CONTENTS

1. REPORT
2. COSTING
3. ANALYSIS OF RATES
4. BACKUP QUANTITIES
5. BENKELMAN BEAM
6. ANNEXURES
7. ANNEXURE-A (VIDEO GRAPHY
8. ANNEXURE-B (SURVERY DATA)
9. ANNEXURE-C (RWA MEETING)
10. ANNEXURE-D (EXISTING ROAD PLAN)
11. ANNEXURE-E (EXISTING DRAINAGE)
12. ANNEXURE-F (EXISTING W/S)
13. ANNEXURE-G (EXISTING SEWERAGE)
14. ANNEXURE-H (DETAILS REPRESENTATIVE)
15. ANNEXURE –I (SUMMARY OF DIFFCULTIES FACED)
16. DESIGN PROFILE & STATEMENTS
17. DRAWINGS

REPORT

PROJECT REPORT FOR UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE 1, 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 which is responsible to provide planned development and growth of Gurugram.
- The final development 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

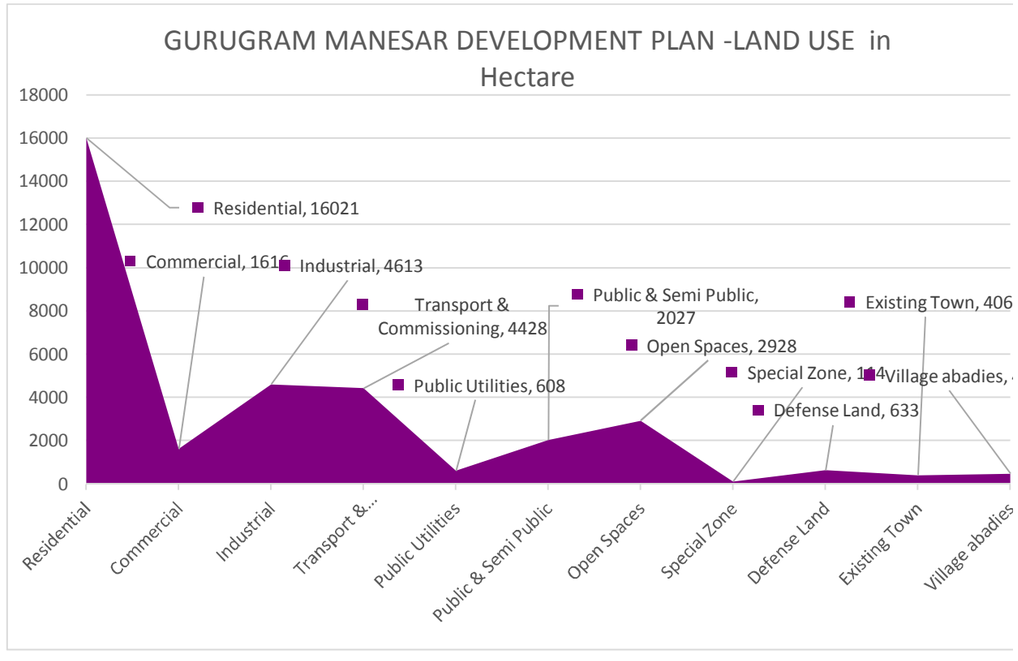
- The development plans of Gurugram were prepared & published for 2001, 2011, 2021, 2025 & 2031.

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 increased in almost every development plan since 2001.
- Population increased 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 amendment announced so far.
- Director Town & Country planning has revised the permissible FAR also in certain pockets along the MRTS, Also some additional floors has been proposed to be allowed in HUDA sectors.

Figure1



3. SCOPE OF WORK

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

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

Work order for consultancy services for Infra structure development i.e. Roads, Water Supply ,Sewerage, Storm Water, Drainage, Rain water Harvesting, Street Light, etc for the DLF Phase 1 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-1AREA,GURUGRAM

Table:-2

Description	DLF Phase 1		
	Area		
	Acres	**Sqm**	Hectare
Total Area of Scheme	590.097	2388019	238.802
To be planned Later on	0.844	3416	0.342
Area under Group Housing	14.750	59691	5.969
Net Area Planned	574.503	2324913	232.491
Area under Plots	304.095	1230619	123.062
Area under Shopping Commercial	11.624	47040	4.704
Area under Utilities	49.350	199711	19.971
Area under Greens	23.604	95521	9.552
Area under Roads & open spaces	185.830	752021	75.202
Area under Utilities	590.097	2388019	238.802

- DLF Phase 1 is one of the oldest residential complex developed by DLF group.
- The development started in early 80's
- Total area **developed :590.1 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 t.o 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 & as built drawings of various services
- Part of Record was made available on 19-06-2017 ,While approved estimates were made available at much later date on 5-07-2017
- Survey was started on 05-05-2017- to assess the present status of infrastructure.
- All the Roads were surveyed & videography was conducted(attached) **Annexure A**
- The Various Infrastructure services & its satisfaction level was surveyed in all the three Zones placed at **(Annexure B)**
- Meeting was held with RWA DLF Phase 1 on 30-06-2017 at Community Centre DLF Phase 1 (copy enclosed at **Annexure C)**
- Another Meeting was held with RWA DLF Phase 1 on 07-07-2017 at Community Centre DLF Phase 1 (copy enclosed at **Annexure C**

6. INVENTRY OF INFRASTRUCTURE & PRESENT STATUS

6.1. **Roads:-** The Following is the inventory of roads in DLF Phase 1

Table:-3

ROW Roads	DLF Phase 1
	Length in M
9 M wide Roads	18585
12 M wide Roads	19501
18 M wide Roads	3713
24 M wide Roads	4497
Total	46296

- The Carriage way widths are varying. 9 Mtr roads have 3.66 Mtr wide, 12 Mtr road has 4.88 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 work only 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'**.

6.2. Drainage System:-

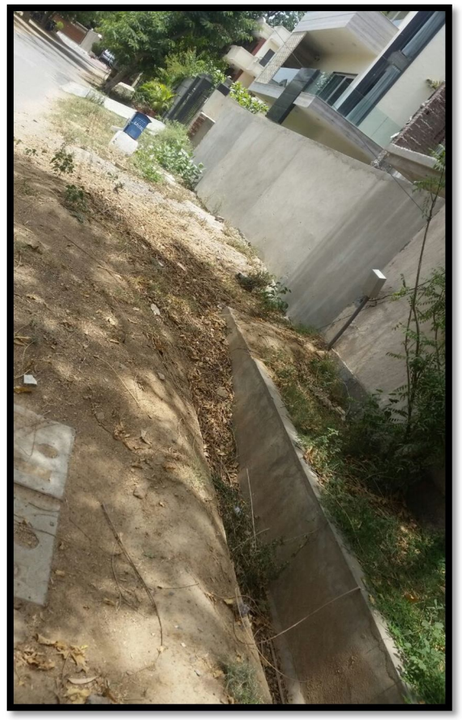
6.2.1 Open Drains have been provided in DLF Phase 1

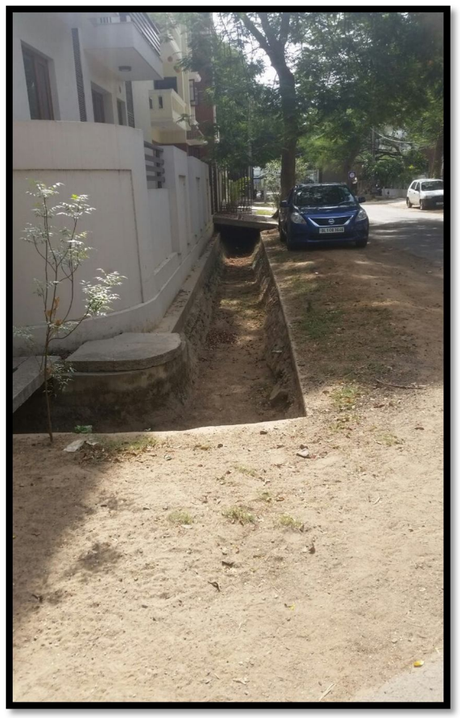
Table:- 4

(Drain of different Size)	
Size in mm	Length in M
250 x 250 mm	31185
250 x 450 mm	16880
350 x 450 mm	2807
450x 675 mm	4806
675 x1.2 mm	341
Sub Total	55079

- The open drains are silted. At many places Residents have blocked the drains at Entry gates and the capacity has reduced to less than 50%
- The CDs of video graphic of road & drain infrastructure have been prepared and enclosed with the report.











6.2.2 Disposal of Storm Water:-

- The drains have been laid with 5 no out falls
- First Outfall 1is towards creek no. 1 covering tentatively 100 acre Catchment area
- drain sloping towards Badshah pur
- Second Outfall is towards creek covering tentatively 100 acre Catchment area
- drain sloping towards Nathu pur
- The central portion covering 110 Acre is sloping towards 60 m main Road & connected to two no 1000 mmi/d pipes named as outfall no.3
- The upper portion along Faridabad Road covering 205Acre is sloping towards 60 m main Road & connected with two no 1000 mmi/d pipes named as outfall no.4.
- Block A extension covering 85 Acre Area is drained near school at proposed out fall no. 5 but no outfall is available at present.
- The storm water of A Block extension is pumped back to 60 m wide Golf Course road & connected to 1000 mm i/d pipe which is connected to 2000 mm i/d pipe for disposal across 60 m wide road in HUDA drain of size 2.0 m x1.5 m size
- Separate drain has been constructed parallel to 60 M wide Golf Course road. Part of plots facing main Road are connected to this drain .
- No .outfall is available for drainage system created by Rapid metro system.
- The existing storm water network as received is attached at **Annexure E**
- External pipeline laid is summarized below.

Table:- 5

RCC PIPE	Length in M
800 mm i/d pipe	=610+660+960+125=2355
1600 mm i/d pipe	65
2000 mm i/d pipe	150
Sub Total	

6.3. Water Supply:-

- The area was developed in phases.
- Originally the 384.65 Acre Area was approved for development in year 1983.
- Subsequently in next phase 200 Acres was approved in year 83-84
- A proposal for 590.07 acres was approved superseding all other proposals
- For Plotted Area two no boosting station in Block B & Block G are constructed.
- Separate Boosting Station is available for Group Housing Area in Group Housing Campus.
- The infrastructure created at 3 Nos boosting stations are tabulated below.











6.3.1 Detail of water works

Table:-6

Name of Zone	Water Works	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 B	Block A,B,C,D E,F & A Block extension	370	250	1	681	30	3	2862	3	60	58
Group Housing Zone 1	Block A	Group Housing	485	150	1			1		0		
Zone 2	Block G	Block G&H	205	250	1	790	30	4	2800	3	60	58

- 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 22 No. Tube well were drilled for total area and were operational.
- Present availability of water from tube well source has been reduced considerably
- 3Nos. connections have been released by HUDA Authorities for canal water as per details given below.

Table: 7

Length & Size of Existing Rising Main	Existing Length	Size of Pipe
	M	mm
HUDA Main line to Boosting Station Block B	370	250
HUDA Main line to Boosting Station Block G	205	250
HUDA Main line to Boosting Station Group Housing	485	150

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:- 8

	Existing Pipe net work						
Size	75 mm 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
Existing	13506	9355	8954	8449	3068	701	44033

6.4. Sewerage System:-

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

Table:- 9

Size	Length in M
200 mm i/d	34578
250 mm i/d	3216
300 mm i/d	106
400 mm i/d	2325
450 mm i/d	343
600 mm i/d	1348
Total	41916

- Waste Water collected from Block A,B,C,D,E,F,G,H is coming on junction of Faridabad Road & 60 m wide Golf Course Road for ultimate connection into Master sewerage system laid on Mehrauli Road.
- Waste Water collected from Block A extension is collected at downstream point near School.
- The outfall connection has not been done by Colonizer since it passes from boundary of Sahara Mall / Private land for ultimate disposal in master sewerage lines.
- At present sewer collected near School is pumped back towards 60 m wide Golf Course road, in absence of sewer connection in master sewer.
- The existing sewerage network as received is attached at **Annexure G.**





6.5. Electrification & Street light:-

6.5.1 Street Light

- Existing Street Light system is summarized below

Table 10:-:

S. No.	Block	Tube Road 36 W	S/V-70	S/V-150	LED	Total
1	Block-A	310	99	27	35	471
2	Block-B	111	33	36	10	190
3	Block-C,D&E	222	89	17	14	342
4	Block-F	89	12	54	0	155
5	Block H	153	9	8	12	182
6	Block-G	126	3	1	58	158
	Total	981	245	143	129	1498
	Total No. of Transformers					61
7	Total No. of Transformers 630 KVA					3
8	Total No. of Transformers 500 KVA					37
9	Total No. of Transformers 400 KVA					7
10	Total No. of Transformers 300-350 KVA					4
11	Total No. of Transformers 200-250 KVA					10
12	LT Conductor Length					46336

- 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: 981 Nos.
- Total SV70 : 245
- Total SV150 : 143
- Total LED : 129
- Total SV400 : 10

6.5.2 Electrification

- Total Transformers 630 KVA : 3 Nos.
- Total Transformers 500 KVA : 37 Nos.
- Total Transformers 400 KVA : 7 Nos.
- Total Transformers 300-350 KVA : 4 Nos.
- Total Transformers 200-250 KVA : 10 Nos.

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

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 corridor Road condition is good while.
- 40% residents consider Road condition is not satisfactory
- The satisfaction level of Block A Extension is very poor as the water gets accumulated to the extent of 0.3-0.6 M on roads as the disposal system is not working/does not have proper final disposal.

7.2. Drains:-

- The Sample Survey was done by team of KY Consultants.
- As per survey conducted 85% residents Consider condition of drains as Good
- As per survey conducted by team of Ky Consultants 15% residents said condition of drains is not satisfactory

7.3. Water Supply

- The Sample Survey was done by team of KY Consultants.
- As per survey conducted 72% residents consider water supply condition is Good while.
- 28% residents consider water supply condition is not satisfactory.

7.4. Sewerage System:-

- The Sample Survey was done by team of KY Consultants.
- As per survey conducted by team of Ky Consultants 95% residents consider Sewerage system condition is good while.
- 5% residents consider it the satisfactory.

7.5. Street Lights

- The Sample Survey was done by team of KY Consultants.As per survey conducted by team of Ky Consultants 60% residents consider condition is good. 40% residents consider Street Light condition is not satisfactory.

7.6. Electrification

- The Sample Survey was done by team of KY Consultants.
- As per survey conducted by team of Ky Consultants 67% residents consider Street Light condition is good .
- 33% residents consider condition is not satisfactory.

- However the Electrification work is being mentioned by DHBVN and is outside the scope of work.

8. INFRASTRUCTURE SATISFACTION SURVEY DONE BY KY CONSULTANTS (Meeting with RWA Presidents & others)

- Meeting were also held with the representative of the RWAs
- Difficulties being experienced by various welfare associations were received as per details given below
  - i. DLF Qutub Enclave Association
  - ii. A Block Extension Mutual Help Community Dt 28-06-2017
  - iii. DLF City Federation Phase-1
  - iv. Progressive Residents welfare Society
  - v. Progressive C Block Society
  - vi. E Block Welfare Association Dt 30-06-2017
  - vii. G Block Residents Committee Dt 30-06-2017
  - viii. H Block Residents Committee Dt 30-06-2017
- The detailed representative are annexed at **Annexure H**.
- Summary of the difficulties faced by residents as brought out various Residents Welfare Organization (Within scope of work of consultants) are annexed at **Annexure I.**

9. OBSERVATION AND IDENTIFICATION FO STUDY REQUIRED

9.1. Roads

1. Only 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 encroachment at many places.
4. Most internal roads needs re carpeting

9.2. Water Supply

1. Assessment of Water Demand of the colony
2. Breakup of water demand in two parts, Fresh water demand from canal water & tube well water.
3. Availabity of fresh water from Tube well source needs to be checked.
4. How to fill The gap from surface water source
5. To check availability & supply of canal water
6. Horticulture & Road side plantation : Requirement of water demand and possibility if it can be fed from Treated waste water/ recycled water
7. To check the size of Rising Main from HUDA source to respective Boosting stations.
8. To check the size , quantity & capacity of appurtenances at Boosting Station
   a. Pump size & capacity to be checked.
   b. Power back up provided for pumps by RWA in A Block but needs augmentation, other areas.
9. Capacity of storage tank required and available to be checked based on present & future requirement
10. 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.
11. Cleaning of Water Storage Tank required.
12. Some of the EWS plots have been seen with more no of floors them the permissible.
13. 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 area.
3. Out fall sewer of Block A has no connectivity with the master sewer because of non-availability of land. At present pumping is being done towards upstream side. This results in to overflow in Block A at times specially in rainy season. The sewage system needs to be connected to Master sewerage system.
4. One time cleaning of total system required
5. 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 .

5. Increasing the carrying capacity of drains by addition of Masonry work on sides & top of internal drains based on requirements.

9.6. Rain Water Harvesting

1. Rain water harvesting system 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 needs to be looked into.

.3. Boundary wall & fencing need to be provided/repaired at many places.

9.8. Electric Supply

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

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 to be looked 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 issued raised by some RWAs
2. Entry gate problems issued 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 not have adequate parking. Issue raised by some RWAs.

11. ANALYSIS OF INFRASTRUCTURE PROVIDED

11.1. ZONE WISE BREAKUP OF AREA

- The area is developed in phases.
- Originally the 384.65 Acre Area was approved for development in year 1983.
- Subsequently in next phase 200 Acres was approved in year 83-84
- Total proposal for 590.07 acres was approved in later stage
- Break up of area is as per summary given below.

Table-11

	DLF Phase 1		
Description	Area		
	Acres	Sqm	Hectare
Total Area of Scheme	590.097	2388019	238.802
To be planned Later on	0.844	3416	0.342
Area under Group Housing	14.750	59691	5.969
Net Area Planned	574.503	2324913	232.491
Area under Plots	304.095	1230619	123.062
Area under Shopping Commercial	11.624	47040	4.704
Area under Utilities	49.350	199711	19.971
Area under Greens	23.604	95521	9.552
Area under Roads & open spaces	185.830	752021	75.202
Area under Utilities	590.097	2388019	238.802

11.2. PLOT DETAILS

- Total no of Plots: 3660 Nos...
- No .of EWS Plots: 43 Nos..
- No. of General category of Plots: 3617Nos.

11.3. POPULATION ASSESMENT

11.3.1. Population as per Service Estimates

- Approved service estimates are based on population density at 9 persons per dwelling unit
- Only 44 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 =3616*9+44*13.5=33138 persons
- Population of Group Housing area as per approved service estimates =300*14.75=4425 persons

11.3.2. Population as per Prevailing HUDA 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
- Only 44 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 =3617*9+43*13.5=49220persons

- Population of Group Housing area as per approved service estimates =300*14.75=4425 persons

11.3.3. Maximum Permissible Population as per Prevailing HUDA Norms

- Population density at 120 persons per acre
- Proposed Area : 590.097 Acres
- Prospective Population : 120 x 590.097 = 70812 persons
- Increase in population on account of increase in FAR of area around MRTS 30% increase population in new construction & part of renovation work in already constructed area.=70812*35%=24784 persons
- Assume 70% diversity factor since major construction work has been completed in area= 24784*75%=18588 persons.
- Total Population = 70812+18588=89400 persons
- Population of Group Housing area as per approved service estimates =300*14.75=4425 persons
- Prospective population in plotted area = 89400-4425=84975persons say 8500 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 proposed 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-19

ROW Roads	DLF Phase 1
	Length in M
9 M wide Roads	18585
12 M wide Roads	19501
18 M wide Roads	3713
24 M wide Roads	4497
Total	46296

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.
- Leveling course on damaged Roads with BM to remove undulations in roads.
- 30mm Bituminous Conc (BC) has been proposed on all the Roads as the riding quality is poor due to periodic patch work.
- Painting lines on Roads with Thermo plastic paints on both sides of Roads & marking of Central 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.

ROW Roads	DLF Phase 1
	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 100 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.

C.

12.2. WATER SUPPLY

12.2.1 DESIGN AS PER PRESENT REQUIREMENT.

- Total Water Demand : 18210 KL as per details in Design Profile

Plotted Area

- Total Water Demand Plotted Area :17514KL
- Total Fresh Water Demand : 15310KL
- Total Recycled Fire Water Demand : 2204 KL
- Fire Fighting D

Housing Area

- Total Water Demand Group Housing Area :696 KL
- Total Fresh Water Demand : 616KL demand Plotted Area : 921 KL

Group

- Total Recycled Fire Water Demand : 80KL
- Fire Fighting Demand Group Housing Area : 210 KL
- Water demand of Block B

Table-20

Water Demand	Block B for Zone 1	Water Available from Tube well Source
Total Water Demand	**8318**	
Fresh Water Demand	7271	480 (Negligible)
Recycled Water Demand	1047	
Fire Fighting Demand	440	

- Water demand of Block G

Table-20

Abstract of Water Demand	Block G for Zone 2	Water Available from Tube well
Total Water Demand in KL	9196	
Total Fresh Water Demand in KL	8039	480(Negligible)
Total Recycled Water Demand in KL	1157	
Total Fire Fighting Demand in KL	487	

- Water demand of Group Housing Area

Table-21

Abstract of Water Demand	Group Housing Area	Water Available from Tube well Source
Total Water Demand in KL	696	
Total Fresh Water Demand in KL	616	120
Total Recycled Water Demand in KL	80	
Total Fire Fighting Demand in KL	210	

- Initially Water demand was met with 22 no. Tube wells drilled in area.
- Now only 12No Tube wells are operative with reduced discharge others are not functional.
- Availability of water has reduced considerably.
- The demand is met with canal base Water Supply from HUDA

The survey done by our team and discussions with RWA Committee s reveal that Water Supply System is not functioning satisfactorily.

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

12.2.1. Rising Main

Table-22

Length of Rising Main	Existing Length	Size of Pipe	Augmentation if required
	M	mm	M mm
DLF Phase 1			
HUDA Source-Block B	370	250	Additional pipe not required
HUDA Source-Block G	205	250	Additional pipe not required
HUDA Source-Group Housing	485	150	Additional pipe not required

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

12.2.2. Proposal

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

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

12.2.3.1 OHSR

- Block B is having an O.H.S.R. of 681 KL capacity,30 M staging Height
- Block G is having an O.H.S.R. of 790 KL capacity,30 M staging Height
- As per calculation done in design profile Additional OHSR is not required.

12.2.3.2 UG Tank

- Mass curve for 24 hrs requirement has been drawn for Block B & G respectively in design profile.
- Additional capacity of RCC UG tank not required in Block B
- Additional capacity of RCC UG tank not required in Block B

12.2.3.3 Pumping Machinery

Pumping required as per desgin

- Existing Machinery is old. Complete replacement of pumping machinery is proposed in the proposal
- Water Supply has been designed on 24x7 Hours supply

12.2.3.4 Machinery Requirement(Deficient infrastructure)

Table 24

Pumping Machinery Required in Block B Zone 1 & Block G Zone -2		
Provide2 pump to meet total demand 50 lps with60 m head.60BHP	2	No's
Provide1 pump to meet total demand 100lps with60 m head,110 BHP	1	No's
Provide 1 pump as stand bye150 lps with 60 m 160 BHP	1	No's
Provide one generating set of 350 k VA as100% Power back up arrangements to run two pumps average demand	1	No's
Provide one generating set of 350 k VA as100% Power back up arrangements to run two pumps average demand each at Zone 1 & 2	1	No's

12.2.3.5 Distribution Net Work(Analysis)

- The present System laid is for estimated population as per approved scheme but when checked for ultimate population as shown in design profile the distribution system fails.
- The existing System laid is of CI Class LA, AC pipes, HDPE pipes, PVC pipes as per approved estimate.
- Now as per guidelines in CPHEU manual minimum size of pipe is 100 mm i/d.
- Where as in year 1983 use of CI pipe AC pipe, HDPE pipe was permissible& minimum size of pipe was 75 mm i/d.
- The original system was laid keeping in view the 22 No. Tube wells drilled in the area now only 12 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.

12.2.3.6 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 Based is water supply
- Another major reason of low terminal head at consumer end is topography of area.
- The Boosting Station of Block B is at 246.515 m
- The Boosting Station of Block G is at 253.69 m
- Minimum ground level in DLF Phase 1 is 241.4 m
- Maximum ground level in DLF Phase 1 is 263.58 m
- Variation in ground level is 22.18 m.
- Due to significant variation in ground level some pockets are not getting canal water from Boosting station, and are dependent on tube well water.
- The conditions are deteriorating due decline of availability of water from tube well source.
- The distribution network has been redesigned keeping in view the constraints defined above in design statement of Water Supply is summarized below Details in design profile

Table 25

	Distribution Net Work						
Size	75 mm i/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	Total Length
Existing	13506	9355	8954	8449	3068	701	44033
Proposed	0	2454	3747	2001	1060	584	9846

- Total Length of existing Distribution Net Work : 44033 M

12.2.3.7 Proposal

- Additional lines proposed to be laid to sort out bottleneck of existing system : 9565 M
- 300 mm i/d : 584 M
- 250 mm i/d : 1060 M
- 200 mm i/d : 2001 M
- 150 mm i/d : 3747 M
- 100 mm i/d : 2454 M

- Existing pipe network will remain same to avoid reconnection of house connections.
- The additional pipe line proposed above will be laid at appropriate location as per water supply design statement.
- Balance 75 mm i/d pipes will be replaced after implementation of work specified above.
- Additional 100 No Fire Hydrants are proposed be installed.
- 100 mm i/d 2000 Mtr DI K7 Pipe is proposed for connecting the fire hydrant
- The costing of the above proposal has been sub divided as under.

12.2.3.8 Deficient Infra Structure

1. The replacement of pumping machinery.

Table 26

Pumping Machinery Required in Block B-Zone 1 & G-Zone 2		
Provide2 pump to meet total demand 50 lps with60 m head.60BHP	4	No's
Provide1 pump to meet total demand 100lps with60 m head,110 BHP	2	No's
Provide 1 pump as stand bye150 lps with 60 m 160 BHP	2	No's
Provide one generating set of 350 k VA as100% Power back up arrangements to run two pumps average demand	2	No's

2. Installation of fire hydrant.
3. Laying of additional distribution net work

Table 27

Additional Pipe Line	Length of Pipe
DI K-7 Pipe	**M**
200 mm i/d pipe	2001
DI K-9 Pipe	
250 mm i/d pipe	1060
300 mm i/d pipe	584

12.2.3.9 Additional Infra Structure

Table28

Additional Pipe Line	Length of Pipe
DI K-7 Pipe	**M**
100 mm i/d pipe	15960
150 mm i/d pipe	3747
Provide one generating set of 350 k VA as100% Power back up arrangements to run two pumps average demand	2 Nos

12.2.3.10 Replacement of pipes

1. Major demand of replacement of existing distribution net work was made by various RWA.s.
2. The major pipe network has been changed as per design requirement.
3. Hardly 40% old pipe is reused.
4. Whereas CI Class LA pipe has longest life cycle .
5. 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 due to highly corrosion resistant more than 50 years

   UPVC pipes due to highly corrosion resistant more than 50 years

   Hence it is recommended that no pipe to be changed only on A/c of being old.

12.2.3.11 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

12.3.2.

1. Presently more than 70% houses have been constructed. No house owner will dismental 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 2.25 MLD on SBR technology is proposed to be constructed at suitable location near junction. of 60 m wide road & Faridabad Road.
3. Recycling system will generat for 2204 KL of treated waste water to be treated and distributed for Horticulture Purposes in the area.
4. Another Proposal which stands approved by HUDA is to divert the sewerage of DLF Phase 1 towards Sewage Treatment Plant already constructed in DLF Phase 5for 9 MLD capacity
5. After diversion of sewerage of DLF Phase 1 the capacity of STP will increase to 14 MLD. This would help in reduction of sewerage load on the master sewerage system.

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

- Mass curve for 24 hrs requirement has been drawn
- Capacity of RCC UG tank required in Block B Zone -1: 367 KL
- Capacity of RCC UG tank required in Block G Zone -2 : 367 KL

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

Table 29

Pumping Machinery Required in Block B Zone -1 & G Zone -2		
Provide2 pump to meet total demand 10 lps with35 m head.10BHP	2x2	No's
Provide1 pump to meet total demand 20lps with35m head,20 BHP	2x1	No's
Provide 1 pump as stand bye25 lps with 35 m 25 BHP	2x1	No's
Provide one generating set of 62.5 k VA as100% Power back up arrangements to run two pumps average demand	2x1	No's

Distribution Net Work (for treated waste water) Addl Infrastructure

Table 30

Distribution Net Work								
Size	50 mm o/d	63 mm o/d	110 mm o/d	160 mm o/d	210 mm o/d	260 mm o/d	315 mm o/d	Total Length
Proposed	500	500	8901	2108	1117	206	139	13471

12.4. Sewerage

12.4.1 Waste Water Collection System

- Total 41916 Mtr Waste Water collection system has been provided in the area.
- The Collection System is designed as per population of 33118 persons as per approved estimates.
- Now the population estimation is 85860 Persons.
- Existing waste water collection network is redesigned for assessed of population.
- The estimated Waste water : 11.15 MLD
- As explained in recycling chapter the client wants to utilize 5 MLD of Waste water and treat the same in phase V.
- The treated waste water will be used for Horticulture purpose in area outside DLF Phase 1.
- The treated water is proposed to be used for new construction work of firm as per guidelines issued by Honorable Supreme Court.
- As per design statement of waste water the estimated Average waste water collection at point B175 is 6739KLD
- It is proposed by DLF itself to draw 5000 KLD waste water from Distribution System at Point B175 on 60 M wide road leaving only 1739 KLD Waste water to flow further in the existing system.
- Now it is proposed that 2.225 KLD water will be withdrawn at A" and used to meet Horticulture demand of DLF Phase 1

Table 31

Description	Average Quantity of Waste water collected	Average Quantity of Waste water withdrawn	Unit
Total Anticipated Waste Water Collection	11115		KLD
Total Anticipated Waste Water Collection at point B175 on 60 M wide Road	6738.00		KLD
Quantity With drawn		5000	KLD
Balance available at B175 for main collection system	1738.00		KLD
Additional Quantity of waste water up to point A3'	2930.00		KLD
Total Quantity of Waste Water collected at point A3'	4668.00		KLD
Quantity With drawn at A3"		2225.00	KLD
Balance available for main collection system	2443.00		KLD
Net Quantity of waste water towards main outfall sewer of HUDA ON Mehrauli Road	2443.00		KLD
Net Quantity of waste water towards main outfall sewer of HUDA on Mehrauli Road near Sahara Mall	1446.00		KLD

- Total quantity coming to HUDA master sewer=2443+1446=3689 MLD & will relieve the master sewerage system of overloading.

12.4.2 Proposal

Deficient Infra Structure

1. One time Desilting and cleaning of sewer
2. Repairing of existing man holes
3. Laying of Additional pipe network for direct connection of A Block Extension
4. 400 mm i/d RCC NP 3 Pipe with HDPE ling for making sewer connection through School & Sahara Mall up to HUDA Master sewerage system ; 170 M

12.4.3 Additional Infra Structure

1. Construction of Sewage Treatment Plant one module of 2.25 MLD capacity based on Sequential Batching Reactor Technology.

Special Repair

Table32

Size of Pipe	Existing Length	Additional Proposed Length
	M	M
200 mm i/d	34578	0
250 mm i/d	3216	146
300 mm i/d	106	263
400 mm i/d	2325	396
450 mm i/d	343	0
500 mm i/d	0	477
600 mm i/d	1348	315
700 mm i/d	0	116
800 mm i/d	0	232
	41916	2115

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 55079 Mtr Length for Storm Water Drainage open drains/RCC NP-3 Pipe has been provided in the area. The breakup of the same is as under:-

12.5.2 Analysis

- The drains have been laid towards 5 no out falls.
- Outfall 1is towards creek covering tentatively 100 acre Catchment area
- drain sloping towards Nathu pur
- The central portion covering 110 Acre is sloping towards 60 m main Road & connected to two no 1000 mmi/d pipes named as outfall no.3
- The upper portion along Faridabad Road covering 205Acre is sloping towards 60 m main Road & connected to two no 1000 mmi/d pipes named as outfall no.3.
- Block A extension covering 85 Acre Area is drained near school but no outfall is available the same is pumped back to 60 m wide road & connected to 1000 mm i/d pipe which is connected to 2250 mm i/d pipe for disposal across 60 m wide road in huda drain of size 2.0 m x1.5 m size
- Separate drain is constructed by Rapid metro developers. Part of plots facing main Road are connected to Rapid Metro drain.
- No .outfall is available for Rapid metro system

12.5.3 Proposal

12.5.3.1 Deficient Infra Structure

- Desilting and cleaning of Storm Water / Drain
- Repairing of existing drain.
- Plastering of surface after cleaning operation.

Connectivity of external drains of DLF Phase 1 with master proposal of HUDA

A Block Extension Area

- Two drains of size 9” x18” are constructed up to School in A Block extension.
- The runoff of A Block extension could not be connected to main out fall of HUDA.
- The work could not be completed by colniser due to lack of coordination among varius agencies involved.
- It is proposed that 800 mm i/d RCC pipe NP 3 length 170M, is laid along same alignment as proposed in sewerage section above through school in A Block & Sahara Mall.

Area across Faridabad Road sloping towards creeks of Nathupur

- As explained above There are various outfalls in natural Drain.
- The natural outfall has been blocked by unathriesd construction in village Sikender pur Ghosi , Nathupur.
- Natural drain is to be linked with HUDA outfall drain constructed up to NH 8 and needs to be worked out under master sewerage syste,

Area across Faridabad Road sloping towards Faridabad Road

- The run off From this Zone IS connected to 800 mm i/d RCC pipe for disposal in newly constructed drain by HUDA under in work of channelization of creeks
- It is proposed that part of Runoff from this area is diverted toards A block Extesion for ultimate connection in HUDA drain of Size 4’x3’

- It is proposed that 600 mm i/d RCC pipe NP 3 length 570M, is laid to connect existing 800 mm i/d RCC Pipe (outfall no 3)connecting with HUDA Master drain.
- Central Area sloping towards 60 M wide Road
- Major portion which was originally proposed to connected with master storm water on Mehrauli Road is now diverted towards new RCC Box Drain 2.0 M x 1.5 M size constructed near Chakkar pur village in sector 28.
- 800 mm i/d pipe are laid along 60 M wide Road has been laid by colonizer and connected to master drain 2M x 1.5 M

Area sloping towards creek No. 1

- There are various outfalls in natural Drain.
- The System is functioning properly

12.5.3.2 Recharge wells (additional infrastructure)

The outfall system of HUDA is developed on the assumption of Runoff at 1/8 rain fall /hrs

The actual of if calculated as per rational methoed given in the sewerage and drainage manual, is much more and as such It is bound to cause some flooding in the area as such it is proposped to provide rain water harvesting structures to absorb the additional quantity of runoff.

Design of recharge wells

Table:- 35

Rain Water Recharge Scheme ,DLF Phase 1		
Description of Area	Acres	Sqm.
Area to be developed	238.8	Hectare
Impervious factor	52.61%	
Effective impervious Area	125.6	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

Table:- 36

Estimation of Run off		
Rational Method		
Anticipated Run off (M^3/Hour)	16888	(M3/Hour)
Anticipated Run off (Cumecs)	4.69	(Cumecs)
Anticipated Run off (Cusecs)	165.13	(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)	14926	(M3/Hour)
Anticipated Run off (Cumecs)	4.15	(Cumecs)
Anticipated Run off (Cusecs)	146	(Cusecs)
Out fall Drainage Arrangement@3.12 mm Rain fall/Hr		
AverageRain fall @3.12mm/Acre/Hour	3.12	mm/Acre/Hour
Anticipated Run off(M3/Hour)	7451	(M3/Hour)
Anticipated Run off(Cumecs)	2.07	(Cumecs)
Anticipated Run off (Cusecs)	73	(Cusecs)

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

Table:- 37

Total Quantity of Recharge with one Injection Well (Assuming 15KL /Hr for 1hrs in 43 Hrs) in parks & other suitable area	3010.0	Klitres
Total Quantity of Recharge with one Injection Well (Assuming 15KL /Hr for 1hrs in 43 Hrs) in Building Area	227.0	Klitres
Total Quantity of Recharge with one Recharge Pit in Building Area	65.8	Klitres

Table:- 39

	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**	84173/65.8	1280	Nil	Nos.
2	**No. of Recharge Wells proposed for Roof Top Area of other Buildings/ Community Building**	31942/227	141	141	Nos.
3	**No. of Recharge Wells proposed ,open area**	205286/3010	69	69	Nos.
4	**No. of Recharge Wells proposed ,Green area**	22831/3010	8	8	Nos.

Note:- Item No 1 1280 Nos Recharge well to be constructed by individual Plot Holders.

Item No 2 141 Recharge well to be constructed by the agency who have constructed the community building & infrastructure.

Item No 3 & 4 Proposal under the project.

1. Existing Recharge pit 28 Nos

Table:-40

Location of existing Recharge wells	**No. of Recharge well**	**Unit**
Block A Extension	7	Nos.
Block A	3	Nos.
Block B	4	Nos.
Block C	6	Nos.
Block D	1	Nos.
Block E	3	Nos.
Block F	1	Nos.
Block G	1	Nos.
Block H	2	Nos.
Sub Total	28	Nos.

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

12.5.4 Solid Waste management(Addl Infrastructure)

- As per details given in Design profile for solid waste management estimated Generation of Solid Waste is 50 Ton. Nos.
- The total no of dwelling units in plotted area is 3660 Nos.
- The total no of dwelling units in Group Housing area is 885 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.

12.5.4.1 Proposal

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

12.5.4.2 Appurtenance

- Appurtenance required are as under.
  1. Collection bin for Domestic area. 24443 Nos.
  2. Collection bin for Utility area. : 250Nos
  3. Primary collection Centres: 17Nos.
  4. Motorized Tricycles: 6 Nos.
  5. Hydraulic Vehicles: 2 Nos.

12.6. STREET LIGHT

12.6.1 Present scenario

- The existing street lighting system is in working condition.
- 36Watt Tube light,70Watt 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 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:- 41

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.
2. The area bet 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 feed bank from various quarters, It is observed the quality of service of water supply needs to be improved.

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 22 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 reduced & has now been ignored. The authorities have already released 3 Nos water connections to DLF phase I for the existing 3 Nos Water works.

1. Recommendation have been given to replace the old machinery at the boosting station with improved head & discharge.
2. Distribution Network also requires some additional lines to boost the terminal head since discharge of T.wells have reduced..
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. 5 MLD waste water is diverted by the colonizer towards phase V for treatment. It is further proposed to constructed 2.25 MLD STP for treatment of waste water & use in phase I for Horticulture purpose**.**
4. It is proposed that the MCG may take up the matter for making connect on of Block A extension with the master sewer system laid on Mehrauli road to avoid pumping back of the sewage water.

Storm Water Drainage

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

The drains are also chocked at certain places because of encroachment at sites and need to be rehabilitated. As regards Block A extension is concerned, the main connection needs to be made with master storm water existing on Mehrauli road. The natural creek/channel, existing in the upper area of phase I, needs to be rehabilitated & necessary disposal arrangement made, as some lines are disposing the rain water in this creek.

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 the authority.

Recycled water

The STP of 2.25 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

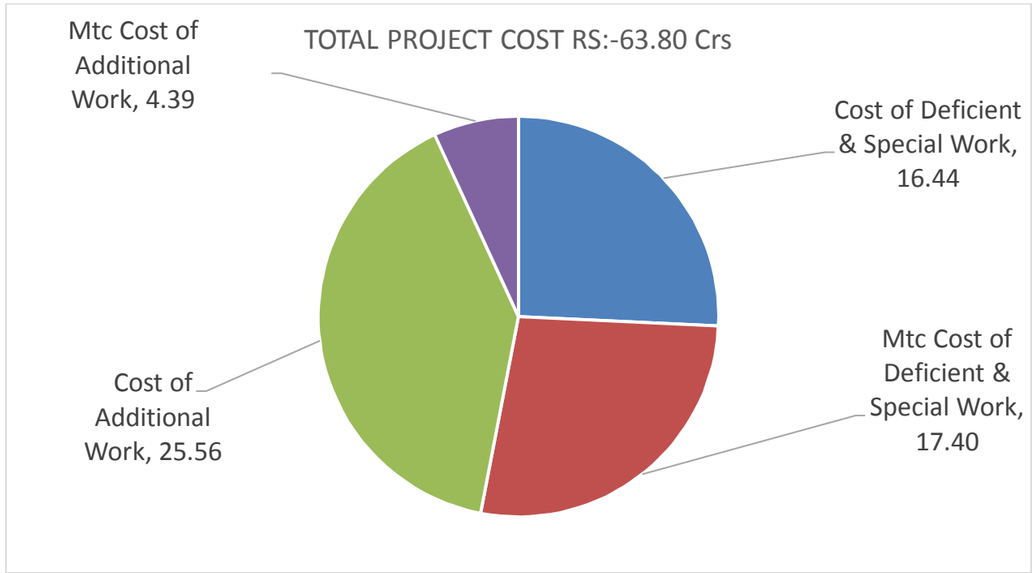
The electrification work is being looked after by DHBVN and as such the Augmentation of the same is not a part of this proposal. As regards street lights are concerned, the existing street light fixtures are proposed to be replace with the LED fixtures of required wattage & capacity. It has also come 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. However 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

14. PROJECT COST

Total Project cost including 5 Yrs Maintenance: - Rs:-**637973794** Say in **Rs 63.80** 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 I , 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	82222435	2137782	84360217	102074157	2137782	104211939	188572156
2	SUB WORK NO 2	HORTICULTURE		1219162	31699	1250861	33250826	864521	34115347	35366208
2	SUB WORK NO 3	WATER SUPPLY	18615454	0	126560173	145175627	30490217	22193289	52683506	197859133
3	SUB WORK NO 4	SEWERAGE	0	11424828	14744030	26168858	16365861	0	16365861	42534719
4	SUB WORK NO 5	STORM WATER DRAINAGE	0	43069866	4491450	47561316	0	0	0	47561316
5	SUB WORK NO 6	RECYCLING	0	0	0	0	36924633	15400045	52324678	52324678
6	SUB WORK NO 7	SOLID WASTE MANAGEMENT	0	0	0	0	13760050	688003	14448053	14448053
7	SUB WORK NO 8	STREET LIGHT	0	0	17789525	17789525	10607906	530395	11138301	28927827
	Sub Total		**18615454**	**137936290**	**165754660**	322306404	**243473650**	**41814035**	**285287685**	**607594089**
	Add 3% of Contingency Charges		558464	4138089	4972640	9669192	7304210	1254421	8558631	18227823
	Add 1% of Designing Charges		186155	1379363	1657547	3223064	2434737	418140	2852877	6075941
	Add 1% of QC/QA		186155	1379363	1657547	3223064	2434737	418140	2852877	6075941
	Total		**19546227**	**144833105**	**174042393**	**338421724**	**255647333**	**43904736**	**299552069**	**637973794**
	Say in Crores		**1.95**	**14.48**	**17.40**	**33.84**	**25.56**	**4.39**	**29.96**	**63.80**

SUB WORK NO 1		ROAD Work					
Sub Head No:-1		ROAD WORK(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	21166	100Cum	586.60	425%	3079.65	651913
2/NS	Supplying, Laying and consolidation of stone metal wearing coat, to water-bound-macadam specification, including making side dowels,carrying the metal from stacks and spreading to templates, screening and spreading the binding material, and consolidating the stone metal and blinding material, to proper camber, with road roller, excluding the cost of templates, barriers, and lighting arrangement and chowkidars.	253	cum	1065.00	0%	1065.00	269445
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)	262224	Sqm	19.00	0%	19.00	4982256
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.	3100	CUM	5875.00	0%	5875.00	18212500
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.	6188.42	Cum	8741.00	0%	8741.00	54089308
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	7450.50	SQM	526.00	0%	526.00	3919226
	Sub Total						82124648
	ADD 15% Price Escalation on HSR Items						97787
	Total						**82222435**

SUB WORK NO 2			HORTICULTURE WORKS (Special Repairing)					
S.No	**HSR Item No**	**Description**	**Quantity**	**Unit**	**Rate (Rs.)**	**Ceiling Premium**	**Effective Rates**	**Amount (Rs.)**
1	NS 1	Repair of existing Brick Boundry wall	2686	185	mtr	0%	185	496910
2	NS 2	Repair of existing Grill Walled Boundry wall	1094	258	nos	0%	258	282252
3	LS	Repair & painting of for swings & jhulla	8.0	15000	parks	0%	15000	120000
4	LS	Repair & replacement of benches	16.0	20000	parks	0%	20000	320000
5	LS	Provision for levelling and repair of existing Jogging tracks	13.0	25000	parks	0%	25000	325000
		TOTAL						1219162
	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 3		WATER SUPPLY (DEFICIENT WORK)				
Sr. No.	**Sub Head No**	**Sub Head Name**				**Total Amount in Rs**
	Sub Head No:-1	**Installation of Fire Hydrant**				1695796
	Sub Head No:-2	**Replacement of machinery**				5680758
	Sub Head No:-3	**Improvement of Distribution Network**				11238900
	Total					18615454
	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	250	Mtr	1009	252250	
2/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	40	Nos.	10964	438560	
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	**2**	Nos.	3408	6816	
4/28.10	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	**12**	Nos.	6280	75360	
	200 mm i/d	**4**	Nos.	10940	43760	

5/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	**6**	Nos.	6280	37680
	200 mm i/d	**2**	Nos.	10940	21880
6/28.10A/	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	6	Nos.	6202	37212
	200 mm i/d	2	Nos.	10056	20112
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	231	cum	10.30	2379
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	173	cum	9.32	1612
9/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	42	Nos.	16180	679560
10/NS	Providing and fixing Indicating Arrow Plates, Fire Hydrant, Lawn Hydrant & Sluice valve complete in all respect.	42	Nos.	508.00	21336
11/ NS	Providing & fixing D.I Double flanged bent Tee, Pubble collar & reducer packing etc, including cartage to site of work complete in all respect	300	kg	140	41910
	Add 370 % Ceiling Premium on item No 7,8			3992	14769
	Sub TOTAL				1695197
	ADD 15% Price Escalation on HSR Items				**599**
	TOTAL				**1695796**

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.				
	Zone 1 (block - B)				
	50 LPS With 40 Mtr Head (60 BHP)	2	each	581825	1163650
	100 LPS With 40 Mtr Head (110 BHP)	1	each	708804	708804
	150 LPS With 40 Mtr Head (160 BHP)	1	each	967925	967925
	Zone 2 (block - G)				
	50 LPS With 40 Mtr Head (60 BHP)	2	each	581825	1163650
	100 LPS With 40 Mtr Head (110 BHP)	1	each	708804	708804
	150 LPS With 40 Mtr Head (160 BHP)	1	each	967925	967925
	Sub Total				5680758

	Sub Head No. - 3		Improvement of Distribution Net work to get terminal head required			
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.					
	Distribution Line					
	DI K-7 Pipe					
	200 mm i/d pipe	2001	2001	Mtr	1809	3619469
	DI K-9 Pipe					
	250 mm i/d pipe	1060	1060	Mtr	2927	3102620
	300 mm i/d pipe	584	584	Mtr	3649	2131226
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)					
	200 mm i/d		**17**	Nos.	10940	185980
	250 mm i/d		**6**	Nos.	17148	102888
	300 mm i/d		**6**	Nos.	20838	125028
3/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)					
	ON DISTRIBUTION					
	100mm i/d		**5**	Nos.	4068.00	20340
4/28.10A/	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		2	Nos.	6202	12404
	200 mm i/d		2	Nos.	10056	20112

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	4388	cum	10.30	45196
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	172	cum	9.32	1603
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 !:3 cement mortor12 mm thick finished with a floating coat of neat cement	38	Nos.	16180	614840
8NS	Providing and fixing Indicating Arrow Plates, Fire Hydrant, Lawn Hydrant & Sluice valve complete in all respect.	38	Nos.	508.00	19304
9/NS	Provision for surface box for sluice valve & fire hydrant including cartage to site of work complete in all respect.	38	Nos.	964.00	36632
	Add 370 % Ceiling Premium on item No 8,9	46799			173158
	Sub TOTAL				10210800
10/NS	Provision for repairing of existing structures i.e. boosting chamber, UGT ,boundary wall , footpath of water works zone1and zone-2 and dismantling of flooring due to installation of machinery etc.			10%	1021080
	ADD 15% Price Escalation on HSR Items				**7020**
	TOTAL				**11238900**

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			11424828
	Sub Total				11424828
	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	34578	Mtr	200	6915600
	250 mm i/d	3216	Mtr	245	787920
	300 mm i/d	106	Mtr	265	28090
	400 mm i/d	2325	Mtr	375	871875
	450 mm i/d	343	Mtr	375	128625
	600 mm i/d	1348	Mtr	585	788580
	Sub total				9520690
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		1428104
3	Provision for 5% unforseen item on cost				476035
	Sub total				11424828

SUB WORK NO 5					STORM WATER DRAINAGE SPECIAL REPAIR			
Sub Head No 1					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 chowed 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.							
	Total Length	56079						
	Size	Length	Qty					
	230 x 230 mm	31185	5.175	1614	1614	Cum	158	254984
	230 x 450 mm	16880	10.2375	1728	1728	Cum	158	273038
	350 x 450 mm	2807	17.175	482	482	Cum	158	76172
	450 x 675mm	4866	23.625	1150	1150	Cum	158	181636
	675x 1200 mm	341	76.5	261	261	Cum	158	41217
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	31185		146.2	45592	sqm	16.95	772792
	230 x 450 mm	16880		195.4	32984	sqm	16.95	559071
	350 x 450 mm	2807		206.9	5808	sqm	16.95	98440
	450 x 675mm	4866		267.6	13021	sqm	16.95	220713
	675x 1200 mm	341		407.5	1390	sqm	16.95	23553
	Add 500% Ceiling Premium							8372848
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 56.079 Km 56079*0.05*2*0.23*0.75 (for existing drain)				967	Cum	427.7	413741
	Add 600% Ceiling Premium							2482446
4/10.42	Cement concrete 1 : 1 ½ : 3 with stone aggregate 20 mm nominal size in foundation and plinth. (56079*5%) 2804x0.45x0.15				189	cum	702.50	132962
	Add 450% Ceiling Premium							598330
5/10.38	Cement concrete 1 : 4 : 8 with stone aggregate 20 mm Nominal size in foundation and plinth. 2804*0.90*0.1				252	Cum	420.00	105991
	Add 450% Ceiling Premium							476960

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 0.2x56079x.115	1289.8	SQm	51.90	66942
	Add 450% Ceiling Premium				301237
7	5% Unforseen item of the above total cost for missing manhole, dismentling slab etc	5%			754245
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	77	Nos	294398	22668644
	Sub Total				40875962
	ADD 15% Price Escalation on HSR Items				2193904
	Total				**43069866**

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	33064	Cum	3.88	450%	21.34	705586
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	33064	Cum	21.00	450%	115.50	3818892
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.	23637	Cum	54.85	275%	205.69	4861895
4/10.38	Cement concrete 1 : 4 : 8 with stone aggregate 20 mm Nominal size in foundation and plinth.	1639	Cum	420.00	450%	2310.00	3786090
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.	2150	Cum	245.00	450%	1347.50	2897125
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.	117366	Sqm	450.00	10%	495.00	58096170
7/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	18164	Cum	924.00	0%	924.00	16783536
	Sub total						90949293
	ADD 15% Price Escalation on HSR Items						**11124864**
	Total						**102074157**

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	10.77	Pre-cast cement concrete 1:2:4 with stone aggregate 20 mm nominal size in Kerbs and the like items, finished smooth with 6 mm thick cement plaster 1:3 on exposed surface indluding from work, placing and fixing in position, complete at the ground level or in first storey.	80	cum	942.50	450%	5183.75	414700
2	10.158	Providing and laying of 60mm thick interlocking pavers of all shape and colour in Design mix grade M35 over a bed of 25mm thick fine sand complete in all respects	1992	cum	350.00	10%	385.00	766920
3	NS 1	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. 611*12	10711	Rate per month	7.76	0%	7.76	83117
4	NS 2	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.	5357	Rate per month	7.47	0%	7.00	37499
5	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. 611*12	128532	Rate per month	7.76	0%	7.76	997408
6	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.	64284	7.47	Rate per month	0%	7.00	449988
7	NS 5	Construction of Boundary wall with brick pillar and railing. BW-1 along the green belt	9222	2980	mtr	0%	2980.00	27481560
8	NS 6	Construction of Brick entry gate as per design no 1	9	66086	nos	0%	66086	594773
9	NS 7	Construction of Brick entry gate as per design no 2	27	83245	nos	0%	83245	2247617
		Sub Total						33073583
		Add 15% on HSR Items for esclation due to expected higher rates						177243
		TOTAL						33250826

	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**	**Laying of Additional Rising Main**			24754379
2	**Sub Head No:-2**	**Gen Set**			5735838
	Total				30490217
	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 75 mm i/d	15960	Mtr	1009	16103640
	200 mm i/d pipe	3747	Mtr	1459	5466873
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	**21**	Nos.	6280	131880
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	18576	cum	10.30	191333
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	421	cum	9.32	3924
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	101	Nos.	16180	1634180
8/NS	Providing and fixing Indicating Arrow Plates, Lawn Hydrant & Sluice valve complete in all respect.	101	Nos.	508.00	51308
9/NS	Provision for surface box for sluice valve including cartage to site of work complete in all respect.	101	Nos.	964.00	97364
	Add 370 % Ceiling Premium on item No 6,7	195257			722449
	Sub TOTAL				24725091
	ADD 15% Price Escalation on HSR Items				**29288**
	TOTAL				**24754379**

Sub Head No 2	**Construction of Gen Set**				
Sr No	**Description**	**Quantity**	**Rate**	**Unit**	**Amount**
1/NS	Supply of 350 Kva DG Set (3 Phase) comprising of Kirlosker make Engine , coupled to 415Volts, 350 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	2867919	5735838
	Sub Total				5735838

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			16365861
	Sub Total				16365861
Sub Head No. 2		**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	144	19.19	cum	2760
	(c) for depth of excavation not exceeding 4.5 mtrs below ground level	8260	21.14	cum	174610
	(c) for depth of excavation not exceeding 6 mtrs below ground level	2721	25.29	cum	68802
	FOR MANHOLES WITH AVERAGE DEPTH				
	(b) for depth of excavation not exceeding 3 mtrs below ground level	49	19.19	cum	944
	(c) for depth of excavation not exceeding 4.5 mtrs below ground level	904	21.14	cum	19119
	(c) for depth of excavation not exceeding 6 mtrs below ground level	328	25.29	cum	8289
	Add 370%				**1027962**
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	146	2703	mtr	394696
	300mm i/d	263	3234	mtr	850474

Sr. No.	Description			Quantity	Rate	Unit	Amount
	400mm i/d			566	4041	mtr	2287398
	500mm i/d			423	4643	mtr	1964167
	600mm i/d			369	5111	mtr	1885778
	700mm i/d			116	5637	mtr	653892
	800mm i/d			232	6628	mtr	1537712
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	146	0.093	14			
	300mm	263	0.1289	34			
	400mm	566	0.1372	78			
	500mm	423	0.1956	83			
	600mm	369	0.2354	87			
	700mm	116	0.2893	34			
	800mm	232	0.3826	89			
	TOTAL			487	516.9		251730
	Add 450% C.P.						1132786
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 3.25 m depth			**5**	**29940**	**Nos**	149700
	300 mm i/d upto 3.25 m depth			9	30134	**Nos**	271208
	400 mm i/d upto 2.5 m depth			2	36680	**Nos**	73360
	400 mm i/d upto 3.25 m depth			15	44963	**Nos**	674445
	400 mm i/d upto 4.0 m depth			2	53442	**Nos**	106884
	500 mm i/d upto 3.25 m depth			8	37617	**Nos**	300936
	500 mm i/d upto 4.0 m depth			4	46187	**Nos**	184748
	500 mm i/d upto 4.75m depth			3	54667	**Nos**	164001

Sr. No.	Description	Quantity	Rate	Unit	Amount
	600 mm i/d upto 4.0 m depth	5	34396	**Nos**	171980
	600 mm i/d upto 4.75m depth	8	38497	**Nos**	307976
	700 mm i/d upto 4. 0m depth	2	57388	**Nos**	114776
	700 mm i/d upto 4.75m depth	2	69408	**Nos**	138816
	800 mm i/d upto 3.25 m depth	2	44447	**Nos**	88894
	800 mm i/d upto 4.0 m depth	5	56512	**Nos**	282560
	800 mm i/d upto 4.75 m depth	1	68667	**Nos**	68667
	900 mm i/d upto 4.00m depth				
5/NS	800 mm sewer coonected with existing sewer	1			200000
6/NS	Provision for proposed connection of trunk sewer line to STP	L.S		mtr	500000
	Sub Total				**15495379**
	Add 15% Price on HSR		**5803212**		**870482**
	GRAND TOTAL				**16365861**

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**			28041686
2	Sub Head No.2	**Structure at Pumping Station**			8882947
	Total				**36924633**
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	8316	M	114	948024
	63 mm i/d	4158	M	173	719334
	110 mm i/d	8901	M	491	4370391
	160 mm i/d	2108	M	1018	2145944
	200 mm i/d	1117	M	1587	1772679
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	206	Mtr	2459	506554
	300 mm i/d	139	Mtr	3064	425900
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	102	Nos	4068	414936
	150 mm i/d	13	Nos	6280	81640
	200 mm i/d	8	Nos	10940	87520
	250 mm i/d	2	Nos	17148	34296
	300 mm i/d	2	Nos	20838	41676

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	10	Nos	4068	40680
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	10	Nos.	3408.00	34080
30/NS	Providing and fixing butterfly Value including jointing Material and Cartage to site of work				
	50 mm i/d	2022	Nos.	2353.00	4757766
	63 mm i/d	674	Nos.	2625.00	1769250
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	121	Nos.	10964.00	1326644
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	20266	cum	10.30	208740
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	1186	cum	9.32	11054
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	268	Nos.	16180	4336205
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.	693	Nos.	3835	2657655
11/NS	Providing and fixing Indicating Arrow Plates, Fire Hydrant, Lawn Hydrant & Sluice valve complete in all respect.	268	Nos.	530	142040
12/NS	Provision for surface box for sluice valve & fire hydrant including cartage to site of work complete in all respect.	268	Nos.	964	258352
	Add 370% Ceiling Premium on item no 7,8			219793	813235
	Sub Total				**27904595**
	ADD 15% Price Escalation on HSR Items			**913941**	**137091**
	Total				**28041686**

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.				
	Zone 1 (Block -B)	386	Kl	4500	1736478
	Zone 2 (Block -G)	386	Kl	4500	1736478
2/NS	Construction of Pump Chamber of 12 m x 6 and varanda for the pumping machinery complete.	144	sq mtr	15000	2160000
3/NS	Providing errection and commissioning of Centrifugal type Vertical Split Casing Pumps for operation, AC supply capable of giving 8LPS discharge with a head of 35 mtrs and having a motor of 5 BHP including motor electric cable earthing and other required accessories etc complete in all respect.	2	each	387290	774580
4/NS	Providing errection and commissioning of Centrifugal type Vertical Split Casing Pumps for operation, AC supply capable of giving 16 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.	2	each	417103	834206
4/NS	Providing errection and commissioning of Centrifugal type Vertical Split Casing Pumps for operation, AC supply capable of giving 24 LPS discharge with a head of 35 mtrs and having a motor of 15 BHP including motor electric cable earthing and other required accessories etc complete in all respect.	2	each	458840	917680
4/NS	Supply of 62.5 Kva DG Set (3 Phase) comprising of Kirlosker make Engine , coupled to 415Volts, 62.5 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	723525	723525
	Sub Total				8882947

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.	222.00	Nos	5500	1221000
(b)	Provision for Bins for dwelling unit				
i)	Capacity of 8 Kg	1824	Nos	600	1094400
ii)	Capacity of 16 Kg	249	Nos	1000	249000
(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	7	Nos	37500	262500
2	Construction of Primary collection centers by providing platform of size 134 Cum Capacity as per design (But to be provided	17	Nos	349000	5933000
3	Purchase of Hydraulic vehicles for lifting of Bins & Transportation of garbage.	2	Nos	2500000	5000000
	Sub Total				**13760050**

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	981.00	No.	3831.00	3758211
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	245.00	No.	7653.00	1874985
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	143.00	No.	14751.00	2109393
4	Supply,erection and necessary connection of 2.5sqmm (80/0.20mm) 1.1KV Grade 3core PVC insulated, sheathed copper conductor circular flexible wire	6845.00	No.	73.00	499685
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.	1369.00	No.	1728.00	2365632
	Sub Total				10607906

MANTAINANCE COST FOR 5 YEARS			
(Special Repair)		ROADS	Horticulture
CAPITAL COST		82222435	1219162
1% OF CAPITAL COST		822224	12192
1ST YEAR	10%	82222	1219
2nd YEAR	25%	205556	3048
3rd YEAR	50%	411112	6096
4th YEAR	75%	616668	9144
5th YEAR	100%	822224	12192
		2137782	31699

MANTAINANCE COST FOR 5 YEARS			
Additional works		ROADS	Horticulture
CAPITAL COST		102074157	33250826
1% OF CAPITAL COST		1020742	332508
1ST YEAR	10%	82222	33251
2nd YEAR	25%	205556	83127
3rd YEAR	50%	411112	166254
4th YEAR	75%	616668	249381
5th YEAR	100%	822224	332508
		2137782	864521

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	Water Supply	4447686	993515	1262535	18608299	**25312035**	**126560173**
2	Sewerage	1440746	1480860	27200	0	**2948806**	**14744030**
3	Storm water	480248	392042	**26000**	0	**898290**	**4491450**
4	Street Light		106079	0	3451826	**3557905**	**17789525**
	Sub Total					**32717036**	**165722961**

		Maitenance for Additional Infra Structure One Year				
OPERATION AND MAINTENANCE						
Maitenance for Additional Infra Structure						
		Establishment Cost	Repair Cost	Consumable Store	Energy Charges	**Sub Total for 1 Year**	**Mtc For 5 Years**
1	Water Supply	0	259700	4178958	0	**4438658**	**22193289**
2	Recycling	1080559	310580	624216	1064654	**3080009**	**15400045**
3	Solid Waste Management					**137601**	**688003**
4	Street Light		106079			**106079**	**530395**
	Sub Total					**7656267**	**41560997**

MANTAINANCE COST FOR 5 YEARS			
(Special Repair)		ROADS	Horticulture
CAPITAL COST		82222435	1219162
1% OF CAPITAL COST		822224	12192
1ST YEAR	10%	82222	1219
2nd YEAR	25%	205556	3048
3rd YEAR	50%	411112	6096
4th YEAR	75%	616668	9144
5th YEAR	100%	822224	12192
		2137782	31699

MANTAINANCE COST FOR 5 YEARS			
Additional works		ROADS	Horticulture
CAPITAL COST		102074157	33250826
1% OF CAPITAL COST		1020742	332508
1ST YEAR	10%	82222	33251
2nd YEAR	25%	205556	83127
3rd YEAR	50%	411112	166254
4th YEAR	75%	616668	249381
5th YEAR	100%	822224	332508
		2137782	864521

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	Water Supply	4447686	993515	1262535	18608299	**25312035**	**126560173**
2	Sewerage	1440746	1480860	27200	0	**2948806**	**14744030**
3	Storm water	480248	392042	**26000**	0	**898290**	**4491450**
4	Street Light		106079	0	3451826	**3557905**	**17789525**
	Sub Total					**32717036**	**165722961**

		Maitenance for Additional Infra Structure One Year				
OPERATION AND MAINTENANCE						
Maitenance for Additional Infra Structure						
		Establishment Cost	Repair Cost	Consumable Store	Energy Charges	**Sub Total for 1 Year**	**Mtc For 5 Years**
1	Water Supply	0	259700	4178958	0	**4438658**	**22193289**
2	Recycling	1080559	310580	624216	1064654	**3080009**	**15400045**
3	Solid Waste Management					**137601**	**688003**
4	Street Light		106079			**106079**	**530395**
	Sub Total					**7656267**	**41560997**

ANALYSIS OF RATES

Supplying, Laying and consolidation of stone metal wearing coat, to water-bound-macadam specification, including making side dowels,carrying the metal from stacks and spreading to templates, screening and spreading the binding material, and consolidating the stone metal and blinding material, to proper camber, with road roller, excluding the cost of templates, barriers, and lighting arrangement and chowkidars.						
Material						
Sr No	Description		qty	unit	Rate	Amount
1	Supply of stone metal of Size 53.4 to 22.4 mm gauge including carriage unloading & stacking		1	cum	930	930
Labour						0
HSR/24.9	Laying and consolidation of stone metal wearing coat, to water-bound-macadam specification, including making side dowels,carrying the metal from stacks and spreading to templates, screening and spreading the binding material, and consolidating the stone metal and blinding material, to proper camber, with road roller, excluding the cost of templates, barriers, and lighting arrangement and chowkidars.		1	CUM	28.75	28.75
	ADD 370% C.P.					106.38
	Total					1065.13
	say					1065

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**

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**

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 50 LPS discharge with a head of 40 mtrs and having a motor of 60BHP 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 50 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
	12.5% VAT				51075.00
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
					581825.00
				Say	**581825.00**

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
	12.5% VAT				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 Casing Pumps for operation, AC supply capable of giving 150 LPS discharge with a head of 40 mtrs and having a motor of 160BHP 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 150 lps capacity with 40m head 160BHP complete in all respecty	1	Nos.	616000.00	616000.00
2	Pannel Board	1	Nos.	150000.00	150000.00
	Sub Total				766000.00
	Discount 10%				76600.00
3	Net Cost				689400.00
	12.5% VAT				86175.00
4	10% Contactors Profit				68940.00
5	Labour				
	15% Installation Charges on Net Cost				103410.00
6	Sundries				10000.00
7	Constrution foundation of Machinery complete at site including all material				10000.00
					967925.00
				Say	**967925.00**

Analysis of Rates for D.I Pipe Zink coated Class k-7 (size 150mm/id)					
For 100 Mtr Length					
Sr. No / HSR item	**Description**	**Qty**	**Unit**	**Rate**	**Amount**
	A) Material				
	Supply of D.I. pipe Class (K-7) Zink coated outside and cement lining inside 150 mm/id pipes (D S& D rates)	100	Mtr	1007.630	100763.00
	GST @18%				18137
	Amount				118900
	Cost of Specials at 10%				10076
	Add 10% Contractor Profit+5% Over Head Charges				15114
	Total **(A)**				**144091**
	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	100	mtr	1.84	184.00
2/28.3 (d)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 150 mm/id	2	per cut	5.25	10.50
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	25	Each Nos	7.25	181.25
	Total 1 to 3				375.75
	Add 380% C.P on Rs. 375.75				1427.85
	Total (B)				**1803.60**
	Total (A+B)				145894.69
	Cost per mtr				**1459.00**

Analysis of Rates for D.I Pipe Zink coated Class k-7 (size 200mm/id)					
For 100 Mtr Length					
Sr. No / HSR item	**Description**	**Qty**	**Unit**	**Rate**	**Amount**
	A) Material				
	Supply of D.I. pipe Class (K-7) Zink coated outside and cement lining inside 200 mm/id pipes (D S& D rates)	100	Mtr	1249.15	124915.00
	GST @18%				22485
	Amount				147400
	Cost of Specials at 10%				12492
	Add 10% Contractor Profit+5% Over Head Charges				18737
	Total **(A)**				**178628**
	B) Laying Work				
1/28.1 (e)	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 200mm/id	100	mtr	2.69	269.00
2/28.3 (e)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 200 mm/id	2	per cut	6.65	13.30
3/28.6 (e)	Jointing D.I Socketed pipes, valves & specials and chipping of the filling the surface to a uniform finish of the size200 mm/id	25	Each Nos	7.5	187.50
	Total 1 to 3				469.80
	Add 380% C.P on Rs. 469.80				1785.24
	Total **(B)**				**2255.04**
	Total (A+B)				180883.49
	Cost per mtr				**1809**

Absract of Rates DI Pipes K-9					
Sr. No.	Description	Basic Rate	Rates inclusive of GST	Rate in Rs.	Unit
1	100 mm i/d Pipe	788.98	931	1142	M
2	150 mm i/d pipe	1131.36	1335	1636	M
3	200 mm i/d Pipe	1508.48	1780	2180	M
4	250 mm i/d Pipe	2025.42	2390	2927	M
5	300 mm i/d Pipe	2525.42	2980	3649	M
6	350 mm i/d Pipe	3087.29	3643	4470	M
7	400 mm i/d Pipe	3701.69	4368	5360	M
8	450 mm i/d Pipe	4164.4	4914	6034	M
9	500 mm i/d Pipe	5178.81	6111	7507	M
10	600 mm i/d Pipe	7004.24	8265	10150	M
11	700 mm i/d Pipe	9043.22	10671	13088	M
12	800 mm i/d Pipe	11117.8	13119	16077	M
13	900 mm i/d Pipe	13605.08	16054	19656	M
14	1000 mm i/d Pipe	16778.81	19799	24216	M
15	1100 mm i/d Pipe	19678.81	23221	28386	M
16	1200 mm i/d Pipe	22109.32	26089	31883	M

Analysis of Rates for D.I Pipe Zink coated Class K-9 (size 250mm/id)					
For 100 Mtr Length					
Sr. No / HSR item	**Description**	**Qty**	**Unit**	**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)	100	Mtr	2025.42	202542.00
	GST @18%				36458
	Amount				239000
	Cost of Specials at 10%				20254
	Add 10% Contractor Profit+5% Over Head Charges				30381
	Total **(A)**				**289635**
	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	100	mtr	4.085	408.50
2/28.3 (f)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 300 mm/id	2	per cut	7.8	15.60
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	25	Each Nos	8.15	203.75
	Total 1 to 3				627.85
	Add 380% C.P on Rs. 627.85				2385.83
	Total **(B)**				**3013.68**
	Total (A+B)				292648.74
	Cost per mtr				**2927.00**

Analysis of Rates for D.I Pipe Zink coated Class K-9 (size 300 mm/id)					
For 100 Mtr Length					
Sr. No / HSR item	**Description**	**Qty**	**Unit**	**Rate**	**Amount**
	A) Material				
	Supply of D.I. pipe Class (K-9) Zink coated outside and cement lining inside 300 mm/id pipes (D S& D rates)	100	Mtr	2525.42	252542.00
	GST @18%				45458
	Amount				298000
	Cost of Specials at 10%				25254
	Add 10% Contractor Profit+5% Over Head Charges				37881
	Total **(A)**				**361135**
	B) Laying Work				
1/28.1 (g)	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	100	mtr	5.275	527.50
2/28.3 (g)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 300 mm/id	2	per cut	9.65	19.30
3/28.6 (g)	Jointing D.I Socketed pipes, valves & specials and chipping of the filling the surface to a uniform finish of the size300 mm/id	25	Each Nos	9.8	245.00
	Total 1 to 3				791.80
	Add 380% C.P on Rs.791.8				3008.84
	Total (B)				**3800.64**
	Total (A+B)				364935.70
	Cost per mtr				**3649**

Providing and fixing surface box for S.V including cartage to site of work complete in all respect					
Sr. No.	Description	Qty	Unit	Rate	Amount
	Material DI				
1	IC Cover size = 455x455 mm = 0.207 sqam				
2	0.207 sqm = 38 kg				
3	Sluice valve box size 380x230 = 0.087 sam				
	38/0.207x0.087	15.97	Kg	52.00	830.44
	Add 10 % add contractor profit				83.04
4	Add 3 % Cartage Insurance octri etc				24.91
	Labour				
	Fixing surface box	1	Nos.	6.40	6.40
	Add 300% celling premium				19.20
	Total				963.997
	Says				964.00

Analysis of Rate Supply of 350 Kva DG Set (3 Phase) comprising of Kirlosker make Engine , coupled to 415Volts, 350 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.					
Sr No	Description	Quantity	Unit	Rate	amount in Rs
1	Supply of **350 Kva DG Set (3 Phase) comprising of Kirlosker make Engine , coupled to 415Volts, 350 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	2489365	2489365
	Discount 20 %				497873
	Sub Total				1991492
	Add Exise Duty	12.50%			248937
	Vat	14.50%			288766
	Total				2529195
	Add 10% Contractor's Profit + 5% over head charges				298724
	Total Cost of D.G. Set				**2827919**
2	Add for cost of Fixing or placing the D.G. Set on the Plateform including				
	cost of Plateform and making connection with the machinery		L.S.		40000
	Total cost for Providing and Fixing the D.G. Set at site				2867919
	Say Rs.				**2867919**

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	5	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	9	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				
	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 for400mm i/d						No. of Man Holes	2	Average Depth in Meters	2.500
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	2.88	2.28	0.3	1.97	cum	420.00	827
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	0.12	0.22			
		2	1.36	0.46	0.12	0.15			
		Deduct for Circular Area							
		2	3.142	0.055225	0.46	0.16			
		Sub Total				3.87	cum	489.50	1895
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.10	0.46	0.23	0.233	cum	47.80	11
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 0.40+0.035+0.085+0.035				
		1	1.5	0.9	0.555	0.749		0.00	
		2	1.5	0.45	0.075	0.101			
		1	1.5	0.4	0.235	0.141			
	-	1	1.5	0.06	0.235	0.022			
	-	2	1.5	0.00081	0.235	0.001			
						0.687	cum	705.05	484
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		1.810	8.69	sqm	16.60	144
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		1.81	8.69	sqm	4.25	37
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
		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	7.40	15
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					1783.97		8028
		Add 500 % C.P. on Item No. 5 , 6					181.14		906
		Add 600 % C.P. on Item No.2,3					2742.34		16454
		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.					14.80		67
		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							**36680**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for400mm i/d						No. of Man Holes	15	Average Depth in Meters	3.250
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	2.88	2.28	0.3	1.97	cum	420.00	827
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	0.87	1.57			
		2	1.36	0.46	0.87	1.09			
		Deduct for Circular Area							
		2	3.142	0.055225	0.46	0.16			
		Sub Total				6.16	cum	489.50	3017
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.10	0.46	0.23	0.233	cum	47.80	11
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 0.40+0.035+0.085+0.035				
		1	1.5	0.9	0.555	0.749			
		2	1.5	0.45	0.075	0.101			
		1	1.5	0.4	0.235	0.141			
	-	1	1.5	0.06		0.094			
	-	2	1.5	0.00081		0.002			
						0.613	cum	705.05	432
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		2.560	12.29	sqm	16.60	204
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				

		2	2.4		2.56	12.29	sqm	4.25	52
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
		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	7.40	15
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					1731.82		7793
		Add 500 % C.P. on Item No. 5 , 6					256.20		1281
		Add 600 % C.P. on Item No.2,3					3863.68		23182
		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.					14.80		67
		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							**44963**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for400mm i/d						No. of Man Holes	2	Average Depth in Meters	4.000
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	2.88	2.28	0.3	1.97	cum	420.00	827
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	1.62	2.92			
		2	1.36	0.46	1.62	2.03			
		Deduct for Circular Area							
		2	3.142	0.055225	0.46	0.16			
		Sub Total				8.45	cum	489.50	4138
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.10	0.46	0.23	0.233	cum	47.80	11
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 0.40+0.035+0.085+0.035				
		1	1.5	0.9	0.555	0.749			
		2	1.5	0.45	0.075	0.101			
		1	1.5	0.4	0.235	0.141			
	-	1	1.5	0.06		0.094			
	-	2	1.5	0.00081		0.002			
						0.613	cum	705.05	432
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		3.310	15.89	sqm	16.60	264
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		3.31	15.89	sqm	4.25	68
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
		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	7.40	15
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						1731.82	7793
		Add 500 % C.P. on Item No. 5 , 6						331.26	1656
		Add 600 % C.P. on Item No.2,3						4985.03	29910
		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.						14.80	67
		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							**53442**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 500mm i/d						No. of Man Holes	8	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	2.65	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	0.88	1.59			
		2	1.36	0.46	0.88	1.10			
		Deduct for Circular Area							
		2	3.142	0.087025	0.345	0.19			
		Sub Total				4.43	cum	489.50	2167
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		2.450	11.76	sqm	16.60	195
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		2.45	11.76	sqm	4.25	50
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				8.00	Each.	90.00	720
				Add 450 % C.P. on Item No. 1 , 4, & 8			1500.41		6752
				Add 500 % C.P. on Item No. 5 , 6			245.20		1226
				Add 600 % C.P. on Item No.2,3			3012.81		18077
				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							**37617**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for 500mm i/d						No. of Man Holes	4	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**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for600mm i/d						No. of Man Holes	5	MaximumDepth 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 1:5 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	2.50	1.99			
		2	1.13	0.23	2.50	1.30			
		2	1.845	0.345	0.17	0.22			
		2	1.245	0.345	0.17	0.15			
		Deduct for Circular Area							
		2	3.142	0.148225	0.23	0.21			
		Sub Total				3.44	cum	489.50	1683
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.57	0.23	0.23	0.166	cum	47.8	8
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 0.60+0.085+0.085+0.085				
		1	1.5	0.9	0.855	1.154			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.6	0.385	0.347			
		1	1.5	0.14		0.212			
	-	2	1.5	0.00081		0.002			
						0.6945	cum	705.05	490
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		3.06	14.69	sqm	16.60	244
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		3.06	14.69	sqm	4.25	62
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	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	16.00	32
11	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	New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				10.00	Each.	90.00	900
				Add 450 % C.P. on Item No. 1 , 4, & 8			1424.50		6410
				Add 500 % C.P. on Item No. 5 , 6			306.24		1531
				Add 600 % C.P. on Item No.2,3			2526.40		15158
				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.			32.00		144
				Add5% C.P. on Item No.11. on Rs.			1200.00		60
		Add0% C.P. on Item No.12 on Rs.					900.00		0
		Total							**34396**

Analysis of Rates for Man Holes of Size1.5 m x 0.9m for600mm i/d						No. of Man Holes	8	MaximumDepth 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	2.42	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 1:5 in first storey upto 4 metres above plinth level.							
		Nos	L	W	D = (Av.Depth+thick				
	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	3.25	2.59			
		2	1.13	0.23	3.25	1.69			
		2	1.845	0.345	0.17	0.22			
		2	1.245	0.345	0.17	0.15			
		Deduct for Circular Area							
		2	3.142	0.148225	0.23	0.21			
		Sub Total				4.42	cum	489.50	2166
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.57	0.23	0.23	0.166	cum	47.8	8
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 0.60+0.085+0.08				
		1	1.5	0.9	0.855	1.154			
		2	1.5	0.45	0.075	0.101			
	-	1	1.5	0.6	0.385	0.347			
		1	1.5	0.14		0.212			
	-	2	1.5	0.00081		0.002			
						0.6945	cum	705.05	490
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		3.81	18.29	sqm	16.60	304
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.4		3.81	18.29	sqm	4.25	78
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	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	16.00	32
11	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	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			1424.50		6410
				Add 500 % C.P. on Item No. 5 , 6			381.30		1907
				Add 600 % C.P. on Item No.2,3			3009.39		18056
				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.			32.00		144
				Add5% C.P. on Item No.11. on Rs.			1200.00		60
				Add0% C.P. on Item No.12 on Rs.			1170.00		0
		Total							**38497**

Analysis of Rates for Man Holes of Size1.5 m x 1.2m for700mm i/d						No. of Man Holes	2	MaximumDepth in Meters	4.00
Sr. No.	**HSR.No.**	**Description**				**Qty**	**.**	**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	2.88	2.58	0.3	2.23	cum	420.00	936
2	11.25+Note	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+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.43	0.23	1.32	0.87			
						1.919	cum	481.25	924
	Depth 1.5 M<5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.43	0.23	0.25	0.16			
		2	1.845	0.345	0.75	0.95			
		2	1.545	0.345	0.75	0.80			
		2	1.96	0.46	0.75	1.35			
		2	1.66	0.46	0.75	1.15			
		2	2.075	0.575	0.92	2.20			
		2	1.775	0.575	0.92	1.88			
		Deduct for Circular Area							
		2	3.142	0.189225	0.46	0.55			
		Sub Total				8.14	cum	489.50	3985
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.73	0.46	0.23	0.366	cum	47.8	17
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 0.70+0.085+0.085+0.085				
		1	1.5	1.2	0.955	1.719			
		2	1.5	0.6	0.1	0.180			
	-	1	1.5	0.7	0.435	0.457			
	-	1	1.5	0.19		0.289			
		2	1.5	0.00081		0.002			
						1.1511	cum	705.05	812
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		2.94	14.09	sqm	16.60	234
6	15.75	Cement rendering on plaster 1 mm thick							

		Nos	L		D				
		2	2.7		2.94	15.85	sqm	4.25	67
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	1.2		1.8	sqm	12.50	23
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	1.66	0.18	0.586			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.541	cum	1084.80	587
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							
		9	3.63	0.89	29.08				
		1	2.788	0.89	2.48				
		1	2.467	0.89	2.20				
		1	2.395	0.89	2.13				
		1	2.5	0.89	2.23				
		1	2.917	0.89	2.60				
		2	1.835	0.89	3.27				
		4	1.61	0.89	5.73				
		1	1.208	0.89	1.08				
		1	1.084	0.89	0.96				
		12	2.73	0.89	29.16				
		1	2.386	0.89	2.12				
		1	2.035	0.89	1.81				
		1	1.945	0.89	1.73				
		1	2.014	0.89	1.79				
		1	2.311	0.89	2.06				
		4	2.21	0.89	7.87				
		1	1.762	1.89	3.33				
		1	1.36	2.89	3.93				
		Total Qty = 105.54 or 1.0554qtl			105.54	1.055	qtl	917.05	968
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	21.50	43
11	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	New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				10.00	Each.	90.00	900
				Add 450 % C.P. on Item No. 1 , 4, & 8			2335.06		10508
				Add 500 % C.P. on Item No. 5 , 6			301.22		1506
				Add 600 % C.P. on Item No.2,3			4926.43		29559
				Add 120 % C.P. on Item No. 7 on Rs.			22.50		27
				Add 500 % C.P. on Item No.9			967.88		4839
				Add450% C.P. on Item No.10. on Rs.			43.00		194
				Add5% C.P. on Item No.11. on Rs.			1200.00		60
		Add0% C.P. on Item No.12 on Rs.					900.00		0
		Total							**57388**

Analysis of Rates for Man Holes of Size1.5 m x 1.2m for700mm i/d						No. of Man Holes	2	MaximumDepth in Meters	4.75
Sr. No.	**HSR.No.**	**Description**				**Qty**	**.**	**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	2.88	2.58	0.3	2.23	cum	420.00	936
2	11.25+Note	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+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.43	0.23	1.32	0.87			
						1.919	cum	481.25	924
	Depth 1.5 M<5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.43	0.23	0.25	0.16			
		2	1.845	0.345	0.75	0.95			
		2	1.545	0.345	0.75	0.80			
		2	1.96	0.46	0.75	1.35			
		2	1.66	0.46	0.75	1.15			
		2	2.075	0.575	1.67	3.99			
		2	1.775	0.575	1.67	3.41			
		Deduct for Circular Area							
		2	3.142	0.189225	0.46	0.55			
		Sub Total				11.46	cum	489.50	5611
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	1.73	0.46	0.23	0.366	cum	47.8	17
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 0.70+0.085+0.085+0.085				
		1	1.5	1.2	0.955	1.719			
		2	1.5	0.6	0.1	0.180			
	-	1	1.5	0.7	0.435	0.457			
	-	1	1.5	0.19		0.289			
		2	1.5	0.00081		0.002			
						1.1511	cum	705.05	812
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.4		3.69	17.69	sqm	16.60	294

6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.7		3.69	19.90	sqm	4.25	85
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	1.2		1.8	sqm	12.50	23
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	1.66	0.18	0.586			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.541	cum	1084.80	587
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							
		9	3.63	0.89	29.08				
		1	2.788	0.89	2.48				
		1	2.467	0.89	2.20				
		1	2.395	0.89	2.13				
		1	2.5	0.89	2.23				
		1	2.917	0.89	2.60				
		2	1.835	0.89	3.27				
		4	1.61	0.89	5.73				
		1	1.208	0.89	1.08				
		1	1.084	0.89	0.96				
		12	2.73	0.89	29.16				
		1	2.386	0.89	2.12				
		1	2.035	0.89	1.81				
		1	1.945	0.89	1.73				
		1	2.014	0.89	1.79				
		1	2.311	0.89	2.06				
		4	2.21	0.89	7.87				
		1	1.762	1.89	3.33				
		1	1.36	2.89	3.93				
		Total Qty = 105.54 or 1.0554qtl			105.54	1.055	qtl	917.05	968
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	21.50	43
11	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	New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				12.00	Each.	90.00	1080
				Add 450 % C.P. on Item No. 1 , 4, & 8			2335.06		10508
				Add 500 % C.P. on Item No. 5 , 6			378.19		1891
				Add 600 % C.P. on Item No.2,3			6551.88		39311
				Add 120 % C.P. on Item No. 7 on Rs.			22.50		27
				Add 500 % C.P. on Item No.9			967.88		4839
				Add450% C.P. on Item No.10. on Rs.			43.00		194
				Add5% C.P. on Item No.11. on Rs.			1200.00		60
				Add0% C.P. on Item No.12 on Rs.			1080.00		0
		Total							**69408**

Analysis of Rates for Man Holes of Size1.8 m x 1.5m for800mm i/d						No. of Man Holes	2	MaximumDepth in Meters	3.25
Sr. No.	**HSR.No.**	**Description**				**Qty**	**.**	**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	2.88	2.58	0.3	2.23	cum	420.00	936
2	11.25+Note	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+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.43	0.23	1.32	0.87			
						1.919	cum	481.25	924
	Depth 1.5 M≤5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.43	0.23	0.25	0.16			
		2	1.845	0.345	0.75	0.95			
		2	1.545	0.345	0.75	0.80			
		2	1.96	0.46	0.75	1.35			
		2	1.66	0.46	0.75	1.15			
		2	2.075	0.575	0.185	0.44			
		2	1.775	0.575	0.185	0.38			
		Deduct for Circular Area							
		2	3.142	0.3025	0.46	0.87			
		Sub Total				4.56	cum	489.50	2232
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	2.09	0.46	0.23	0.442	cum	47.8	21
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 0.90+0.1+0.1+0.085				
		1	1.5	1.2	1.185	2.133			
		2	1.5	0.65	0.108	0.211			
	-	1	1.5	0.9	0.55	0.743			
	-	1	1.5	0.32		0.477			
		2	1.5	0.00081		0.002			
						1.1221	cum	705.05	791
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.7		1.96	10.59	sqm	16.60	176
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.7		1.96	10.59	sqm	4.25	45

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	1.2		1.8	sqm	12.50	23
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	1.66	0.18	0.586			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.541	cum	1084.80	587
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							
		9	3.63	0.89	29.08				
		1	2.788	0.89	2.48				
		1	2.467	0.89	2.20				
		1	2.395	0.89	2.13				
		1	2.5	0.89	2.23				
		1	2.917	0.89	2.60				
		2	1.835	0.89	3.27				
		4	1.61	0.89	5.73				
		1	1.208	0.89	1.08				
		1	1.084	0.89	0.96				
		12	2.73	0.89	29.16				
		1	2.386	0.89	2.12				
		1	2.035	0.89	1.81				
		1	1.945	0.89	1.73				
		1	2.014	0.89	1.79				
		1	2.311	0.89	2.06				
		4	2.21	0.89	7.87				
		1	1.762	1.89	3.33				
		1	1.36	2.89	3.93				
					105.54	1.055	qtl	917.05	968
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	37.00	74
11	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	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					2314.60		10416
		Add 500 % C.P. on Item No. 5 , 6					220.86		1104
		Add 600 % C.P. on Item No.2,3					3176.87		19061
		Add 120 % C.P. on Item No. 7 on Rs.					22.50		27
		Add 500 % C.P. on Item No.9					967.88		4839
		Add450% C.P. on Item No.10. on Rs.					74.00		333
		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							**44447**

