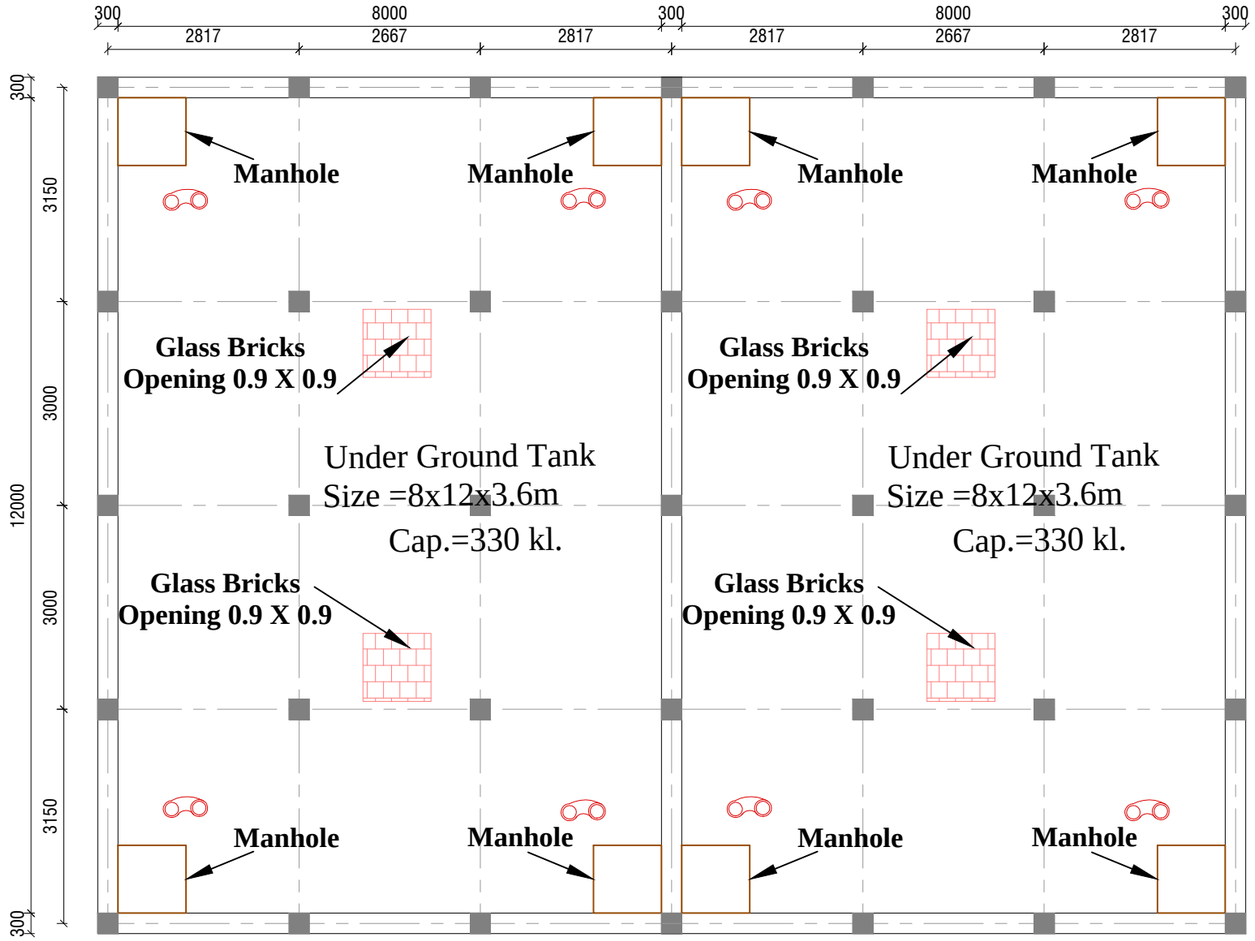
K Consultants Pvt. Ltd.
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Ajay	MCG/DLF/RC-1

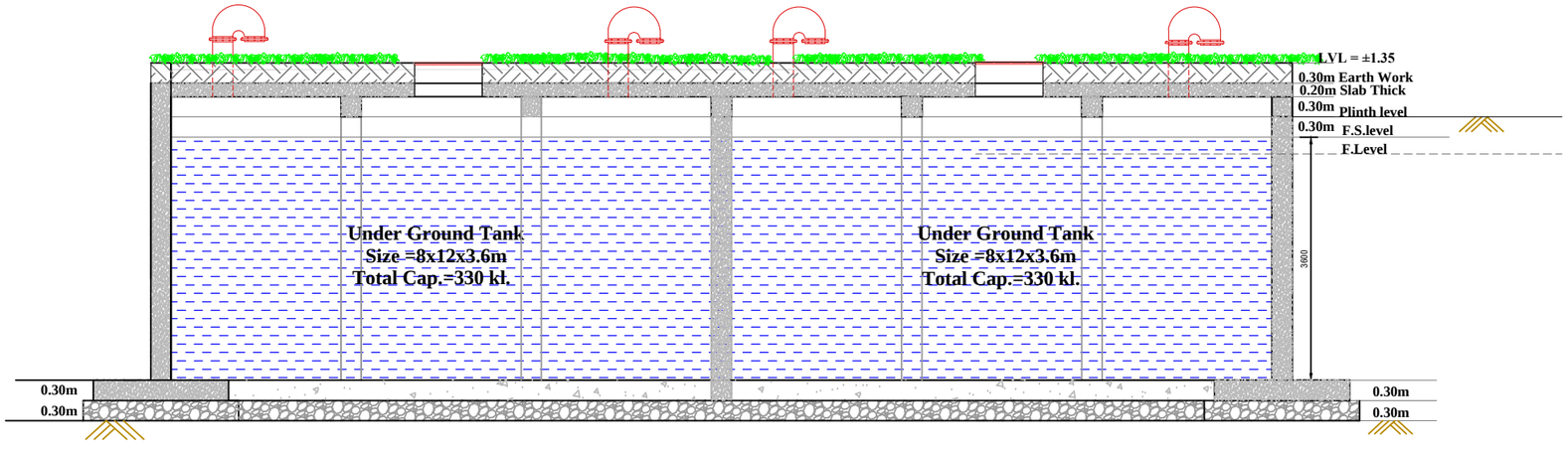
Plan & Section of
Boosting Station

DLF Phase-II

Drawing No.:
RC-2



Plan of UGT Tank



Section X-X of UGT Tank

Note:-
1. All Dimension in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergence's be brought to the Notice