Analysis of Rates for Man Holes of Size1.8 m x 1.5m for800mm i/d						No. of Man Holes	5	MaximumDepth in Meters	4.00
Sr. No.	**HSR.No.**	**Description**				**Qty**	**.**	**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	2.88	2.58	0.3	2.23	cum	420.00	936
2	11.25+Note	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+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.43	0.23	1.32	0.87			
						1.919	cum	481.25	924
	Depth 1.5 M<5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.43	0.23	0.25	0.16			
		2	1.845	0.345	0.75	0.95			
		2	1.545	0.345	0.75	0.80			
		2	1.96	0.46	0.75	1.35			
		2	1.66	0.46	0.75	1.15			
		2	2.075	0.575	0.935	2.23			
		2	1.775	0.575	0.935	1.91			
		Deduct for Circular Area							
		2	3.142	0.3025	0.46	0.87			
		Sub Total				7.88	cum	489.50	3858
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	2.09	0.46	0.23	0.442	cum	47.8	21
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 0.90+0.1+0.1+0.085				
		1	1.5	1.2	1.185	2.133			
		2	1.5	0.65	0.108	0.211			
	-	1	1.5	0.9	0.55	0.743			
	-	1	1.5	0.32		0.477			
		2	1.5	0.00081		0.002			
						1.1221	cum	705.05	791
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.7		2.71	14.64	sqm	16.60	243
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.7		2.71	14.64	sqm	4.25	62
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	1.2		1.8	sqm	12.50	23

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	1.66	0.18	0.586			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.541	cum	1084.80	587
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							
		9	3.63	0.89	29.08				
		1	2.788	0.89	2.48				
		1	2.467	0.89	2.20				
		1	2.395	0.89	2.13				
		1	2.5	0.89	2.23				
		1	2.917	0.89	2.60				
		2	1.835	0.89	3.27				
		4	1.61	0.89	5.73				
		1	1.208	0.89	1.08				
		1	1.084	0.89	0.96				
		12	2.73	0.89	29.16				
		1	2.386	0.89	2.12				
		1	2.035	0.89	1.81				
		1	1.945	0.89	1.73				
		1	2.014	0.89	1.79				
		1	2.311	0.89	2.06				
		4	2.21	0.89	7.87				
		1	1.762	1.89	3.33				
		1	1.36	2.89	3.93				
					105.54	1.055	qtl	917.05	968
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	37.00	74
11	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	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					2314.60		10416
		Add 500 % C.P. on Item No. 5 , 6					305.31		1527
		Add 600 % C.P. on Item No.2,3					4802.32		28814
		Add 120 % C.P. on Item No. 7 on Rs.					22.50		27
		Add 500 % C.P. on Item No.9					967.88		4839
		Add450% C.P. on Item No.10. on Rs.					74.00		333
		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							**56512**

Analysis of Rates for Man Holes of Size1.8 m x 1.5m for800mm i/d						No. of Man Holes	1	MaximumDepth in Meters	4.75
Sr. No.	**HSR.No.**	**Description**				**Qty**	**.**	**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	2.88	2.58	0.3	2.23	cum	420.00	936
2	11.25+Note	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+thickness of pipe +0.085)-0.18				
	Upto 1.5 MDepth	2	1.73	0.23	1.32	1.05			
		2	1.43	0.23	1.32	0.87			
						1.919	cum	481.25	924
	Depth 1.5 M<5.5 M	2	1.73	0.23	0.25	0.20			
		2	1.43	0.23	0.25	0.16			
		2	1.845	0.345	0.75	0.95			
		2	1.545	0.345	0.75	0.80			
		2	1.96	0.46	0.75	1.35			
		2	1.66	0.46	0.75	1.15			
		2	2.075	0.575	1.685	4.02			
		2	1.775	0.575	1.685	3.44			
		Deduct for Circular Area							
		2	3.142	0.3025	0.46	0.87			
		Sub Total				11.20	cum	489.50	5483
3	11.45 C	Extra for Brick work curved on plan(Arch to be provided on top of sewer pipe)							
		2	2.09	0.46	0.23	0.442	cum	47.8	21
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 0.90+0.1+0.1+0.085				
		1	1.5	1.2	1.185	2.133			
		2	1.5	0.65	0.108	0.211			
	-	1	1.5	0.9	0.55	0.743			
	-	1	1.5	0.32		0.477			
		2	1.5	0.00081		0.002			
						1.1221	cum	705.05	791
5	15.3	12mm thick cement plaster 1:2							
		Nos	L		D				
		2	2.7		3.46	18.69	sqm	16.60	310
6	15.75	Cement rendering on plaster 1 mm thick							
		Nos	L		D				
		2	2.7		3.46	18.69	sqm	4.25	79

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	1.2		1.8	sqm	12.50	23
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	1.66	0.18	0.586			
		3.142*(0.56)^2/4	0.246		0.18	0.044			
						0.541	cum	1084.80	587
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							
		9	3.63	0.89	29.08				
		1	2.788	0.89	2.48				
		1	2.467	0.89	2.20				
		1	2.395	0.89	2.13				
		1	2.5	0.89	2.23				
		1	2.917	0.89	2.60				
		2	1.835	0.89	3.27				
		4	1.61	0.89	5.73				
		1	1.208	0.89	1.08				
		1	1.084	0.89	0.96				
		12	2.73	0.89	29.16				
		1	2.386	0.89	2.12				
		1	2.035	0.89	1.81				
		1	1.945	0.89	1.73				
		1	2.014	0.89	1.79				
		1	2.311	0.89	2.06				
		4	2.21	0.89	7.87				
		1	1.762	1.89	3.33				
		1	1.36	2.89	3.93				
					105.54	1.055	qtl	917.05	968
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	37.00	74
11	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	New HSR 29-28	Supply & fixing of PVC steps as per 29.28 Additional items				12.00	Each.	90.00	1080
		Add 450 % C.P. on Item No. 1 , 4, & 8					2314.60		10416
		Add 500 % C.P. on Item No. 5 , 6					389.75		1949
		Add 600 % C.P. on Item No.2,3					6427.76		38567
		Add 120 % C.P. on Item No. 7 on Rs.					22.50		27
		Add 500 % C.P. on Item No.9					967.88		4839
		Add450% C.P. on Item No.10. on Rs.					74.00		333
		Add5% C.P. on Item No.11. on Rs.					1200.00		60
		Add0% C.P. on Item No.12 on Rs.					1080.00		0
		Total							**68667**

Cleaning of Existing Chowked drainage system different size by machines complete in all respet including carriage of desilting material that is humus is decayed vegetable and animal mouldet for Sector 32

SNO	Description	Qty	Unit	Rate	Amount
1(6.1)	Earth work of silt cleaning of channels and drains				
b	basket work with a combined lead up to 7.5mtr undressed	1	cum	5.64	5.64
2	Humus is decayed vegetable and animal mould (groth caused by dampness that will contain seage, flows like molasses and illnot support a man's weight	1	cum	8.44	8.44
	Sub Total				14.08
	Add 425% C.P				59.84
	TOTAL				73.92
3	Carriage up to 1 km including loading and unloading by animal driven cart includin loading unloading	1	no	15.2	15.2
	Add 450% C.P				68.4
	Sub Total				157.52
	SAY				158

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**

Analysis of Rates for HDPE Pipe 63mm PE 100 /10 Kg/cm2					
		for 100 mtr length			
Sr. No / HSR item	Description	Qty	Unit	Rate in Rs.	Amount in Rs.
	A) Material				
	Supply of HDPE pipe 10 kg/cm2	100.00	Mtr	77.00	7700
	Cost of Specials at 10%				770
	Amount				8470
	Add 5% Vat				424
	Add 3% Cartage				254
	Add 10% Contractor Profit				847
	Total **(A)**				**9995**
	B) Laying Work				
1/28.7 (c)	Stringing out AC Pipe Class 25 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	100.00	mtr	1.25	125
2/28.9 (c)	Cutting AC Pipe Class 25 & specials & chipping of filling the surface to a uniform finish of the size 100 mm/id	5.00	per cut	1.75	8.75
3/28.08	Jointing AC/PVC pipes and specials with cast iron/PVC	25.00	NOS	4.45	111
4/NS	Solvent for Fixing PVC Joint 1 Ltr @400	1.00	Ltr	400.00	400.00
	Total 1 to 3				645
	Add 300% C.P on item No. 1, 2 & 3	245.00			735
	Total (B)				**1380**
	Total (A+B)				11375
	Cost per mtr				114

Analysis of Rates for HDPE Pipe 63mm PE 100 /10 Kg/cm2					
		for 100 mtr length			
Sr. No / HSR item	Description	Qty	Unit	Rate in Rs.	Amount in Rs.
	A) Material				
	Supply of HDPE pipe 10 kg/cm2	100.00	Mtr	123.00	12300
	Cost of Specials at 10%				1230
	Amount				13530
	Add 5% Vat				677
	Add 3% Cartage				406
	Add 10% Contractor Profit				1353
	Total **(A)**				**15965**
	B) Laying Work				
1/28.7 (c)	Stringing out AC Pipe Class 25 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	100.00	mtr	1.25	125
2/28.9 (c)	Cutting AC Pipe Class 25 & specials & chipping of filling the surface to a uniform finish of the size 100 mm/id	5.00	per cut	1.75	8.75
3/28.08	Jointing AC/PVC pipes and specials with cast iron/PVC	25.00	NOS	4.45	111
4/NS	Solvent for Fixing PVC Joint 1 Ltr @400	1.00	Ltr	400.00	400.00
	Total 1 to 3				645
	Add 300% C.P on item No. 1, 2 & 3	245.00			735
	Total (B)				**1380**
	Total (A+B)				17345
	Cost per mtr				173

Analysis of Rates for HDPE Pipe 110mm PE 100 /10 Kg/cm2					
		for 100 mtr length			
Sr. No / HSR item	Description	Qty	Unit	Rate in Rs.	Amount in Rs.
	A) Material				
	Supply of HDPE pipe 10 kg/cm2	100.00	Mtr	368.00	36800
	Cost of Specials at 10%				3680
	Amount				40480
	Add 5% Vat				2024
	Add 3% Cartage				1214
	Add 10% Contractor Profit				4048
	Total **(A)**				**47766**
	B) Laying Work				
1/28.7 (c)	Stringing out AC Pipe Class 25 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	100.00	mtr	1.25	125
2/28.9 (c)	Cutting AC Pipe Class 25 & specials & chipping of filling the surface to a uniform finish of the size 100 mm/id	5.00	per cut	1.75	8.75
3/28.08	Jointing AC/PVC pipes and specials with cast iron/PVC	25.00	NOS	4.45	111
4/NS	Solvent for Fixing PVC Joint 1 Ltr @400	1.00	Ltr	400.00	400.00
	Total 1 to 3				645
	Add 300% C.P on item No. 1, 2 & 3	245.00			735
	Total (B)				**1380**
	Total (A+B)				49146
	Cost per mtr				491

Analysis of Rates for HDPE Pipe 160mm PE 100 /10 Kg/cm2					
for 100 mtr length					
Sr. No / HSR item	Description	Qty	Unit	Rate in Rs.	Amount in Rs.
	A) Material				
	Supply of HDPE pipe 10 kg/cm2	100.00	Mtr	774.00	77400
	Cost of Specials at 10%				7740
	Amount				85140
	Add 5% Vat				4257
	Add 3% Cartage				2554
	Add 10% Contractor Profit				8514
	Total **(A)**				**100465**
	B) Laying Work				
1/28.7 (c)	Stringing out AC Pipe Class 25 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	100.00	mtr	1.25	125
2/28.9 (c)	Cutting AC Pipe Class 25 & specials & chipping of filling the surface to a uniform finish of the size 100 mm/id	5.00	per cut	1.75	8.75
3/28.08	Jointing AC/PVC pipes and specials with cast iron/PVC	25.00	NOS	4.45	111
4/NS	Solvent for Fixing PVC Joint 1 Ltr @400	1.00	Ltr	400.00	400.00
	Total 1 to 3				645
	Add 300% C.P on item No. 1, 2 & 3	245.00			735
	Total (B)				**1380**
	Total (A+B)				101845
	Cost per mtr				1018

Analysis of Rates for HDPE Pipe 200 mm PE 100 /10 Kg/cm2					
for 100 mtr length					
Sr. No / HSR item	Description	Qty	Unit	Rate in Rs.	Amount in Rs.
	A) Material				
	Supply of HDPE pipe 10 kg/cm2	100.00	Mtr	1212.00	121200
	Cost of Specials at 10%				12120
	Amount				133320
	Add 5% Vat				6666
	Add 3% Cartage				4000
	Add 10% Contractor Profit				13332
	Total **(A)**				**157318**
	B) Laying Work				
1/28.7 (c)	Stringing out AC Pipe Class 25 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	100.00	mtr	1.25	125
2/28.9 (c)	Cutting AC Pipe Class 25 & specials & chipping of filling the surface to a uniform finish of the size 100 mm/id	5.00	per cut	1.75	8.75
3/28.08	Jointing AC/PVC pipes and specials with cast iron/PVC	25.00	NOS	4.45	111
4/NS	Solvent for Fixing PVC Joint 1 Ltr @400	1.00	Ltr	400.00	400.00
	Total 1 to 3				645
	Add 300% C.P on item No. 1, 2 & 3	245.00			735
	Total (B)				**1380**
	Total (A+B)				158698
	Cost per mtr				1587

Analysis of Rates for D.I Pipe Zink coated Class k-7 (size 250mm/id)					
For 100 Mtr Length					
Sr. No / HSR item	**Description**	**Qty**	**Unit**	**Rate**	**Amount**
	A) Material				
	Supply of D.I. pipe Class (K-7) Zink coated outside and cement lining inside 250 mm/id pipes (D S& D rates)	100	Mtr	1698.31	169831.00
	GST @18%				30570
	Amount				200401
	Cost of Specials at 10%				16983
	Add 10% Contractor Profit+5% Over Head Charges				25475
	Total **(A)**				**242858**
	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	100	mtr	4.085	408.50
2/28.3 (f)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 300 mm/id	2	per cut	7.8	15.60
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	25	Each Nos	8.15	203.75
	Total 1 to 3				627.85
	Add 380% C.P on Rs. 627.85				2385.83
	Total **(B)**				**3013.68**
	Total (A+B)				245872.01
	Cost per mtr				**2459.00**

Analysis of Rates for D.I Pipe Zink coated Class K-7 (size 300 mm/id)					
For 100 Mtr Length					
Sr. No / HSR item	**Description**	**Qty**	**Unit**	**Rate**	**Amount**
	A) Material				
	Supply of D.I. pipe Class (K-7) Zink coated outside and cement lining inside 300 mm/id pipes (D S& D rates)	100	Mtr	2116.1	211610.00
	GST @18%				38090
	Amount				249700
	Cost of Specials at 10%				21161
	Add 10% Contractor Profit+5% Over Head Charges				31742
	Total **(A)**				**302602**
	B) Laying Work				
1/28.1 (g)	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	100	mtr	5.275	527.50
2/28.3 (g)	Cutting DI pipes & specials & chipping of filling the surface to a uniform finish of the size 300 mm/id	2	per cut	9.65	19.30
3/28.6 (g)	Jointing D.I Socketed pipes, valves & specials and chipping of the filling the surface to a uniform finish of the size300 mm/id	25	Each Nos	9.8	245.00
	Total 1 to 3				791.80
	Add 380% C.P on Rs.791.8				3008.84
	Total (B)				**3800.64**
	Total (A+B)				306402.94
	Cost per mtr				**3064**

Analysis of Rates for CI Butterfly Valves 50 mmid					
Sr No./ H.S.R	**Description**	**Qty**	**Unit**	**Rate**	**Amount**
(A)	Providing and fixing **Butterfly Valve (CF8 304)** kartar make wafer end type class PN 1.0 as per I.S:13095, including cost of all jointing materail like nuts, bolts, gaskets etc. carriage, loading, unloading, stacking, hanling complete in all respect of the satisfaction of the Engineer - in - charge	1	No	1478	1478
	Cost of rubber gasket required for making the joints, nuts & bolts of proper size of the flanges and washers	1	No	300	300
	Total				1778
	Add 10.30% excise duty				183
	Add 5% C.S.T				89
	Freight @ 5%				89
	Sub Total				2139
	Add 10% Contractor Profit				214
	Total				**2353**

Analysis of Rates for CI Butterfly Valves 63 mmid					
Sr No./ H.S.R	**Description**	**Qty**	**Unit**	**Rate**	**Amount**
(A)	Providing and fixing **Butterfly Valve (CF8 304)** kartar make wafer end type class PN 1.0 as per I.S:13095, including cost of all jointing materail like nuts, bolts, gaskets etc. carriage, loading, unloading, stacking, hanling complete in all respect of the satisfaction of the Engineer - in - charge	1	No	1684	1684
	Cost of rubber gasket required for making the joints, nuts & bolts of proper size of the flanges and washers	1	No	300	300
	Total				1984
	Add 10.30% excise duty				204
	Add 5% C.S.T against form C				99
	Freight @ 5%				99
	Sub Total				2387
	Add 10% Contractor Profit				239
	Total				**2625**

Analysis of Rate for Providing & Fixing of C.I. Spindle type **Lawn Hydrant** with 65 mm outlet ccomplete with nut & bolt and rubber insertion etc & masonry chamber complete in all respect.					
Sr. No.	Description	Quantity	Unit	Rate	Amount
1	Supply of C.I. Spindle type Lawn Hydrant	1	No.	2750.00	2750.00
2	Add Cost of nut bolt and rubber insertion & washers				275.00
3	Loading & unloading ,insurance & Octroi at 3%				90.75
4	VAT at 12.5%				378.13
5	Add 10% Contractor profit				302.50
1`	Labour charges for fixing oflawnHydrent	1	No.	9.70	9.70
7	Add 300% Ceiling Premiumon				29.10
8	Total Cost				3835.18
9	**Say Rs.**				**3835.00**

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	cum	615.60	24.93
	Total				416.29
	Add 425% C.P on item No. 2	0.45			1.91
	Add 450% C.P on item No. 3	24.93			112.19
	Total Cost				530.39
	Say Rs.				**530.00**

ANLYSIS OF RATE FOR PROVIDING AND FIXING GENERATOR SET OF CAPACITY 62.5kva (Kirlosker Make)					
Sr.No.	**Description of item**		**Quantity**	**Rate**	**Amount**
1	Supply of **62.5 Kva DG Set** (3 Phase) comprising of **Kirlosker make** Engine , coupled to 415Volts, 300 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.		1No.	580903	580903
	Discount 10 %				58090.3
	Sub Total				522812.7
	Add Exise Duty	8.24%			43080
	Vat	12.50%			65351.59
	Total				631244
	Add 10% Contractor's Profit				52281.27
	Total Cost of D.G. Set				**683525**
2	Add for cost of Fixing or placing the D.G. Set on the Plateform including				
	cost of Plateform and making connection with the machinery	L.S.			40000
	Total cost for Providing and Fixing the D.G. Set at site				723525
	Say	**Say Rs.**			**723525**

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

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**

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**

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 Entry Gate design 2								
Sr No	Description				Quantity	Unit	Rate	Amount
1/6.6	Earth work in excavation in foundations, 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.							
	NO	L	W	H				
	2	3.23	0.6	0.6	2.33			
	2	2.03	0.6	0.6	1.46			
	2	1.57	1.2	0.6	2.26			
	2	0.37	0.6	0.6	0.27			
					6.31	Cum	11.081	70
	Add 425 % C.P							297
2/10.37	cement concrete 1:4:8 with stone aggregate 20 mm nominal size in foundation and plinth.							
	NO	L	W	H				
	2	3.23	0.6	0.15	0.58			
	2	2.03	0.6	0.15	0.37			
	2	1.57	1.2	0.15	0.57			
	2	0.37	0.6	0.15	0.07			
	In floor							
	2	3	0.6		3.60			
	2	0.6	0.6		0.72			
	Total				5.90	cum	395.80	2335
	Add 450 % C.P							10506
10.158	Providing and laying of 60mm thick interlocking pavers Design mix grade M35							
	NO	L	W	H				
	2	3	0.6		3.60			
	2	0.6	0.6		0.72			
	Total				3.60	cum	350.00	1260
	Add 10 % C.P							126
11.23	First class brick work laid in cement, stone dust (from crusher) mortar 1:5 in foundation and plinth.							
	NO	L	W	H				
	2	3.23	0.46	0.15	0.45			
	2	3.23	0.34	0.15	0.33			
	2	3.23	0.23	0.3	0.45			
	2	2.63	0.46	1.2	2.90			
	2	2.03	0.46	0.15	0.28			
	2	2.03	0.34	0.15	0.21			
	2	2.03	0.27	0.3	0.33			
	2	2.03	0.23	1.2	1.12			
	2	1.57	0.46	0.15	0.22			
	2	1.57	0.34	0.15	0.16			

	2	1.57	0.23	0.3	0.22			
	2	1.57	0.23	1.2	0.87			
	2	0.37	0.46	0.15	0.05			
	2	0.37	0.34	0.15	0.04			
	2	0.37	0.23	0.3	0.05			
	2	0.37	0.23	1.2	0.20			
					7.87	cum	427	3358
	Add 600 % C.P							20151
7/15.4	12 mm thick cement plaster 1:3							
	NO	L	W	H				
	2	3.09		1.2	7.42			
	2	2.2		1.2	5.28			
	2	1.8		1.2	4.32			
	2	2.26		1.2	5.42			
	2	1.8		1.2	4.32			
	2	0.6		1.2	1.44			
					28.20	sqm	15	423
	Add 500 % C.P							2115
10.114-Note	Damp proof course 40 mm thick of cement concrete 1:2:4 using stone aggregate 20 mm nominal size with 2 coats of bitumen 20/30 penetration, at 1.65 kg per sqm laid hot and sanded.							
	NO	L	W	H				
	2	2.86	0.23		1.32			
	2	1.8	0.23		0.83			
	2	1.8	0.23		0.83			
					2.97	sqm	26.6	79
	Add 450% C.P							356
14.60	Dholpur stone tiles 25 mm thick in wall facing (lining) laid in anypattern as specified on 12 mm thick cement coarse sand mortar 1:3 and jointed with neat cement slurry mixed with pigment to match the shade of stone including rubbing and labour for fixing cramps, pins and dowels etc.							
	NO	L	W	H				
	2	3.09		1.2	7.42			
	2	2.2		1.2	5.28			
	2	1.8		1.2	4.32			
	2	2.26		1.2	5.42			
	2	1.8		1.2	4.32			
	2	0.6		1.2	1.44			
	2	2.86	0.27		1.54			
	2	1.8	0.27		0.97			
	2	1.8	0.25		0.90			
	Total				31.62	sqm	216	6829.14
	Add 140% C.P							9561
	Total							57466.01
	Add 15% on HSR itemsfor esclation due to expected higher rates							8619.902
	SAY							66085.91

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

ANALYSIS OF RATES								
							UNIT	10 METERS
S.N	DESCRIPTIONS	NO	L	B	H	QUANTITY	RATE	AMOUNT
	Repair of Brick wall boundry wall		10	0.23	1			
11.24	Brick work in 1:4 cement stone dust 10%	1	10	0.23	1.00	0.23	444.65	102.27
15.4	12mm Cement Plaster 1:3 30	2	10		1.00	6	15.00	90.00
10.114-note	40mm thick c.c Topping 30%		10	0.23		0.69	26.60	18.35
16.61	Snowcem 60%	2	10		1	12	7.25	87.00
	TOTAL							297.62
	Add C P ON ITEM NO I 600%							613.62
	Add C P ON ITEM NO 2 500%							450
	Add C P ON ITEM NO I 450%							82.593
	Add C P ON ITEM NO I 230%							200.1
	TOTAL							1643.93
	Provision for repair of gate							200
	TOTAL							1843.93
	Cost of 10 mtrs wall							1843.93
	Cost of 1 mtrs wall							184.3934
	say							185

ANALYSIS OF RATES								
S.N	DESCRIPTIONS	NO	L	B	H	QUANTITY	UNIT	10 METERS
	Repair of Grill wall boundry wall		10	0.23	0.6			
11.24	Brick work in 1:4 cement stone dust of Brick WALL 10%	1	10	0.23	0.60	0.138		
	Brick work in 1:4 cement stone dust on pillar 15%	3	0.34	0.23	0.90	0.032		
	total					0.170	444.65	75.44
15.4	12mm Cement Plaster 1:3 30	2	10		0.60	3.6	15.00	54.00
10.114-note	40mm thick c.c Topping 30%		10	0.23		0.69	26.60	18.35
16.61	Snowcem 60%	2	10		0.6	7.2	7.25	52.20
18.12	Repair of GrillS 20%					0.2	1040.45	208.09
	TOTAL							408.09
	Add C P ON ITEM NO I 600%							452.67
	Add C P ON ITEM NO 2 500%							270
	Add C P ON ITEM NO3 450%							82.593
	Add C P ON ITEM NO 4 230%							120.06
	Add C P ON ITEM NO 5 500%							1040.45
	TOTAL							2373.86
	Provision for repair of gate							200
	TOTAL							2573.86
	Cost of 10 mtrs wall							2573.86
	Cost of 1 mtrs wall							257.3856
	say							258

BACKUP QUANTITIES

Details of Quantities DLF Phase I (Special repair)							
Sr No	Description	Road Width	L	W	Average Ht.	No of Lane	Quantity
1	**Cleaning of ROAD BERM**	9	15364	4	0.1		6146
		12	18281	5	0.1		9141
		18	3713	7	0.1		2599
		24	2841	8	0.1		2273
	Total Quatity						20158
	Add 5% Extra						**1008**
	Total Quatity						**21166**
2	Centring and shuttering for faces of walls for end block						
		9	15364		0.28	2	8603.84
		12	18281		0.28	2	10237.36
		18	3713		0.28	2	2079.28
		24	2841		0.28	2	1590.96
	Total Quatity						22511
	Add 5% Extra						**1126**
	Total Quatity						**23637**
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	15364	0.30	0.08	1.00	369
		12	18281	0.30	0.08	2.00	877
		18	3713	0.30	0.08	2.00	178
		24	2841	0.30	0.08	2.00	136
	Total Quatity						1561
	Add 5% Extra						**78**
	Total Quatity						**1639**

2	**TACK COAT UNDER BM**	Road Width	Length	W			Quantity
	Main Road	9	417	3.66			1526.22
		12	70	4.88			341.6
		18	0	6.70			0
		24	72	9.20			662.4
	Total Quatity						2530
	Add 5% Extra						**127**
	Total Quatity						**2657**
	TACK COAT UNDER BC	Road Width	Length	W			Quantity
	Main Road	9	15364	3.66			56232
		12	18281	4.88			89211
		18	3713	6.70			24877
		24	2841	9.20			26137
	Total Quatity						196458
	Add 5% Extra						**9823**
	Total Quatity						**206281**
	Total Quatity						**208937**
3	5% OF 30MM BM ON EXISTING ROAD						
	Main Road	9	15364	3.66	0.03		84
		12	18281	4.88	0.03		134
		18	3713	6.70	0.03		37
		24	2841	9.20	0.03		39
	Total Quatity						295
	Add 5% Extra						**15**
	Total Quatity						309
	50 mm BM	Road Width	Length	W	H		Quantity
	Main Road	9	417	3.66	0.05		76.311
		12	70	4.88	0.05		17.08
		18	0	6.70	0.05		0
		24	72	9.20	0.05		33.12
	Total Quatity						127
	Total Quatity						436

4	**30 mm BC on**	Road Width	Length	W	H		Quantity
	On damage+Non Existing Roads	9	15364	3.66	0.03		1686.9672
		12	18281	4.88	0.03		2676.3384
		18	3713	6.70	0.03		746.313
		24	2841	9.20	0.03		784.116
	Total Quatity						5894
	Add 5% Extra						**295**
	Total Quatity						**6188**
5	**100 mm WBM**	Road Width	Length	W	H		Quantity
	Main Road	9	417	3.66	0.10		152.622
		12	70	4.88	0.10		34.16
		18	0	6.70	0.10		0
		24	72	9.20	0.10		66.24
	Total Quatity						253
	Total Quatity						**253**
6	**Road Marking Strip**	Carriage Way	Length	No of Lines	Width		Quantity
		12	18281	2.00	0.10		3656
		18	3713	2.00	0.10		743
		24	2841	2.00	0.10		568
	Total Quatity						4967
7	**Road Marking Strip**	Carriage Way	Length	No of Lines	Width		Quantity
		12	18281	1.00	0.10		1828
		18	3713	1.00	0.10		371
		24	2841	1.00	0.10		284
	Total Quatity						2484
	Total Quatity						7451

DETAILS OF LENGTH

DLF PHASE I (SPECIAL REPAIR)

Sr. No.	Road No.	Length IN MTRS.	Width IN MTR.					METAL WIDTH	AREA IN SQ. MTRS.
				9M	12M	18M	24M		
BLOCK-A									
1	1	91	9	91				3.66	333.06
2	2	192	9	192				3.66	702.72
3	3	255	9	255				3.66	933.3
4	4	124	9	124				3.66	453.84
5	5	221	9	221				3.66	808.86
6	6	140	9	140				3.66	512.4
7	7	293	12		293			4.88	1429.84
8	8	281	9	281				3.66	1028.46
9	9	95	9	95				3.66	347.7
10	10	273	9	273				3.66	999.18
11	11	309	9	309				3.66	1130.94
12	12	320	9	320				3.66	1171.2
13	13	442	9	442				3.66	1617.72
14	14	751	9	0				3.66	0
15	15	205	12		205			4.88	1000.4
16	16	80	9	80				3.66	292.8
17	17	136	12		136			4.88	663.68
18	18	270	12		270			4.88	1317.6
19	19	214	12		0			4.88	0
20	20	226	12		226			4.88	1102.88
21	21	131	12		131			4.88	639.28
22	22	238	12		238			4.88	1161.44
23	23	284	12		284			4.88	1385.92
24	24	464	9	464				3.66	1698.24
25	24A	410	9	410				3.66	1500.6
26	25	502	9	502				3.66	1837.32
27	25A	595	9	595				3.66	2177.7
28	26	710	9	0				3.66	2598.6
29	27	529	18			529		6.7	3544.3
30	27A	97	9	97				3.66	355.02
31	28	184	12		184			4.88	897.92
32	29	84	12		84			4.88	409.92
33	30	178	12		178			4.88	868.64

Sr. No.	Road No.	Length IN MTRS.	Width IN MTR.					METAL WIDTH	AREA IN SQ. MTRS.
				9M	12M	18M	24M		
34	31	160	12		160			4.88	780.8
35	32	88	12		88			4.88	429.44
36	33	277	12		277			4.88	1351.76
37	34	145	12		145			4.88	707.6
38	35	210	18			210		6.7	1407
39	36	190	12		190			4.88	927.2
40	37	52	12		52			4.88	253.76
41	38	0	0					0	0
42	39	0	0					0	0
43	40	52	12		52			4.88	253.76
44	41	108	12		108			4.88	527.04
45	42	105	12		0			4.88	0
46	43	63	12		63			4.88	307.44
47	44	160	12		160			4.88	780.8
48	45	156	12		156			4.88	761.28
49	46	178	12		178			4.88	868.64
50	47	142	12		142			4.88	692.96
51	48	548	18			548		6.7	3671.6
52	49	140	12		140			4.88	683.2
53	50	176	12		176			4.88	858.88
54	51	224	12		224			4.88	1093.12
55	52	174	12		174			4.88	849.12
56	53	135	12		0			4.88	0
57	54	137	9	0				3.66	0
58	55	188	12		188			4.88	917.44
59	55A	107	12		107			4.88	522.16
60	56	215	12		215			4.88	1049.2
61	57	107	12		107			4.88	522.16
62	58	215	12		215			4.88	1049.2
63	59	72	9	72				3.66	263.52
64	60	72	9	72				3.66	263.52
65	61	63	9	63				3.66	230.58
66	62	65	9	65				3.66	237.9
67	63	64	9	64				3.66	234.24
68	64	170	12		170			4.88	829.6
69	65	60	9	60				3.66	219.6

Sr. No.	Road No.	Length IN MTRS.	Width IN MTR.					METAL WIDTH	AREA IN SQ. MTRS.
				9M	12M	18M	24M		
70	66	160	24				160	10	1600
	66-PART	588					0		0
BLOCK -B									
1	1A	94	12		94			4.88	458.72
2	1B	247	12		247			4.88	1205.36
3	1	182	9	182				3.66	666.12
4	2	182	9	182				3.66	666.12
5	3	260	9	260				3.66	951.6
6	4	260	9	260				3.66	951.6
7	5	135	9	135				3.66	494.1
8	5A	673	18			673		6.7	4509.1
9	6	196	9	196				3.66	717.36
10	7	129	9	0				3.66	0
11	8	184	9	184				3.66	673.44
12	9	260	12		260			4.88	1268.8
13	10	228	12		228			4.88	1112.64
14	11	189	12		189			4.88	922.32
15	12	161	9	161				3.66	589.26
16	13	115	9	115				3.66	420.9
17	13A	303	24				0	10	0
18	14	124	9	124				3.66	453.84
19	15	81	9	81				3.66	296.46
20	16	133	9	133				3.66	486.78
21	17	97	9	97				3.66	355.02
22	18	157	12		157			4.88	766.16
23	19	138	12		138			4.88	673.44
24	20	119	12		119			4.88	580.72
25	21	94	12		94			4.88	458.72
26	22	351	9	0				3.66	0
27	23	267	9	267				3.66	977.22
BLOCK-C									
1	1	265	9	265				3.66	969.9
2	2	265	9	265				3.66	969.9
3	3	225	9	225				3.66	823.5
4	4	157	9	157				3.66	574.62
5	5	131	9	131				3.66	479.46

Sr. No.	Road No.	Length IN MTRS.	Width IN MTR.					METAL WIDTH	AREA IN SQ. MTRS.
				9M	12M	18M	24M		
6	6	163	9	163				3.66	596.58
7	7	123	9	123				3.66	450.18
8	8	265	18			265		6.7	1775.5
9	9	193	9	193				3.66	706.38
10	10	134	9	134				3.66	490.44
11	11	196	9	196				3.66	717.36
12	12	247	9	247				3.66	904.02
13	13	108	9	108				3.66	395.28
14	14	106	9	106				3.66	387.96
15	15	196	9	196				3.66	717.36
16	16	223	24				0	10	0
17	17	678	24				678	10	6780
18	17-PART	382	24				0		0
BLOCK-D									0
1	1	460	12		460			4.88	2244.8
2	2	183	9	183				3.66	0
3	3	118	12		118			4.88	575.84
4	4	242	9	242				3.66	885.72
5	4-A	143	9	143				3.66	523.38
6	4-B	163	9	163				3.66	596.58
7	5	260	12		0			4.88	0
8	6	264	9	264				3.66	966.24
9	6-A	249	9	249				3.66	911.34
10	7	0	9	0				3.66	0
11	8	0	9	0				3.66	0
12	9	0	9	0				3.66	0
13	10	0	9	0				3.66	0
14	11	65	12		65			4.88	317.2
15	12	427	18			427		6.7	2860.9
16	13	115	9	115				3.66	420.9
17	14	134	9	134				3.66	490.44
18	15	193	12		193			4.88	941.84
19	16	68	9	68				3.66	0
20	17	71	9	71				3.66	259.86
21	18	251	18			251		6.7	1681.7
22	19	408	9	408				3.66	1493.28

Sr. No.	Road No.	Length IN MTRS.	Width IN MTR.					METAL WIDTH	AREA IN SQ. MTRS.
				9M	12M	18M	24M		
23	20	397	9	397				3.66	1453.02
BLOCK-E									0
1	1A	166	9	166				3.66	607.56
2	1	226	12		226			4.88	1102.88
3	2	165	12		165			4.88	805.2
4	3	167	12		167			4.88	814.96
5	4	74	9	74				3.66	270.84
6	5	257	12		257			4.88	1254.16
7	6	234	12		234			4.88	1141.92
8	7	239	12		239			4.88	1166.32
9	8	186	12		186			4.88	907.68
10	9	152	12		152			4.88	741.76
11	10	96	12		96			4.88	468.48
12	11	162	12		162			4.88	790.56
13	12	198	12		198			4.88	966.24
14	13	203	12		203			4.88	990.64
15	14	197	12		197			4.88	961.36
BLOCK-F									0
1	1A	324	24				324	10	3240
2	1	347	12		347			4.88	1693.36
3	2	237	9	237				3.66	867.42
4	3	189	9	0				3.66	0
5	4	203	9	203				3.66	742.98
6	5	113	9	0				3.66	0
7	6	232	9	232				3.66	849.12
8	7	140	9	140				3.66	512.4
9	8	250	9	250				3.66	915
10	9	355	9	0				3.66	0
11	10	100	9	100				3.66	366
12	10-B	160	9	160				3.66	585.6
13	11	82	9	82				3.66	300.12
14	12	83	18			83		6.7	556.1
15	12A	46	9	46				3.66	168.36
16	13	217	9	0				3.66	0
17	14	65	9	65				3.66	237.9
18	15	66	9	66				3.66	241.56
19	15-A	33	9	33				3.66	120.78

Sr. No.	Road No.	Length IN MTRS.	Width IN MTR.					METAL WIDTH	AREA IN SQ. MTRS.
				9M	12M	18M	24M		
20	16	77	9	77				3.66	281.82
21	17	77	9	77				3.66	281.82
22	18	24	9	24				3.66	87.84
BLOCK-G									0
1	1	355	24				355	10	3550
2	2	44	12		44			4.88	214.72
3	2A	33	12		33			4.88	161.04
4	3	474	24				474	10	4740
5	4	229	18			229		6.7	1534.3
6	5	174	12		174			4.88	941.84
7	6	175	9	175				3.66	640.5
8	7	101	9	101				3.66	369.66
9	7A	314	12		314			4.88	1532.32
10	8A	120	12		120			4.88	585.6
11	8	107	12		107			4.88	522.16
12	9A	68	12		68			4.88	331.84
13	9	166	12		166			4.88	810.08
14	10	84	12		84			4.88	409.92
15	11	208	12		208			4.88	1015.04
16	12	180	12		180			4.88	878.4
17	13	142	12		142			4.88	692.96
18	14	72	12		72			4.88	351.36
19	15	142	12		0			4.88	0
20	16	205	12		205			4.88	1000.4
21	17	98	12		98			4.88	478.24
22	18A	121	12		121			4.88	590.48
23	18	228	12		228			4.88	1112.64
24	19A	53	12		53			4.88	258.64
25	19	194	12		194			4.88	946.72
26	20A	53	12		53			4.88	258.64
27	20	79	12		79			4.88	385.52
28	21	568	12		568			4.88	2771.84
29	22	232	24				232	10	2320
30	23	80	24				80	10	800
31	24	498	18			498		6.7	3336.6
32	25	260	12		260			4.88	1268.8

Sr. No.	Road No.	Length IN MTRS.	Width IN MTR.					METAL WIDTH	AREA IN SQ. MTRS.
				9M	12M	18M	24M		
BLOCK-H									0
1	1	236	12		236			4.88	1151.68
2	2	377	12		377			4.88	1839.76
3	3	158	12		0			4.88	771.04
4	4	100	12		100			4.88	488
5	5	160	12		0			4.88	780.8
6	6	485	12		485			4.88	2366.8
7	7	190	12		190			4.88	927.2
8	8	154	12		154			4.88	751.52
9	9	121	9	121				3.66	442.86
10	10	63	9	63				3.66	230.58
11	11	64	9	64				3.66	234.24
12	12	60	9	60				3.66	219.6
13	13	80	9	80				3.66	292.8
14	14	58	9	58				3.66	212.28
15	15	285	24				285	10	2850
16	16	124	12		124			4.88	605.12
17	17	0	0						0
18	18	0	0						0
19	19	0	0						0
20	20	0	0						0
21	21	0	0						0
22	22	0	0						0
23	23	113	12		113			4.88	551.44
24	24	115	12		115			4.88	561.2
25	25	194	12		194			4.88	946.72
26	26	72	24				72	10	720
27	27	70	12		70			4.88	341.6
28	28	0	0						0
29	29	0	0						0
30	30	0	0						0
31	31	68	12		68			4.88	331.84
32	32	58	12		58			4.88	283.04
33	33	181	24				181	10	1810
34	34	384	12		384			4.88	1873.92
35	35	384	12		384			4.88	1873.92

Sr. No.	Road No.	Length IN MTRS.	Width IN MTR.					METAL WIDTH	AREA IN SQ. MTRS.
				9M	12M	18M	24M		
36	36	266	12		266			4.88	1298.08
37	37	88	12		88			4.88	429.44
38	38	111	12		111			4.88	541.68
39	39	98	12		98			4.88	478.24
40	40	97	12		97			4.88	473.36
41	41	91	12		91			4.88	444.08
GRAND TOT		45821	2754	15364	18281	3713	2841	1107	202055.1

AREA TO BE PROVIDED WITH ADDITIONAL LAYER 50mm thick BM for Strengthning in 24 & 18 M Road in 1st Phase as per Requirement IRC 81.
3713x6.7+2841x10=53287sqm
or
=2664cum
& Tack Coat of 53287 Sqm

Details of Quantities DLF Phase I							
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	15364	1.50	0.25	1	5762
		12	18281	1.50	0.25	2	13711
		18	3713	2.00	0.25	2	3713
		24	2841	2.00	0.25	2	2841
b	**Excavation of side beam for pavers**	9	15364	0.3	0.28	1	1291
		12	18281	0.3	0.28	2	3071
		18	3713	0.3	0.28	2	624
		24	2841	0.3	0.28	2	477
	Total Quatity						31489
	Add 5% Extra						**1574**
	Total Quatity						**33064**
2	Centring and shuttering for faces of walls for end block						
		9	15364		0.28	2	8603.84
		12	18281		0.28	2	10237.4
		18	3713		0.28	2	2079.28
		24	2841		0.28	2	1590.96
	Total Quatity						22511
	Add 5% Extra						**1126**
	Total Quatity						**23637**

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	15364	0.30	0.08	1.00	369
		12	18281	0.30	0.08	2.00	877
		18	3713	0.30	0.08	2.00	178
		24	2841	0.30	0.08	2.00	136
	Total Quatity						1561
	Add 5% Extra						**78**
	Total Quatity						**1639**
4	**LOCKING BLOCKS**	Carriage Way	Length	No of Lines			
	Main Road	9	18585	1.00			18585
		12	18281	2.00			36562
		18	3713	2.00			7426
		24	2841	2.00			5682
	Total Quatity						68255
	Add 5% Extra						**3413**
	Total Quatity						**71668**
	Qty of conc.1:1.5:3		**71668**	**0.15**	**0.2**		**2150**
5	**80MM TH. PAVERS**	Carriage Way	Length	No of Lines	Width		Quantity
	Main Road	9	18585	1	1.50		27877.5
		12	18281	2	1.50		54843
		18	3713	2	2.00		14852
		24	2841	2	2.50		14205
	Total Quatity						111778
	Add 5% Extra						**5589**
	Total Quatity						**117366**

6	**Sub Grade**	Road Width	Length	W	H	No of Lane	Quantity
		9	18585	1.50		1	27877.5
		12	18281	1.50		2	54843
		18	3713	2.00		2	14852
		24	2841	2.50		2	14205
	Total Quatity						111778
	Add 5% Extra						**5589**
	Total Quatity						**117366**
7	**GSB**						
		9	18585	1.50	0.15	1	4182
		12	18281	1.50	0.15	2	8226
		18	3713	2.00	0.15	2	2228
		24	2841	2.50	0.15	2.5	2663
	Total Quatity						17299
	Add 5% Extra						**865**
	Total Quatity						**18164**

Detail of QUANTITIES OF HORTICULTURE

DLF PHASE I

							EXISTING STATUS								PROPOSED WORK									
S.No	Park no.	Road No.	Status of park	LENGTH	WIDTH	AREA in sq.m	Wire Fencing	Boundary wall	Pathway	Boundary wall CONSTRUCTED	Boundary wall REPAIR	No of gate existing		lenth of B WALL WITH BRICK WORK	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 shurbs	PAVER BLOCK AREA			LENGTH OF KERB	QTYof KERB
				SIZE	SIZE							Design 1				Design 1	Design 2					L	B	QTY		
1	A15	A15	Developed	99+58	54+44	3600	NO	YES	YES		REPAIR	2		253		0	1	7		360	180	115	1.5	172.5	230	6.9
2	A21	A21	Developed	102+126	75+0	4198	NO	YES	YES		REPAIR	2		303		0	1	7		420	210	145	1.5	217.5	290	8.7
3	A31	A31	Developed	133+145	51+36	5922	YES	NO	YES	CONSTRUCT		2				0	1	7	358	592	296			0	0	0
4	A48	A48	Developed	87+75	51+0	1900	YES	NO	NO	CONSTRUCT		1					1	7	206	190	95			0	0	0
5	A49	A49	Developed	56+56	33+28	1700	NO	YES	NO		REPAIR	1			167			7		170	85			0	0	0
6	A51	A51	Developed	117+122	15+18	2390	NO	YES	NO		REPAIR	1		265			1	7		239	120			0	0	0
7	D3	D3	Developed	89+79	44+0	1499	YES	NO	NO	CONSTRUCT		1		205				7		150	75			0	0	0
8	D15	D15	Developed	55	43	2408						1			188		1	7		241	120			0	0	0
9	A56	A56	Developed	71+76, 46+41	26+2, 25+44	2527	NO	YES	YES		REPAIR	1		327			1	7		253	126			0	0	0
10	A55	A55	Developed	77+70	67+60	4617	YES	NO	NO	CONSTRUCT		2					1	7	267	462	231	161	1.5	241.5	322	9.66
11	B1	B1	Developed	59*2	56*2	3265	NO	YES	YES		REPAIR	1			223		1	7		327	163	131	1.5	196.5	262	7.86
12	B8	B8	Developed	60*2	111*2	6685	YES	NO	YES	CONSTRUCT		2					1	7	335	669	334	227	1.5	340.5	454	13.62
13	C6	C6	Developed	83*2	49*2	4054	NO	YES	YES		REPAIR	2			257		1	7		405	203			0	0	0
14	C17	Arjun marg	Developed	95*2	49*2	4681	YES	NO	YES	CONSTRUCT		2		281			1	7		468	234			0	0	0
15	D1	D1	UN Developed	52+64	37+0	953										1	1	7	147	95	48			0	0	0

S.No	Park no.	Road No.	Status of park	LENGTH	WIDTH	AREA in sq.m	Wire Fencing	Boundary wall	Pathway	Boundary wall CONSTRUCTED	Boundary wall REPAIR	No of gate existing		lenth of B WALL WITH BRICK WORK	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 shurbs	PAVER BLOCK AREA			LENGTH OF KERB	QTYof KERB
16	D6	D6	Developed	185*2	164*2	3655	NO	YES	YES		REPAIR	1		691			1	7		366	183			0	0	0
17	E8	E8	Developed	100*2	84*2	8451	NO	YES	YES		REPAIR	2		361			1	7		845	423	223	1.5	335	446	13.38
18	F9	Arjun marg	Developed	79+76	13+29	1567	NO	NO	NO	CONSTRUCT		1						7	190	157	78			0	0	0
19	G12	G12	Developed	75*2	58*2	4380	NO	YES	YES		REPAIR	2			259		1	7		438	219	141	1.5	212	282	8.46
20	H2	H2	Developed	96+99	25+0	1278	YES	NO	NO	CONSTRUCT		1					1	7	213	128	64			0	0	0
21	H5	H5	Developed	2+74, 156+1	56+78, 21+2	9058	YES	NO	YES	CONSTRUCT		2					1	7	625	906	453	185	1.5	278	370	11.1
22	H40	H40	Developed	76+76	8+0	372	YES	NO	NO	CONSTRUCT		1					0	7	153	37	19			0	0	0
23	A52	A52	Developed	61+64	26+24	1700	YES	NO	NO	CONSTRUCT		1					1	7	168	170	85			0	0	0
			TOTAL	6846		80860	0	0	0	0	0			2686	1094	1	19	161	2662	8088	4044	1328		1992	2656	79.68
1	G.B1	371	21	7791												1	1	6.5	763	305	153			0	0	0
2	G.B2	670	21	14070												1	1	6.5	1361	544	272			0	0	0
3	G.B3	460	21	9660												1	1	6.5	941	376	188			0	0	0
4	G.B4	80	21	1680												1	1	6.5	181	72	36			0	0	0
5	G.B5	243	18	4374												1	1	6.5	504	202	101			0	0	0
6	G.B6	545	18	9810												1	1	6.5	1108	443	222			0	0	0
7	G.B7	453	18	8154												1	1	6.5	924	370	185			0	0	0
8	G.B8	380	18	6840												1	1	6.5	778	311	156			0	0	0
9	TOTAL	3202	156	62379	0	0	0	0	0	0	0			0	0	9	27	52	9222	10711	5357	0	0	0	0	0

EXCAVATION DETAILS

1 / 6.8(a)	**Excavation** for pipe lines running under pressure in trenches and pits, in open areas, where							
	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			
	200	2001				0.81	1.40	2269
	250	1060				0.86	1.45	1322
	300	584				0.91	1.50	797
	Total Qty							4388
2 / 6.7	Earth work in excavation in foundation , trenches,of under ground structures,sullage drains							
	Sluice Valve							Quantity of
Sr No	Size		Pipe	Rising Ma	L	W	D	Earth Work
	mm i/d							
	200		17	0	1.59	1.59	1.750	75.21
	250		6	0	1.59	1.59	1.750	26.55
	300		6	0	1.89	1.89	1.750	37.51
	Scour Valve							
1	100		5		1.59	1.59	1.425	18.01
	Fire Hydrants							
1	100		0		1.59	1.59	1.425	0.00
	Non return valve							
	150		2		1.59	1.59	1.425	7.21
	200		2		1.59	1.59	1.425	7.21
	Sub Total							172.00

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 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	15960				0.71	1.30	14731
	150	3747				0.76	1.35	3844
	Total Qty							18576
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
Sr No	Size		Pipe	Rising Ma	L	W	D	Earth Work
	mm i/d							
	100		70		1.59	1.59	1.750	309.69
	150		21	0	1.59	1.59	1.750	92.91
	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							421.00

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	250				0.71	1.30	231
	150	0				0.76	1.35	0
	Total Qty							231
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
Sr No	Size		Pipe	Rising Ma	L	W	D	Earth Work
	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		8		1.59	1.59	1.425	28.82
	Fire Hydrants							
1	100		40		1.59	1.59	1.425	144.10
	DoubleAir Valves							
1	100				1.59	1.59	1.425	0.00
2	200				1.59	1.59	1.425	0.00
	Sub Total							173

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
1	B227	B197	B227-B197	243	243					
2	B228	B228'	B228-B228'	9	9					
3	B228"	B228'	B228"-B228'	22	22					
4	B228'	B224	B228'-B224	31	31					
5	B226	B224	B226-B224	62	62					
6	B224	B225	B224-B225	37	37					
7	B222	B225	B222-B225	18	18					
8	B225	B221	B225-B221	34	34					
9	B220	B221	B220-B221	85	85					
10	B221	B219	B221-B219	55	55					
11	B218	B219	B218-B219	40	40					
12	B219	B217	B219-B217	52	52					
13	B198	B217	B198-B217	13	13					
14	B217	B197	B217-B197	62	62					
15	B197	B195	B197-B195	51	51					
16	B196	B195	B196-B195	75	75					
17	B195	B194	B195-B194	132	132					
18	B194	B194'	B194-B194'	42	42					
19	B194'	PHASE IV	B194'-PHASE IV	9	9					
	On other Side of 60 M wide Road near point B175									
20	A141	A142	A141-A142	50	50					
21	A143	A142	A143-A142	18	18					
22	A142	A140	A142-A140	59	59					
23	A136	A140	A136-A140	106	106					
24	A140	A143'	A140-A143'	86	86					
25	A143'	A147	A143'-A147	47	47					
26	A135'	A147	A135'-A147	216	216					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
27	A147	A148	A147-A148	202	202					
28	A131'	A131	A131'-A131	73	73					
29	A126	A128	A126-A128	50	50					
30	A127	A128	A127-A128	98	98					
31	A128	A129	A128-A129	58	58					
32	A129	A131	A129-A131	202	202					
33	A131	A144	A131-A144	182	182					
34	A146	A145	A146-A145	121	121					
35	A132	A133	A132-A133	38	38					
36	A135	A134	A135-A134	34	34					
37	A134	A133	A134-A133	88	88					
38	A133	A137	A133-A137	78	78					
39	A139	A138	A139-A138	36	36					
40	A134'	A138	A134'-A138	78	78					
41	A138	A137	A138-A137	88	88					
42	A137	A145	A137-A145	47	47					
43	A145	A144	A145-A144	61	61					
44	A144	A148	A144-A148	57	57					
45	A148	A125	A148-A125	280		280				
46	A108'	A108	A108'-A108	28	28					
47	A105'	A108	A105'-A108	262	262					
48	A108	A122	A108-A122	170	170					
49	A105	A120	A105-A120	154	154					
50	A124	A120'	A124-A120'	235	235					
51	A117	A117'	A117-A117'	29	29					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
52	A118	A117'	A118-A117'	118	118					
53	A117'	A119	A117'-A119	32	32					
54	A123	A119	A123-A119	224	224					
55	A114	A115'	A114-A115'	69	69					
56	A116	A115'	A116-A115'	46	46					
57	A115'	A115	A115'-A115	72	72					
58	A115	A119	A115-A119	67	67					
59	A119	A120'	A119-A120'	74	74					
60	A120'	A120	A120'-A120	28	28					
61	A120	A121	A120-A121	179		179				
62	A107	A113	A107-A113	84	84					
63	A111	A112	A111-A112	90	90					
64	A106	A112	A106-A112	81	81					
65	A112	A113	A112-A113	67	67					
66	A113	A121	A113-A121	69	69					
67	A121	A122	A121-A122	57		57				
68	A122	A125	A122-A125	57		57				
69	A125	B68	A125-B68	134				134		
70	B88	B68	B88-B68	453	453					
71	B68	B67	B68-B67	63				63		
72	B82	B67	B82-B67	93	93					
73	B67	B59	B67-B59	70				70		
74	B80	B59	B80-B59	81	81					
75	B59	B66	B59-B66	60				60		
76	B111	B66	B111-B66	254	254					
77	B66	B58	B66-B58	200				200		
78	B29	B52	B29-B52	201	201					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
79	B54	B53	B54-B53	176	176					
80	B10	B43	B10-B43	134	134					
81	B45	B44	B45-B44	108	108					
82	B12	B12'	B12-B12'	150	150					
83	B12'	B35	B12'-B35	55	55					
84	B36	B35	B36-B35	69	69					
85	B35	B44	B35-B44	58	58					
86	B44	B43	B44-B43	68	68					
87	B43	B53	B43-B53	68	68					
88	B53	B52	B53-B52	66	66					
89	B52	B58	B52-B58	67	67					
90	B58	B57	B58-B57	158				158		
91	B49	B50	B49-B50	62	62					
92	B51'	B51	B51'-B51	37	37					
93	B34	B42	B34-B42	144	144					
94	B40'	B40	B40'-B40	27	27					
95	B4	B40	B4-B40	238	238					
96	B40	B41	B40-B41	62	62					
97	B33	B41	B33-B41	142	142					
98	B41	B42	B41-B42	59	59					
99	B42	B51	B42-B51	59	59					
100	B51	B50	B51-B50	93	93					
101	B50	B57	B50-B57	62	62					
102	B57	B62	B57-B62	79				79		
103	B71	B55	B71-B55	72	72					
104	B55	B61	B55-B61	60	60					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
105	B72	B61	B72-B61	89	89					
106	B61	B62	B61-B62	128	128					
107	B62	B73	B62-B73	78				78		
108	B73'	B73	B73'-B73	105	105					
109	B73	B74	B73-B74	8				8		
110	B76	B74	B76-B74	152	152					
111	B74	B92	B74-B92	46				46		
112	B91	B92	B91-B92	67	67					
113	B92	B94	B92-B94	60				60		
114	B93	B94	B93-B94	158	158					
115	B94	B95	B94-B95	10				10		
116	B98	B97	B98-B97	50	50					
117	B63	B97	B63-B97	174	174					
118	B97	B96	B97-B96	87	87					
119	B75	B96	B75-B96	112	112					
120	B96	B95	B96-B95	85	85					
121	B95	B107	B95-B107	39				39		
122	B106	B107	B106-B107	129	129					
123	B107	B108	B107-B108	23				23		
124	B83	B115	B83-B115	203	203					
125	B115	B112	B115-B112	179	179					
126	B84	B81	B84-B81	163	163					
127	B81	B102	B81-B102	34	34					
128	B103	B102	B103-B102	164	164					
129	B102	B104	B102-B104	68	68					
130	B105	B104	B105-B104	164	164					
131	B104	B112	B104-B112	62	62					
132	B112	B110	B112-B110	195	195					
133	B78	B99	B78-B99	111	111					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
134	B101	B100	B101-B100	50	50					
135	B65	B100	B65-B100	180	180					
136	B100	B99	B100-B99	68	68					
137	B99	B110	B99-B110	56	56					
138	B110	B109	B110-B109	59				59		
139	B64	B77	B64-B77	55	55					
140	B79	B77	B79-B77	114	114					
141	B77	B109	B77-B109	180	180					
142	B109	B108	B109-B108	240				240		
143	B108	B124	B108-B124	54					54	
144	B123	B124	B123-B124	122	122					
145	B124	B124'	B124-B124'	20					20	
146	B128	B124'	B128-B124'	242	242					
147	B124'	B138	B124'-B138	40					40	
148	B137	B138	B137-B138	97	97					
149	B138	B151	B138-B151	87					87	
150	B150	B151	B150-B151	52	52					
151	B151	B159	B151-B159	62					62	
152	B158	B159	B158-B159	55	55					
153	B159	B159'	B159-B159'	18					18	
154	B166	B165'	B166-B165'	203	203					
155	B193	B173'	B193-B173'	136	136					
156	B174	B173'	B174-B173'	194	194					
157	B173'	B165'	B173'-B165'	39	39					
158	B165'	B165	B165'-B165	31	31					
159	B85	B116	B85-B116	223	223					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
160	B86	B117	B86-B117	172	172					
161	B117	B116	B117-B116	60	60					
162	B116	B116'	B116-B116'	179	179					
163	B70	B119	B70-B119	157	157					
164	B87	B119	B87-B119	123	123					
165	B119	B120	B119-B120	6	6					
166	B122	B121	B122-B121	148	148					
167	B89'	B89	B89'-B89	35	35					
168	B90	B89	B90-B89	130	130					
169	B89	B121	B89-B121	64	64					
170	B121	B120	B121-B120	73	73					
171	B120	B134	B120-B134	71	71					
172	B136	B134	B136-B134	240	240					
173	B134	B147	B134-B147	69	69					
174	B149	B147	B149-B147	237	237					
175	B147	B149"	B147-B149"	62	62					
176	B149'	B149"	B149'-B149"	233	233					
177	B149"	B116'	B149"-B116'	20	20					
178	B116'	B165	B116'-B165	57	57					
179	B165	B164	B165-B164	143		143				
180	B114	B144	B114-B144	179	179					
181	B146	B145	B146-B145	44	44					
182	B132	B145	B132-B145	178	178					
183	B145	B144	B145-B144	73	73					
184	B144	B164	B144-B164	78	78					
185	B164	B163	B164-B163	64		64				
186	B113	B163	B113-B163	258	258					
187	B163	B163'	B163-B163'	3		3				

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
188	B204	B169	B204-B169	177	177					
189	B173	B172	B173-B172	32	32					
190	B192	B172	B192-B172	147	147					
191	B172	B171	B172-B171	40	40					
192	B182	B171	B182-B171	87	87					
193	B171	B170	B171-B170	112	112					
194	B205	B190	B205-B190	42	42					
195	B191	B190	B191-B190	140	140					
196	B190	B181	B190-B181	33	33					
197	B183	B181	B183-B181	141	141					
198	B181	B170	B181-B170	103	103					
199	B170	B169	B170-B169	47	47					
200	B169	B163'	B169-B163'	38	38					
201	B163'	B162	B163'-B162	57		57				
202	B142	B162	B142-B162	124	124					
203	B162	B162'	B162-B162'	2		2				
204	B203	B162'	B203-B162'	217	217					
205	B162'	B161	B162'-B161	168				168		
206	B208	B201	B208-B201	80	80					
207	B206	B202	B206-B202	81	81					
208	B207	B202	B207-B202	62	62					
209	B202	B201	B202-B201	77	77					
210	B201	B187	B201-B187	60	60					
211	B188	B187	B188-B187	158	158					
212	B187	B178	B187-B178	62	62					
213	B179	B178	B179-B178	159	159					
214	B178	B161	B178-B161	105	105					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
215	B161	B161'	B161-B161'	3				3		
216	B129'	B129	B129'-B129	48	48					
217	B131	B129	B131-B129	215	215					
218	B129	B155	B129-B155	127	127					
219	B157	B156	B157-B156	82	82					
220	B130	B141	B130-B141	49	49					
221	B143	B141	B143-B141	144	144					
222	B141	B156	B141-B156	62	62					
223	B156	B155	B156-B155	74	74					
224	B155	B161'	B155-B161'	80	80					
225	B161'	B160	B161'-B160	235				235		
226	B126	B139	B126-B139	48	48					
227	B140	B139	B140-B139	94	94					
228	B139	B152	B139-B152	65	65					
229	B154'	B154	B154'-B154	48	48					
230	B154''	B154	B154''-B154	173	173					
231	B154	B153	B154-B153	65	65					
232	B128	B153	B128-B153	105	105					
233	B153	B152	B153-B152	111	111					
234	B152	B160	B152-B160	77	77					
235	B160	B160'	B160-B160'	62				62		
236	B125	B160'	B125-B160'	188	188					
237	B160'	B159'	B160'-B159'	18				18		
238	B159'	B175'	B159'-B175'	62					62	

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
239	B214	B184	B214-B184	242		242				
240	B186	B185	B186-B185	114	114					
241	B215	B216	B215-B216	143	143					
242	B216	B213	B216-B213	43	43					
243	B212	B213	B212-B213	97	97					
244	B213	B211	B213-B211	61	61					
245	B209	B211	B209-B211	118	118					
246	B211	B199	B211-B199	107	107					
247	B200	B199	B200-B199	95	95					
248	B199	B185	B199-B185	58	58					
249	B185	B184	B185-B184	79	79					
250	B184	B175	B184-B175	68		68				
251	B167	B177	B167-B177	38	38					
252	B177'	B177	B177'-B177	223	223					
253	B177	B176	B177-B176	57	57					
254	B210	B176	B210-B176	176	176					
255	B176	B175	B176-B175	230	230					
256	B175	B175'	B175-B175'	102		102				
	Total Collection of Waste Water									
	Diversion of Discharge towards STP Phase 5									
	Balance Quantity of waste water transferred to main System									
257	**B175'**	**B60**	**B175'-B60**	**542**						**542**

Statement Sewerage										
Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
258	B60	A10'	B60-A10'	520						**520**
259	A101'	A102	A101'-A102	205	205					
260	A102	A99	A102-A99	73	73					
261	A98	A99	A98-A99	215	215					
262	A99	A78'	A99-A78'	360	360					
263	A98'	A97	A98'-A97	40	40					
264	A95	A97	A95-A97	135	135					
265	A97	A80	A97-A80	60	60					
266	A96	A92	A96-A92	50	50					
267	A91	A92	A91-A92	59	59					
268	A92	A80	A92-A80	91	91					
269	A80	A77'	A80-A77'	147	147					
270	A75'	A77"	A75'-A77"	58	58					
271	A79	A79'	A79-A79'	36	36					
272	A81	A84'	A81-A84'	26	26					
273	A115"	A110	A115"-A110	65	65					
274	A109	A110	A109-A110	68	68					
275	A110	A104	A110-A104	68	68					
276	A103	A103'	A103-A103'	8	8					
277	A103"	A103'	A103"-A103'	32	32					
278	A103'	A104	A103'-A104	33	33					
279	A104	A100	A104-A100	67	67					
280	A100	A101	A100-A101	91	91					
281	A101	A94	A101-A94	72	72					
282	A93	A94	A93-A94	150	150					
283	A94	A90	A94-A90	68	68					
284	A88'	A88	A88'-A88	11	11					
285	A87	A88	A87-A88	60	60					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
286	A88	A89	A88-A89	50	50					
287	A89'	A89	A89'-A89	62	62					
288	A89	A90	A89-A90	63	63					
289	A90	A86	A90-A86	83	83					
290	A85	A86	A85-A86	46	46					
291	A86	A84	A86-A84	39	39					
292	A83	A84	A83-A84	65	65					
293	A84	A84'	A84-A84'	29	29					
294	A84'	A82	A84'-A82	22	22					
295	A82	A79'	A82-A79'	128	128					
296	A79'	A77"	A79'-A77"	103	103					
297	A77"	A77'	A77"-A77'	54	54					
298	A77'	A78	A77'-A78	108	108					
299	A78	A78'	A78-A78'	89	89					
300	A73	A74	A73-A74	24	24					
301	A75	A74	A75-A74	110	110					
302	A74	A76	A74-A76	36	36					
303	A77	A76	A77-A76	110	110					
304	A76	A78'	A76-A78'	115		115				
305	A78'	A68	A78'-A68	70		70				
306	A68	A66	A68-A66	50		50				
307	A69	A70	A69-A70	61		61				
308	A72	A71	A72-A71	39		39				
309	A72'	A71	A72'-A71	51		51				
310	A71	A70	A71-A70	46		46				
311	A70	A66	A70-A66	130		130				

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
312	A66	A65	A66-A65	218		218				
313	A63	A62	A63-A62	93	93					
314	A62	A61	A62-A61	46	46					
315	A57	A61	A57-A61	115	115					
316	A61	A60	A61-A60	56	56					
317	A56	A57	A56-A57	109	109					
318	A53	A54	A53-A54	23	23					
319	A58	A54	A58-A54	95	95					
320	A54	A55	A54-A55	18	18					
321	A59	A55	A59-A55	94	94					
322	A55	A57	A55-A57	53	53					
323	A57	A60	A57-A60	54	54					
324	A60	A65	A60-A65	69	69					
325	A65	A64	A65-A64	175		175				
326	A64	A67	A64-A67	47		47				
327	A67'	A67	A67'-A67	415		415				
328	A67	B2	A67-B2	145				145		
329	B11	B11'	B11-B11'	38	38					
330	B28	B11'	B28-B11'	146	146					
331	B11'	B9	B11'-B9	129	129					
332	B18	B9	B18-B9	71	71					
333	B9	B6	B9-B6	62	62					
334	B6	B6'	B6-B6'	28	28					
335	B6'	B6"	B6'-B6"	32	32					
336	B6"	B5'	B6"-B5'	29	29					
337	B5'	B5	B5'-B5	24	24					
338	B27	B5	B27-B5	125	125					
339	B5	B3	B5-B3	380	380					
340	B21	B19	B21-B19	46	46					

Statement Sewerage										
Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
341	B14	B19	B14-B19	125	125					
342	B19	B13	B19-B13	103	103					
343	B16	B13	B16-B13	291	291					
344	B13	B3	B13-B3	73	73					
345	B3	B2	B3-B2	65		65				
346	B48	B47	B48-B47	124	124					
347	B24	B30	B24-B30	51	51					
348	B32	B30	B32-B30	127	127					
349	B30	B37	B30-B37	75	75					
350	B39'	B39	B39'-B39	2	2					
351	B15	B39	B15-B39	256	256					
352	B39	B38	B39-B38	68	68					
353	B31	B38	B31-B38	58	58					
354	B38	B37	B38-B37	61	61					
355	B37	B47	B37-B47	62	62					
356	B47	B46	B47-B46	63	63					
357	B46	B23	B46-B23	208	208					
358	B25	B23	B25-B23	199	199					
359	B23	B20	B23-B20	62	62					
360	B22	B20	B22-B20	202	202					
361	B20	B2	B20-B2	274		274				
362	B2	A10'	B2-A10'	88				88		
363	A10'	A10	A10'-A10	54						**54**
364	A10	A4	A10-A4	58						**58**
365	A4	A3"	A4-A3"	157						**157**
366	A3"	DISPOSAL	A3"-DISPOSAL	17						**17**
	Diversion of Discharge towards STP Phase 1									

Statement Sewerage										
Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
	Diversion of Discharge towards Main Storm Water of HUDA onMehrauli Road									
367	A42	A43	A42-A43	147	147					
368	A43	A37	A43-A37	53	53					
369	A35	A36	A35-A36	105	105					
370	A33	A36	A33-A36	57	57					
371	A36	A37	A36-A37	47	47					
372	A37	A34	A37-A34	70	70					
373	A32	A34	A32-A34	97	97					
374	A34	A23	A34-A23	41			41			
375	A31'	A31	A31'-A31	231	231					
376	A31	A29	A31-A29	61	61					
377	A52	A51	A52-A51	60	60					
378	A51'	A51	A51'-A51	37	37					
379	A51	A29	A51-A29	230	230					
380	A29	A28	A29-A28	89	89					
381	A27	A28	A27-A28	75	75					
382	A28	A26	A28-A26	68	68					
383	A17	A9	A17-A9	98	98					
384	A9	A26	A9-A26	173	173					
385	A47	A40'	A47-A40'	65	65					
386	A41	A40	A41-A40	105	105					
387	A50	A49	A50-A49	108	108					
388	A48	A49	A48-A49	60	60					
389	A49	A40	A49-A40	144	144					
390	A40	A40'	A40-A40'	80	80					
391	A40'	A26	A40'-A26	68	68					
392	A26	A25	A26-A25	61	61					

Statement Sewerage

Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
393	A25'	A25	A25'-A25	132	132					
394	A16	A25	A16-A25	150	150					
395	A25	A24	A25-A24	206		206				
396	A46	A45	A46-A45	211	211					
397	A45	A38	A45-A38	77	77					
398	A39	A38	A39-A38	166	166					
399	A38	A24	A38-A24	75	75					
400	A24	A23	A24-A23	61			61			
401	A23	A20	A23-A20	4			4			
402	A18	A19	A18-A19	54	54					
403	A1	A6	A1-A6	80	80					
404	A12	A11	A12-A11	41	41					
405	A11	A5	A11-A5	46	46					
406	A5	A6	A5-A6	57	57					
407	A6	A19	A6-A19	99	99					
408	A19	A20	A19-A20	45	45					
409	A20	A13	A20-A13	66				66		
410	A22	A21	A22-A21	137	137					
411	A15	A21	A15-A21	74	74					
412	A21	A14	A21-A14	71	71					
413	A3	A7	A3-A7	48	48					
414	A8	A7	A8-A7	289	289					
415	A7	A14	A7-A14	89	89					
416	A14	A13	A14-A13	68	68					
417	A13	A2	A13-A2	137				137		
418	A4'	A4"	A4'-A4"	34	34					

Statement Sewerage										
Sr No.	Upper End Node	Lower End Node	Name of Sewer	Length of Sewer Pipe Line	200 MM	250 MM	300 MM	400 MM	450 MM	600 MM
				M	200 mm	250 mm	300 mm	400 mm	450 mm	600 mm
1	2	3	2	3						
419	A3'	A4"	A3'-A4"	26	26					
420	A4"	A2	A4"-A2	404	404					
421	A2	A(SP)	A2-A(SP)	76				76		
422	**A(SP)**	**Main huda sewer**	**A(SP)-Main huda sewer**	**170**						
				41916	34578	3216	106	2325	343	1348

Excavation Details Sewerage							
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
	(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
	(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	
400mm i/d	400	35	47	1.070	2.69	135.03	
				0.70	0.27	8.78	
							143.81
	(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	146	0.900	3.38	443.48	
				0.55	0.237	19.03	
300 mm i/d	300	25	263	0.950	3.38	843.24	
				0.55	0.237	34.28	
400 mm i/d	400	35	462	1.070	3.445	1703.00	
				0.700	**0.247**	79.88	
400 mm i/d	400	35	57	1.070	4.19	255.24	
				1.00	0.246	14.02	

500 mm i/d	500	85	211	1.270	3.44	920.48	
				1.00	0.246	51.91	
500 mm i/d	500	85	132	1.270	4.19	701.57	
				1.00	0.246	32.47	
600 mm i/d	600	85	142	1.370	4.195	816.10	
				1.000	0.246	34.93	
700 mm i/d	700	85	54	1.470	4.200	333.40	
				1.070	0.311	17.97	
700 mm i/d	700	85	62	1.470	4.950	451.14	
				1.070	0.311	20.63	
800 mm i/d	800	100	58	1.600	3.450	320.16	
				1.375	0.378	30.15	
800 mm i/d	800	100	157	1.600	4.200	1055.04	
				1.375	0.378	81.60	
	Total						8259.72
	(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	80	1.270	4.88	495.30	
				0.55	0.246	10.82	
600 mm i/d	600	85	227	1.370	4.950	1539.40	
				1.070	0.246	59.75	
700 mm i/d	700	85	62	1.470	4.950	451.14	
				1.070	0.311	20.63	
800 mm i/d	800	100	17	1.600	4.950	134.64	
				1.375	0.378	8.84	
	Total						2720.53
	FOR MANHOLES WITH AVERAGE DEPTH						11258

	(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	
300 mm i/d	1.20	5.00	2.19	1.59	1.56	27.16	
400 mm i/d	2.50	2.00	2.42	1.59	2.86	22.01	
	Total						49.17
	(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	3.25	5	2.19	1.59	3.61	62.85	
300 mm i/d	3.25	9	2.19	1.59	3.61	113.13	
400mm i/d	3.25	15	2.42	1.59	3.61	208.36	
400mm i/d	4.00	2	2.42	1.59	4.36	33.55	
500mm i/d	3.25	7	2.42	1.82	3.61	111.30	
500mm i/d	4.00	4	2.42	1.82	4.36	76.81	
600mm i/d	4.00	5	2.42	1.82	4.36	96.02	
700 mm i/d	4.00	2	2.42	2.12	4.36	44.74	
800 mm i/d	3.25	2	2.65	2.05	3.61	39.22	
800 mm i/d	4.00	5	2.65	2.05	4.36	118.43	
	Total						904.41
	(d) for depth of excavation not exceeding 6 mtrs below ground level						
500mm i/d	4.75	3	2.42	1.82	5.11	67.52	
600mm i/d	4.75	8	2.42	1.82	5.11	180.05	
700 mm i/d	4.75	2	2.42	2.12	5.11	52.43	
800 mm i/d	4.75	1	2.65	2.05	5.11	27.76	
							327.76

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	8316	50	0.65	1.25	6756.75
	63 mm i/d	4158	63	0.66	1.26	3481.78
	110 mm i/d	8901	110	0.71	1.31	8278.82
	160 mm i/d	2108	160	0.76	1.36	1154.53
	200 mm i/d	1117	210	0.81	1.41	235.27
	250 mm i/d	206	250	0.85	1.45	171.32
	300 mm i/d	139	300	0.90	1.50	187.65
						20266.12
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	102	1.59	1.59	1.750	451.27
2	150	13	1.59	1.59	1.750	57.51
3	200	8	1.59	1.59	1.750	35.39

4	250	2	1.59	1.59	1.750	8.85
	300	2	1.59	1.59	1.750	8.85
	Scour Valve					
1	100	10	1.59	1.59	1.750	44.24
2	150	0	1.59	1.59	1.750	0.00
	Kinetic Air Valves					
1	100	10	1.59	1.59	1.750	44.24
	150	0	1.59	1.59	1.750	0.00
	Fire Hydrants					
1	100	121	1.59	1.59	1.750	535.33
	Sub Total					1185.68

Detailed Bill of Quantity for Up-gradation of Street Lighting System of DLF AREA

Sr. No.	Description	Unit	Quantity	Unit Rate for Supply inclusive of all applicable taxes,duties,levies,transporation,loading and unloading etc.	Unit Rate for Erection,testing and commissioning inclusive of all applicable taxes etc.	Total supply amount	Total Erection,testing & commissioning amount	Total amount for supply,erection,testing & commissioning	Rate Refe.
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	Nos.	981.00	3640.00	191.00	3570840.00	187371.00	3758211.00	NS-1
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	Nos.	245.00	7462.00	191.00	1828190.00	46795.00	1874985.00	NS-2

Detailed Bill of Quantity for Up-gradation of Street Lighting System of DLF AREA									
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	Nos.	143.00	14560.00	191.00	2082080.00	27313.00	2109393.00	NS-3
4	Supply,erection and necessary connection of 2.5sqmm (80/0.20mm) 1.1KV Grade 3core PVC insulated, sheathed copper conductor circular flexible wire	Meter	6845.00	69.00	4.00	472305.00	27380.00	499685.00	NS-4
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.	Nos.	1369.00	1632.00	96.00	2234208.00	131424.00	2365632.00	NS-5
	Total Amount					**10187623.00**	**420283.00**	**10607906.00**	

Repair of mechinnary on B.H.P. Basis (Water Supply)				
	Repair Cost			
1	24 No. Pump + Motor for T.W. 7.50 B.H.P 60 Metre 90 B.H.P	750 per B.H.P + 6%		71550
	12*7.5*750*1.06			
2	Repairing of Pipe line 44033x1000 4.4+5.04=9.44	0.5%		472165
3	Structures i.e OHSR, UGT, Boosting chamber, Boundary Wall etc 10000000	1.0%		100000
4	Pump + Motor for clear water works at :			
	Block B & 60+110+160 = 330			
	Zone 2 60+110+160 = 330			
	330+330=660	500 /BHP + 6%		349800
				993515
5	Gen Set			
	Block B 3 (350 KVA)			
	Block G (350 KVA)			
	700 KVA	350/ + 6%		259700
	Total Of Repairing of Machinery (Water supply)			
	Cosumable Store			
	BLOCK B (350 KVA) 1x1.5x365x68.04 37252			
	BLOCK G (120 KVA) 1x1.5x365x68.05 37252			
	Total Ltr 74504 Ltr	56.01		4172958
b)	Cotton, soap mustard Oil @ 500/M- for 12 month.			6000
c)	Provision hypoclorides @ 1PPM with 9% cholrine.			
	250 x 60 x 16 x 12 = 2880000+15428000=18308000			
	18308000 x 100 x 365 /1000000 / 9 = 74249 Litre			
	74249	@ 15/-		1113735
d)	Two Uniform once in two years at` 2000 each person 1500*2+800+(50*24)=5000 =5000*24/2		5000	60000
	No Of persons 22.50			
b)	Mobile Oil @ 3x6x12 M- for 12 Months	216	350	75600
c)	Cotton, soap mustard Oil @ 3x200/M- for 12 month.			7200
	Total of Reparing of Generating set (water supply)			
	Total			**1262535**
Repairing of Waste Water Collection Net work (Sewerage)				
a)	Cleaning of sewer line with sewer cleaning machine 3 day in a month	Days	Per day Rate	
	In 1 year 3 x 12 = 36 days	36	40000	1440000
b)	Repair of Ancillary Strutures i.e. Man holes, Sewer Line 44.03	44.030	928	40860
	Total of Repairing of Waste Water Collection Net work			**1480860**

Cosumable Store (Sewerage System)				
i				
	Cosumable Store			
b)	Cotton, soap mustard Oil @ 600/M- for 12 month.			7200
c)	Two Uniform once in two years at` 2000 each person 1500*2+800+(50*24)=5000 =5000*(11)/1		5000	20000
	No of persons 2			
	Total of Repairing of Machinery (Sewerage)			**27200**

Repair of mechinnary on B.H.P. Basis (Recycling System)				
i	Repair of pipline 28041686	0.5		140209
	Construction of Civil Works 7119714 Rs	1%		71196
	5 x2 = 10 BHP	500 per BHP + 6%		31800
	2 x2 = 15 BHP			
	2 x15 = 30 BHP			
	60 BHP			
	Cosumable Store			
b)	Cotton, soap mustard Oil @ 500/M- for 12 month.			6000
c)	Two Uniform once in two years at` 2000 each person 1500*2+800+(50*24)=5000 =5000*(6)/2		5000	15000
	No Of persons 7			
	Gen Set 2x62.5= 125 KVA 350x6%=371			46375
	Total of Repairing of Machinery (Recycling System)			**310580**

Cosumable Store Generating Sets on k VA Basis (Recycling System)				
i i)	2 no. x 62.50KVA			
a)	Cosumable Store 1 no. 62.5 KVA Recycling 2 x 15.12 x 1x 365	11038	56.01	618216
b)	Mobile Oil @ 300/ M- for 12 Months			3600
c)	Cotton, soap mustard Oil @ 200/M- for 12 month.			2400
	Toatal of Reparing of Generating set (Recycling System)			**624216**

Repairing of Storm Water Drainage				
a)	Repair of Open drain	Days	Per day Rate	
	In 1 year 4 x 12 = 48 days	4	40000	340000
b)	Repair of Ancillary Strutures i.e. Storm Water line/drain 56.08	56.080	928	52042
	Total of Repairing			**392042**

Cosumable Store (Storm Water Drainage Table-5							
i							
	Cosumable Store						
b)	Cotton, soap mustard Oil @ 500/M- for 12 month.						6000
c)	Two Uniform once in two years at` 2000 each person 1500*2+800+(50*24)=5000 =5000*(8)/2					5000	20000
	No of persons 2						
	Total of Repairing of Machinery (Storm Water Drainage)						**26000**
ELECTRIC AND STREET LIGHTS							
Energy Charges for deficent Infrastructure							
Sr No	Description	Nos	BHP	Unit	Hrs	Days	Total
a)	Block B-G	2	60	0.746	10	365	326748
		2	110	0.746	10	365	599038
	At Zone No 2	2	160	0.746	10	365	871328
	Tube Well	12	7.5	0.746	16	365	392098
							2189212
	2189212	.@ 8.5 per unit					18608299
	Street Light system As per Details						6431035
Energy Charges for Additional Infrastructure							
	Recycling	2	5	0.746	11	365	29952
		2	10	0.746	7	365	38121
		2	15	0.746	7	365	57181
							125253
	125253	.@ 8.5 per unit					1064654

Annual Maintenance the year 2017-18							
Establishment Cost							
Establishment Cost at Zone 1, 2 & 3 of Water Supply (Table E2)							
1	**Water Works for Palam Vihar**						
	Description	BLOCK B	BLOCK G	TOTAL	Months	Wages	
1	Water Pump Operator(2 Shift per day)	2	2	4	12	10340	496320
2	Operator with mechanical back ground for gen set(Half No for 3 Zone)	1/2			12	11153	66918
3	Mali cum chokidar	1	1	2	12	10340	248160
4	Fitter	0.5	0.5	1	12	10340	124080
5	Fitter coolie	0.5	0.5	1	12	10340	124080
6	Keyman/ Petrol Men	1	1	2	12	10340	248160
7	Electretion/ Electrical chargeman	1/2	1/2	1	12	11153	133836
	Sub Total						1441554
	Add weekly rest =(2300358/6)						240259
	Add casual leave(2300358x15/350)						61781
	Total						1743594
	5 % of PF Insurance Medical and Conveyance allowance						87180
	10% contractor Profit & 5% Over Head charges						261539
	Sub Total						**2092313**
	For Tube Wells 12 Tube Well						
i	WPO (1 no for 3 Tube Well in 2 shift per day) will be operate in the central point.			8	12	10340	992640
	Electretion/ Electrical chargeman			1	12	11153	133836
ii	Mali cum chokidar(1 for 3 tube well site)			4	12	10340	496320
	Total						1622796
	Add weekly rest =(1622796/6)						270466
	Add casual leave(1622796x15/350)						69548
	Total						1962810
	5 % of PF Insurance Medical and Conveyance allowance						98141
	10% contractor Profit & 5% Over Head charges						294422
	Sub Total						**2355373**
	Total						**4447686**

Establishment Cost of Sewerage (Table E3)							
	Total Length of Sewer Various size 200 to 600 mm 44.03 Km						
i	Sewerman for distribution						
	Sewerman			6	12	10340	744480
	Head Sewerman 1 No Each Zone			2	12	10340	248160
	Total						992640
	Add weekly rest =(992640/6)						165440
	Add casual leave(992640x15/350)						42542
	Total						1200622
	5 % of PF Insurance Medical and Conveyance allowance						60031
	10% contractor Profit & 5% Over Head charges						180093
	Sub Total						**1440746**
Establishment Cost of Storm Water (Table E4)							
i	Cleaning of Storm Water length 56.079 Km						
	Beldar For 4 months			8	4	10340	330880
	If remaining 4 months of the year wherever special cleaning operational is needed. The person employed on contract basis.						
	Total						330880
	Add weekly rest =(33080/6)						55147
	Add casual leave(33080x15/350)						14181
	Total						400207
	5 % of PF Insurance Medical and Conveyance allowance						20010
	10% contractor Profit & 5% Over Head charges						60031
	Sub Total						**480248**
Establishment Cost of Recycling System (Table E5)							
i	Block B&G (PS 1) W.P.O 2 no. @10340/- for 12 month						248160
ii	Mali cum chokidar 1 no.10340/- for 12 month						124080
iii	Fitter 1 no. @ 10340/- for 12 month						124080
iv	Fitter Coolie 1 no. @ 10340/- for 12 month						124080
v	Key man 1 no @ 10340- for 12 month						124080
	Total						744480
	Add weekly rest =(744480/6)						124080
	Add casual leave(744480x15/350)						31906
	Total						900466
	5 % of PF Insurance Medical and Conveyance allowance						45023
	10% contractor Profit & 5% Over Head charges						135070
	Sub Total						**1080559**

BENKELMAN BEAM



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

BENKELMAN BEAM DEFLECTION TEST AT DIFFERENT EXISTING BITUMAN ROAD LOCATIONS AT DLF, PHASE 1, GURUGRAM (HARYANA)

FOR

M/s K Y CONSULTANTS
303-304
STAR TOWER

GURUGRAM

FINAL REPORT
HTC/SP-02
JULY 2017





Table of Contents

1.0 Introduction 2
2.0 Scope of the Work: 3
3.0 Investigation carried out: 3
3.1 Benkelman Beam Deflection 3
3.2 Methodology for Evaluation 3
3.2.1 Background of method 3
3.2.2 Basic Principle of Deflection Method adopted 3
3.2.3 Procedure adopted for measurement of Deflection 4
3.2.4 Pavement Condition Survey: 6
Conclusion: 9
Images for visual and technical investigation for BBD test at DLF phase – I, Gurugram 9
Image for visual and technical investigation for Moisture Correction Factor 11

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 BENKELMAN 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 are 24mtr & 18mtr wide carriageway for medium traffic in DLF Phase-I, Gurugram, Haryana.

3.0 Investigation 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 guidelines 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. WMB/GSB is found to be 120 mm with scattering of Course aggregates showing poor compaction.

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 characteristic of sub grade three soil sample extracted under the pavement structure is tested as per IS-2720 and the results are found as under:

1. Natural Moisture content = 5.3 % - 6.5 %
2. Liquid limit = 22 % -23.5 %
3. Plastic limit = 16.2 % - 16.9 %
4. Plasticity index = between 5.8 – 6.6

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 knowing 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. Seven points were selected in DLF phase –I, Gurgaram, 4 points at 24 mtr road and 3 Points at 18 mtr road.(Carriage way each 7 Mtr wide)
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 cracking was found during visual observation in above mentioned road in the wheel track but rutting are found between 8mm to 15mm. So as per Criteria for classification of pavement sections as prescribed Table 1 of IRC: 81-1997, the classifications as per pavement condition are categorized as **'Fair'.**

CORRECTION OF TEMPERATURE:

As the temperature of the site was between 32 to 36.5 degree centigrade and the temperature of Pavement was 35 to 40 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 degree centigrade.