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Plan & Section of UGT Tank

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

Director Infrastructure
For ky Consultants Pvt.Ltd

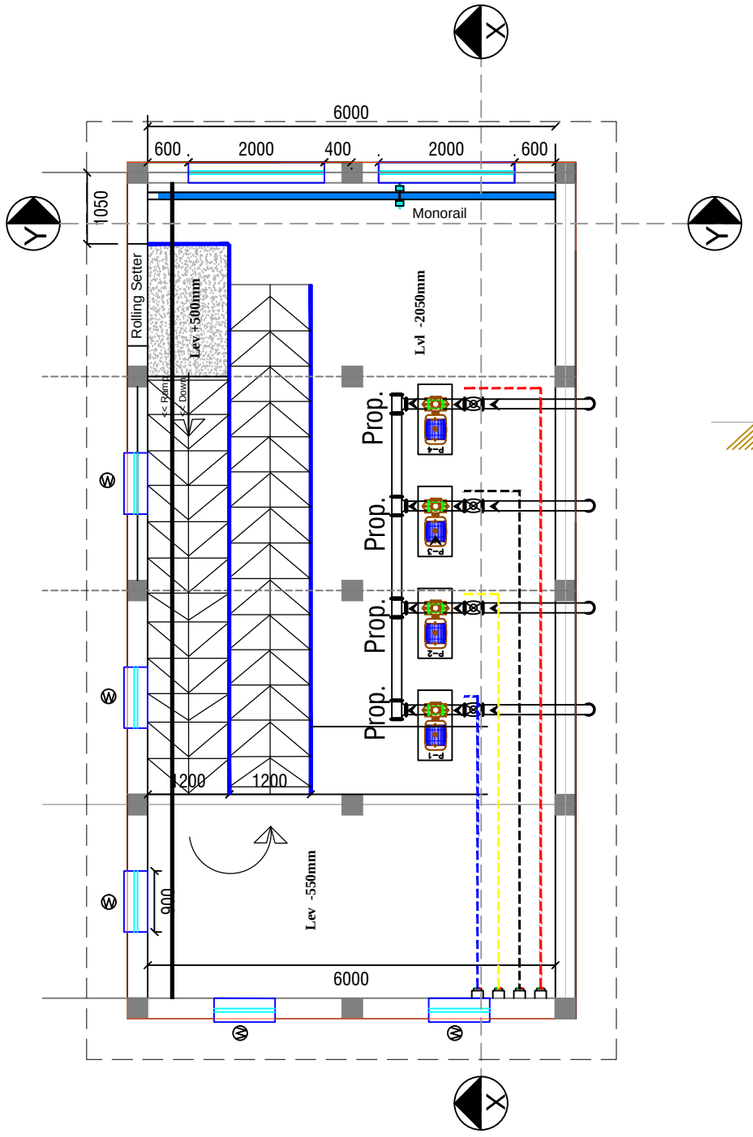
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.K. Gupta	Sunita	MCG/DLF/RC-2

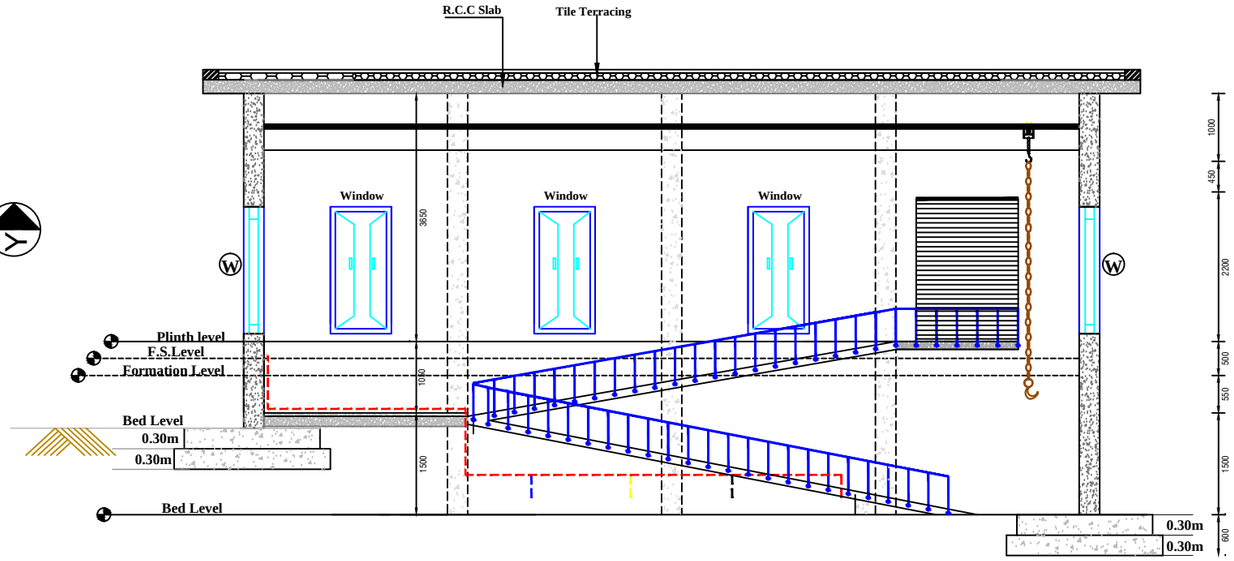
Plan & Section of
Boosting Station

DLF Phase-II

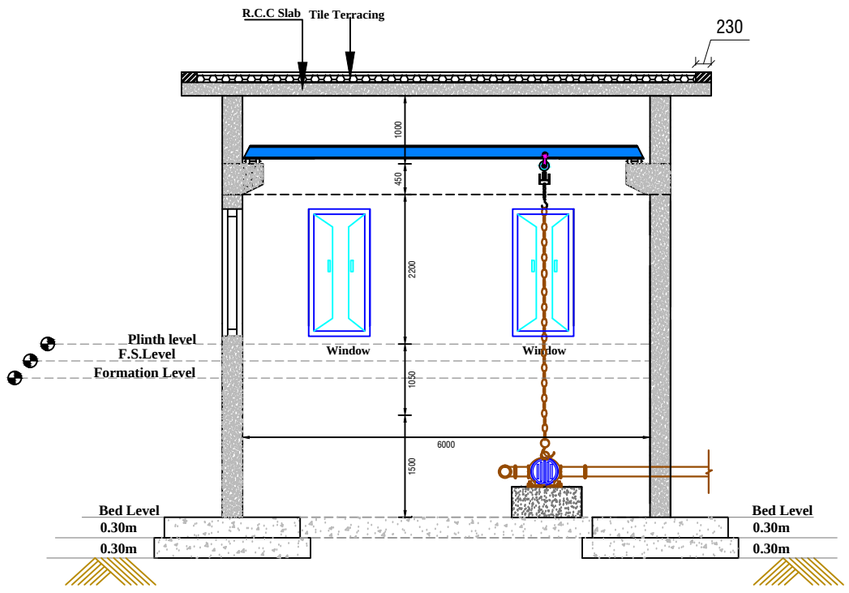
Drawing No.:
RC-3



Plan of Boosting Station 12m.X6m.



Section X-X



Section Y-Y

Note:-
1. All Dimension in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergence's be brought to the Notice

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Boosting Station

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.K. Gupta	Sunita	MCG/DLF/RC-3

UPGRADATION OF AVAILABLE
INFRASTRUCTURE DLF PHASE II
GURUGRAM
STORM WATER LAYOUT PLAN

Drawing No.
MCG/DLF/SD-1

TO JAIPUR

60M.WIDE NATIONAL HIGHWAY No.-8

TO DELHI

TO GURGAON

POCKET-A

POCKET-B

GREEN BELT

PARK

PRIMARY SCHOOL
1.165 ACRES

PRIMARY SCHOOL
1.00 ACRES

HEALTH CENTRE
2.77 ACRES

GROUP HOUSING
5.02 HECTARE ARE

GROUP HOUSING
6.053 ACRES

GROUP HOUSING
0.46 ACRES

HIGH SCHOOL
4.01 ACRES

CLUB
3.47 ACRES

POLICE POST
1.00 ACRES

SHOPPING/COMMERCIAL (0.79HOPES)
(INCL. 1 No. EAA OF 40 Rs 0)

CYBER CITY
X + Y + Z =
78.3056 ACS.

CYBER CITY

GROUP HOUSING
A+B+C = 12.998

60 M. WIDE SECTOR ROAD

MEHRAULI GURGAON ROAD

TO PHASE-I

TO MEHRAULI

Note:-
1. All Dimension in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergence's be brought to the Notice

KEY PLAN

LEGEND:-

EXISTING STORM WATER LINE

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: STORM WATER LAYOUT PLAN

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE -II GURUGRAM

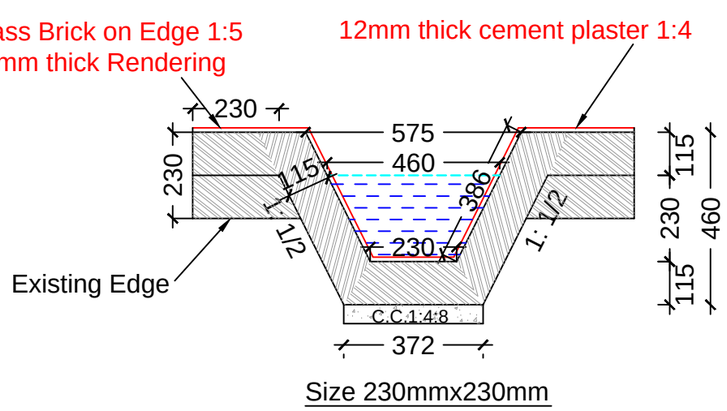
Client: MUNICIPAL CORPORATION GURUGRAM

Services Planned & Designed by:
K Consultants Pvt. Ltd.
303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

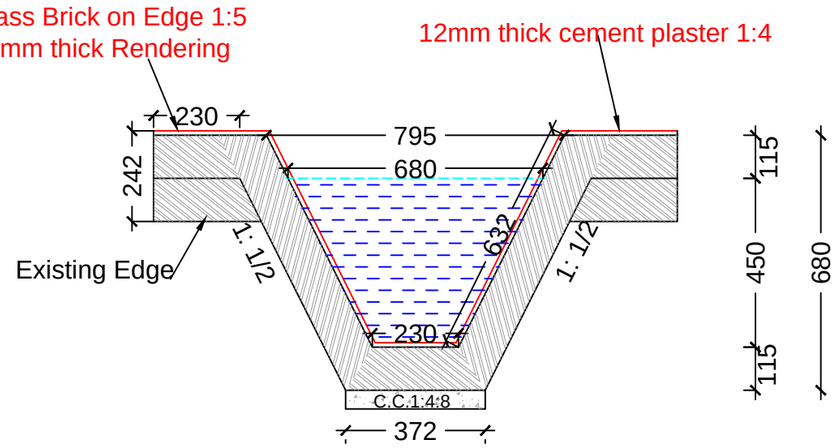
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.K. Gupta	Ajay	MCG/DLF/SD-1