Pavement deflection data obtained in 18 Mtr & 24 Mtr road of DLF Phase – 1. Gurugram

Prepared by Hitech Construction Technologies

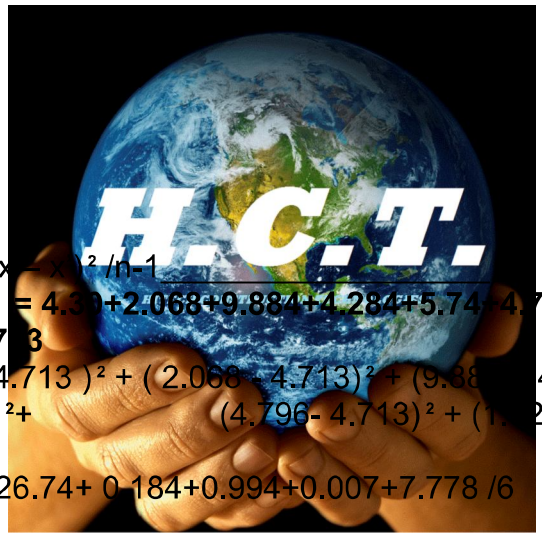


Name of road :- 18 mtr road and 24 Mtr wide Road.
Date and time of observation : 24-25 July 201 rom 10 am to 5 Pm
Air temperature: 2deg.c to 36.5 deg.c
Temp. correction is applied Yes
Least count of dial gauge: 0.01mm

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		
	24 Mtr Existing flexible road pavement:						
1.	Bodhi Marg, F block- 1A near Shopping complex	34.5	13.4	8.7	6.8	2.15	4.30
2.	RHS DLF phase –I	34.5	9.9	6.9	5.6	1.034	2.068
3.	Bodhi Marg, F block- 1A near Shopping complex LHS Dlf phase –I	36.5	16.2	10.1	8.2	4.942	9.884
4.	Arjun Marg C block C-17 H no. 78 RHS. Arjun Marg C block C-17 H no. 78 LHS.	35.5	15.3	10.6	8.7	2.142	4.284
	18 Mtr Existing flexible road pavement:						
5.	G block Road no. 3 In front of H No. 12	36.2	12.7	8.4	6.9	2.87	5.74
6.	G block Road no. 3 In front of H No. 22	36.7	13.6	10.3	9.2	2.39	4.796
7.	G block Road no. 4 In front of H No. 7	37	7.4	5.2	4.3	0.962	1.924

Actual Pavement deflection XT = XA + 2.91Y_= 2(Initial – Final) + 2.91{ 2(Final – Intermediate) }
Rebound Deflection = 2 XT

Prepared by Hitech Construction Technologies



Mean Def. x' = ∑ x/n

Stand. Dev. σ = √∑ (x – x')² /n-1

Mean Deflection = x' = 4.30+2.068+9.884+4.284+5.74+4.796+1.924/7

= 4.713

Stand. Dev. = √ (4.30-4.713)² + (2.068 - 4.713)² + (9.884 – 4.713)² +(4.284 – 4.713)² +(5.74 – 4.713)²+ (4.796- 4.713)² + (1.924 – 4.713)²/6

= √ (0.170+6.99+26.74+ 0.184+0.994+0.007+7.778 /6

= √42.863/6 = √7.143 = 2.67

Characteristic deflection, Dc = x' + σ where x' mean deflection in mm & σ is std. dev. in mm **Thus the Dc (Characteristic deflection) = 4.713 +2.67 = 7.383mm**

Temperature correction =

-0.0195mm, Total Deflection = 7.383 – 0.0195 = 7.3635mm.

Seasonal correction:- As per IRC: 81-1997 From Figs. 2 to 7, adopted Fg-2 for Sandy/Silty soil for low rainfall areas less than 1300mm annually, moisture correction factor for 6% moisture is 1.08 . **Thus the final deflection is 7.3635 – 1.08 = 6.28 mm**

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 6.28mm. It is suggested that strengthening of pavement is required for the mark road as specified by consultant in drawing for DLF Phase –I Gurgaon.

Images for visual and technical investigation for BBD test at DLF phase – I, Gurugram


24/07/2017 16:27


USE DIPPER AT NIGHT
HR 55
J 3137
24/07/2017 14:27


24/07/2017 14:28


HR 55
J 3137
24/07/2017 14:37


HR 55
J 3137
BBD TEST
DLF Phase 1
Bhadni Marg
RHS
24/07/2017 14:41


24/07/2017 14:53


STOP
24/07/2017 15:02



Image for visual a technical investigatio for Moisture Correction Factor

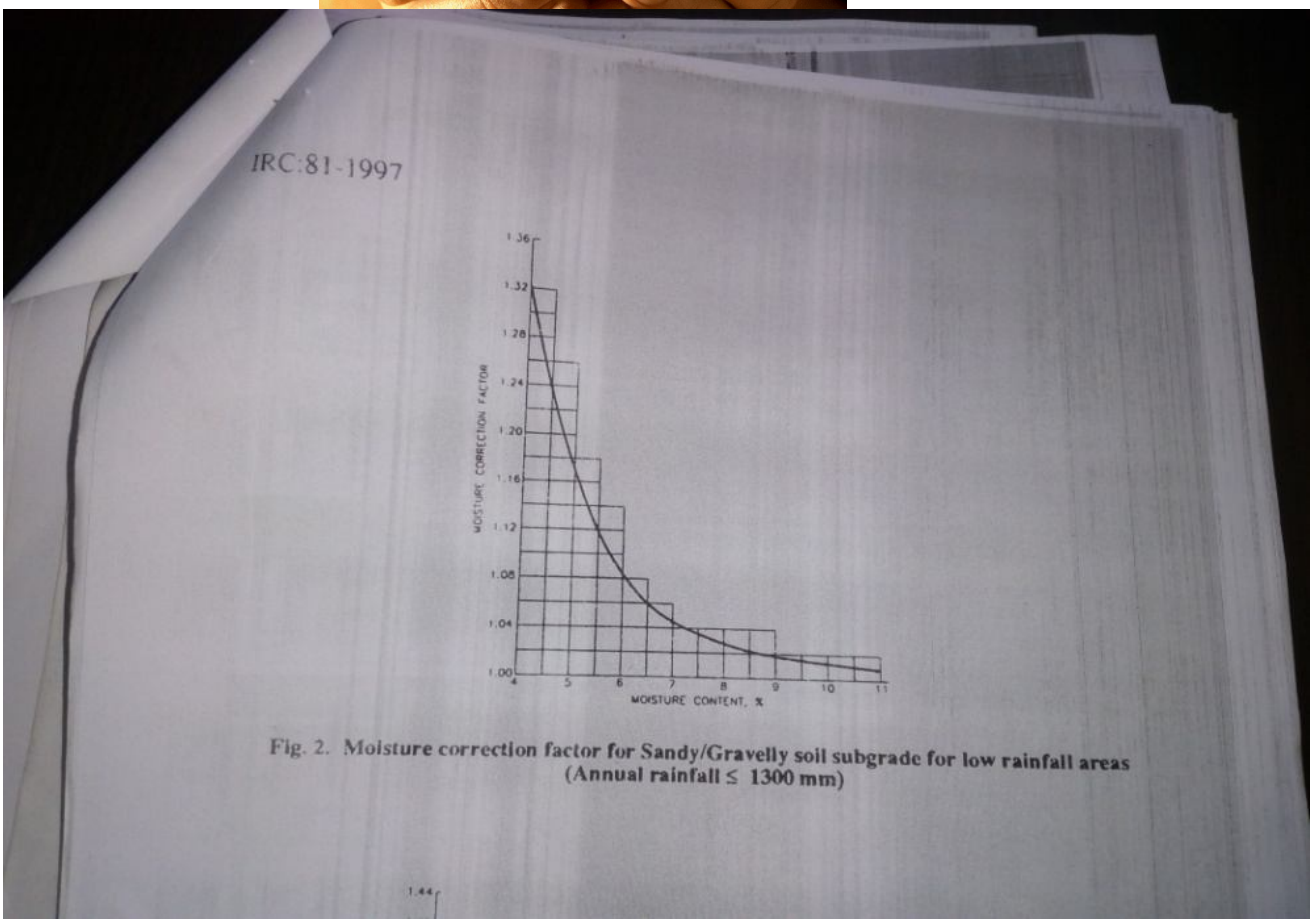


Fig. 2. Moisture correction factor for Sandy/Gravelly soil subgrade for low rainfall areas (Annual rainfall ≤ 1300 mm)

ANNEXURES

ANNEXURE-A (VIDEO GRAPHY

ANNEXURE-B (SURVERY DATA)

SURVEY OF D.L.F PHASE 1

Blocks_____

Road_____

Date 13/06/17

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	Signa
			Yes/No	Morning	Evening	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
1.	Bablu Ram A1/10	Not Good	Yes	6:30 ~~7:30~~ AM	4:30 ~~5:30~~ PM	Yes	Yes	Yes	No	Yes	
2	A/14 Tona Bhatia	Good	No			Yes	Yes	Yes	Yes	No	Tona B
3.	A/15/3	Good	No	6:30 – 7:30 am	4:30 ~~5~~ 5:30pm	Yes	Yes	Yes	No	No	Sever
4.	Babhimy 10 Sanjay	Good	Yes			Yes	No	No	No	Yes	Nik
5.	B-17/2 Kapoor	Not Good	Yes			Yes	Yes	Yes	Yes	Yes	Girjes Sever
6.	A-13/7 Sushil Malviya	Good	Yes			Yes	No	Yes	Yes	No	

SURVEY OF D.L.F PHASE 1

Blocks_____

Road_____

Date 14/6/17

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	Signal
			Yes/No	Morning	Evening	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
7	A-8/11 Amit Gupta		Yes			Yes	No	Yes	Yes	No	Sev
8.	SCM-18 RK (DDA)		No	6:30 – 7:30	4:30 – 5:30	Yes	Yes	Yes	No	Yes	14/6/1
9.	B-2/5 Amarjeet Singh		Yes	6:30 – 7:30	4:30 – 5:30	Yes	Yes	Yes	Yes	Yes	
10	18 Amaltas Marg		Yes			Yes	Yes	Yes	Yes	Yes	
11.	C-6/29 Mr. Vinod		Yes	6:30 – 7:30	4:30 – 5:30	Yes	Yes	Yes	Yes	No	
12.	D4/33 B. N Khanna		Yes			Yes	Yes	Yes	No	Yes	

(8)

SURVEY OF D.L.F PHASE 1

Blocks_____

Road_____

Frorm_____To_____

Date 14/6/17

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	Signal
			Yes/No	Morning	Evening	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
13	G M B KELDar Dar	Good	~~Yes~~ No	6:30-7:30	4:30-5:30	No	No	Yes	Yes	NO	
14	~~GB~~ G-15/6 Suman Srivastav		Yes			Yes	Yes	Yes	Yes	Yes	
15.	G-9/7 N.V.S Chandra		Yes			Yes	Yes	Yes	Yes	Yes	
16	H-13/4 Kamal. Bakshi		No			Yes	Yes	No	No	Yes	
17	H-13/47		No			Yes	Yes	No	No	Yes	
18	H-33/40 Sheetal Atri		Yes			Yes	Yes	Yes	Yes	Yes	

(9)

SURVEY OF D.L.F PHASE 1

Blocks_____

Road_____

Frorm_____To_____

Date 14/06/17

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	Signal
			Yes/No	Morning	Evening	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
19	H-41/4 Rambir Chaudhry	~~H-41/4~~	Yes			Yes	Yes	Yes	Yes	Yes	
20.	H-39/3 M.K. Pasu.		Yes			No	Yes	Yes	No.	No	
21.	H37/9 Jagmohan		Yes	6:30-7:30	4:30-5:30	No	Yes	Yes	Yes	Yes Jagmo	

DETAILS OF QUANTITY

D.L.F PHASE 1

Sr. No.	Road No.	Length IN MTRS.	ROW (m)	METAL WIDTH (m)	BERM LEFT SIDE (m)	BERM RIGHT T SIDE	KERB	INTERLOCKING PAVERS	Levelling Course	W.M.M.	Patch Work	B.M.	P.C.	B.C.	Remarks
BLOCK A															
1	1		9	3.66	2.69	2.68	×	×	×	×	✓	×	×	✓	
2	2		9	3.66	2.67	2.67	×	×	×	×	✓	×	×	✓	
3	3	9	12	4.88	4.20	2.90	×	×	✓	×	×	×	×	✓	
4	4		9	3.66	2.67	2.67	×	×	×	×	×	×	×	×	
5	5		9	3.66	2.68	2.68	×	×	×	×	✓	×	×	✓	
6	6		9	3.66	2.67	2.67	×	×	×	×	×	×	×	✓	
7	7		12	4.88	4.20	2.90	×	×	×	×	×	×	×	✓	
8	8		9	3.66	2.67	2.67	×	×	×	×	×	×	×	✓	
9	9		9	3.66	2.67	2.67	×	×	×	×	×	×	×	✓	
10	10		9	3.66	2.67	2.67	×	×	×	×	×	×	×	✓	
11	11		9	3.66	2.67	2.67	×	×	✓	×	×	×	×	✓	
12	12		9	3.66	2.67	2.67	×	×	×	×	×	×	×	✓	
13	13		9	3.66	2.67	2.67	×	×	×	×	×	×	×	×	
14	19	—													Change into gr. Road Gr. Course Laid
15	15		12	4.88	4.20	2.67	×	×	×	×	×	×	×	✓	
16	16		9	3.66	2.67	2.67	×	×	×	×	×	×	×	×	

DETAILS OF QUANTITY

D.L.F PHASE 1

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 A															
1	17		12	4.88	4.1	3.0	×	×	×	×	×	×	×	✓	
2	18		12	4.88	4.2	2.9	×	×	×	×	×	×	×	×	
3	19		12	4.88	4.2	2.9	×	×	×	×	×	×	×	×	
4	20		12	4.88	3.9	3.2	×	×	✓	×	×	×	×	×	
5	21		12	4.88	4.0	3.1	×	×	×	×	×	×	×	✓	
6	22		12	4.88	4.2	2.9	×	×	×	×	✓	×	×	✓	
7	23		12	4.88	4.2	2.9	×	×	×	×	×	×	×	✓	
8	24		9	3.66	2.6	2.75	×	×	×	×	✓	×	×	✓	
9	25		9	3.66	2.7	2.6	Inside	Inside	✓	×	✓	×	×	✓	
10	26	—					×	×							Change into Gr. Course Road
11	27		18	6.7	6.1	5.2	×	×	×	×	✓	×	×	✓	
12	28		12	4.88	4.2	2.9	×	×	×	×	×	×	×	✓	
13	29		12	4.88	4.4	2.7	×	×	×	×	×	×	×	✓	
14	30		12	4.88	4.0	3.1	×	×	×	×	×	×	×	×	
15	31		12	4.88	4.2	2.9	×	×	×	×	✓	×	×	✓	
16	32		12	4.88	4.2	2.9	×	×	×	×	×	×	×	✓	

DETAILS OF QUANTITY

D.L.F PHASE 1

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 A															
1	33		12	4.88	4.0	3.1									
2	34		12	4.88	4.2	2.9									
3	35		18	6.7	6.9	4.4									
4	36		12	4.88	4.2	2.9									one side Drain
5	37		12	4.88	4.1	3.0									
6	38														Not At Site
7	39														Not At Site
8	40		12	4.88	4.2	2.9									
9	41		12	4.88	3.9	3.2									
10	42		12	4.88	4.1	3.0									Freshcut
11	43		12	4.88	3.9	3.2									
12	44		12	4.88	4.0	3.1									
13	45		12	4.88	4.4	2.7									
14	46		12	4.88	4.2	2.9									
15	47		12	4.88	4.3	2.8									
16	48		18	6.7	6.4	4.9									

DETAILS OF QUANTITY

D.L.F PHASE 1

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 A															
1	49		12	4.88	4.3	2.9									one side Drain
2	50		12	4.88	4.4	2.7									
3	51		12	4.88	4.3	2.8									
4	52		12	4.88	4.0	3.1									one side Drain
5	53		12	4.88	4.2	2.9									
6	54		9	3.66	3.8	3.8									
7	55		12	4.88	4.1	3.0									
8	56		12	4.88	4.4	2.8									
9	57		12	4.88	4.3	2.9									
10	58	9	9	3.66	2.9	2.5									
11	59	9	9	3.66	2.6	2.8									
12	60		12	4.88	4.2	2.9									
13															
14															
15															
16															

k
evdarmarg
khatmarg
dksite
aya mail

DETAILS OF QUANTITY

D.L.F PHASE 1

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 B															
1	1		9	3.66	2.9	2.4									
2	2		9	3.66	2.7	2.65									
3	3		9	3.66	2.7	2.7									
4	4		9	3.66	2.8	2.6									
5	5		9	3.66	2.65	2.7									
6	6		9	3.66	2.6	2.7									
7	7		9	3.66	2.7	2.6		1 Side							
8	8		9	3.66	2.8	2.75									
9	9		12	4.88	4.2	2.9								1/2	
10	10		12	4.88	4.0	3.1									
11	11		12	4.88	4.0	3.1									
12	12		9	3.66	2.9	2.5									
13	13		9	3.66	2.7	2.7									
14	14		9	3.66	2.6	2.8									
15	15		9	3.66	2.9	2.35									
16	16		9	3.66	2.7	2.7									

DETAILS OF QUANTITY

D.L.F PHASE 1

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 B															
1	17		9	3.66	2.7	2.75									
2	18		12	4.88	4.4	2.8									
3	19		12	4.88	4.0	3.1									
4	20		12	4.88	4.2	2.9									
5	21		12	4.88	3.9	3.2									
6	22														Change into Golf Course Road
7	23		12	4.88	4.4	2.7	1 Side								
8	24		12	4.88	4.3	2.8		1 Side							
9	25		24	9.15	8.7	6.2									OK Fresh Carpet
10	26		24	9.15	8.5	6.4									OK Fresh Carpet
11															
12															
13															
14															
15															
16															

DETAILS OF QUANTITY

D.L.F PHASE 1

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 C															
1	1		9	3.66	2.7	2.7									
2	2		9	3.66	2.66	2.68									
3	3		9	3.66	2.7	2.6									
4	4		9	3.66	2.65	2.7									
5	5		9	3.66	2.67	2.67									
6	6		9	3.66	2.6	2.8									
7	7		9	3.66	2.7	2.6									
8	8		18	6.7	7.0	4.3									
9	9		9	3.66	2.9	2.5									
10	10		9	3.66	2.6	2.8									
11	11		9	3.66	2.65	2.7									
12	12		9	3.66	2.7	2.7									
13	13		9	3.66	2.65	2.7									
14	14		9	3.66	2.6	2.8									
15	15		9	3.66	2.65	2.75									
16	Sukhchain Marg		18	6.7	6.8	4.5									

DETAILS OF QUANTITY

D.L.F PHASE 1

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 D															
1	1		12	4.88	4.3	2.8									
2	2		9	3.66	2.7	2.6									
3	3		12	4.88	4.2	2.9									
4	4		9	3.66	2.7	2.6									
5	5		9	3.66	2.6	2.8									
6	6		9	3.66	2.8	2.7									Drawing D10 As Per Site D6
7	7		9	3.66	2.65	2.75									D9 D6
8	4A		12	4.88	4.2	2.9									D11
9	4B		12	4.88	4.2	2.9									D8 D5
10	Club Marg		18	6.7	6.5	4.8									D4 D4
11	Amaltas Marg		18, 12	6.7, 4.88	6.7, 4.2	4.6, 2.8									D6 D4B
12	Devdar marg		12	4.88	4.4	2.7									D5 D4A 1/2
13	Sarbot marg		9	3.66	2.6	2.75									
14	main Entry		30	6.7, 6.7	8.2	7.5									
15															
16															

DETAILS OF QUANTITY

D.L.F PHASE 1

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	E														
1	1		12	4.88	4.4	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	3.6	2.7	✗	✗	✗	✗	✓	✓	✗	✓	
5	5		12	4.88	4.0	3.1	✗	✗	✗	✗	✗	✗	✗	✗✓	
6	6		12	4.88	4.2	2.9	✓	✗	✗	✗	✗	✗	✗	✓	
7	7		12	4.88	3.9	3.2	✓	✗	✗	✗	✗	✓	✗	✓	
8	8		12	4.88	4.2	2.9	✓	✗	✗	✗	✗	✓	✓	✓	
9	9		12	4.88	4.1	3.0	✓	✗	✓	✗	✗	✗	✗	✓	
10	10		12	4.88	4.2	2.9	✗	✗	✓	✗	✗	✗	✗	✗✓	
11	11		12	4.88	4.3	2.8	✗	✗	✓	✗	✗	✓	✗	✗	
12	12		12	4.88	4.1	3.0	✗	✗	✗	✓	✗	✗	✗	✓	
13	13		12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✓	✗	✓	
14	14		12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✓	✗	✓	
15	market Road		9	3.66	2.7	2.6	✗	✗	✗	✗	✗	✗	✗	✗✓	
16	Ashim my		24	9.15	8.5	6.4	✗	✓	✗	✓	✓	✗	✓	✗✓	half Road
E-1A C-17 F-1A 17. Bodhimarg			24	9.15	8.5	6.5	✓	✓	✗	✗	✓	✗	✗	✓	

DETAILS OF QUANTITY

D.L.F PHASE 1

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	F														
1	1		12	4.88	4.1	3.0	✗	✗	✗	✗	✓	✗	✗	✗✓	
2	2		9	3.66	2.9	2.7	✗	✗	✗	✗	✗	✗	✗	✓	
3	3		9	3.66	2.6	2.8	✗	✗	✗	✗	✗	✗	✗	✗	surface ok Undulation
4	4		9	3.66	2.7	2.7	✗	✗	✗	✗	✓	✗	✗	✓	
5	5		9	3.66	2.6	2.8	✗	✗	✗	✗	✗	✗	✗	✗	
6	6		9	3.66	2.9	2.35	✗	✗	✗	✗	✗	✗	✗	✗✓	
7	7		9	3.66	2.6	2.8	✗	✗	✗	✗	✗	✗	✗	½✓	
8	8		9	3.66	2.7	2.7	✗	✗	✗	✗	✗	✗	✗	✗✓	Convertinto Half Cross Road
9	9		9												
10	10		9	3.66	2.65	2.65	✗	✗	✗	✗	✗	✗	✗	100% ✗	• F4 - F15 Constructed Balance not Constructed
11	11		9	3.66	2.7	2.6	✗	✗	✗	✗	✗	✓	✗	½✗	✗ 1/2 not Constructed
12	12		18	6.7	6.3	5	✗	✗	✗	✗	✓	✗	✗	✓	
13	13		9	3.66	2.6	2.8	✗	✗	✓	✗	✗	✗	✗	✗✗	Branch left
14	13A		9	3.66	2.7	2.7	✗	✗	✗	✗	✗	✓	✗	✓	
15	15		9	3.66	2.9	2.4	✗	✗	✗	✗	✗	✗	✗	✓	
16	16		9	3.66	2.8	2.7	✗	✗	✗	✗	✗	✗	✗	✓	
15A 16A															NOT Constructed Not Counted

DETAILS OF QUANTITY

D.L.F PHASE 1

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 F						✓								
1	17		~~9~~	~~3.66~~			~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~		Not Gustructed
2	14		9	~~3.66~~			~~✓~~							~~✓~~	Not Gustructed
3	F10-F13 LinkRoad		9	3.66	2.6	2.7	✓	✓	✓	✓	✓	✓	✓	✓	
4	F15A														Not Const. AT Site
5	33		24,12	9.15, 4.88			✓	✓	✓	✓	✓	✓	✓	✓	1/1 Lay 1+12m L+
6	34		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
7	35		12	4.88	4.0	3.1	✓	✓	✓	✓	✓	✓	✓	1/2 ✓	
8	36		12	4.88	3.9	3.2	✓	✓	✓	✓	✓	✓	✓	✓	30/12-30/20 Damage
9	37		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
10	38		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
11	39		12	4.88	4.1	3.0	✓	✓	✓	✓	✓	✓	✓	✓	
12	40		12	4.88	4.4	2.7	✓	✓	✓	✓	✓	✓	✓	✓	
13	41		12	4.88	4.0	3.1	✓	✓	✓	✓	✓	✓	✓	✓	
14	42		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
H-32	~~45~~		~~24~~	~~9.15~~	~~8.8~~	~~6.0~~	✓	✓	✓	✓	✓	✓	✓	✓	
16	44		24	9.15	8.6	6.25	✓	✓	✓	✓	✓	✓	✓	Half Road	
H-8	45		24	9.15	8.5	6.3								1/2 ✓	

DETAILS OF QUANTITY

D.L.F 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 G														
1	1						✓								Not At Site
2	2		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
3	3		24	9.15	8.6	6.3	✓	✓	✓	✓	✓	✓	✓	✓	
4	4		18	6.7	6.3	5	✓	✓	✓	✓	✓	✓	✓	✓	
5	5		12	4.88	4.4	2.7	✓	✓	✓	✓	✓	✓	✓	✓	
6	6		9	3.66	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
7	7		9	3.66	4.0	3.1	✓	✓	✓	✓	✓	✓	✓	✓	
8	8		12	4.88	4.1	3.0	✓	✓	✓	✓	✓	✓	✓	✓	
9	9		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
10	10		12	4.88	3.9	3.2	✓	✓	✓	✓	✓	✓	✓	✓	
11	11		12	4.88	4.0	3.1	✓	✓	✓	✓	✓	✓	✓	✓	
12	12		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
13	13		12	4.88	4.0	3.1	✓	✓	✓	✓	✓	✓	✓	✓	
14	14		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
15	15		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	
16	16		12	4.88	4.2	2.9	✓	✓	✓	✓	✓	✓	✓	✓	

DETAILS OF QUANTITY

D.L.F 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 G															
1	17		12	4.88	4.0	3.1	✗	✗	✗	✗	✗	✗	✗	½✓	
2	18		12	4.88	4.4	2.7	✗	✗	✗	✗	✗	✗	✗	✗ ✓	
3	19		12	4.88	4.1	3.0	✗	✗	✓	✗	✗	✗	✗	✗ ✓	
4	20		12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✗	✗	✓	
5	~~21~~ ✓		12	4.88			✗	✗	✗	✗	✗	✗	✗	✗	
6	~~22~~		24,18	9.15,6.7			✗	✗	✗	✗	✗	✗	✗	✓	30-Kuj 4m Marg 18m
7	23	Link Rd 19-20	12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✗	✗	✓	
8	24	Link Rd 17-19	12	4.88	3.9	3.2	✗	✗	✗	✗	✗	✗	✗	✓	
9	~~25~~	G7A	9	3.66	2.9	2.6	✗	✗	✗	✗	✗	✗	✗	✗ ✗	
10	26	G8A	12	4.88	4.2	2.8	✗	✗	✗	✗	✗	✗	✗	✓	
11	27	G9A	12	4.88	4.0	3.2	✗	✗	✗	✗	✗	✗	✗	✗ ✓	
12															
13															
14															
15															
16															

DETAILS OF QUANTITY

D.L.F 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 H							✗								
1	1		12	4.88	4.0	3.2	✗	✗	✗	✗	✗	✗	✗	½✓	
2	2		12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✗	✗	✓	
3	3		12	4.88	3.8	3.3	✗	✗	✗	✗	✗	✗	✗	✗ ✗	
4	4		12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✗	✗	✓	
5	5		12	4.88	4.2	2.9	✗	✗	✗	✗	✗	✗	✗	✗ ✗	
6	6						✗	✗	✗	✗	✗	✗	✗		Not At site
7	7		12	4.88	4.1	3.0	✗	✗	✗	✗	✗	✗	✗	✗ ✓	
8	8		12	4.88	4.4	2.7	✗	✗	✗	✗	✗	✗	✗	✗ ✓	
9	9		9	3.66	2.8	2.7	✗	✗	✗	✗	✗	✗	✗	✓	
10	10		9	3.66	2.7	2.6	✗	✗	✓	✗	✗	✗	✗	✗ ✓	
11	11		9	3.66	2.65	2.7	✗	✗	✓	✗	✗	✗	✗	✗ ✓	
12	12		9	3.66	2.7	2.7	✗	✗	✓	✗	✗	✓	✗	✓	
13	13		9	3.66	2.65	2.65	✗	✗	✓	✗	✗	✗	✗	✗ ✓	
14	14		9	3.66	2.9	2.5	✗	✗	✗	✗	✗	✗	✗	✗ ✓	
15	15						✗	✗	✗	✗	✗	✗	✗		Not At site
16	16		12	4.88	4.3	2.8	✗	✗	✗	✗	✗	✗	✗	✗ ✗	

DETAILS OF QUANTITY

D.L.F 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	H1														
1	17														Not AT site
2	18														
3	19														
4	20														
5	21														
6	22														
7	23		12	4.88	4.0	3.1	X	X	X	X	X	X	X	X	X
8	24		12	4.88	4.3	2.8	X	X	X	X	X	X	X	X	X
9	25		12	4.88	4.2	2.9	X	X	X	X	X	X	X	X	X
10	26														Not AT site
11	27														
12	28														
13	29														
14	30														
15	31														
16	32	*	12	4.88	4.4	2.6	X	X	X	X	X	X	X	X	X

ANNEXURE-C (RWA MEETING)

Annexure-C

DRAFT

Minutes of the meeting held in the Community Center DLF Phase-1, Gurgaon on 30.06.2017

The following attended the meeting:-

1.	Mrs. Savita Chaudhary, President , EBRWA	
2.	Sh. Rahul Chandola, Secretary, HBRC- H Block	
3.	Sh. Anil Mehra, President, RWA – G Block	
4.	Dr. S.K. Goel- RWA - G Block	
5.	Sh. Vijay Seth, RWA – A Block Extension	
6.	Sh. R.K. Jain, RWA – A Block Extension	
7.	Sh. Sudhakar Verma. RWA – A Block Extension	
8.	Sh. Milin Kapoor, General Secretary, PRWS	
9.	Sh. S Chakarbarti, RWA- H Block	
10.	Sh. A.S. Rathee, Executive Engineer M.C G.	
11.	Sh. Dharamvir, DLF, Gurugram	
12.	Sh. Puran Singh, G.M DLF, Gurugram	
13.	Sh. S.K. Singhal	Ky Consultants Pvt. Ltd
14.	Sh. S.K. Verma	-do-
15.	Sh. Ram Bhaj	-do-

The matter regarding infrastructure deficiencies and the problems faced regarding Water Supply, Sewerage System, Storm Water Drainage System, Roads and Electricity in DLF Phase-I, was discussed in detail in the meeting . The following points were highlighted by the various Resident Welfare Associations.

1. President EBRWA pointed out that the services & infrastructure were laid during the year 1985, as such it has already lived its useful life span of 30 years, therefore, all the services are required to be re-laid or improved as per the guide lines prescribed in the CPHEEO Manual of Govt. of India. She has also raised some other issues like non provision of Dispensary, School, Clubs, Religious sites etc., which are detailed in the representation dated 30.06.2017 submitted by the President – EBRWA (Enclosed as Annexure-I).
2. Secretary, ABEMHC pointed out some problems regarding traffic congestion near KUNSKAPP SKALON, sewer line, Club, and road etc., which are detailed in the representation dated 22.06.2017 submitted by the Secretary, ABEMHC (Enclosed as Annexure-II).
3. Secretary, HBRC- H Block, also raised some deficiencies in infrastructure & civic amenities, such as roads, storm water drainage system, road side walks, parks, water logging on Kachnar Marg, commercial activities in residential areas, electricity break downs etc. which are affecting their normal living. The same are detailed in their representation dated 30.06.2017 (Enclosed as Annexure-III).
4. President, - GBRC, also raised some issues pertaining to infrastructural deficiencies and problem being faced in the services provided by DLF, such as insufficient power supply, damaged roads, deficient water supply, plantation of trees and maintenance of parks security cover, garbage problem etc. The same are detailed in theri representation dated 30.06.2017 (Enclosed as Annexure-IV).

The Committee comprising members of concerned RWAs, MCG, Ky Consultants Pvt. Ltd., and DLF visited the sites/locations to visualize the acute problems being faced by the residents of DLF City so that the same could be incorporated in DPR/Estimate

The meeting ended with a vote of thanks to all those who participated in the meeting.

Draft Minutes for necessary comments

S.No.	Name of Person	Designation	Ph No/Email	Signature
1.	Ram Bhaj	Asst. Manager	8447738501	
2.	S.K. Verma	Sr. Consultant for Ky Consultants	8510900014	
3	S.K Singhal	CPM.	8447753102	
4.	DR. S. K. Goel G/Block		9810614884	
5.	Amit Mehra (G-Block)		9870185313	
6.	VIJAY SETH	A Block Extn.	9 582336313	
7.	MILIN KAPOOR	GEN. SEC. PRWS	9971159333	
8.	SAVITA Choudhary.		9868377959.	
9.	R.K. JAIN – A- Block Extn.		9811095166	
10.	RAHUL CHANDOLA (H Block)		9811050731	
11.	S. Chakrabarti (H Block)		8860933553	
12.	SUDHAKAR VERMA - (A Block Extn)		- 7838966617	
13.	Puran Singh DLF		9811504342	
14.	Dharamvir DLF		9811094854	
15.	A.S Rathi XEN		9521395219	

DRAFT

Minutes of the meeting held in the Community Center DLF Phase-1, Gurugram on 07.07.2017

The following attended the meeting:-

1. Mrs. Savita Chaudhary, President , EBRWA
2. Sh. J.S. Dhamija, President, DLF City, RWA
3. Sh. Madhuri Jain,DLF,I, Block-H
4. Sh. S. Chakarbarti, DLF,I, Block-H
5. Sh. R. Goswami, DLF,I, Block-H
6. Sh. Sudhir Kapoor, Secretary General, DLF City, RWA
7. Ashok Sharma, DLF Phase-I, H-Block
8. Smt. Gayatri Nangia, DLF, Phase-I, C-Block
9. Sh. Sarat Chander, E-Block, DLF-I
10. Sh. S.P. Malhotra, DLF, E-Block
11. Sh. S. Juneja, DLF, H-Block

Ky Consultants Pvt. Ltd

1. Sh. S.K. Singhal, CPM,
2. Sh. S.K. Verma, Sr. Consultant,
3. Sh. S.K. Gupta, Dy. General Manager
4. Sh. Ram Bhaj, APM

DLF Ltd.

1. Sh. Dharamvir, DLF Phase-I.

The matter regarding infrastructure deficiencies and the problems being faced by the Residents regarding Water Supply, Sewerage System, Storm Water Drainage System, Roads and Electricity in DLF Phase-I, was discussed in detail in the meeting . The following points were highlighted by the various Resident Welfare Associations.

1. President EBRWA re-iterated that the services & infrastructure were laid during the year 1985, as such it has already lived its useful life span of 30 years, therefore, all the services are required to be re-laid or improved as per the guide lines prescribed in the CPHEEO Manual of Govt. of India. She has also raised some other issues like non provision of Dispensary, School, Clubs, Religious sites etc., which are detailed in the earlier representation

dated 30.06.2017 submitted by the President EBRWA. Besides this, she pointed out the traffic problem being faced by the residents at Arjun Dev Marg as the entry and exit point provided for this road on the service lane of 60 Mtrs. Wide road. are not properly designed which are prone to accidents. She stressed that the above problem being faced must be addressed immediately by DLF/HUDA.

2. A Resident of C-12 Block, pointed out problems regarding maintenance of Parks including street light system in the Block.
3. A Resident of E-Block, raised the issue regarding poor sewerage system/drainage system adjoining to his residence in E-11 lane.
4. A Resident of H-Block pointed out the problems regarding erratic electricity supply, non functioning of street light system, improper accesses and insufficient security at the entry gates in H-5 lane.
5. A Resident of E-Block, DLF-I, raised the issue regarding problem in water supply system in this Block due to negative suction at the pumping station.
6. General Secretary, DLF City RWA, re-iterated that the entire civic infrastructure must be designed as per the latest norms, so that residents of DLF City do not suffer due to insufficient infrastructure.
7. Treasurer, DLF,I, Block-H, pointed out issues regarding road repairs, water logging , foot paths and non maintenance of parks etc. which are detailed in the representation dated 07.07.2017 submitted by the Secretary, HBRC

The Committee comprising members of concerned RWAs, Ky Consultants Pvt. Ltd., and DLF visited the sites/locations to visualize the acute problems being faced by the residents of DLF City so that the same could be incorporated in DPR/Estimate. The DLF authorities assured that other small issues regarding day-to-day maintenance such as blockage of sewer lines, storm water drain; non functioning of street light in particular pocket/lane will be sorted out within 2/3 days positively.

The meeting ended with a vote of thanks to all those who participated in the meeting.

Draft Minutes for necessary comments

7/7/17

S.No.	Name	Dept	Mob. No.	Sig
1.	J. S. Dhasmana	President DLF City RWA	9810402438	
2.	Madhuri Jain	DLF I, Blk H	9810507108	
3.	S. Chakrabarti	DLF 1, Blk H.	9871693353	
4.	R. Goswami	DLF I, H-Block	9810079410	
5	SUDHIR KAHOOR	Sec General DLF-City RWA	9811555743	
6.	Ashok Sharma	DLF Phase I H Block	9810333522	
7.	Gayatri Nangia	DLF Phase I C-Block	9818099127	
8.	Sarat Chander	Arjun Marg E-Block DLF-I	9958833388	
9	S.P. Malhotra	E-Block,	9811911497	
10	S. JUNEJA	H-Block	9811344661	
11	SAVITA	E 8/7, DLF	9868517495	

KY CONSULTANT PVT Ltd :

1.	Sh. S.K. Singhal	CMD	8447753102
2.	Sh. S.K. Verma	Sr. Consultant Architect Consultant	9510900014
3	Sh. S.K. Gupta	Dy. General Manager	8447738501
4.	Sh. Ram Bhaj	APM.	

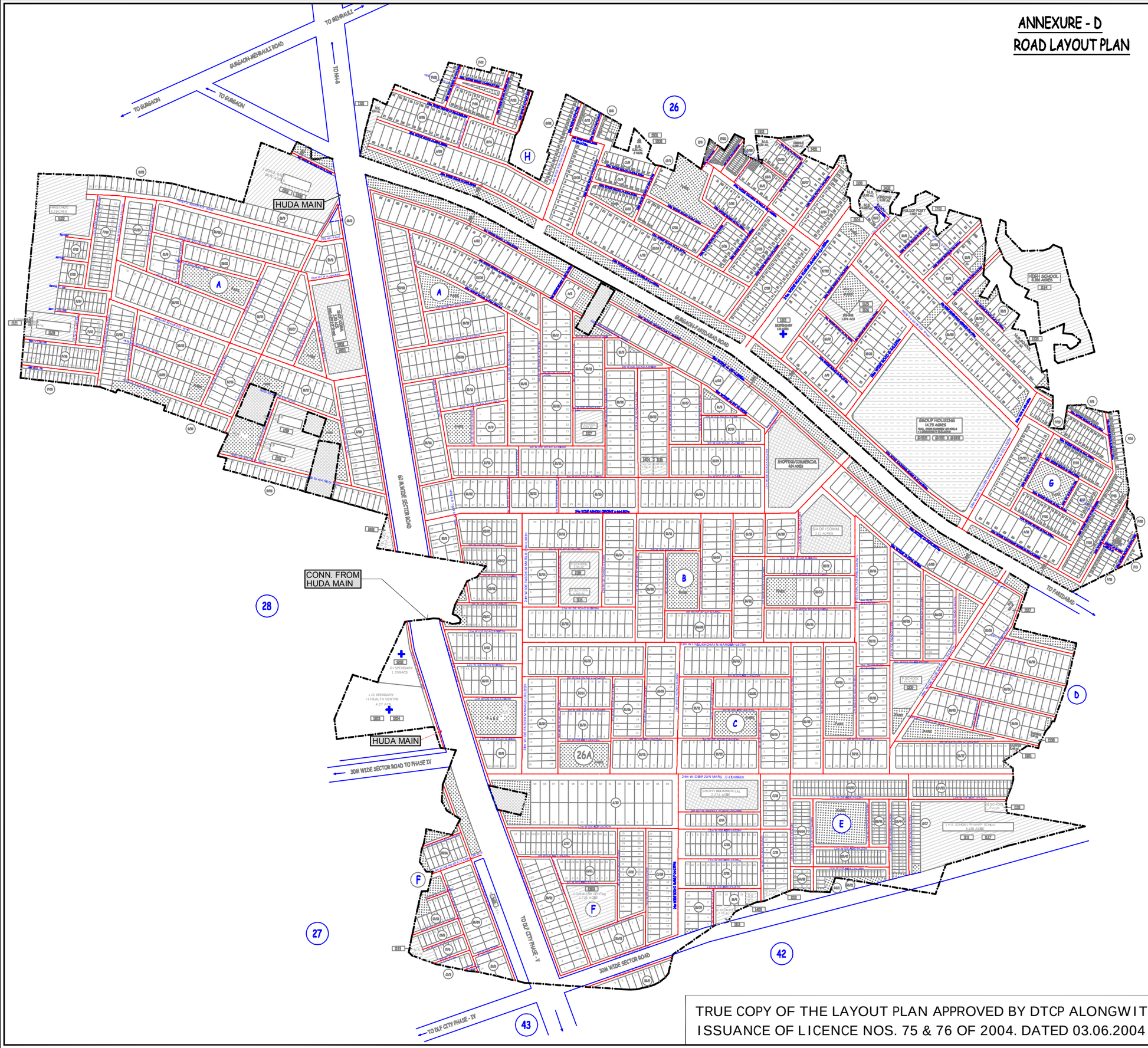
DLF Ltd. :—

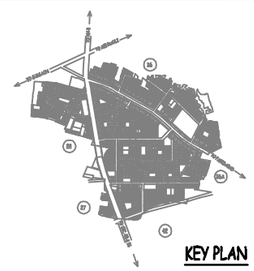
1. Dharamvir — DLF PH I — 9811094854 —

ANNEXURE-D (EXISTING ROAD PLAN)

ANNEXURE - D
ROAD LAYOUT PLAN

DLF
BUILDING INDIA





KEY PLAN

LEGEND:-

ROAD PLAN

ROAD LAY-OUT PLAN

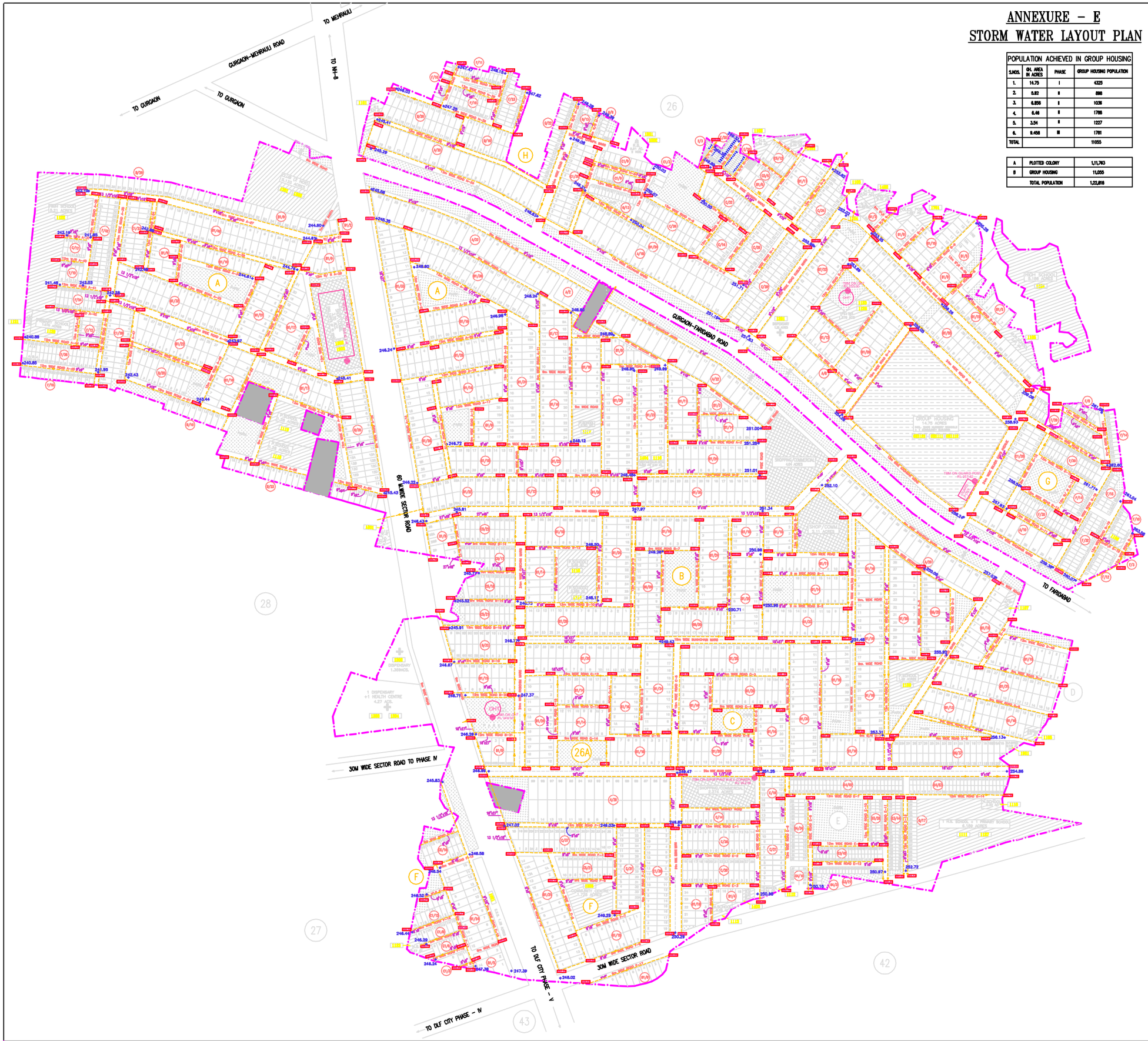
CHECKED BY	N	APPROVED BY
SCALE : 1:2500	DATE : MAY, 2017	DWG.NO. R-02

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

REVISED LAYOUT PLAN
DLF CITY PHASE-I, GURGAON.

ANNEXURE-E (EXISTING DRAINAGE)

ANNEXURE – E
STORM WATER LAYOUT PLAN



POPULATION ACHIEVED IN GROUP HOUSING

S.NOS.	GH. AREA IN ACRES	PHASE	GROUP HOUSING POPULATION
1.	14.75	I	4325
2.	0.82	II	896
3.	6.858	II	1038
4.	6.46	II	1766
5.	3.54	II	1227
6.	9.458	III	1781
TOTAL			11055

A	PLOTTED COLONY	1,11,763
B	GROUP HOUSING	11,055
	TOTAL POPULATION	1,22,818

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	48.00	855.00	152	129960.00	111	94905.00	42	35910.00	305	260775.00
A2	18.00	45.00	810.00	–	–	–	–	12	9720.00	12	9720.00
A3	18.00	40.00	720.00	–	–	–	–	12	8640.00	12	8640.00
A1	15.00	38.00	570.00	–	–	68	38760.00	–	–	68	38760.00
B2	13.50	35.00	472.50	–	–	58	27405.00	–	–	58	27405.00
B7	16.575	27.15	450.01	22	9900.24	–	–	–	–	22	9900.24
B6	13.00	32.50	422.50	–	–	–	–	28	11830.00	28	11830.00
B1	15.00	28.00	420.00	1707	716940.00	327	137340.00	646	271320.00	2680	1125600.00
B	12.00	28.00	336.00	181	60816.00	609	204624.00	235	78960.00	1025	344400.00
B5	12.00	25.00	300.00	110	33000.00	–	–	–	–	110	33000.00
C8	12.575	21.00	264.08	–	–	69	18225.52	–	–	69	18225.52
C1	11.00	24.00	264.00	200	52800.00	231	60984.00	716	188924.00	1147	302808.00
C	10.44	24.00	250.58	329	82434.34	758	189924.48	–	–	1087	272358.72
C5	10.00	22.50	225.00	133	29925.00	–	–	111	24975.00	244	54900.00
D	10.00	21.00	210.00	–	–	358	75180.00	–	–	358	75180.00
D1	8.88	21.00	179.76	–	–	340	61118.40	20	8888	360	70006.40
F	8.25	20.27	167.23	423	70738.29	211	35285.53	–	–	634	106023.82
G1	8.00	17.08	136.68	–	–	–	–	202	27588.98	202	27588.98
G	7.333	17.08	125.10	63	7881.30	80	10008.00	–	–	143	17888.30
G8	8.60	18.96	125.07	–	–	–	–	291	36385.37	291	36385.37
G4	7.338	17.86	135.02	102	26953.14	–	–	–	–	102	26953.14
G3	6.50	14.62	91.13	133	12120.29	–	–	–	–	133	12120.29
E	4.00	12.50	50.00	–	–	–	–	698	34900.00	698	34900.00
E	4.00	12.50	50.00	43	2150.00	–	–	2426	121300.00	2469	123450.00
	TOTAL			3658	1228814.60	3220	953755.93	5469	859531.33	12347	3042205.86
	AREA IN ACRES				303.67		235.88		212.40		751.75

DETAILS OF AREAS

DESCRIPTION	PHASE-I	PHASE-II	PHASE-III	TOTAL	SAGE	
TOTAL AREA OF LAND	568.628	698.28	481.2825	1536.1505		
TO BE PLANNED LATER ON	–	–	1.6525	1.6525		
AREA UNDER GROUP HOUSING	14.760	22.843	9.46	47.063		
NET PLANNED AREA	573.878	463.417	450.15	1487.445		
AREA UNDER PLOTS	303.67	235.88	212.40	751.75	50.54 %	54.53 %
AREA UNDER SHOPPING/COMMERCIAL	11.624	8.181	38.70	58.485	3.90%	
TOTAL SALEBLE AREA	315.294	244.841	251.10	811.335		

DETAILS OF AREA UNDER SHOPPING /COMMERCIAL SITES

PHASE-I	3.20 + 2.11 + 2.274 + 4.04	= 11.624 ACS.
PHASE-II	0.27 + 5.78 + 1.161 + 1.95	= 9.161 ACS.
PHASE-III	33.37 + 0.328 + 1.152 + 0.20 + 3.65	= 38.70 ACS.
	TOTAL =	59.485 ACS.

DETAILS OF NEW PLOTS

TYPE	PHASE-I OLD	PHASE-I NEW	PHASE-I TOTAL	PHASE-II OLD	PHASE-II NEW	PHASE-II TOTAL	PHASE-III OLD	PHASE-III NEW	PHASE-III TOTAL	TOTAL OLD	TOTAL NEW	TOTAL TOTAL	SAGE
GENERAL	2701	–	2701	2228	5	2231	1686	5	1691	6612	10	6622	
N.P.H.L.	781	–	781	989		989	1352	–	1352	3122	–	3122	25.26 %
E.W.S.	176	–	176	–	–	–	2426	–	2426	2602	–	2602	21.07 %
TOTAL	3658	–	3658	3215	5	3220	5464	5	5469	12337	10	12347	

POPULATION ACHIEVED IN PLOTTED COLONY

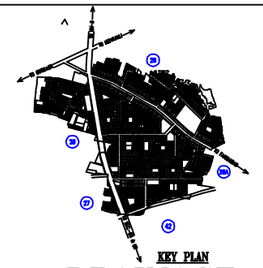
PHASE – I	(3616 X 9) + (42 X 13.5)	= 33111 PERSONS
PHASE – II	(3157 X 9) + (56 X 13.5) + (5 X 13.5)	= 29264 PERSONS
PHASE – III	(5432 X 9) + (32 X 13.5) + (5 X 13.5)	= 49388 PERSONS
TOTAL		= 111763 PERSONS

DETAILS OF INFRASTRUCTURE PROVIDED

S.NO.	DESCRIPTION	PHASE-I POSITED	PHASE-I SIX	PHASE-II POSITED	PHASE-II SIX	PHASE-III POSITED	PHASE-III SIX	TOTAL POSITED	TOTAL SIX	TOTAL PROVIDED	TOTAL REQ.
1	CRECHE	04	0	03	0	05	0	12	0	12	09
2	NURSERY SCHOOL	15	02	12	0	20	0	47	02	49	49
3	PRIMARY SCHOOL	09	0	06	0	11	0	25	0	25	15
4	HIGH SCHOOL	03	0	01	0	03	01	07	01	08	08
5	CLUB\COMM. CENTRE	03	01	02	0	02	0	07	01	08	08
6	DISPENSARY	03	0	01	0	04	0	08	0	08	09
7	HEALTH CENTRE	01	0	01	0	02	0	04	0	04	04
8	RELIGIOUS BUILDING	02	0	03	0	03	0	08	0	08	08
9	ELECTRIC SUB STATION	01	0	03	0	0	0	04	0	04	04
10	TEL. FACILITY\EXCHANGE	01	0	01	0	01	0	03	0	03	0
11	POLICE POST	01	0	01	0	02	0	04	0	04	04
12	SUB POST OFFICE	03	0	02	0	04	0	09	0	09	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 .....



DRAINAGE

FOR DLF UNIVERSAL LTD Authorised Signatory	N	ARCHITECT/TOWN PLANNER
SCALE : 1:2500	DATE : NOV, 2015	DWG.NO. R-09

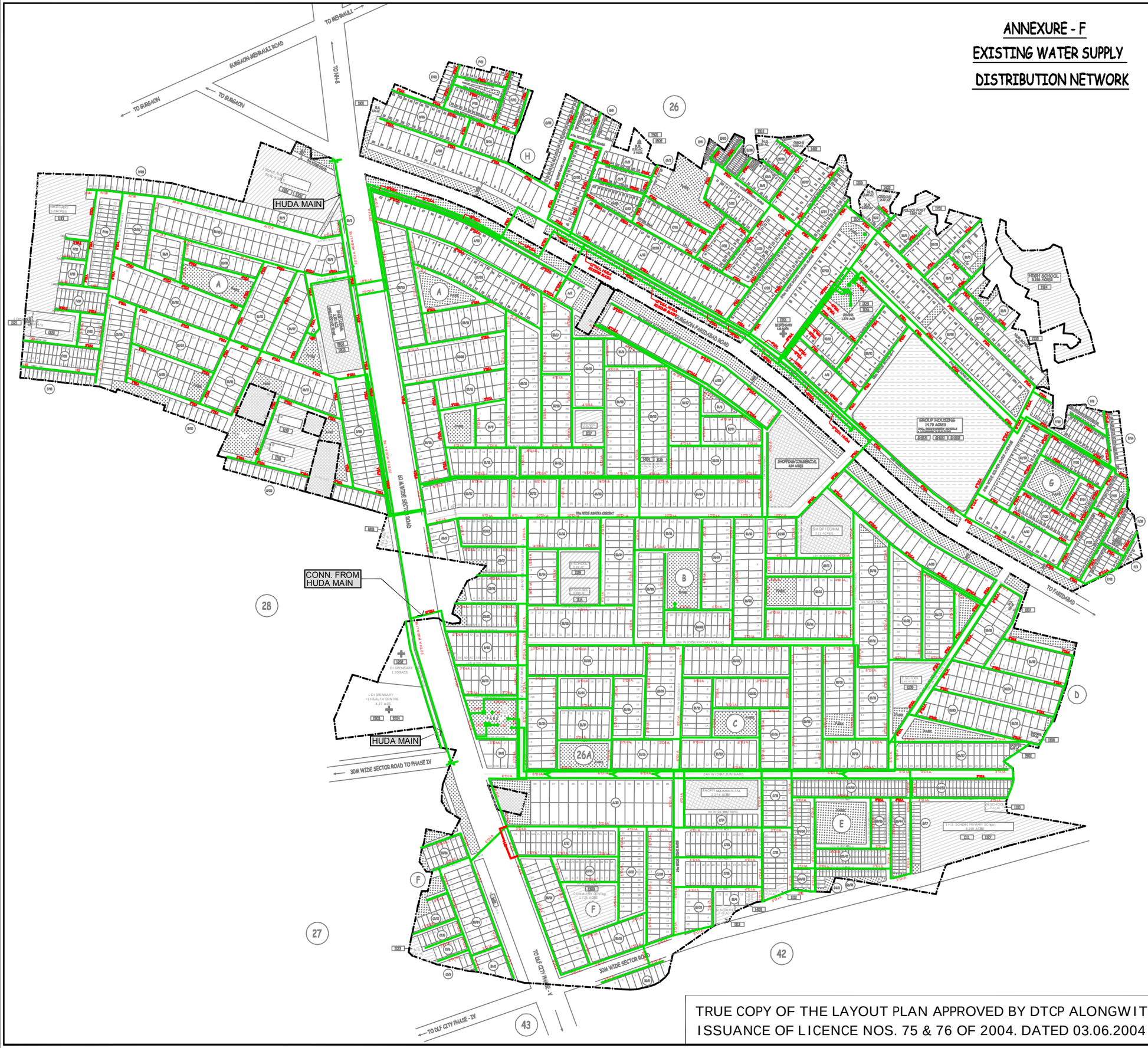
REVISED LAYOUT PLAN
DLF CITY PHASE-I, GURGAON.

ANNEXURE-F (EXISTING W/S)

ANNEXURE - F

EXISTING WATER SUPPLY DISTRIBUTION NETWORK

DLF BUILDING INDIA



KEY PLAN

LEGEND:-

WATER SUPPLY LINE

WATER SUPPLY LAY-OUT PLAN

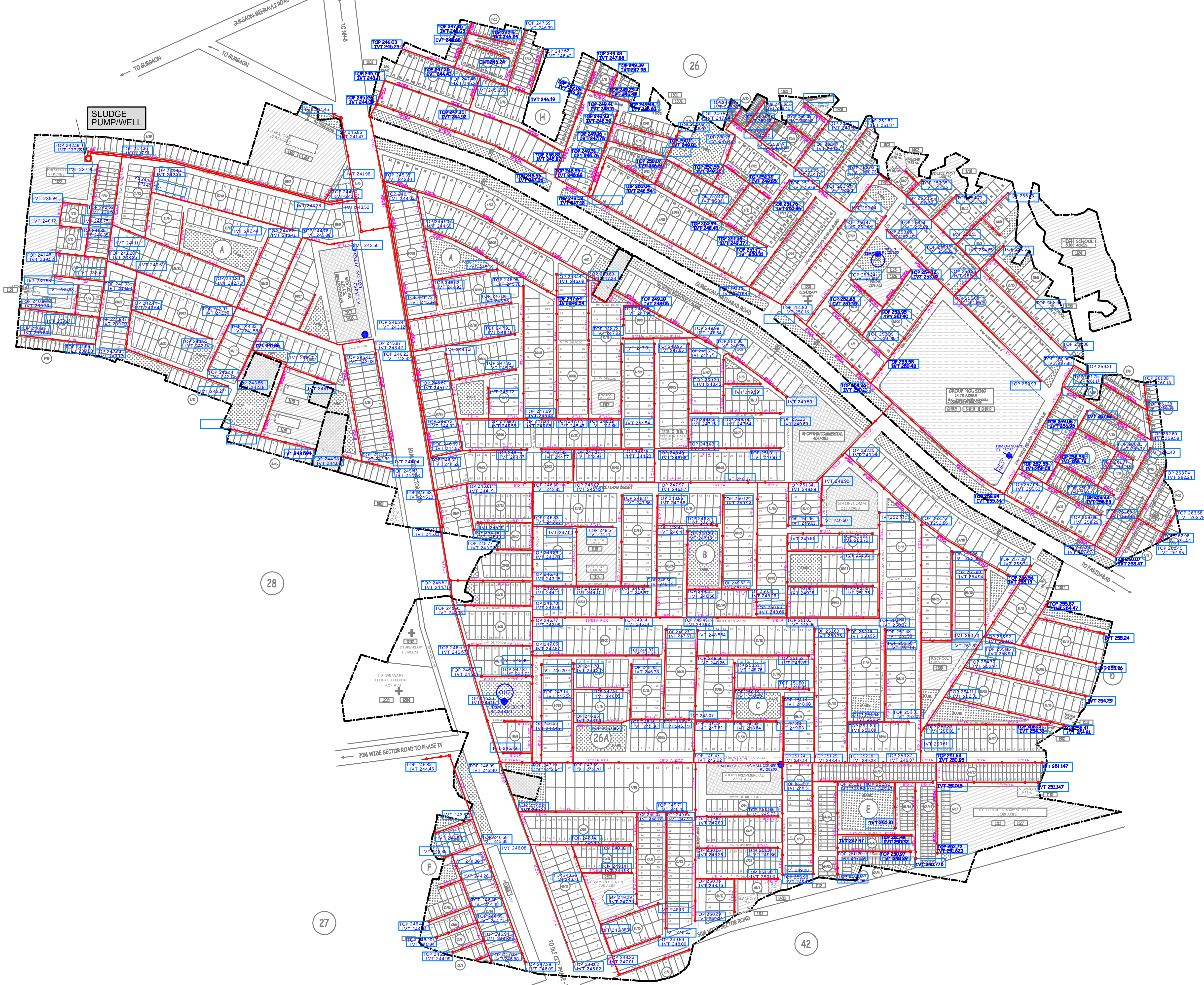
CHECKED BY	N	APPROVED BY
SCALE : 1:2500	DATE : MAY, 2017	DWG.NO. R-02

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

REVISED LAYOUT PLAN
DLF CITY PHASE-I, GURGAON.

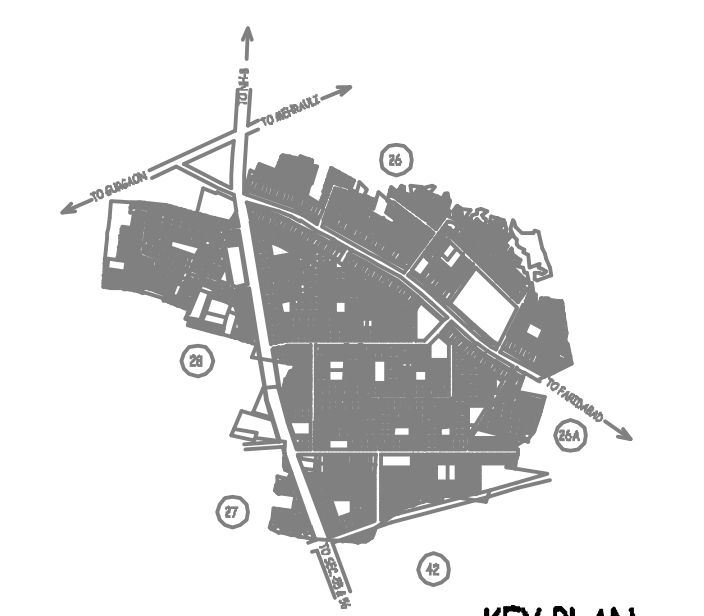
ANNEXURE-G (EXISTING SEWERAGE)

ANNEXURE - G



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

DLF BUILDING INDIA



KEY PLAN

LEGEND:-

SEWERAGE LINE

SEWERAGE LAY-OUT PLAN

CHECKED BY	N	APPROVED BY
SCALE : 1:2500	DATE : NOV, 2015	DWG.NO. R-02

REVISED LAYOUT PLAN

DLF CITY PHASE-I, GURGAON.

ANNEXURE-H (DETAILS REPRESENTATIVE)

G-Block Residential Community (GBRC)

To,
The Commissioner
MCG,

Dear Sir,

Greetings from G Block Residential Community. We are very happy that you are taking over the maintenance of DLF City phase1. At the outset we want to be informed that what will the scope of services to be provided by MCG.

There are two types of deficiencies which we want to bring to your notice. First is infrastructural deficiency and other is services which at present provided by DLF and then what is the gap where we have to pitch in:

INFRASTRUCTURAL DEFICIECY

1. Deficiency in power supply insufficient capacity of transformers due to which frequent going of power
2. The gap in the wall because of which lot of unauthorized entrance behind G 17
3. Road repairing and recarpeting
4. Augment waters supply which is very deficient
5. Plantation of trees in Green Belt and along the streets
6. Colony entrance gates and cabin for security personnel's
7. Augmentation of street lights
8. Maintenance of G block park.
9. Removable of unauthorized structures at the front of the colony.
10. Maintenance of parks

Services:

1. Garbage Collection and street sweeping
2. Water supply
3. Proper electricity supply and street lights
4. Security Cover.
5. Maintenance of colony and giving a complaint no and redressal mechanism

Dr P.K.Goel

Anil Mehra President

E-BLOCK RESIDENTS WELFARE ASSOCIATION[Regd]
(Registered under the Haryana Registration & Regulation of Societies Act No. 1 of 2012, No.HR-018-2016-02578)
Registered Office: E-B/7, DLF PHASE-1, GURGAON-122002
Contact No. 9868517959 / 9999890998 , E-Mail: ebrwadlf1@gmail.com

30th 2017

To Commissioner MCG, through
CC: K.Y. Consultants

Sub : Points which have to be noticed before handover from DLF to MCG

Respected Sir,

Kindly note we seek answers to the following points which to our wisdom are necessary for working out the deficiencies.

In 1985 this colony was developed. The services and infrastructure were laid during that period. It has already lived its useful life span of 30 years, therefore all the services are to be re-laid or improved as per the guide lines prescribed in the CPHEEO manual of the Government of India.

Similarly the E&M equipment in the booster stations has a life of 15 years, these equipments also need to be replaced with efficient and energy saving equipment.

We would like to understand, as per the master plan for the colony, the colony was developed for certain population, it needs to be verified, if the design at the initial stage has considered the holding capacity of the DLF phase 1. If not the services are required to be upgraded on holding capacity of the phase-1.

Also the following points seek attention and clarification for the following deficiencies:

- As per population 156 ltrs per head is to be provided which includes 135 ltrs on tap, 15% water loss and rest for fire emergency. Is this requirement being met?
- Do we have the required storage capacity for domestic as well as for fire requirements?
- What are the measures are taken to control the sewerage problems? The sewer system frequently gets chocked causing overflow on road.
- What is the solution for erratic water supply situation?
- When were the roads last repaired and carpeted?
- What are the reasons for flooding of the area during rainy season? Do we have the required size of drain and its outfall into the main drain?
- There is no dispensary, schools, religious sites, clubs, parks, etc. in the DLF are which was otherwise a part of the original development plan.

We seek your clarifications and answers to the above points.

Sincerely,

Savita Choudhary.

Savita Choudhary
President - EBRWA

Signed By:
1. Rajan - A-Block
2. Rahul Chadda. (GBRC)
3. V. Seth, A Block
4. Anil Mehra G-Block
5. DR - P. K. Goel G-Block

22-6-17

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

PROGRESSIVE RESIDENTS WELFARE SOCIETY
A-5 /3, PHASE I, DLF CITY, GURGAON, HARYANA 122
TEL : 9582336313 E-MAIL : privshiv@rediffmail.com

The Municipal Commissioner,
Municipal Corporation.
Gurgaon.

22-06-2017

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 We Society (Regd.).

Sir,
In the last meeting held on 16.5.17 in your office, called to discuss the takeover program of Licensed Colonies, Block A, DLF Ph-1,2,3, both the above Associations jointly submitted their willingness to maint 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 su of the area, Block wise, and note down the deficiencies of the colonizer, namely DLF, besides submitting t additional requirements of the Blocks now needed. The Consultants were to contact the respective and A RWA's in this regard. We had then submitted our representation alongwith contact details so that we coul 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 Reside 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 the unilateral decision taken by the higher authorities in DLF which permitted a full fledged school to come by the name of KUNSKAPPSKALON School, and which has become a grave hazard to the Block's residen The school is situated at the dead end of the Block with only the same entry and exit points. Just imagine t plight of the residents when the narrow lanes have to take the burden of 300 cars and 20 big buses coming and out every day. Besides there are buses of other schools also.

Our block's sewerage is also not connected to the main sewer line at MG road (following the natural slope) i is instead pumped uphill for half a kilometre before reaching the main sewer line on the sector road. This is 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 DL 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 pertinent 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

1) Illegal Tempo Stand
2) Mega Mall parking / Temple Blocking Traffic.
3) Sewage not connected / Water logging at end of Block / No outlet
4) MG Road Central Verge
5) School Traffic / Maintenance of Roads - poor / Bad Security System
6) Club not constructed (commercial, non-commercial)
7) Fragile Electrical System (Breakdown in Rains)
8) Stray dog menace
9) Empty School Plots - 3 (appreciation, Standard)

Vinish Aggarwal, yyn @gmail

Sukhbir Singh Chauhan
STP-MCG
7.1.01.7998
SIP@MCG.gov.in
12 pm - WED

KY Consultants
8447738501
Town Planner

Old issues - Sewage not connected (Pumped Back)
water logging no access for rain water (western sewage)
Club build then shifted (commercial/non-com) need of sump that seeps in the rain
Fragile Electrical System (Rain) generators
Kuss. School rude in Park & res. houses. - traffic
KY Consultants - not met us, but met DLF.
Bad roads - Tempo Stand, Mega Mall parking, Temple Blocking (no towering vehicles)
(impossible Security System)
3 empty School plots vacant for
MG Road central Verge
water (rain in Park) & supply get ?
please take over.

Dt. 30/6/17
Meeting with - Consultants

HBRC
H-BLOCK RESIDENTIAL COMMUNITY

(Regd. under Societies Registration Act of 1860, Registration No.: DR/GGN/126)
Registered Office: H 3/16 SF, DLF Phase 1, Gurgaon, Haryana 122002
Tel: 9810843278, 9811050731

For the Attention of MCG Commissioner
(Through the Consultants)

Sub: **Infrastructural Deficiencies in H Block, DLF Phase I Area**

Ref: Meeting with the Consultants at F Block Community Centre on 30th June 2017

H Block has nearly 300 households. There are several empty plots yet to be built. There are several commercial activities like guest houses, food kitchens, courier services etc. are being carried out here, which are legally not allowed. Our internal roads are heavily used by these commercial operations. These operations do not pay maintenance charges that ought to be charged as commercial activities. These establishments are also higher users of utilities like water, electricity etc. Electricity transformers in the residential area cannot meet the requirements of heavy commercial use and therefore there are frequent breakdowns causing serious inconveniences to the residents.

Following are infrastructural and civic amenities deficiencies that are constantly affecting our normal living. These infrastructural deficiencies need to be removed urgently.

1. Most internal roads need major recarpeting. Repairs and patchwork will not serve the purpose.
2. Storm water drainage is almost non-existent causing waterlogging during the monsoon.
3. Sidewalks are not paved at all. Without proper sidewalks, residents find it extremely unsafe to walk.
4. Unpaved sidewalks are a major cause of dust pollution.
5. H Block has more than 5 entry points (unofficial) from the adjacent Sikenderpur village which ae not part of the approved plan. Too many entry points are a major cause of security hazard including movement unsocial elements. Entry points need to be restricted to 1 or 2.
6. Our parks are not maintained properly.
7. There is serious waterlogging on Kachnar Marg and the adjacent greenbelt because of unmanaged gradient/slope.
8. Commercial activities are not legally allowed in residential areas. These operations must be shut down and only those which are legitimately allowed in a residential area as per HUDA/MCG notifications be permitted to operate.
9. Electricity transformers and cables must meet the sanctioned load for the area to avoid frequent breakdowns.
10. Trees need to the trimmed regularly to avoid damage to electricity cables and also for proper street lighting.

RWA urges MCG to address the above issues and deficiencies before considering taking over from DLF

With thanks

Parimal Bardhan
(President) 30/6/17
9810843278

Rahul Chandola
(Secretary)
9811050731

Sanjay Charabarty
(Treasurer)
9871693353

Annexure-I
Meeting with Consultants 7th

HBRC
H-BLOCK RESIDENTIAL COMMUNITY

(Regd. under Societies Registration Act of 1860, Registration No.: DR/GGN/126)
Registered Office: H 3/16 SF, DLF Phase 1, Gurgaon, Haryana 122002
Tel: 9810843278, 9811050731

For the Attention of MCG Commissioner
(Through the Consultants)

Sub: **Infrastructural Deficiencies in H Block, DLF Phase I Area**

Ref: 2nd Meeting with the Consultants at F Block Community Centre on 07th July 2017

H Block has nearly 300 households. There are several empty plots yet to be built. There are several commercial activities like guest houses, food kitchens, courier services etc. are being carried out here, which are legally not allowed. Our internal roads are heavily used by these commercial operations. These operations do not pay maintenance charges that ought to be charged as commercial activities. These establishments are also higher users of utilities like water, electricity etc. Electricity transformers in the residential area cannot meet the requirements of heavy commercial use and therefore there are frequent breakdowns causing serious inconveniences to the residents.

Following are infrastructural and civic amenities deficiencies that are constantly affecting our normal living. These infrastructural deficiencies need to be removed urgently.

1. Most internal roads need major recarpeting. Repairs and patchwork will not serve the purpose.
2. Storm water drainage is almost non-existent causing waterlogging during the monsoon.
3. Roads and drains needs re-design to enable flow of water during rains, for example near Gate #1, H-35lane etc.
4. There is serious waterlogging on Kachnar Marg and the adjacent greenbelt because of unmanaged gradient/slope.
5. Sidewalks are not paved at all. Without proper sidewalks, residents find it extremely unsafe to walk.
6. Unpaved sidewalks are a major cause of dust pollution.
7. H Block has more than 5 entry points (unofficial) from the adjacent Sikanderpur village which are not part of the approved plan. Too many entry points are a major cause of security hazard including movement unsocial elements. Entry points need to be restricted to 1 or 2.
8. Additional internal gating systems and access control infrastructure is needed for the security of H Block.
9. Access to Gurudwara is currently through H Block, causing traffic concerns and related issues for residents. A proper infrastructure to enable access, parking, crowd management etc is required, which would not burden the residents of H Block.
10. Our parks are not maintained properly. This is partly due to high access from non residents. This denies proper place for residents, young and old, to enjoy the limited open spaces.
11. Commercial activities are not legally allowed in residential areas. These operations must be shut down and only those which are legitimately allowed in a residential area as per HUDA/MCG notifications be permitted to operate. Electricity, water and access amenities need to be balanced accordingly so that residents are not made to suffer.
12. Electricity transformers and cables must meet the sanctioned load for the area, current and proposed, to avoid frequent breakdowns. Every instance of strong winds, medium to heavy rains lead to long breakdowns of power supply
13. Trees need to the trimmed regularly to avoid damage to electricity cables and also for proper street lighting.
14. Trees also need to be trimmed in a balanced manner to prevent becoming top heavy and then collapsing on residences, vehicles and passers by.

DLF, First Floor, Shopping Mall, Arjun Marg, DLF City I, Gurgaon-122002 (Haryana) (India)
0124- 5018058, 4060044
dlfcityrwa1@gmail.com
dlfcityrwa@rediffmail.com
www.dlfcityrwa.in

July 7, 2017

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

Dear Sir,

The DLF City RWA with an audited membership base of approx. 8000 members, is the single largest Resident Body in Gurugram. We are the only RWA, which has its umbrella office (as above) and FIVE Registered Affiliates in DLF Phases I to V. Details are annexed.

Our affiliates look after respective DLF Phases and assist in rendering Maintenance Services currently rendered by DLF Estate Developers Ltd. (DEDL) our Service Providers.

We are aware of the prospective hand over of DLF Phases I, II and III to MCG as also your appointment as Consultants and would like to assure you of our support in this initiative.

Our set up in DLF City is aimed to assist in rendition of services in each Phase where a professionally managed organizational outfit already exists.

Looking forward to working together.

Regards,

J.S. Dhamija
President

Encl: a/a

Sudhir Kapoor
Society General

15. The infrastructure is not friendly for ease of maintaining clean environment on daily, regular basis. This should be improved from occupied, empty and under construction plots perspective.
16. Suitable fencing of perimeters is a must for security of the colony. The rear of H Block i(North side)* is unsecured and both human and animal access is uncontrolled.
17. With great difficulty, the Faridabad road cross over to the Qutb Plaza Market was provided with a traffic light, a overhead walkover bridge, and street lights on the Faridabad Road. Unfortunately, the traffic and street lights do not function most of the time. And the overhead bridge is an incomplete eyesore, which should either be immediately be completed and commissioned, or brought down and the proceeds of the sale of iron used for H Block security enhancement.
18. The rain and waste water flow in the 'nullah' behind H Block has got blocked and is now rapidly becoming a sewage pond. This needs to be controlled to prevent a major health hazard from developing.

* adjacent to Champa Market

RWA urges MCG to address the above issues and deficiencies before considering taking over from DLF.

With thanks

Parimal Bardhan
(President) *9810843278*

Rahul Chandola
(Secretary) *9811050731*

Sanjay Charabarty
(Treasurer) *9871693353*

Rahul Goswami
(Member) *9810079410*

DLF City Residents' Welfare Association (Regd.)
D-143, First Floor, Shopping Mall, Arjun Marg, DLF City - I, Gurgaon-122002 (INDIA)
Phone: 0124-2561888, 4055094, Email: dlfcityrwa@rediffmail.com, Website: www.dlfcityrwa.in

July 7, 2017

M/s I Y Consultants Pvt. Ltd.
303-304, DLF Star Tower,
Sector 30, Gurugram.

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We are aware of the prospective handover of DLF Phases I, II and III to MCG as also your appointment as 'Consultants' and would like to assure you of our support in this activity.

Our set up in DLF City is aimed to assist in rendition of services in each Phase where a professionally managed organizational outfit already exists.

Looking forward to working together.

Regards,

Yours faithfully,

J.S. Dhamija
President

Bhir Kapoor,
Secretary General

Enclosure: As above

DLF CITY RESIDENTS' WELFARE ASSOCIATION (Regd.)
D-143, First Floor, Shopping Mall, Arjun Marg, DLF City - I, Gurgaon-122002 (INDIA)
Phone: 0124-2561888, 4055094, Email: dlfcityrwa@rediffmail.com, Website: www.dlfcityrwa.in

J.S. DHAMIJA
President

D.B. ANAND
Vice President

CIRCULAR

August 13, 2017

Dear Residents,

We are pleased to inform details of the Association (Establishment) Committees of the respective phases of DLF City Federation affiliated to the DLF City RWA.

PHASE - 1

S. No.	Name	Address	Designation	Contact #
1.	D.B. Anand	H-208/12, DLF City, Phase I	President	9810897008
2.	R.K. Nijhawan	208/26, DLF City, Phase I	Secretary	9810052169
3.	[illegible]	A-56/10, DLF City, Phase I	Treasurer	9810122130
4.	H.S. Chopra	F-62/28, DLF City, Phase I	Member	9899140166
5.	Col. Prabhat Nath	G-19/06, DLF City, Phase I	Member	9810028264
6.	Darjit Singh Gill	G-03/04, DLF City, Phase I	Member	9810039806
7.	Harpreet S. Chhabra	25, Amalia Marg, DLF City, Phase I	Member	9810210222
8.	Mahendra Kumar Jain	A-57/01, DLF City, Phase I	Member	9810411659
9.	Sudhakar Verma	A-57/10, DLF City, Phase I	Member	9811054994

PHASE - 2

S. No.	Name	Address	Designation	Contact #
1.	B.R. Wassan	M-10/D, DLF City, Phase II	President	9818147689
2.	Devinder Dass Chopra	E-D/D, DLF City, Phase II	Secretary	9810338049
3.	Naresh Kantoor	P-7/3, DLF City, Phase II	Treasurer	9871693000
4.	Arjan Singh Sandhu	N-05/07, DLF City, Phase II	Member	9810062806
5.	Harsh Narang	S-1, Madhya Marg, DLF City, Phase II	Member	9811120963
6.	A.M. Berry	M-14/40, DLF City, Phase II	Member	9811043523
7.	Col. (Lt.) Bora Singh	A-012, Oakwood Estate, DLF Phase II	Member	9810083069

PHASE - 3

S. No.	Name	Address	Designation	Contact #
1.	K. Sharma	V-3, Wood Land, DLF City, Phase III	President	9810078031
2.	S. Bindra	W-06/1, DLF City, Phase I	Secretary	9810162999
3.	S. Tikwani	V-03/15, DLF City, Phase III	Treasurer	9810192757
4.	S. Ghosh Dastidar	W-30/1, DLF City, Phase III	Member	9910502106
5.	U.N. Gupta	40, Moulsa[illegible], DLF City, Ph[illegible]	Member	9870118036
6.	[illegible]	[illegible] DLF City, Ph[illegible]	Member	98 10288527
7.	[illegible] Bimla Khemka	V-[illegible], DLF City, Ph[illegible]	Member	9811063388

To find out more ways on how you can help improve community
please contact 0124-2561888/4055094 or visit us at www.dlfcityrwa.in

DLF CITY RESIDENTS' WELFARE ASSOCIATION (Regd.)
D-143, First Floor, Shopping Mall, Arjun Marg, DLF City-1, Gurgaon-122002 (NCR)
Phone: 0124-2561888, 4055094, Email: dlfcityrwa@rediffmail.com, website: www.dlfcityrwa.in

J.S. DHAMIJA
President

CIRCULAR

D.B. ANAND
Vice President

Dear Residents,

August 23, 2016

We are pleased to inform details of the recently established teams of the respective phases of DLF City Federations affiliated to the DLF City RWA.

PHASE - 1

S. No.	Name	Address	Designation	Contact #
1.	D.B. Anand	B-08/12, DLF City, Phase I	President	9818697065
2.	R.K. Jain	A-48/20, DLF City, Phase I	Secretary	9811065166
3.	P.N. Piplani	A-56/10, DLF City, Phase I	Treasurer	9818424130
4.	H.N. Chopra	B-02/28, DLF City, Phase I	Member	9859140100
5.	Col. Prithvi Nath	C-19/06, DLF City, Phase I	Member	9811025254
6.	Harjit Singh Gill	C-03/04, DLF City, Phase I	Member	9810039388
7.	Harpreet S. Chhabra	29, Amaltas Marg, DLF City, Phase I	Member	9810210222
8.	Mahendra Kumar Jain	A-57/01, DLF City, Phase I	Member	9810431529
9.	Sudhakar Verma	A-54/10, DLF City, Phase I	Member	9811054934

PHASE - 2

S. No.	Name	Address	Designation	Contact #
1.	B.R. Wassan	M-05/01, DLF City, Phase II	President	9818137683
2.	Devinder Dass Chopra	L-30/08, DLF City, Phase II	Secretary	9810338049
3.	Naresh Kantoor	P-01/68, DLF City, Phase II	Treasurer	9871693007
4.	Arjan Singh Sandhu	N-05/07, DLF City, Phase II	Member	9810062505
5.	Harsh Narang	55, Madhya Marg, DLF City, Phase II	Member	9811120066
6.	A.M. Berry	M-14/40, DLF City, Phase II	Member	9811043523
7.	Cmdr. Hitendra Singh	A-012, Oakwood Estate, DLF Phase II	Member	9810083661

PHASE - 3

S. No.	Name	Address	Designation	Contact #
1.	S.K. Sharma	V-30/04, DLF City, Phase III	President	9810870033
2.	S.S. Bindra	W-06/20, DLF City, Phase III	Secretary	9810161969
3.	S.R. Tilwali	V-03/15, DLF City, Phase III	Treasurer	9810192752
4.	S.P. Ghosh Dastidar	W-06/30, DLF City, Phase III	Member	9910597766
5.	Uppi Nagpal	40, Mouliari Avenue, DLF Phase III	Member	9810113038
6.	R.P. Mungal	51, Sirifort Road, DLF City, Phase III	Member	9810283577
7.	Ranjan Loomba	V-09/07, DLF City, Phase III	Member	9811063388

To find out more ways on how you can help improve community
please contact 0124-2561888 / 4055094 or visit us at: www.dlfcityrwa.in

DLF CITY RESIDENTS' WELFARE ASSOCIATION (Regd.)
D-143, First Floor, Shopping Mall, Arjun Marg, DLF City-1, Gurgaon-122002 (NCR)
Phone: 0124-2561888, 4055094, Email: dlfcityrwa@rediffmail.com, website: www.dlfcityrwa.in

J.S. DHAMIJA
President

CIRCULAR

D.B. ANAND
Vice President

Dear Residents,

August 23, 2016

We are pleased to inform details of the recently established teams of the respective phases of DLF City Federations affiliated to the DLF City RWA.

PHASE - 1

S. No.	Name	Address	Designation	Contact #
1.	D.B. Anand	B-08/12, DLF City, Phase I	President	9818697065
2.	R.K. Jain	A-48/20, DLF City, Phase I	Secretary	9811065166
3.	P.N. Piplani	A-56/10, DLF City, Phase I	Treasurer	9818424130
4.	H.N. Chopra	B-02/28, DLF City, Phase I	Member	9859140100
5.	Col. Prithvi Nath	C-19/06, DLF City, Phase I	Member	9811025254
6.	Harjit Singh Gill	C-03/04, DLF City, Phase I	Member	9810039388
7.	Harpreet S. Chhabra	29, Amaltas Marg, DLF City, Phase I	Member	9810210222
8.	Mahendra Kumar Jain	A-57/01, DLF City, Phase I	Member	9810431529
9.	Sudhakar Verma	A-54/10, DLF City, Phase I	Member	9811054934

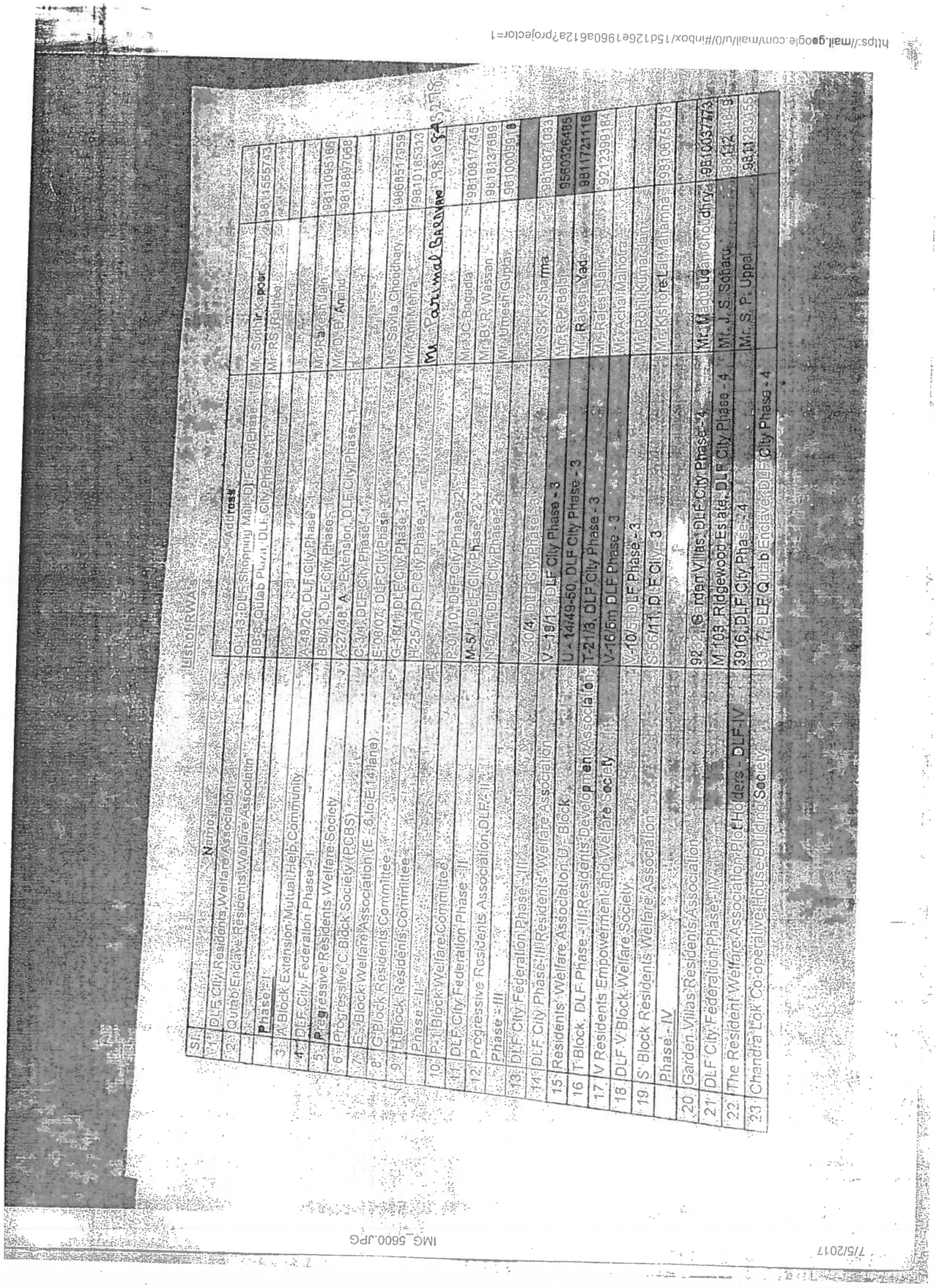
PHASE - 2

S. No.	Name	Address	Designation	Contact #
1.	B.R. Wassan	M-05/01, DLF City, Phase II	President	9818137683
2.	Devinder Dass Chopra	L-30/08, DLF City, Phase II	Secretary	9810338049
3.	Naresh Kantoor	P-01/68, DLF City, Phase II	Treasurer	9871693007
4.	Arjan Singh Sandhu	N-05/07, DLF City, Phase II	Member	9810062505
5.	Harsh Narang	55, Madhya Marg, DLF City, Phase II	Member	9811120066
6.	A.M. Berry	M-14/40, DLF City, Phase II	Member	9811043523
7.	Cmdr. Hitendra Singh	A-012, Oakwood Estate, DLF Phase II	Member	9810083661

PHASE - 3

S. No.	Name	Address	Designation	Contact #
1.	S.K. Sharma	V-30/04, DLF City, Phase III	President	9810870033
2.	S.S. Bindra	W-06/20, DLF City, Phase III	Secretary	9810161969
3.	S.R. Tilwali	V-03/15, DLF City, Phase III	Treasurer	9810192752
4.	S.P. Ghosh Dastidar	W-06/30, DLF City, Phase III	Member	9910597766
5.	Uppi Nagpal	40, Mouliari Avenue, DLF Phase III	Member	9810113038
6.	R.P. Mungal	51, Sirifort Road, DLF City, Phase III	Member	9810283577
7.	Ranjan Loomba	V-09/07, DLF City, Phase III	Member	9811063388

To find out more ways on how you can help improve community
please contact 0124-2561888 / 4055094 or visit us at: www.dlfcityrwa.in



Ky Consultants Pvt. Ltd.
72-P, Sector-40, Gurgaon-122001
Tel. : +91-124-4034715
Fax. : +91-124-4034714
E-mail : contactus@kyconsultants.in
Website : www.kyconsultants.in
CIN No. : U74140DL2007PTC171114

KY CONSULTANTS PVT. LTD.
303-304, DLF Star Tower,
Sector-30, Silokhera Gurgaon

No.Ky/F-43/747-767 Dated:05.07.2017

All Residents Welfare Associations,
DLF Phase-I, Gurugram

Subject: Meeting regarding discussion on transfer of Licensed colonies to MCG for Maintenance : Working out deficiencies in the infrastructure DLF Phase-I.