Storm Water Drainage

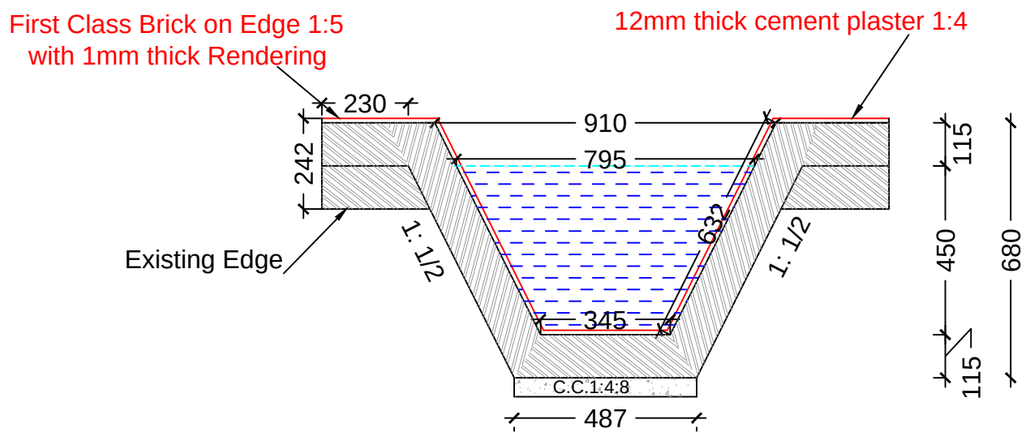
Drawing No.
DLF/D-2



Size 230mmx230mm



Size 230mmx450mm



Size 345mmx450mm

Proposed Work shown thus

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Drainage System

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE - II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

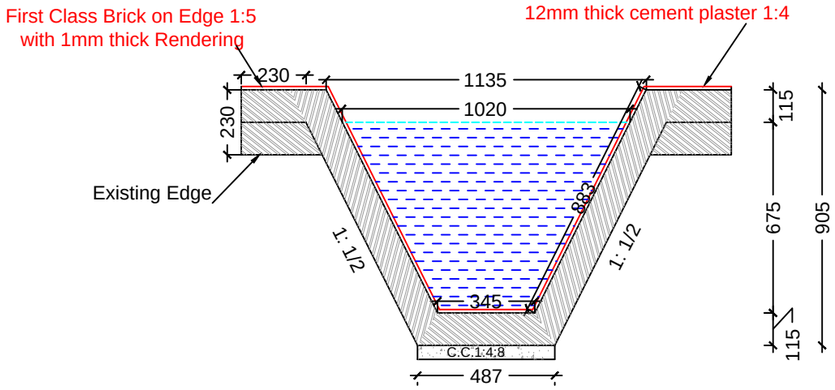
Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

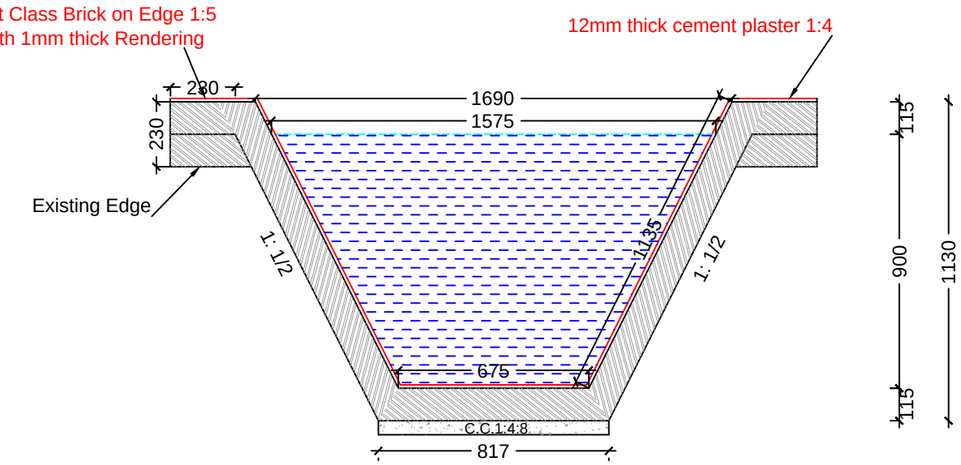
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S .Arora	Sunita	MCG/DLF/D-2

Storm Water Drainage

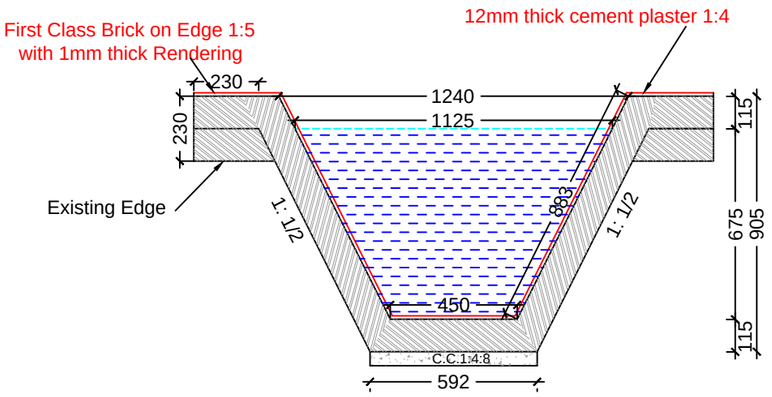
Drawing No.
DLF/D-3



Size 345mmx675mm



Size 675mmx900mm



Size 450mmx675mm

Proposed Work shown thus

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Drainage System

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE II GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