Sir,

A meeting was held on 30.06.2017 in Community Center of Block-F, DLF Phase-I, Gurugram for discussion on the subject cited above. In this meeting all the RWAs of Phase-I could not participate. In order that all the Resident Welfare Associations may submit their points, it has been decided that the final meeting will be held on 07.07.2017 at 11.00 A.M. in Community Center of Block-F, DLF Phase-I, Gurugram.

This will be last and final meeting and no further opportunity shall be given to any Resident Welfare Association of DLF Phase-I to explain their grievances, as the Municipal Corporation, Gurugram is pressing hard for submission of DPR immediately.

It is, therefore, once again requested that all the Resident Welfare Associations of all Block of DLF Phase-I may attend the meeting and co-operate with us

With regards,

Yours Truly,
For Ky Consultants Pvt. Ltd.,
(S.K. GUPTA)
Dy. General Manager

CC
1.. P.A. to Commissioner, for kind information of Commissioner, Municipal Corporation, Gurugrom
2. The Chief Engineer, Municipal Corporation, Gurugram for information.
3. The Superintending Engineer, Municipal Corporation, Gurugram for information.
4. The Executive Engineer-VIII, Municipal Corporation, Gurugram for attending the meeting on the said date and time.

A-BLOCK EXT. RESIDENT WELFARE ASSOCIATION (Regd)

1.7.2017

CE.
May check with consultant
3/7/17

Shri Umashankar ji,IAS,
Commissioner,
Municipal Corporation of Gurugram
Sector 34, GURUGRAM.

Subject: Regarding Transfer of Licensed colonies to MCG for Maintenance; Working out deficiencies in the infrastructure DLF Phase-1

Dear Sir,

Points considered and discussed in meeting held on 30-6-17 at Community Centre DLF Ph-1 Gurgaon between RWA's of DLF Ph-1, namely A-Block Extn, E Block G Block and H Block, and representatives of K Y Consultants appointed by MCG Commissioner, Gurgaon for takeover of Coloniser area especially DLF PH-1,2,3 .

The meeting was called as per telephonic communication received by Mr Rakesh Jain ,(Secretary, ABEMHC) on 29-6-17 from Mr. Gupta of K Y Consultants. Since communication was at short notice only 4 RWA's could participate out of 9 Blocks RWA's.

Present were 16 persons including Mr Gupta. The representation was 5 from K Y Consultants, 1 from MCG, 2 from DLF side, 8 from RWA's . Copy of attendance is enclosed sans Mr Gupta as he signed other papers on behalf of K Y consultants.

:First and foremost a representation was handed to K Y Consultants by the President of E-Block RWA. She raised the most important issue that the services and infrastructure laid 32 years back had already outlived its shelf life and therefore it was to be viewed /improved as per guide lines prescribed under CPHEEO manual of Govt. of India. Other details were highlighted in the memorandum to which the Consultants agreed to look into and report accordingly.

: Issues of A Block Extension.

Blocks Sewer line is not connected to main Sewer as a result whole sewer waste needs to be pumped back against Gravity in front of Mega Mall Main Line. Similarly in respect of rain water. For last several years there have been massive water logging in Lanes A-36, 40, and41 and sewer waste flow out whenever the pump breaks down. Power back –up to the pumps is provided by the Block RWA. Pumps installed last year are inadequate and also not commissioned at the right place. A person has to be present 24 hours to keep the sewer running and the water pump during rains. These are all temporary measures and no permanent solution has ever been created during last 30 years. After MCG takes over who will operate such pumps? RWA or MCG. Without a proper connection to Main Sewer line no OC or Completion Certificate be issued to the Developer. This is the most vociferous demand of A Block Extn. Above facts were shown to the Team of Consultants and since it had rained that day all water logging could be seen by them and the pathetic condition of the Residents. Required photographs were also taken by the Team.

There are 3 big School Sites (several acres of land) lying un- used for last many years, Even their boundary walls had collapsed with free entry for everyone. These places were habitually used for un lawful activities like people consuming liquor, hooliganism and other bad activities. About 2 years back a girl child was raped in one of these sites and got reported in news papers. Recently now these sites are being got repaired after the directions of take-over by MCG. All these sites were shown to the Team who also took photo graphs of the same and saw the fresh plastering going on.

As with other Blocks and as per norms our entire Block should have a boundary Wall demarcating the area from adjacent Chakkerpur Village or from other sites. The Block has 5 entries and guards are manning only 2 entries. One being Revenue Road is understandable but why the other 4 entries are not Gated nor Guarded. About a few months back an opening was permitted by DLF in A-44 lane and from here the villagers have installed their own Gate to go and come as per their wish. Residents objections were turned down. This be permanently closed as earlier.

At the fag end of the Revenue Road there is HUDA land as reported by DLF. This land is used for illegal Parking of Tempos and as well an illegal Temple has also been constructed on this Land. DLF or HUDA did not take any action despite many complaints in this matter by the residents to DLF and Huda. The entire area is a place of dirt and filth shown to the Team. This issue be resolved as to who owns this land and why it is lying neglected. Earlier DLF team had assured that this land will be turned into a proper road with the Rapid Metro road.

Just adjacent to this area is the place where once used to be The Gymkhana Club of DLF PH-1 and which was dismantled several years back and not constructed thereafter. At present this place is used as a Dump yard for storing loose soil. The quantity of soil stored reached a height of 25 feet and became a mountain. Even now such soil is a plenty leading to occasional dusty winds. Areas besides this area belonging to DLF are even now not properly barricaded. These be Done.

But there is no Club for DLF PH-1 residents and we all want that this site be re-developed into a public Club.

The internal roads of the Block have never been carpeted or re-laid in the last almost 20 years. Only patch work at a few places and Entries at Gates 8 and 9 were done. Each time the residents of the Block would be asked to prepare a list of roads requiring carpeting and each time we got the reply –Funds Shortage. As such roads have out lived their life and needs immediate and full carpeting.

DLF management gave a big area of land marked for Primary school on Lease to Manav Rachna which in turn established a Higher Secondary School by the name KUNSKAPPSKALON. This school is located at the end of the Block with no back Exit. The result is that the entire Block gets choked during school hours since almost 300 cars and 20 school buses enter and exit from the Block. The buses cannot even take a proper turn at bends. This Lease to school was given without taking the Residents confidence nor any ground work done to see what this nuisance will create in the long run. Measures suggested by the residents are not agreeable to the school, like using of shuttles service instead of cars etc. Since DLF is supporting this school they are not taking any measure to alleviate the grave problem.

Thus , the major issues raised by the residents through its RWA's before the Team of Consultants may kindly be in corporated in their DPR for A Block Extension.

Thanking you

Yours Truly

Rakesh Jain,
Hony Secretary A-Block Ext
9811095166
A-48/20 DLF I

E-BLOCK RESIDENTS WELFARE ASSOCIATION (Regd)

(Registered under the Haryana Registration & Regulation of Socities Act No.1 of 2012, No. HR-018-2016-02578)

Registered Office: E-8/7, DLF Phase-1, GURGAON-122002

Contact No. 9868517959 / 9999890998, E-Mail: ebrwadlf1@gmail.com

3.7.2017

CE.
May check with consultant
3/7/17

Shri Umashankar ji,IAS/ CEO GMDA,
Commissioner, -
Municipal Corporation of Gurugram
Sector 34, GURUGRAM.

Subject: **Regarding Transfer of Licensed colonies to MCG for Maintenance: Working out deficiencies in the infrastructure DLF Phase-1**

Dear Sir,

In continuation to this office letter dated 30th June 2017 to the consultant M/s KY Consultants, we wish to put forward some of the points for consideration for arriving at the justified and realistic deficiencies before the colony i.e. DLF Phase-1 is considered for taking over for future maintenance.

As we understand that working out of deficiencies is a tricky job and a proper process is to be followed for its desired output. The deficiencies in the system can therefore be worked in three major parts like:

1 Visual Deficiencies,
2 Physical deficiencies and
3 Technical deficiencies.

1. The visual deficiencies are those which could be seen and judged by walking along the area and looking at the shortcomings. In this category we can see conditions of road, drains, berms, road signage, accumulated debris, gates, railing, foot path, trees, tree guards, Electric poles, light, missing manhole covers, broken culverts, parapet walls, security gates and boundary wall around the residential area for security etc and many more.

2. The physical deficiencies could be non-implementing the approved infrastructural works like Schools, club, religious place, play ground for children, stadium, parks, parking place for market, green belt, approach road to the colony etc.

3. Third and the foremost important is the technical deficiencies. While the points mentioned at serial 1 and 2 can be identified by RWAs but the technical part can only be looked into by some technical expert. We assume with this in your mind, the consultant must have been appointed.

We have also consulted some experts to know the process of arriving at the exact deficiencies in the system. What has emerged out of meeting with the experts, we wish to share with your good office for consideration.

The services like water supply & sewerage are designed for the population which is likely to be accommodated in the particular area. The development plan for the colony is approved for certain population at the time of approval and with the projected population for the next 15-30 years depending upon the validity of the city Master plan. With this population, the services are designed and source of water is arranged/ identified as per the Guide Lines of CPHEEO manual issued by the Govt of India, MUD. We are sure that the above guide lines were followed while approving the master plan at that point of time. The said approval of plan and design of various services is the bench mark for working out deviation /deficiencies.

Based on the above approved design, the services laid then are to be verified now and the difference is recorded. For instance say water supply/ sewage services:

We need to check the availability and sustainability of the source of water and the mode of conveyance to the colony.

- The capacity of storage required vs available
- The pumping capacity required and available
- Size of water and sewage lines required and available.
- Conditional assessment of services like pipe, valves etc
- Conditional assessment of the pumping equipment
- Conditional assessment of the tanks
- Requirement of sections of the storm water drains VS available.

Roads:

- The roads sections, crest thickness needs to be verified as per design. To see if it is compatible with the present traffic volume.
- To verify other technical parameters of the designed section with what is available at site.
- Condition of top surface
- Road side drainage disposal
- Footpaths
- Refractive sign boards

Light and Street Lights:

- Required capacity of transformers.
- Cable size approved and available.
- Earthing stations
- Sub Stations
- Location of the street poles and street light as per approved illumination.

From the meeting with the consultant we got an impression that they are carrying out only visual inspection and taking note from a few pre-identified persons. Quite a few RWAs were neither informed nor consulted.

We also wish to bring it your notice that the life span of all the services is 30 years except for the electrical equipments which is 15 years. With this clause of CPHEEO manual, all the services need to be redesigned and re-laid.

We hope you will consider the above points before finalizing the quantum of deficiencies before taking over.

We are ready to help your office on the above issues if called for.

With regards,

Savita Choudhary.

Savita Choudhary
President
9868517959

E-BLOCK RESIDENTS WELFARE ASSOCIATION(Regd)

(Registered under the Haryana Registration & Regulation of Societies Act No. 1 of 2012, No.HR-018-2016-02578)
Registered Office: E-8/7, DLF PHASE-1, GURGAON-122002
Contact No. 9868517959 / 9999890998 , E-Mail: ebrwadlf1@gmail.com

Annexure – (1)

30th June 2017

To Commissioner MCG, Hrough
CC. K.Y. Consultants

Sub : Points which have to be noticed before handover from DLF to MCG

Respected Sir,

Kindly note we seek answers to the following points which to our wisdom are necessary for working out the deficiencies.

In 1985 this colony was developed. The services and infrastructure were laid during that period. It has already lived its useful life span of 30 years, therefore all the services are to be re-laid or improved as per the guide lines prescribed in the CPHEEO manual of the Government of India.

Similarly the E&M equipment in the booster stations has a life of 15 years, these equipments also need to be replaced with efficient and energy saving equipment.

We would like to understand, as per the master plan for the colony, the colony was developed for certain population, it needs to be verified, if the design at the initial stage has considered the holding capacity of the DLF phase 1. If not the services are required to be upgraded on holding capacity of the phase-1.

Also the following points seek attention and clarification for the following deficiencies:

- As per population 156 ltrs per head is to be provided which includes 135 ltrs on tap, 15% water loss and rest for fire emergency. Is this requirement being met?
- Do we have the required storage capacity for domestic as well as for fire requirements?
- What are the measures are taken to control the sewerage problems? The sewer system frequently gets chocked causing overflow on road.
- What is the solution for erratic water supply situation?
- When were the roads last repaired and carpeted?
- What are the reasons for flooding of the area during rainy season? Do we have the required size of drain and its outfall into the main drain?
- There is no dispensary, schools, religious sites, cults, parks, etc in the DLF are which was otherwise a part of the original development plan.

We seek your clarifications and answers to the above points.

Sincerely,

Savita Choudhary.

Savita Choudhary
President - EBRWA

Signed By.

1. Rajan – A-Block Secretary (ABE
2. Rahul Chadda HBRC,
3. V. Seth, A Block Exte PWRS)
4. Anup Mehra G-Block
5. DR - P.K. Goel G-Block

95415
22-6-17

Annexure – (2)

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

...SIVE RESIDENTS WELFARE ...
...S, PHASE I, DLF CITY, GURGAON, HARYANA 122...
TEL. 9582336313 E-MAIL : prws.hr@gmail.com

The Municipal Commissioner,
Municipal Corporation.
Gurgaon.

26-06-2017

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 Welf... 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 sur... of the area, Block wise, and note down the deficiencies of the colonizer, namely DLF, besides submitting th... additional requirements of the Blocks now needed. The Consultants were to contact the respective and Ac... RWA's in this regard. We had then submitted our representation alongwith contact details so that we could 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 Resider... 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... the unilateral decision taken by the higher authorities in DLF which permitted a full fledged school to come ... by the name of KUNSKAPPSKALON School, and which has become a grave hazard to the Block's residen... The school is situated at the dead end of the Block with only the same entry and exit points. Just imagine th... plight of the residents when the narrow lanes have to take the burden of 300 cars and 20 big buses coming ... 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) b... is instead pumped uphill for half a kilometre before reaching the main sewer line on the sector road. This is ... 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 ... we request to meet with the Block's RWA'S and get a comprehensive view of the requirements/ actions required.

Yours Sincerely,

R.K. Jain
Secretary, ABEMHC

Milin Kapoor

Annexure-8

HBRC
H-BLOCK RESIDENTIAL COMMUNITY

(Regd. under Societies Registration Act of 1860, Registration No.: DR/GGN/126)
Registered Office: H 3/16 SF, DLF Phase 1, Gurgaon, Haryana 122002
Tel: 9810843278, 9811050731

For the Attention of MCG Commissioner
(Through the Consultants)

Sub: **Infrastructural Deficiencies in H Block, DLF Phase I Area**

Ref: Meeting with the Consultants at F Block Community Centre on 30th June 2017

H Block has nearly 300 households. There are several empty plots yet to be built. There are several commercial activities like guest houses, food kitchens, courier services etc. are being carried out here, which are legally not allowed. Our internal roads are heavily used by these commercial operations. These operations do not pay maintenance charges that ought to be charged as commercial activities. These establishments are also higher users of utilities like water, electricity etc. Electricity transformers in the residential area cannot meet the requirements of heavy commercial use and therefore there are frequent breakdowns causing serious inconveniences to the residents.

Following are infrastructural and civic amenities deficiencies that are constantly affecting our normal living. These infrastructural deficiencies need to be removed urgently.

1 Most internal roads need major recarpeting. Repairs and patchwork will not serve the purpose.
2. Storm water drainage is almost non-existent causing waterlogging during the monsoon.
3. Sidewalks are not paved at all. Without proper sidewalks, residents find it extremely unsafe to walk.
4 Unpaved sidewalks are a major cause of dust pollution.
5. H Block has more than 5 entry points (unofficial) from the adjacent Sikanderpur village which ac not part of the approved plan. Too many entry points are a major cause of security hazard including movement unsocial elements. Entry points need to be restricted to 1 or 2.
6. Our parks are not maintained properly.
7 There is serious waterlogging on Kachnar Marg and the adjacent greenbelt because of unmanaged gradient/slope.
8. Commercial activities are not legally allowed in residential areas. These operations must be shut down and only those which are legitimately allowed in a residential area as per HUDA/MCG notifications be permitted to operate.
9. Electricity transformers and cables must meet the sanctioned load for the area to avoid frequent breakdowns.
10 Trees need to the trimmed regularly to avoid damage to electricity cables and also for proper street lighting

RWA urges MCG to address the above issues and deficiencies before considering taking over from DLF.

With thanks

Parimal Bardhan
(President) 30/6/17
9810843278

Rahul Chandola
(Secretary)
9811050731

Sanjay Charabarty
(Treasurer)
9871693353

Annexure-9

G-BLOCK RESIDENTIAL COMMUNITY
(GBRC)

30/6/2017

To,
The Commissioner
MCG

Dear Sir,

Greetings from G Block Residential Community. We are very happy that you are taking over the maintenance of DLF City phase1. At the outset we want to be informed that what will the scope of services to be provided by MCG.

There are two types of deficiencies which we want to bring to your notice. First is infrastructural deficiency and other is services which at present provided by DLF and then what is the gap where we have to pitch in:

INFRASTRUCTURAL DEFICIECY

1. Deficiency in power supply insufficient capacity of transformers due to which frequent going of power
2. The gap in the wall because of which lot of unauthorized entrance behind G 17
3. Road repairing and recarpeting
4. Augment waters supply which is very deficient
5. Plantation of trees in Green Belt and along the streets
6. Colony entrance gates and cabin for security personnel's
7. Augmentation of street lights
8. Maintenance of G block park.
9. Removable of unauthorized structures at the front of the colony.
10. Maintenance of parks

Services:

1. Garbage Collection and street sweeping
2. Water supply
3. Proper electricity supply and street lights
4. Security Cover.
5. Maintenance of colony and giving a complaint no and redressal mechanism

Dr P.K.Goel

Anil Mehra President

Meeting - kyconsultants@gmail.com - Gmail

Move to Inbox More

out their personal cars. **We want the consultants to take a serious note of this and make suggestion/recommendations about public parking space for the Gurudwara visitors. Parking inside the colony lanes is a serious issue and certainly not a practical solution for such huge number of vehicles getting into the colony.**

2.Waste Management: It is unfortunate that the issue of communjty waste management isnt part of your work. Garbage collection, waste segregation and proper disposal at the community level need special attention.It is a highly neglected civic issue and need to be addressed as per the SWM Rules 2016. We sincerely suggest you to make a referrence to this critical civic activity in your report as a concern expressed by the RWAs and residents.It is a common cooncern of all RWAs in Gurgaon.

3. Similarly, we would urge you to make a referrence to another common concern regarding **breakdowns in electricity supply** due to inadequate capacity and poor maintenance. Frequent breakdowns affect functioning of streetlights as well and thereby increasing personal security risks.

Thanks & regards,

Meeting - kyconsultants@gmail.com - Gmail

Move to Inbox More

Jul 8 (2 days ago)

HBRC DLF-I
hbrc.dlf1@gmail.com

, Meeta, me

Contact info Emails

m onceagain, yesterday. Genrally
active.
es concerning our H Block, a copy is enclosed herewith as well. We would like to bring to your notice some additional very critical issues.

1.Parking for Gurudwara Visitors: One of the very relevant issues which we forgot to mention in yesterday's meeting and in the list of issues that is causing serious inconveniences/concerns to our residents is parking of Gurudwara visitors. In H block there is a Gurudwara which is built in such a corner which has no proper access for the visitors. It has also not provided any parking facility for the visitors.Gurudwara holds events almost 2-3 days a week and it gets huge number of visitors from outside the H Block. You need to recognise that Gurudwara is a public place having no parking facility. Lack of parking facility for nearly 100 vehicles in almost all events is a major problem for the residents. Visitors pass through the community internal lanes and park invariably in front of our residents' homes. Residents often are unable to take

Zubair
by Pawan
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-43, PHASE I, DLF CITY GURGAON HARYANA 122002
TEL 9582336313 E-MAIL prws.hr@gmail.com

The Municipal Commissioner,
Municipal Corporation.
Gurgaon.

16-06-2017

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.

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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

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 (REGD.) Reg. No. 1269 of 2014

Enclosed as above

SURVEY FOR IDENTIFICATION OF DEFICIT INFRASTRUCTURE IN LICENSED COLONIES GURGAON

DLF PHASE-1 (ANNEXURE-1)

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	3558-PLOTS/ 1100- FLATS			
Total Population residing in Colony	33000			
Status of Existing Infrastructure	Total Requirement	Total Received	Gaps/Deficiencies	Infrastructure Deficit
Water Supply	2 MGD	1.20 MGD	0.80 MGD = 36 Lac litres.	Underground water tanks & Boosting Station yet to be constructed for D & E Block.
Drainage	Internal drainage lines of A Block Extension are not connected with the main drainage. Also there is no drainage line along the sector road (Golf Course). Drainage Problem at B Block, DLF Phase-1, Gurgaon (B-14 to B-19 Lane)			
Sewerage	A block extension pocket is not connected to the main line of Sewerage.			
Electricity	50 MVA	20 MVA	30 MVA	Electric Sub-Station not constructed.

Street lights	50% of Street lights are not working and need to be installed LED lights
Roads	Re-carpeting of roads is pending for two decades. Signages required in entire DLF Ph-1
Other Mandatory Services like Security etc	Compound wall not constructed.
Horticulture	Along the Faridabad road and sector roads, green belts are not maintained. Boundary wall of parks are not constructed. Installation of High mask lights and rain shelter/huts to be provided in parks. Lights at corners of entire 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	Club was constructed in 1988 and demolished in 2004 by DLF. Presently there is no club in DLF Ph-1.		

Schools	Total	Constructed	Not constructed	Remarks
Creche	4	2	2	
Nursery	15	6	9	
Primary	9	3	6	
High School	3	2	1	
Religious Buildings	2	1	1	
Dispensary	3	0	3	
Health Centre	1	0	1	
Electrical Sub-Station	1	0	1	
Sub Post Office	3	2	1	
Telephone Ex-change	1	0	1	
Police Post	1	1	NIL	

Present Capacity of Water Supply in DLF Phase-1 to 4

Water Calculation for DLF Phase-1

Tank Address	Tank	No of Tanks	Capacity	Total KL	Total Litres
A Block	Under Ground	1	600 KL	600KL	6,00,000
B Block	Under Ground Over Head	3 1	754 KL 680KL	2262 680	22,62,000 6,80,000
G Block	Underground Over Head	3 1	900KL 680KL	2700KL 680KL	27,00,000 6,80,000

Total Capacity of under Ground Tank Water is 55, 62,000 Litres

Water Calculation for DLF Phase-2

Tank Address	Tank	No of Tanks	Capacity	Total KL	Total Litres
L Block	Under Ground Over Head	3 1	680 KL 680KL	2040KL 680KL	20,40,000 6,80,000
P Block	Under Ground Over Head	3 1	754 KL 680KL	2262 680	22,62,000 6,80,000
X Block	Underground	1	250KL	250KL	2,50,000

Total Capacity of under Ground Tank Water is 45, 52,000 Litres

Water Calculation for DLF Phase-3

Tank Address	Tank	No of Tanks	Capacity	Total KL	Total Litres
V Block	Under Ground Over Head	3 1	900 KL 680KL	2700 KL 680KL	27,00,000 6,80,000
U Block	Under Ground Over Head	3 1	900 KL 680KL	2700 KL 680KL	27,00,000 6,80,000
S Block	Underground	1	900KL	900KL	9,00,000

Total Capacity of under Ground Tank Water is 61, 00,000 Litres

Water Calculation for DLF Phase-4

Tank Address	Tank	No of Tanks	Capacity	Total KL	Total Litres
6600 series	Under Ground Over Head	1 1	2200 KL 680KL	2200 KL 680KL	22,00,000 6,80,000

Total Capacity of under Ground Tank Water is 22, 00,000 Litres

Status of Maintenance Charges/Expenditure of DLF City Phase I to Phase IV.

In early 1989 the concepts of Maintenance Charges have been developed, without knowing the legality, after consultation with DLF QERWA, strictly on "no-loss-no-profit" basis. The expenditure and Income in plotted area calculated and divided Pro-rata basis every year and increase allowed after consultation with our Association.

From 1997 to 2003 as per the public notice and direction from the Director Town & Country Planning, no maintenance charges were paid to DLF.

On 3rd day of February, 2004 an agreement was filed in the Hon'ble Supreme Court, where by DLF QERWA and DLF Universal Ltd, agreed for Additional Maintenance. The Additional Maintenance charge consists of:

(a) Round the clock security
(b) Electricity consumption of street light etc, maintenance of electrical systems and its up gradation.
(c) Repairing and strengthening of boundary walls and fencing.
(d) Conservancy and general upkeep, sweeping of roads, door to door garbage collection etc.
(e) Up gradation of Roads/Parks
(f) Establishment/Administrative charges.

Water supply consumption is to be paid separately as per Supreme Court order dated 12.9.2003 in Civil appeal no. 550/2003, in accordance with HUDA rates & rules.

The additional maintenance charges calculated on the basis of expenditure incurred in DLF Phase I, II, III, & IV total, as per the details given below (In Lacs):

DLF Phase-I	1350000
DLF Phase-II	1150000
DLF Phase-III	1400000
DLF Phase-IV	2, 00,000 Total 41 laks sq yards.

Description of Percentage share of Maintenance Charges amount incurred on various heads/maintenance works:-

Sr.No	Description of work	Percentage of amount (%)
1	Round the clock security	30
2	Electricity consumption of street light etc, maintenance of electrical systems and its up gradation.	05
3	Repairing and strengthening of boundary walls and fencing.	05
4	Conservancy and general upkeep, sweeping of roads, door to door garbage collection etc.	25
5	Upgradation & Maintenance of Parks	05
6	Re-carpeting of Roads	15
7	Establishment/Administrative charges.	15
	Total	100%

Amount of collection monthly & Annual as per area.

Sr.No	Phase	Area in Sq.Yd	Rate	Amount
1	DLF Phase-I	1350000	2.5/-	3375000 Lac
2	DLF Phase-II	1150000	2.5/-	2875000 Lac
3	DLF Phase-III	1400000	2.5/-	3500000 Lac
4	DLF Phase-IV	200000	2.5/-	500000 Lac
		41,00,000 Lac	**2.5/-**	**1,02,50,000 Cr x12 = 12,30,00,000 Cr Annually**

Total Monthly collection.. Rs.1,02,50,000/- Total Annual collection Rs. 12,30,00,000/-.

CLAVE RESIDENTS WELFARE ASSOCIATION Reg. No. of 2014

Expenditure on various heads, example of Maintenance service in DLF Phase I.
Total Collection of funds in DLF Phase-I = 33, 75,000 @ 2.5/- @ 13, 50,000 Sq.Yd Area

Sr.No	Description of work	Percentage of amount (%)	Percentage of amount to be spent on maintenances	Remarks
1	Round the clock security	30	10,12,500/-	60 Security Guards
2	Electricity consumption of street light etc, maintenance of electrical systems and its up gradation.	05	168750/-	As per DHBVNL Billing and replacement of lights etc.
3	Repairing and strengthening of boundary walls and fencing.	05	168750	As per requirement by residents
4	Conservancy and general upkeep, sweeping of roads, door to door garbage collection etc.	25	843750	65 persons can be deputed for housing keeping etc.
5	Upgradation & Maintenance of Parks	05	168750	15 Gardeners
6	Re-carpeting of Roads	15	5,06,250	Roads can be re-carpeted annually.
7	Establishment/Administrative charges.	15	506250	Staff as per requirement.
	Total		33,75,000	

Staff Centrally Details:-

1. Chief Manager Estate
2. Senior Manager Security
3. Manager Liasons
4. Billing Staff – 5 to 6 Nos.
5. Electrical Manager

Staff Phase wise details:-

1. Phase Manager for maintenance
2. Phase Manager for Security.
3. Supervisor for Horticulture
4. Electrical staff as per requirement of phase

Key Points:-

1. Establishment of Central Control Room cum complaint centre (For security & maintenance)
2. Phase wise maintenance controlled by the Phase Managers.
3. Development works carried out by the Phase managers.

They are also collecting **additional income other than maintenance charges:**

(a) Income from Kiosk/stall/vendor/Kabadi vala etc
(b) Community centre
(c) Income from garbage collection
(d) Advertisement Charges

Contingency/Security deposit shall be claimed from the DLF.

RESIDENTS WELFARE ASSO

ANNEXURE –I (SUMMARY OF DIFFCULTIES FACED)

Annexure -I

	Summary of Representation made by RWA' S of DLF Phase-I							
Sr. No.	A-Block Extension. RWA		B-Block Residents Welfare Association	E-Block Residents Welfare Association		G Block Residential Community	DLF Qutub Enclave Residents Welfare Association	H Block Residential Community
1	Water Supply		No Comments	The capacity of storage required and available	As per population 156 ltrs. of water per head is to be provided	Augment water supply which is very deficient	Total Requirement 2 MGDTotal Received 1.20 MGD	
1.1	Pumps	Pumps installed last year are inadequate and also not commissioned at the right place.		The pumping capacity required and available	Do we have the required storage capacity for domestic as well as for fire requirements		Gaps/Deficiencies 0.80 MGD = 36 Lac litres	
1.2	Power back-up	Power back up to the pump is provided by the Block RWA		Size of water lines required and available	What is the solution for erratic water supply situation		Infrastructure Deficity Underground water tanks & Boosting Station yet to be constructed for D & E Block	
1.3				Conditional assessment of the pumping equipment Conditional assessment of the tanks				
1.4				Conditional assessment of services like pipe, valve etc.				
2	Sewer	Sewer line is not connected to main sewer as a resultm whole waste needs to be pumped back	Block's sewerage is also not connected to the main sewer	Size of sewage lines required and available	What are the measures taken to control the sewerage problems?		A block extension pocket is not connected to the main line of Sewerage.	
2.1	Sewerage						STP is yet to be constructed	
3	Drainage	For last several years there have been massive water logging in lanes A-36, 40 and 41 and sewer waste flow out whenever the pump breaks down.		Road side drainage disposal Requirement of sections of the storm water drains VS available	What are the reasons for flooding of the area during rainy season?		Internal drainage lines of A Block Extension are not connected with the main drainage. Also there is no drainage line along the sector road (Golf Course). Drainage Problem at B Block, DLF Phase-I, Gurgaon (B-14 to B-19 Lane).	Storm Water Drainage is almost non-existent causing water logging during the monsoon. There is serious water logging on Kachnav Marg and the adjacent green belt become of unmanaged gradient/slope.
3.1	Rain Water Harvesting						Drainage system is not connected to the Rain Water pits .Constructed pits are not operational	

Annexure -I

	Description	A-Block Extension. RWA	B-Block Residents Welfare Association	E-Block Residents Welfare Association		G Block Residential Community	DLF Qutub Enclave Residents Welfare Association	H Block Residential Community
4	Roads	The internal roads of the Block have never been carpeted or re-laid in the last almost 20 years.		Condition of top surface	when were the roads last repaired and carpeted?	The gap in the wall because of which lot of unauthorized entrance behind G. 17	Re-carpeting of roads is pending for two decades. Signages required in entire DLF Ph-I	Most internal roads need major re carpeting
4.1				The roads sections, crest thickness needs to be verified as per design. To see if it is compatible with the present traffic volume		Road repairing and carpeting		Sidewalks are not paved at all
4.2				Footpaths ,Refractive sign boards				Unpaved sidewalks are a major cause of dust pollution.
5	Street Light & Electricity			Cable size approved and available		Augmentation of street lights	50 MVA	Electricity transformers and cables must meet the sanctioned load for the area to avoid frequent breakdowns.
5.1				To verify other technical parameters of the designed section with what is available at site		Deffciency in power supply insufficient capacity of transformers due to which frequent going of power	20 MVA,30 MVA	
5.2				Required capacity of transformers			Electric Sub-station not constructed	
5.3				Location of the street poles and street light as per approved illumination			50% of Street lights are not working and need to be installed LED lights, Installation of High mask lights and rain shelter/huts to be provided in parks	
6	Horticulture &Parks					Maintenance of Parks Maintenance of G-Block Parks	Along the Faridabad road and sector roads, green belts are not maintained	Trees need to be trimmed regularly to avoid damage to electricity cables and also for proper street lighting
6.1	Plantation					Plantation of trees in Green Belt and along the streets	Boundary wall of parks are not maintained Lights at corners of entire parks	Parks are not maintained properly

Annexure -I

	Details of Social Infrastructure	A-Block Extension. RWA	B-Block Residents Welfare Association	E-Block Residents Welfare Association	G Block Residential Community	DLF Qutub Enclave Residents Welfare Association	H Block Residential Community
7	Schools	There are 3 big School sites lying un-used for last so many years. Even their boundary wall had collapsed with free entry for everyone.	DLF Management permitted a full-fledged school to come by the name of KUNSKAPPSKALON. SCHOOL which has become a grave hazard to the Block's residents.	There is no dispensary, schools, religious sites, clubs, parks, etc. in the DLF area which was otherwise a part of the original development plan.			
7.1		DLF Management gave a big area of land marked for Primary School on lease to Manav Rachna which in turn established a Higher Secondary School by the name KUNSKAPPSKALON. This school is located at the end of Block with no back Exit. The result is that the entire Block gets choked during school hours since almost 300 Cars and 20 School Buses enter and exit from the Block					
8	Entry Gates Other Mandatory Services like Security etc.	The Block has 5 entries and guards are manning only 2 entries. One being Revenue Road is understandable but why the other 4 entries are not Gated nor Guarded.			Colony entrance gates and cabin for security personnel's	Compound Wall not constructed	H-Block has more than 5 entry points (unofficial) from the adjacent Sikanderpur village Entry points need to be restricted to 1 or 2.
9	Illegal Parking	At the fag end of the |Revenue Road there is HUDA land as reported by DLF. This land is used for illegal parking of Tempos and as well illegal Temple has also been constructed on this land.			Removable of unauthorized structures at the front of the colony		commercial activities are not legally allowed in residential areas. These operations must be shut down.
10	Gymkhana Club	Just adjacent to the above area is the place where once used to be the Gymkhana Club of DLF PH-1, which was dismantled several years back and not constructed thereafter.				Community Centre Total No. of Sites = 1 Constructed - 1	
10.1	Club	There is no Club for DLF PH-1 residents and we want that this side be re-developed into a Club.	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.			Club Total No. of Sites = 2 Club was constructed in 1988 and demolished in 2004 by DLF. Presently there is no club in DLF Ph-1	
11	Security		We have the Revenue Road which passes through the middle of the Block and which the villagers use day & night. Here Security has taken & hit. There have been several cases of thefts.				

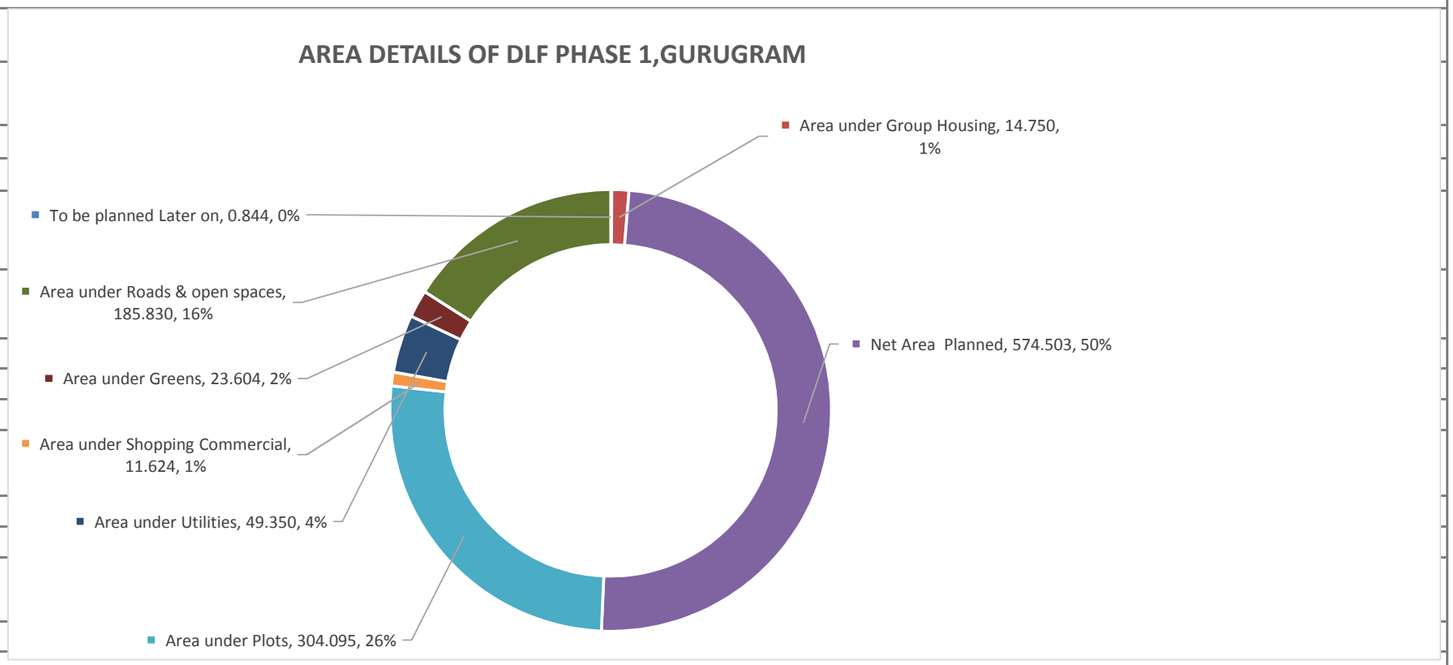
Annexure -I

Details of Social Infrastructure		A-Block Extension. RWA	B-Block Residents Welfare Association	E-Block Residents Welfare Association		G Block Residential Community	DLF Qutub Enclave Residents Welfare Association	H Block Residential Community
12	Incomplete Utility Buildings						Crèche Total no. of sites= 4 Constructed = 2 Not Constructed = 2 Nursery Schools Total no. of sites= 15 Constructed = 6 Not Constructed = 9	
12			Illegal construction of temple				Primary Schools Total no. of sites= 9 Constructed = 3 Not Constructed =6 High Schools Total no. of sites= 3 Constructed =2 Not Constructed = 1	
12.1							Religious Buildings Total no. of sites= 2 Constructed =1 Not Constructed =1 Dispensary Total no. of sites= 3 Constructed =0 Not Constructed = 3	
12.2							Religious Buildings Total no. of sites= 2 Constructed =1 Not Constructed =1 Dispensary Total no. of sites= 3 Constructed =0 Not Constructed = 3	
12.3							Health Centre Total no. of sites=1 Constructed =0 Not Constructed =1 Electric Sub Station Total no. of sites= 1 Constructed =0 Not Constructed = 1	
12.4							Sub Post Office Total no. of sites=3 Constructed =2 Not Constructed =1 Telephone Exchange Total no. of sites= 1 Constructed =0 Not Constructed =1	
12.5							Police Post Total no. of sites= 1 Constructed =0 Not Constructed =1	

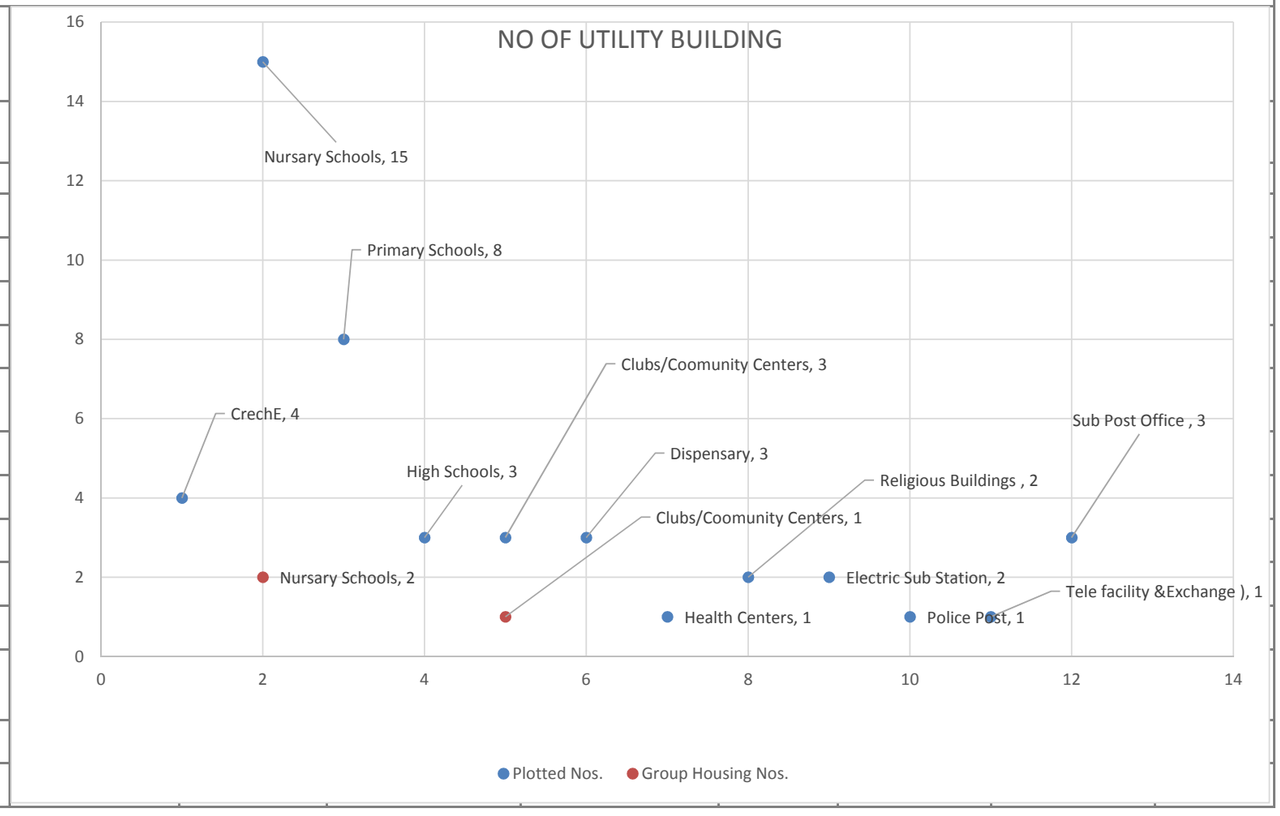
DESIGN PROFILE & STATEMENTS

DESIGN PROFILE (DLF Phase 1 Gurugram)

	Description	DLF Phase 1		
1	**Area**			
1.001		**Acres**	**Sqm**	Hectare
1.002	Total Area of Scheme	590.097	2388019	238.802
1.003	To be planned Later on	0.844	3416	0.342
1.004	Area under Group Housing	14.750	59691	5.969
1.005			0	0.000
1.006	Net Area Planned	574.503	2324913	232.491
1.007	Area under Plots	304.095	1230619	123.062
1.008	Area under Shopping Commercial	11.624	47040	4.704
1.009	Area under Utilities	49.350	199711	19.971
1.01	Area under Greens	23.604	95521	9.552
1.011	Area under Roads & open spaces	185.830	752021	75.202
1.012	Area under Utilities	590.097	2388019	238.802
1.013	**Area Under Utility**			



1.014	**Description**	**Phase 1**			
1.015		Plotted	Group Housing	**Area of Each Unit**	**Utility Area Phase 1**
1.016		Nos.	Nos.		**Acres**
1.017	CrechE	4		0.2	0.8
1.018	Nursary Schools	15	2	0.4	6.8
1.019	Primary Schools	8		1	8
1.02	High Schools	3		5	15
1.021	Clubs/Coomunity Centers	3	1	2	8
1.022	Dispensary	3		1.25	3.75
1.023	Health Centers	1		1	1
1.024	Religious Buildings	2		0.5	1
1.025	Electric Sub Station	2		2	4
1.026	Police Post	1		0.2	0.2
1.027	Tele facility &Exchange)	1		0.2	0.2
1.028	Sub Post Office	3		0.2	0.6
1.029	Sub Total of Utility	46	3		49.35



1.03	DETAILS OF PLOTS				DLF PHASE 1								
1.031	**Type**	**L(m)**	**B(m)**	**Unit Area**	**No.**	**Total Area**	**Area in Acres**						
1.032	A	19	45	855.00	154	131670.00	32.536						
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	0	0.00	0.000						
1.036	B2	13.5	35	472.50	0	0.00	0.000						
1.037	B7	16.575	27.15	450.01	22	9900.25	2.446						
1.038	B4	13	32.5	422.50	0	0.00	0.000						
1.039	B1	15	28	420.00	1707	716940.00	177.160						
1.04	B	12	28	336.00	181	60816.00	15.028						
1.041	B6	12	25	300.00	110	33000.00	8.154						
1.042	C6	12.575	21	264.08	0	0.00	0.000						
1.043	C1	11	24	264.00	200	52800.00	13.047						
1.044	C	10.44	24	250.56	329	82434.24	20.370						
1.045	C5	10	22.5	225.00	133	29925.00	7.395						
1.046	D	10	21	210.00	0	0.00	0.000						
1.047	D1	8.56	21	179.76	0	0.00	0.000						
1.048	F	8.25	20.27	167.23	423	70737.23	17.480						
1.049	G1	8	17.06	136.48	0	0.00	0.000						
1.05	G	7.333	17.06	125.10	63	7881.36	1.948						
1.051	G6	6.6	18.95	125.07	0	0.00	0.000						
1.052	G4	7.328	17.06	125.02	162	20252.54	5.005						
1.053	G3	6.5	14.02	91.13	133	12120.29	2.995						
1.054	E	4	12.5	50.00	0	0.00	0.000						
1.055	E	4	12.5	50.00	43	2150.00	0.531						
1.056					3660	1230626.91	304.0950151						
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	**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											
2.01	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 1					
2.019	**DETAILS OF PLOTS**	**DLF Phase 1**				**Population Density as per service Estimates**	**Population Density as per HUDA Norms**	**Population as per service Estimates**	**Population as per present HUDA norms**				
2.02	**Type**	**No. of Plots**						**Nos.**					
2.021	A	**44**				13.5	13.5	594	594				
2.022	A2	**110**				9	13.5	990	1485				
2.023	A3	**0**				9	13.5	0	0				
2.024	A1	**0**				9	13.5	0	0				
2.025	B2	**0**				9	13.5	0	0				
2.026	B7	**22**				9	13.5	198	297				
2.027	B4	**0**				9	13.5	0	0				
2.028	B1	**1707**				9	13.5	15363	23045				
2.029	B	**181**				9	13.5	1629	2444				
2.03	B6	**110**				9	13.5	990	1485				
2.031	C6	**0**				9	13.5	0	0				
2.032	C1	**200**				9	13.5	1800	2700				
2.033	C	**329**				9	13.5	2961	4442				
2.034	C5	**133**				9	13.5	1197	1796				
2.035	D	**0**				9	13.5	0	0				
2.036	D1	**0**				9	13.5	0	0				
2.037	F	**423**				9	13.5	3807	5711				
2.038	G1	**0**				9	13.5	0	0				
2.039	G	**63**				9	13.5	567	851				
2.04	G6	**0**				9	13.5	0	0				
2.041	G4	**162**				9	13.5	1458	2187				
2.042	G3	**133**				9	13.5	1197	1796				
2.043	E	**0**				9	9	0	0				
2.044	E	**43**				9	9	387	387				
2.045		**3660**						**33138**	49220				
2.046							3616*9+44*13.5	33138	36173*13.5+43*9				
2.047	Population of Group Housing (G.H.) @ 300 Persons per Acre.							4425	4425				
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 1						
2.05	Total Area of Scheme						590.10						
2.051	Group Housing Area						14.75						
2.052	Plotted Area						575.35						
2.053	Population as per service Estimates						33138						
2.054	Max Permissible Population						120						
2.055	Max Population permissible as per Guidelines of Town & Country Planning Department, Govt. of Haryana						70812						

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					24784						
2.057	Assume75% diversity factor since major construction work has been completed in area					18588						
2.058	Total population					89400						
2.059												
2.06	Population Accomdated in Group Housing Area					4425						
2.061	Estimated population in Plotted Area					84975						
#REF!	Say					85000						
3.00	**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						
3.1	**ESTIMATION OF POPULATION AND WATER DEMAND**												
3.031	**DLF Phase 1**												
3.101	**Estimation of Population in area s of various land use has been sumarised below,**												
3.032	**Total Water Demand**											**Waste Water Estimation**	
3.102	**Area under Plots**				**DLF Phase 1**			Norms of Users based on NBC & Manual of Water Supply , HSIIDC Norms & Details in Devloment plan	Water Allowance	**DLF Phase 1**	**Total Dmand**	**DLF Phase 1**	
3.033					Acres				L/ Acre	L			
3.103					Nos.				L/ Capita				
3.034	**Area under Plots**				**304.095**								
3.104	**Work Area**				182			60%				90%	
3.035	**Circulation Area**				61			20%	2500	152048	152048	136843	
3.105	**Open& Green Area within Plot**				61			20%	25000	1520475	1520475		
3.036	Population				85000.00					11475000	11475000	10327500	
3.106	Floating Popolation				4250					191250	191250	172125	
3.037	**Area under Group Housing**				**14.750**						0		
3.107	**Work Area**				**5.900**			**40%**			0		
3.038	**Circulation Area**				**5.900**			**40%**	**2500**	**14750**	14750	13275	
3.108	**Open& Green Area within Plot**				3			20%	25000	73750	73750		
3.039	Working Population				4425.00					597375	597375	537638	
3.109	Floating Popolation				221					9945	9945	8951	
3.04	**Area under Shopping Commercial**				**11.624**						0		
3.11	**Work Area**				**6.974**			**60%**	**25000**	**111828**	111828	100645	
3.041	**Circulation Area**				**2.325**			**20%**	**2500**	**5812**	5812	5231	
3.111	**Open& Green Area within Plot**				2			20%	25000	58120	58120		
3.042	Working Population				2352.00			1 person per 20 sqm area for working population & 200persons visiting population		105840	105840	95256	
3.112	Visiting Popolation				200					9000	9000	8100	
3.043	**Area Under Utility**										0		
3.113	**CrechE**				**0.800**						0		
3.044	**No. of Dwelling Units**				**4.000**						0		
3.114	**Work Area**				**0.480**			**60%**	**10000**	**17100**	17100	15390	
3.045	**Circulation Area**				**0.160**			**20%**	**2500**	**400**	400	360	
3.115	**Open& Green Area within Plot**				0			20%	25000	4000	4000		
3.046	Working Population				400.00					18000	18000	16200	
3.116	Visiting Popolation				20					900	900	810	

3.047	**Nursary Schools**	**6.800**						0		
3.117	**No. of Dwelling Units**	**15.000**						0		
3.048	**Work Area**	**4.080**			**60%**	**10000**	**5950**	5950	5355	
3.118	**Circulation Area**	**1.360**			**20%**	**2500**	**3400**	3400	3060	
3.049	**Open& Green Area within Plot**	1			20%	25000	34000	34000		
3.119	Working Population	2250.00					101250	101250	91125	
3.05	Visiting Popolation	120					5400	5400	4860	
3.12	**Primary Schools**	**8.000**						0		
3.051	**No. of Dwelling Units**	**8.000**						0		
3.121	**Work Area**	**6.400**			**80%**	**50000**	**113400**	113400	102060	
3.052	**Circulation Area**	**0.800**			**10%**	**2500**	**2000**	2000	1800	
3.122	**Open& Green Area within Plot**	1			10%	25000	20000	20000		
3.053	Working Population	5600.00					252000	252000	226800	
3.123	Visiting Popolation	280					12600	12600	11340	
3.054	**High Schools**	**15.000**						0		
3.124	**No. of Dwelling Units**	**3.000**						0		
3.055	**Work Area**	**12.000**			**80%**	**150000**	**267000**	267000	240300	
3.125	**Circulation Area**	**1.500**			**10%**	**2500**	**3750**	3750	3375	
3.056	**Open& Green Area within Plot**	2			10%	25000	37500	37500		
3.126	Working Population	3000.00					135000	135000	121500	
3.057	Visiting Popolation	150					6750	6750	6075	
3.127	**Clubs/Coomunity Centers**	**8.000**						0		
3.058	**No. of Dwelling Units**	**4.000**						0		
3.128	**Work Area**	**2.400**			**30%**	**50000**	**55500**	55500	49950	
3.059	**Circulation Area**	**4.000**			**50%**	**2500**	**10000**	10000	9000	
3.129	**Open& Green Area within Plot**	2			20%	25000	40000	40000		
3.06	Working Population	2000.00					90000	90000	81000	
3.13	Visiting Popolation	100					4500	4500	4050	
3.061	**Dispensary**	**3.750**						0		
3.131	**No. of Dwelling Units**	**3.000**						0		
3.062	**Work Area**	**1.125**			**30%**	**25000**	**37387.5**	37388	33649	
3.132	**Circulation Area**	**1.875**			**50%**	**2500**	**4687.5**	4688	4219	
3.063	**Open& Green Area within Plot**	1			20%	25000	18750	18750		
3.133	Working Population	300.00					13500	13500	12150	
3.064	Visiting Popolation	15					675	675	608	
3.134	**Health Centers**	**1.000**						0		
3.065	**No. of Dwelling Units**	**1.000**						0		
3.135	**Work Area**	**0.300**			**30%**	**10000**	**2025**	2025	1823	
3.066	**Circulation Area**	**0.500**			**50%**	**2500**	**1250**	1250	1125	
3.136	**Open& Green Area within Plot**	0			20%	25000	5000	5000		
3.067	Working Population	100.00					1500	1500	1350	
3.137	Visiting Popolation	5					225	225	203	
3.068	**Religious Buildings**	**1.000**						0		
3.138	**No. of Dwelling Units**	**2.000**						0		

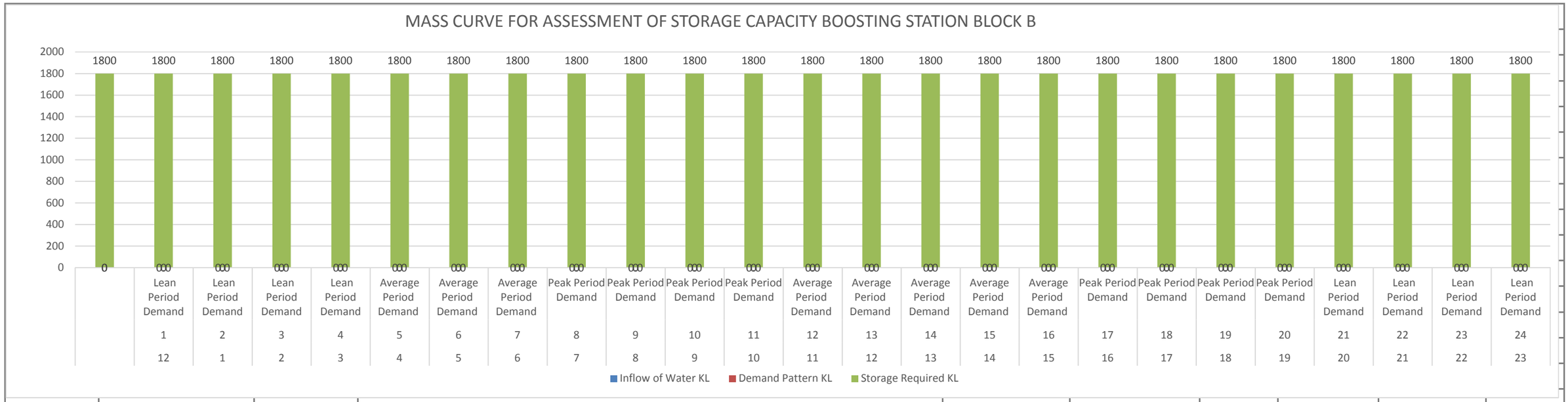
3.069	**Work Area**	**0.300**			**30%**	**10000**	**6850**	6850	6165	
3.139	**Circulation Area**	**0.500**			**50%**	**2500**	**1250**	1250	1125	
3.07	**Other ,Open& Green Area**	0			20%	25000	5000	5000		
3.14	Habitation	400.00					6000	6000	5400	
3.071	Visiting Popolation	20					900	900	810	
3.141	**Electric Sub Station**	**4.000**						0		
3.072	**No. of Dwelling Units**	**2.000**						0		
3.142	**Work Area**	**1.200**			**30.00%**	**10000**	**3100**	3100	2790	
3.073	**Circulation Area**	**2.400**			**60.00%**	**2500**	**6000**	6000	5400	
3.143	**Other ,Open& Green Area**	0			10.00%	25000	10000	10000		
3.074	Habitation	30.00					450	450	405	
3.144	Visiting Popolation	10					450	450	405	
3.075	**Police Post**	**0.200**						0		
3.145	**No. of Dwelling Units**	**1.000**						0		
3.076	**Work Area**	**0.060**			**30.00%**	**10000**	**8675**	8675	7808	
3.146	**Circulation Area**	**0.120**			**60.00%**	**2500**	**300**	300	270	
3.077	**Other ,Open& Green Area**	0			10.00%	25000	500	500		
3.147	Habitation	20.00					300	300	270	
3.078	Visiting Popolation	5					225	225	203	
3.148	**Tele facility &Exchange)**	**0.200**						0		
3.079	**No. of Dwelling Units**	**1.000**						0		
3.149	**Work Area**	**0.060**			**30.00%**	**10000**	**8675**	8675	7808	
3.08	**Circulation Area**	**0.120**			**60.00%**	**2500**	**300**	300	270	
3.15	**Other ,Open& Green Area**	0			10.00%	25000	500	500		
3.081	Habitation	20.00					300	300	270	
3.151	Visiting Popolation	5					225	225	203	
3.082	**Sub Post Office**	**0.600**						0		
3.152	**No. of Dwelling Units**	**3.000**						0		
3.083	**Work Area**	**0.180**			**30.00%**	**10000**	**26025**	26025	23423	
3.153	**Circulation Area**	**0.360**			**60.00%**	**2500**	**900**	900	810	
3.084	**Other ,Open& Green Area**	0			10.00%	25000	1500	1500		
3.154	Habitation	60.00					900	900	810	
3.085	Visiting Popolation	15					675	675	608	
3.155	Area under Roads	185.830				10000	1858300	1858300		
3.086	Area under Green Belt	23.604				25000	590097	590097		
3.156	Area Under U.D.	0.844				25000	21100	21100	18990	
3.087	Total	590.097	0.000	0.000			18210090	18210090	12539339	

3.157	**Absract of Water Demand**											
3.088	Description			DLF Phase 1								
3.158				Revised Value	Original Value	**Additional**						
3.089	Total WaterDemand in KL			18210								
3.159	Plotted Area WaterDemand in KL			17514								
3.09	Total Fresh Water Demand in KL			15310	8600	**6710**	KL					
3.16	Total Recycled Water Demand in KL			2204	0	**2204**	KL					
3.091	Population(Plotted Area)			85000	33138	**51862**	Nos					
3.161	Population(GH Area)			4425	4425	**0**	Nos					
3.092	Total Fresh Water Demand in KL			616	616	**0**	KL					
3.162	Total Recycled Wate Demand in KL			80	80	**0**	KL					
3.093	Total Fire Fighting Demand in KL			1132	786	**346**	KL					
3.163	Group Housing Fire Fighting Demand in KL			210	210	**0**	KL					
3.094	Plotted Area Fire Fighting Demand in KL			922	576	**346**	KL					
3.164	Waste Water Generation			12539			KL					
3.095	Plotted Area			11979			KL					
3.165	Group Housing Area			560			KL					
3.2	**Source of Water**											
3.201	The fresh water demand is met from two sources											
3.202	Tube well Source											
3.203	In Gurgaon Town the initial water requirement is met from Tube well source											
3.204	Canal Based Water Supply											
3.205	Canal based water from HUDA/Municipal source											
3.206	Tube well Source											
3.207	total 65 No. tube wells were installed by DLF IN Phase 1,2 & 3											
3.208	At present hardliy 20 No. of Tubewells are functional after availabilty of water from Canal source											

3.209	The initial discharge was 5500 gallons per hour i.e. 30000 litre per Houur which has reduced to 10000 Litre oer Hour													
3.21	Existing Appurtances of Water Supply Phase wise is summarised as under													
3.211	DLF Phase 1													
3.3	Rising Main													
3.301	Two no Boosting Station are located in Block B & G respectively													
3.302	There Exisist 20"(500 mm i/d0 HUDA Rising Main on 60 M road near Block B													
3.303	One no rising main of 10" (250 mm i/d),370 M has been laid from HUDA Line to Boosting station Block B													
3.304	There Exisist 12"(300 mm i/d0 HUDA Rising Main onGurgaon Faridabad Road passing through Bolck G													
3.305	One no rising main of 10" (250 mm i/d) ,205 M has been laid from HUDA Line to Boosting station Block G													
3.306	OHSR													
3.307	Over Head Service Reservoir of 681 KL capacity ,30 m staging Height is constructed in Boosting Station Block B							=	681	KL				
3.308	Over Head Service Reservoir of681 KL capacity ,30 m staging Height is constructed in Boosting Station Block G							=	790	KL				
3.309	Total							=	1471	KL				
3.4	**Under Ground Tank**													
3.401	Under Ground Service Reservoir of 681 KL capacity is constructed at location Cassia Marg/l-9							=	600	KL				
3.402	Under Ground Service Reservoir of 681 KL capacity is constructed at location Cassia Marg/l-10							=	681	KL				
3.403	Under Ground Service Reservoir of 681 KL capacity is constructed at location Cassia Marg/l-11							=	681	KL				
3.404	Under Ground Service Reservoir of 681 KL capacity is constructed at location B20 Pachim Marg							=	900	KL				
3.405	Under Ground Service Reservoir of 100 KL capacity is constructed at locationG-3G-7A							=	100	KL				
3.406	Under Ground Service Reservoir of 900 KL capacity is constructed at locationG-3G-7A							=	900	KL				
3.407	Under Ground Service Reservoir of 900 KL capacity is constructed at locationG-3G-7A							=	900	KL				
3.408	Under Ground Service Reservoir of 900 KL capacity is constructed at locationG-3G-7A							=	900	KL				
3.409	Total							=	5662	KL				
3.41	Distribution Net Work													
3.411	Original Distribution net work is laid based on Tubewell base supply & Boosting Station													
3.412	Now some tubewells have been dried due to fall in Water Table													
3.413	Now canal Base water supply is available & being supplied to cosumers													
3.5	**Problems Experienced by Consumers**													
3.501	**Possible Reasons of deficiency in Water Supply System**													
3.502	Water supply distribution is disturbed due to following reasons													
3.503	On account ofsignificant varriation in ground level in Phase 1&2													
3.504	Imbalance at the time of change from Tubewell base water supply to canabases water supply													
3.505	Illegal /Oversize ferrule connections in block U,S & V in Phase 3													
3.506	Insufficient quantum of water available from Canal Source													
3.507	To ascertain the reasons of deficiency the the audit of existing availble facility Technical Audit is done in susequent paras													
3.6	Rising Main													
3.601	Description		HUDA MAINLINE	Existing Rising Main		Distance	Ground Level	In take Level						
3.602			Size in mm i/d	Length	Size in mm i/d	Mtrs.	Mtrs.							
3.603	DLF Phase 1													
3.604	HUDA Source	Block B	500	370	250	370	246.61	242.61						
3.605	HUDA Source	Block G	300	205	1200	205	253.69	249.69						
3.606	HUDA Source	Group Housing	200	485	150	485	257.62	253.62						

3.607	Length of Rising Main from HUDA Source to Boosting Station												
3.608	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	
3.609	1	2	3	4	5	6	7	8	9	10	11	12	
3.61	DLFPhase 1	M	KLD	MLD	MLD	Hours	mm	M/1000 M	M	M	M	M	
3.611	HUDA Source-Block B	370	0	0.00	0.00	24	250	0	0	263.61	246.61	17.000	
3.612	HUDA Source-Block G	205	15310	15.31	18.37	24	250	86.06	17.6423	261.87	253.69	8.179	
3.613	HUDA Source-Group Housing	485	616	0.62	0.74	24	150	2.72	1.3192	273.96	257.62	16.340	
3.614	Length of Rising Main			Existing Length	Size of Pipe	Remarks							
3.615				M	mm								
3.616	HUDA Source	Block B	HUDA Source-Block B	370	250	Additional pipe not required							
3.617	HUDA Source	Block G	HUDA Source-Block G	205	250	Additional pipe not required							
3.618	HUDA Source	Group Housing	HUDA Source-Group Housing	485	150	Additional pipe not required							
3.700	**Design of Water Works(DLF Phase 1)**												
3.701	Fresh water distribution is provided from Three No. Boosting Station												
3.702	DLF Phase 1 - Located in Block B							0	KL				
3.703	Net Water Demand							0	KL				
3.704	Size of OHSR@ 1/4 of Net Water Demand							0	KL				
3.705	Size of OHSR Existing							681	KL				
3.706	Size of UGT@ 1/3 of Net Water Demand							0	KL				
3.707	Fire Fighting Demand							0	KL				
3.708	Total Capacity required							0	KL				
3.709	Total CapacityExisting							2862	KL				
3.710	Balance Capacity Required							-2862	KL				
3.711	Provide UGT in Two Compartments another to meet water							0	KL				
3.712	Total Capacity provided							0	KL				
3.713	Less for concrete walls & columns							0	KL				
3.714	Net Capacity provided							0	KL				
3.715	Design of Pumping Machinary												
3.716	Pumping Macinary will be designed for supplying water in Zone												
3.800	PUMPING STATION			**Zone 1(Block B)**									
3.801	Total Average Flow			=	0	KL							
3.802	Average Hourly Flow			=	0	KL							
3.803	Peak Flow Factor			=	1.5								
3.804	Peak Flow			=	0	KL							
3.805	water demand Lean Period=0.5 times Average Hourly flow			=	0	KL		0	LPS				
3.806	Average HouryDemand			=	0	KL		0	LPS				
3.807	water demand Peak Period=1.5times Average Hourly Demand			=	0	KL		0	LPS				

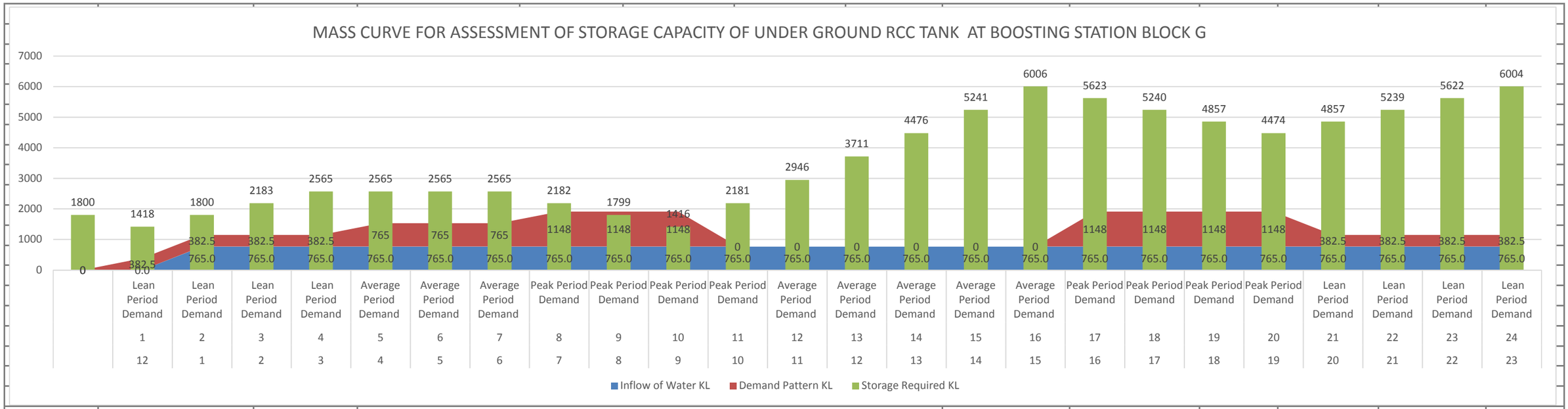
3.808	Capacity of Balancing Tank													
3.809	**From**	**To**		Inflow of Water	Demand Pattern	Storage Required								
3.810	Hrs	Hrs		KL	KL	KL								
3.811						1800								
3.812	12	1	Lean Period Demand		0	1800								
3.813	1	2	Lean Period Demand	0.0	0	1800								
3.814	2	3	Lean Period Demand	0.0	0	1800								
3.815	3	4	Lean Period Demand	0.0	0	1800								
3.816	4	5	Average Period Demand	0.0	0	1800								
3.817	5	6	Average Period Demand	0.0	0	1800								
3.818	6	7	Average Period Demand	0.0	0	1800								
3.819	7	8	Peak Period Demand	0.0	0	1800								
3.820	8	9	Peak Period Demand	0.0	0	1800								
3.821	9	10	Peak Period Demand	0.0	0	1800								
3.822	10	11	Peak Period Demand	0.0	0	1800								
3.823	11	12	Average Period Demand	0.0	0	1800								
3.824	12	13	Average Period Demand	0.0	0	1800								
3.825	13	14	Average Period Demand	0.0	0	1800								
3.826	14	15	Average Period Demand	0.0	0	1800								
3.827	15	16	Average Period Demand	0.0	0	1800								
3.828	16	17	Peak Period Demand	0.0	0	1800								
3.829	17	18	Peak Period Demand	0.0	0	1800								
3.830	18	19	Peak Period Demand	0.0	0	1800								
3.831	19	20	Peak Period Demand	0.0	0	1800								
3.832	20	21	Lean Period Demand	0.0	0	1800								
3.833	21	22	Lean Period Demand	0.0	0	1800								
3.834	22	23	Lean Period Demand	0.0	0	1800								
3.835	23	24	Lean Period Demand	0.0	0	1800								
3.836				0	0	1800								



3.8370	Capacity of Underground tank storage Tank required as per mass curve	=	1800	KL			
3.8380	Capacity of Underground tank storage Tank required as per Norms(8 Hours capacityof Total Demand)11333*8/24=3778 KL	=	0	KL			
3.8390	Storage Capacity required to meetFire Fighting Demand	=	0	KL			
3.8400	Total Capacity required	=	0	KL			
3.8410	Total Capacity Existing		2862	KL			
3.8420	Total Capacity provided	=	0	KL			
3.8430			Hence OK				
3.8440	Pumping Machinery						
3.8450	Runing Hours of Lean Period	=	8		Hrs		
3.8460	Runing Hours of Average Period	=	8		Hrs		
3.8470	Runing Hours of Peak Period	=	8		Hrs		
3.8480	Capacity of Pump Required during Lean Period	=	0		KL / Hr.		
3.8490		=	0		Litre Per Second		
3.8500	Capacity of PumpProvided during Lean Period	=	50		Litre Per Second		
3.8510	BHP of Motor=40*40/(75*0.75)		53.3	60	BHP		
3.8520	Capacity of Pump Required during Avwerage Period	=	0		KL / Hr.		
3.8530		=	0		Litre Per Second		
3.8540	Capacity of PumpProvided during Average Period	=	100		Litre Per Second		
3.8550	BHP of Motor=70*40/(75*0.0.75)		106.7	110	BHP		
3.8560	Capacity of Pump Required during Peak Period	=	0		KL / Hr.		
3.8570		=	0		Litre Per Second		
3.8580	Capacity of PumpProvided during PeakPeriod	=	150		Litre Per Second		

3.8590	BHP of Motor=100*40/(75*0.75)						160.0	160	BHP		
3.8600	Quantity of Water pumped during Lean Period				=		1440		KL		
3.8610	Quantity of Water pumped during Average Period Period				=		2880		KL		
3.8620	Quantity of Water pumped during Peak Period				=		4320		KL		
3.8630	Total Quantity of Water pumped during24 Hrs.				=		8640		KL		
3.8640	Total Quantity of Water required during24 Hrs.				=		0		KL		
3.8650							Hence OK				
3.8660	ZONE 1(Block B)										
3.8670	Provide2 pump to meet total demand 50 lps with60 m head.60BHP						2	2.0	Nos		
3.8680	Provide1 pump to meet total demand 100lps with60 m head,110 BHP						1	1.0	Nos		
3.8690	Provide 1 pumpas stand bye150 lps with 60 m 160 BHP						1	1.0	Nos		
3.8700	Power Backup			During Lean Period	During Average Demand						
3.8710	No. of pumps to run simultaneously		=	1.00	1	Nos.					
3.8720	BHP of Two pumps		=	60.00	110	BHP					
3.8730	kw		=	44.76	82.06	kw					
3.8740	k Va		=	55.95	102.58	k Va					
3.8750	C urrent		=	101.73	186.50	A					
3.8760	Initial Current		=	254.32	466.25	A					
3.8770	k Va		=	111.90	205.15	k Va					
3.8780	Capacity of Generator Required		=	120.00	210.00	k Va					
3.8790	Capacity of Generator provided		=		350.00	k Va					
3.8800											
3.8810	Provideone one generating set of 350 k VA as100% Power back up arrangements to run two pumps average demand with 30HP Motor each.					350	k VA				
3.9000	**Zone 2(Block G)**										
3.9010	Net Water Demand			15310		KL					
3.9020	Size of OHSR@ 1/4 of Net Water Demand			3828		KL					
3.9030	Size of OHSR Existing			681		KL					
3.9040	Size of UGT@ 1/3 of Net Water Demand			5103		KL					
3.9050	Fire Fighting Demand			922		KL					
3.9060	Total Capacity required			6025		KL					
3.9070	Total CapacityExisting			2800		KL					
3.9080	Balance Capacity Required			Nil		KL					
3.9090	Total Average Flow			=	15310	KL					
3.9100	Average Hourly Flow			=	765	KL					
3.9110	Peak Flow Factor			=	1.5						
3.9120	Peak Flow			=	22965	KL					
3.9130	water demand Lean Period=0.5 times Average Hourly flow			=	382.5	KL					
3.9140	Average HouryDemand			=	765	KL					
3.9150	Peakwater demand Peak Period=1.5times Average Hourly Demand			=	1148	KL					
3.9160	Mass Curve for assessment of Storage capacity										

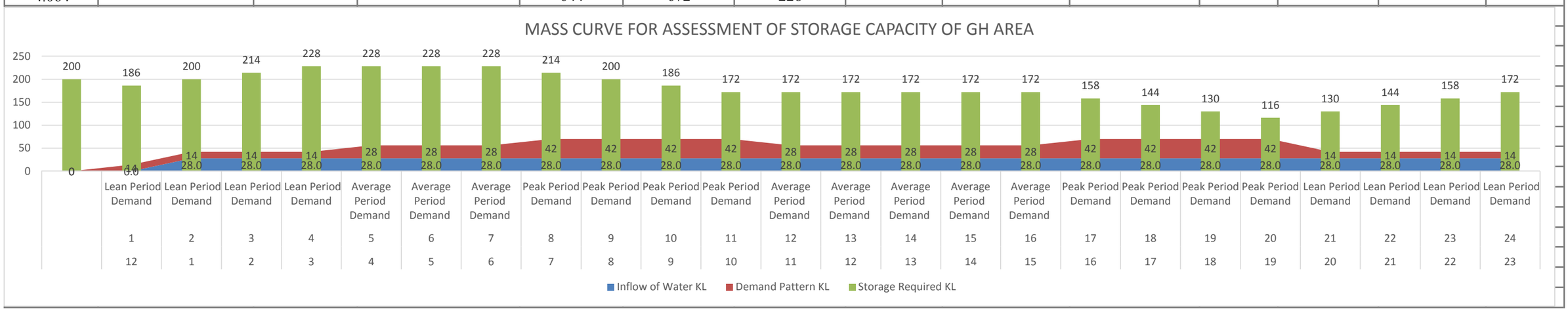
3.9170	**From**	**To**		Inflow of Water	Demand Pattern	Storage Required							
3.9180	Hrs	Hrs		KL	KL	KL							
3.9190						1800							
3.9200	12	1	Lean Period Demand		382.5	1418							
3.9210	1	2	Lean Period Demand	765.0	382.5	1800							
3.9220	2	3	Lean Period Demand	765.0	382.5	2183							
3.9230	3	4	Lean Period Demand	765.0	382.5	2565							
3.9240	4	5	Average Period Demand	765.0	765	2565							
3.9250	5	6	Average Period Demand	765.0	765	2565							
3.9260	6	7	Average Period Demand	765.0	765	2565							
3.9270	7	8	Peak Period Demand	765.0	1148	2182							
3.9280	8	9	Peak Period Demand	765.0	1148	1799							
3.9290	9	10	Peak Period Demand	765.0	1148	1416							
3.9300	10	11	Peak Period Demand	765.0	0	2181							
3.9310	11	12	Average Period Demand	765.0	0	2946							
3.9320	12	13	Average Period Demand	765.0	0	3711							
3.9330	13	14	Average Period Demand	765.0	0	4476							
3.9340	14	15	Average Period Demand	765.0	0	5241							
3.9350	15	16	Average Period Demand	765.0	0	6006							
3.9360	16	17	Peak Period Demand	765.0	1148	5623							
3.9370	17	18	Peak Period Demand	765.0	1148	5240							
3.9380	18	19	Peak Period Demand	765.0	1148	4857							
3.9390	19	20	Peak Period Demand	765.0	1148	4474							
3.9400	20	21	Lean Period Demand	765.0	382.5	4857							
3.9410	21	22	Lean Period Demand	765.0	382.5	5239							
3.9420	22	23	Lean Period Demand	765.0	382.5	5622							
3.9430	23	24	Lean Period Demand	765.0	382.5	6004							
3.9440				17595	13391	6006							



3.9450	Capacity of Underground tank storage Tank required as per mass curve	=	6006	KL				
3.9460	Capacity of Underground tank storage Tank required as per Norms(8 Hours capacityof Total Demand)11333*8/24=3778 KL	=	5103	KL				
3.9470	Storage Capacity required to meetFire Fighting Demand	=	0	KL				
3.9480	Total Capacity required	=	5103	KL				
3.9490	Total Capacity Existing		2800	KL				
3.9500	Total Capacity provided	=	nil	KL				
3.9510			Hence OK					
3.9520	Pumping Machinery	Zone 2						
3.9530	Runing Hours of Lean Period	=	8	Hrs				
3.9540	Runing Hours of Average Period	=	8	Hrs				
3.9550	Runing Hours of Peak Period	=	8	Hrs				
3.9560	Capacity of Pump Required during Lean Period	=	383	KL / Hr.				
3.9570		=	106	Litre Per Second				
3.9580	Capacity of PumpProvided during Lean Period	=	106	Litre Per Second				
3.9590	BHP of Motor=15*40/(75*0.75)		113.3	60	BHP			
3.9600	Capacity of Pump Required during Avwerage Period	=	765	KL / Hr.				
3.9610		=	213	Litre Per Second				
3.9620	Capacity of PumpProvided during Average Period	=	100	Litre Per Second				
3.9630	BHP of Motor=30*40/(75*0.75)		106.7	110	BHP			
3.9640	Capacity of Pump Required during Peak Period	=	1148	KL / Hr.				
3.9650		=	319	Litre Per Second				
3.9660	Capacity of PumpProvided during PeakPeriod	=	150	Litre Per Second				
3.9670	BHP of Motor=40*40/(75*0.75)		160.0	160	BHP			
3.9680	Quantity of Water pumped during Lean Period	=	3060	KL				
3.9690	Quantity of Water pumped during Average Period Period	=	2880	KL				

3.9700	Quantity of Water pumped during Peak Period				=	4320	KL			
3.9710	Total Quantity of Water pumped during24 Hrs.				=	10260	KL			
3.9720	Total Quantity of Water required during24 Hrs.				=	15310	KL			
3.9730						Hence OK				
4.000	**ZONE 2(Block G)**									
4.001	Provide1 pumps to meet total demand 50 lps with 60 m head ,50BHP					2	1.0	Nos.		
4.002	Provide one pumpas to meet Peak demand100lps with 60 m , 110BHP Motor					1	1.0	Nos.		
4.003	Provide one pumpas stand bye150 lps with 60 m ,160BHP Motor					1	1.0	Nos.		
4.004	Power Backup									
4.005	No. of pumps to run simultaneously	=	1.00	1	Nos.					
4.006	BHP of Two pumps	=	106.25	100.00	BHP					
4.007	kw	=	79.26	74.60	kw					
4.008	k Va	=	99.08	93.25	k Va					
4.009	Current	=	180.14	169.55	A					
4.010	Initial Current	=	450.36	423.86	A					
4.011	k Va	=	198.16	186.50	k Va					
4.012	Capacity of Generator Required	=	100.00	250.00	k Va					
4.013	Capacity of Generator provided	=	100.00	250.00	k Va					
4.014	Provideone one generating set of 120 k VA as100% Power back up arrangements to run 2 pump average demand with 10HP Motor				Zone 2	350.0	370	k VA		
4.015	**DLF Phase 1 - Located in Group Housing**									
4.016	Net Water Demand					616		KL		
4.017	Size of UGT@ 1/3 of Net Water Demand					205		KL		
4.018	Fire Fighting Demand					210		KL		
4.019	Total Capacity required					415		KL		
4.020	Total CapacityExisting					450		KL		
4.021	Balance Capacity Required					0		KL		
4.022	Provide UGT in Two Compartments another to meet water demand , size 12m x9 mx3.6m+12m x 9m x 3.0 m					0		KL		
4.023	Total Capacity provided					0		KL		
4.024	Less for concrete walls & columns					0		KL		
4.025	Net Capacity provided					0		KL		
4.026	Design of Pumping Machinary									
4.027	Pumping Macinary will be designed for supplying water in Zone 1									
4.028	**Group Housing Area**					**Zone 3**				
4.029	Total Average Flow					=	616	KL		
4.030	Average Hourly Flow					=	28	KL		
4.031	Peak Flow Factor					=	1.5			
4.032	Peak Flow					=	924	KL		
4.033	water demand Lean Period=0.5 times Average Hourly flow					=	14	KL	233	LPS
4.034	Average HouryDemand					=	28	KL	467	LPS
4.035	Recycle water demand Peak Period=1.5times Average Hourly Demand					=	42	KL	700	LPS
4.036	Capacity of Balancing Tank									

4.037	**From**	**To**		Inflow of Water	Demand Pattern	Storage Required							
4.038	Hrs	Hrs		KL	KL	KL							
4.039						200							
4.040	12	1	Lean Period Demand		14	186							
4.041	1	2	Lean Period Demand	28.0	14	200							
4.042	2	3	Lean Period Demand	28.0	14	214							
4.043	3	4	Lean Period Demand	28.0	14	228							
4.044	4	5	Average Period Demand	28.0	28	228							
4.045	5	6	Average Period Demand	28.0	28	228							
4.046	6	7	Average Period Demand	28.0	28	228							
4.047	7	8	Peak Period Demand	28.0	42	214							
4.048	8	9	Peak Period Demand	28.0	42	200							
4.049	9	10	Peak Period Demand	28.0	42	186							
4.050	10	11	Peak Period Demand	28.0	42	172							
4.051	11	12	Average Period Demand	28.0	28	172							
4.052	12	13	Average Period Demand	28.0	28	172							
4.053	13	14	Average Period Demand	28.0	28	172							
4.054	14	15	Average Period Demand	28.0	28	172							
4.055	15	16	Average Period Demand	28.0	28	172							
4.056	16	17	Peak Period Demand	28.0	42	158							
4.057	17	18	Peak Period Demand	28.0	42	144							
4.058	18	19	Peak Period Demand	28.0	42	130							
4.059	19	20	Peak Period Demand	28.0	42	116							
4.060	20	21	Lean Period Demand	28.0	14	130							
4.061	21	22	Lean Period Demand	28.0	14	144							
4.062	22	23	Lean Period Demand	28.0	14	158							
4.063	23	24	Lean Period Demand	28.0	14	172							
4.064				644	672	228							

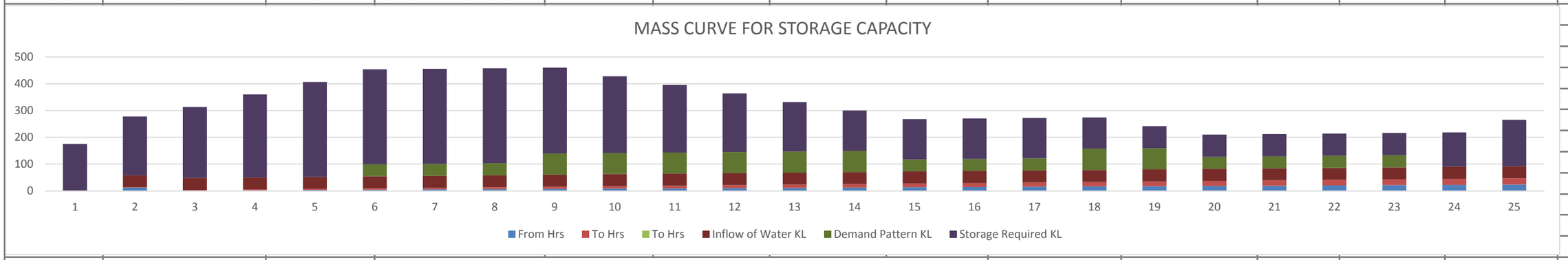


4.065	Capacity of Underground tank storage Tank required as per mass curve			=	228	KL			
4.066	Capacity of Underground tank storage Tank required as per Norms(8 Hours capacityof Total Demand)11333*8/24=3778 KL			=	205	KL			
4.067	Storage Capacity required to meetFire Fighting Demand			=	210	KL			
4.068	Total Capacity required			=	415	KL			
4.069	Total Capacity Existing				450	KL			
4.070	Total Capacity provided			=	0	KL			
4.071					Hence OK				
4.072	Pumping Machinery								
4.073	Runing Hours of Lean Period			=	8		Hrs		
4.074	Runing Hours of Average Period			=	8		Hrs		
4.075	Runing Hours of Peak Period			=	8		Hrs		
4.076	Capacity of Pump Required during Lean Period			=	14		KL / Hr.		
4.077				=	4		Litre Per Second		
4.078	Capacity of PumpProvided during Lean Period			=	10		Litre Per Second		
4.079	BHP of Motor=40*40/(75*0.75)				16.0	20	BHP		
4.080	Capacity of Pump Required during Avwerage Period			=	28		KL / Hr.		
4.081				=	8		Litre Per Second		
4.082	Capacity of PumpProvided during Average Period			=	10		Litre Per Second		
4.083	BHP of Motor=70*40/(75*0.0.75)				16.0	20	BHP		
4.084	Capacity of Pump Required during Peak Period			=	42		KL / Hr.		
4.085				=	12		Litre Per Second		
4.086	Capacity of PumpProvided during PeakPeriod			=	10		Litre Per Second		
4.087	BHP of Motor=100*40/(75*0.75)				16.0	20	BHP		
4.088	Quantity of Water pumped during Lean Period			=	288		KL		
4.089	Quantity of Water pumped during Average Period Period			=	288		KL		
4.090	Quantity of Water pumped during Peak Period			=	288		KL		
4.091	Total Quantity of Water pumped during24 Hrs.			=	864		KL		
4.092	Total Quantity of Water required during24 Hrs.			=	616		KL		
4.093					Hence OK				
4.094									
4.095	Provide2 pump to meet total demand 10 lps with90 m head.20BHP				2	2.0	Nos		
4.096	Provide2 pump to meet total demand 10 lps with90 m head.20BHP				1	1.0	Nos		
4.097	Provide2 pump to meet total demand 10 lps with90 m head.20BHP				1	1.0	Nos		

4.098	Power Backup			During Lean Period		During Average Demand			
4.099	No. of pumps to run simultaneously		=	1.00	1	Nos.			
4.100	BHP of Two pumps		=	20.00	20	BHP			
4.101	kw		=	14.92	14.92	kw			
4.102	k Va		=	18.65	18.65	k Va			
4.103	C urrent		=	33.91	33.91	A			
4.104	Initial Current		=	84.77	84.77	A			
4.105	k Va		=	37.30	37.30	k Va			
4.106	Capacity of Generator Required		=	50.00	50.00	k Va			
4.107	Capacity of Generator provided		=		100.00	k Va			
4.108									
4.109	Provideone one generating set of 200 k VA as100% Power back up arrangements to run two pumps average demand with 30HP Motor each.						100	k VA	

4.2	**RECYCLED WATER SUPPLY**												
4.185	Recycled water distribution is provided inTwo Zones From STP site in Phase 4												
4.186	Zone 1 - , Covers Block ,B							1047		KL			
4.187	Zone 2 - , Covers Block G							1157		KL			
4.188	Zone 1, Covers Block ,B												
4.189	Net Water Demand							1047		KL			
4.190	Size of UGT@ 1/3 of Net Water Demand							349		KL			
4.191	Provide UGT in Two Compartments to meet Recycled water demand , size 12m x12 mx3.6m							389		KL			
4.192	Total Capacity provided							389		KL			
4.193	Less for concrete walls & columns							3		KL			
4.194	Net Capacity provided							386		KL			
4.195	Design of Pumping Machinary												
4.196	**PUMPING STATION**												
4.197	Total Average Flow							=	1047	KL			
4.198	Average Hourly Flow							=	45	KL			
4.199	Peak Flow Factor							=	1.5				
4.200	Peak Flow							=	1570	KL			
4.201	water demand Lean Period=0.5 times Average Hourly flow							=	22.50	KL			
4.202	Average HouryDemand							=	45.00	KL			
4.203	Recycle water demand Peak Period=1.5times Average Hourly Demand							=	79.00	KL			
4.204	Capacity of Balancing Tank												
4.205	**From**	**To**		Inflow of Water	Demand Pattern	Storage Required							
4.206	Hrs	Hrs		KL	KL	KL							
4.207						175							
4.208	12	1	Lean Period Demand	45.0		220							
4.209	1	2	Lean Period Demand	45.0		265							
4.210	2	3	Lean Period Demand	45.0		310							
4.211	3	4	Lean Period Demand	45.0		355							
4.212	4	5	Average Period Demand	45.0	45	355							
4.213	5	6	Average Period Demand	45.0	45	355							
4.214	6	7	Average Period Demand	45.0	45	355							
4.215	7	8	Peak Period Demand	45.0	79	321							
4.216	8	9	Peak Period Demand	45.0	79	287							
4.217	9	10	Peak Period Demand	45.0	79	253							
4.218	10	11	Peak Period Demand	45.0	79	219							
4.219	11	12	Peak Period Demand	45.0	79	185							
4.220	12	13	Peak Period Demand	45.0	79	151							
4.221	13	14	Average Period Demand	45.0	45.0	151							
4.222	14	15	Average Period Demand	45.0	45.0	151							
4.223	15	16	Average Period Demand	45.0	45	151							
4.224	16	17	Peak Period Demand	45.0	79	117							
4.225	17	18	Peak Period Demand	45.0	79	83							
4.226	18	19	Average Period Demand	45.0	45.00	83							

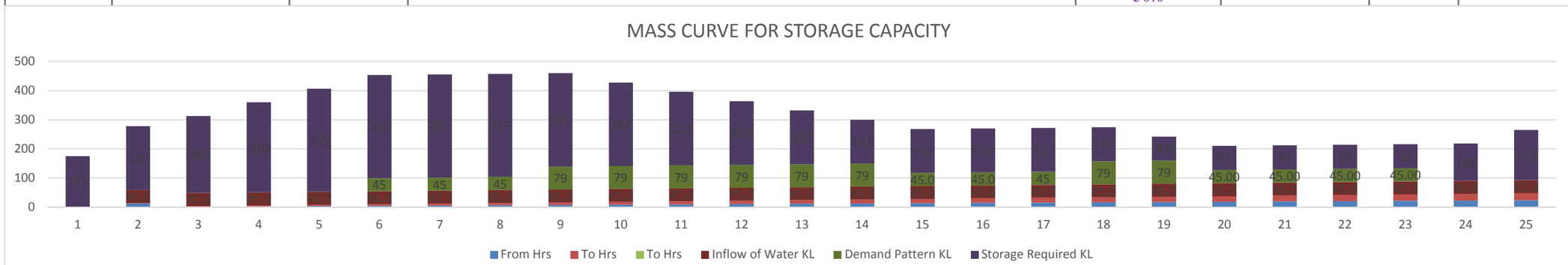
4.227	19	20	Average Period Demand	45.0	45.00	83							
4.228	20	21	Average Period Demand	45.0	45.00	83							
4.229	21	22	Average Period Demand	45.0	45.00	83							
4.230	22	23	Lean Period Demand	45.0		128							
4.231	23	24	Lean Period Demand	45.0		173							



4.232					1080	1082	355						
4.233													
4.234	Capacity of Underground tank storage Tank required as per mass curve				=	355	KL						
4.235	Capacity of Underground tank storage Tank required as per Norms(8 Hours capacityof Total Demand)				=	349	KL						
4.236	Total Capacity provided				=	349	KL						
4.237						Hence OK							
4.238	Pumping Machinery												
4.239	Runing Hours of Lean Period				=	0		Hrs					
4.240	Runing Hours of Average Period				=	11		Hrs					
4.241	Runing Hours of Peak Period				=	7		Hrs					
4.242	Capacity of Pump Required during Lean Period				=	23		KL / Hr.					
4.243					=	6		Litre Per Second					
4.244	Capacity of PumpProvided during Lean Period				=	8		Litre Per Second					
4.245	BHP of Motor=8*45/(75*0.6)					5.0	5	BHP					
4.246	Capacity of Pump Required during Average Period				=	45		KL / Hr.					
4.247					=	13		Litre Per Second					
4.248	Capacity of PumpProvided during Average Period				=	16		Litre Per Second					
4.249	BHP of Motor=16*45/(75*0.75)					10.0	10	BHP					
4.250	Capacity of Pump Required during Peak Period				=	79		KL / Hr.					
4.251					=	22		Litre Per Second					
4.252	Capacity of PumpProvided during PeakPeriod				=	24		Litre Per Second					
4.253	BHP of Motor=24*45/(75*0.75)					14.9	15	BHP					
4.254	Quantity of Water pumped during Lean Period				=	0		KL					
4.255	Quantity of Water pumped during Average Period Period				=	634		KL					
4.256	Quantity of Water pumped during Peak Period				=	605		KL					
4.257	Total Quantity of Water pumped during24 Hrs.				=	1238		KL					
4.258	Total Quantity of Water required during24 Hrs.				=	1047		KL					
4.259						Hence OK							
4.260	Provide1 pump to meet total demand8lps with35 m head,5 BHP					1	1.0	Nos					
4.261	Provide1 pump to meet total demand16 lps with35 m head,10 BHP					2	1.0	Nos					

4.262	Provide1 pump to meet total demand 24 lps with35 m head1,5 BHP					1	1.0	Nos		
4.263	Power Backup		During Lean Period	Average Demand						
4.264	No. of pumps to run simultaneously	=	1.00	1	Nos.					
4.265	BHP of Two pumps	=	10.00	15	BHP					
4.266	kw	=	7.46	11.19	kw					
4.267	k Va	=	9.33	13.99	k Va					
4.268	C urrent	=	16.95	25.43	A					
4.269	Initial Current	=	42.39	63.58	A					
4.2691	k Va	=	18.65	27.98	k Va					
4.2692	Capacity of Generator Required	=		62.50	k Va					
4.2693	Capacity of Generator provided	=		62.50	k Va					
4.2694	Provideone one generating set of 62.5 k VA as100% Power back up arrangements to run two pumps average demand with 30HP Motor each.						62.5	k VA		
4.3	Zone 2, Block G									
4.265	Net Water Demand					1157		KL		
4.266	Size of UGT@ 1/3 of Net Water Demand					386		KL		
4.267	Provide UGT in Two Compartments to meet Recycled water demand , size 12m x12 mx3.6m					389		KL		
4.268	Total Capacity provided					389		KL		
4.2690	Less for concrete walls & columns					3		KL		
4.2700	Net Capacity provided					386		KL		
4.2710	Design of Pumping Machinary									
4.2720	**PUMPING STATION**									
4.2730	Total Average Flow					=	1157	KL		
4.2740	Average Hourly Flow					=	50	KL		
4.2750	Peak Flow Factor					=	1.5			
4.2760	Peak Flow					=	1736	KL		
4.2770	water demand Lean Period=0.5 times Average Hourly flow					=	25.00	KL		
4.2780	Average HouryDemand					=	50.00	KL		
4.2790	Recycle water demand Peak Period=1.5times Average Hourly Demand					=	88.00	KL		
4.280	Capacity of Balancing Tank									
4.281	**From**	**To**			Inflow of Water	Demand Pattern	Storage Required			
4.282	Hrs	Hrs			KL	KL	KL			
4.283							175			
4.284	12	1	Lean Period Demand		50.0		225			
4.285	1	2	Lean Period Demand		50.0		275			
4.286	2	3	Lean Period Demand		50.0		325			
4.287	3	4	Lean Period Demand		50.0		375			
4.288	4	5	Average Period Demand		50.0	50	375			
4.289	5	6	Average Period Demand		50.0	50	375			
4.290	6	7	Average Period Demand		50.0	50	375			
4.291	7	8	Peak Period Demand		50.0	88	337			
4.292	8	9	Peak Period Demand		50.0	88	299			

4.293	9	10	Peak Period Demand	50.0	88	261			
4.294	10	11	Peak Period Demand	50.0	88	223			
4.295	11	12	Peak Period Demand	50.0	88	185			
4.296	12	13	Peak Period Demand	50.0	88	147			
4.297	13	14	Average Period Demand	50.0	50.0	147			
4.298	14	15	Average Period Demand	50.0	50.0	147			
4.299	15	16	Average Period Demand	50.0	50	147			
4.300	16	17	Peak Period Demand	50.0	88	109			
4.301	17	18	Peak Period Demand	50.0	88	71			
4.302	18	19	Average Period Demand	50.0	50.00	71			
4.303	19	20	Average Period Demand	50.0	50.00	71			
4.304	20	21	Average Period Demand	50.0	50.00	71			
4.305	21	22	Average Period Demand	50.0	50.00	71			
4.306	22	23	Lean Period Demand	50.0		121			
4.307	23	24	Lean Period Demand	50.0		171			



4.308				1200	1204	375			
4.309	Capacity of Underground tank storage Tank required as per mass curve			=	375	KL			
4.31	Capacity of Underground tank storage Tank required as per Norms(8 Hours capacityof Total Demand)			=	386	KL			
4.311	Total Capacity provided			=	386	KL			
4.312					Hence OK				
4.313	Pumping Machinery								
4.314	Runing Hours of Lean Period			=	0		Hrs		
4.315	Runing Hours of Average Period			=	11		Hrs		
4.316	Runing Hours of Peak Period			=	7		Hrs		
4.317	Capacity of Pump Required during Lean Period			=	25		KL / Hr.		