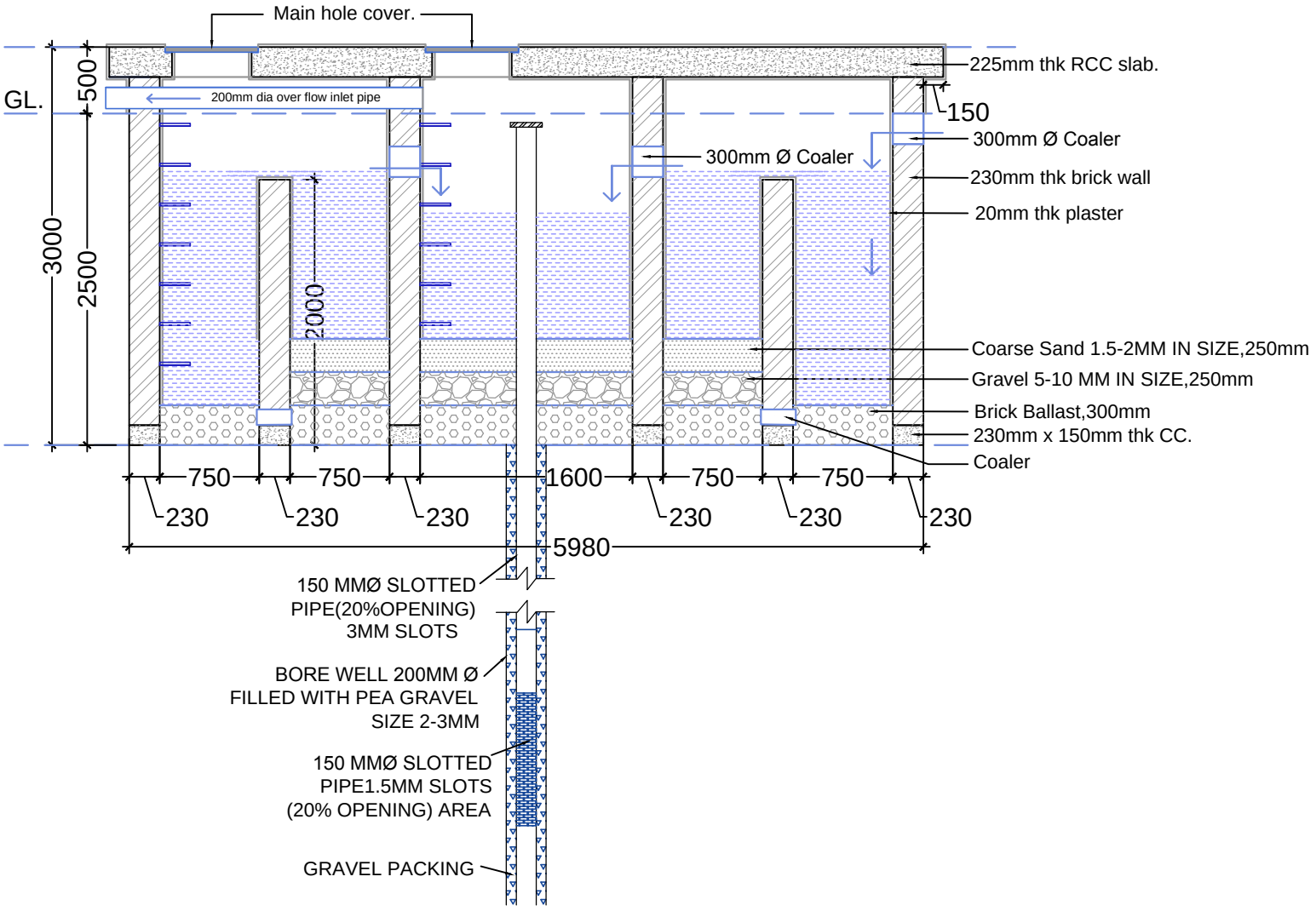
Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF.Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

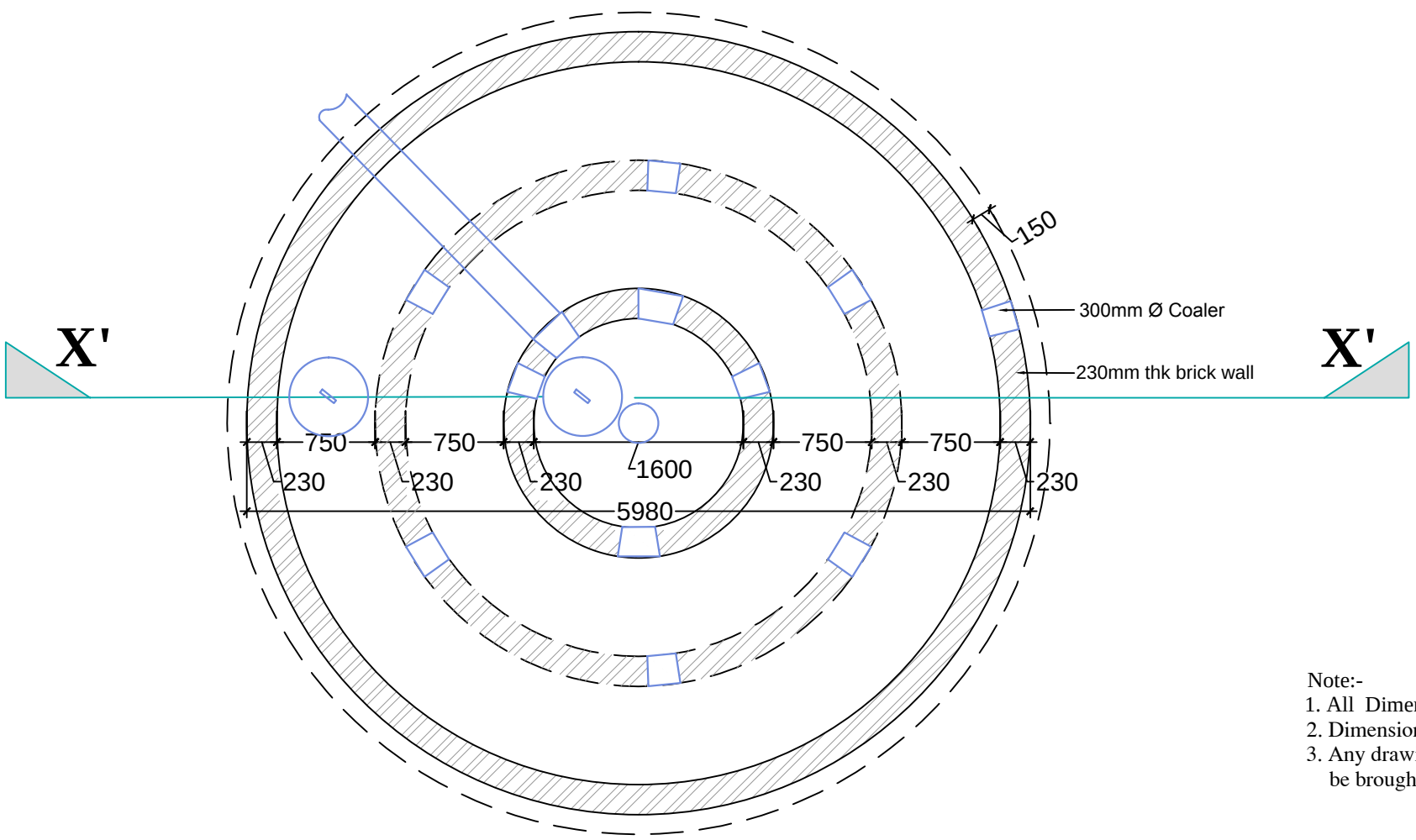
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S .Arora	Sunita	MCG/DLF/D-3