4.318		=	7		Litre Per Second					
4.319	Capacity of PumpProvided during Lean Period	=	10		Litre Per Second					
4.32	BHP of Motor=8*45/(75*0.6)		6.2	10	BHP					
4.321	Capacity of Pump Required during Average Period	=	50		KL / Hr.					
4.322		=	14		Litre Per Second					
4.323	Capacity of PumpProvided during Average Period	=	16		Litre Per Second					
4.324	BHP of Motor=16*45/(75*0.75)		10.0	10	BHP					
4.325	Capacity of Pump Required during Peak Period	=	88		KL / Hr.					
4.326		=	24		Litre Per Second					
4.327	Capacity of PumpProvided during PeakPeriod	=	24		Litre Per Second					
4.328	BHP of Motor=24*45/(75*0.75)		14.9	15	BHP					
4.329	Quantity of Water pumped during Lean Period	=	0		KL					
4.33	Quantity of Water pumped during Average Period Period	=	634		KL					
4.331	Quantity of Water pumped during Peak Period	=	605		KL					
4.332	Total Quantity of Water pumped during24 Hrs.	=	1238		KL					
4.333	Total Quantity of Water required during24 Hrs.	=	1157		KL					
4.334			Hence OK							
4.335	Provide1 pump to meet total demand8lps with35 m head,5 BHP		1	1.0	Nos					
4.336	Provide1 pump to meet total demand16 lps with35 m head,10 BHP		2	2.0	Nos					
4.337	Provide1 pump to meet total demand 24 lps with35 m head1,5 BHP		1	1.0	Nos					

4.338	Power Backup		During Lean Period	During Average Demand						
4.339	No. of pumps to run simultaneously	=	1.00	1	Nos.					
4.34	BHP of Two pumps	=	10.00	15	BHP					
4.341	kw	=	7.46	11.19	kw					
4.342	k Va	=	9.33	13.99	k Va					
4.343	C urrent	=	16.95	25.43	A					
4.344	Initial Current	=	42.39	63.58	A					
4.345	k Va	=	18.65	27.98	k Va					
4.346	Capacity of Generator Required	=		62.50	k Va					
4.347	Capacity of Generator provided	=		62.50	k Va					
4.348	Provideone one generating set of 62.5 k VA as100% Power back up arrangements to run two pumps average demand with 30HP Motor each.						62.5	k VA		

4.372	DISTRIBUTION NET WORK (RECYCLED WATER SUPPLY)												
4.3721	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		
4.3722	1	2	3	4	5	6	7	8	9	10	11		
4.3723													
4.3724		M	KLD	KLD	KLD	LPM	mm	M	M	M	M		
4.3725													
4.3726	STP1-B1'	14	2.47	2202	2204	2295.83	300.00	0.00	0.02	0.02	29.98		
4.3727	**B1'-B2**	**125**	**22.09**	**1435**	**1457**	**1517.30**	**300.00**	**0.00**	**0.10**	**0.13**	**29.87**		
4.3728	B2-B2'	65	11.49	362	373	388.62	100.00	0.01	0.90	1.03			
4.3729	B2'-A4	65	11.49	350	362	376.66	100.00	0.01	0.85	1.88	28.12		
4.3730	A4-A3'	53	9.37	341	350	364.69	100.00	0.01	0.65	2.53	27.47		
4.3731		330	58.32										
4.3732	A3-A(High School	138	24.39	0	24	25.40	100.00	0.00	0.01	6.41	23.59		
4.3733	A3-A7	63	11.13	247	258	268.78	100.00	0.01	0.44	6.84	23.16		
4.3734	A7-A14	77	13.61	233	247	257.18	100.00	0.01	0.50	7.33			
4.3735	A14-A21	62	10.96	222	233	243.00	100.00	0.01	0.36	7.69	22.31		
4.3736	A21-A22	146	25.80	197	222	231.59	100.00	0.01	0.78	8.47	21.53		
4.3737	A22-A25	69	12.19	184	197	204.71	100.00	0.00	0.29	8.76	21.24		
4.3738	-	0	0.00	0	0	0.00	0.00	0.00	0.00	0.00			
4.3739	A25-A46	149	26.33	33	59	61.86	100.00	0.00	0.07	8.83	21.17		
4.3740	A46-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	8.83	21.17		
4.3741	A46-A46'	147	25.98	4	30	30.74	100.00	0.00	0.02	8.85	21.15		
4.3742	A46'-(Green Belt)	20	3.53	0	4	3.68	100.00	0.00	0.00	8.85	21.15		
4.3743													
4.3744	A25-A26	71	12.55	112	125	130.15	100.00	0.00	0.13	8.89	21.11		
4.3745	A26-A26'	71	12.55	30	42	44.00	100.00	0.00	0.02	8.91			
4.3746	A26'-A40(Park)	20	3.53	0	4	3.68	100.00	0.00	0.00	8.91	21.09		
4.3747	A26'-A47	128	22.62	4	26	27.25	100.00	0.00	0.01	8.92	21.08		
4.3748	A47-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	8.92			
4.3749	A26-A28	71	12.55	58	70	73.09	100.00	0.00	0.04	8.96	21.04		
4.3750	A28-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	8.96	21.04		
4.3751	A28-A29	76	13.43	41	54	56.33	100.00	0.00	0.03	8.99	21.01		
4.3752	A29-A41	86	15.20	25	41	42.34	100.00	0.00	0.02	9.01	20.99		
4.3753	A41-A51	124	21.91	4	25	26.51	100.00	0.00	0.01	9.02			
4.3754	A51-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	9.02	20.98		
4.3755													
4.3756	B2-B3	81	14.32	1047	1061	1105.67	250.00	0.00	0.09	1.12	28.88		
4.3757	**B3-B5**	**987**	**174.43**	**4**	**178**	**185.38**	**100.00**	**0.00**	**3.47**	**4.59**	**25.41**		
4.3758	B5-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	4.59			
4.3759													
4.3760	**B3-B19**	**125**	**22.09**	**847**	**869**	**905.37**	**250.00**	**0.00**	**0.10**	**1.21**	**28.79**		
4.3761	B19-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	1.21	28.79		
4.3762													
4.3763	B19-B21	108	19.09	824	844	878.68	200.00	0.00	0.23	1.44	28.56		
4.3764	B21-B20	66	11.66	813	824	858.80	200.00	0.00	0.14	1.58	28.42		
4.3765	B20-B23	61	10.78	802	813	846.65	200.00	0.00	0.12	1.70	28.30		
4.3766													

4.3767	B23-B24	69	12.19	24	36	37.92	100.00	0.00	0.01	1.72			
4.3768	B24-B37	117	20.68	4	24	25.22	100.00	0.00	0.01	1.73	28.27		
4.3769	Park-B37	20	3.53	0	4	3.68	100.00	0.00	0.00	1.73	28.27		
4.3770													
4.3771	B23-B55	272	48.07	718	766	797.49	200.00	0.00	0.49	2.19	27.81		
4.3772	B55-B62	204	36.05	681	718	747.42	200.00	0.00	0.32	2.51	27.49		
4.3773													
4.3774	**B62-B57**	**66**	**11.66**	**150**	**162**	**168.81**	**100.00**	**0.00**	**0.20**	**2.71**			
4.3775	B57-B63	161	28.45	122	150	156.66	100.00	0.00	0.41	3.12	26.88		
4.3776	B63-B65	125	22.09	100	122	127.02	100.00	0.00	0.22	3.34	26.66		
4.3777	B65-B79	85	15.02	25	40	41.61	100.00	0.00	0.02	3.36	26.64		
4.3778	B79-B100	121	21.38	4	25	25.96	100.00	0.00	0.01	3.37			
4.3779	B100-B99(Park)	20	3.53	0	4	3.68	100.00	0.00	0.00	3.37	26.63		
4.3780	B65-B66	132	23.33	37	60	62.41	100.00	0.00	0.06	3.43	26.57		
4.3781	B66-B81	97	17.14	19	37	38.11	100.00	0.00	0.02	3.36	26.64		
4.3782	B81-B102	40	7.07	12	19	20.25	100.00	0.00	0.00	3.36			
4.3783	B102-B104	50	8.84	4	12	12.89	100.00	0.00	0.00	3.36	26.64		
4.3784	B104-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	3.36	26.64		
4.3785													
4.3786	**B62-B138**	**422**	**74.58**	**445**	**519**	**541.05**	**150.00**	**0.00**	**1.50**	**4.01**	**25.99**		
4.3787	B138-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	4.01	25.99		
4.3788	B138-B159	104	18.38	423	441	459.68	150.00	0.00	0.27	3.40	26.60		
4.3789	B159-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	3.40	26.60		
4.3790	B159-B160	111	19.62	400	419	436.85	150.00	0.00	0.27	3.66	26.34		
4.3791	B160-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	3.66			
4.3792	B160-B163	418	73.87	322	396	412.74	150.00	0.00	0.90	4.56	25.44		
4.3793													
4.3794	B163-B169	100	17.67	118	136	141.75	100.00	0.00	0.21	4.77	25.23		
4.3795	B169-B170	125	22.09	96	118	123.34	100.00	0.00	0.21	4.98			
4.3796	B170-Park	20	3.53	93	96	100.33	100.00	0.00	0.02	5.00	25.00		
4.3797	B169-B189	135	23.86	0	24	24.85	100.00	0.00	0.01	4.79	25.21		
4.3798	B189-B190	46	8.13	61	69	71.80	100.00	0.00	0.03	4.81	25.19		
4.3799	B190-B205	62	10.96	4	14	15.10	100.00	0.00	0.00	4.82			
4.3800	B205-Park	20	3.53	0	4	3.68	100.00	0.00	0.00	4.79	25.21		
4.3801	B190-B191	150	26.51	20	46	48.23	100.00	0.00	0.04	4.83	25.17		
4.3802	B191-B192	32	5.66	14	20	20.62	100.00	0.00	0.00	4.83			
4.3803	B192-B193	60	10.60	4	14	14.73	100.00	0.00	0.00	5.01	24.99		
4.3804	**B193-Park**	**20**	**3.53**	**0**	**4**	**3.68**	**100.00**	**0.00**	**0.00**	**5.01**	**24.99**		
4.3805													
4.3806	**B163-B164**	**63**	**11.13**	**175**	**186**	**194.03**	**100.00**	**0.00**	**0.24**	**4.80**	**25.20**		
4.3807	B164-B144	100	17.67	4	21	22.09	100.00	0.00	0.01	4.81			
4.3808	**B144-PARK**	**20**	**3.53**	**0**	**4**	**3.68**	**100.00**	**0.00**	**0.00**	**5.00**	**25.00**		
4.3809	B164-B165	144	25.45	128	154	160.35	100.00	0.00	0.39	5.39	24.61		
4.3810	B165-B146	100	17.67	111	128	133.84	100.00	0.00	0.19	5.58			
4.3811	B146-PARK	20	3.53	107	111	115.43	100.00	0.00	0.03	5.03	24.97		
4.3812	**B146-PARK**	**20**	**3.53**	**0**	**4**	**3.68**	**100.00**	**0.00**	**0.00**	**5.03**	**24.97**		
4.3813	B146-B88	252	44.54	59	104	108.06	100.00	0.00	0.33	5.36			
4.3814	B88-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	5.03	24.97		
4.3815	B88-B70	125	22.09	34	56	57.99	100.00	0.00	0.05	5.08	24.92		
4.3816	**B70-PARK**	**20**	**3.53**	**0**	**4**	**3.68**	**100.00**	**0.00**	**0.00**	**5.08**	**24.92**		
4.3817	B70-B89	150	26.51	4	30	31.30	100.00	0.00	0.02	5.10			

4.3818	**B89-PARK**	**20**	**3.53**	**0**	**4**	**3.68**	**100.00**	**0.00**	**0.00**	**5.03**	**24.97**		
4.3819													
4.3820	**B1'-A68'**	**380**	**67.16**	**678**	**745**	**775.96**	**200.00**	**0.00**	**0.65**	**0.67**	**29.33**		
4.3821	A68'-A68	26	4.59	673	678	706.00	200.00	0.00	0.04	0.71	29.29		
4.3822													
4.3823	A68-A66	68	12.02	68	80	83.39	100.00	0.00	0.05	0.76	29.24		
4.3824	A66-A65	197	34.82	33	68	70.88	100.00	0.00	0.12	0.88	29.12		
4.3825	A65-A60	63	11.13	22	33	34.61	100.00	0.00	0.01	0.89	29.11		
4.3826	A60-A61	42	7.42	15	22	23.01	100.00	0.00	0.00	0.89	29.11		
4.3827	A61-A59	63	11.13	4	15	15.28	100.00	0.00	0.00	0.90	29.10		
4.3837	A59-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	0.90	29.10		
4.3847													
4.3857	A68-A99	428	75.64	517	593	617.82	150.00	0.00	1.94	2.65	27.35		
4.3867	A99-A102	66	11.66	506	517	539.03	150.00	0.00	0.23	2.88			
4.3877	A102-A108	77	13.61	492	506	526.88	150.00	0.00	0.26	3.14	26.86		
4.3887	A108-A122	168	29.69	463	492	512.70	150.00	0.00	0.54	3.68	26.32		
4.3897	A122-A125	314	55.49	407	463	481.77	150.00	0.00	0.90	4.58	25.42		
4.3907													
4.3917	A125-A131	245	43.30	218	262	272.64	100.00	0.01	1.76	6.34	23.66		
4.3927	A131-A132	110	19.44	4	23	23.93	100.00	0.00	0.01	6.35			
4.3937	A132-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	6.35	23.65		
4.3947	A131-A123	46	8.13	187	195	203.61	100.00	0.00	0.19	6.54	23.46		
4.3957	A123-A104	345	60.97	126	187	195.14	100.00	0.00	1.33	7.88	22.12		
4.3967	A104-A105	124	21.91	4	25	26.51	100.00	0.00	0.01	7.89			
4.3977	A105-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	7.89	22.11		
4.3987	A104-A100	66	11.66	89	101	105.12	100.00	0.00	0.08	7.97	22.03		
4.3997	A100-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	7.97	22.03		
4.4007	A100-A101	84	14.85	71	86	89.29	100.00	0.00	0.08	8.05			
4.4017	A101-A86	223	39.41	31	71	73.82	100.00	0.00	0.14	8.19	21.81		
4.4027	A86-A85	71	12.55	4	16	16.75	100.00	0.00	0.00	8.19	21.81		
4.4037	A85-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	8.19	21.81		
4.4047	A86-A82	67	11.84	4	15	16.02	100.00	0.00	0.00	8.20			
4.4057	A82-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	8.19	21.81		
4.4067													
4.4077	A125-A147	221	39.06	106	145	151.33	100.00	0.00	0.53	5.12	24.88		
4.4087	A147-A143	52	9.19	4	13	13.25	100.00	0.00	0.00	5.12	24.88		
4.4097	A143-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	5.12	24.88		
4.4107	A147-A135	182	32.16	61	93	97.39	100.00	0.00	0.19	5.31	24.69		
4.4117	A135-A134	102	18.03	4	22	22.46	100.00	0.00	0.01	5.32	24.68		
4.4127	A134-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	5.32	24.68		
4.4137	A135-A129	48	8.48	31	40	41.42	100.00	0.00	0.01	5.33	24.67		
4.4147	A129-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	5.33	24.67		
4.4157	A129-A126	137	24.21	4	28	28.90	100.00	0.00	0.02	5.34	24.66		
4.4167	A126-PARK	20	3.53	0	4	3.68	100.00	0.00	0.00	5.34			
4.4177													

4.4187	Description	50mm o/d	63mm o/d	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d	TOTAL LENGTH				
4.4197		M	M	M	M	M	M	M	M	M			
4.4207	AC Pipe Line class 25 (Mazza)	500	500	8901	2108	1117	206	139	13471				
4.4217	Gate valve	30	30						60				
4.4227	Sluice Valves	0	0	30	8	4	1	1	44				
4.4237	Sprikler	43							43				
4.4247	Air valve					5			5				
4.4257	Lawn Hydrant		30						30				
4.4267	**PIPE & SPECIALS WITHEN PUMP CHAMBER RECYCLING**												
4.4277													
4.4287		0		8LPS ,35 M,		16LPS ,35 M,		24LPS ,35 M,					
4.4297	No. of Pumps			2		4		2					
4.4307				150 mm i/d	100 mm i/d	150 mm i/d	100 mm i/d	200 mm i/d	150 mm i/d				
4.4317	Sluice Valves			4		4		4					
4.4327	Non Return Valves			2		4		2					
4.4337	Scour Valves				2		4		2				
4.4347	DI pipe Double Flanged 150 mm i/d			25		60		25					
4.4357	DI pipe Double Flanged 250mm i/d			25		50		25					
4.4367	90^{0} Bend			2		4		2					
4.4377	Puddle Coller			2		4		2					
4.4387	Reducer150 nn x 125 mm			2		4		2					
4.4397	Reducer150 nn x 100mm			2		4		2					
4.4407	TEE 250 mm *250 mm*150mm			2		4		2					
4.4417	Pressure Gauge			2		4		2					
4.4427	Flow Meter			1		2		1					
4.4437	Water Indiccater												

5.000	**STORM WATER DRAINAGE**												
5.001	**Estimation of Run off & Design of Recharge Well**												
5.002	**Break up of AreaWare Housing & Transport HUB,DLF Phase 1**												
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		1230619	304.095	40%	30%	30%	121.64	91.2285	91.23			
5.007	Area under Group Housing		59691	14.750	40%	40%	20%	5.90	5.9	2.95			
5.008	Area under Shopping Commercial		47040	11.624	60%	20%	20%	6.97	2.3248	2.32			
5.009	Area Under Utility		199711	49.35	60%	20%	20%	29.61	9.87	9.87			
5.010	Area under Roads		752021	185.830	0%	80%	20%	0.00	148.664	37.17			
5.011	Area under Green Belt		95521	23.604	0%	0%	100%	0.00	0	23.60			
5.012	Area Under U.D.		3416	0.844	0%	70%	30%	0.00	0.5908	0.25			
5.013	Total		2388019	590.097	72%	64.00%	16%	164.122	258.578	167.396			
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%	0.535+(0.0.622-0.535)*(54.12%-40%} /(60%-40%)				0.566		
5.026	Roof Top Area of,Residential					64%	0.535+(0.0.622-0.535)*(64%-40%} /(60%-40%)				0.615		
5.027	Roof top Area of Group Housing					64%	0.535+(0.0.622-0.535)*(64%-40%} /(60%-40%)				0.615		
5.028	Roof Top Area Institutional,Utility & other building					64%	0.535+(0.0.622-0.535)*(64%-40%} /(60%-40%)				0.615		
5.029	Road , Parking					72%	0.535+(0.0.622-0.535)*(72%-40%} /(60%-40%)				0.650		
5.030	GreenArea					16%	0.535+(0.0.622-0.535)*(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 Phase 1												
5.040	Description of Area						Acres			Sqm.			
5.041	Area to be developed						238.8			Hectare			
5.042	Impervious factor						52.61%						
5.043	Effective impervious Area						125.6			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)								16888	(M3/Hour)			
5.055	Anticipated Run off (Cumecs)								4.69	(Cumecs)			
5.056	Anticipated Run off (Cumecs)								165.13	(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)								14926	(M3/Hour)			
5.060	Anticipated Run off (Cumecs)								4.15	(Cumecs)			
5.061	Anticipated Run off (Cusecs)								146	(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)								7451	(M3/Hour)			
5.065	Anticipated Run off(Cumecs)								2.07	(Cumecs)			
5.066	Anticipated Run off (Cusecs)								73	(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	492247.72	121.64	0.615	0.477	361126	26663	105802	136979	91683	361126		
5.072	Open Area	369185.79	91.23										
5.073	Green Area	369185.79	91.23										
5.074	Area under Group Housing												
5.075	Roof Top Area Group Housing	492247.72	5.90	0.615	0.477	361126	26663	105802	136979	91683	361126		
5.076	Open Area	369185.79	5.90										
5.077	Green Area	369185.79	2.95										
5.078	Area under Shopping Commercial												
5.079	Roof Top Area Group Housing	492247.72	6.97	0.640	0.477	375683	27737	110067	142501	95379	375682		

5.080	Open Area	369185.79	2.32								375683		
5.081	Green Area	369185.79	2.32										
5.082	Area Under Utility												
5.083	Roof Top Area Utility	492247.72	29.61	0.640	0.477	375683	27737	110067	142501	95379			
5.084	Open Area	369185.79	10.46								375683		
5.085	Green Area	369185.79	10.12										
5.086	Road , Parking												
5.087	Open Area	492247.72	148.66	0.720	0.477	295851	21843	86678	112219	75111	295851		
5.088	Green Area	369185.79	37.17										
5.089	Area under Green Belt	369185.79	23.60	0.160	0.477	28176	2080	8255	10688	7153	28176		
5.090			590.10			1797645	132723	526670	681865	456387	1797645		
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 90 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 30 Minute 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 Runoff				
5.120						SQM	Acre	Hectare					
5.121	Area under Plots				122	492248	121.64	49.2	0.566				
5.122	Area under other Building				42	171927	42.48	17.2	0.615				
5.123	Open Area				258.578	1046420	258.58	104.6	0.650				
5.124	Green Area				167.396	677424	167.40	67.7	0.112				
5.125					590.097	2388019	590.097	238.802					
5.126	Anticipated Run off from Roof Top Area						0.566*477*492248/1000				132949		
5.127	Anticipated Run off from Roof Top Area of Other Building					Coefficient of Runoff*Total	0.615*477*171927/1000				50452		
5.128	Anticipated Run off fromOpen Area						0.650*477*1046420/1000				324243		
5.129	Anticipated Run off from green area						0.112*477*167396/1000				36061		
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*477*492248/1000				84173		
5.140	Anticipated Run off from Roof Top Area of Other Building					Coefficient of Runoff*Total	0.615*477*171927/1000				31942		
5.141	Anticipated Run off fromOpen Area						0.650*477*1046420/1000				205286		
5.142	Anticipated Run off from green area						0.112*477*167396/1000				22831		
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					84173/65.8		1280	3660	Nos.			
5.145	No. of Recharge Wells proposedfor Roof Top Area of other Buildings					31942/227		141	141	Nos.			
5.146	No. of Recharge Wells proposedf ,open area					205286/3010		69	69	Nos.			
5.147	No. of Recharge Wells proposedf ,Green area					22831/3010		8	8	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						Covered Bin for Residential Area	Covered Bin for Utility Area
6.004												8	24
6.005		Sqm	Hectare	Acre	Kg./ Capita,Kg./10Sq m	KG	MT					20.000	60
6.006	**Area under Plots**	1230655.666	123.066	**304.10**								KG	KG
6.007	**Work Area**	738393.3997	73.839	**182.46**	0.30	22152.0	22.15					2769	
6.008	**Circulation Area**	246131.1332	24.613	**60.82**	0.05	1231.0	1.23					154	
6.009	**Open& Green Area within Plot**	246131.1332	24.613	**60.82**	0.10	2461.0	2.46						
6.010	**Population**	343990287.3	34399.029	**85000.00**	0.1	8500.0	8.50						
6.011	**Floating Popolation**	17199514.37	1719.951	**4250.00**	0.05	213.0	0.21						
6.012	**Area under Group Housing**	59692.43221	5.969	**14.75**									
6.013	**Work Area**	23876.97289	2.388	**5.90**	0.40	955.0	0.96					119	
6.014	**Circulation Area**	23876.97289	2.388	**5.90**	0.05	119.0	0.12					15	
6.015	**Open& Green Area within Plot**	11938.48644	1.194	**2.95**	0.10	119.0	0.12						
6.016	**Working Population**	17907729.66	1790.773	**4425.00**	0.1	443.0	0.44						
6.017	**Floating Popolation**	894374.7471	89.437	**221.00**	0.05	11.0	0.01						
6.018	**Area under Shopping Commercial**	47041.68353	4.704	**11.62**									
6.019	**Work Area**	28225.01012	2.823	**6.97**	0.30	847.0	0.85						35
6.020	**Circulation Area**	9408.336706	0.941	**2.32**	0.05	47.0	0.05						2
6.021	**Open& Green Area within Plot**	9408.336706	0.941	**2.32**	0.10	94.0	0.09						
6.022	**Working Population**	9518413.598	951.841	**2352.00**	0.1	235.0	0.24						
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**	3237.555645	0.324	**0.80**									
6.026	**No. of Dwelling Units**	16187.77823	1.619	**4.00**									1

6.027	**Work Area**	1942.533387	0.194	**0.48**	0.10	19.0	0.02						0
6.028	**Circulation Area**	647.5111291	0.065	**0.16**	0.10	6.0	0.01						
6.029	**Open& Green Area within Plot**	647.5111291	0.065	**0.16**	0.10	6.0	0.01						
6.030	**Working Population**	1618777.823	161.878	**400.00**	0.1	40.0	0.04						
6.031	**Visiting Popolation**	80938.89114	8.094	**20.00**	0.05	1.0	0.00						
6.032	**Nursary Schools**	27519.22299	2.752	**6.80**									7
6.033	**No. of Dwelling Units**	60704.16835	6.070	**15.00**									2
6.034	**Work Area**	16511.53379	1.651	**4.08**	0.10	165.0	0.17						
6.035	**Circulation Area**	5503.844597	0.550	**1.36**	0.10	55.0	0.06						
6.036	**Open& Green Area within Plot**	5503.844597	0.550	**1.36**	0.10	55.0	0.06						
6.037	**Working Population**	9105625.253	910.563	**2250.00**	0.1	225.0	0.23						
6.038	**Visiting Popolation**	485633.3468	48.563	**120.00**	0.05	6.0	0.01						
6.039	**Primary Schools**	32375.55645	3.238	**8.00**									
6.040	**No. of Dwelling Units**	32375.55645	3.238	**8.00**									
6.041	**Work Area**	25900.44516	2.590	**6.40**	0.10	259.0	0.26						
6.042	**Circulation Area**	3237.555645	0.324	**0.80**	0.05	16.0	0.02						
6.043	**Open& Green Area within Plot**	3237.555645	0.324	**0.80**	0.10	32.0	0.03						
6.044	**Working Population**	22662889.52	2266.289	**5600.00**	0.1	560.0	0.56						
6.045	**Visiting Popolation**	1133144.476	113.314	**280.00**	0.05	14.0	0.01						
6.046	**High Schools**	60704.16835	6.070	**15.00**									
6.047	**No. of Dwelling Units**	12140.83367	1.214	**3.00**									
6.048	**Work Area**	48563.33468	4.856	**12.00**	0.30	1457.0	1.46						
6.049	**Circulation Area**	6070.416835	0.607	**1.50**	0.05	30.0	0.03						
6.050	**Open& Green Area within Plot**	6070.416835	0.607	**1.50**	0.10	61.0	0.06						3
6.051	**Working Population**	12140833.67	1214.083	**3000.00**	0.1	300.0	0.30						13
6.052	**Visiting Popolation**	607041.6835	60.704	**150.00**	0.05	8.0	0.01						
6.053	**Clubs/Coomunity Centers**	32375.55645	3.238	**8.00**									

6.054	**No. of Dwelling Units**	16187.77823	1.619	**4.00**									
6.055	**Work Area**	9712.666936	0.971	**2.40**	0.30	291.0	0.29						
6.056	**Circulation Area**	16187.77823	1.619	**4.00**	0.05	81.0	0.08						12
6.057	**Open& Green Area within Plot**	6475.111291	0.648	**1.60**	0.10	65.0	0.07						3
6.058	**Working Population**	8093889.114	809.389	**2000.00**	0.1	200.0	0.20						
6.059	**Visiting Popolation**	404694.4557	40.469	**100.00**	0.05	5.0	0.01						
6.060	**Dispensary**	15176.04209	1.518	**3.75**									
6.061	**No. of Dwelling Units**	12140.83367	1.214	**3.00**									
6.062	**Work Area**	4552.812626	0.455	**1.13**	0.30	137.0	0.14						6
6.063	**Circulation Area**	7588.021044	0.759	**1.88**	0.05	38.0	0.04						2
6.064	**Open& Green Area within Plot**	3035.208418	0.304	**0.75**	0.10	30.0	0.03						
6.065	**Working Population**	1214083.367	121.408	**300.00**	0.1	30.0	0.03						
6.066	**Visiting Popolation**	60704.16835	6.070	**15.00**	0.05	1.0	0.00						
6.067	**Health Centers**	4046.944557	0.405	**1.00**									
6.068	**No. of Dwelling Units**	4046.944557	0.405	**1.00**									1
6.069	**Work Area**	1214.083367	0.121	**0.30**	0.20	24.0	0.02						0
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**	4046.944557	0.405	**1.00**									0
6.075	**No. of Dwelling Units**	8093.889114	0.809	**2.00**									0
6.076	**Work Area**	1214.083367	0.121	**0.30**	0.20	24.0	0.02						
6.077	**Circulation Area**	2023.472278	0.202	**0.50**	0.05	10.0	0.01						
6.078	**Other ,Open& Green Area**	809.3889114	0.081	**0.20**	0.10	8.0	0.01						
6.079	**Habitation**	1618777.823	161.878	**400.00**	0.1	40.0	0.04						
6.080	**Visiting Popolation**	80938.89114	8.094	**20.00**	0.05	1.0	0.00						4

6.081	**Electric Sub Station**	16187.77823	1.619	**4.00**									2
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**	2428.166734	0.243	**0.60**									
6.103	**No. of Dwelling Units**	12140.83367	1.214	**3.00**									
6.104	**Work Area**	728.4500202	0.073	**0.18**	0.20	15.0	0.02						
6.105	**Circulation Area**	1456.90004	0.146	**0.36**	0.05	7.0	0.01						

6.106	**Other ,Open& Green Area**	242.8166734	0.024	**0.06**	0.10	2.0	0.00						
6.107	**Habitation**	242816.6734	24.282	**60.00**	0.1	6.0	0.01						
6.108	**Visiting Popolation**	60704.16835	6.070	**15.00**	0.05	1.0	0.00						
6.109	**Area under Roads**	752043.707	75.204	**185.83**	0.1	7520.0	7.52						
6.110	**Area under Green Belt**	95523.59369	9.552	**23.60**	0.10	955.0	0.96						
6.111	**Area Under U.D.**	3415.621206	0.342	**0.84**	0.10	34.0	0.03						
6.112	**Total**	2388089.418	238.809	**590.10**		**50491.00**	**50.49**						
6.113	**Bill of Quantities**											**3057.00**	**93.00**
6.114	Covered Bin for Residential Area												
6.115	Population Served										85000		
6.116	Population in one dwelling Unit										7-8	Persons	
6.117	No. of dwelling Unit										10980	Units	50.49
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										34.56	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										4425		
6.124	Population in one dwelling Unit										5	Persons	
6.125	No. of dwelling Unit										885	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										1.65	MT	
6.128	Total No. of bins required										1770		
6.129	Total No. of bins required with 3% added extra										1824	Nos	
6.130	Covered Bin for Utility Area												
6.131	Quantity proposed to be lifted										5.78	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										241	Nos.	
6.134	Total No. of bins provided										249	Nos.	
6.135	Construction of Primary collection centers by providing platform of size 134 Cum Capacity as per design										8.5	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										16	Nos.	
6.140	Total No. of Centres provided										17	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										34557	Kg.	
6.142	Capacity of one Moterised tricle										13500		
6.143											5400	Cum	
6.144	Total No. of Moterised triclerequired										6	Nos.	
6.145	Total No. of Moterised tricleprovided										7	Nos.	
6.146	Quantity proposed to be lifted										50491	Kg.	
6.147	Capacity of one Hydraulic Vehicle										7500	Kg.	
6.148											3000	Cum	
6.149	Assumming 3 times utilisation of one unit										30000	Kg.	
6.150	Total No. of Vehicles required										2	Nos.	
6.151	Total No. of Vehiclesprovided										2	Nos.	

DESIGN STATEMENT OF WATER

Water Supply Design Statement				Ground Level					Net Water Demand									Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head							100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
								15310																							
1	**OHT**	**B108**	**160**	**246.26**	**246.77**	**246.515**	**-0.255**	**55.63**	**55.63**	**978.77**	**1034.4**	**1077.50**	**250**	**0.0011**	**0.1689**	**0.1689**	**29.5761**														
2	B108	B109	215	246.77	249.43	248.1	-1.84	74.75	**74.75**	904.02	978.77	**1019.55**	250	**0.0010**	**0.2049**	**0.3738**	**27.7862**														
3	B109	B110	61	249.43	249.43	249.43	-3.17	21.21	**21.21**	882.81	904.02	**941.69**	250	**0.0008**	**0.0502**	**0.4240**	**26.4060**														
									0																						
4	B110	B111	140	249.43	250.71	250.07	-3.81	48.68	**48.68**	745.11	793.79	**826.86**	200	**0.0019**	**0.2684**	**0.6924**	**25.4976**														
5	B111	B112'	117	250.71	250.98	250.845	-4.585	40.68	**40.68**	260.43	301.11	**313.66**	200	**0.0003**	**0.0373**	**0.7296**	**24.6854**														
6	B112'	B131	65	250.98	251.48	251.23	-4.97	22.6	**22.6**	0	22.6	**23.54**	75	**0.0003**	**0.0203**	**0.7500**	**24.2800**														
7	B112'	B114'	65	251.48	251.48	251.48	-5.22	22.6	**22.6**	215.23	237.83	**247.74**	200	**0.0002**	**0.0134**	**0.7430**	**24.0370**														
8	B114'	B144	188	251.48	251.48	253.13	-6.87	65.37	**65.37**	0	65.37	**68.09**	75	**0.0022**	**0.4201**	**1.1631**	**21.9669**														
9	B114'	B115	65	251.48	251.48	251.48	-5.22	22.6	**22.6**	127.26	149.86	**156.10**	200	**0.0001**	**0.0057**	**0.7487**	**24.0313**														
10	B115	B132	45	251.48	251.48	251.48	-5.22	15.65	**15.65**	0	15.65	**16.30**	200	**0.0000**	**0.0001**	**0.7488**	**24.0312**														
11	B115	B145	188	251.48	253.013	252.247	-5.9865	65.37	**65.37**	46.24	111.61	**116.26**	75	**0.0060**	**1.1314**	**1.8801**	**22.1334**														
12	B145	B144	65	253.013	251.48	252.247	-5.9865	22.6	**22.6**	0	22.6	**23.54**	75	**0.0003**	**0.0203**	**1.9004**	**22.1131**														
13	B145	B146	68	253.013	253.13	253.072	-6.8115	23.64	**23.64**	0	23.64	**24.63**	75	**0.0003**	**0.0231**	**1.9032**	**21.2853**														
									0																						
14	B111	B112	65	251.48	251.48	251.48	-5.22	22.6	**22.6**	57.02	79.62	**82.94**	75	**0.0032**	**0.2093**	**0.9017**	**23.8783**														
15	B112	B104	62	251.48	250.98	251.23	-4.97	21.56	**21.56**	35.46	57.02	**59.40**	100	**0.0004**	**0.0265**	**0.9282**	**24.1018**														
16	B104	B102	65	250.98	250.98	250.98	-4.72	22.6	**22.6**	12.86	35.46	**36.94**	100	**0.0002**	**0.0115**	**0.9397**	**24.3403**														
17	B102	B81	37	250.98	250.96	250.97	-4.71	12.86	**12.86**	0	12.86	**13.40**	100	**0.0000**	**0.0010**	**0.9407**	**24.3493**														
									0																						
18	B111	B101	59	251.48	250.71	251.095	-4.835	20.51	**20.51**	343.87	364.38	**379.56**	250	**0.0002**	**0.0090**	**0.7014**	**24.4636**														
19	B101	B66	187	250.71	250.34	250.525	-4.265	65.02	**65.02**	0	65.02	**67.73**	250	**0.0000**	**0.0012**	**0.7026**	**25.0324**														
20	B101	B100	65	250.71	250.71	250.71	-4.45	22.6	**22.6**	256.25	278.85	**290.47**	100	**0.0081**	**0.5252**	**1.2266**	**24.3234**														
21	B100	B79	121	250.71	250.71	250.71	-4.45	42.07	**42.07**	214.18	256.25	**266.93**	100	**0.0069**	**0.8360**	**2.0625**	**23.4875**														
22	B79	B77	134	250.71	248.5	249.605	-3.345	46.59	**46.59**	0	46.59	**48.53**	100	**0.0003**	**0.0394**	**2.1019**	**24.5531**														
23	B79	B65	66	250.71	247.97	249.34	-3.08	22.95	**22.95**	144.64	167.59	**174.57**	100	**0.0031**	**0.2077**	**2.2703**	**24.6497**														
24	B65	B66	64	247.97	249	248.485	-2.225	22.25	**22.25**	78.93	101.18	**105.40**	250	**0.0000**	**0.0009**	**2.2712**	**25.5038**														
25	B66	B66'	57	249	249	249	-2.74	19.82	**19.82**	0	19.82	**20.65**	250	**0.0000**	**0.0000**	**2.2712**	**24.9888**														
26	B66	B12'	170	249	251.25	250.125	-3.865	59.11	**59.11**	0	59.11	**61.57**	100	**0.0005**	**0.0777**	**2.3488**	**23.7862**														
27	B65	B58	125	247.97	247.97	247.97	-1.71	43.46	**43.46**	0	43.46	**45.27**	250	**0.0000**	**0.0004**	**2.2706**	**26.0194**														
									0			**0.00**																			
28	B110	B99	71	249.43	249.43	249.43	-3.17	24.69	**24.69**	64.33	89.02	**92.73**	100	**0.0010**	**0.0692**	**0.4932**	**26.3368**														
29	B99	B78	114	249.43	249.26	249.345	-3.085	39.64	**39.64**	0	39.64	**41.29**	100	**0.0002**	**0.0249**	**0.5181**	**26.3969**														
30	B99	B100	71	249.43	250.71	250.07	-3.81	24.69	**24.69**	0	24.69	**25.72**	100	**0.0001**	**0.0064**	**0.4997**	**25.6903**														
31	**OHT**	**B159**	**140**	**246.26**	**246.99**	**246.625**	**-0.365**	**48.68**	**48.68**	**1361.56**	**1410.24**	**1469.00**	**300**	**0.0008**	**0.1080**	**0.1080**	**29.5270**														
32	B159	B160	108	246.99	249.77	248.38	-2.12	37.55	**37.55**	1324.01	1361.56	**1418.29**	200	**0.0052**	**0.5623**	**0.6703**	**27.2097**														
33	B160	B161	138	249.77	249.97	249.87	-3.61	47.98	**47.98**	1276.03	1324.01	**1379.18**	200	**0.0049**	**0.6823**	**1.3526**	**25.0374**														
34	B161	B162	161	249.97	251.25	250.61	-4.35	55.98	**55.98**	155.77	211.75	**220.57**	200	**0.0002**	**0.0267**	**1.3793**	**24.2707**														
35	B162	B163	62	251.25	251.25	251.25	-4.99	21.56	**21.56**	134.21	155.77	**162.26**	200	**0.0001**	**0.0058**	**1.3851**	**23.6249**														
36	B163	B164	63	251.25	253.13	252.19	-5.93	21.9	**21.9**	112.31	134.21	**139.80**	200	**0.0001**	**0.0045**	**1.3896**	**22.6804**														
37	B164	B165	131	253.13	253.13	253.13	-6.87	45.55	**45.55**	66.76	112.31	**116.99**	200	**0.0001**	**0.0067**	**1.3963**	**21.7337**														
38	B165	B146	62	253.13	253.13	253.13	-6.87	21.56	**21.56**	45.2	66.76	**69.54**	200	**0.0000**	**0.0012**	**1.3975**	**21.7325**														
39	B146	B118	130	253.13	255.92	254.525	-8.265	45.2	**45.2**	0	45.2	**47.08**	150	**0.0000**	**0.0050**	**1.4025**	**20.3325**														
40	B161	B168	157	249.97	251.25	250.61	-4.35	54.59	**54.59**	403.32	457.91	**476.99**	150	**0.0028**	**0.4411**	**1.7937**	**23.8563**														
41	B168	B179	114	251.25	251.25	251.25	-4.99	39.64	**39.64**	363.68	403.32	**420.13**	150	**0.0022**	**0.2532**	**2.0469**	**22.9631**														
42	B179	B167	178	251.25	249.82	250.535	-4.275	61.89	**61.89**	28.51	90.4	**94.17**	100	**0.0010**	**0.1786**	**2.2255**	**23.4995**														
43	B167	B178	21	249.82	249.82	249.82	-3.56	7.3	**7.3**	21.21	28.51	**29.70**	100	**0.0001**	**0.0025**	**2.2280**	**24.2120**														
44	B178	B187	61	249.82	249.82	249.82	-3.56	21.21	**21.21**	0	21.21	**22.09**	100	**0.0001**	**0.0042**	**2.2322**	**24.2078**														
45	B179	B180	60	251.25	251.25	251.25	-4.99	20.86	**20.86**	0	20.86	**21.73**	100	**0.0001**	**0.0040**	**2.0509**	**22.9591**														
46	B179	B188	60	251.25	250.98	251.115	-4.855	20.86	**20.86**	231.56	252.42	**262.94**	100	**0.0067**	**0.4031**	**2.4500**	**22.6950**														
47	B188	B187	178	250.98	249.82	250.4	-4.14	61.89	**61.89**	21.21	83.1	**86.56**	100	**0.0009**	**0.1528**	**2.6028**	**23.2572**														
48	B187	B201	61	249.82	250.29	250.055	-3.795	21.21	**21.21**	0	21.21	**22.09**	100	**0.0001**	**0.0042**	**2.6070**	**23.5980**														
49	B188	B203	59	250.98	250.98	250.98	-4.72	20.51	**20.51**	127.95	148.46	**154.65**	100	**0.0025**	**0.1483**	**2.5984**	**22.6816**														
50	B203	B206	29	250.98	250.98	250.98	-4.72	10.08	**10.08**	0	10.08	**10.50**	75	**0.0001**	**0.0020**	**2.6004**	**22.6796**														
51	B203	B202	99	250.98	250.29	250.635	-4.375	34.42	**34.42**	83.45	117.87	**122.78**	100	**0.0016**	**0.1624**	**2.7607**	**22.8643**														
52	B202	B201	80	250.29	250.29	250.29	-4.03	27.82	**27.82**	0	27.82	**28.98**	100	**0.0001**	**0.0091**	**2.7698**	**23.2002**														
53	B202	B207	78	250.29	250.29	250.29	-4.03	27.12	**27.12**	28.51	55.63	**57.95**	75	**0.0017**	**0.1293**	**2.8900**	**23.0800**														
54	B207	B208	82	250.29	250.29	250.29	-4.03	28.51	**28.51**	0	28.51	**29.70**	75	**0.0005**	**0.0394**	**2.9294**	**23.0406**														

Water Supply Design Statement				Ground Level					Net Water Demand													Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
55	B161	B178'	112	249.47	249.82	249.645	-3.385	7.3	**7.3**	599.07	606.37	**631.64**	150	**0.0047**	**0.0992**	**1.4518**	**25.1632**														
56	B178'	B178	21	249.82	249.82	249.82	-3.56	38.94	**38.94**	560.13	599.07	**624.03**	150	**0.0046**	**0.5176**	**1.9694**	**24.4706**														
57	B178	B187	60	249.82	249.82	249.82	-3.56	20.86	**20.86**	54.93	75.79	**78.95**	100	**0.0007**	**0.0434**	**2.0128**	**24.4272**														
58	B187	B201	60	249.82	250.29	250.055	-3.795	20.86	**20.86**	34.07	54.93	**57.22**	100	**0.0004**	**0.0239**	**2.0368**	**24.1682**														
59	B201	B208	98	250.29	250.29	250.29	-4.03	34.07	**34.07**	0	34.07	**35.49**	100	**0.0002**	**0.0161**	**2.0529**	**23.9171**														
60	B178	B177	50	249.82	249.03	249.425	-3.165	17.38	**17.38**	466.96	484.34	**504.52**	100	**0.0225**	**1.1230**	**3.0924**	**23.7426**														
61	B177	B209	172	249.03	249.29	249.16	-2.9	59.8	**59.8**	125.18	184.98	**192.69**	75	**0.0153**	**2.6383**	**5.7308**	**21.3692**														
62	B209	B210	61	249.29	249.29	249.29	-3.03	21.21	**21.21**	0	21.21	**22.09**	75	**0.0003**	**0.0170**	**5.7477**	**21.2223**														
63	B209	B212	66	249.29	250.29	249.79	-3.53	22.95	**22.95**	81.02	103.97	**108.30**	75	**0.0053**	**0.3483**	**6.0960**	**20.3740**														
64	B212	B208	58	250.29	250.29	250.29	-4.03	20.17	**20.17**	0	20.17	**21.01**	75	**0.0003**	**0.0147**	**6.1107**	**19.8593**														
65	B212	B212'	42	250.29	250.29	250.29	-4.03	14.6	**14.6**	46.25	60.85	**63.39**	75	**0.0020**	**0.0822**	**6.1782**	**19.7918**														
66	B212'	B215	27	250.29	250.29	250.29	-4.03	9.39	**9.39**	0	9.39	**9.78**	75	**0.0001**	**0.0017**	**6.1799**	**19.7901**														
67	B212'	B216	106	250.29	250.29	250.29	-4.03	36.86	**36.86**	0	36.86	**38.40**	75	**0.0008**	**0.0820**	**6.2602**	**19.7098**														
68	B177	B176	57	249.03	249.82	249.425	-3.165	19.82	**19.82**	262.16	281.98	**293.73**	250	**0.0001**	**0.0054**	**3.0979**	**23.7371**														
69	B176	B175	226	249.82	249.03	249.425	-3.165	78.58	**78.58**	0	78.58	**81.85**	300	**0.0000**	**0.0008**	**3.0987**	**23.7363**														
70	B176	B186	60	249.03	249.29	249.16	-2.9	20.86	**20.86**	162.72	183.58	**191.23**	250	**0.0000**	**0.0026**	**3.1004**	**23.9996**														
71	B186	B185	135	249.29	247.02	248.155	-1.895	46.94	**46.94**	0	46.94	**48.90**	75	**0.0012**	**0.1634**	**3.2638**	**24.8412**														
72	B186	B200	52	249.29	249.29	249.29	-3.03	18.08	**18.08**	97.7	115.78	**120.60**	75	**0.0064**	**0.3349**	**3.4354**	**23.5346**														
73	B200	B199	118	249.29		249.29	-3.03	41.03	**41.03**	0	41.03	**42.74**	75	**0.0009**	**0.1113**	**3.5467**	**23.4233**														
74	B200	B210	81	249.29	249.29	249.29	-3.03	28.16	**28.16**	28.51	56.67	**59.03**	75	**0.0017**	**0.1389**	**3.5743**	**23.3957**														
75	B210	B211	82	249.29	249.29	249.29	-3.03	28.51	**28.51**	0	28.51	**29.70**	75	**0.0005**	**0.0394**	**3.6137**	**23.3563**														
76	**OHT**	**B173'**	**839**	**251.25**	**254.86**	**253.055**	**-6.795**	**291.72**	**291.72**	**616.46**	**908.18**	**946.02**	**200**	**0.0025**	**2.0637**	**2.0637**	**21.1413**														
77	B173'	B174	193	254.86	254.86	254.86	-8.6	67.1	**67.1**	51.81	118.91	**123.86**	100	**0.0017**	**0.3217**	**2.3854**	**19.0146**														
78	B174	B166	39	254.86	254.86	254.86	-8.6	13.56	**13.56**	38.25	51.81	**53.97**	100	**0.0004**	**0.0140**	**2.3994**	**19.0006**														
79	B166	B149	110	254.86	256.13	255.495	-9.235	38.25	**38.25**	0	38.25	**39.84**	100	**0.0002**	**0.0224**	**2.4218**	**18.3432**														
80	B173'	B173	39	251.25	251.25	251.25	-4.99	13.56	**13.56**	483.99	497.55	**518.28**	150	**0.0033**	**0.1278**	**2.1915**	**22.8185**														
81	B173	B172	40	251.25	254.86	253.055	-6.795	13.91	**13.91**	49.72	63.63	**66.28**	100	**0.0005**	**0.0209**	**2.2125**	**20.9925**														
82	B172	B183	103	254.86	250.97	252.915	-6.655	35.81	**35.81**	0	35.81	**37.30**	100	**0.0002**	**0.0186**	**2.2311**	**21.1139**														
83	B172	B171	40	254.86	254.86	254.86	-8.6	13.91	**13.91**	0	13.91	**14.49**	100	**0.0000**	**0.0013**	**2.2323**	**19.1677**														
84	B173	B193	152	251.25	252.72	251.985	-5.725	52.85	**52.85**	367.51	420.36	**437.88**	200	**0.0006**	**0.0898**	**2.2813**	**21.9937**														
85	B193	B192	40	252.72	252.72	252.72	-6.46	13.91	**13.91**	353.6	367.51	**382.82**	75	**0.0547**	**2.1876**	**4.4689**	**19.0711**														
86	B192	B191	20	252.72	252.72	252.72	-6.46	6.95	**6.95**	346.65	353.6	**368.33**	200	**0.0004**	**0.0086**	**4.4775**	**19.0625**														
87	B191	B190	153	252.72	250.16	251.44	-5.18	53.2	**53.2**	0	53.2	**55.42**	150	**0.0001**	**0.0080**	**4.4855**	**20.3345**														
88	B191	B183	40	250.97	252.72	251.845	-5.585	13.91	**13.91**	279.54	293.45	**305.68**	150	**0.0012**	**0.0493**	**4.5348**	**19.8802**														
89	B183	B182	40	252.72	250.16	251.44	-5.18	13.91	**13.91**	265.63	279.54	**291.19**	150	**0.0011**	**0.0451**	**4.5799**	**20.2401**														
90	B182	B171	103	250.16	254.86	252.51	-6.25	35.81	**35.81**	75.1	110.91	**115.53**	150	**0.0002**	**0.0209**	**4.6008**	**19.1492**														
91	B171	B170	113	254.86	251.25	253.055	-6.795	39.29	**39.29**	35.81	75.1	**78.23**	100	**0.0007**	**0.0804**	**4.6812**	**18.5238**														
92	B170	B181	103	251.25	250.16	250.705	-4.445	35.81	**35.81**	0	35.81	**37.30**	100	**0.0002**	**0.0186**	**4.6998**	**20.8552**														
93	B182	B181	113	250.16	250.16	250.16	-3.9	39.29	**39.29**	115.43	154.72	**161.17**	150	**0.0004**	**0.0426**	**4.6224**	**21.4776**														
94	B181	B190	40	250.16	250.16	250.16	-3.9	13.91	**13.91**	101.52	115.43	**120.24**	100	**0.0016**	**0.0631**	**4.6855**	**21.4145**														
95	B190	B191	153	250.16	252.72	251.44	-5.18	53.2	**53.2**	48.32	101.52	**105.75**	75	**0.0050**	**0.7726**	**5.4581**	**19.3619**														
96	B190	B189	46	250.16	250.98	250.57	-4.31	15.99	**15.99**	0	15.99	**16.66**	75	**0.0002**	**0.0076**	**5.4657**	**20.2243**														
97	B190	B205	47	250.16	250.16	250.16	-3.9	16.34	**16.34**	15.99	32.33	**33.68**	75	**0.0006**	**0.0285**	**5.4942**	**20.6058**														
98	B205	B204	46	250.16	250.16	250.16	-3.9	15.99	**15.99**	0	15.99	**16.66**	75	**0.0002**	**0.0076**	**5.5018**	**20.5982**														
99	**OHT**	**B175**	**100**	**246.26**	**247.02**	**246.64**	**-0.38**	**34.77**	**34.77**	**577.85**	**612.62**	**638.15**	**250**	**0.0004**	**0.0400**	**0.0400**	**29.5800**														
100	B175	B184	64	247.02	247.02	247.02	-0.76	22.25	**22.25**	164.81	**187.06**	**194.85**	**250**	**0.0000**	**0.0028**	**0.0429**	**29.1971**														
101	B184	B185	66	247.02	247.02	247.02	-0.76	22.95	**22.95**	141.86	164.81	**171.68**	150	**0.0004**	**0.0279**	**0.0680**	**29.1720**														
102	B185	B199	56	247.02	249.29	248.155	-1.895	19.47	**19.47**	122.39	141.86	**147.77**	100	**0.0023**	**0.1294**	**0.1974**	**27.9076**														
103	B199	B211	116	249.29	249.29	249.29	-3.03	40.33	**40.33**	82.06	122.39	**127.49**	100	**0.0018**	**0.2040**	**0.4014**	**26.5686**														
104	B211	B213	61	249.29	249.29	249.29	-3.03	21.21	**21.21**	60.85	82.06	**85.48**	75	**0.0034**	**0.2077**	**0.6091**	**26.3609**														
105	B213	B214	62	249.29	249.29	249.29	-3.03	21.56	**21.56**	0	21.56	**22.46**	75	**0.0003**	**0.0178**	**0.6268**	**26.3432**														
106	B213	B212	113	249.29	250.29	249.79	-3.53	39.29	**39.29**	0	39.29	**40.93**	75	**0.0009**	**0.0984**	**0.7074**	**25.7626**														
107	B175	B175'	102	247.02	247.02	247.02	-0.76	35.46	**35.46**	355.33	390.79	**407.07**	100	**0.0151**	**1.5396**	**1.5797**	**27.6603**														

Water Supply Design Statement				Ground Level					Net Water Demand									Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head							100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
108	B175'	B198	77	247.02	246.54	246.78	-0.52	26.77	**26.77**	0	26.77	**27.89**	150	**0.0000**	**0.0011**	**1.5808**	**27.8992**														
109	B175'	B223	180	246.58	247.39	246.985	-0.725	62.58	**62.58**	47.63	110.21	**114.80**	100	**0.0014**	**0.2607**	**0.5985**	**28.6765**														
110	B223	B227	72	247.39	247.39	247.39	-1.13	25.03	**25.03**	0	25.03	**26.07**	100	**0.0001**	**0.0067**	**0.3520**	**28.5180**														
111	B223	B224	65	247.39	247.38	247.385	-1.125	22.6	**22.6**	0	22.6	**23.54**	100	**0.0001**	**0.0050**	**0.6035**	**28.2715**														
112	B175'	B197	9	247.02	246.58	246.8	-0.54	3.13	**3.13**	215.22	218.35	**227.45**	100	**0.0051**	**0.0462**	**1.6259**	**27.8341**														
113	B197	B195	48	246.58	246.58	246.58	-0.32	16.69	**16.69**	28.16	44.85	**46.72**	100	**0.0003**	**0.0132**	**1.6390**	**28.0410**														
114	B195	B196	81	246.58	246.54	246.56	-0.3	28.16	**28.16**	0	28.16	**29.33**	75	**0.0005**	**0.0381**	**1.6771**	**28.0229**														
115	B197	B198	78	246.58	246.54	246.56	-0.3	27.12	**27.12**	143.25	170.37	**177.47**	75	**0.0132**	**1.0274**	**2.6532**	**27.0468**														
116	B198	B217	52	246.54	246.52	246.53	-0.27	18.08	**18.08**	125.17	143.25	**149.22**	150	**0.0003**	**0.0170**	**2.6702**	**27.0598**														
117	B217	B218	45	246.52	246.52	246.52	-0.26	15.65	**15.65**	0	15.65	**16.30**	100	**0.0000**	**0.0018**	**2.6720**	**27.0680**														
118	B217	B219	55	246.52	246.44	246.48	-0.22	19.12	**19.12**	90.4	109.52	**114.08**	75	**0.0058**	**0.3196**	**2.9898**	**26.7902**														
119	B219	B220	81	246.44	246.44	246.44	-0.18	28.16	**28.16**	0	28.16	**29.33**	75	**0.0005**	**0.0381**	**3.0279**	**26.7921**														
120	B219	B221	34	246.44	246.29	246.365	-0.105	11.82	**11.82**	50.42	62.24	**64.83**	250	**0.0000**	**0.0002**	**3.0281**	**26.8669**														
121	B221	B225	34	246.29	246.24	246.265	-0.005	11.82	**11.82**	38.6	50.42	**52.52**	75	**0.0014**	**0.0470**	**3.0751**	**26.9199**														
122	B225	B226	66	246.24	246.24	246.24	0.02	22.95	**22.95**	0	22.95	**23.91**	75	**0.0003**	**0.0212**	**3.0963**	**26.9237**														
123	B225	B224	14	246.24	246.24	246.24	0.02	4.87	**4.87**	10.78	15.65	**16.30**	75	**0.0002**	**0.0022**	**3.0773**	**26.9427**														
124	B224	B228	31	246.24	247.38	246.81	-0.55	10.78	**10.78**	0	10.78	**11.23**	75	**0.0001**	**0.0025**	**3.0797**	**26.3703**														
125	**OHT**	**B161**	**447**	249.47	249.82	249.645	-3.385	155.42	**155.42**	236.44	391.86	**408.19**	**200**	**0.0005**	**0.2318**	**0.2318**	**26.3832**														
126	B161	B167	112	249.47	249.82	249.645	-3.385	38.94	**38.94**	197.5	236.44	**246.29**	150	**0.0008**	**0.0925**	**0.3244**	**26.2906**														
127	B167	B168	157	249.82	251.25	250.535	-4.275	54.59	**54.59**	142.91	197.5	**205.73**	150	**0.0006**	**0.0929**	**0.4173**	**25.3077**														
128	B168	B169'	60	251.25	251.25	251.25	-4.99	20.86	**20.86**	122.05	142.91	**148.86**	150	**0.0003**	**0.0195**	**0.4368**	**24.5732**														
129	B169'	B169	53	251.25	251.25	251.25	-4.99	18.43	**18.43**	103.62	122.05	**127.14**	150	**0.0002**	**0.0129**	**0.4497**	**24.5603**														
130	B169	B170	48	251.25	251.25	251.25	-4.99	16.69	**16.69**	0	16.69	**17.39**	150	**0.0000**	**0.0003**	**0.4500**	**24.5600**														
131	B169	B180	61	251.25	251.25	251.25	-4.99	21.21	**21.21**	65.72	86.93	**90.55**	150	**0.0001**	**0.0079**	**0.4576**	**24.5524**														
132	B180	B189	80	251.25	250.98	251.115	-4.855	27.82	**27.82**	37.9	65.72	**68.46**	150	**0.0001**	**0.0062**	**0.4638**	**24.6812**														
133	B189	B204	44	250.98	250.98	250.98	-4.72	15.3	**15.3**	22.6	37.9	**39.48**	75	**0.0008**	**0.0358**	**0.4996**	**24.7804**														
134	B204	B206	65	250.98	250.98	250.98	-4.72	22.6	**22.6**	0	22.6	**23.54**	75	**0.0003**	**0.0203**	**0.5199**	**24.7601**														
135	**OHT**	**B138**	**110**	**246.26**	**247.37**	**246.815**	**-0.555**	**38.25**	**38.25**	**2875.11**	**2913.36**	**3034.75**	**300**	0.0030	0.3252	0.3252	29.1198														
136	B138	B159'	207	247.37	246.26	246.815	-0.555	71.97	**71.97**	51.81	123.78	**128.94**	200	**0.0001**	**0.0127**	**0.3379**	**29.1071**														
137	B159'	B175	149	246.26	247.02	246.64	-0.38	51.81	**51.81**	0	51.81	**53.97**	150	**0.0000**	**0.0074**	**0.3453**	**29.2747**														
138	B138	B124	68	247.37	246.67	247.02	-0.76	23.64	**23.64**	614.72	638.36	**664.96**	250	**0.0004**	**0.0294**	**0.3545**	**28.8855**														
139	B124	B125	41	246.67	246.67	246.67	-0.41	14.26	**14.26**	419.66	433.92	**452.00**	200	**0.0006**	**0.0257**	**0.3802**	**29.2098**														
140	B125	B159	193	246.67	246.99	246.83	-0.57	67.1	**67.1**	0	67.1	**69.90**	200	**0.0000**	**0.0038**	**0.3840**	**29.0460**														
141	B125	B126	62	246.67	247.37	247.02	-0.76	21.56	**21.56**	331	352.56	**367.25**	75	**0.0506**	**3.1399**	**3.5239**	**25.7161**														
142	B126	B127	113	247.37	249.43	248.4	-2.14	39.29	**39.29**	45.2	84.49	**88.01**	75	**0.0036**	**0.4061**	**3.9300**	**23.9300**	44.005	100	**0.0002**	**0.0277**	**3.5516**	24.3084	1							
143	B127	B128	65	249.43	249.43	249.43	-3.17	22.6	**22.6**	0	22.6	**23.54**	75	**0.0003**	**0.0203**	**3.9503**	**22.8797**	11.771	100	**0.0000**	**0.0014**	**3.9314**	22.8986	1							
144	B127	B140	65	249.43	247.37	248.4	-2.14	22.6	**22.6**	0	22.6	**23.54**	75	**0.0003**	**0.0203**	**3.9706**	**23.8894**	11.771	100	**0.0000**	**0.0014**	**3.9314**	23.9286	1							
145	B126	B139	65	247.37	249.47	248.42	-2.16	22.6	**22.6**	223.91	246.51	**256.78**	75	**0.0261**	**1.6969**	**5.2208**	**22.6192**	128.39	100	**0.0018**	**0.1158**	**3.6397**	24.2003	1							
146	B139	B152	65	249.47	249.47	249.47	-3.21	22.6	**22.6**	0	22.6	**23.54**	75	**0.0003**	**0.0203**	**5.2411**	**21.5489**	11.771	100	**0.0000**	**0.0014**	**5.2222**	21.5678	1							
147	B139	B140	111	249.47	247.37	248.42	-2.16	38.59	**38.59**	162.72	201.31	**209.70**	75	**0.0179**	**1.9914**	**7.2122**	**20.6278**	104.85	100	**0.0012**	**0.1359**	**5.3567**	22.4833	1							
148	B140	B153	65	247.37	249.47	248.42	-2.16	22.6	**22.6**	140.12	162.72	**169.50**	75	**0.0121**	**0.7863**	**7.9985**	**19.8415**	84.75	100	**0.0008**	**0.0537**	**7.2658**	20.5742	1							
149	B153	B160	59	249.47	249.47	249.47	-3.21	20.51	**20.51**	0	20.51	**21.36**	75	**0.0003**	**0.0154**	**8.0139**	**18.7761**	10.682	100	**0.0000**	**0.0011**	**7.9995**	18.7905	1							
150	B153	B152	110	249.47	249.47	249.47	-3.21	38.25	**38.25**	81.36	119.61	**124.59**	75	**0.0068**	**0.7525**	**8.7664**	**18.0236**	62.297	100	**0.0005**	**0.0514**	**8.0498**	18.7402	1							
151	B152	B159	59	249.47	246.99	248.23	-1.97	20.51	**20.51**	60.85	81.36	**84.75**	75	**0.0034**	**0.1977**	**8.2116**	**19.8184**	42.375	100	**0.0002**	**0.0135**	**8.0274**	20.0026	1							
152	B159	B159'	67	246.99	246.99	246.99	-0.73	23.3	**23.3**	0	23.3	**24.27**	200	**0.0000**	**0.0002**	**8.2118**	**21.0582**	12.135	100	**0.0000**	**0.0015**	**8.7680**	20.5020	1							
153	B159	B160	108	246.99	249.47	248.23	-1.97	37.55	**37.55**	0	37.55	**39.11**	200	**0.0000**	**0.0007**	**8.2124**	**19.8176**	19.557	100	**0.0001**	**0.0059**	**8.2175**	19.8125	1							
154	B124	B123	127	246.67	246.67	246.67	-0.41	44.16	**44.16**	0	44.16	**46.00**	75	**0.0011**	**0.1373**	**0.4918**	**29.0982**														
155	B124	B107	68	246.67	246.77	246.72	-0.46	23.64	**23.64**	113	136.64	**142.33**	250	**0.0000**	**0.0017**	**0.4935**	**29.0465**														
156	B107	B106	142	246.77	245.91	246.34	-0.08	49.37	**49.37**	0	49.37	**51.43**	75	**0.0013**	**0.1887**	**0.6822**	**29.2378**														
157	B107	B94	56	246.77	248.73	247.75	-1.49	19.47	**19.47**	44.16	63.63	**66.28**	250	**0.0000**	**0.0003**	**0.6825**	**27.8275**														
158	B94	B93	127	248.73	245.92	247.325	-1.065	44.16	**44.16**	0	44.16	**46.00**	100	**0.0003**	**0.0338**	**0.7163**	**28.2187**														
159	B138	B125	220	247.37	246.67	247.02	-0.76	76.49	**76.49**	2036.48	2112.97	**2201.01**	200	**0.0117**	**2.5848**	**2.9100**	**26.3300**														
160	B125	B108	68	246.67	246.77	246.72	-0.46	23.64	**23.64**	2012.84	2036.48	**2121.33**	200	**0.0110**	**0.7462**	**3.6562**	**25.8838**														
161	B108	B95	56	246.77	245.92	246.345	-0.085	19.47	**19.47**	1993.37	2012.84	**2096.71**	250	**0.0036**	**0.2028**	**3.8590**	**26.0560**														
162	B95	B96	62	245.92	245.92	245.92	0.34	21.56	**21.56**	119.25	140.81	**146.68**	100	**0.0023**	**0.1413**	**4.0003**	**26.3397**														

Water Supply Design Statement				Ground Level					Net Water Demand													Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
163	B96	B75	111	245.92	248.5	247.21	-0.95	38.59	**38.59**	51.11	89.7	**93.44**	100	**0.0010**	**0.1098**	**4.1101**	**24.9399**														
164	B75	B74	62	248.5	247.97	248.235	-1.975	21.56	**21.56**	0	21.56	**22.46**	250	**0.0000**	**0.0001**	**4.1102**	**23.9148**														
165	B75	B76	85	248.5	248.5	248.5	-2.24	29.55	**29.55**	0	29.55	**30.78**	200	**0.0000**	**0.0004**	**4.1105**	**23.6495**														
166	B96	B97	85	245.92	248.17	247.045	-0.785	29.55	**29.55**	0	29.55	**30.78**	250	**0.0000**	**0.0001**	**4.1107**	**25.1043**														
									0																						
167	B95	B94	18	245.92	248.73	247.325	-1.065	6.26	**6.26**	0	6.26	**6.52**	250	**0.0000**	**0.0000**	**4.1107**	**24.8243**														
168	B95	B92	61	248.73	248.73	248.73	-2.47	21.21	**21.21**	1825.09	1846.3	**1923.23**	250	**0.0031**	**0.1883**	**4.2990**	**23.2310**														
169	B92	B91	101	248.73	248.73	248.73	-2.47	35.12	**35.12**	0	35.12	**36.58**	250	**0.0000**	**0.0002**	**4.2992**	**23.2308**														
170	B92	B74	53	248.73	247.97	248.35	-2.09	18.43	**18.43**	1771.54	1789.97	**1864.55**	250	**0.0029**	**0.1545**	**4.4537**	**23.4563**						27.9100								
171	B74	B62	113	247.97	247.97	247.97	-1.71	39.29	**39.29**	1732.25	1771.54	**1845.35**	250	**0.0029**	**0.3231**	**4.7768**	**23.5132**						28.2900								
172	B62	B61	126	247.97	245.81	246.89	-0.63	43.81	**43.81**	1688.44	1732.25	**1804.43**	150	**0.0091**	**1.1525**	**5.9292**	**23.4408**	902.21	150	**0.0091**	**1.1525**	**1.1525**	28.2175		1						
173	B61	B60	67	245.81	246.43	246.12	0.14	23.3	**23.3**	1665.14	1688.44	**1758.79**	150	**0.0087**	**0.5844**	**6.5136**	**23.6264**	879.4	150	**0.0087**	**0.5844**	**1.7369**	28.4031		1						
174	B60	B55	30	246.43	246.43	246.43	-0.17	10.43	**10.43**	1654.71	1665.14	**1734.52**	200	**0.0021**	**0.0628**	**6.5765**	**23.2535**	867.26	150	**0.0085**	**0.2550**	**1.4075**	28.4225		1						
175	B55	B46	53	246.43	246.22	246.325	-0.065	18.43	**18.43**	1636.28	1654.71	**1723.66**	200	**0.0021**	**0.1097**	**1.5172**	**28.4178**	861.83	150	**0.0084**	**0.4453**	**2.1822**	27.7528		1						
176	B46	B47	62	246.22	246.22	246.22	0.04	21.56	**21.56**	1614.72	1636.28	**1704.46**	200	**0.0020**	**0.1257**	**1.6429**	**28.3971**	852.23	150	**0.0082**	**0.5103**	**1.9178**	28.1222		1						
177	B47	B48	132	246.22	246.72	246.47	-0.21	45.9	**45.9**	1568.82	1614.72	**1682.00**	150	**0.0080**	**1.0600**	**2.7029**	**27.0871**	841	150	**0.0080**	**1.0600**	**3.2423**	26.5477		1						
178	B48	B49	18	246.72	246.72	246.72	-0.46	6.26	**6.26**	1562.56	1568.82	**1634.19**	150	**0.0076**	**0.1370**	**2.8400**	**26.7000**	817.09	150	**0.0076**	**0.1370**	**3.3793**	26.1607		1						
179	B49	B50	82	246.72	248.48	247.6	-1.34	28.51	**28.51**	1534.05	1562.56	**1627.67**	150	**0.0076**	**0.6197**	**3.4596**	**25.2004**	813.83	150	**0.0076**	**0.6197**	**3.8619**	24.7981		1						
180	B50	B51	163	248.48	248.48	248.48	-2.22	56.67	**56.67**	1477.38	1534.05	**1597.97**	150	**0.0073**	**1.1905**	**4.6501**	**23.1299**	798.98	150	**0.0073**	**1.1905**	**4.5698**	23.2102		1						
181	B51	B42	59	248.48	246.72	247.6	-1.34	20.51	**20.51**	1456.87	1477.38	**1538.94**	150	**0.0068**	**0.4019**	**5.0520**	**23.6080**	769.47	150	**0.0068**	**0.4019**	**4.2638**	24.3962		1						
182	B42	B34	79	246.72	246.72	246.72	-0.46	27.47	**27.47**	149.16	176.63	**183.99**	100	**0.0002**	**0.0139**	**5.0659**	**24.4741**	128.79	150	**0.0002**	**0.0196**	**4.2835**	25.2565		1						
183	B34	B33	65	246.72	248.12	247.42	-1.16	22.6	**22.6**	0	22.6	**23.54**	100	**0.0001**	**0.0050**	**5.0709**	**23.7691**														
184	B34	B28	84	248.12	248.95	248.535	-2.275	29.21	**29.21**	97.35	126.56	**131.83**	100	**0.0019**	**0.1572**	**4.4406**	**23.2844**														
185	B28	B10	128	248.95	249.99	249.47	-3.21	44.5	**44.5**	0	44.5	**46.35**	100	**0.0003**	**0.0346**	**4.4752**	**22.3148**														
186	B28	B18	56	248.95	248.89	248.92	-2.66	19.47	**19.47**	33.38	52.85	**55.05**	100	**0.0004**	**0.0208**	**4.4960**	**22.8440**														
187	B18	B17	65	248.89	248.89	248.89	-2.63	22.6	**22.6**	0	22.6	**23.54**	100	**0.0001**	**0.0050**	**4.5010**	**22.8690**														
188	B18	B9	31	248.89	248.89	248.89	-2.63	10.78	**10.78**	0	10.78	**11.23**	100	**0.0000**	**0.0006**	**4.5016**	**22.8684**														
189	B42	B41	65	248.12	248.12	248.12	-1.86	22.6	**22.6**	1257.64	1280.24	**1333.58**	150	**0.0052**	**0.3396**	**5.3916**	**22.7484**	666.79	150	**0.0052**	**0.3396**	**4.6034**	23.5366		1						
190	B41	B40	62	248.12	248.12	248.12	-1.86	21.56	**21.56**	513.91	535.47	**557.78**	150	**0.0004**	**0.0250**	**5.4166**	**22.7234**	390.45	150	**0.0019**	**0.1202**	**4.7237**	23.4163		1						
191	B40	B39	71	248.12	248.12	248.12	-1.86	24.69	**24.69**	489.22	513.91	**535.32**	100	**0.0027**	**0.1914**	**5.6081**	**22.5319**	374.73	150	**0.0018**	**0.1276**	**4.8513**	23.2887		1						
192	B39	B38	62	248.12	246.72	247.42	-1.16	21.56	**21.56**	51.46	73.02	**76.06**	100	**0.0001**	**0.0045**	**5.6126**	**23.2274**	53.244	150	**0.0000**	**0.0030**	**4.8543**	23.9857		1						
193	B38	B37	62	246.72	246.72	246.72	-0.46	21.56	**21.56**	0	21.56	**22.46**	100	**0.0000**	**0.0005**	**5.6131**	**23.9269**	15.721	150	**0.0000**	**0.0003**	**4.8546**	24.6854		1						
194	B38	B31	86	246.72	246.72	246.72	-0.46	29.9	**29.9**	0	29.9	**31.15**	75	**0.0001**	**0.0049**	**5.6179**	**23.9221**	21.802	150	**0.0000**	**0.0008**	**4.8551**	24.6849		1						
195	B39	B32	97	248.12	248.12	248.12	-1.86	33.73	**33.73**	382.47	416.2	**433.54**	75	**0.0074**	**0.7185**	**5.5698**	**22.5702**	303.48	150	**0.0012**	**0.1180**	**4.9693**	23.1707		1						
196	B32	B31	62	248.12	246.72	247.42	-1.16	21.56	**21.56**	25.73	47.29	**49.26**	75	**0.0012**	**0.0761**	**5.6459**	**23.1941**														
197	B31	B30	74	246.72	246.72	246.72	-0.46	25.73	**25.73**	0	25.73	**26.80**	75	**0.0004**	**0.0294**	**5.6753**	**23.8647**														
198	B32	B25	62	248.12	246.98	247.55	-1.29	21.56	**21.56**	313.62	335.18	**349.15**	75	**0.0050**	**0.3076**	**5.9829**	**22.7271**	244.4	150	**0.0008**	**0.0505**	**5.0198**	23.6902		1						
199	B25	B24	147	246.98	246.24	246.61	-0.35	51.11	**51.11**	262.51	313.62	**326.69**	75	**0.0044**	**0.6448**	**6.6277**	**23.0223**	228.68	150	**0.0007**	**0.1059**	**5.1256**	24.5244		1						
200	B24	B30	62	246.24	246.72	246.48	-0.22	21.56	**21.56**	240.95	262.51	**273.45**	150	**0.0010**	**0.0622**	**6.6899**	**23.0901**														
201	B30	B37	76	246.72	246.72	246.72	-0.46	26.42	**26.42**	214.53	240.95	**250.99**	150	**0.0009**	**0.0650**	**6.7549**	**22.7851**														
202	B37	B47	66	246.72	246.72	246.72	-0.46	22.95	**22.95**	191.58	214.53	**223.47**	150	**0.0007**	**0.0455**	**6.8004**	**22.7396**														
203	**B47**	**B46**	**62**	**246.72**	**246.22**	**246.47**	**-0.21**	**21.56**	**21.56**	**170.02**	**191.58**	**199.56**	**200**	**0.0001**	**0.0085**	**6.8090**	**22.9810**														
204	B46	B23	202	246.22	246.24	246.23	0.03	70.23	**70.23**	99.79	170.02	**177.10**	200	**0.0001**	**0.0223**	**6.8313**	**23.1987**														
205	B23	B24	62	246.24	246.24	246.24	0.02	21.56	**21.56**	0	21.56	**22.46**	150	**0.0000**	**0.0006**	**6.8319**	**23.1881**														
206	B23	B20	74	246.24	246.24	246.24	0.02	25.73	**25.73**	52.5	78.23	**81.49**	150	**0.0001**	**0.0079**	**6.8398**	**23.1802**														
207	B20	B2'	151	246.24	245.35	245.795	0.465	52.5	**52.5**	0	52.5	**54.69**	75	**0.0015**	**0.2248**	**7.0646**	**23.4004**														
208	B41	B33	79	248.12	248.12	248.12	-1.86	27.47	**27.47**	694.7	722.17	**752.26**	100	**0.0007**	**0.0523**	**5.4439**	**22.6961**	677.03	150	**0.0054**	**0.4246**	**5.0280**	23.1120		1						
209	B33	B27	75	248.12	248.6	248.36	-2.1	26.08	**26.08**	668.62	694.7	**723.65**	100	**0.0006**	**0.0462**	**5.4901**	**22.4099**	651.28	150	**0.0050**	**0.3751**	**5.4032**	22.4968		1						
210	B27	B17	65	248.6	248.6	248.6	-2.34	22.6	**22.6**	34.43	57.03	**59.41**	150	**0.0001**	**0.0039**	**5.4070**	**22.2530**														
211	B17	B5	58	248.6	248.6	248.6	-2.34	20.17	**20.17**	14.26	34.43	**35.86**	75	**0.0007**	**0.0395**	**5.4466**	**22.2134**														
212	B5	B4	41	248.6	248.24	248.42	-2.16	14.26	**14.26**	0	14.26	**14.85**	200	**0.0000**	**0.0000**	**5.4466**	**22.3934**														
213	B27	B26	62	248.6	248.24	248.42	-2.16	21.56	**21.56**	590.03	611.59	**637.07**	100	**0.0037**	**0.2307**	**5.6339**	**22.2061**	445.95	150	**0.0025**	**0.1538**	**5.5570**	22.2830		1						
214	B26	B40	148	248.24	248.12	248.18	-1.92	51.46	**51.46**	0	51.46	**53.60**	150	**0.0000**	**0.0073**	**5.6412**	**22.4388**														
215	B26	B22	75	248.24	246.98	247.61	-1.35	26.08	**26.08**	318.47	344.55	**358.91**	75	**0.0007**	**0.0512**	**5.6924**	**22.9576**	323.02	150	**0.0014**	**0.1024**	**5.6594**	22.9906		1						
																		0													
216	B22	B21	160	246.98	246.24	246.61	-0.35	55.63	**55.63**	208.61	264.24	**275.25**	75	**0.0001**	**0.0185**	**5.6779**	**23.9721**	247.73	150	**0.0008**	**0.1336**	**5.7930**	23.8570		1						
217	B21	B20	61	246.24	246.24	246.24	0.02	21.21	**21.21**	0	21.21	**22.09**	150	**0.0000**	**0.0006**	**5.6784**	**24.3416**														
218	B21	B19	62	246.24	248.9	247.57	-1.31	21.56	**21.56**	165.84	187.4	**195.21**	150	**0.0005**	**0.0333**	**5.7117**	**22.9783**														
219	B19	B14	111	248.9	248.9	248.9	-2.64	38.59	**38.59**	61.19	99.78	**103.94**	150	**0.0002**	**0.0186**	**5.7303**	**21.6297**														
220	B14	B13	176	248.9	248.9	248.9	-2.64	61.19	**61.19**	0	61.19	**63.74**	75	**0.0020**	**0.3480**	**6.0783**	**21.2817**														