Recharge Well

Drawing No.
DLF/D-4



SECTION AT - X'X'



PLAN

Note:-
1. All Dimension in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergence's be brought to the Notice

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Plan of Recharge Well & Section

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE II GURUGRAM

Client: MUNICIPAL CORPORATION GURUGRAM

MCG NURTURING GURUGRAM

Services Planned & Designed by:

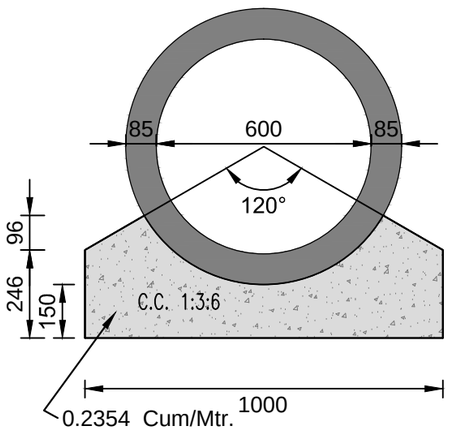
Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S .Arora	Sunita	MCG/DLF/D-4

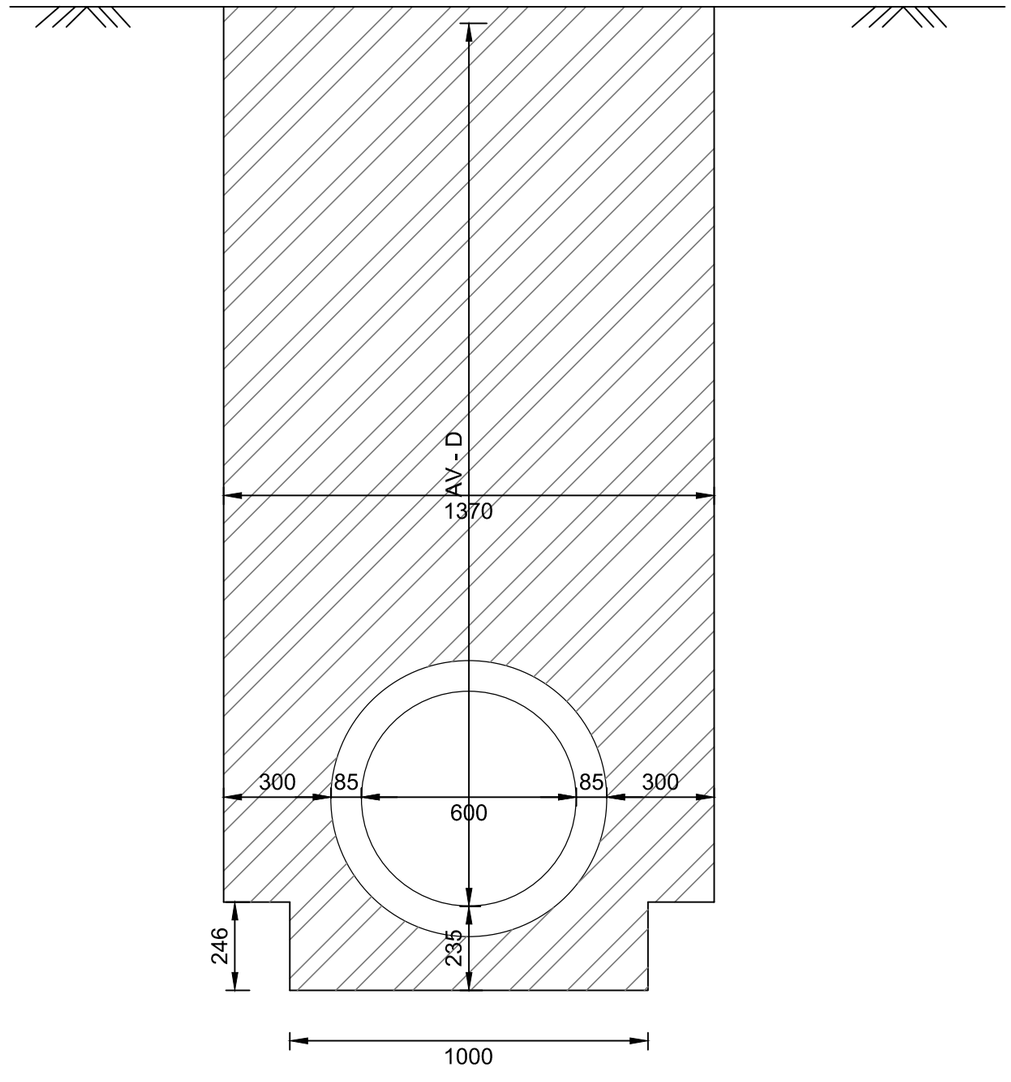
Excavation & X-Section
RCC Pipe NP-3 Storm Water

Drawing No.
DLF/SD-5

Size 600 MM Ø



Storm Water
CONC 1:3:6
R.C.C.pipe NP-3



Size 600 MM Ø

Excavation X-Section

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Excavation & X-Section R.C.C. Pipe NP-3