Water Supply Design Statement				Ground Level				Net Water Demand														Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
221	B19	B13	111	248.9	248.9	248.9	-2.64	38.59	**38.59**	27.47	66.06	**68.81**	75	**0.0023**	**0.2529**	**6.3313**	**21.0287**														
222	B13	B3	79	248.9	248.35	248.625	-2.365	27.47	**27.47**	0	27.47	**28.61**	75	**0.0004**	**0.0354**	**6.3667**	**21.2683**														
223	B22	B15	42	246.98	246.98	246.98	-0.72	14.6	**14.6**	39.63	54.23	**56.49**	100	**0.0000**	**0.0000**	**5.6924**	**23.5876**	39.543	**150**	**0.0000**	**0.0012**	**0.0012**	29.2788								
224	B15	B14	33	246.98	248.9	247.94	-1.68	11.47	**11.47**	0	11.47	**11.95**	75	**0.0000**	**0.0000**	**5.6924**	**22.6276**														
225	B15	B16	81	246.98	248.24	247.61	-1.35	28.16	**28.16**	0	28.16	**29.33**	75	**0.0000**	**0.0000**	**5.6924**	**22.9576**	20.533	**150**	**0.0000**	**0.0007**	**0.0018**	28.6482								
226	B26	B16	90	248.24	248.24	248.24	-1.98	31.29	**31.29**	162.73	194.02	**202.10**	150	**0.0001**	**0.0055**	**5.6395**	**22.3805**	141.47	**150**	**0.0003**	**0.0266**	**0.0285**	27.9915								
227	B16	B4	15	248.24	248.24	248.24	-1.98	5.22	**5.22**	131.43	136.65	**142.34**	150	**0.0000**	**0.0005**	**5.6399**	**22.3801**														
228	B4	B3	301	248.24	245.35	246.795	-0.535	104.66	**104.66**	26.77	131.43	**136.91**	75	**0.0009**	**0.2638**	**5.9037**	**23.5613**														
229	B3	B2	77	245.35	245.35	245.35	0.91	26.77	**26.77**	0	26.77	**27.89**	75	**0.0000**	**0.0035**	**5.9072**	**25.0028**														
230	B16	B4	75	248.24	248.24			26.08	**26.08**	0	26.08	**27.17**	200	**0.0000**	**0.0000**	**5.9073**	**24.0927**														
231			20911					7270.66			7270.66						18.0236						18.7402								
								0																							
								0																							
232	OHT	A111	92	253.69	253.69	253.69	0	31.99	31.99	549.71	581.7	**605.94**	150	**0.0005**	**0.0433**	**0.0433**	**29.9567**	424.16	200	**0.0006**	**0.0512**	**0.0512**	29.9488			1					
233	A111	A120	70	253.69	255.05	254.37	-0.68	24.34	24.34	525.37	549.71	**572.61**	150	**0.0004**	**0.0297**	**0.0730**	**29.2470**	400.83	200	**0.0005**	**0.0351**	**0.0863**	29.2337			1					
234	A120	A131	340	255.05	258.93	256.99	-3.3	118.22	118.22	407.15	525.37	**547.26**	150	**0.0000**	**0.0000**	**0.0730**	**26.6270**														
235	A131	A129	198	258.93	260.6	259.765	-6.075	68.84	68.84	338.31	407.15	**424.11**	150	**0.0000**	**0.0000**	**0.0730**	**23.8520**														
												0.00																			
236	A129	A128	51	261.08	262.6	261.84	-8.15	17.73	17.73	47.98	65.71	**68.45**	75	**0.0023**	**0.1151**	**0.1881**	**21.6619**														
237	A128	A126	51	261.08	261.08	261.08	-7.39	17.73	17.73	0	17.73	**18.47**	75	**0.0002**	**0.0102**	**0.1982**	**22.4118**														
238	A128	A127	87	258.93	261.08	260.005	-6.315	30.25	30.25	0	30.25	**31.51**	75	**0.0005**	**0.0467**	**0.2347**	**23.4503**														
239	A129	A136	83	260.6	263.04	261.82	-8.13	28.86	28.86	243.74	272.6	**283.96**	150	**0.0011**	**0.0892**	**0.1622**	**21.7078**														
240	A136	A136'	53	263.04	263.04	263.04	-9.35	18.43	18.43	225.31	243.74	**253.90**	75	**0.0028**	**0.1458**	**0.3080**	**20.3420**	177.73	100	**0.0033**	**0.1724**	**0.3347**	20.3153	1							
241	A136'	A139'	53	263.04	263.58	263.31	-9.62	18.43	18.43	0	18.43	**19.20**	75	**0.0002**	**0.0114**	**0.3194**	**20.0606**														
242	A136'	A140	55	263.04	263.58	263.31	-9.62	19.12	19.12	187.76	206.88	**215.50**	75	**0.0020**	**0.1116**	**0.4310**	**19.9490**	150.85	100	**0.0024**	**0.1321**	**0.4667**	19.9133	1							
243	A140	A142	53	263.58	263.58	263.58	-9.89	18.43	18.43	169.33	187.76	**195.58**	75	**0.0017**	**0.0899**	**0.5209**	**19.5891**	136.91	100	**0.0020**	**0.1063**	**0.5731**	19.5369	1							
244	A142	A141	56	263.58	263.58	263.58	-9.89	19.47	19.47	0	19.47	**20.28**	75	**0.0002**	**0.0133**	**0.5342**	**19.5758**														
245	A142	A143	86	263.58	263.58	263.58	-9.89	29.9	29.9	119.96	149.86	**156.10**	75	**0.0011**	**0.0961**	**0.6303**	**19.4797**	109.27	100	**0.0013**	**0.1137**	**0.6867**	19.4233	1							
246	A143	A147	118	263.58	257.93	260.755	-7.065	41.03	41.03	78.93	119.96	**124.96**	75	**0.0007**	**0.0873**	**0.7176**	**22.2174**	87.471	100	**0.0009**	**0.1033**	**0.7900**	22.1450	1	0	0	0		1		
247	A147	A125	227	258.24	257.93	258.085	-4.395	78.93	78.93	0	78.93	**82.22**	150	**0.0001**	**0.0246**	**0.7422**	**24.8628**							0	0	0	0		0		
248	OGT	A124	463	253.69.	258.63	258.63	-4.94	160.98	160.98	503.1	664.08	**691.75**	150	**0.0006**	**0.2786**	**0.2786**	**24.7814**	484.23	200	**0.0007**	**0.3295**	**0.3295**	24.7305			1					
												0.00																			
249	A124	A144	148	257.93	258.93	258.43	-4.74	51.46	51.46	44.5	95.96	**99.96**	150	**0.0002**	**0.0230**	**0.3016**	**24.9584**														
250	A144	A145	77	257.93	257.93	257.93	-4.24	26.77	26.77	0	26.77	**27.89**	150	**0.0000**	**0.0011**	**0.3027**	**25.4573**														
251	A144	A125	51	258.24	257.93	258.085	-4.395	17.73	17.73	0	17.73	**18.47**	150	**0.0000**	**0.0003**	**0.3019**	**25.3031**														
249	A124	A132	90	258.93	258.93	258.93	-5.24	31.29	31.29	375.85	407.14	**424.10**	150	**0.0023**	**0.2034**	**0.4820**	**24.2780**														
253	A132	A133	46	258.93	258.93	258.93	-5.24	15.99	15.99	53.89	69.88	**72.79**	100	**0.0006**	**0.0287**	**0.5106**	**24.2494**														
254	A133	A137	78	258.93	258.93	258.93	-5.24	27.12	27.12	26.77	53.89	**56.14**	100	**0.0004**	**0.0300**	**0.5407**	**24.2193**														
255	A137	A145	77	257.93	258.93	258.43	-4.74	26.77	26.77	0	26.77	**27.89**	100	**0.0001**	**0.0081**	**0.5488**	**24.7112**														
252	A132	A129'	188	258.93	262.6	260.765	-7.075	65.37	65.37	240.6	305.97	**318.72**	75	**0.0042**	**0.7878**	**1.2697**	**21.6553**	223.1	150	**0.0007**	**0.1293**	**0.6700**	22.2550		1						
256	A129'	A135	40	262.6	261.77	262.185	-8.495	13.91	13.91	226.69	240.6	**250.63**	75	**0.0027**	**0.1074**	**1.3771**	**20.1279**	175.44	150	**0.0004**	**0.0176**	**0.5664**	20.9386		1						
257	A135	A139'	51	261.77	263.58	262.675	-8.985	17.73	17.73	0	17.73	**18.47**	75	**0.0002**	**0.0102**	**1.3873**	**19.6277**														
258	A135	A134	51	261.27	261.77	261.52	-7.83	17.73	17.73	191.23	208.96	**217.67**	75	**0.0021**	**0.1055**	**1.4928**	**20.6772**	152.37	150	**0.0003**	**0.0173**	**0.5837**	21.5863		1						
259	A134	A133	77	261.27	261.27	261.27	-7.58	26.77	26.77	0	26.77	**27.89**	75	**0.0004**	**0.0329**	**1.5257**	**20.8943**														
260	A134	A138	78	261.27	258.93	260.1	-6.41	27.12	27.12	137.34	164.46	**171.31**	75	**0.0123**	**0.9623**	**2.4551**	**21.1349**														
261	A138	A137	98	258.93	258.93	258.93	-5.24	34.07	34.07	0	34.07	**35.49**	100	**0.0002**	**0.0161**	**2.4712**	**22.2888**														
												0.00																			
262	A138	A139	54	258.93	257.93	258.43	-4.74	18.78	18.78	84.49	103.27	**107.57**	75	**0.0052**	**0.2814**	**2.7366**	**22.5234**														
263	A139	A146	53	257.93	257.93	257.93	-4.24	18.43	18.43	52.85	71.28	**74.25**	75	**0.0026**	**0.1390**	**2.8756**	**22.8844**														
264	A146	A145	152	257.93	257.93	257.93	-4.24	52.85	52.85	0	52.85	**55.05**	75	**0.0015**	**0.2291**	**3.1047**	**22.6553**														
265	A139	A139'	38	257.93	257.93	257.93	-4.24	13.21	13.21	0	13.21	**13.76**	75	**0.0001**	**0.0044**	**2.7409**	**23.0191**														
												0.00																			
266	OGT	A105	20	253.69	253.69	253.69	0	6.95	6.95	6786.62	6793.57	**7076.64**	300	**0.0142**	**0.2836**	**0.2836**	**29.7164**														
267												**0.00**																			
268	A105	A108"	205	253.69	251.83	252.76	0.93	71.28	71.28	1687.68	1758.96	**1832.25**	300	**0.0012**	**0.2380**	**0.5216**	**30.4084**														
269	A108"	B69	242	251.83	254.26	253.045	0.645	84.14	84.14	1603.54	1687.68	**1758.00**	250	**0.0026**	**0.6325**	**1.1542**	**29.4908**														

Water Supply Design Statement				Ground Level				Net Water Demand															Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
												0.00																			
270	B69	B69'	76	254.26	251.34	252.8	0.89	26.42	26.42	0	26.42	**27.52**	250	**0.0000**	**0.0001**	**1.1542**	**29.7358**														
271	B69	B70	380	254.26	257.03	255.645	-1.955	132.12	132.12	17.73	149.85	**156.09**	250	**0.0000**	**0.0112**	**1.1655**	**26.8795**														
272	B70	B88	51	257.03	255.06	256.045	-2.355	17.73	17.73	0	17.73	**18.47**	250	**0.0000**	**0.0000**	**1.1655**	**26.4795**														
273												**0.00**																			
274	B69	B68	76	254.26	251.34	252.8	0.89	26.42	26.42	1400.85	1427.27	**1486.74**	250	**0.0019**	**0.1456**	**1.2998**	**29.5902**														
275												**0.00**																			
276	B68	B67	66	251.34	251.34	251.34	2.35	22.95	22.95	48.68	71.63	**74.61**	250	**0.0000**	**0.0005**	**1.3003**	**31.0497**														
277	B67	B82	82	251.34	250.96	251.15	2.54	28.51	28.51	0	28.51	**29.70**	75	**0.0005**	**0.0394**	**1.3397**	**31.2003**														
278	B67	B66	58	251.34	251.34	251.34	2.35	20.17	20.17	0	20.17	**21.01**	250	**0.0000**	**0.0000**	**1.3003**	**31.0497**														
279												**0.00**																			
280	B68	B83	72	251.34	251.34	251.34	2.35	25.03	25.03	1304.19	1329.22	**1384.60**	200	**0.0050**	**0.3586**	**0.3586**	**31.9914**														
281												**0.00**																			
282	B83	B84	94	251.34	252.1	251.72	1.97	32.68	32.68	243.38	276.06	**287.56**	**200**	**0.0003**	**0.0255**	**0.3840**	**31.5860**														
												0.00																			
284	B84	B82	115	252.1	250.96	251.53	2.16	39.98	39.98	21.56	61.54	**64.10**	200	**0.0000**	**0.0019**	**0.3860**	**31.7740**														
285	B82	B81	62	250.96	250.96	250.96	2.73	21.56	21.56	0	21.56	**22.46**	250	**0.0000**	**0.0001**	**0.3860**	**32.3440**														
283	B84	B103	37	252.1	252.1	252.1	1.59	12.86	12.86	168.98	181.84	**189.42**	100	**0.0037**	**0.1354**	**0.5215**	**31.0685**														
286	B103	B102	177	252.1	250.96	251.53	2.16	61.54	61.54	0	61.54	**64.10**	100	**0.0005**	**0.0871**	**0.6086**	**31.5514**														
287	B103	B105	65	252.1	251.48	251.79	1.9	22.6	22.6	84.84	107.44	**111.92**	150	**0.0002**	**0.0125**	**0.6211**	**31.2789**														
288	B105	B115	67	251.48	251.48	251.48	2.21	23.3	23.3	61.54	84.84	**88.38**	150	**0.0001**	**0.0083**	**0.6294**	**31.5806**														
289	B115	B112	177	251.48	250.98	251.23	2.46	61.54	61.54	0	61.54	**64.10**	150	**0.0001**	**0.0121**	**0.6414**	**31.8186**														
290												**0.00**																			
291	B83	B85	95	251.34	255.06	253.2	0.49	33.03	33.03	995.1	1028.13	**1070.97**	200	**0.0031**	**0.2940**	**0.6526**	**29.8374**														
292	B85	B116	230	255.06	255.92	255.49	-1.8	79.97	79.97	0	79.97	**83.30**	200	**0.0000**	**0.0063**	**0.6589**	**27.5411**														
293	B85	B86		255.06	255.06	255.06	-1.37	0	0	915.13	915.13	**953.26**	200	**0.0025**	**0.0000**	**0.6589**	**27.9711**														
294	B86	B117	188	255.06	255.92	255.49	-1.8	65.37	65.37	0	65.37	**68.09**	200	**0.0000**	**0.0035**	**0.6624**	**27.5376**														
295	B86	B87	75	255.06	255.06	255.06	-1.37	26.08	26.08	823.68	849.76	**885.17**	200	**0.0022**	**0.1631**	**0.8255**	**27.8045**														
296	B87	B119	112	255.06	255.06	255.06	-1.37	38.94	38.94	0	38.94	**40.56**	200	**0.0000**	**0.0008**	**0.8263**	**27.8037**														
297												**0.00**																			
298	B87	B88	65	255.06	255.06	255.06	-1.37	22.6	22.6	762.14	784.74	**817.44**	200	**0.0019**	**0.1220**	**0.9475**	**27.6825**														
												0.00																			
299	B88	B88"	103	255.06	255.92	255.49	-1.8	35.81	35.81	492.33	528.14	**550.15**	200	**0.0001**	**0.0071**	**0.9546**	**27.2454**	412.61	150	**0.0021**	**0.2213**	**1.1688**	27.0312		1						
300	B88	B120	127	255.06	255.92	255.49	-1.8	44.16	44.16	448.17	492.33	**512.84**	75	**0.0072**	**0.9161**	**1.8708**	**26.3292**	384.63	150	**0.0019**	**0.2395**	**1.1871**	27.0129		1						
301	B120	B121	66	255.92	255.92	255.92	-2.23	22.95	22.95	178.71	201.66	**210.06**	75	**0.0014**	**0.0912**	**1.9619**	**25.8081**	157.55	150	**0.0004**	**0.0238**	**1.8946**	25.8754		1						
302	B121	B122	168	255.92	255.92	255.92	-2.23	58.41	58.41	120.3	178.71	**186.16**	75	**0.0011**	**0.1855**	**2.1475**	**25.6225**	139.62	150	**0.0003**	**0.0485**	**2.0104**	25.7596		1						
303												**0.00**																			
304	B122	B90	65	255.92	255.92	255.92	-2.23	22.6	22.6	75.1	97.7	**101.77**	75	**0.0004**	**0.0235**	**2.1709**	**25.5991**	76.328	100	**0.0007**	**0.0442**	**2.0547**	25.7153	1							
305	B90	B89	147	255.92	255.92	255.92	-2.23	51.11	51.11	23.99	75.1	**78.23**	75	**0.0002**	**0.0326**	**2.2035**	**25.5665**	58.672	100	**0.0004**	**0.0614**	**2.1161**	25.6539	1							
306	B89	B121	69	255.92	255.92	255.92	-2.23	23.99	23.99	0	23.99	**24.99**	75	**0.0000**	**0.0018**	**2.2054**	**25.5646**	18.742	100	**0.0001**	**0.0035**	**2.1196**	25.6504	1							
307	B122	B136	65	255.92	256.13	256.025	-2.335	22.6	22.6	0	22.6	**23.54**	75	**0.0000**	**0.0016**	**2.2070**	**25.4580**	17.656	100	**0.0000**	**0.0029**	**2.1190**	25.5460	1							
												0.00																			
308	B120	B134	68	255.92	255.92	255.92	-2.23	23.64	23.64	222.87	246.51	**256.78**	75	**0.0020**	**0.1362**	**2.01**	**25.76**	192.59	100	**0.0038**	**0.2567**	**1.4437**	26.3263	1							
309	B134	B136	251	255.92	256.13	256.025	-2.335	87.27	87.27	22.25	109.52	**114.08**	75	**0.0004**	**0.1119**	**2.12**	**25.55**	85.563	100	**0.0008**	**0.2109**	**1.6546**	26.0104	1							
310	B136	B149	64	256.13	256.13	256.13	-2.44	22.25	22.25	0	22.25	**23.18**	75	**0.0000**	**0.0015**	**2.12**	**25.44**	17.383	100	**0.0000**	**0.0028**	**1.6574**	25.9026	1							
												0.00																			
311	B134	B147	69	255.92	253.13	254.525	-0.835	23.99	23.99	89.36	113.35	**118.07**	75	**0.0005**	**0.0328**	**2.04**	**27.13**	88.555	100	**0.0009**	**0.0618**	**1.5055**	27.6595	1							
312	B147	B149	257	253.13	256.13	254.63	-0.94	89.36	89.36	0	89.36	**93.08**	75	**0.0003**	**0.0786**	**2.12**	**26.94**														
												0.00																			
313	B88	B119	98	255.06	255.06	255.06	-1.37	34.07	34.07	199.93	234	**243.75**	200	**0.0002**	**0.0196**	**0.97**	**27.66**														
												0.00																			
314	B119	B118	37	255.06	255.92	255.49	-1.8	12.86	12.86	187.07	199.93	**208.26**	200	**0.0001**	**0.0055**	**0.97**	**27.23**														
315	B118	B117	44	255.92	255.92	255.92	-2.23	15.3	15.3	0	15.3	**15.94**	200	**0.0000**	**0.0001**	**0.97**	**26.80**														
316	B118	B147'	130	255.92	253.13	254.525	-0.835	45.2	45.2	126.57	171.77	**178.93**	200	**0.0001**	**0.0146**	**0.99**	**28.18**														
317	B147'	B146	51	253.13	253.13	253.13	0.56	17.73	17.73	108.84	126.57	**131.84**	200	**0.0001**	**0.0033**	**0.99**	**29.57**														
318	B146	B133	170	253.13	253.13	253.13	0.56	59.11	59.11	49.73	108.84	**113.38**	200	**0.0000**	**0.0082**	**1.00**	**29.56**														
												0.00																			
319	B133	B116	14	253.13	255.92	254.525	-0.835	4.87	4.87	23.3	28.17	**29.34**	200	**0.0000**	**0.0001**	**1.00**	**28.17**														
320	B116	B117	67	255.92	255.92	255.92	-2.23	23.3	23.3	0	23.3	**24.27**	100	**0.0001**	**0.0055**	**1.00**	**26.77**														
321	B133	B132	62	253.13	253.13	253.13	0.56	21.56	21.56	0	21.56	**22.46**	100	**0.0001**	**0.0044**	**1.01**	**29.55**														
322												**0.00**																			
323	**A105**	**A104**	**91**	**251.48**	**250.98**	**251.23**	**2.46**	**31.64**	**31.64**	**4996.02**	**5027.66**	**5237.15**	**150**	**0.0182**	**1.6588**	**1.94**	**30.52**	3927.9	300	**0.0048**	**0.4337**	**0.4337**	32.0263						**1**		

Water Supply Design Statement				Ground Level				Net Water Demand															Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
324												**0.00**																			
325	A104	A110	62	253.35	253.35	253.35	0.34	21.56	21.56	328.23	349.79	**364.36**	100	**0.0009**	**0.0585**	**2.00**	**28.34**	273.27	150	**0.0010**	**0.0621**	**0.4958**	29.8442		1						
326	A110	A109	78	253.35	253.35	253.35	0.34	27.12	27.12	0	27.12	**28.25**	75	**0.0004**	**0.0342**	**2.04**	**28.30**														
327	A110	A115	68	253.35	255.28	254.315	-0.625	23.64	23.64	277.47	301.11	**313.66**	100	**0.0007**	**0.0486**	**2.08**	**27.29**	235.24	150	**0.0008**	**0.0516**	**0.5474**	28.8276		1						
328												**0.00**																			
329	A115	A114'	67	255.28	255.28	255.28	-1.59	23.3	23.3	33.73	57.03	**59.41**	75	**0.0017**	**0.1163**	**0.66**	**27.75**												1		
330	A114'	A114	97	255.28	255.28	255.28	-1.59	33.73	33.73	0	33.73	**35.14**	75	**0.0007**	**0.0637**	**0.73**	**27.68**														
331												**0.00**																			
332	A115	A119	68	255.28	256.26	255.77	-2.08	23.64	23.64	196.8	220.44	**229.63**	75	**0.0212**	**1.4433**	**1.99**	**25.93**														
333	**A119**	**A117**	**40**	**256.26**	**256.26**	256.26	-2.57	13.91	13.91	88.66	102.57	**106.84**	75	**0.0051**	**0.2059**	**2.20**	**25.23**														
334	**A117**	**A118**	**123**	**256.26**	**256.26**	256.26	-2.57	42.77	42.77	0	42.77	**44.55**	75	**0.0010**	**0.1253**	**2.32**	**25.11**												3	1	1
335	A117	A116	27	256.26	256.26	256.26	-2.57	9.39	9.39	36.5	45.89	**47.80**	**75**	**0.0012**	**0.0313**	**2.35**	**25.08**														
336	A116	A114'	68	255.28	256.26	255.77	-2.08	23.64	23.64	0	23.64	**24.63**	**75**	**0.0003**	**0.0231**	**2.38**	**25.54**														
337	A116	A116'	37	255.92	256.26	256.09	-2.4	12.86	12.86	0	12.86	**13.40**	75	**0.0001**	**0.0041**	**2.38**	**25.22**														
338	A119	A123	271	256.26	259.08	257.67	-3.98	94.23	94.23	0	94.23	**98.16**	75	**0.0003**	**0.0915**	**2.47**	**23.55**	73.617	100	**0.0006**	**0.1724**	**2.4942**	23.5258						1	0	0
												0.00																			
339	A104	A103	48	251.83	252.35	252.09	1.6	16.69	16.69	11.82	28.51	**29.70**	75	**0.0005**	**0.0231**	**0.31**	**31.29**														
340	A103	A103'	34	251.83	251.83	251.83	1.86	11.82	11.82	0	11.82	**12.31**	75	**0.0001**	**0.0032**	**0.31**	**31.55**														
												0.00																			
341	A104	A100	86	#REF!	252.35	252.02	1.67	29.9	29.9	4587.82	4617.72	**4810.13**	150	**0.2029**	**17.45**	**0.31**	**31.36**	3607.6	300	**0.0041**	**0.3502**	**0.3502**	31.3198		0	0	0	1	0	1	
												0.00																			
342	**A100**	**A101**	**105**	**252.99**	**252.02**	**252.505**	**1.185**	**36.51**	**36.51**	**4551.31**	**4587.82**	**4778.98**	**150**	**0.0154**	**1.62**	**1.92**	**29.26**	3584.2	300	**0.0040**	**0.4224**	**0.7726**	30.4124					**1**			
												0.00																			
343	A101	A102	236	252.99	252.99	252.99	0.7	82.06	82.06	126.92	208.98	**217.69**	100	**0.0047**	**1.1177**	**3.04**	**27.66**														
												0.00																			
344	A102	A108	87	246.77	251.83	249.3	4.39	30.25	30.25	77.89	108.14	**112.65**	100	**0.0014**	**0.1216**	**3.16**	**31.23**								0	0	0				
345	A108	A107	52	246.77	246.77	246.77	6.92	18.08	18.08	59.81	77.89	**81.14**	100	**0.0008**	**0.0396**	**3.20**	**33.72**														
346	A107	A106	67	253.69	246.77	250.23	3.46	23.3	23.3	36.51	59.81	**62.30**	100	**0.0005**	**0.0313**	**3.23**	**30.23**														
347	A106	A105	105	253.69	253.69	253.69	0	36.51	36.51	0	36.51	**38.03**	100	**0.0002**	**0.0197**	**3.25**	**26.75**														
												0.00																			
348	A102	A99	**54**	251.83	251.19	251.51	2.18	18.78	18.78	0	18.78	**19.56**	200	**0.0000**	**0.0001**	**3.04**	**29.14**														
												0.00																			
349	A101	A94	54	252.892	252.99	252.941	0.749	18.78	18.78	4323.55	4342.33	**4523.26**	100	**0.0389**	**2.0993**	**4.0**	**26.7**	3844.8	300	**0.0046**	**0.2474**	**1.0200**	29.7290					1			
												0.00																			
350	A94	A90	66	252.82	252.82	252.82	0.87	22.95	22.95	185.31	208.26	**216.94**	100	**0.0047**	**0.3106**	**4.3321**	**26.5379**														
												0.00																			
351	A90	A86	87	252.82	249.89	251.355	2.335	30.25	30.25	72.67	102.92	**107.21**	75	**0.0052**	**0.4506**	**4.7827**	**27.5523**														
352	A86	A85	50	249.89	249.389	249.64	4.0505	17.38	17.38	0	17.38	**18.10**	75	**0.0002**	**0.0096**	**4.7923**	**29.2582**														
353	A86	A84	34	249.89	249.89	249.89	3.8	11.82	11.82	43.47	55.29	**57.59**	75	**0.0016**	**0.0557**	**4.8480**	**28.9520**														
354	A84	A83	67	249.89	249.31	249.6	4.09	23.3	23.3	0	23.3	**24.27**	75	**0.0003**	**0.0222**	**4.8702**	**29.2198**														
355	A84	A82	31	249.89	249.89	249.89	3.8	10.78	10.78	9.39	20.17	**21.01**	75	**0.0003**	**0.0079**	**4.8780**	**28.9220**														
356	A82	A81	27	249.89	249.37	249.63	4.06	9.39	9.39	0	9.39	**9.78**	75	**0.0001**	**0.0017**	**4.8797**	**29.1803**														
												0.00																			
357	A90	A89	60	249.89	252.82	251.355	2.335	20.86	20.86	61.53	82.39	**85.82**	75	**0.0034**	**0.2058**	**4.5379**	**27.7971**														
358	A89	A89'	63	249.89	249.89	249.89	3.8	21.9	21.9	0	21.9	**22.81**	75	**0.0003**	**0.0186**	**4.5565**	**29.2435**														
359	A89	A88	51	249.89	249.89	249.89	3.8	17.73	17.73	21.9	39.63	**41.28**	75	**0.0009**	**0.0451**	**4.6016**	**29.1984**														
360	A88	A87	63	249.89	249.89	249.89	3.8	21.9	21.9	0	21.9	**22.81**	75	**0.0003**	**0.0186**	**4.6202**	**29.1798**														
												0.00																			
361	**A94**	**A93**	**143**	**252.82**	**252.82**	**252.82**	**0.87**	**49.72**	**49.72**	**0**	**49.72**	**51.79**	**75**	**0.0013**	**0.1925**	**4.2140**	**26.6560**														
												0.00																			
362	**A94**	**A98**	**158**	**252.82**	**251.19**	**252.005**	**1.685**	**54.94**	**54.94**	**4010.63**	**4065.57**	**4234.97**	**75**	**0.0183**	**2.8862**	**7.1002**	**24.5848**	4023.2	300	**0.0050**	**0.7873**	**1.8072**	29.8778					**1**			
363	A98	A97	86	251.19	251.19	251.19	2.5	29.9	29.9	295.18	325.08	**338.63**	100	**0.0107**	**0.9231**	**2.7303**	**29.7697**														
												0.00																			
364	A97	A80	78	251.19	249.31	250.25	3.44	27.12	27.12	126.9	154.02	**160.44**	100	**0.0027**	**0.2099**	**2.9403**	**30.4997**														
365	A80	A78	146	249.31	249.31	249.31	4.38	50.76	50.76	0	50.76	**52.88**	150	**0.0000**	**0.0070**	**2.9473**	**31.4327**														
366	A80	A79	60	249.31	249.31	249.31	4.38	20.86	20.86	55.28	76.14	**79.31**	75	**0.0030**	**0.1778**	**3.1251**	**31.2549**														
367	A79	A77	159	249.31	250.07	249.69	4	55.28	55.28	0	55.28	**57.58**	100	**0.0004**	**0.0642**	**3.1893**	**30.8107**														
												0.00																			
368	A97	A96	98	251.19	251.71	251.45	2.24	34.07	34.07	107.09	141.16	**147.04**	150	**0.0003**	**0.0312**	**2.7615**	**29.4785**														
369	A96	A95	71	251.71	252.62	252.165	1.525	24.69	24.69	0	24.69	**25.72**	100	**0.0001**	**0.0064**	**2.7679**	**28.7571**														
370	A96	A92	60	250.55	250.55	250.55	3.14	20.86	20.86	61.54	82.4	**85.83**	150	**0.0001**	**0.0070**	**2.7750**	**30.3650**														
371	A92	A79	46	250.55	249.31	249.93	3.76	15.99	15.99	0	15.99	**16.66**	150	**0.0000**	**0.0003**	**2.7752**	**30.9848**														

Water Supply Design Statement				Ground Level				Net Water Demand														Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
372	A92	A91	56	250.55	250.55	250.55	3.14	19.47	19.47	26.08	45.55	**47.45**	150	**0.0000**	**0.0022**	**2.7774**	**30.3626**														
373	A91	A84'	75	250.55	249.89	250.22	3.47	26.08	26.08	0	26.08	**27.17**	150	**0.0000**	**0.0010**	**2.7785**	**30.6915**														
												0.00																			
374	A98	A99	90	251.19	251.19	251.19	2.5	31.29	31.29	3654.26	3685.55	**3839.11**	**100**	**0.0038**	**0.3377**	**2.1449**	**30.3551**	3647.2	300	**0.0042**	**0.3739**	**0.3739**	32.1261					1			
												0.00																			
375	A99	B4"	324	251.19	246.98	249.085	4.605	112.65	112.65	2482.19	2594.84	**2702.96**	**200**	**0.0018**	**0.5991**	**0.5991**	**34.0059**	2567.8	250	**0.0053**	**1.7081**	**2.0821**	32.5229				1				
376	B4"	B4'	76	246.98	246.98	246.98	6.71	26.42	26.42	2455.77	2482.19	**2585.61**	**150**	**0.0069**	**0.5255**	**1.1245**	**35.5855**	1809.9	250	**0.0028**	**0.2097**	**2.2917**	34.4183				1				
377	B4'	B1	405	246.98	248.69	247.835	5.855	140.82	140.82	2314.95	2455.77	**2558.09**	**150**	**0.0068**	**2.7452**	**3.8698**	**31.99**	1790.7	250	**0.0027**	**1.0953**	**3.3870**	32.4680				1				
378	B1	B2	57	248.69	245.35	247.02	6.67	19.82	19.82	2295.13	2314.95	**2411.41**	**150**	**0.0061**	**0.3463**	**4.2161**	**32.4539**	1688	250	**0.0024**	**0.1382**	**3.5252**	33.1448				1				
379	B2	B2'	125	245.35	245.35	245.35	8.34	43.46	43.46	2251.67	2295.13	**2390.76**	**200**	**0.0015**	**0.1841**	**4.4002**	**33.9398**	1673.5	250	**0.0024**	**0.2982**	**3.8235**	34.5165				1				
380	B2'	A10'	73	245.35	244.76	245.055	8.635	25.38	25.38	2226.29	2251.67	**2345.49**	**250**	**0.0005**	**0.0350**	**4.4352**	**34.1998**	1641.8	250	**0.0023**	**0.1681**	**3.9916**	34.6434				1				
381	A10'	A31	182	244.76	245.41	245.085	8.605	63.28	63.28	0	63.28	**65.92**	200	**0.0000**	**0.0032**	**4.4385**	**34.1665**														
382	A10'	A10	24	244.76	244.76	244.76	8.93	8.34	8.34	2154.67	2163.01	**2253.14**	200	**0.0013**	**0.0317**	**4.4701**	**34.5**	1577.2	200	**0.0063**	**0.1521**	**4.1437**	34.7863			1					
												0.00																			
383	A10	A31	205	244.76	245.41	245.085	8.605	71.28	71.28	107.78	179.06	**186.52**	200	**0.0001**	**0.0249**	**4.1686**	**34.4364**														
384	A31	A30	63	245.41	245.41	245.41	8.28	21.9	21.9	0	21.9	**22.81**	200	**0.0000**	**0.0002**	**4.1688**	**34.1112**														
385	A31	A52	247	245.41	245.43	245.42	8.27	85.88	85.88	0	85.88	**89.46**	100	**0.0009**	**0.2254**	**4.3942**	**33.8758**														
383												**0.00**																			
384	A10	A17	88	244.76	244.76	244.76	8.93	30.6	30.6	567.09	597.69	**622.59**	200	**0.0011**	**0.0997**	**4.2434**	**34.6866**														
												0.00																			
385	A17	A9	16	244.76	244.76	244.76	8.93	5.56	5.56	182.88	188.44	**196.29**	200	**0.0001**	**0.0021**	**4.2456**	**34.6844**														
386	A9	A8	69	244.76	244.76	244.76	8.93	23.99	23.99	0	23.99	**24.99**	200	**0.0000**	**0.0002**	**4.246**	**34.684**														
387	A9	A26	178	244.76	243.97	244.365	9.325	61.89	61.89	97	158.89	**165.51**	200	**0.0001**	**0.0174**	**4.263**	**35.062**														
388	A26	A25	68	243.97	243.97	243.97	9.72	23.64	23.64	0	23.64	**24.63**	200	**0.0000**	**0.0002**	**4.263**	**35.457**														
389	A26	A47	143	243.97	243.44	243.705	9.985	49.72	49.72	23.64	73.36	**76.42**	200	**0.0000**	**0.0033**	**4.267**	**35.718**														
390	A47	A46	68	243.44	243.44	243.44	10.25	23.64	23.64	0	23.64	**24.63**	200	**0.0000**	**0.0002**	**4.267**	**35.983**														
												0.00																			
391	A17	A27	92	244.61	244.76	244.685	9.005	31.99	31.99	346.66	378.65	**394.43**	200	**0.0005**	**0.0448**	**4.288**	**34.717**														
392	A27	A28	100	245.41	244.61	245.01	8.68	34.77	34.77	311.89	346.66	**361.10**	75	**0.0053**	**0.5280**	**4.816**	**33.864**	252.77	200	**0.0002**	**0.0214**	**4.3096**	34.3704			1					
393	A28	A26	68	245.41	243.97	244.69	9	23.64	23.64	0	23.64	**24.63**	200	**0.0000**	**0.0002**	**4.816**	**34.184**	17.238	100	**0.0000**	**0.0029**	**4.8192**	34.1808								
394	A28	A29	71	245.41	245.41	245.41	8.28	24.69	24.69	263.56	288.25	**300.26**	200	**0.0003**	**0.0209**	**4.837**	**33.443**														
395	A29	A30	19	245.41	245.41	245.41	8.28	6.61	6.61	256.95	263.56	**274.54**	200	**0.0002**	**0.0047**	**4.842**	**33.438**														
												0.00																			
396	A30	A41	85	245.41	245.41	245.41	8.28	29.55	29.55	227.4	256.95	**267.66**	75	**0.0030**	**0.2578**	**5.100**	**33.180**	187.36	150	**0.0005**	**0.0423**	**4.8843**	33.3957		1						
397	A41	A51	140	245.41	245.43	245.42	8.27	48.68	48.68	23.3	71.98	**74.98**	75	**0.0027**	**0.3740**	**5.474**	**32.796**														
398	A51	A52	67	245.43	245.43	245.43	8.26	23.3	23.3	0	23.3	**24.27**	75	**0.0003**	**0.0222**	**5.496**	**32.764**														
399	A41	A40	135	245.41	245.41	245.41	8.28	46.94	46.94	108.48	155.42	**161.90**	75	**0.0111**	**1.5000**	**6.996**	**31.284**	113.33	150	**0.0002**	**0.0265**	**4.9108**	33.3692		1						
400	A40	A49	143	245.41	245.41	245.41	8.28	49.72	49.72	58.76	108.48	**113.00**	150	**0.0002**	**0.0279**	**7.024**	**31.256**	79.1	150	**0.0001**	**0.0144**	**4.9252**	33.3548		1						
401	A49	A50	111	245.41	245.41	245.41	8.28	38.59	38.59	0	38.59	**40.20**	75	**0.0008**	**0.0935**	**7.117**	**31.163**														
402	A49	A48	58	245.41	245.41	245.41	8.28	20.17	20.17	0	20.17	**21.01**	100	**0.0001**	**0.0036**	**7.121**	**31.159**														
												0.00																			
403	A10	A4'	74	244.76	244.61	244.685	9.005	25.73	25.73	1352.19	1377.92	**1435.33**	100	**0.0167**	**1.2395**	**5.483**	**33.522**	1004.7	200	**0.0027**	**0.2035**	**4.3472**	34.6578			1					
404	A4	A4'	28	244.61	244.61	244.61	9.08	9.74	9.74	0	9.74	**10.15**	100	**0.0000**	**0.0005**	**5.483**	**33.597**														
405	A4	A3'	52	244.61	242.19	243.4	10.29	18.08	18.08	1324.37	1342.45	**1398.39**	100	**0.0044**	**0.2299**	**5.713**	**34.577**	978.87	200	**0.0026**	**0.1363**	**4.2799**	36.0101			1					
406	A3'	A3	335	242.19	242.19	242.19	11.5	116.48	116.48	1207.89	1324.37	**1379.55**	100	**0.0043**	**1.4445**	**7.158**	**34.342**	965.69	200	**0.0026**	**0.8560**	**5.1360**	36.3640			1					
												0.00																			
407	A3	A7'	80	242.19	242.68	242.435	11.255	27.82	27.82	932.51	960.33	**1000.34**	100	**0.0024**	**0.1902**	**7.348**	**33.907**	850.29	200	**0.0020**	**0.1615**	**4.4414**	36.8136			1					
408	A7'	A7	74	242.68	242.68	242.68	11.01	25.73	25.73	906.78	932.51	**971.36**	100	**0.0023**	**0.1666**	**4.608**	**36.402**	825.66	200	**0.0019**	**0.1415**	**5.2774**	35.7326			1					
409	A7	A15	40	242.68	244.61	243.645	10.045	13.91	13.91	16.69	30.6	**31.88**	100	**0.0001**	**0.0039**	**4.612**	**35.433**														
410	A15	A21	48	244.61	244.61	244	9.69	16.69	16.69	0	16.69	**17.39**	100	**0.0000**	**0.0015**	**4.613**	**35.077**														
411	A7	A8	165	242.68	244.76	243.72	9.97	57.37	57.37	818.81	876.18	**912.69**	100	**0.0007**	**0.1115**	**4.725**	**35.245**	821.42	200	**0.0019**	**0.3125**	**5.5899**	34.3801			1					
412	A8	A16	38	244.76	244.61	244.685	9.005	13.21	13.21	805.6	818.81	**852.93**	100	**0.0006**	**0.0226**	**4.748**	**34.257**	767.63	200	**0.0017**	**0.0635**	**5.6534**	33.3516			1					
413	A16	A15	153	244.61	244.61	244.61	9.08	53.2	53.2	0	53.2	**55.42**	100	**0.0003**	**0.0410**	**4.789**	**34.291**														
414	A16	A22	63	244.61	244.61	244.61	9.08	21.9	21.9	730.5	752.4	**783.75**	100	**0.0007**	**0.0450**	**4.834**	**34.246**	705.38	200	**0.0014**	**0.0900**	**5.7434**	33.3366			1					
												0.00																			
415	A22	A21	138	244.61	244.61	244.61	9.08	47.98	47.98	113	160.98	**167.69**	150	**0.0004**	**0.0559**	**4.890**	**34.190**														
416	A21	A14	76	244.61	242.19	243.4	10.29	26.42	26.42	86.58	113	**117.71**	100	**0.0015**	**0.1153**	**5.005**	**35.285**														
417	A14	A13	67	242.19	242.19	242.19	11.5	23.3	23.3	63.28	86.58	**90.19**	100	**0.0009**	**0.0621**	**5.067**	**36.433**														
418	A13	A20	67	242.19	242.28	242.235	11.455	23.3	23.3	39.98	63.28	**65.92**	100	**0.0005**	**0.0347**	**5.102**	**36.353**														
419	A20	A19	53	242.28	242.03	242.155	11.535	18.43	18.43	17.38	35.81	**37.30**	100	**0.0002**	**0.0096**	**5.111**	**36.424**														
420	A19	A18	50	242.03	242.46	242.245	11.445	17.38	17.38	0	17.38	**18.10**	100	**0.0000**	**0.0024**	**5.114**	**36.331**														
421	A20	A23	12	242.28	242.28	242.28	11.41	4.17	4.17	0	4.17	**4.34**	100	**0.0000**	**0.0000**	**5.114**	**36.296**														

Water Supply Design Statement				Ground Level				Net Water Demand														Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
												0.00																			
422	A22	A25	71	244.61	243.97	244.29	9.4	24.69	24.69	544.83	569.52	**593.25**	100	**0.0004**	**0.0303**	**4.864**	**34.536**	533.93	200	**0.0009**	**0.0605**	**5.8039**	33.5961			1					
423												**0.00**																			
424	A25	A39	74	243.97	243.44	243.705	9.985	25.73	25.73	519.1	544.83	**567.53**	75	**0.0122**	**0.9026**	**5.766**	**34.219**	510.78	200	**0.0008**	**0.0581**	**5.8620**	34.1230			1					
425	A39	A38	176	243.44	242.43	242.935	10.755	61.19	61.19	0	61.19	**63.74**	75	**0.0020**	**0.3480**	**6.114**	**34.641**														
426	A39	A46	69	243.44	243.44	243.44	10.25	23.99	23.99	433.92	457.91	**476.99**	75	**0.0088**	**0.6100**	**6.725**	**33.525**	429.29	200	**0.0006**	**0.0393**	**5.9013**	34.3487			1					
427	A46	A45	157	243.44	242.43	242.935	10.755	54.59	54.59	379.33	433.92	**452.00**	75	**0.0080**	**1.2564**	**7.981**	**32.774**	406.8	200	**0.0005**	**0.0809**	**5.9822**	34.7728			1					
428	A25	A24	199	243.97	242.28	243.125	10.565	69.19	69.19	310.14	379.33	**395.14**	200	**0.0005**	**0.0972**	**8.078**	**32.487**														
												0.00																			
429	A24	A38	76	242.28	242.43	242.355	11.335	26.42	26.42	27.82	54.24	**56.50**	75	**0.0016**	**0.1202**	**8.198**	**33.137**														
430	A38	A45	80	242.43	242.43	242.43	11.26	27.82	27.82	0	27.82	**28.98**	75	**0.0005**	**0.0367**	**8.235**	**33.025**														
												0.00																			
431	A24	A23	61	242.28	242.28	242.28	11.41	21.21	21.21	234.69	255.9	**266.56**	200	**0.0000**	**0.0000**	**8.08**	**33.33**														
432	A23	A34	41	242.28	242.98	242.63	11.06	14.26	14.26	220.43	234.69	**244.47**	75	**0.0003**	**0.0137**	**8.09**	**32.97**	220.02	150	**0.0007**	**0.0275**	**8.1056**	32.9544		1						
												0.00																			
433	A34	A33	30	242.98	242.98	242.98	10.71	10.43	10.43	42.07	52.5	**54.69**	75	**0.0015**	**0.0447**	**8**	**33**														
434	A33	A36	69	242.98	240.88	241.93	11.76	23.99	23.99	0	23.99	**24.99**	75	**0.0003**	**0.0241**	**8.2**	**33.6**														
435	A33	A32	52	242.98	242.98	242.98	10.71	18.08	18.08	0	18.08	**18.83**	75	**0.0002**	**0.0108**	**8.2**	**32.5**														
												0.00																			
436	A34	A37	69	242.98	241.95	242.465	11.225	23.99	23.99	143.94	167.93	**174.93**	75	**0.0128**	**0.8849**	**9.0**	**32.2**														
437	A37	A36	48	241.95	241.95	241.95	11.74	16.69	16.69	37.55	54.24	**56.50**	75	**0.0016**	**0.0759**	**9.1**	**32.7**														
438	A36	A35	108	241.95	240.88	241.415	12.275	37.55	37.55	0	37.55	**39.11**	75	**0.0008**	**0.0865**	**9.1**	**33.1**														
439	A37	A43	52	241.95	241.95	241.95	11.74	18.08	18.08	71.62	89.7	**93.44**	75	**0.0040**	**0.2088**	**9.3**	**32.4**														
440	A43	A42	154	241.95	240.85	241.4	12.29	53.54	53.54	0	53.54	**55.77**	100	**0.0004**	**0.0586**	**9.4**	**32.9**														
441	A43	A44	52	241.95	241.95	241.95	11.74	18.08	18.08	0	18.08	**18.83**	100	**0.0001**	**0.0026**	**9.4**	**32.3**														
												0.00																			
442	**A3**	**A7**	**67**	**242.19**	**242.38**	**242.285**	**11.405**	**23.3**	**23.3**	**27.82**	**51.12**	**53.25**	**150**	**0.0000**	**0.0032**	**7.2**	**34.2**														
												0.00																			
443	A7	A14	80	242.38	242.19	242.285	11.405	27.82	27.82	0	27.82	**28.98**	75	**0.0005**	**0.0367**	**7.2**	**34.2**														
												0.00																			
444	**A3**	**A2**	**65**	**242.19**	**242.19**	**242.19**	**11.5**	**22.6**	**22.6**	**173.84**	**196.44**	**204.63**	**100**	**0.0001**	**0.0039**	**7.2**	**34.3**	184.16	150	**0.0005**	**0.0313**	**7.1923**	34.3077		**1**						
445	A2	A13	131	242.19	242.19	242.19	11.5	45.55	45.55	0	45.55	**47.45**	150	**0.0000**	**0.0051**	**7.2**	**34.3**														
446	A2	A1	53	242.19	242.19	242.19	11.5	18.43	18.43	109.86	128.29	**133.64**	75	**0.0001**	**0.0058**	**7.2**	**34.3**	120.27	150	**0.0002**	**0.0116**	**7.2040**	34.2960		1						
447	A1	A	20	242.19	242.19	242.19	11.5	6.95	6.95	0	6.95	**7.24**	75	**0.0000**	**0.0007**	**7.2**	**34.3**														
448	A1	A6	103	242.19	241.85	242.02	11.67	35.81	35.81	67.1	102.91	**107.20**	75	**0.0001**	**0.0075**	**7.2**	**34.5**	96.478	150	**0.0001**	**0.0150**	**7.2190**	34.4510		1						
449	A6	A5	50	241.85	242.19	242.02	11.67	17.38	17.38	0	17.38	**18.10**	75	**0.0002**	**0.0096**	**7.2**	**34.5**														
450	A6	A12	40	241.85	241.85	241.85	11.84	13.91	13.91	35.81	49.72	**51.79**	75	**0.0013**	**0.0539**	**7.2**	**34.6**														
451	A12	A11	50	241.85	242.19	242.02	11.67	17.38	17.38	0	17.38	**18.10**	150	**0.0000**	**0.0003**	**7.2**	**34.4**														
452	A12	A19	53	241.85	242.03	241.94	11.75	18.43	18.43	0	18.43	**19.20**	150	**0.0000**	**0.0004**	**7.2**	**34.5**														
												0.00																			
453	**A99**	**A78'**	**410**	**251.19**	**249.31**	**250.25**	**3.44**	**142.55**	**142.55**	**916.87**	**1059.42**	**1103.56**	**200**	**0.0033**	**1.3414**	**3.5**	**30.0**														
												0.00																			
454	A78'	A76	114	249.31	250.03	249.67	4.02	39.64	39.64	22.94	62.58	**65.19**	150	**0.0001**	**0.0080**	**3.5**	**30.5**														
455	A76	A74	37	250.03	249.08	249.555	4.135	12.86	12.86	10.08	22.94	**23.90**	150	**0.0000**	**0.0004**	**3.5**	**30.6**														
456	A74	A73	29	249.08	249.08	249.08	4.61	10.08	10.08	0	10.08	**10.50**	75	**0.0001**	**0.0020**	**3.5**	**31.1**														
												0.00																			
457	A78'	A78	151	248.83	249.31	249.07	4.62	52.5	52.5	186.36	238.86	**248.81**	150	**0.0008**	**0.1271**	**3.6**	**31.0**														
458	A78	A77	62	249.31	250.07	249.69	4	21.56	21.56	0	21.56	**22.46**	150	**0.0000**	**0.0006**	**3.6**	**30.4**														
459	A78	A76'	159	250.07	249.31	249.69	4	55.28	55.28	109.52	164.8	**171.67**	100	**0.0031**	**0.4851**	**4.1**	**29.9**														
460	A77	A76	122	250.07	250.03	250.05	3.64	42.42	42.42	0	42.42	**44.19**	100	**0.0002**	**0.0302**	**4.1**	**29.5**														
461	A77	A75	37	250.07	250.03	250.05	3.64	12.86	12.86	54.24	67.1	**69.90**	100	**0.0006**	**0.0214**	**4.2**	**29.5**														
462	A75	A74	156	250.03	249.08	249.555	4.135	54.24	54.24	0	54.24	**56.50**	100	**0.0004**	**0.0608**	**4.2**	**29.9**														
												0.00																			
463	A78'	A68'	80	248.83	248.83	248.83	4.86	27.82	27.82	0	27.82	**28.98**	150	**0.0000**	**0.0013**	**3.5**	**31.4**														
464	A78'	A68	56	248.83	248.83	248.83	4.86	19.47	19.47	568.14	587.61	**612.09**	150	**0.0045**	**0.2497**	**3.7**	**31.1**														
465	A68	A66	100	248.83	248.83	248.83	4.86	34.77	34.77	533.37	568.14	**591.81**	200	**0.0010**	**0.1032**	**3.8**	**31.0**														
												0.00																			
466	A66	A71'	66	248.83	249.08	248.955	4.735	22.95	22.95	76.84	99.79	**103.95**	150	**0.0002**	**0.0110**	**3.9**	**30.9**														
467	A71'	A71	46	249.08	249.08	249.08	4.61	15.99	15.99	33.73	49.72	**51.79**	150	**0.0000**	**0.0021**	**3.9**	**30.8**														
463	A71	A73	28	249.08	249.08	249.08	4.61	9.74	9.74	0	9.74	**10.15**	150	**0.0000**	**0.0001**	**3.9**	**30.8**														
468	A71	A72	69	249.08	249.39	249.235	4.455	23.99	23.99	0	23.99	**24.99**	150	**0.0000**	**0.0008**	**3.9**	**30.6**														
469	A71'	A69	78	248.83	249.28	249.055	4.635	27.12	27.12	0	27.12	**28.25**	75	**0.0004**	**0.0342**	**3.9**	**30.7**														
												0.00																			

Water Supply Design Statement				Ground Level				Net Water Demand															Sluice Valves					Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	Length	Upper End Node	Lower End Node	Average Value	Static Level Diference	Total Fresh Water Demand	self	previous	total	Total Water Demand Peak Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	Additional Discharge	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head	100 mm i/d	150 mm i/d	200 mm i/d	250 mm i/d	300 mm i/d			
1	2	3	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	25	26	27	28	29	29	30	31
			M					L	KLD	KLD	KLD	LPM	mm	M	M	M	M							No.	No.	No.	No.	No.	No.	No.	No.
470	A66	A65	193	248.83	247.25	248.04	5.65	67.1	67.1	366.48	433.58	**451.65**	150	**0.0025**	**0.4901**	**4.3**	**31.3**														
471	A65	A64	184	247.25	245.41	246.33	7.36	63.98	63.98	0	63.98	**66.65**	75	**0.0021**	**0.3952**	**4.7**	**32.6**														
472	A65	A60	62	247.25	247.25	247.25	6.44	21.56	21.56	280.94	302.5	**315.10**	150	**0.0013**	**0.0808**	**4.8**	**31.6**														
												0.00																			
473	A60	A61	54	247.25	247.25	247.25	6.44	18.78	18.78	166.19	184.97	**192.68**	150	**0.0005**	**0.0283**	**4.8**	**31.6**														
												0.00																			
474	A61	A59	53	247.25	248.15	247.7	5.99	18.43	18.43	98.39	116.82	**121.69**	150	**0.0002**	**0.0119**	**4.8**	**31.1**														
475	A59	A55	112	248.15	247.47	247.81	5.88	38.94	38.94	0	38.94	**40.56**	150	**0.0000**	**0.0033**	**4.9**	**31.0**														
476	A59	A58	34	248.15	248.15	248.15	5.54	11.82	11.82	47.63	59.45	**61.93**	150	**0.0001**	**0.0022**	**4.9**	**30.7**														
477	A58	A54	103	248.15	247.47	247.81	5.88	35.81	35.81	0	35.81	**37.30**	150	**0.0000**	**0.0026**	**4.9**	**31.0**														
478	A58	A57	34	248.15	247.25	247.7	5.99	11.82	11.82	0	11.82	**12.31**	75	**0.0001**	**0.0032**	**4.9**	**31.1**														
												0.00																			
479	A61	A62	50	247.25	247.62	247.435	6.255	17.38	17.38	31.99	49.37	**51.43**	75	**0.0013**	**0.0664**	**4.9**	**31.4**														
480	A62	A63	92	247.62	247.62	247.62	6.07	31.99	31.99	0	31.99	**33.32**	75	**0.0006**	**0.0547**	**5.0**	**31.1**														
												0.00																			
481	A60	A57	66	247.25	247.25	247.25	6.44	22.95	22.95	73.02	95.97	**99.97**	75	**0.0046**	**0.3003**	**5.1**	**31.3**														
482	A57	A56	116	247.25	246.03	246.64	7.05	40.33	40.33	0	40.33	**42.01**	75	**0.0009**	**0.1060**	**5.2**	**31.8**														
483	A57	A55	53	247.47	247.25	247.36	6.33	18.43	18.43	14.26	32.69	**34.05**	75	**0.0006**	**0.0328**	**5.3**	**31.1**														
484	A55	A54	18	247.25	247.47	247.36	6.33	6.26	6.26	8	14.26	**14.85**	75	**0.0001**	**0.0024**	**5.3**	**31.1**														
485	A54	A53	23	247.47	247.47	247.47	6.22	8	8	0	8	**8.33**	75	**0.0000**	**0.0011**	**5.2775**	**30.9425**														
			23122			263.58	-9.89	8039			8039.35						36.4331						36.8136								
			44033			241.4		15310									19.4797						19.4233								
																Size	75	100	150	200	250	300		25	41	17	6	6	6	2	1
																Existing	13506	9355	8954	8449	3068	701	44033		21						
																Proposed	13506	2454	3747	2001	1060	584	23352								

DESIGN STATEMENT SEWERAGE

			Size of Sewer			Formation Level		Invert Level		Depth			Sewer Pipe Line 250 mm i/d				Sewer Pipe Line 300 mm i/d			Sewer Pipe Line 400 mm i/d		
S.No.	Upper Node	Lower node	Existing	Proposed	Length	Upper end	Lower end	Upper end	Lower end	Upper end	Lower end	Avg	Length	Avg Depth	Avg Depth >2.50<3.25	Avg Depth >3.26<4.0	Length	Avg Depth	Avg Depth >2.50<3.25	Length 400 MM I/D	Avg Depth	Avg Depth >1.75<2.50
1	B57	B62	400	500	79	246.82	246.30	243.53	243.43	3.29	2.87	3.08										
2	B62	B73	400	500	78	246.30	246.33	243.43	243.32	2.87	3.01	2.94										
3	B73	B74	400	500	8	246.33	246.33	243.32	243.31	3.01	3.02	3.01										
4	B79	B92	400	500	46	246.33	246.36	243.31	243.24	3.02	3.12	3.07										
5	B92	B94	400	500	60	246.36	246.73	243.24	243.16	3.12	3.57	3.34										
6	B94	B95	400	500	10	246.73	246.86	243.16	243.14	3.57	3.72	3.64										
7	B95	B107	400	500	39	246.86	246.73	243.14	243.06	3.72	3.67	3.69										
8	B107	B108	400	500	23	246.73	246.77	243.06	242.99	3.67	3.78	3.72										
9	B108	B124	450	600	54	246.77	247.05	242.99	242.87	3.78	4.18	3.98										
10	B124	B124'	450	600	20	247.05	247.15	242.87	242.80	4.18	4.35	4.27										
11	B124'	B138	450	600	40	247.15	247.37	242.80	242.72	4.35	4.65	4.50										
12	B138	B151	450	600	87	247.37	246.55	242.72	242.45	4.65	4.10	4.38										
13	B151	B159	450	600	62	246.55	247.00	242.45	242.44	4.10	4.56	4.33										
14	B159	B159'	450	600	18	247.00	247.19	242.44	242.42	4.56	4.77	4.66										
15	B116'	B165	200	250	57	253.98	253.37	250.61	250.50	3.37	2.87	3.12	57	3.12	57.00							
16	B165	B164	250	300	143	253.37	252.18	249.87	249.28	3.50	2.90	3.20					143	3.20	143			
17	B164	B163	250	400	64	252.18	251.25	249.28	248.45	2.90	2.80	2.85								64	2.85	
18	B163	B163'	250	400	3	251.25	251.25	248.45	248.45	2.80	2.80	2.80								3	2.80	
19	B163'	B162	250	400	57	251.25	251.24	248.02	247.94	3.23	3.30	3.26								57	3.26	
20	B162	B162'	250	400	2	251.24	251.24	248.14	248.14	3.10	3.10	3.10								2	3.10	
21	B160	B160'	400	500	62	247.69	247.19	243.76	242.54	3.93	4.65	4.29										
22	B160'	B159'	400	500	18	247.19	247.19	242.54	242.52	4.65	4.67	4.66										
23	B159'	B175'	450	700	62	247.19	246.99	242.42	242.40	4.77	4.59	4.68										
24	A78	A78'	200	250	89	249.43	249.02	246.05	245.87	3.38	3.15	3.26	89	3.26		89						
25	A78'	A68	250	300	70	249.02	248.56	245.87	245.76	3.15	2.80	2.97					70	2.97	70			
26	A68	A66	250	300	50	248.56	249.31	245.76	245.68	2.80	3.63	3.22					50	3.22	50			
27	A66	A65	250	400	218	249.31	247.30	245.76	244.92	3.55	2.38	2.97								218	2.97	
28	A65	A64	250	400	175	247.30	245.71	243.87	243.11	3.43	2.60	3.01								175	3.01	
29	A64	A67	250	400	47	245.71	245.29	243.11	243.04	2.60	2.25	2.42								47	2.42	47
30	B2	A10'	400	600	88	245.35	246.21	242.10	241.97	3.25	4.24	3.74										
31	A10'	A10	600	700	54	246.21	244.98	241.64	241.60	4.57	3.38	3.97										
32	A10	A4	600	800	58	244.98	244.60	241.60	241.56	3.38	3.04	3.21										
33	A4	A3''	600	800	157	244.60	245.85	241.56	241.47	3.04	4.38	3.71										
34	A3''	DISPOSAL	600	800	17	245.85	245.40	241.47	241.45	4.38	3.95	4.17										
					2115								146	3.26			263	3.22		566	3.26	

DESIGN STATEMENT

					Sewer Pipe Line 500 mm i/d					Sewer Pipe Line 600 mm i/d				Sewer Pipe Line 700 mm i/d				Sewer Pipe Line 800 mm i/d			
S.No.	Upper Node	Lower node	Avg Depth >2.51<3.25	Avg Depth >3.26<4.00	Length	Avg Depth	Avg Depth >2.51<3.25	Avg Depth >3.26<4.0	Avg Depth >4.1<4.75	Length	Avg Depth	Avg Depth >3.26<4.0	Avg Depth >4.1<4.75	Length	Avg Depth	Avg Depth >3.26<4.00	Avg Depth >4.1<4.75	Length	Avg Depth	Avg Depth >2.51<3.25	Avg Depth >3.26<4.00	Avg Depth >4.1<4.75
1	B57	B62			79	3.08	79															
2	B62	B73			78	2.94	78															
3	B73	B74			8	3.01	8															
4	B79	B92			46	3.07	46															
5	B92	B94			60	3.34		60														
6	B94	B95			10	3.64		10														
7	B95	B107			39	3.69		39														
8	B107	B108			23	3.72		23														
9	B108	B124								54	3.98	54										
10	B124	B124'								20	4.27		20									
11	B124'	B138								40	4.50		40									
12	B138	B151								87	4.38		87									
13	B151	B159								62	4.33		62									
14	B159	B159'								18	4.66		18									
15	B116'	B165																				
16	B165	B164																				
17	B164	B163	64																			
18	B163	B163'	3																			
19	B163'	B162		3.26																		
20	B162	B162'	2																			
21	B160	B160'			62	4.29			62													
22	B160'	B159'			18	4.66			18													
23	B159'	B175'												62	4.68		62					
24	A78	A78'																				
25	A78'	A68																				
26	A68	A66																				
27	A66	A65	218																			
28	A65	A64	175																			
29	A64	A67																				
30	B2	A10'								88	3.74	88										
31	A10'	A10												54	3.97	54						
32	A10	A4																58	3.21	3.21		
33	A4	A3''																157	3.71		157	
34	A3''	DISPOSAL																17	4.17			17
					423	4.66				369	4.66			116	4.68			232	4.17			

DESIGN STATEMENT OF SEWERAGE

DESIGN STATEMENT SEWERAGE

			Size of Sewer			Formation Level		Invert Level		Depth			Sewer Pipe Line 250 mm i/d				Sewer Pipe Line 300 mm i/d			Sewer Pipe Line 400 mm i/d		
S.No.	Upper Node	Lower node	Existing	Proposed	Length	Upper end	Lower end	Upper end	Lower end	Upper end	Lower end	Avg	Length	Avg Depth	Avg Depth >2.50<3.25	Avg Depth >3.26<4.0	Length	Avg Depth	Avg Depth >2.50<3.25	Length 400 MM I/D	Avg Depth	Avg Depth >1.75<2.50
1	B57	B62	400	500	79	246.82	246.30	243.53	243.43	3.29	2.87	3.08										
2	B62	B73	400	500	78	246.30	246.33	243.43	243.32	2.87	3.01	2.94										
3	B73	B74	400	500	8	246.33	246.33	243.32	243.31	3.01	3.02	3.01										
4	B79	B92	400	500	46	246.33	246.36	243.31	243.24	3.02	3.12	3.07										
5	B92	B94	400	500	60	246.36	246.73	243.24	243.16	3.12	3.57	3.34										
6	B94	B95	400	500	10	246.73	246.86	243.16	243.14	3.57	3.72	3.64										
7	B95	B107	400	500	39	246.86	246.73	243.14	243.06	3.72	3.67	3.69										
8	B107	B108	400	500	23	246.73	246.77	243.06	242.99	3.67	3.78	3.72										
9	B108	B124	450	600	54	246.77	247.05	242.99	242.87	3.78	4.18	3.98										
10	B124	B124'	450	600	20	247.05	247.15	242.87	242.80	4.18	4.35	4.27										
11	B124'	B138	450	600	40	247.15	247.37	242.80	242.72	4.35	4.65	4.50										
12	B138	B151	450	600	87	247.37	246.55	242.72	242.45	4.65	4.10	4.38										
13	B151	B159	450	600	62	246.55	247.00	242.45	242.44	4.10	4.56	4.33										
14	B159	B159'	450	600	18	247.00	247.19	242.44	242.42	4.56	4.77	4.66										
15	B116'	B165	200	250	57	253.98	253.37	250.61	250.50	3.37	2.87	3.12	57	3.12	57.00							
16	B165	B164	250	300	143	253.37	252.18	249.87	249.28	3.50	2.90	3.20					143	3.20	143			
17	B164	B163	250	400	64	252.18	251.25	249.28	248.45	2.90	2.80	2.85								64	2.85	
18	B163	B163'	250	400	3	251.25	251.25	248.45	248.45	2.80	2.80	2.80								3	2.80	
19	B163'	B162	250	400	57	251.25	251.24	248.02	247.94	3.23	3.30	3.26								57	3.26	
20	B162	B162'	250	400	2	251.24	251.24	248.14	248.14	3.10	3.10	3.10								2	3.10	
21	B160	B160'	400	500	62	247.69	247.19	243.76	242.54	3.93	4.65	4.29										
22	B160'	B159'	400	500	18	247.19	247.19	242.54	242.52	4.65	4.67	4.66										
23	B159'	B175'	450	700	62	247.19	246.99	242.42	242.40	4.77	4.59	4.68										
24	A78	A78'	200	250	89	249.43	249.02	246.05	245.87	3.38	3.15	3.26	89	3.26		89						
25	A78'	A68	250	300	70	249.02	248.56	245.87	245.76	3.15	2.80	2.97					70	2.97	70			
26	A68	A66	250	300	50	248.56	249.31	245.76	245.68	2.80	3.63	3.22					50	3.22	50			
27	A66	A65	250	400	218	249.31	247.30	245.76	244.92	3.55	2.38	2.97								218	2.97	
28	A65	A64	250	400	175	247.30	245.71	243.87	243.11	3.43	2.60	3.01								175	3.01	
29	A64	A67	250	400	47	245.71	245.29	243.11	243.04	2.60	2.25	2.42								47	2.42	47
30	B2	A10'	400	600	88	245.35	246.21	242.10	241.97	3.25	4.24	3.74										
31	A10'	A10	600	700	54	246.21	244.98	241.64	241.60	4.57	3.38	3.97										
32	A10	A4	600	800	58	244.98	244.60	241.60	241.56	3.38	3.04	3.21										
33	A4	A3''	600	800	157	244.60	245.85	241.56	241.47	3.04	4.38	3.71										
34	A3''	DISPOSAL	600	800	17	245.85	245.40	241.47	241.45	4.38	3.95	4.17										
					2115								146	3.26			263	3.22		566	3.26	

DESIGN STATEMENT

					Sewer Pipe Line 500 mm i/d					Sewer Pipe Line 600 mm i/d				Sewer Pipe Line 700 mm i/d				Sewer Pipe Line 800 mm i/d			
S.No.	Upper Node	Lower node	Avg Depth >2.51<3.25	Avg Depth >3.26<4.00	Length	Avg Depth	Avg Depth >2.51<3.25	Avg Depth >3.26<4.0	Avg Depth >4.1<4.75	Length	Avg Depth	Avg Depth >3.26<4.0	Avg Depth >4.1<4.75	Length	Avg Depth	Avg Depth >3.26<4.00	Avg Depth >4.1<4.75	Length	Avg Depth	Avg Depth >2.51<3.25	Avg Depth >3.26<4.00	Avg Depth >4.1<4.75
1	B57	B62			79	3.08	79															
2	B62	B73			78	2.94	78															
3	B73	B74			8	3.01	8															
4	B79	B92			46	3.07	46															
5	B92	B94			60	3.34		60														
6	B94	B95			10	3.64		10														
7	B95	B107			39	3.69		39														
8	B107	B108			23	3.72		23														
9	B108	B124								54	3.98	54										
10	B124	B124'								20	4.27		20									
11	B124'	B138								40	4.50		40									
12	B138	B151								87	4.38		87									
13	B151	B159								62	4.33		62									
14	B159	B159'								18	4.66		18									
15	B116'	B165																				
16	B165	B164																				
17	B164	B163	64																			
18	B163	B163'	3																			
19	B163'	B162		3.26																		
20	B162	B162'	2																			
21	B160	B160'			62	4.29			62													
22	B160'	B159'			18	4.66			18													
23	B159'	B175'												62	4.68		62					
24	A78	A78'																				
25	A78'	A68																				
26	A68	A66																				
27	A66	A65	218																			
28	A65	A64	175																			
29	A64	A67																				
30	B2	A10'								88	3.74	88										
31	A10'	A10												54	3.97	54						
32	A10	A4																58	3.21	3.21		
33	A4	A3''																157	3.71		157	
34	A3''	DISPOSAL																17	4.17			17
					423	4.66				369	4.66			116	4.68			232	4.17			

DESIGN STATEMENT OF STORM WATER DRAINAGE

STORM WATER						
Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
					Width	Depth
1	B223	B197	B223-B197	185	0.225	0.45
2	B197	B198'	B197-B198'	65	0.225	0.225
3	B228	B224	B228-B224	14	0.225	0.225
4	B228'	B224	B228'-B224	26	0.225	0.225
5	B224	B225	B224-B225	34	0.225	0.225
6	B225	B226	B225-B226	65	0.225	0.225
7	B225	B221	B225-B221	34	0.225	0.225
8	B221	B222	B221- B222	83	0.225	0.225
9	B221	B219	B221-B219	34	0.225	0.225
10	B219	B220	B219-B220	94	0.225	0.225
			-			
11	B219	B217	B219-B217	53	0.225	0.225
12	B217	B218	B217-B218	42	0.225	0.225
			-			
13	B217	B198'	B217-B198'	53	0.225	0.225
14	B198'	B198	B198'-B198	16	0.225	0.225
			-			
15	B197	B195	B197-B195	49	0.225	0.45
16	B195	B196	B195-B196	81	0.225	0.225
17	B195	B194	B195-B194	105	0.3375	0.45
18	A44	A43	A44-A43	22	0.225	0.225
19	A43	A42	A43-A42	153	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
			-			
20	A43	A37	A43-A37	52	0.225	0.225
21	A37	A36	A37-A36	47	0.225	0.225
22	A33	A36	A33-A36	57	0.225	0.225
23	A36	A35	A36-A35	108	0.225	0.225
			-			
24	A37	A34	A37-A34	71	0.225	0.225
25	A34	A32	A34-A32	101	0.3375	0.45
			-			
26	A34	A23"	A34-A23"	23	0.3375	0.45
27	A31'	A30	A31'-A30	57	0.225	0.225
28	A51'	A51	A51'-A51	62	0.225	0.225
29	A51"	A51	A51"-A51	37	0.225	0.225
30	A51	A41	A51-A41	142	0.225	0.225
31	A41	A40	A41-A40	134	0.225	0.225
32	A50	A49	A50-A49	108	0.225	0.225
33	A48	A49	A48-A49	60	0.225	0.225
34	A49	A40	A49-A40	145	0.225	0.225
			-			
35	A41	A30	A41-A30	68	0.225	0.225
36	A30	A26	A30-A26	168	0.225	0.45
			-			
37	A47	A40"	A47-A40"	72	0.225	0.225
38	A40'	A40"	A40'-A40"	60	0.225	0.225
39	A40"	A26	A40"-A26	54	0.225	0.225
			-			
40	A26	A25	A26-A25	60	0.225	0.45
			-			
41	A25	A46	A25-A46	137	0.225	0.45
42	A46	A48'	A46-A48'	90	0.225	0.45
			-			

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
43	A46	A45	A46-A45	163	0.225	0.45
44	A45	A38	A45-A38	70	0.225	0.45
45	A39	A38	A39-A38	171	0.225	0.225
46	A38	A38'	A38-A38'	8	0.225	0.45
47	A39'	A38'	A39'-A38'	174	0.225	0.225
48	A38'	A24	A38'-A24	61	0.225	0.45
49	A25	A24	A25-A24	203	0.225	0.45
50	A24	A23	A24-A23	53	0.3375	0.45
			-			
51	A44'	A23	A44'-A23	170	0.225	0.225
52	A23	A23"	A23-A23"	8	0.3375	0.45
53	A23"	A20	A23"-A20	18	0.3375	0.45
54	A20	A18	A20-A18	101	0.3375	0.45
57	A31"	A29	A31"-A29	73	0.225	0.45
58	A17	A29	A17-A29	182	0.225	0.45
59	A29	A28	A29-A28	67	0.225	0.45
60	A27	A28	A27-A28	76	0.225	0.45
61	A28	A26'	A28-A26'	68	0.225	0.45
62	A4'	A3'	A4'-A3'	43	0.225	0.225
63	A3'	A9	A3'-A9	63	0.225	0.225
56	A4'	A10	A4'-A10	60	0.225	0.225
55	A52	A10	A52-A10	446	0.225	0.225
64	A10	A9	A10-A9	92	0.225	0.225
65	A9	A26'	A9-A26'	179	0.225	0.225
			-			
66	A26'	A26"	A26'-A26"	8	0.225	0.45
67	A9"	A26"	A9"-A26"	173	0.225	0.225
			-			
68	A26"	A25'	A26"-A25'	60	0.225	0.45
69	A8	A25'	A8-A25'	160	0.225	0.225
70	A25'	A23'	A25'-A23'	255	0.225	0.45
71	A23'	A13	A23'-A13	70	0.3375	0.45

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
72	A22	A13	A22-A13	262	0.225	0.45
73	A13	A2	A13-A2	128	0.3375	0.45
74	A3"	A3	A3"-A3	312	0.225	0.225
75	A9'	A3	A9'-A3	356	0.225	0.45
76	A3	A2"	A3-A2"	8	0.225	0.45
77	A14'	A14"	A14'-A14"	68	0.225	0.225
78	A9"	A7'	A9"-A7'	239	0.225	0.225
79	A21	A15	A21-A15	45	0.225	0.225
80	A16	A15	A16-A15	157	0.225	0.225
81	A15	A7'	A15-A7'	32	0.225	0.225
82	A7'	A7	A7'-A7	59	0.225	0.225
83	A7	A14"	A7-A14"	8	0.225	0.225
84	A14"	A2"	A14"-A2"	61	0.225	0.225
85	A2"	A2	A2"-A2	52	0.225	0.45
			-			
86	A2	A2'	A2-A2'	14	0.3375	0.45
87	A20'	A2'	A20'-A2'	179	0.225	0.225
88	A2'	A1	A2'-A1	45	0.3375	0.45
			-			
89	A19	A12	A19-A12	46	0.225	0.225
90	A12	A11	A12-A11	57	0.225	0.225
91	A12	A6	A12-A6	46	0.225	0.225
92	A6	A5	A6-A5	57	0.225	0.225
			-			
93	A6	A1	A6-A1	90	0.225	0.225
94	A1	A	A1-A	27	0.3375	0.45
			-			
95	A4"	A'	A4"-A'	554	0.225	0.45
96	A141	A142	A141-A142	36	0.225	0.225
97	A142	A143	A142-A143	31	0.225	0.225
98	A143	A143"	A143-A143"	75	0.225	0.225
99	A142	A140	A142-A140	52	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
100	A136	A140	A136-A140	87	0.225	0.225
101	A140	A143'	A140-A143'	93	0.225	0.225
102	A143'	A147	A143'-A147	53	0.225	0.45
103	A129	A147	A129-A147	225	0.225	0.225
104	A147	A148	A147-A148	202	0.225	0.45
			-			
105	A129/1	A132	A129/1-A132	135	0.225	0.225
106	A135	A133	A135-A133	131	0.225	0.225
107	A133	A132	A133-A132	45	0.225	0.225
108	A132	A132'	A132-A132'	8	0.225	0.225
109	A132'	A131	A132'-A131	51	0.225	0.225
110	A131	A144	A131-A144	177	0.225	0.45
			-			
111	A146	A145	A146-A145	125	0.225	0.225
112	A146'	A145	A146'-A145	134	0.225	0.225
113	A145	A145'	A145-A145'	12	0.225	0.225
114	A132'	A137	A132'-A137	125	0.225	0.225
			-			
115	A139	A138	A139-A138	40	0.225	0.225
116	A134	A138	A134-A138	68	0.225	0.225
117	A138	A137	A138-A137	98	0.225	0.225
118	A137	A145'	A137-A145'	53	0.225	0.225
119	A145'	A144	A145'-A144	51	0.225	0.225
			-			
120	A144	A148	A144-A148	48	0.225	0.45
121	A148	A148'	A148-A148'	38	0.3375	0.45
122	A129'/1	A123'	A129'/1-A123'	255	0.225	0.225
123	A129'	A126	A129'-A126	125	0.225	0.225
124	A128	A127	A128-A127	104	0.225	0.225
125	A128'	A127'	A128'-A127'	99	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
			-			
126	A124	A125	A124-A125	196	0.225	0.45
127	A125	A122	A125-A122	305	0.225	0.45
			-			
128	A124/1	A120	A124/1-A120	282	0.225	0.225
129	A120	A122	A120-A122	215	0.225	0.225
130	A122	A122'	A122-A122'	14	0.225	0.45
131	A120	A120'	A120-A120'	15	0.225	0.225
132	A120'	A122'	A120'-A122'	216	0.225	0.225
133	A122'	A108	A122'-A108	162	0.225	0.45
134	A120'	A105	A120'-A105	164	0.225	0.225
135	A105	A106	A105-A106	105	0.225	0.225
136	A112	A106	A112-A106	91	0.225	0.225
137	A106	A107	A106-A107	68	0.225	0.225
138	A121	A113	A121-A113	57	0.225	0.225
139	A111	A113	A111-A113	165	0.225	0.225
140	A113	A107	A113-A107	99	0.225	0.225
141	A107	A108	A107-A108	50	0.225	0.225
			-			
142	A108	A102	A108-A102	65	0.225	0.45
			-			
143	A123	A104	A123-A104	440	0.225	0.45
144	A124'	A104	A124'-A104	510	0.225	0.45
145	A104	A102	A104-A102	365	0.225	0.45
			-			
146	A123"	A119	A123"-A119	249	0.225	0.225
147	A119	A117	A119-A117	32	0.225	0.225
148	A118	A117	A118-A117	124	0.225	0.225
149	A117	A116	A117-A116	85	0.225	0.225
			-			
150	A119	A115	A119-A115	68	0.225	0.225
151	A115	A114	A115-A114	174	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
152	A115	A110	A115-A110	60	0.225	0.45
153	A110	A109	A110-A109	102	0.225	0.45
			-			
154	A110	A104'	A110-A104'	68	0.225	0.45
155	A104'	A103	A104'-A103	59	0.225	0.45
			-			
156	A102	A102'	A102-A102'	21	0.225	0.45
157	A101	A102'	A101-A102'	209	0.225	0.45
158	A102'	A99	A102'-A99	52	0.225	0.45
159	A98	A99	A98-A99	214	0.225	0.45
160	A99	A99'	A99-A99'	354	0.225	0.45
			-			
161	A80'	A78'	A80'-A78'	230	0.225	0.225
162	A78'	A99'	A78'-A99'	78	0.225	0.225
			-			
163	A99'	A78"	A99'-A78"	8	0.225	0.45
			-			
164	A73	A74	A73-A74	23	0.225	0.225
165	A75	A74	A75-A74	111	0.225	0.225
166	A74	A74'	A74-A74'	8	0.225	0.225
167	A75'	A74'	A75'-A74'	111	0.225	0.225
168	A74'	A76	A74'-A76	28	0.225	0.225
169	A77	A76	A77-A76	111	0.225	0.225
170	A76	A78	A76-A78	28	0.225	0.225
			-			
171	A98	A97	A98-A97	48	0.225	0.45
172	A97	A95	A97-A95	142	0.225	0.45
173	A101'	A95	A101'-A95	112	0.225	0.45
174	A95	A84'	A95-A84'	126	0.225	0.45
			-			
175	A96	A91	A96-A91	120	0.225	0.45

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
176	A91	A82	A91-A82	66	0.225	0.45
177	A82	A81	A82-A81	63	0.225	0.45
			-			
178	A101/1	A100	A101/1-A100	117	0.225	0.45
			-			
179	A101"	A86	A101"-A86	208	0.225	0.45
180	A86	A85	A86-A85	57	0.225	0.45
181	A86	A84	A86-A84	29	0.225	0.45
182	A84	A83	A84-A83	78	0.225	0.45
			-			
183	A94	A93	A94-A93	177	0.225	0.225
184	A94'	A93'	A94'-A93'	133	0.225	0.225
			-			
185	A90	A89	A90-A89	56	0.225	0.225
186	A89	A85	A89-A85	62	0.225	0.225
			-			
187	A89	A88	A89-A88	50	0.225	0.225
188	A88	A87	A88-A87	62	0.225	0.225
			-			
189	A88	A88'	A88-A88'	28	0.225	0.225
			-			
190	A97	A80	A97-A80	61	0.225	0.45
191	A92	A79	A92-A79	36	0.225	0.45
192	A75'/1	A79	A75'/1-A79	154	0.225	0.45
193	A79	A80	A79-A80	52	0.225	0.45
194	A80	A78	A80-A78	266	0.225	0.45
195	A78	A78"	A78-A78"	86	0.225	0.45
196	A78"	A68'	A78"-A68'	52	0.225	0.45
197	A70'	A68'	A70'-A68'	163	0.225	0.225
198	A68'	A68"	A68'-A68"	20	0.225	0.45
			-			

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
199	A68'	A68	A68'-A68	17	0.225	0.45
200	A66	A68	A66-A68	45	0.225	0.225
			-			
201	A68	A67	A68-A67	444	0.225	0.45
202	A66'	A64	A66'-A64	367	0.225	0.45
203	A64	A67	A64-A67	49	0.225	0.45
204	A67	A67'	A67-A67'	33	0.225	0.45
			-			
205	A72	A71	A72-A71	42	0.225	0.225
206	A72'	A71	A72'-A71	51	0.225	0.225
207	A71	A70	A71-A70	46	0.225	0.225
208	A69	A70	A69-A70	61	0.225	0.225
209	A70	A66"	A70-A66"	122	0.225	0.225
			-			
210	A66"	A65	A66"-A65	204	0.225	0.45
			-			
211	A63	A62	A63-A62	93	0.225	0.225
212	A62	A61	A62-A61	45	0.225	0.225
213	A57	A61	A57-A61	115	0.225	0.225
214	A61	A60	A61-A60	58	0.225	0.45
215	A60	A65	A60-A65	60	0.225	0.45
216	A65	A64	A65-A64	171	0.225	0.45
217	A60'	A57	A60'-A57	48	0.225	0.225
218	A53	A54	A53-A54	22	0.225	0.225
219	A58	A54	A58-A54	95	0.225	0.225
220	A54	A55	A54-A55	19	0.225	0.225
221	A59	A55	A59-A55	94	0.225	0.225
222	A55	A57	A55-A57	51	0.225	0.225
223	A57	A56	A57-A56	107	0.225	0.225
			-			
224	B215	B216	B215-B216	168	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
			-			
225	B212	B214	B212-B214	175	0.225	0.225
226	B214	B184	B214-B184	255	0.225	0.225
			-			
227	B186	B185	B186-B185	131	0.225	0.225
			-			
228	B213	B211	B213-B211	58	0.225	0.225
229	B210'	B211	B210'-B211	77	0.225	0.225
230	B211	B199	B211-B199	255	0.225	0.225
231	B200	B199	B200-B199	111	0.225	0.225
232	B199	B185	B199-B185	57	0.225	0.225
233	B185	B184	B185-B184	64	0.225	0.225
234	B184	B175	B184-B175	55	0.3375	0.45
			-			
235	B177"	B177'	B177"-B177'	209	0.225	0.225
236	B177'	B177	B177'-B177	52	0.225	0.225
237	B212'	B177	B212'-B177	225	0.225	0.225
238	B177	B176	B177-B176	57	0.225	0.225
239	B209	B210	B209-B210	48	0.225	0.225
240	B210	B176	B210-B176	180	0.225	0.225
241	B176	B175	B176-B175	223	0.225	0.225
			-			
242	B175	B175'	B175-B175'	9	0.3375	0.45
			-			
243	B175"	B175'	B175"-B175'	332	0.225	0.45
244	B175'	B158	B175'-B158	100	0.45	0.675
			-			
245	B166'	B166	B166'-B166	51	0.225	0.45
			-			
246	B166"	B163	B166"-B163	384	0.225	0.45
247	B169	B163	B169-B163	35	0.225	0.45
			-			

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
248	B169'	B174	B169'-B174	433	0.225	0.45
			-			
249	B173'	B193'	B173'-B193'	152	0.225	0.225
250	B173	B193	B173-B193	152	0.225	0.225
			-			
251	B172	B183	B172-B183	94	0.225	0.225
252	B182'	B183	B182'-B183	35	0.225	0.225
253	B183	B192'	B183-B192'	68	0.225	0.225
			-			
254	B171	B182	B171-B182	93	0.225	0.225
255	B182	B181	B182-B181	112	0.225	0.225
256	B181	B190	B181-B190	32	0.225	0.225
257	B191	B190	B191-B190	143	0.225	0.225
258	B190	B205	B190-B205	58	0.225	0.225
			-			
259	B191'	B192	B191'-B192	33	0.225	0.225
			-			
260	B170	B205'	B170-B205'	183	0.225	0.45
261	B189	B204	B189-B204	121	0.225	0.45
262	B162'	B206	B162'-B206	246	0.225	0.45
			-			
263	B161'	B167	B161'-B167	62	0.225	0.225
264	B168	B167	B168-B167	147	0.225	0.225
265	B167	B178	B167-B178	33	0.225	0.225
266	B179	B178	B179-B178	147	0.225	0.225
267	B178	B187	B178-B187	60	0.225	0.225
268	B188	B187	B188-B187	147	0.225	0.225
269	B187	B201	B187-B201	60	0.225	0.225
270	B203	B201	B203-B201	146	0.225	0.225
271	B201	B208	B201-B208	97	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
			-			
272	B202	B207	B202-B207	70	0.225	0.225
			-			
273	B163	B163'	B163-B163'	8	0.225	0.45
274	B180	B163'	B180-B163'	95	0.225	0.45
			-			
275	B163'	B161	B163'-B161	231	0.3375	0.45
			-			
276	B175"/1	B161	B175"/1-B161	92	0.45	0.675
277	B161	B158	B161-B158	369	0.45	0.675
			-			
278	B158	B158'	B158-B158'	21	0.45	0.675
			-			
279	B166'/1	B166/1	B166'/1-B166/1	50	0.45	0.675
			-			
280	B166"/1	B165	B166"/1-B165	177	0.45	0.675
			-			
281	B70'	B120	B70'-B120	179	0.45	0.675
			-			
282	B122	B121	B122-B121	156	0.225	0.225
283	B90	B89	B90-B89	135	0.225	0.225
284	B89	B121	B89-B121	78	0.225	0.225
285	B121	B121'	B121-B121'	9	0.225	0.225
286	B89	B121'	B89-B121'	107	0.225	0.225
287	B121'	B120	B121'-B120	64	0.225	0.225
			-			
288	B120	B134	B120-B134	69	0.225	0.45
289	B136	B134	B136-B134	247	0.225	0.225
290	B134	B147	B134-B147	63	0.225	0.45
291	B149	B148	B149-B148	134	0.225	0.225
292	B135	B148	B135-B148	47	0.225	0.225
293	B148	B147	B148-B147	122	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
294	B147	B147'	B147-B147'	6	0.225	0.45
			-			
295	B165/1	B147'	B165/1-B147'	167	0.225	0.225
296	B147'	B165'	B147'-B165'	52	0.225	0.45
297	B165'/1	B165'	B165'/1-B165'	191	0.225	0.225
298	B165'	B165	B165'-B165	62	0.3375	0.45
			-			
299	B165	B165"	B165-B165"	14	0.45	0.675
300	B85	B146/1	B85-B146/1	380	0.225	0.225
301	B88	B119	B88-B119	94	0.225	0.45
302	B87	B119	B87-B119	103	0.225	0.45
303	B119	B146	B119-B146	224	0.225	0.45
304	B85'	B116	B85'-B116	222	0.225	0.225
305	B118	B117	B118-B117	30	0.225	0.225
306	B86	B117	B86-B117	174	0.225	0.225
307	B117	B116	B117-B116	65	0.225	0.225
308	B116	B146	B116-B146	151	0.225	0.225
309	B146	B146/1	B146-B146/1	8	0.225	0.45
310	B146/1	B165"	B146/1-B165"	66	0.3375	0.45
			-			
311	B165"	B164	B165"-B164	128	0.45	0.675
312	B146/2	B144	B146/2-B144	120	0.225	0.225
313	B144	B164	B144-B164	66	0.225	0.225
			-			
314	B164	B163/1	B164-B163/1	65	0.45	0.675
315	B113	B163/1	B113-B163/1	239	0.225	0.225
316	B163/1	B162	B163/1-B162	71	0.45	0.675
317	B142	B162	B142-B162	115	0.225	0.225
318	B162	B161/1	B162-B161/1	155	0.45	0.675
319	B110/1	B129	B110/1-B129	61	0.225	0.225
320	B131	B129	B131-B129	213	0.225	0.225
321	B129	B155	B129-B155	117	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
322	B157	B156	B157-B156	81	0.225	0.225
323	B130	B141	B130-B141	52	0.225	0.225
324	B143	B141	B143-B141	148	0.225	0.225
325	B141	B156	B141-B156	52	0.225	0.225
326	B156	B155	B156-B155	67	0.225	0.225
327	B155	B161/1	B155-B161/1	66	0.225	0.225
328	B161/1	B161/2	B161/1-B161/2	14	0.45	0.675
329	B110/2	B161/2	B110/2-B161/2	246	0.225	0.225
330	B161/2	B158'	B161/2-B158'	377	0.45	0.675
331	B158'	B150	B158'-B150	72	0.45	0.675
332	B88'	B83	B88'-B83	289	0.225	0.225
333	B83	B115	B83-B115	251	0.225	0.225
334	B145	B115	B145-B115	181	0.225	0.225
335	B115	B114	B115-B114	68	0.45	0.675
336	B144/1	B114	B144/1-B114	177	0.225	0.225
337	B114	B109'	B114-B109'	364	0.45	0.675
338	B154	B109'	B154-B109'	177	0.225	0.225
339	B109'	B108'	B109'-B108'	235	0.45	0.675
340	B108'	B125	B108'-B125	66	0.45	0.675
341	B128	B127	B128-B127	51	0.225	0.225
342	B155'	B127	B155'-B127	240	0.225	0.225
343	B127	B126	B127-B126	109	0.45	0.675
344	B159	B152	B159-B152	47	0.225	0.225
345	B160	B153	B160-B153	49	0.225	0.225
346	B153	B152	B153-B152	99	0.225	0.225
347	B152	B139	B152-B139	72	0.3375	0.45
348	B140	B139	B140-B139	100	0.225	0.225
349	B139	B126	B139-B126	60	0.3375	0.45
350	B126	B125	B126-B125	66	0.45	0.675
351	B125	B151'	B125-B151'	116	0.45	0.675
352	B159	B151'	B159-B151'	64	0.45	0.675

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
353	B151'	B151	B151'-B151	21	0.45	0.675
354	B151"	B151	B151"-B151	65	0.45	0.675
355	B138	B151	B138-B151	71	0.45	0.675
356	B151	B150	B151-B150	82	0.45	0.675
357	B150	B150/1	B150-B150/1	43	0.45	0.675
			-			
			-			
358	B8	B7	B8-B7	419	0.225	0.225
			-			
359	B7'	B1	B7'-B1	496	0.225	0.45
360	B1	B2	B1-B2	61	0.225	0.45
			-			
361	B12	B10	B12-B10	231	0.225	0.45
			-			
362	B54	B53	B54-B53	181	0.225	0.225
363	B53	B43	B53-B43	67	0.225	0.225
364	B45	B44	B45-B44	122	0.225	0.45
365	B11	B35	B11-B35	60	0.225	0.225
366	B36	B35	B36-B35	88	0.225	0.225
367	B35	B44	B35-B44	53	0.225	0.225
368	B44	B43	B44-B43	60	0.225	0.45
369	B43	B10	B43-B10	158	0.225	0.45
370	B10	B9	B10-B9	105	0.225	0.45
371	B18'	B9	B18'-B9	34	0.225	0.225
372	B9	B6	B9-B6	59	0.225	0.45
			-			
373	B5'	B5	B5'-B5	17	0.3375	0.45
374	B33'	B17	B33'-B17	134	0.225	0.45
375	B51	B28	B51-B28	220	0.225	0.45
376	B10'	B28	B10'-B28	117	0.225	0.45
377	B28	B18	B28-B18	55	0.225	0.45
378	B18	B17	B18-B17	60	0.225	0.45

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
379	B17	B5	B17-B5	53	0.225	0.45
			-			
380	B5	B4	B5-B4	75	0.3375	0.45
381	B26'	B4	B26'-B4	147	0.225	0.45
382	B4	B3	B4-B3	315	0.3375	0.45
383	B21	B19	B21-B19	57	0.225	0.225
384	B14	B19	B14-B19	133	0.225	0.225
385	B19	B13	B19-B13	104	0.225	0.225
386	B16	B15	B16-B15	58	0.225	0.225
387	B39"	B15	B39"-B15	111	0.225	0.225
388	B15	B13	B15-B13	276	0.3375	0.45
389	B13	B3	B13-B3	67	0.3375	0.45
390	B3	B2	B3-B2	63	0.3375	0.45
391	B2	B20	B2-B20	270	0.45	0.675
			-			
392	B22	B21'	B22-B21'	144	0.225	0.225
393	B22'	B21'	B22'-B21'	154	0.225	0.225
394	B21'	B20	B21'-B20	71	0.225	0.225
			-			
395	B20	B23	B20-B23	60	0.45	0.675
396	B25	B23	B25-B23	206	0.225	0.225
397	B23	B46	B23-B46	215	0.45	0.675
398	B48'	B47	B48'-B47	107	0.225	0.225
399	B25'	B24	B25'-B24	135	0.225	0.225
400	B24	B30	B24-B30	60	0.225	0.225
401	B32	B30	B32-B30	126	0.225	0.225
402	B30	B37	B30-B37	78	0.225	0.225
403	B39/1	B39	B39/1-B39	12	0.225	0.225
404	B39'	B39	B39'-B39	160	0.225	0.225
405	B39	B38	B39-B38	68	0.225	0.225
406	B31	B38	B31-B38	78	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
407	B38	B37	B38-B37	55	0.225	0.225
408	B37	B47	B37-B47	65	0.225	0.225
409	B47	B47'	B47-B47'	7	0.225	0.225
410	B24'	B47'	B24'-B47'	200	0.225	0.225
411	B47'	B46	B47'-B46	61	0.225	0.225
412	B46	B55	B46-B55	49	0.45	0.675
413	B55	B55'	B55-B55'	93	0.45	0.675
			-			
			-			
414	B69'	B69	B69'-B69	27	0.3375	0.45
415	B70	B69	B70-B69	376	0.225	0.225
416	B69	B68	B69-B68	64	0.3375	0.45
417	B103'	B83'	B103'-B83'	114	0.225	0.225
418	B83'	B68	B83'-B68	77	0.225	0.225
419	B68	B67	B68-B67	71	0.3375	0.45
420	B67	B64	B67-B64	323	0.3375	0.45
421	B109	B77	B109-B77	169	0.225	0.225
422	B79	B77	B79-B77	122	0.225	0.225
423	B77	B64	B77-B64	69	0.225	0.225
424	B64	B64'	B64-B64'	7	0.3375	0.45
425	B109'	B64'	B109'-B64'	238	0.225	0.225
426	B64'	B63	B64'-B63	60	0.3375	0.45
427	B97'	B63	B97'-B63	175	0.225	0.225
428	B63	B62	B63-B62	156	0.3375	0.45
			-			
429	B103"	B115'	B103"-B115'	125	0.225	0.225
430	B115'	B112	B115'-B112	174	0.45	0.675
			-			
431	B66	B81	B66-B81	67	0.225	0.225
432	B84	B82	B84-B82	96	0.225	0.225
433	B67/1	B82	B67/1-B82	69	0.225	0.225
434	B82	B82'	B82-B82'	9	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
435	B67/2	B82'	B67/2-B82'	67	0.225	0.225
436	B82'	B81	B82'-B81	59	0.225	0.225
437	B81	B102	B81-B102	45	0.225	0.225
438	B103	B102	B103-B102	163	0.225	0.225
439	B102	B104	B102-B104	59	0.225	0.45
440	B105	B104	B105-B104	167	0.225	0.225
441	B104	B112	B104-B112	65	0.225	0.45
			-			
442	B112	B111	B112-B111	65	0.45	0.675
443	B66	B111	B66-B111	235	0.225	0.225
444	B111	B111'	B111-B111'	5	0.225	0.225
445	B66'	B111'	B66'-B111'	235	0.225	0.225
446	B111'	B110	B111'-B110	135	0.45	0.675
			-			
447	B78	B99	B78-B99	108	0.225	0.225
448	B101	B100	B101-B100	52	0.225	0.225
449	B65	B100	B65-B100	177	0.225	0.225
450	B100	B99	B100-B99	75	0.225	0.225
451	B99	B110	B99-B110	59	0.225	0.225
			-			
452	B110	B108	B110-B108	274	0.45	0.675
453	B108	B95'	B108-B95'	60	0.45	0.675
454	B98	B95'	B98-B95'	211	0.225	0.225
455	B95'	B95	B95'-B95	8	0.45	0.675
			-			
456	B76'	B97	B76'-B97	104	0.225	0.225
457	B97	B96	B97-B96	85	0.225	0.225
458	B75	B96	B75-B96	105	0.225	0.225
459	B96	B95	B96-B95	60	0.225	0.225
			-			
460	B95	B74	B95-B74	114	0.45	0.675
461	B76	B74	B76-B74	145	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
462	B74	B62	B74-B62	61	0.45	0.675
			-			
463	B62	B62'	B62-B62'	20	0.45	0.675
			-			
464	B138/1	B137	B138/1-B137	100	0.225	0.225
465	B138/2	B137'	B138/2-B137'	125	0.225	0.225
			-			
466	B138'/2	B124'	B138'/2-B124'	56	0.225	0.225
467	B124'	B123'	B124'-B123'	126	0.225	0.225
			-			
468	B124'	B124	B124'-B124	8	0.225	0.225
469	B124	B123	B124-B123	126	0.225	0.225
470	B123	B106	B123-B106	71	0.225	0.225
471	B107	B106	B107-B106	137	0.225	0.225
472	B106	B106'	B106-B106'	27	0.225	0.225
			-			
473	B124	B94	B124-B94	121	0.225	0.225
474	B94	B93	B94-B93	131	0.225	0.225
			-			
475	B94	B92	B94-B92	57	0.225	0.225
476	B92	B91	B92-B91	81	0.225	0.225
			-			
477	B92	B62'	B92-B62'	111	0.225	0.225
			-			
478	B62'	B56/1	B62'-B56/1	14	0.45	0.675
			-			
479	B69/1	B58	B69/1-B58	432	0.225	0.45
			-			
480	B29	B52	B29-B52	210	0.225	0.45
481	B53/1	B52	B53/1-B52	54	0.225	0.225
482	B52	B52'	B52-B52'	5	0.225	0.45
483	B54'	B52'	B54'-B52'	242	0.225	0.225

Sr No.	Upper End Node	Lower End Node	Name of Road	Length of Storm Water Pipe line	Size of Storm line	
					M	M
484	B52'	B58	B52'-B58	60	0.225	0.45
485	B58	B57	B58-B57	162	0.225	0.45
486	B50'	B50	B50'-B50	150	0.225	0.45
487	B50	B57	B50-B57	60	0.225	0.45
488	B57	B56/2	B57-B56/2	98	0.225	0.45
			-			
489	B42	B41	B42-B41	56	0.225	0.45
490	B33	B41	B33-B41	79	0.225	0.45
491	B41	B40	B41-B40	65	0.225	0.45
492	B26	B40	B26-B40	155	0.225	0.45
493	B40	B39/2	B40-B39/2	44	0.225	0.45
494	B39/2	B49	B39/2-B49	62	0.225	0.45
495	B49/1	B49	B49/1-B49	71	0.225	0.45
496	B49	B48	B49-B48	19	0.225	0.45
497	B48	B56/2	B48-B56/2	60	0.225	0.45
			-			
498	B55/1	B56/2	B55/1-B56/2	168	0.225	0.45
499	B56/2	B56/1	B56/2-B56/1	20	0.225	0.45
			-			
500	B56/1	B61	B56/1-B61	112	0.675	1.2
501	B61	B72	B61-B72	51	0.675	1.2
502	B73	B72	B73-B72	106	0.225	0.225
503	B72	B91'	B72-B91'	49	0.675	1.2
			-			
504	B61	B60	B61-B60	58	0.675	1.2
505	B60	B71	B60-B71	71	0.675	1.2
				56079		

DESIGN STATEMENT OF RECYCLING

Design statement Recycling								Net Water Demand									
Sr No.	Upper End Node	Lower End Node	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	self	previous	total	Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
1	2	3	5					6	7	8	9	10	11	12	13	14	15
			M						KLD	KLD	KLD	LPM	mm	M	M	M	M
								2204									
1	STP1	B1'	14	245.85	245.29	245.57	0.28	2.47	2.47	2201.53	2204.00	2295.83	300.00	0.0018	0.025	0.025	29.98
2	**B1'**	**B2**	**125**	**245.29**	**245.35**	**245.32**	**-0.03**	**22.09**	**22.09**	**1434.52**	**1456.61**	**1517.30**	**300.00**	**0.0008**	**0.102**	**0.127**	**29.87**
3	B2	B2'	65	245.35	244.61	244.98	0.37	11.49	**11.49**	361.59	373.08	388.62	100.00	0.0139	0.900	1.027	28.97
4	B2'	A4	65	244.61	244.61	244.61		11.49	11.49	350.10	361.59	376.66	100.00	0.0131	0.850	1.877	28.12
5	A4	A3'	53	244.61	244.61	244.61		9.37	9.37	340.74	350.10	364.69	100.00	0.0123	0.653	2.530	27.47
	A3'	A3	330	244.61	242.19	243.4	1.21	58.32	58.32	282.41	340.74	354.93	100.00	0.0117	3.865	6.394	23.61
6	A3	A(High	138	242.19	242.19	242.19		24.39	24.39	0.00	24.39	25.40	100.00	0.0001	0.012	6.407	23.59
7	A3	A7	63	242.19	242.68	242.435	-0.245	11.13	11.13	246.89	258.03	268.78	100.00	0.0070	0.441	6.835	23.16
8	A7	**A14**	**77**	242.68	242.19	242.435	0.245	13.61	13.61	233.28	246.89	257.18	100.00	0.0064	0.497	7.332	22.67
9	A14	A21	62	242.19	244.61	243.4	-1.21	10.96	10.96	222.33	233.28	243.00	100.00	0.0058	0.360	7.692	22.31
10	A21	A22	146	244.61	244.61	244.61		25.80	25.80	196.52	222.33	231.59	100.00	0.0053	0.775	8.467	21.53
11	A22	A25	69	244.61	243.97	244.29	0.32	12.19	12.19	184.33	196.52	204.71	100.00	0.0042	0.292	8.759	21.24
						#DIV/0!		0.00		0.00							
12	A25	A46	149	243.97	243.2	243.585	0.385	26.33	26.33	33.05	59.38	61.86	100.00	0.0005	0.069	8.827	21.17
13	A46	Park	20	243.2	243.2	243.2		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	8.827	21.17
14	A46	A46'	147	243.44	242.43	242.935	0.505	25.98	25.98	3.53	29.51	30.74	100.00	0.0001	0.019	8.846	21.15
	A46'	(Green	20	242.43	242.43	242.43		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	8.846	21.15
15	A25	A26	71	243.97	243.97	243.97		12.55	12.55	112.40	124.95	130.15	100.00	0.0018	0.130	8.889	21.11
16	A26	A26'	71	243.97	243.97	243.97		12.55	12.55	29.69	42.24	44.00	100.00	0.0002	0.017	8.906	21.09
17	A26'	A40(Park)	20	243.97	243.73	243.85	0.12	3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	8.906	21.09
18	A26'	A47	128	243.97	243.23	243.6	0.37	22.62	22.62	3.53	26.16	27.25	100.00	0.0001	0.013	8.919	21.08
19	A47	Park	20	243.23	243.23	243.23		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	8.919	21.08
20	A26	A28	71	243.97	245.41	244.69	-0.72	12.55	12.55	57.61	70.16	73.09	100.00	0.0006	0.045	8.963	21.04
21	A28	Park	20	245.41	245.41	245.41		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	8.963	21.04
22	A28	A29	76	245.41	245.41	245.41		13.43	13.43	40.65	54.08	56.33	100.00	0.0004	0.029	8.993	21.01
23	A29	A41	86	245.41	245.41	245.41		15.20	15.20	25.45	40.65	42.34	100.00	0.0002	0.020	9.013	20.99
24	A41	A51	124	245.41	245.43	245.42	-0.01	21.91	21.91	3.53	25.45	26.51	100.00	0.0001	0.012	9.024	20.98
25	A51	Park	20	245.43	245.43	245.43		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	9.024	20.98
						#DIV/0!		0.00		0.00							
26	B2	B3	81	245.35	245.35	245.35		14.32	14.32	1047.13	1061.44	1105.67	250.00	0.0011	0.090	1.117	28.88
79	**B3**	**B5**	**987**	**246.12**	**248.6**	**247.36**	**-1.24**	**174.43**	**174.43**	**3.53**	**177.97**	**185.38**	100.00	**0.0035**	**3.472**	**4.589**	**25.41**
80	B5	PARK	20	248.6	248.6	248.6		3.53	3.53	0.00	3.53	**3.68**	100.00	**0.0000**	**0.000**	**4.589**	**25.41**

Design statement Recycling								Net Water Demand									
Sr No.	Upper End Node	Lower End Node	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	self	previous	total	Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
1	2	3	5					6	7	8	9	10	11	12	13	14	15
27	**B3**	**B19**	**125**	**245.35**	**248.9**	**247.125**	**-1.775**	**22.09**	**22.09**	**847.07**	**869.16**	**905.37**	**250.00**	**0.0008**	**0.096**	**1.213**	**28.79**
28	B19	Park	20	248.9	248.9	248.9		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	1.213	28.79
						#DIV/0!		0.00		0.00							
29	B19	B21	108	248.9	246.24	247.57	1.33	19.09	19.09	824.45	843.53	878.68	**200.00**	0.0021	0.2317	1.4444	28.56
30	B21	B20	66	246.24	246.24	246.24		11.66	11.66	812.78	824.45	858.80	**200.00**	0.0021	0.1357	1.5801	28.42
31	B20	B23	61	246.24	245.41	245.825	0.415	10.78	10.78	802.00	812.78	846.65	**200.00**	0.0020	0.1222	1.7023	28.30
32	B23	B24	69	245.41	245.41	245.41		12.19	12.19	24.21	36.41	37.92	100.00	0.0002	0.013	1.715	28.28
33	B24	B37	117	245.41	246.72	246.065	-0.655	20.68	20.68	3.53	24.21	25.22	100.00	0.0001	0.010	1.725	28.27
34	B37	Park	20	246.72	246.72	246.72		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	1.725	28.27
						#DIV/0!		0.00		0.00							
35	B23	B55	272	245.41	245	245.205	0.205	48.07	48.07	717.52	765.59	797.49	**200.00**	0.0018	0.488	2.190	27.81
36	B55	B62	204	245	246.3	245.65	-0.65	36.05	36.05	681.47	717.52	747.42	**200.00**	0.0016	0.324	2.514	27.49
									0.00		0.00						
37	**B62**	**B57**	**66**	**246.3**	**246.82**	**246.56**	**-0.26**	**11.66**	**11.66**	**150.40**	**162.06**	**168.81**	100.00	**0.0030**	**0.195**	**2.709**	**27.29**
38	B57	B63	161	246.82	248.87	247.845	-1.025	28.45	28.45	121.94	150.40	156.66	100.00	0.0026	0.415	3.124	26.88
39	B63	B65	125	248.87	248.67	248.77	0.1	22.09	22.09	99.85	121.94	127.02	100.00	0.0017	0.218	3.342	26.66
40	B65	B79	85	248.67	249.87	249.27	-0.6	15.02	15.02	24.92	39.94	41.61	100.00	0.0002	0.019	3.361	26.64
41	B79	B100	121	249.87	249.82	249.845	0.025	21.38	21.38	3.53	24.92	25.96	100.00	0.0001	0.011	3.372	26.63
42	B100	B99(Park)	20	249.82	249.82	249.82		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	3.372	26.63
43	B65	B66	132	249.82	251.34	250.58	-0.76	23.33	23.33	36.58	59.91	62.41	100.00	0.0005	0.062	3.434	26.57
44	B66	B81	97	251.34	249.61	250.475	0.865	17.14	17.14	19.44	36.58	38.11	100.00	0.0002	0.018	3.361	26.64
45	B81	B102	40	249.61	249.61	249.61		7.07	7.07	12.37	19.44	20.25	100.00	0.0001	0.002	3.363	26.64
46	B102	B104	50	249.61	250.98	250.295	-0.685	8.84	8.84	3.53	12.37	12.89	100.00	0.0000	0.001	3.364	26.64
47	B104	Park	20	250.98	250.98	250.98		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	3.364	26.64
						#DIV/0!											
48	**B62**	**B138**	**422**	**246.3**	**247.14**	**246.72**	**-0.42**	**74.58**	**74.58**	**444.83**	**519.41**	**541.05**	**150.00**	**0.0035**	**1.497**	**4.012**	**25.99**
49	B138	Park	20	247.14	247.14	247.14		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	4.012	25.99
50	B138	B159	104	247.14	247.19	247.165	-0.025	18.38	18.38	422.91	441.29	459.68	150.00	0.0026	0.273	3.397	26.60
51	B159	Park	20	247.19	247.19	247.19		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	3.397	26.60
52	B159	B160	111	247.19	247.19	247.19		19.62	19.62	399.76	419.38	436.85	150.00	0.0024	0.265	3.662	26.34
53	B160	Park	20	247.19	247.19	247.19		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	3.662	26.34
54	B160	B163	418	247.19	251.25	249.22	-2.03	73.87	73.87	322.36	396.23	412.74	150.00	0.0021	0.898	4.561	25.44
55	B163	B169	100	251.25	251.2	251.225	0.025	17.67	17.67	118.41	136.08	141.75	100.00	0.0021	0.214	4.775	25.23
56	B169	B170	125	251.2	251.87	251.535	-0.335	22.09	22.09	96.32	118.41	123.34	100.00	0.0017	0.207	4.981	25.02
57	B170	Park	20	251.87	251.87	251.87		3.53	3.53	92.78	96.32	100.33	100.00	0.0011	0.023	5.004	25.00

Design statement Recycling								Net Water Demand									
Sr No.	Upper End Node	Lower End Node	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	self	previous	total	Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
1	2	3	5					6	7	8	9	10	11	12	13	14	15
58	B169	B189	135	251.2	250.98	251.09	0.11	23.86	23.86	0.00	23.86	24.85	100.00	0.0001	0.011	4.786	25.21
59	B189	B190	46	250.98	250.29	250.635	0.345	8.13	8.13	60.80	68.92	71.80	100.00	0.0006	0.028	4.814	25.19
60	B190	B205	62	250.29	250.16	250.225	0.065	10.96	10.96	3.53	14.49	15.10	100.00	0.0000	0.002	4.816	25.18
61	B205	Park	20	250.16	250.16	250.16		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	4.786	25.21
62	B190	B191	150	250.29	250.97	250.63	-0.34	26.51	26.51	19.79	46.30	48.23	100.00	0.0003	0.044	4.830	25.17
63	B191	B192	32	250.97	250.97	250.97		5.66	5.66	14.14	19.79	20.62	100.00	0.0001	0.002	4.832	25.17
64	B192	B193	60	250.97	252.72	251.845	-0.875	10.60	10.60	3.53	14.14	14.73	100.00	0.0000	0.002	5.006	24.99
65	**B193**	**Park**	**20**	**252.72**	**252.72**	**252.72**		**3.53**	**3.53**	**0.00**	**3.53**	**3.68**	100.00	**0.0000**	**0.000**	**5.006**	**24.99**
66	**B163**	**B164**	**63**	**251.25**	**252.18**	**251.715**	**-0.465**	**11.13**	**11.13**	**175.14**	**186.27**	**194.03**	100.00	**0.0038**	**0.241**	**4.802**	**25.20**
67	B164	B144	100	252.18	251.64	251.91	0.27	17.67	17.67	3.53	21.21	22.09	100.00	0.0001	0.007	4.809	25.19
68	**B144**	**PARK**	**20**	**251.64**	**251.64**	**251.64**		**3.53**	**3.53**	**0.00**	**3.53**	**3.68**	100.00	**0.0000**	**0.000**	**5.004**	**25.00**
69	B164	B165	144	252.18	253.37	252.775	-0.595	25.45	25.45	128.48	153.93	160.35	100.00	0.0027	0.387	5.391	24.61
70	B165	B146	100	253.37	253.31	253.34	0.03	17.67	17.67	110.81	128.48	133.84	100.00	0.0019	0.192	5.583	24.42
71	B146	PARK	20	253.31	253.31	253.31		3.53	3.53	107.28	110.81	115.43	100.00	0.0015	0.029	5.033	24.97
72	**B146**	**PARK**	**20**	**253.31**	**253.31**	**253.31**		**3.53**	**3.53**	**0.00**	**3.53**	**3.68**	100.00	**0.0000**	**0.000**	**5.033**	**24.97**
73	B146	B88	252	253.31	256.54	254.925	-1.615	44.54	44.54	59.20	103.74	**108.06**	100.00	**0.0013**	**0.326**	**5.359**	**24.64**
74	B88	PARK	20	256.54	256.54	256.54		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	5.033	24.97
75	B88	B70	125	256.54	257.09	256.815	-0.275	22.09	22.09	33.58	55.67	57.99	100.00	0.0004	0.051	5.084	24.92
76	**B70**	**PARK**	**20**	**257.09**	**257.09**	**257.09**		**3.53**	**3.53**	**0.00**	**3.53**	**3.68**	100.00	**0.0000**	**0.000**	**5.084**	**24.92**
77	B70	B89	150	257.09	255.87	256.48	0.61	26.51	26.51	3.53	30.04	**31.30**	100.00	**0.0001**	**0.020**	**5.104**	**24.90**
78	**B89**	**PARK**	**20**	**255.87**	**255.87**	**255.87**		**3.53**	**3.53**	**0.00**	**3.53**	**3.68**	100.00	**0.0000**	**0.000**	**5.033**	**24.97**
81	**B1'**	**A68'**	**380**	**245.35**	**248.83**	**247.09**	**-1.74**	**67.16**	**67.16**	**677.76**	**744.92**	**775.96**	**200.00**	**0.0017**	**0.648**	**0.672**	**29.33**
82	A68'	A68	26	248.83	248.83	248.83		4.59	4.59	673.16	677.76	706.00	**200.00**	0.0014	0.037	0.709	29.29
83	A68	A66	68	248.83	248.83	248.83		12.02	12.02	68.04	80.06	83.39	100.00	0.0008	0.054	0.764	29.24
84	A66	A65	197	248.83	247.49	248.16	0.67	34.82	34.82	33.23	68.04	70.88	100.00	0.0006	0.117	0.881	29.12
85	A65	A60	63	247.49	247.49	247.49		11.13	11.13	22.09	33.23	34.61	100.00	0.0002	0.010	0.891	29.11
86	A60	A61	42	247.49	247.49	247.49		7.42	7.42	14.67	22.09	23.01	100.00	0.0001	0.003	0.894	29.11
87	A61	A59	63	247.49	247.49	247.49		11.13	11.13	3.53	14.67	15.28	100.00	0.0000	0.002	0.896	29.10
88	A59	PARK	20	247.49	247.49	247.49		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	0.896	29.10
89	A68	A99	428	248.83	251.19	250.01	-1.18	75.64	75.64	517.47	593.11	617.82	**150.00**	0.0045	1.942	2.651	27.35
90	A99	A102	66	251.19	251.83	251.51	-0.32	11.66	11.66	505.80	517.47	539.03	**150.00**	0.0035	0.233	2.884	27.12

Design statement Recycling								Net Water Demand									
Sr No.	Upper End Node	Lower End Node	Length of Pipe line	Upper End Node	Lower End Node	Average Value	StATIC Level Difference	TOTAL	self	previous	total	Total Water Demand 20 Hrs	Size of Pipe	Head Loss per M	Total Head Loss	Head Loss Progressive	Terminal Head
1	2	3	5					6	7	8	9	10	11	12	13	14	15
91	A102	A108	77	251.83	251.83	251.83		13.61	13.61	492.19	505.80	526.88	**150.00**	0.0034	0.260	3.144	26.86
92	A108	A122	168	251.83	254.26	253.045	-1.215	29.69	29.69	462.50	492.19	512.70	**150.00**	0.0032	0.540	3.683	26.32
93	A122	A125	314	254.26	258.24	256.25	-1.99	55.49	55.49	407.01	462.50	481.77	150.00	0.0029	0.899	4.582	25.42
94	A125	A131	245	258.24	258.93	258.585	-0.345	43.30	43.30	218.44	261.74	272.64	100.00	0.0072	1.760	6.342	23.66
95	A131	A132	110	258.93	258.93	258.93		19.44	19.44	3.53	22.97	23.93	100.00	0.0001	0.009	6.351	23.65
96	A132	PARK	20	258.93	258.93	258.93		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	6.351	23.65
97	A131	A123	46	258.93	259.08	259.005	-0.075	8.13	8.13	187.33	195.46	203.61	100.00	0.0042	0.192	6.544	23.46
98	A123	A104	345	259.08	253.35	256.215	2.865	60.97	60.97	126.36	187.33	195.14	100.00	0.0039	1.334	7.878	22.12
99	A104	A105	124	253.35	253.69	253.52	-0.17	21.91	21.91	3.53	25.45	26.51	100.00	0.0001	0.012	7.890	22.11
100	A105	PARK	20	253.69	253.69	253.69		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	7.890	22.11
101	A104	A100	66	253.35	252.02	252.685	0.665	11.66	11.66	89.25	100.91	105.12	100.00	0.0012	0.081	7.971	22.03
102	A100	PARK	20	252.02	252.02	252.02		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	7.971	22.03
103	A100	A101	84	252.02	252.99	252.505	-0.485	14.85	14.85	70.87	85.71	89.29	100.00	0.0009	0.076	8.048	21.95
104	A101	A86	223	252.99	249.89	251.44	1.55	39.41	39.41	31.46	70.87	73.82	100.00	0.0006	0.143	8.190	21.81
105	A86	A85	71	249.89	249.31	249.6	0.29	12.55	12.55	3.53	16.08	16.75	100.00	0.0000	0.003	8.193	21.81
106	A85	PARK	20	249.31	249.31	249.31		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	8.193	21.81
107	A86	A82	67	249.89	249.89	249.89		11.84	11.84	3.53	15.38	16.02	100.00	0.0000	0.003	8.196	21.80
108	A82	PARK	20	249.89	249.89	249.89		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	8.190	21.81
109	A125	A147	221	258.24	257.93	258.085	0.155	39.06	39.06	106.21	145.27	151.33	100.00	0.0024	0.534	5.116	24.88
110	A147	A143	52	257.93	260.07	259	-1.07	9.19	9.19	3.53	12.72	13.25	100.00	0.0000	0.001	5.117	24.88
111	A143	PARK	20	260.07	260.07	260.07		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	5.116	24.88
112	A147	A135	182	257.93	261.77	259.85	-1.92	32.16	32.16	61.33	93.49	97.39	100.00	0.0011	0.194	5.312	24.69
113	A135	A134	102	261.77	261.77	261.77		18.03	18.03	3.53	21.56	22.46	100.00	0.0001	0.007	5.319	24.68
114	A134	PARK	20	261.77	261.77	261.77		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	5.319	24.68
115	A135	A129	48	261.77	262.6	262.185	-0.415	8.48	8.48	31.28	39.76	41.42	100.00	0.0002	0.011	5.329	24.67
116	A129	PARK	20	262.6	262.6	262.6		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	5.329	24.67
117	A129	A126	137	262.6	261.08	261.84	0.76	24.21	24.21	3.53	27.75	28.90	100.00	0.0001	0.015	5.345	24.66
118	A126	PARK	20	261.08	261.08	261.08		3.53	3.53	0.00	3.53	3.68	100.00	0.0000	0.000	5.345	24.66
			12471				2.865	2204									

Design statement Recycling			Length of Pipe Line					No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves		Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	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			
1	2	3	16	17	18	19	20				20	21	22	23	24	25	26	27	28	29
			M	M	M	M	M	Nos.	M	M	No.	No.	No.	No.	No.			No.	No.	No.
									12.0	6.0						3	1			
1	STP1	B1'	0	0	0	0	14				0	0	0	0	1			**1**		1
2	**B1'**	**B2**	0	0	0	0	125	**7**	**84**	**42**	**0**	**0**	**0**	**0**	1	**21**	**7**	**1**		
3	B2	B2'	65	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
4	B2'	A4	65	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**	1	
5	A4	A3'	53	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**		
	A3'	A3	330	0	0	0	0	**18**	**216**	**108**					0			**1**		
6	A3	A(High	138	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**		
7	A3	A7	63	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
8	A7	**A14**	77	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
9	A14	A21	62	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**		
10	A21	A22	146	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**		
11	A22	A25	69	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
			0	0	0	0	0	**0**	**0**	**0**	0	0	0	0	0	0	0	**0**		
12	A25	A46	149	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**		
13	A46	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
14	A46	A46'	147	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**	1	1
	A46'	(Green	20	0	0	0	0	**1**	**12**	**6**					0			**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
15	A25	A26	71	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
16	A26	A26'	71	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
17	A26'	A40(Park)	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
18	A26'	A47	128	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
19	A47	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
20	A26	A28	71	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
21	A28	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
22	A28	A29	76	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
23	A29	A41	86	0	0	0	0	**5**	**60**	**30**	1	0	0	0	0	15	5	**1**		
24	A41	A51	124	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
25	A51	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**	1	1
			0	0	0	0	0	**0**	**0**	**0**					0					
26	B2	B3	0	0	0	81	0	**5**	**60**	**30**	0	0	0	1	0	15	5	**1**		
79	**B3**	**B5**	987	0	0	0	0	**55**	**660**	**330**	**4**	**0**	**0**	**0**	0	**165**	**55**	**2**		
80	B5	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					

Design statement Recycling			Length of Pipe Line					No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves		Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	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			
1	2	3	16	17	18	19	20				20	21	22	23	24	25	26	27	28	29
27	**B3**	**B19**	0	0	0	125	0	**7**	**84**	**42**	**0**	**0**	**0**	**1**	0	**21**	**7**	**1**		
28	B19	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
			0	0	0	0	0	**0**	**0**	**0**	0	0	0	0	0	0	0	**0**		
29	B19	B21	0	0	108	0	0	**6**	**72**	**36**	0	0	1	0	0	18	6	**1**		
30	B21	B20	0	0	66	0	0	**4**	**48**	**24**	0	0	1	0	0	12	4	**1**		
31	B20	B23	0	0	61	0	0	**3**	**36**	**18**	0	0	1	0	0	9	3	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
32	B23	B24	69	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
33	B24	B37	117	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
34	B37	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
35	B23	B55	0	0	272	0	0	**15**	**180**	**90**	0	0	1	0	0	45	15	**1**		
36	B55	B62	0	0	204	0	0	**11**	**132**	**66**	0	0	1	0	0	33	11	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
37	**B62**	**B57**	66	0	0	0	0	**4**	**48**	**24**	**1**	**0**	**0**	**0**	0	**12**	**4**	**1**		
38	B57	B63	161	0	0	0	0	**9**	**108**	**54**	1	0	0	0	0	27	9	**1**		
39	B63	B65	125	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
40	B65	B79	85	0	0	0	0	**5**	**60**	**30**	1	0	0	0	0	15	5	**1**		
41	B79	B100	121	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
42	B100	B99(Park)	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
43	B65	B66	132	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
44	B66	B81	97	0	0	0	0	**5**	**60**	**30**	1	0	0	0	0	15	5	**1**		
45	B81	B102	40	0	0	0	0	**2**	**24**	**12**	1	0	0	0	0	6	2	**1**		
46	B102	B104	50	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**		
47	B104	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
			0	0	0	0	0	**0**	**0**	**0**	0	0	0	0	0	0	0	**0**		
48	**B62**	**B138**	0	422	0	0	0	**23**	**276**	**138**	**0**	**2**	**0**	**0**	0	**69**	**23**	**1**		
49	B138	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
50	B138	B159	0	104	0	0	0	**6**	**72**	**36**	0	1	0	0	0	18	6	**1**		
51	B159	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**	1	1
52	B159	B160	0	111	0	0	0	**6**	**72**	**36**	0	1	0	0	0	18	6	**1**		
53	B160	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
54	B160	B163	0	418	0	0	0	**23**	**276**	**138**	0	2	0	0	0	69	23	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
55	B163	B169	100	0	0	0	0	**6**	**72**	**36**	1	0	0	0	0	18	6	**1**		
56	B169	B170	125	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
57	B170	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		

Design statement Recycling			Length of Pipe Line					No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves		Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	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			
1	2	3	16	17	18	19	20				20	21	22	23	24	25	26	27	28	29
58	B169	B189	135	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**		
59	B189	B190	46	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**		
60	B190	B205	62	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**		
61	B205	Park	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
62	B190	B191	150	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**		
63	B191	B192	32	0	0	0	0	**2**	**24**	**12**	1	0	0	0	0	6	2	**1**		
64	B192	B193	60	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**		
65	**B193**	**Park**	20	0	0	0	0	**1**	**12**	**6**	**1**	**0**	**0**	**0**	0	**3**	**1**	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
66	**B163**	**B164**	63	0	0	0	0	**4**	**48**	**24**	**1**	**0**	**0**	**0**	0	**12**	**4**	**1**		
67	B164	B144	100	0	0	0	0	**6**	**72**	**36**	1	0	0	0	0	18	6	**1**		
68	**B144**	**PARK**	20	0	0	0	0	**1**	**12**	**6**	**1**	**0**	**0**	**0**	0	**3**	**1**	**1**		
69	B164	B165	144	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**		
70	B165	B146	100	0	0	0	0	**6**	**72**	**36**	1	0	0	0	0	18	6	**1**		
71	B146	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
72	**B146**	**PARK**	20	0	0	0	0	**1**	**12**	**6**	**1**	**0**	**0**	**0**	0	**3**	**1**	**1**		
73	B146	B88	252	0	0	0	0	**14**	**168**	**84**	1	0	0	0	0	42	14	**1**		
74	B88	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
75	B88	B70	125	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
76	**B70**	**PARK**	20	0	0	0	0	**1**	**12**	**6**	**1**	**0**	**0**	**0**	0	**3**	**1**	**1**		
77	B70	B89	150	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**		
78	**B89**	**PARK**	20	0	0	0	0	**1**	**12**	**6**	**1**	**0**	**0**	**0**	0	**3**	**1**	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
81	**B1'**	**A68'**	0	0	380	0	0	**21**	**252**	**126**	**0**	**0**	**2**	**0**	0	**63**	**21**	**1**		
82	A68'	A68	0	0	26	0	0	**1**	**12**	**6**	0	0	1	0	0	3	1	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
83	A68	A66	68	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
84	A66	A65	197	0	0	0	0	**11**	**132**	**66**	1	0	0	0	0	33	11	**1**		
85	A65	A60	63	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
86	A60	A61	42	0	0	0	0	**2**	**24**	**12**	1	0	0	0	0	6	2	**1**		
87	A61	A59	63	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
88	A59	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
89	A68	A99	0	428	0	0	0	**24**	**288**	**144**	0	2	0	0	0	72	24	**1**		
90	A99	A102	0	66	0	0	0	**4**	**48**	**24**	0	1	0	0	0	12	4	**1**		

Design statement Recycling			Length of Pipe Line					No. of Sprinklers	Connecting Length		Sluice Valves					Butterfly Valves		Fire Hydrant	Scour Valve	Air valve
Sr No.	Upper End Node	Lower End Node	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			
1	2	3	16	17	18	19	20				20	21	22	23	24	25	26	27	28	29
91	A102	A108	0	77	0	0	0	**4**	**48**	**24**	0	1	0	0	0	12	4	**1**		
92	A108	A122	0	168	0	0	0	**9**	**108**	**54**	0	1	0	0	0	27	9	**1**		
93	A122	A125	0	314	0	0	0	**17**	**204**	**102**	0	2	0	0	0	51	17	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
94	A125	A131	245	0	0	0	0	**14**	**168**	**84**	1	0	0	0	0	42	14	**1**		
95	A131	A132	110	0	0	0	0	**6**	**72**	**36**	1	0	0	0	0	18	6	**1**		
96	A132	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
97	A131	A123	46	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**		
98	A123	A104	345	0	0	0	0	**19**	**228**	**114**	2	0	0	0	0	57	19	**1**		
99	A104	A105	124	0	0	0	0	**7**	**84**	**42**	1	0	0	0	0	21	7	**1**		
100	A105	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
101	A104	A100	66	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
102	A100	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
103	A100	A101	84	0	0	0	0	**5**	**60**	**30**	1	0	0	0	0	15	5	**1**		
104	A101	A86	223	0	0	0	0	**12**	**144**	**72**	1	0	0	0	0	36	12	**1**		
105	A86	A85	71	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
106	A85	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
107	A86	A82	67	0	0	0	0	**4**	**48**	**24**	1	0	0	0	0	12	4	**1**		
108	A82	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
			0	0	0	0	0	**0**	**0**	**0**					0					
109	A125	A147	221	0	0	0	0	**12**	**144**	**72**	1	0	0	0	0	36	12	**1**		
110	A147	A143	52	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**	4	4
111	A143	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
112	A147	A135	182	0	0	0	0	**10**	**120**	**60**	1	0	0	0	0	30	10	**1**		
113	A135	A134	102	0	0	0	0	**6**	**72**	**36**	1	0	0	0	0	18	6	**1**	1	1
114	A134	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
115	A135	A129	48	0	0	0	0	**3**	**36**	**18**	1	0	0	0	0	9	3	**1**		
116	A129	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**	1	
117	A129	A126	137	0	0	0	0	**8**	**96**	**48**	1	0	0	0	0	24	8	**1**		1
118	A126	PARK	20	0	0	0	0	**1**	**12**	**6**	1	0	0	0	0	3	1	**1**		
			8901	2108	1117	206	139	693	8316	4158	102	13	8	2	2	2022	674	121	10	10

DRAWINGS

UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE I
GURUGRAM
PARK & GREEN BELT LAYOUT PLAN



LEGEND:-

PARKS &GREEN BELT



KEY PLAN

Rev.	Date	Description			
		Revision			
Concept	Submission	DPR	Tender	GFC	As Built

Title: PARK LAYOUT PLAN

Project: DLF CITY PHASE-I, GURGAON.

Client: Municipal corporation Gurgaon

MCG

Consultants:

Director Infrastructure for ky Consultants Pvt.Ltd

303-304, Star tower
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Services Planned & Designed by:

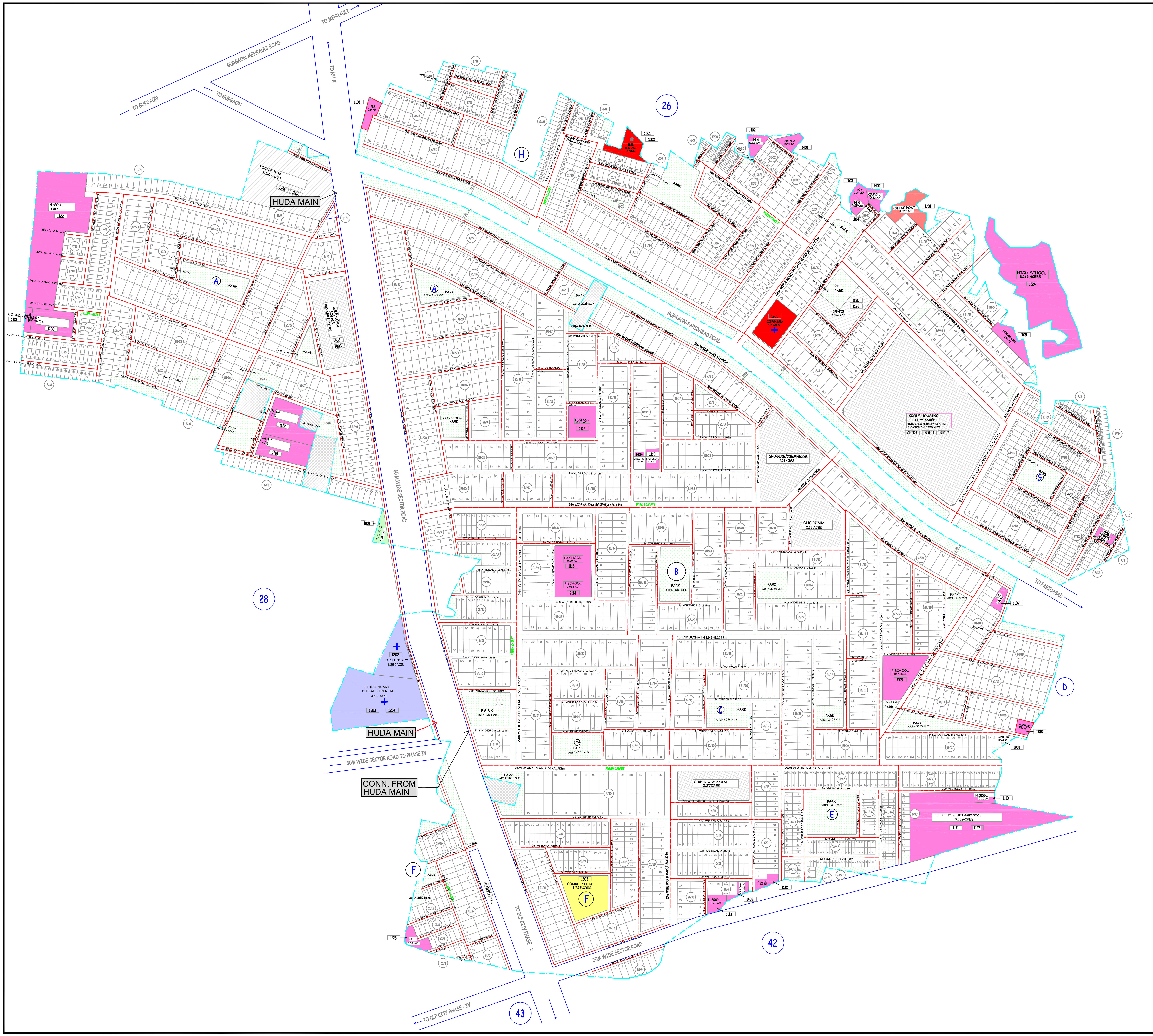
ky Consultants Pvt. Ltd.

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	MCG/DLF/R4

UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE I GURUGRAM

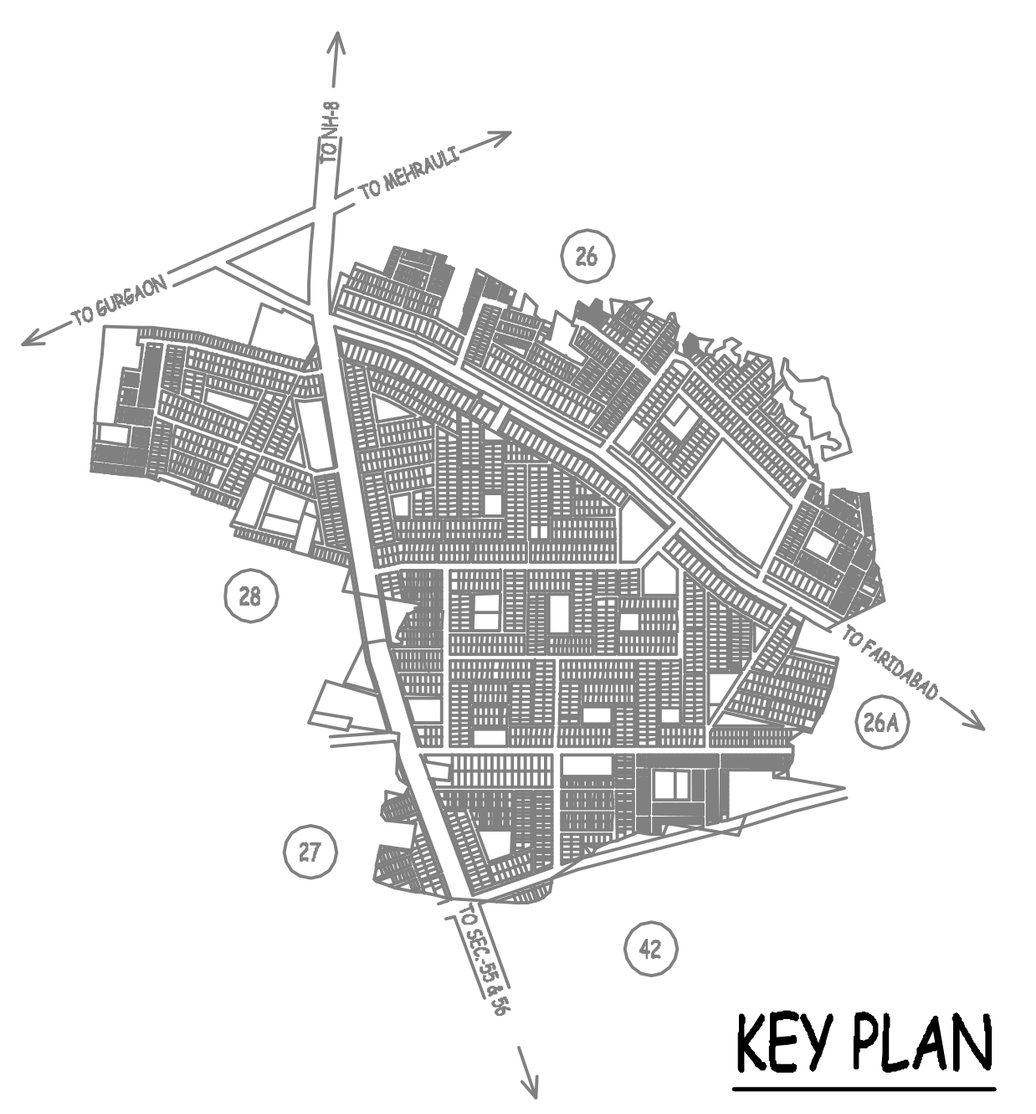
COMMUNITY FACILITIES

DLF PHASE I



LEGEND:-

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



KEY PLAN

Rev.	Date	Description			
		Revision			
Concept	Submission	DPR	Tender	GFC	As Built

Title: COMMUNITY FACILITIES

Project: DLF CITY PHASE-I, GURGAON.

Client: Municipal corporation Gurgaon

Consultants: Director Infrastructure for ky Consultants Pvt.Ltd
303-304, Star tower
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Services Planned & Designed by:
Consultants Pvt. Ltd.

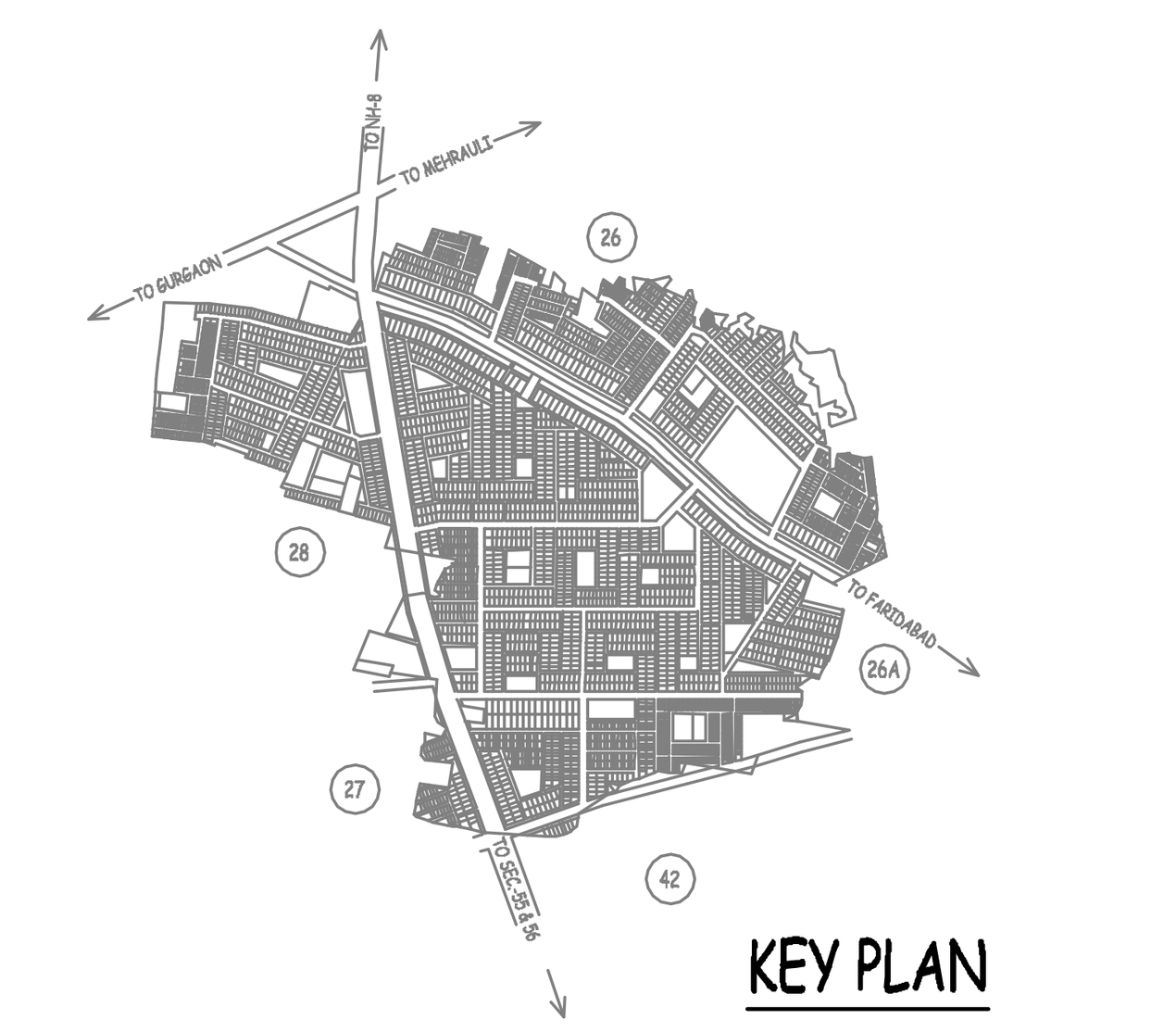
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	MCG/DLF/R3



UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE I
GURUGRAM
PROPOSED REPAIR ROAD OF DEFICIENT WORK
DLF PHASE I

LEGEND

	ROAD IN GOOD CONDITION
	9m &12m WIDE ROAD(SP.REPAIR)
	18m WIDE ROAD(SP. REPAIR)
	24m WIDE ROAD (SP. REPAIR)
	COMPLETE DAMAGED ROAD (TO BE SP. REPAIRED)
	BOUNDARY LINE



KEY PLAN

Rev.	Date	Description			
		Revision			
Concept	Submission	DPR	Tender	GFC	As Built

Title: PROPOSED REPAIR ROAD OF DEFICIENT WORK

Project: DLF CITY PHASE-I, GURGAON.

Client: Municipal corporation Gurgaon

MCG MUNICIPAL CORPORATION OF GURUGRAM

Consultants: Director Infrastructure for ky Consultants Pvt.Ltd

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

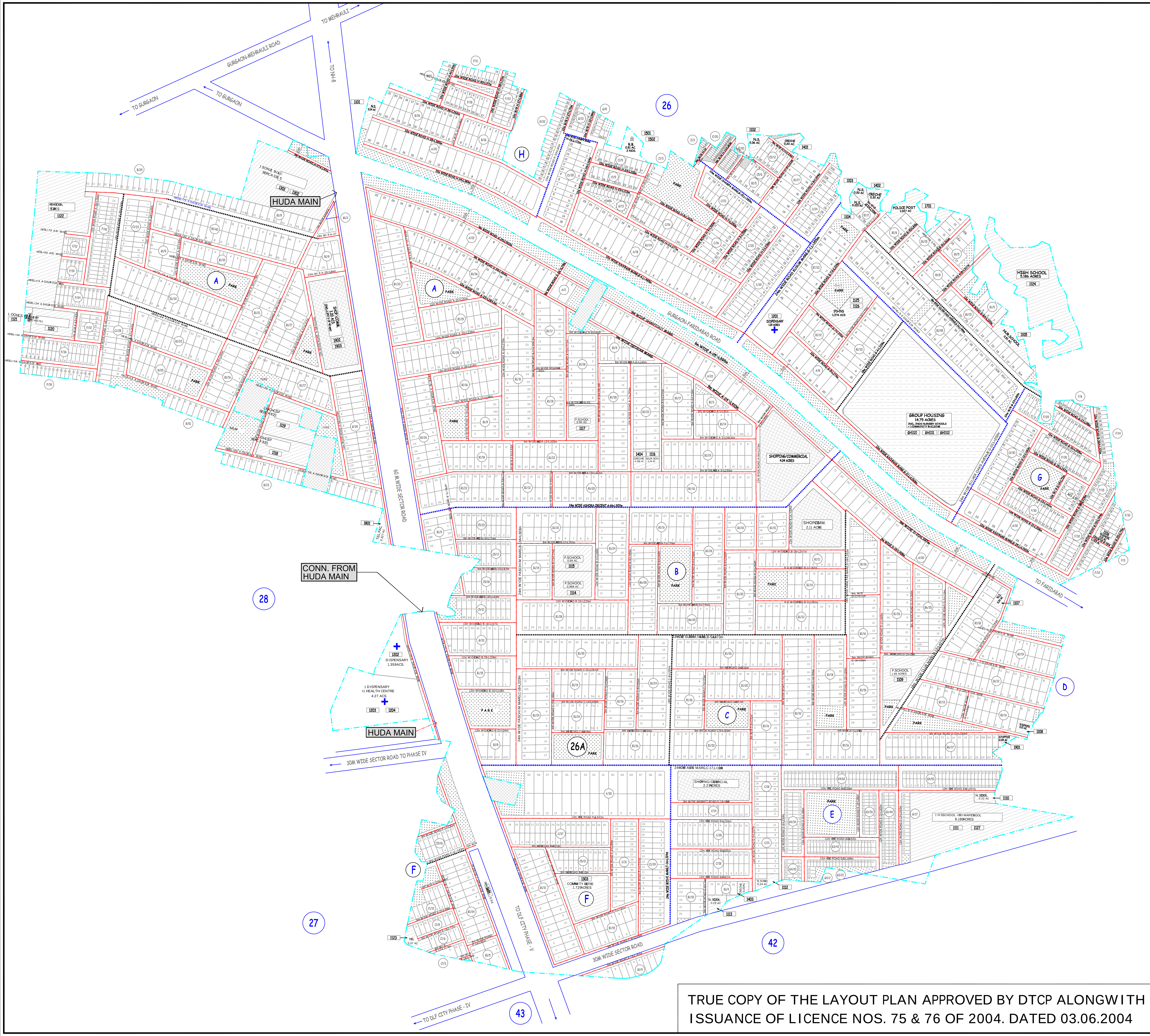
303-304, Star tower DLF Sector 30, Gurgaon- 122001 Ph: 0124-4034715 FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	MCG/DLF/R2

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

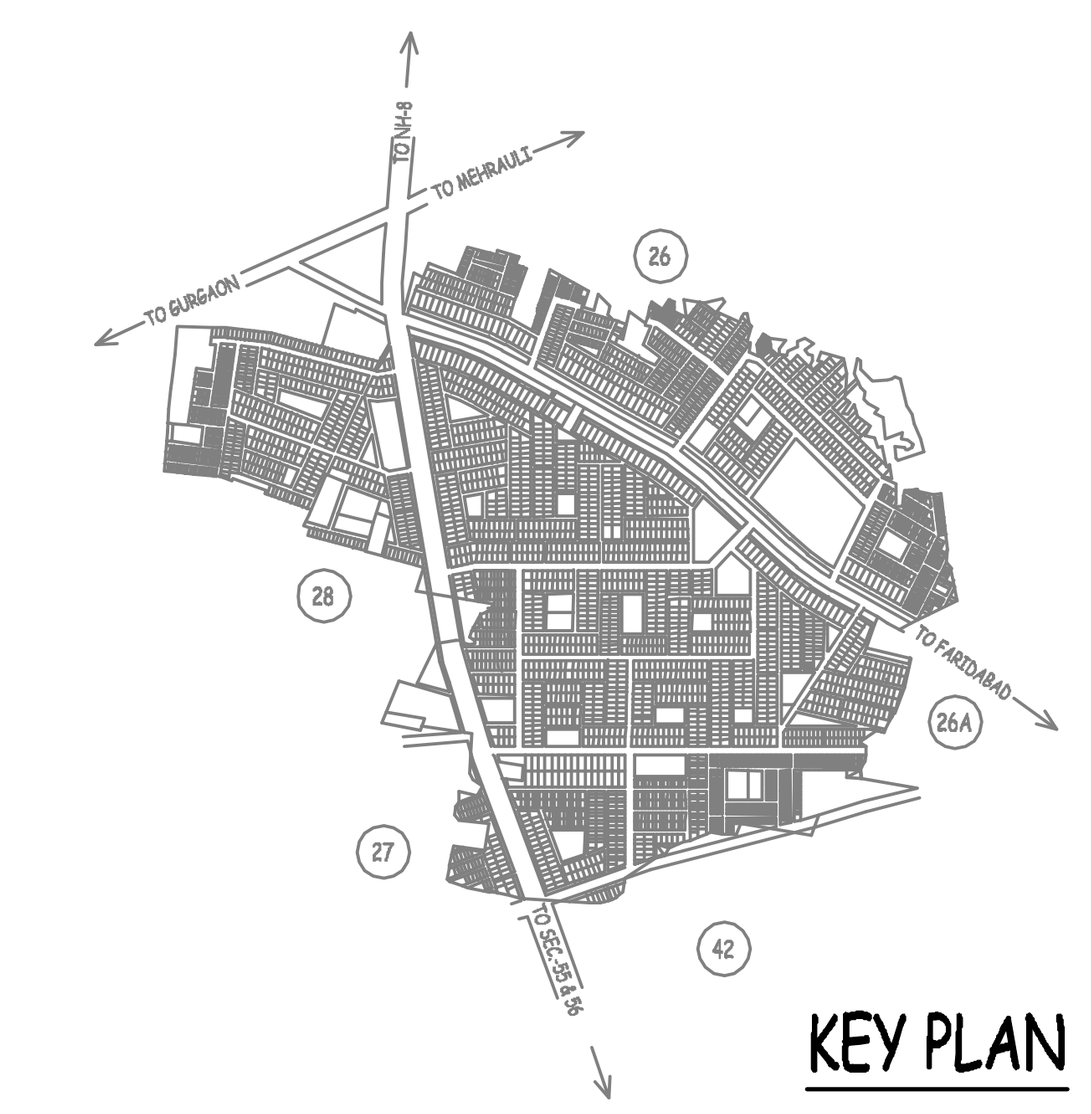
UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE I GURUGRAM

LAYOUT ROAD PLAN OF DLF PHASE- I



LEGEND

	CENTRE LINE OF ROADS 9m &12m wide
	CENTRE LINE OF ROADS 18m wide
	CENTRE LINE OF ROADS 24m wide
ARJUN MARG (C-17)	NAME OF ROADS
250mts	LENGTH OF ROADS


KEY PLAN

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

Rev.	Date	Description			
Revision					
Concept	Submission	DPR	Tender	GFC	As Built

Title: LAYOUT ROAD PLAN

Project: DLF CITY PHASE-I, GURGAON.

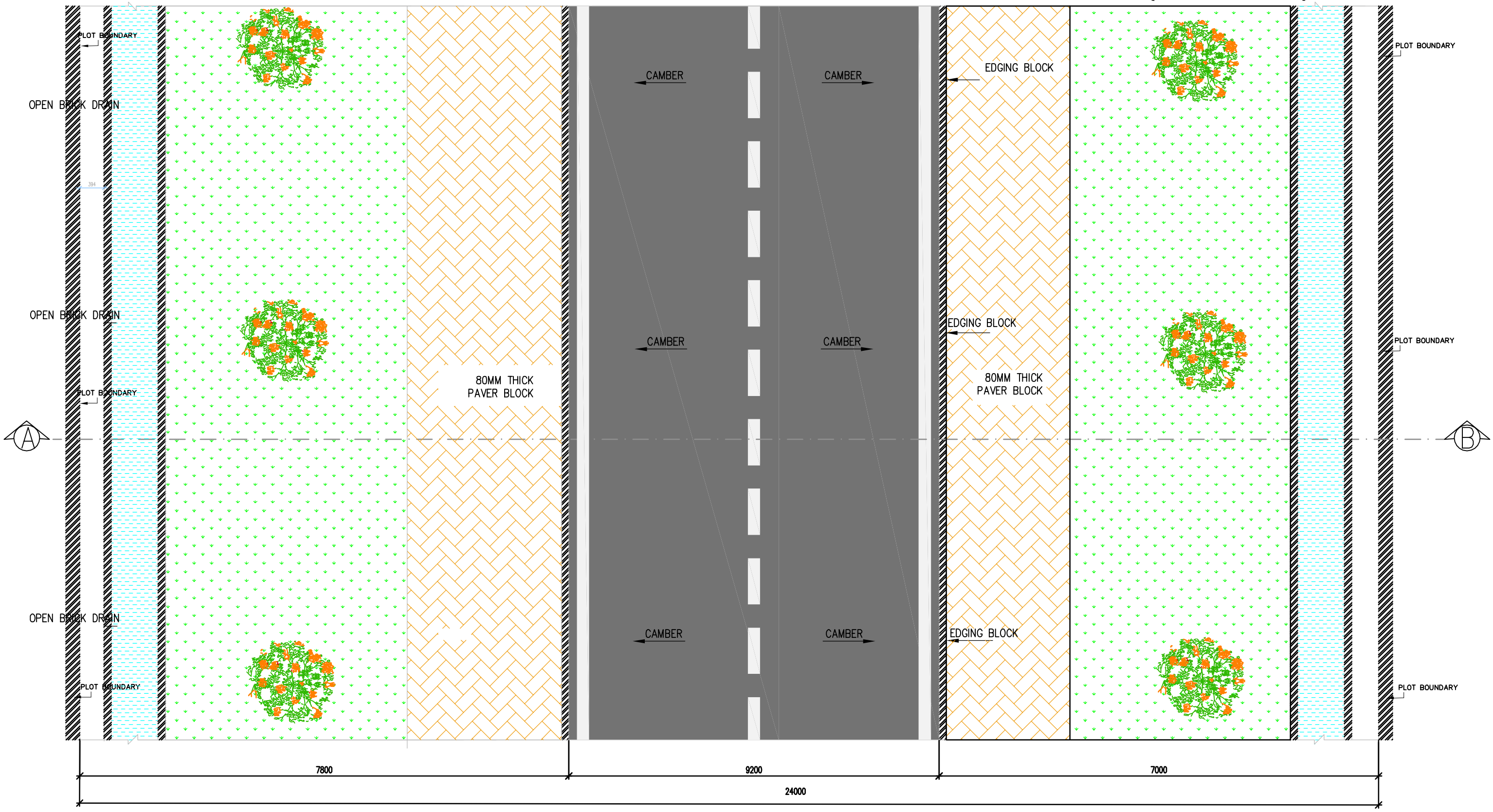
Client: Municipal corporation Gurgaon

Consultants: Director Infrastructure for ky Consultants Pvt.Ltd
303-304, Star tower, DLF Sector 30, Gurgaon- 122001, Ph: 0124-4034715, 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	MCG/DLF/R1

PLAN OF 24 M
DLF PHASE 1
GURGAON
(SPECIAL REPAIR)

Drawing No.
DLF/P1/R-16



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 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

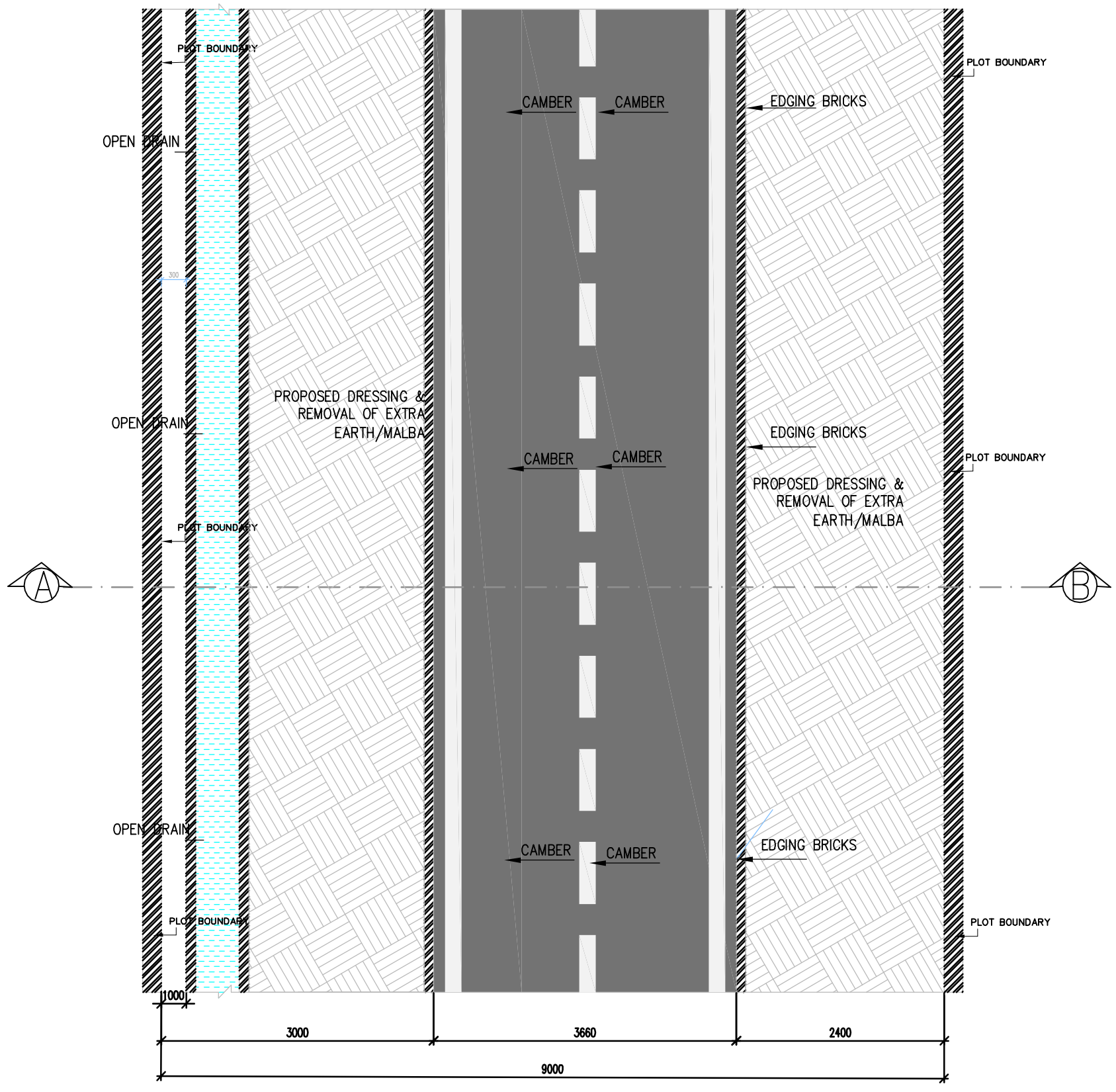
Services Planned & Designed by:
K Consultants Pvt. Ltd.
303-304,DLF STAR TOW
SECTOR-30,Gurgaon- 122
Ph: 0124-4054C
FAX: 4054

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/P1/R-16

Drawing No.
DLF/P1/R-2

PLAN OF 9 M
DLF PHASE 1

(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

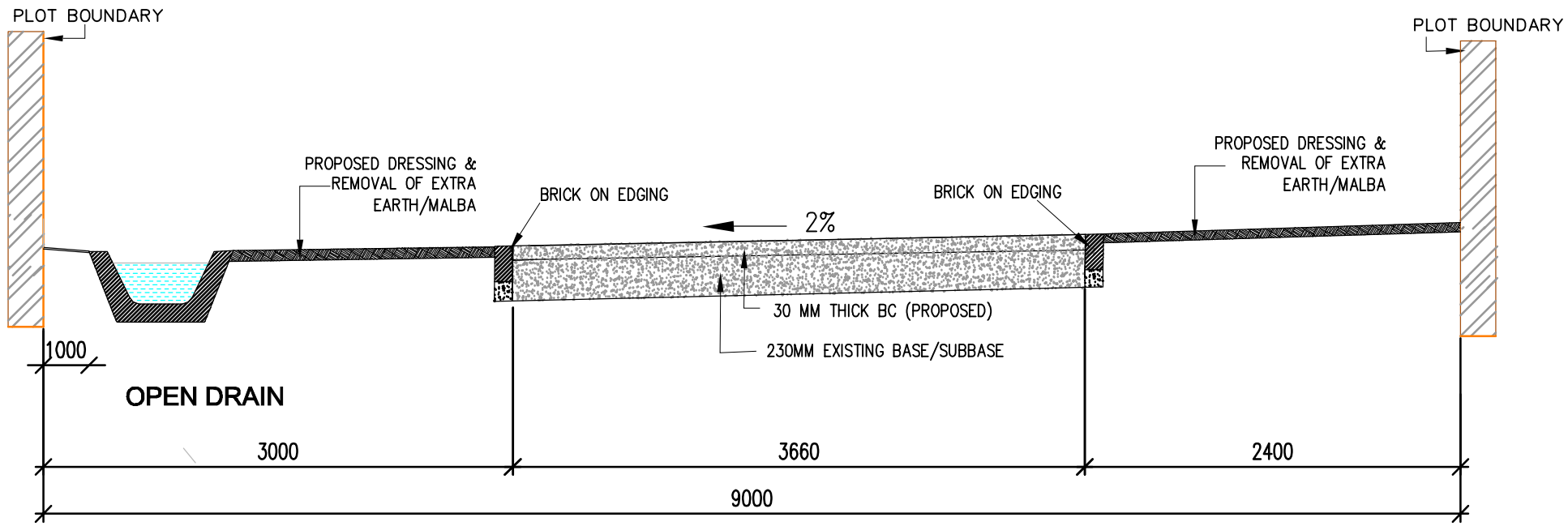
Title: PLAN 9 M. ROAD
Project: DLF PHASE 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
303-304,DLF STAR TOW
SECTOR-30,Gurgaon- 123
PH: 01124-4034
FAX: 4034

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/P1/R-2

Drawing No.
DLF/P1/R-3

ROAD SECTION 9 M
DLF PHASE 1
(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

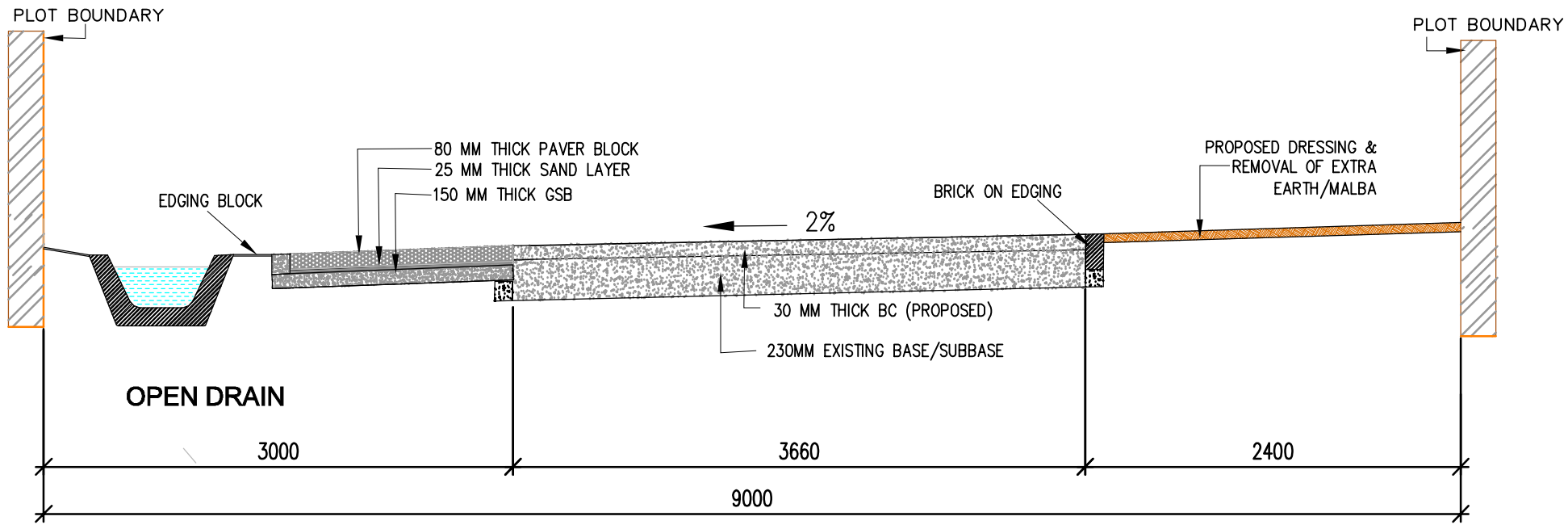
Title: ROAD X - SECTION 9M.
Project: DLF PHASE 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

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/P1/R-3

Drawing No.
DLF/P1/R-11

ROAD SECTION 9 M
DLF PHASE 1
(SPECIAL REPAIR)



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 1 GURGAON (HR).

Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:

Consultants Pvt. Ltd.

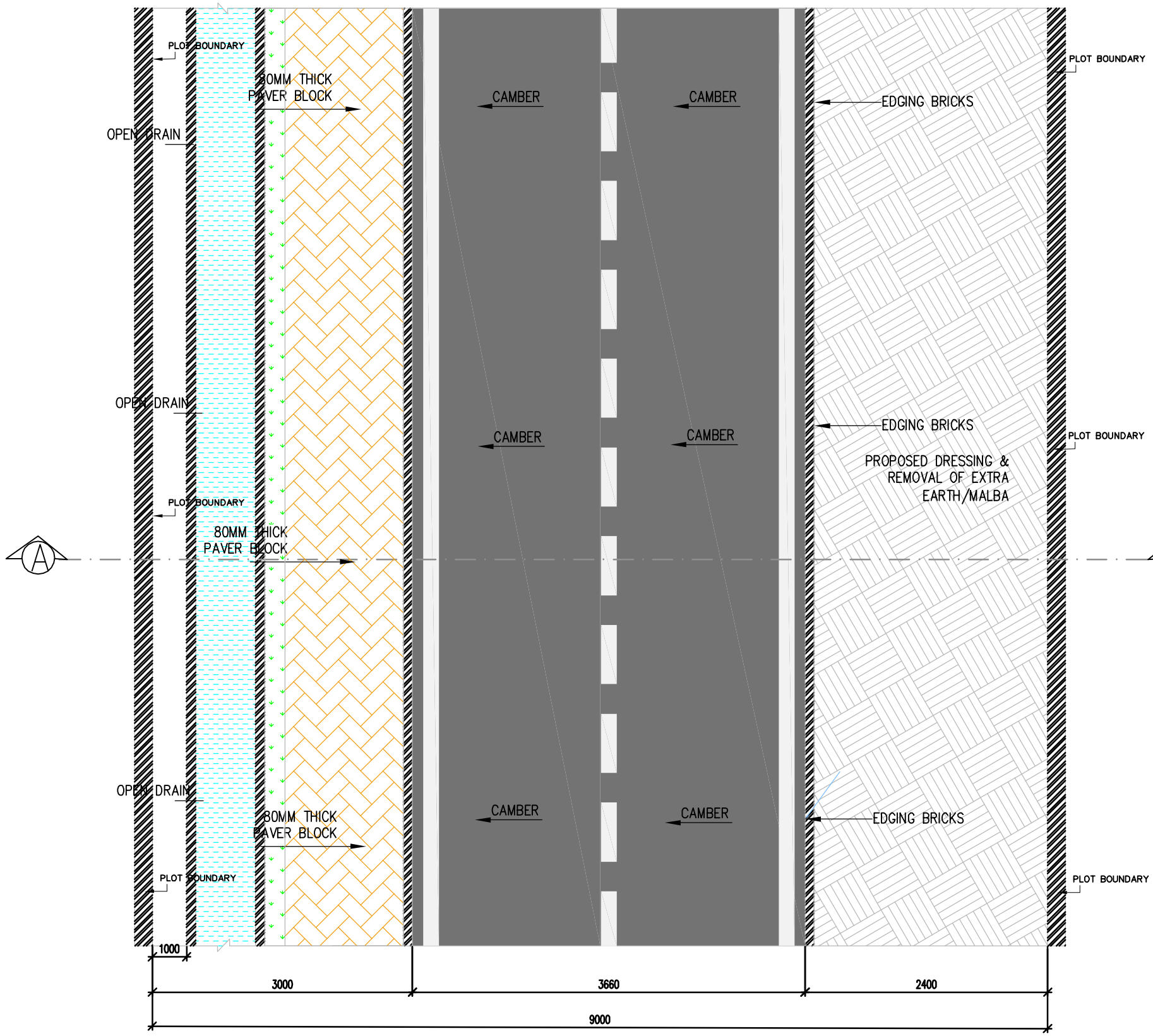
303-304,DLF STAR TOWEF
SECTOR-30,Gurgaon- 1220(
Ph: 0124-403471
FAX: 403471

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/P1/R-11

Drawing No.
DLF/P1/R-10

PLAN OF 9 M
DLF PHASE 1

(SPECIAL REPAIR)



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 Buil

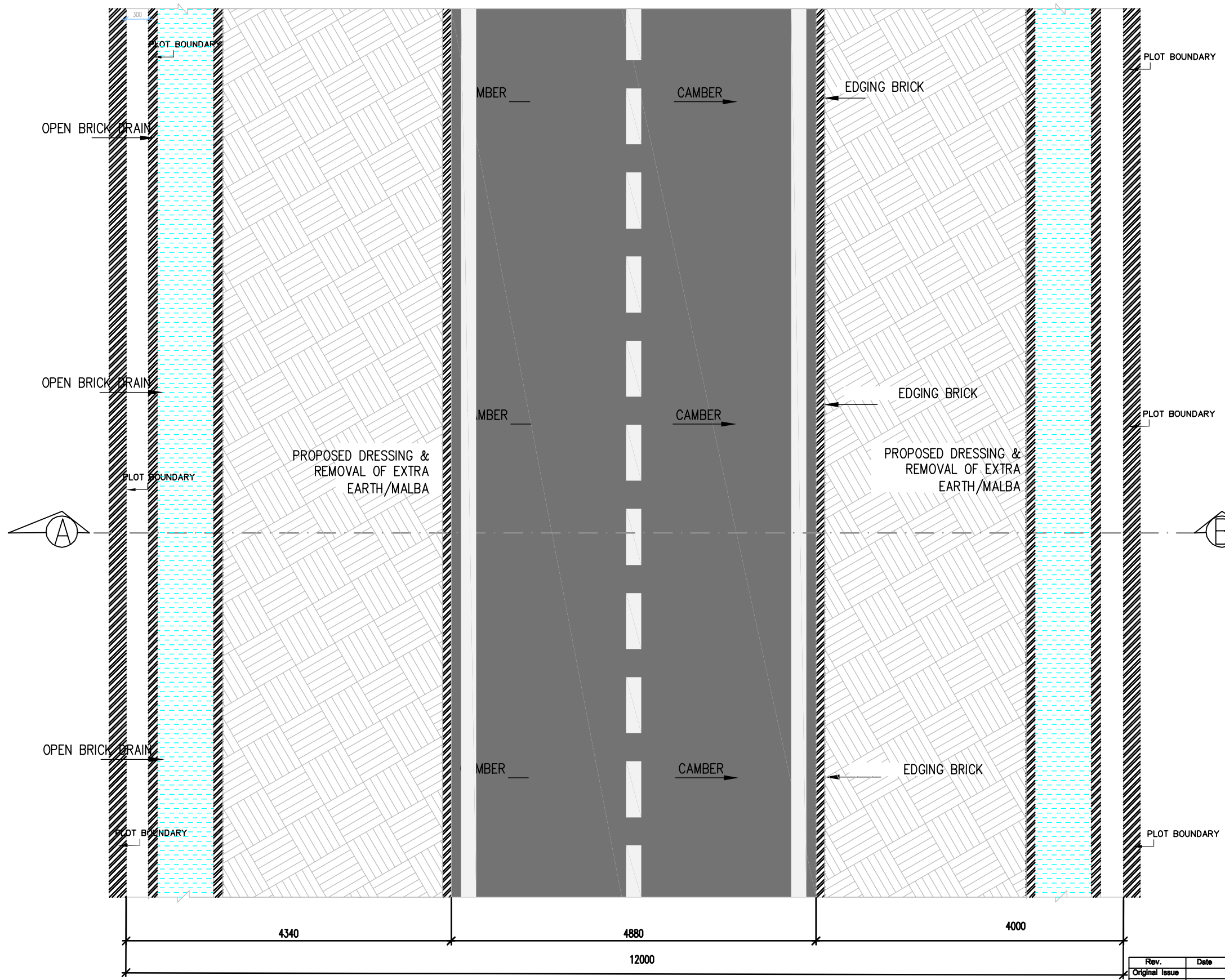
Title: PLAN 9 M. ROAD
Project: DLF PHASE 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
203-204,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/P1/R-10

PLAN OF 12 M
DLF PHASE 1
GURGAON
(EXISTING ROAD)

Drawing No.
DLF/P1/R-4



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

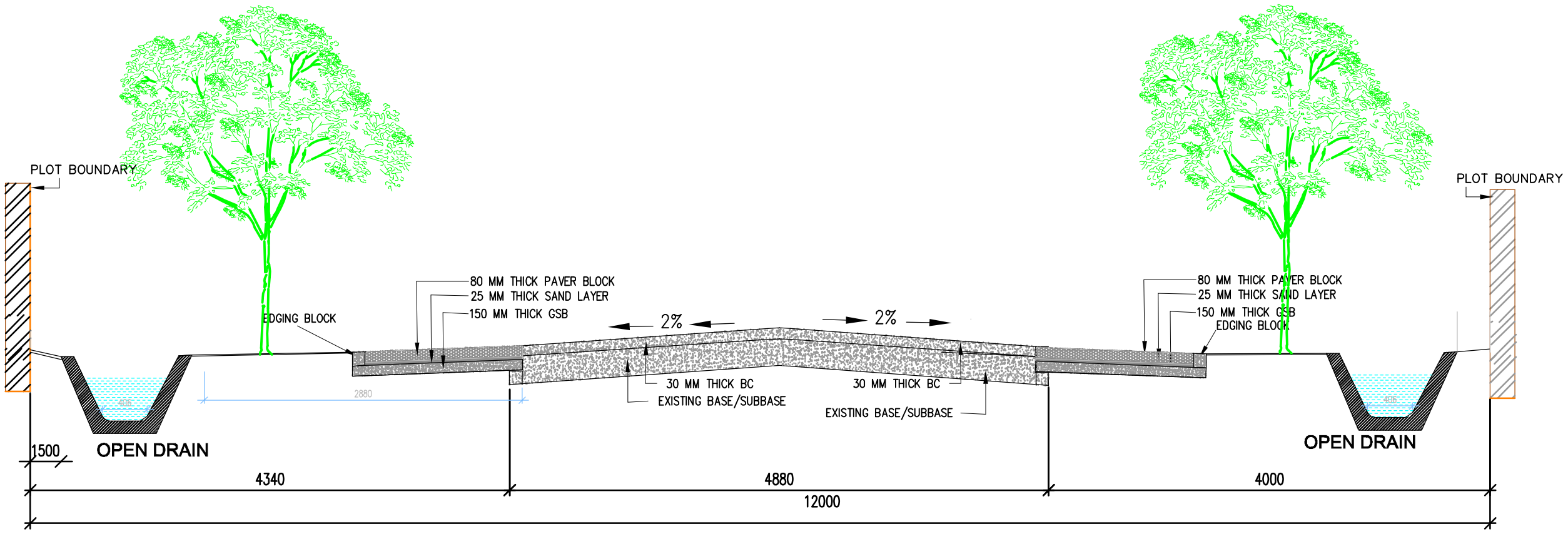
Title: ROAD PLAN 12M.
Project: DLF PHASE 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

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/P1/R-4

Drawing No.
DLF/P1/R-13

ROAD SECTION 12 M
DLF PHASE 1
(SPECIAL REPAIR)



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: PALAM VIHAR GURGAON (HR).