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE II GURUGRAM

Client: MUNICIPAL CORPORATION GURURAM

MCG MUNICIPAL CORPORATION of GURUGRAM NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

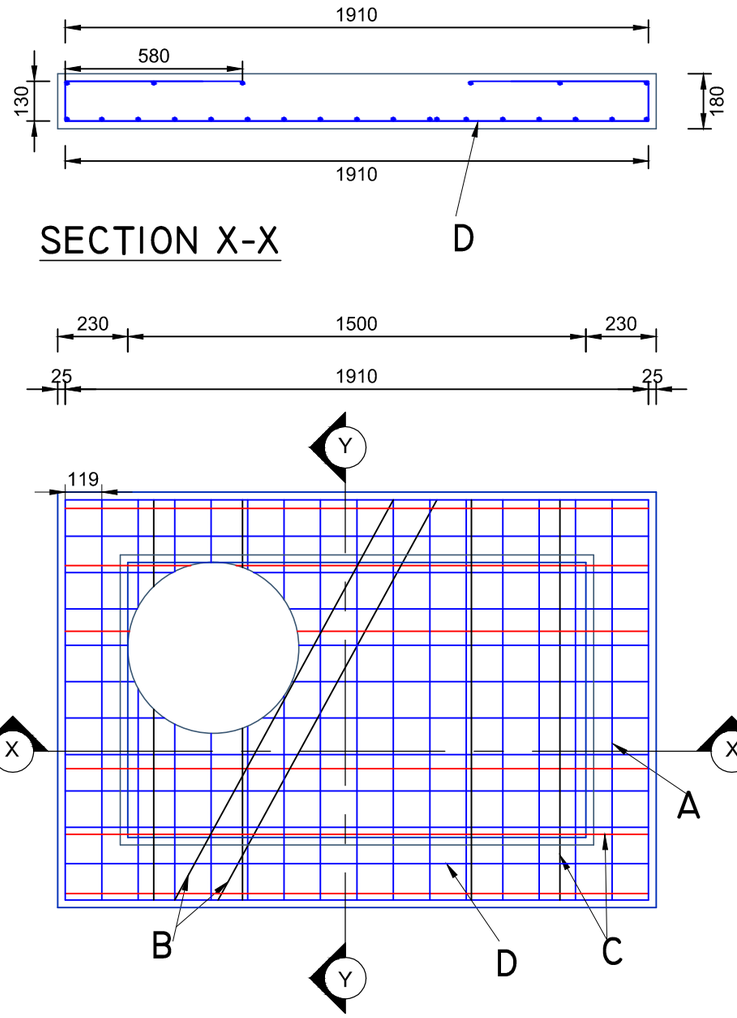
Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S .Arora	Sunita	MCG/DLF/SD-5

Detail of Slab
1500 x 900

Drawing No.
DLF/SD-6



12mm ϕ 125mm c/c max.

A) 12 no. length (1310+430 x 2+130x2) = 2430 mm
- 1 no. length (430+692+130)=1252,(352 x 2+130) =834
- 1 no. length (430+575+130)=1135,(235 x 2 + 130) =600
- 1 no. length (430+545+130)=1105,(205 x 2 +130) =540
- 1 no. length (430+568+130)=1128,(228 x 2 + 130) =586
- 1 no. length (430+667+130)=1227,(327 x 2 + 130) =784

B) 2 no. length 1493mm

C) 4 no. length 1310mm
- 1 no. length 284mm + 624mm
- 1 no. length 222mm + 562mm

12mm ϕ 125mm c/c max.

D) 7 no. length (1910+580 x 2+130x2) = 3330 mm
- 1 no. length (580+130+1293)=2003,(353x2+130) =836
- 1 no. length (580+130+1176)=1886,(236 x 2 + 130) =602
- 1 no. length (580+130+1145)=1855,(205 x 2 + 130) =540
- 1 no. length (580+130+1168)=1878,(228 x 2 + 130) =586
- 1 no. length (580+130+1265)=1975,(325 x 2 + 130) =780

E) 4 no. length 1910mm
- 1 no. length 1351mm + 411mm
- 1 no. length 1150mm + 210mm

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Slab

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE II GURUGRAM

Client: MUNICIPAL CORPORATION GURURAM

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

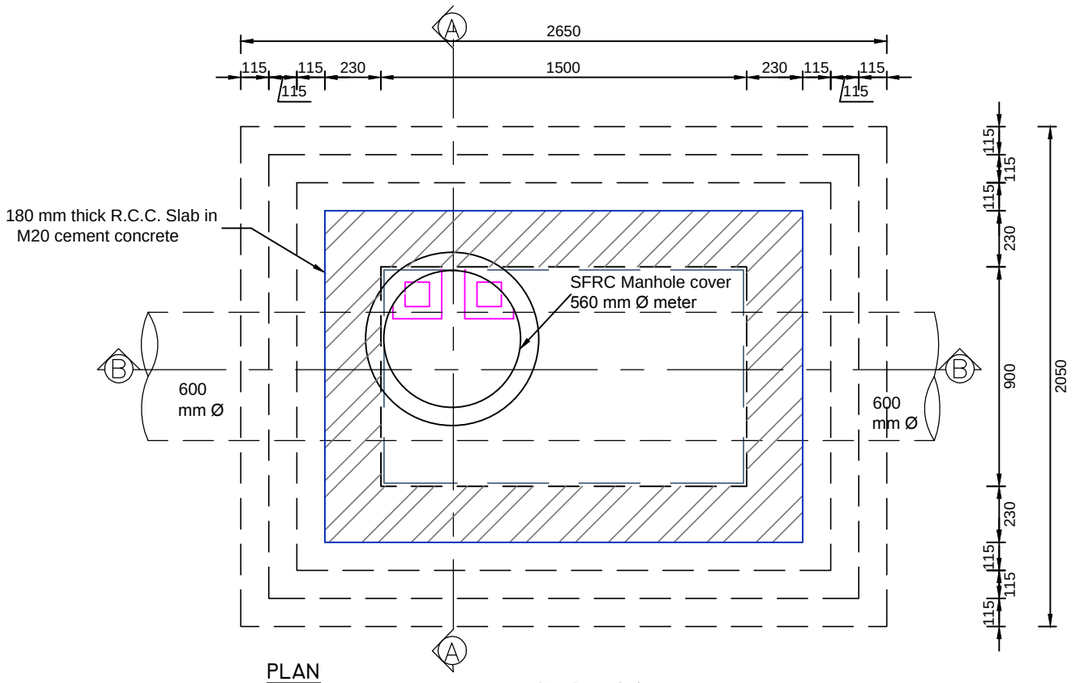
Director Infrastructure
For ky Consultants Pvt.Ltd

303-304 STAR TOWER
DLF,Sector 30,
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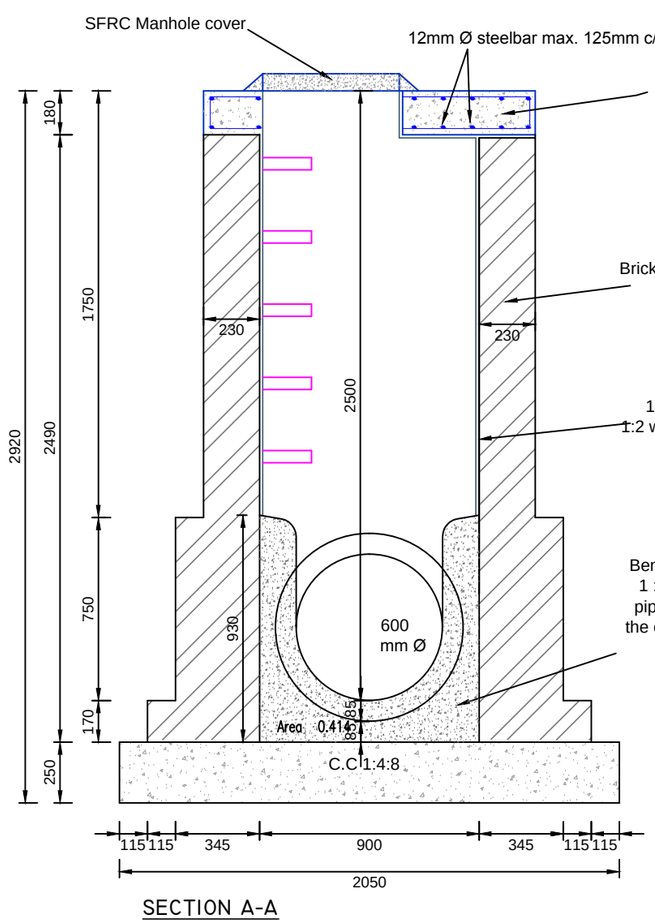
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S .Arora	Sunita	MCG/DLF/SD-6

Section StormWater Manhole
Size : 1500mm x 900 mm
Size of Pipe = 600 mm
Av. Depth = 2500mm

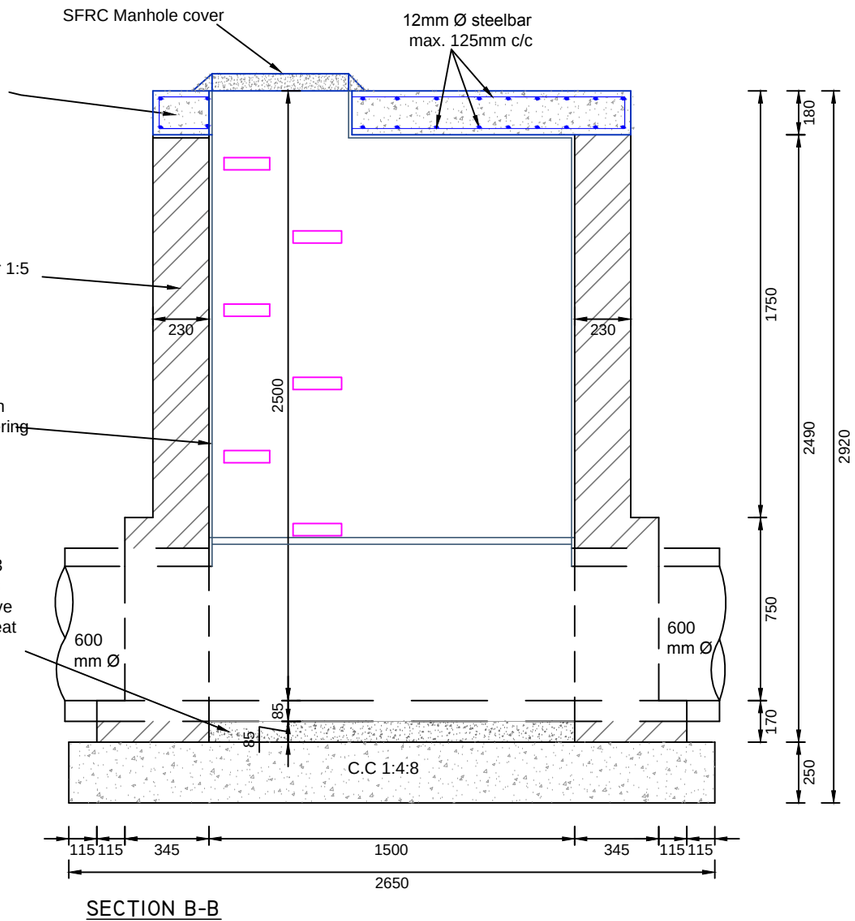
Drawing No.
DLF/SD-7



PLAN



SECTION A-A



SECTION B-B

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. Any drawing error or divergences be brought to the Notice

		Description
Date	12-08-2017	
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Man hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE II GURUGRAM
Client: MUNICIPAL CORPORATION GURUGRAM

Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER DLF Sector 30, Gurgaon- 122001 Ph: 0124-4034715 FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S .Arora	Sunita	MCG/DLF/SD-7