Client: MUNICIPAL CORPORATION GURGAON

MCG

Services Planned & Designed by:

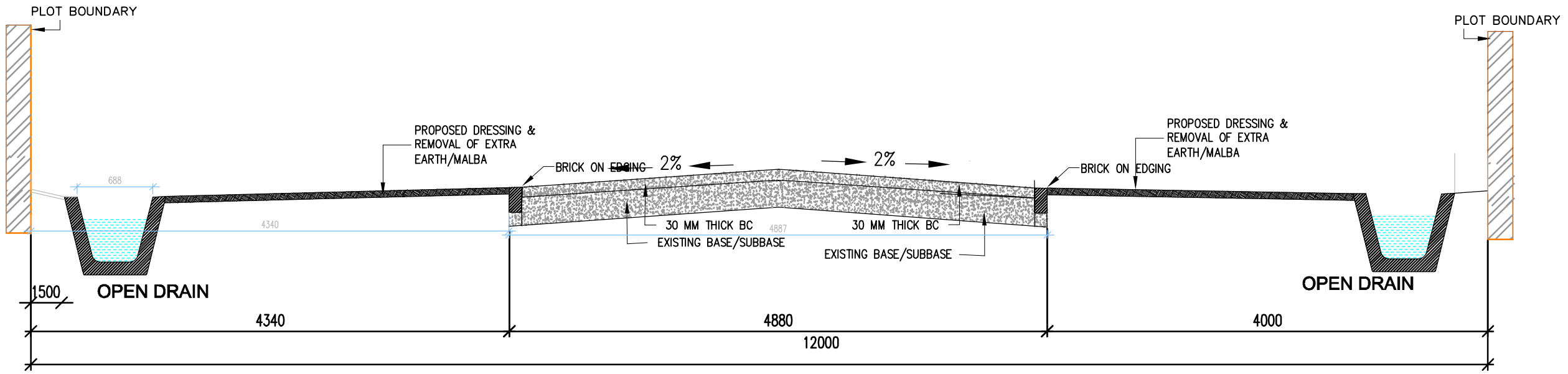
Consultants Pvt. Ltd.

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/P1/R-13

Drawing No.
DLF/P1/R-5

ROAD SECTION 12 M
DLF PHASE 1
(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: PALAM VIHAR GURGAON (HR).

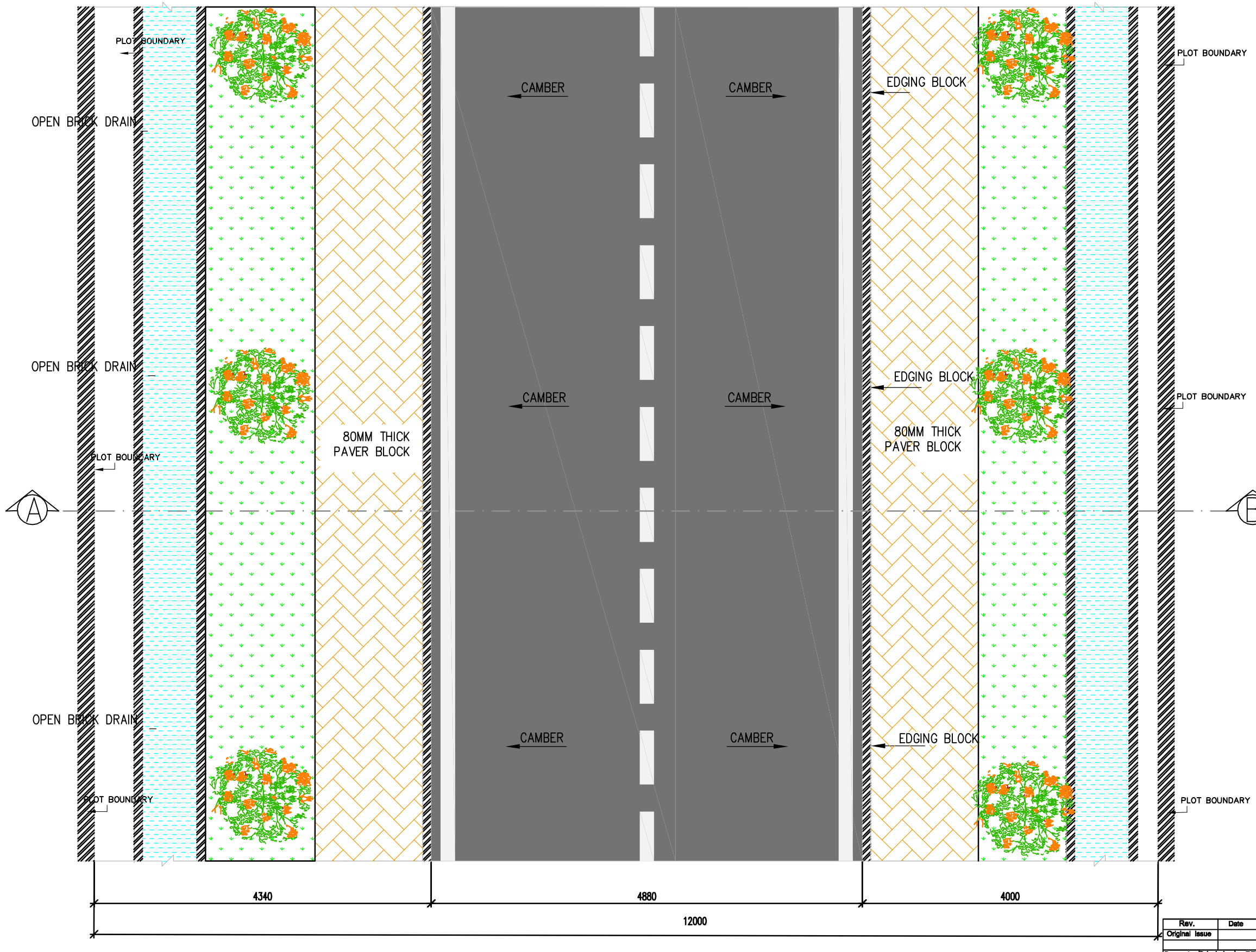
Client: MUNICIPAL CORPORATION GURGAON

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/P1/R-5

PLAN OF 12 M
DLF PHASE 1
GURGAON
(SPECIAL REPAIR)

Drawing No.
DLF/P1/R-12



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

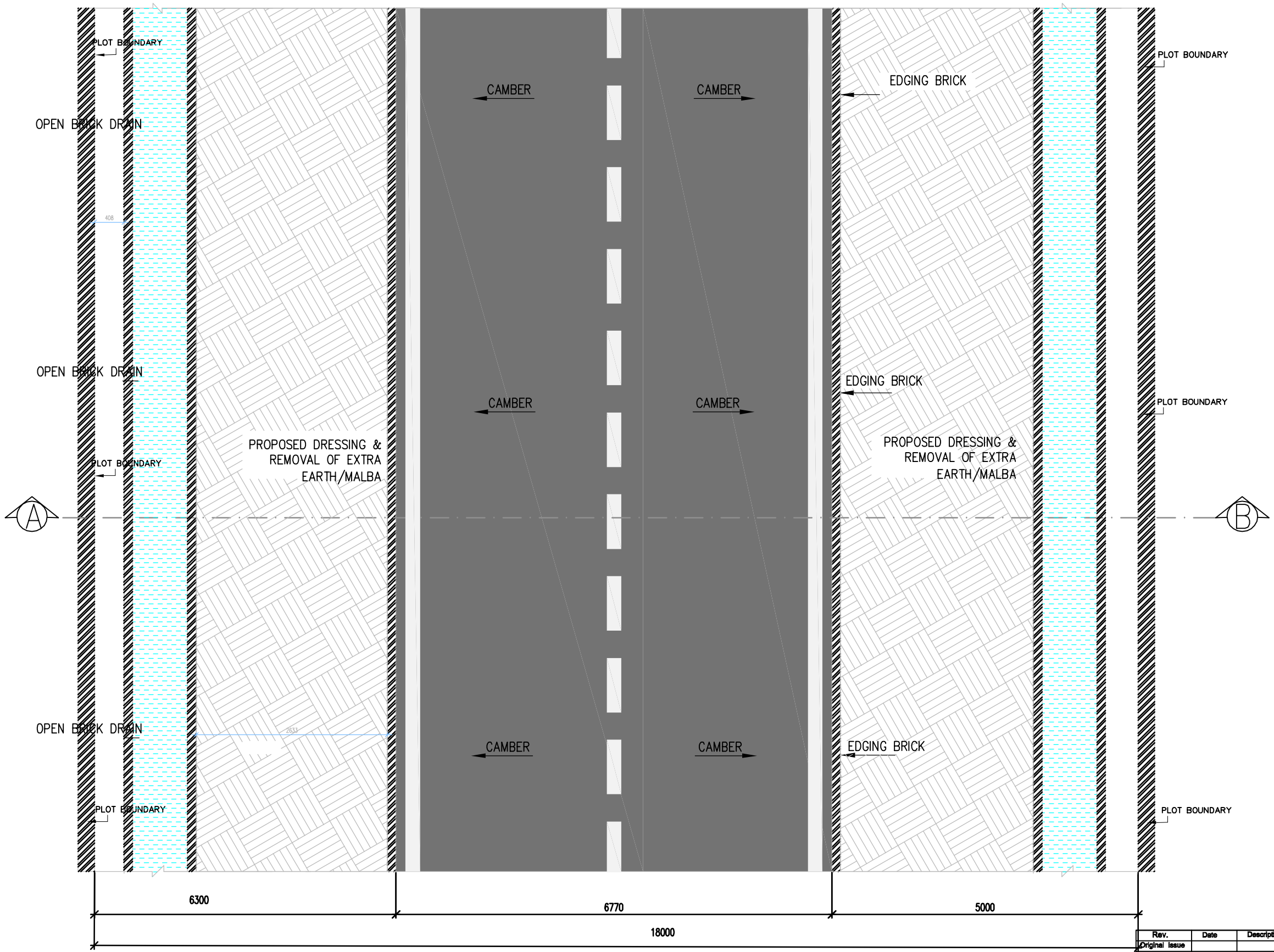
Title: ROAD PLAN 12M.
Project: DLF PHASE 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

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/P1/R-12

PLAN OF 18 M
DLF PHASE 1
GURGAON
(EXISTING ROAD)

Drawing No.
DLF/P1/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

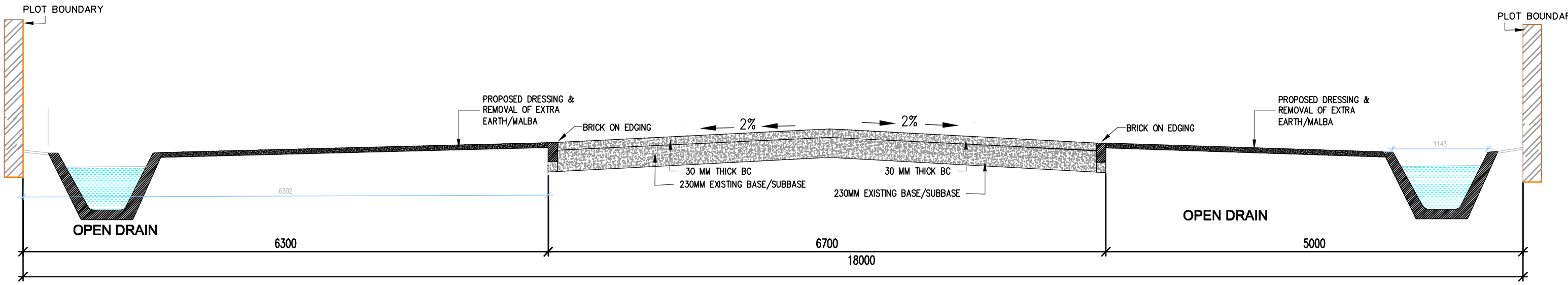
Title: ROAD PLAN 18M.
Project: DLF PHASE 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

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/P1/R-6

Drawing No.
DLF/P1/R-7

ROAD SECTION 18 M
DLF PHASE 1
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 1 GURGAON (HR).

Client: MUNICIPAL CORPORATION GURGAON

MCG

Services Planned & Designed by:

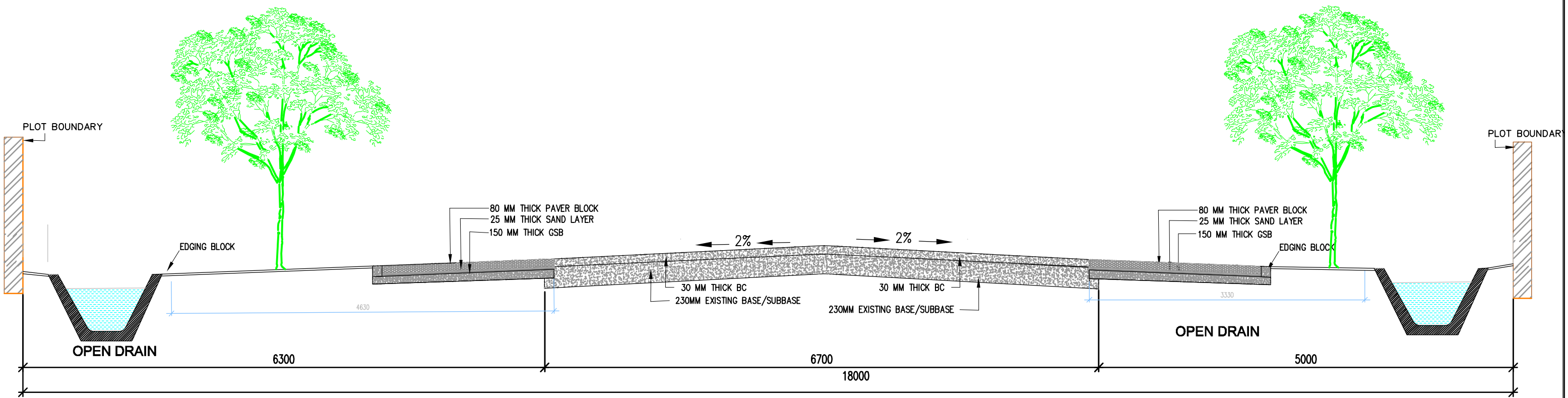
Consultants Pvt. Ltd.

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/P1/R-7

Drawing No.
DLF/P1/R-15

ROAD SECTION 18 M
DLF PHASE 1
GURGAON
(SPECIAL REPAIR)



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 1 GURGAON (HR).

Client: MUNICIPAL CORPORATION GURGAON

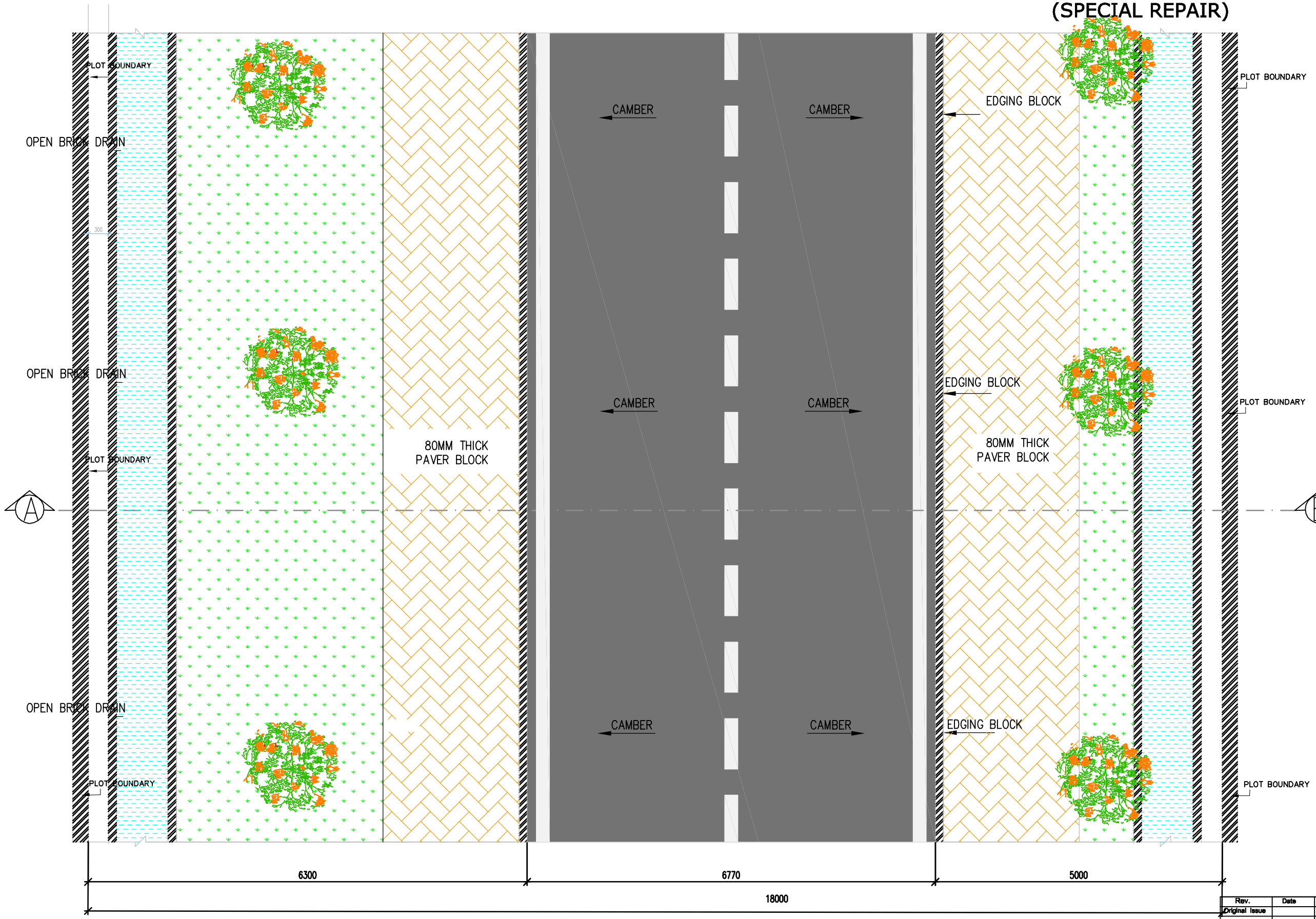
Services Planned & Designed by:

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/P1/R-15

Drawing No.
DLF/P1/R-14

PLAN OF 18 M
DLF PHASE 1
GURGAON
(SPECIAL REPAIR)



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

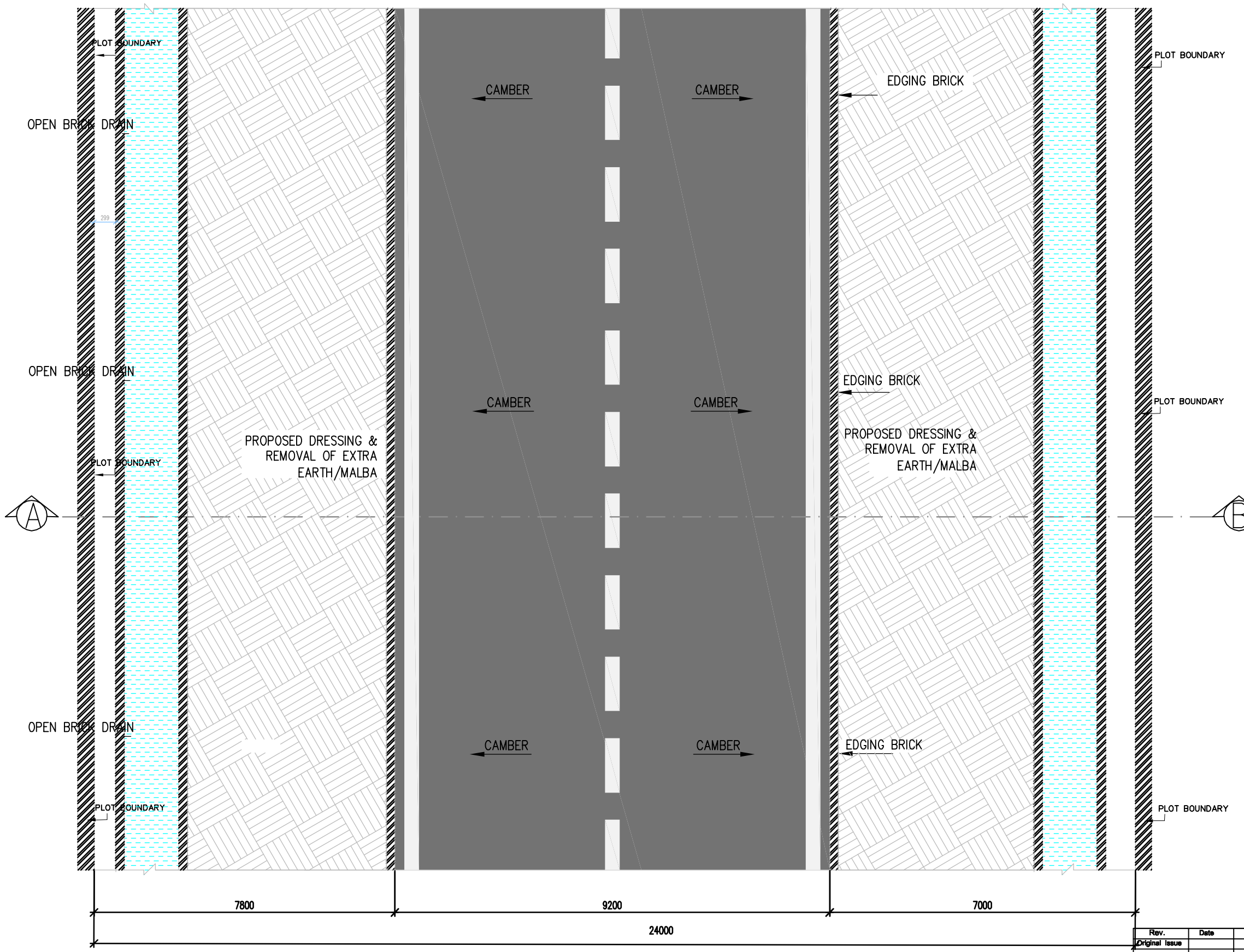
Title: ROAD PLAN 18M.
Project: DLF PHASE 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

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/P1/R-14

PLAN OF 24 M
DLF PHASE 1
GURGAON
(EXISTING ROAD)

Drawing No.
DLF/P1/R-8



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

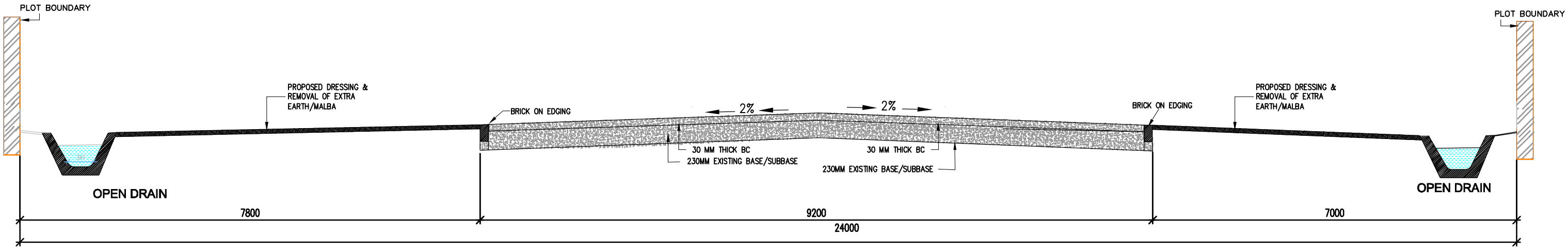
Title: ROAD PLAN 24M
Project: DLF PHASE 1 GURGAON (HR).
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
303-304,DLF RTAR TOW
SECTOR-10,Gurgaon 122
Ph: 0124-4034
FAX: 4034

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/P1/R-8

Drawing No.
DLF/P1/R-9

ROAD SECTION 24 M
DLF PHASE 1
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 Bul

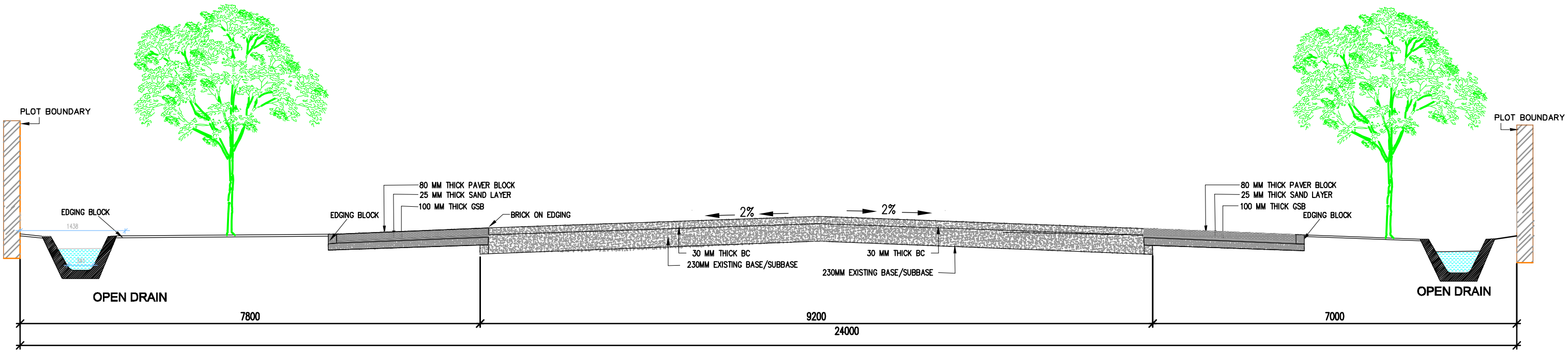
Title:	ROAD X - SECTION 24M.
Project:	DLF PHASE 1 GURGAON (HR).
Client:	MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
303-304,DLF STAR TOWER SECTOR-30,Gurgaon- 12 Ph: 0124-409 FAX: 409

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/P1/R-9

Drawing No.
DLF/P1/R-17

ROAD SECTION 24 M
DLF PHASE 1
GURGAON
(SPECIAL REPAIR)



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 1 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

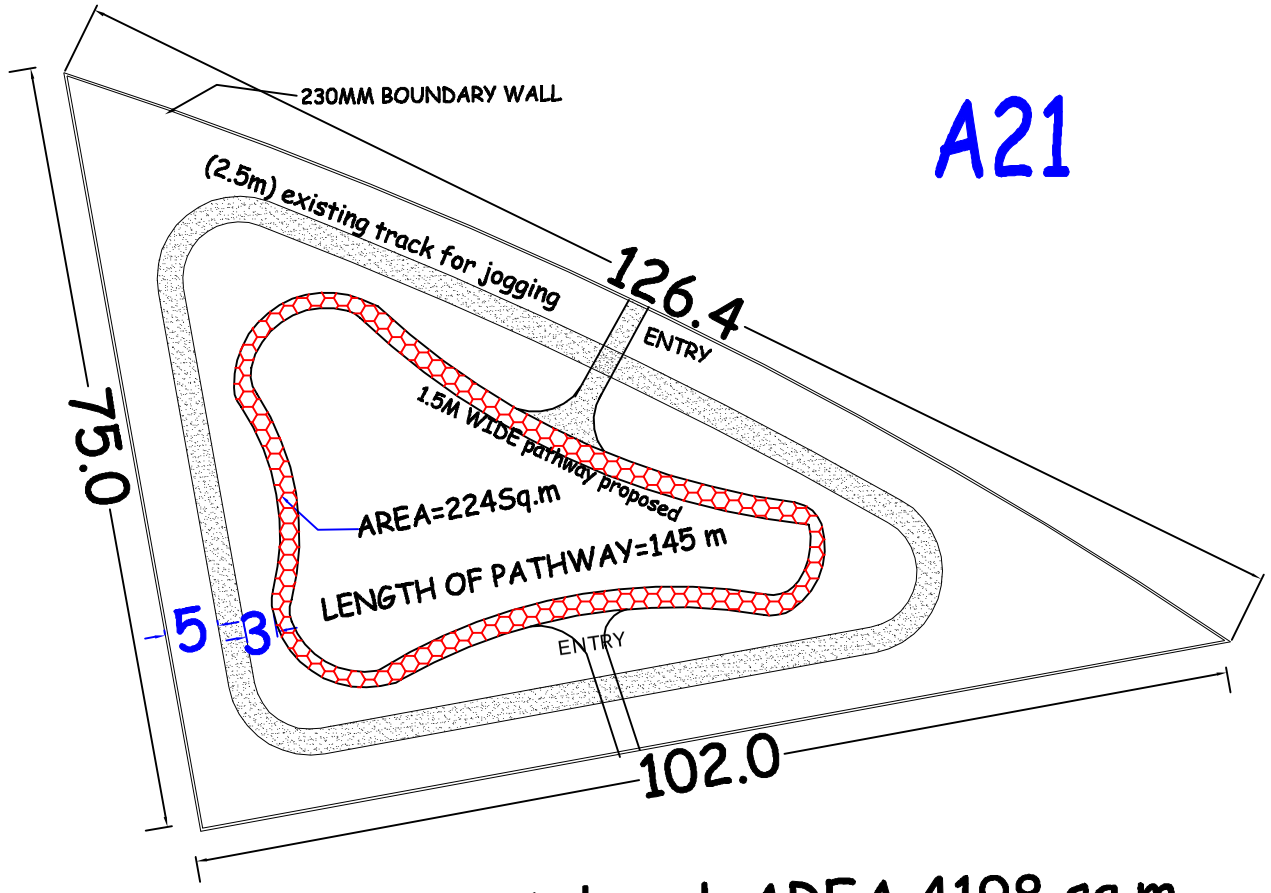
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	KAMAL	DLF/P1/R-17

DRG.NO.
MCG/DLF/P1

ADDITIONAL HORTICULTURE WOR

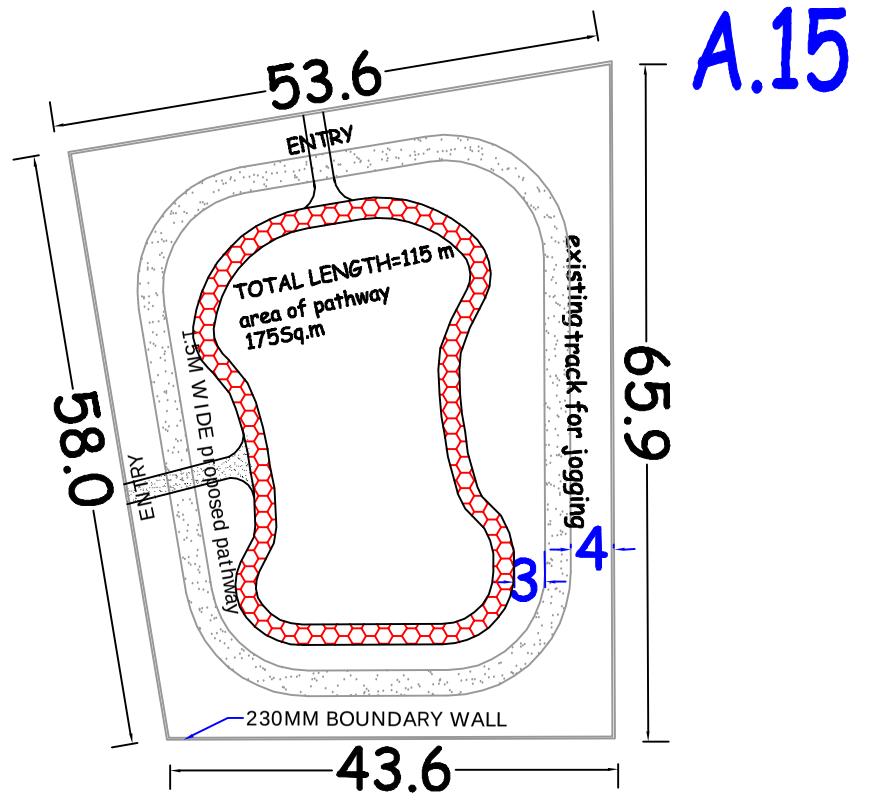
UPGRADATION OF AVAILABLE
INFRASTRUCTURE OF DLF PHASE
GURUGRAM

A21



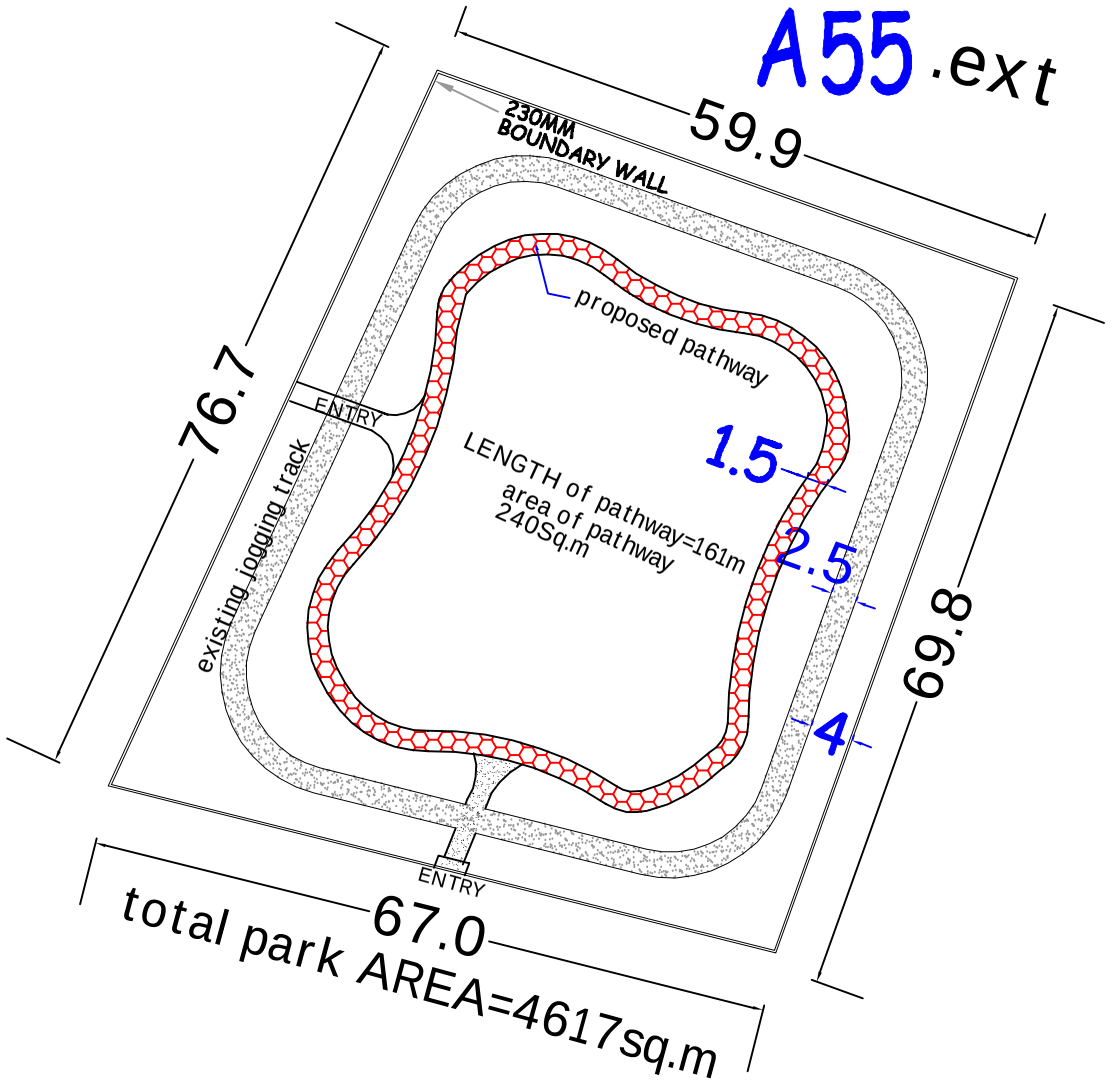
total park AREA 4198 sq.m

A.15



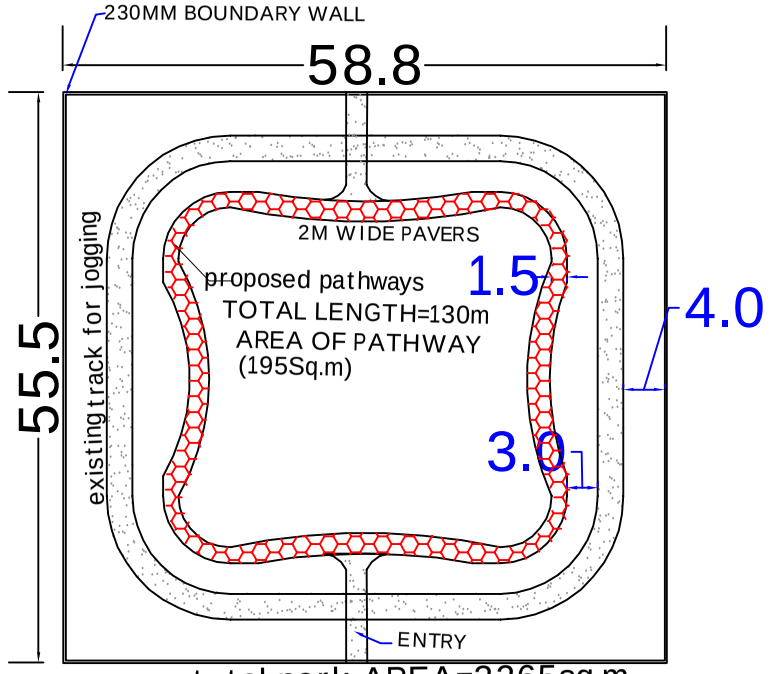
total park AREA 3600 sq.m

A55.ext



total park AREA=4617sq.m

B.1



total park AREA=3265sq.m

LEGEND:-

- PROPOSED PATHWAY
- EXISTING JOGGING TRACK

Rev.	Date	Description
Revision		

Concept	Submission	DPR	Tender	GFC	As Built

Title: PARK DRAWING

Project: DLF CITY PHASE-I, GURGAON.

Client: Municipal corporation Gurgaon

Consultants: Director Infrastructure for ky Consultants Pvt.Ltd
303-304, Star tower
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

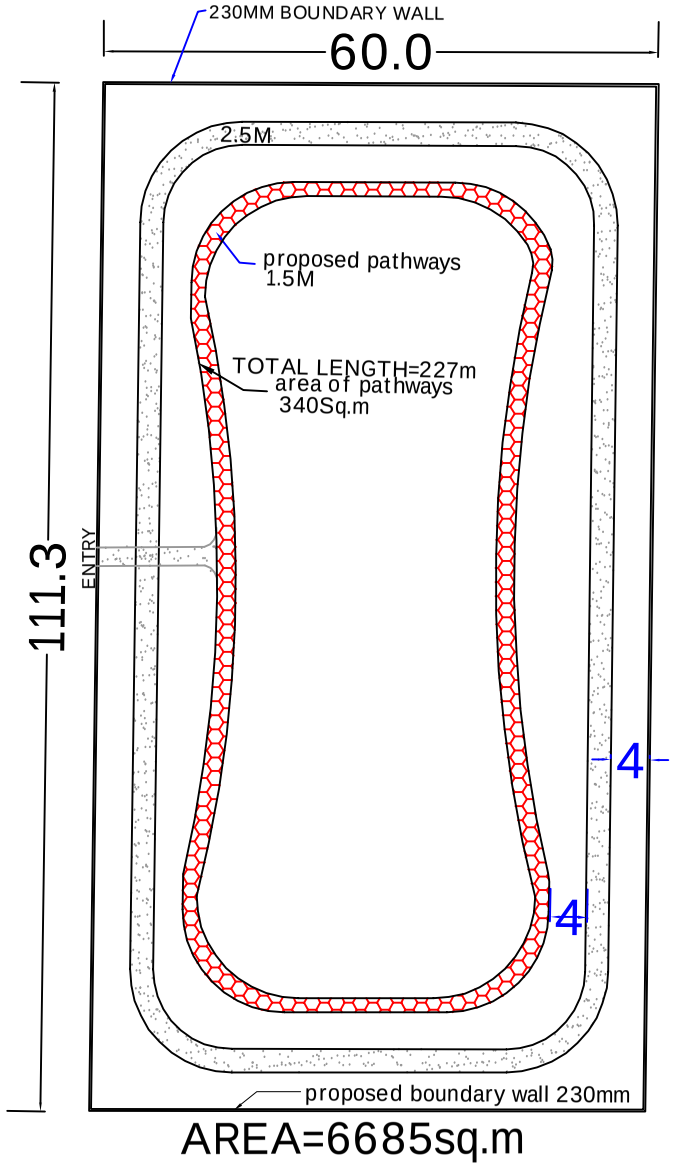
Services Planned & Designed by: Consultants Pvt. Ltd.

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	MCG/DLF/P1

DRG.NO.
MCG/DLF/P2

ADDITIONAL HORTICULTURE WOR

UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE I GURUGRAM

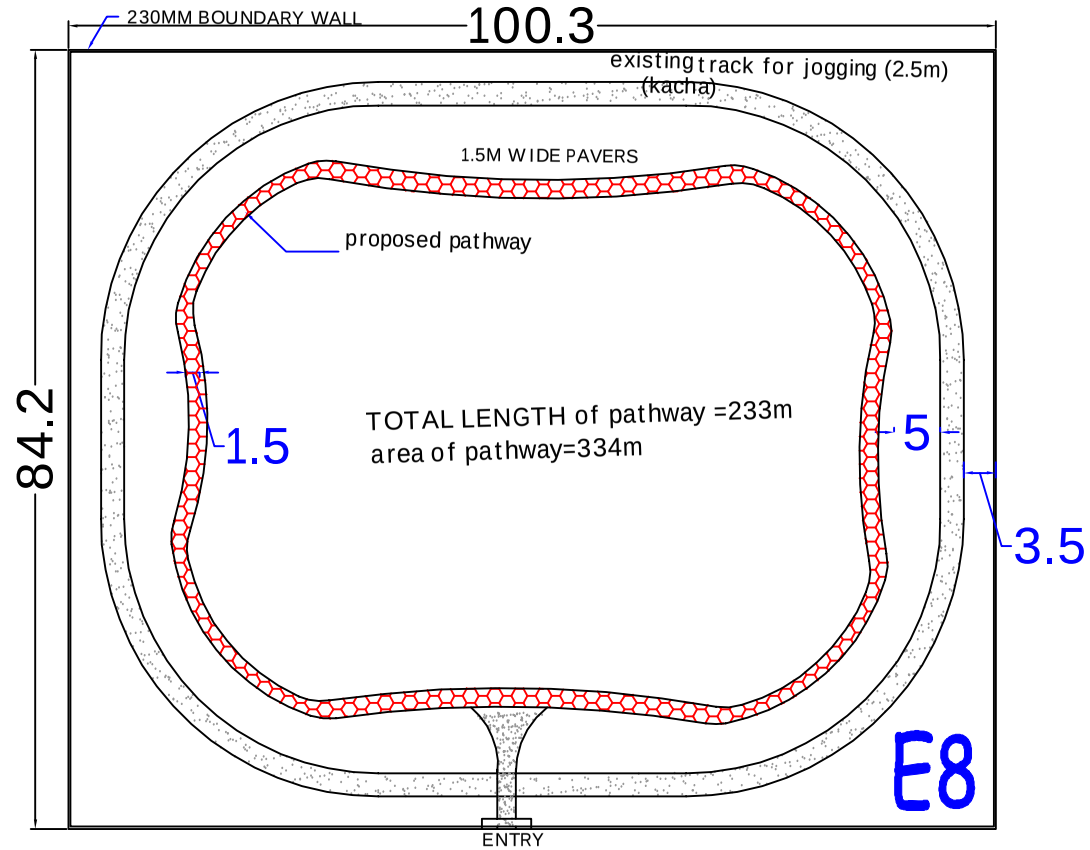


B8

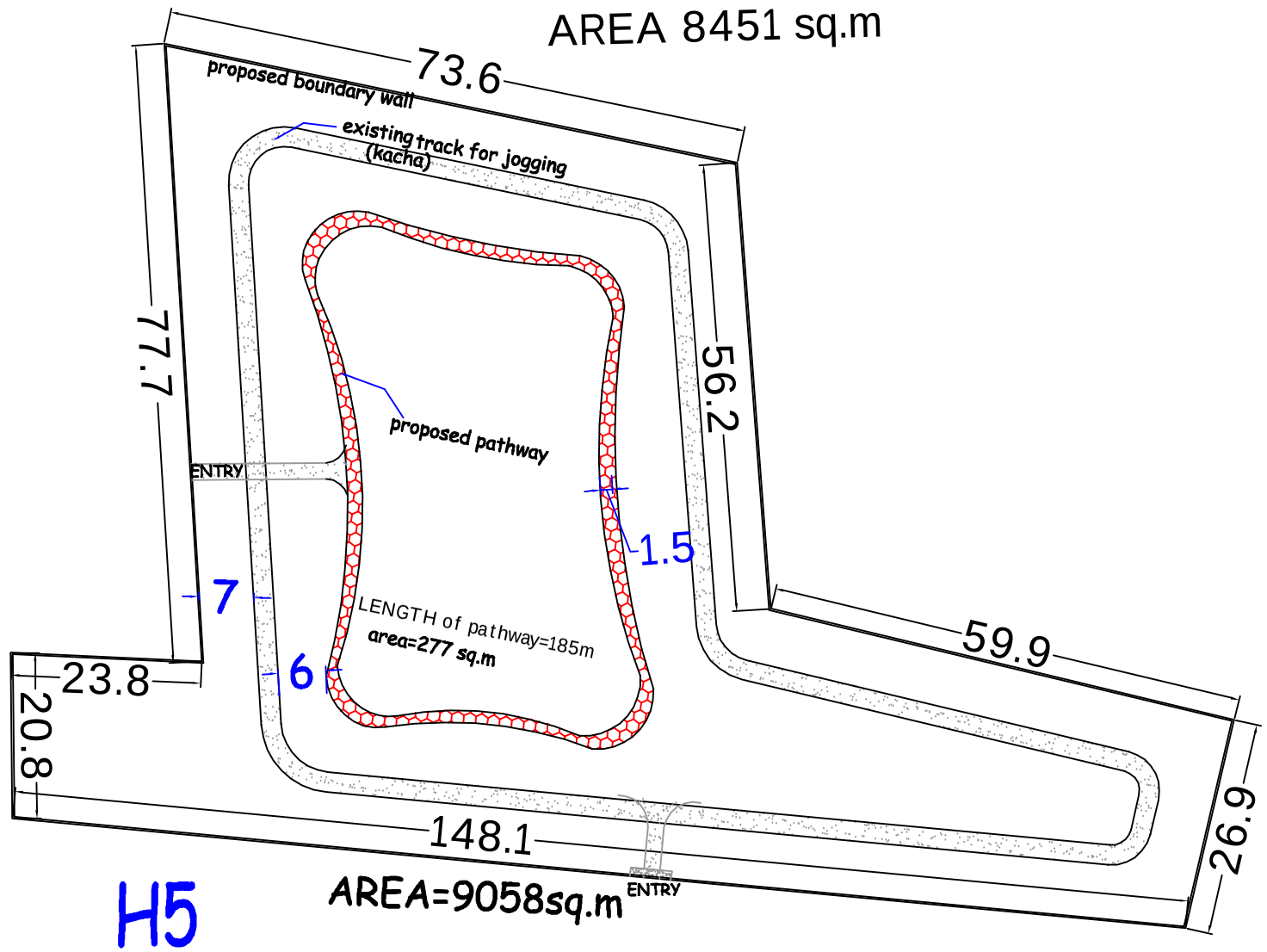
AREA=6685sq.m

AREA 4380sq.m

G12



AREA 8451 sq.m



AREA=9058sq.m

H5

LEGEND:-

- PROPOSED PATHWAY
- EXISTING JOGGING TRACK

Rev.	Date	Description
Revision		

Concept	Submission	DPR	Tender	GFC	As Built

Title: PARK DRAWING

Project: DLF CITY PHASE-I, GURGAON.

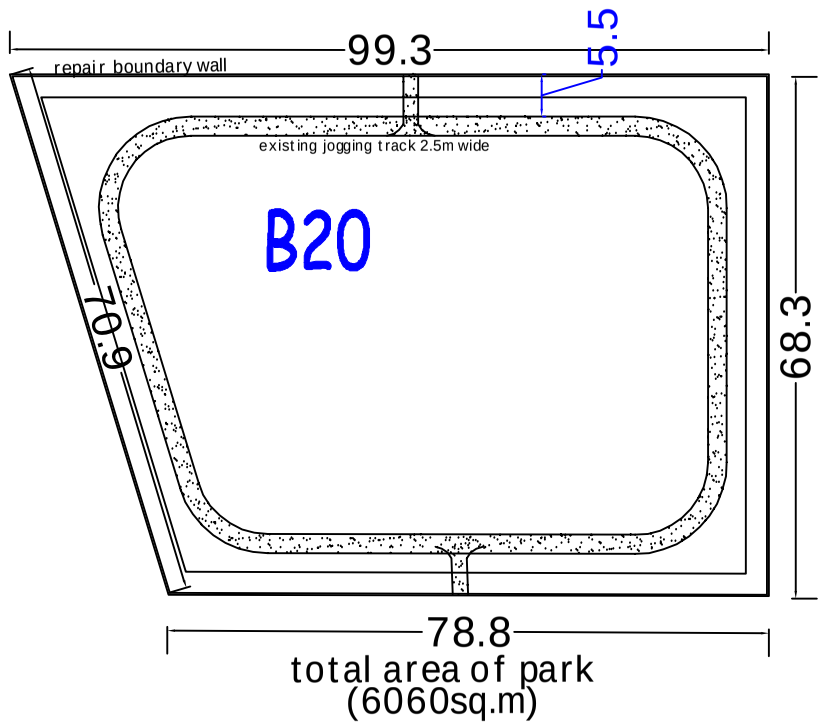
Client: Municipal corporation Gurgaon

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

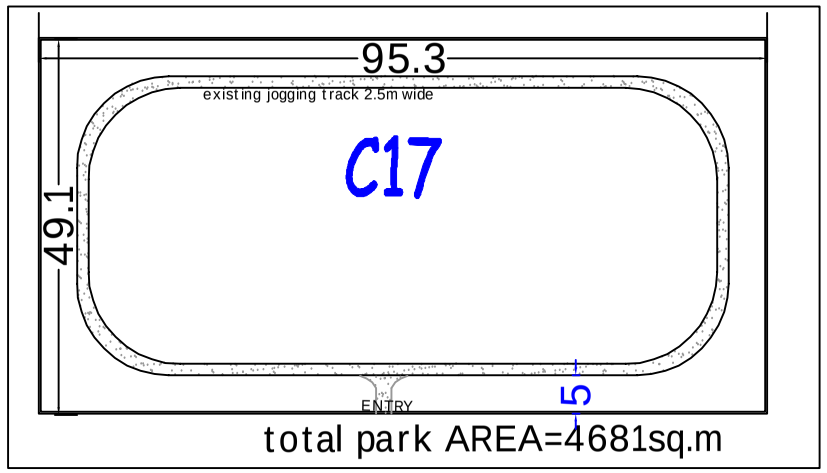
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	MCG/DLF/P2

DRG.NO.
MCG/DLF/P3

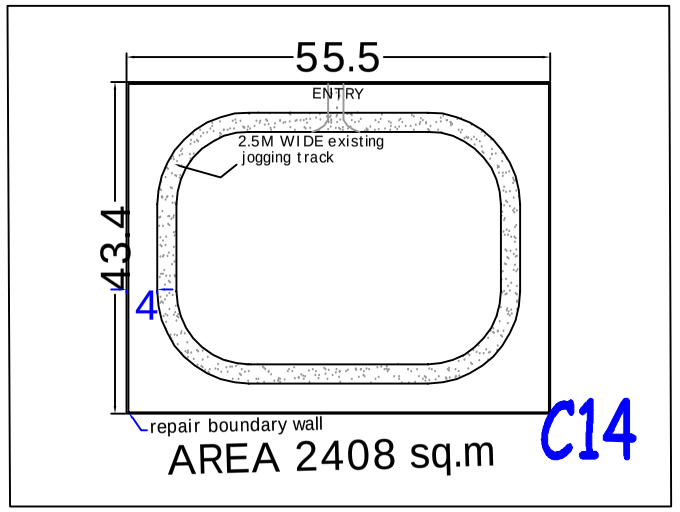
PARKS
UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE I GURUGRAM



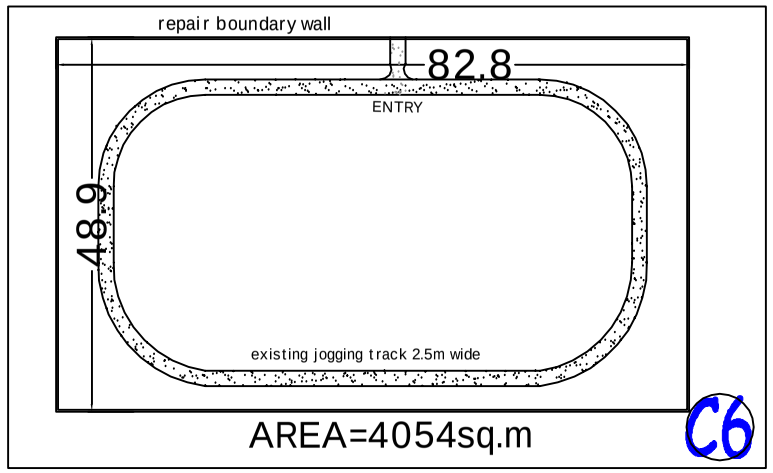
total area of park
(6060sq.m)



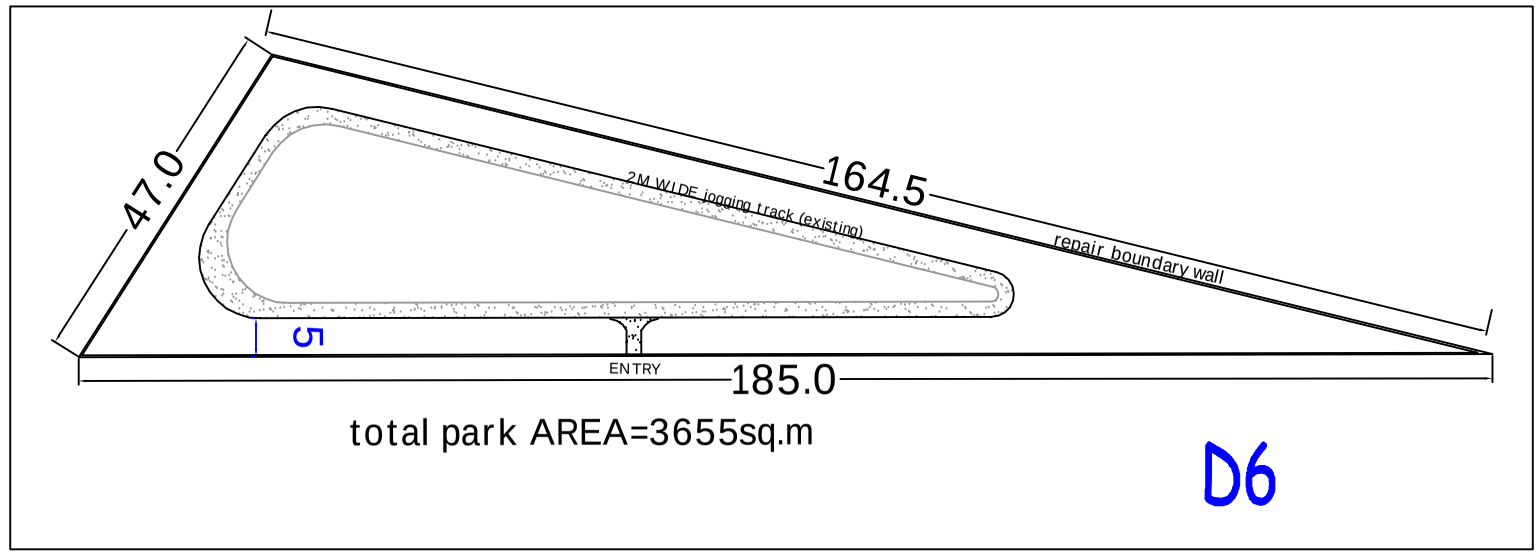
total park AREA=4681sq.m



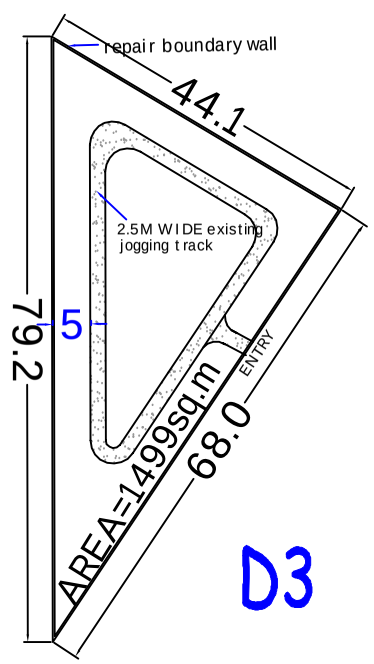
AREA 2408 sq.m

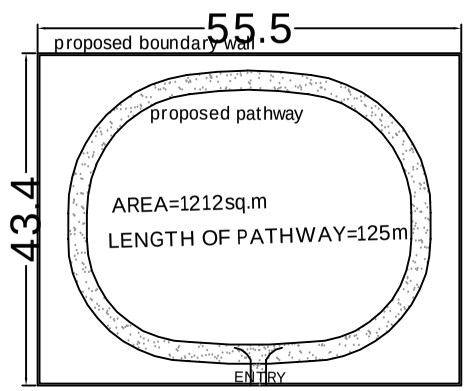


AREA=4054sq.m



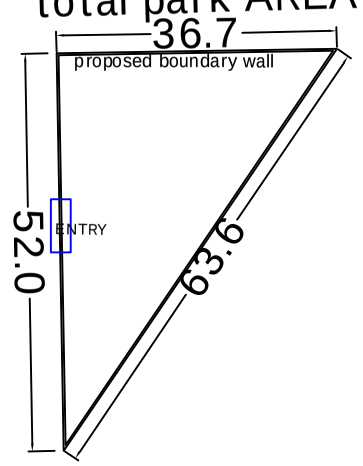
total park AREA=3655sq.m





total AREA 2408 sq.m

total park AREA 953 sq.m



LEGEND:-

EXISTING JOGGING TRACK

Rev.	Date	Description

Revision

Concept	Submission	DPR	Tender	GFC	As Built

Title: PARK DRAWING

Project: MUNICIPAL CORPORATION GURGAON

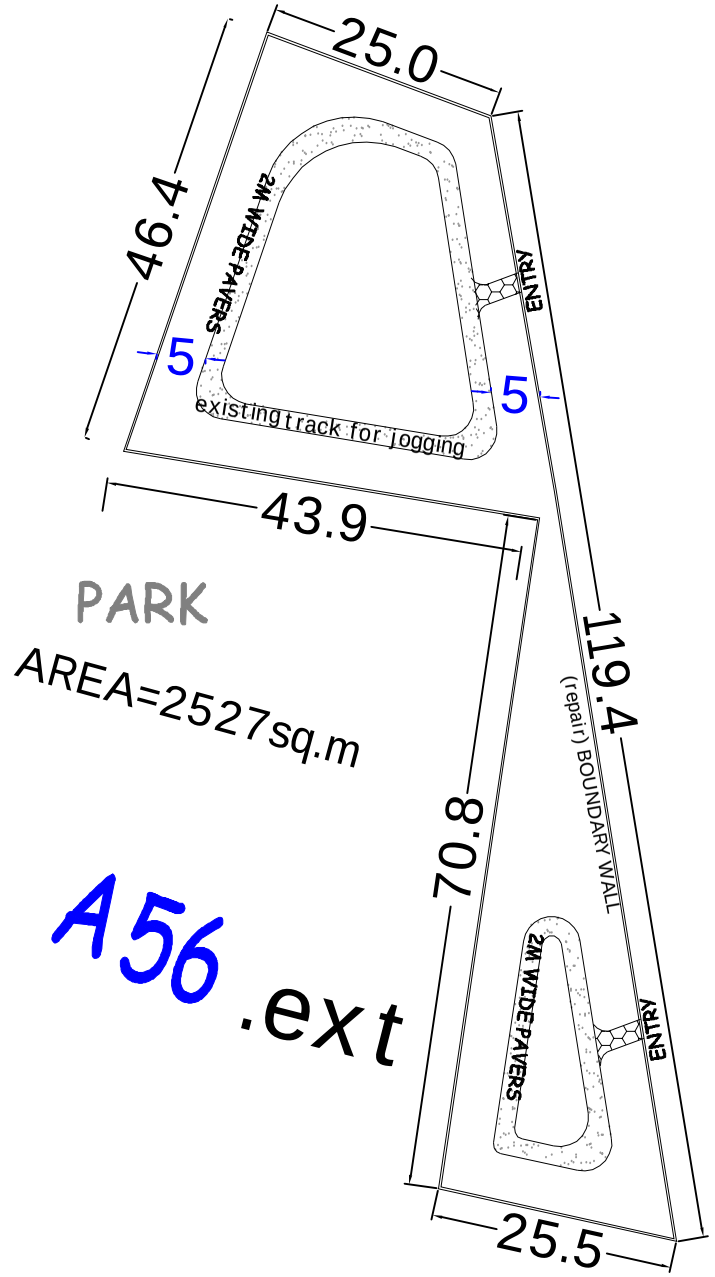
Client: Municipal corporation Gurgaon

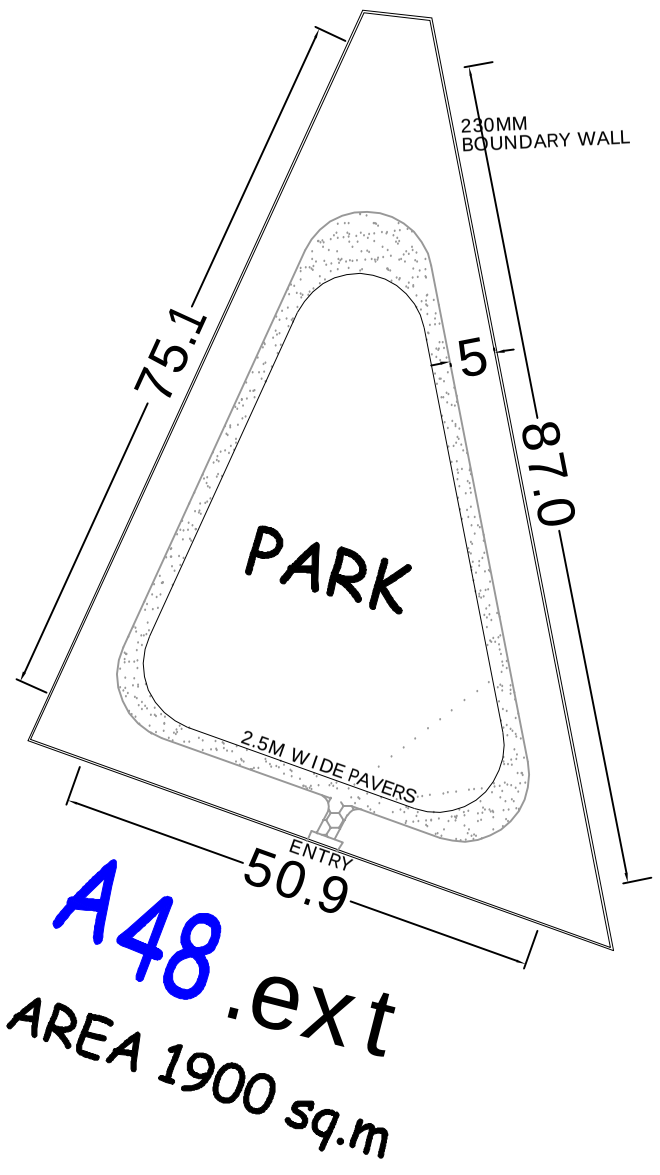
Consultants: Director Infrastructure for ky Consultants Pvt.Ltd

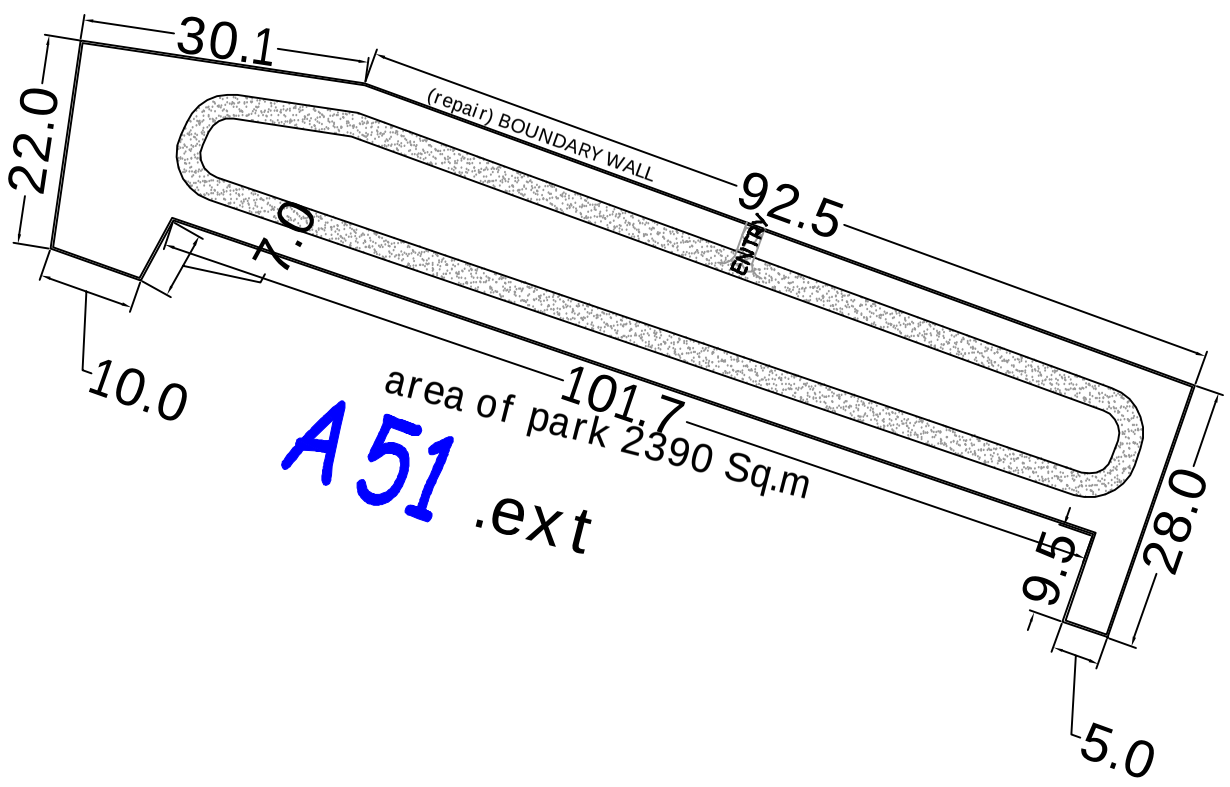
Services Planned & Designed by: Consultants Pvt. Ltd.

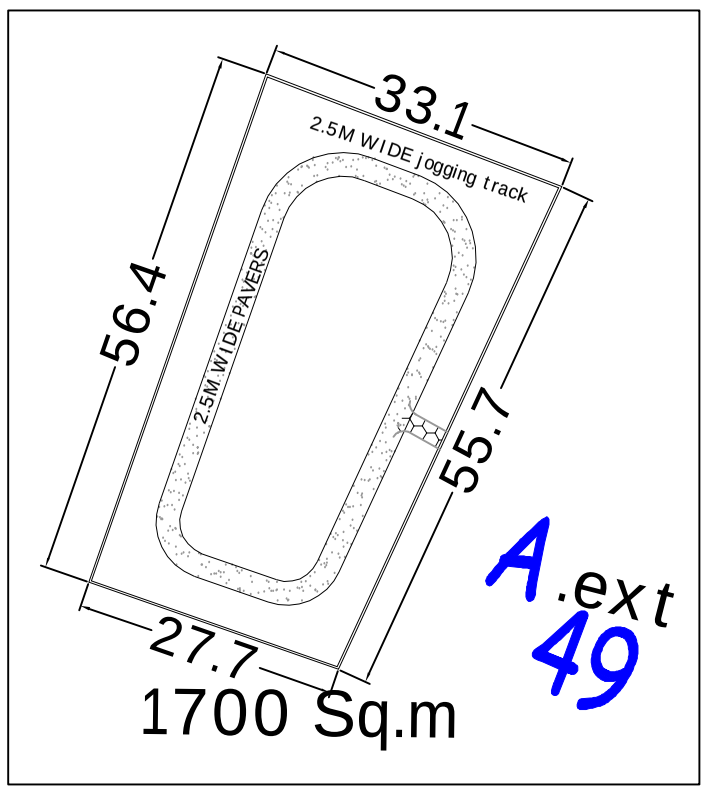
303-304, Star tower
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	MCG/DLF/P3









DRG.NO.
MCG/DLF/P4

PARKS

UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE I GURUGRAM

LEGEND:-

EXISTING JOGGING TRACK

Rev.	Date	Description

Revision

Concept	Submission	DPR	Tender	GFC	As Built

Title: PARK DRAWING

Project: MUNICIPAL CORPORATION GURGAON

Client: Municipal corporation Gurgaon

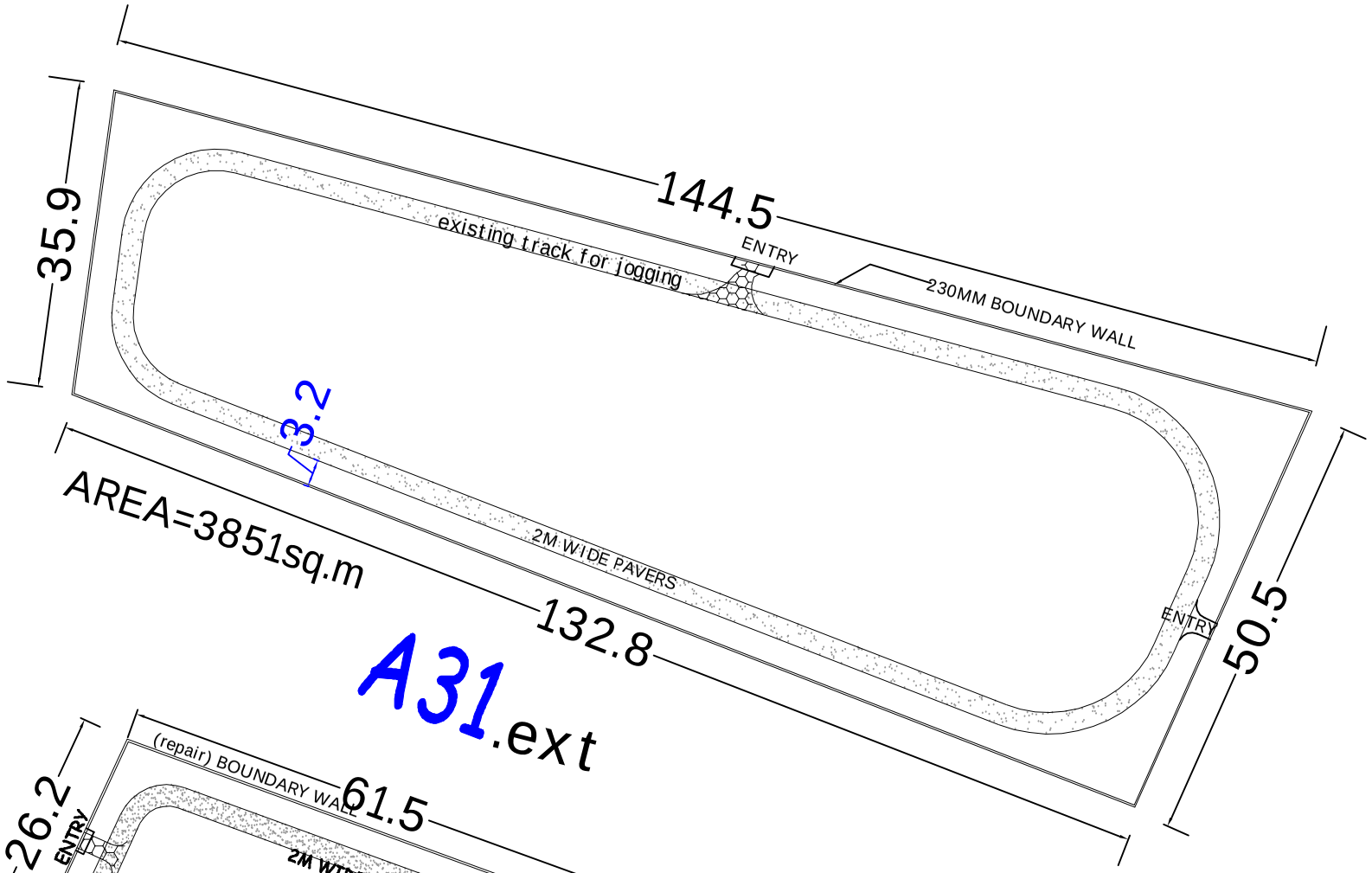
Consultants: Director Infrastructure for ky Consultants Pvt.Ltd
Services Planned & Designed by: Consultants Pvt. Ltd.
303-304, Star tower
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

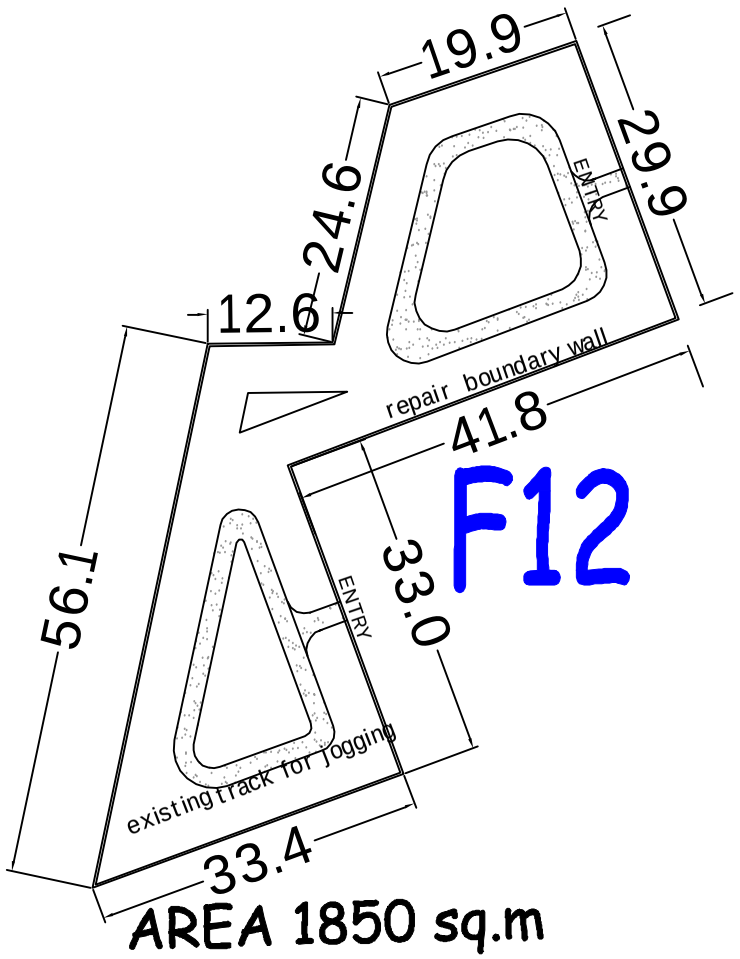
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.Arora	Ajay Sharma	MCG/DLF/P4

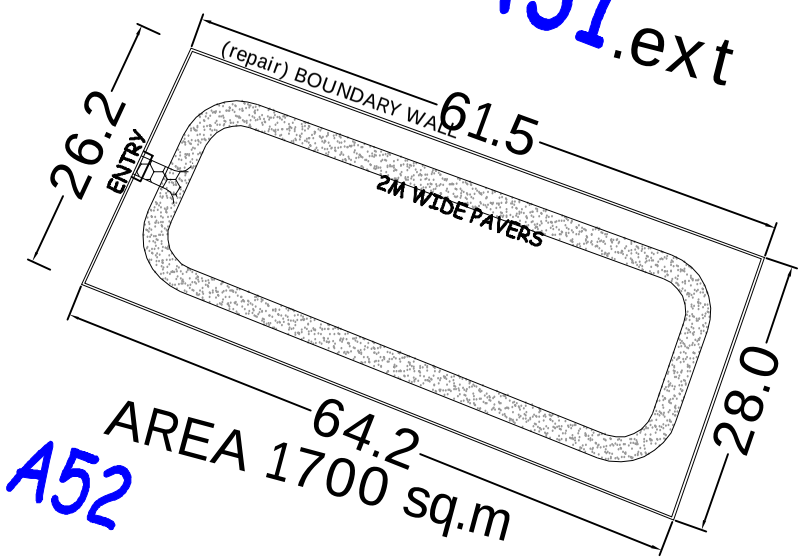
DRG.NO.
MCG/DLF/P5

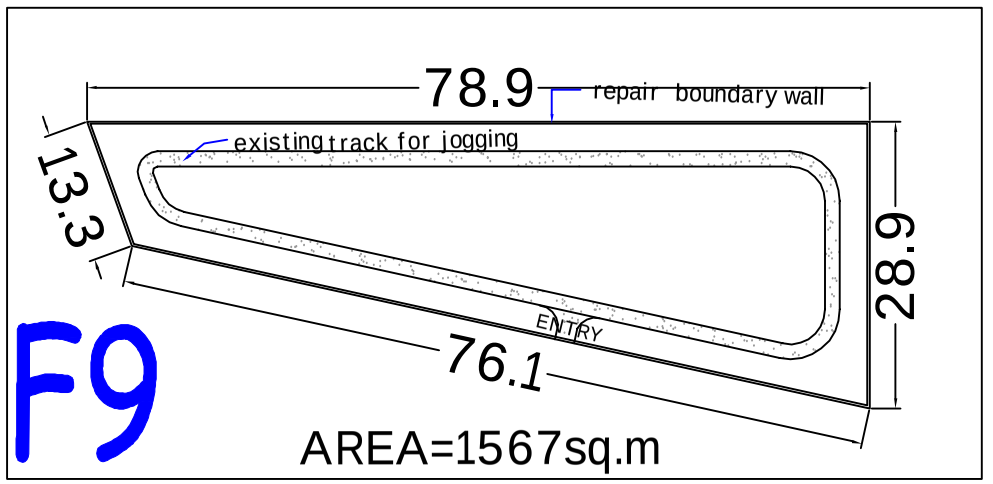
PARKS

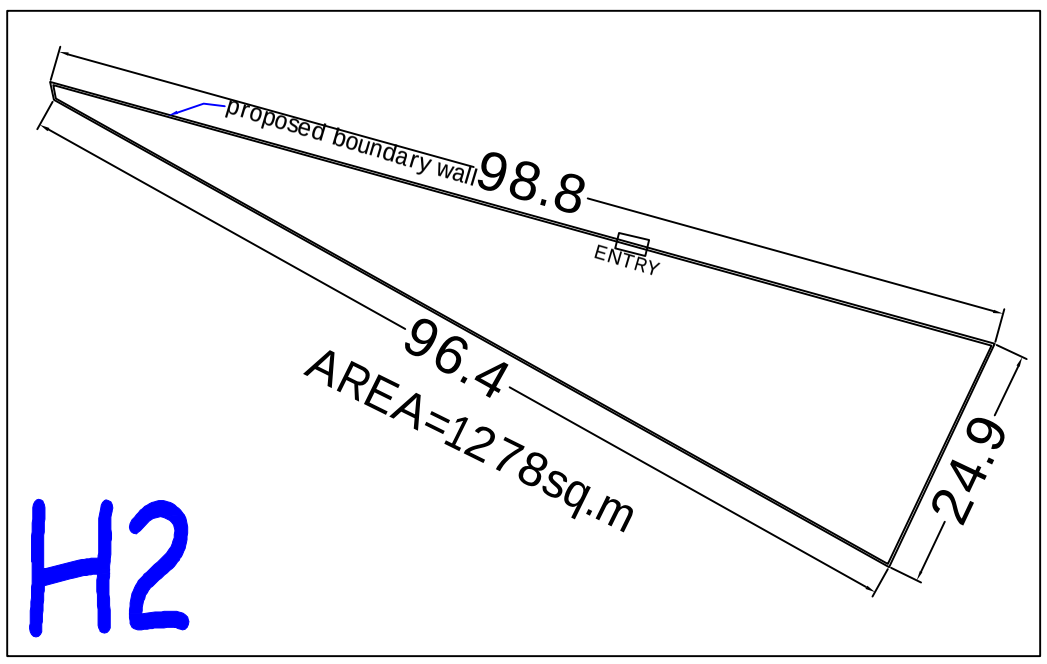
UPGRADATION OF AVAILABLE INFRASTRUCTURE OF DLF PHASE I GURUGRAM

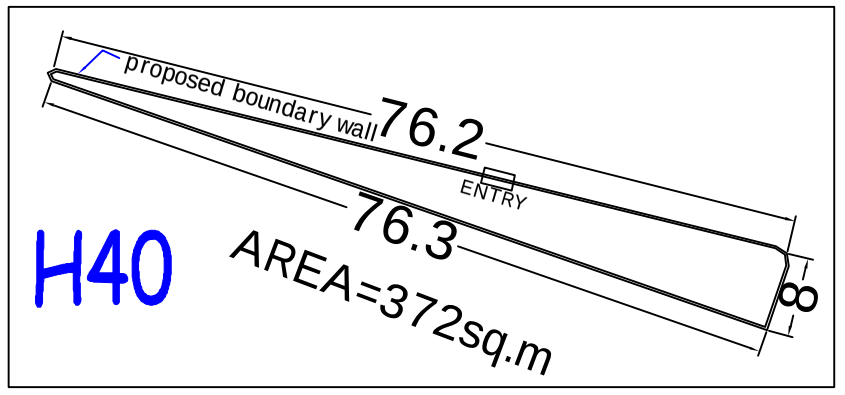












LEGEND:-

EXISTING JOGGING TRACK

Rev.	Date	Description

Revision

Concept	Submission	DPR	Tender	GFC	As Built

Title: PARK DRAWING

Project: MUNICIPAL CORPORATION GURGAON

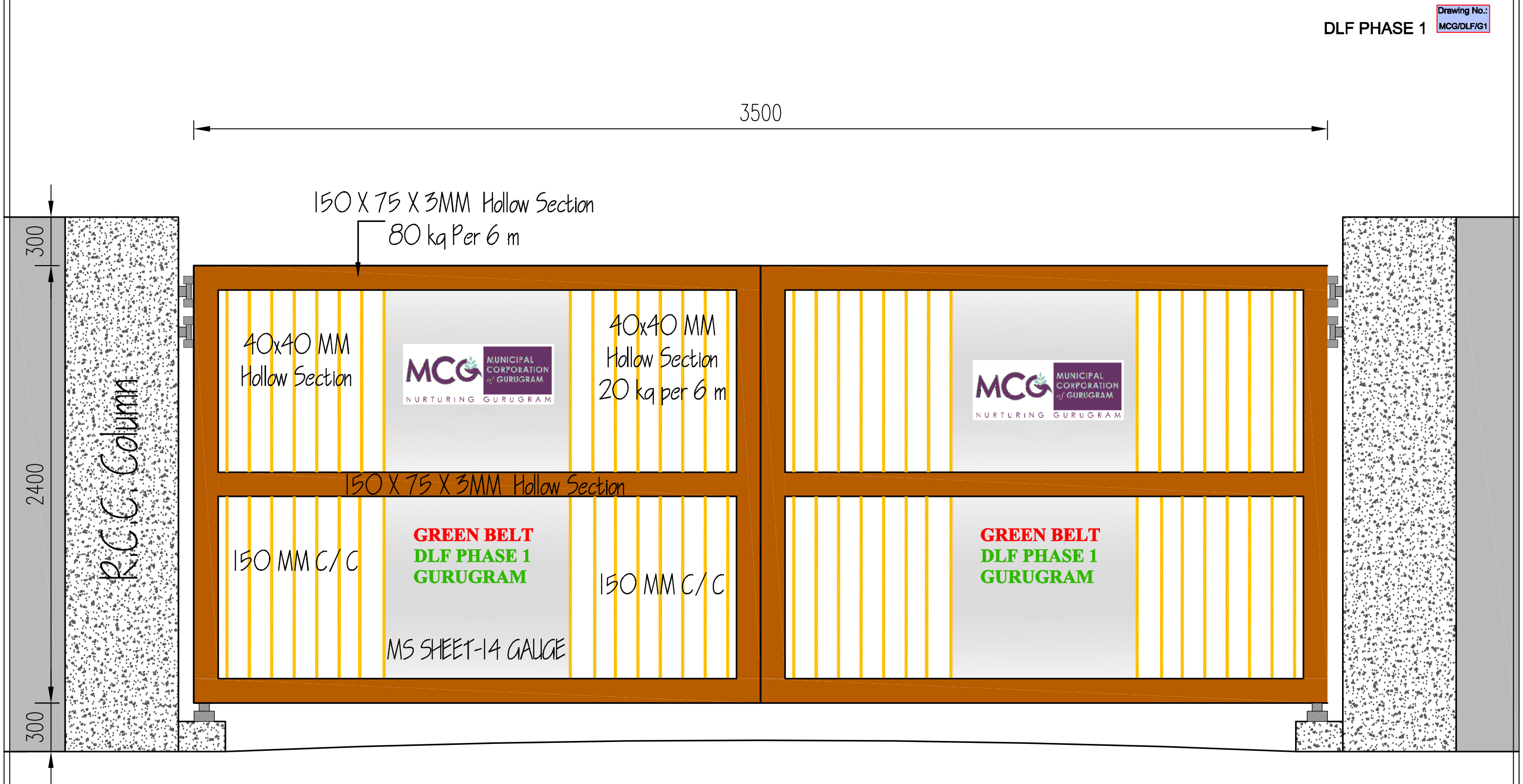
Client: Municipal corporation Gurgaon

Consultants: Director Infrastructure for ky Consultants Pvt.Ltd
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.Arora	Ajay Sharma	MCG/DLF/P4

DLF PHASE 1

Drawing No.: MCG/DLF/G1



Notes:-

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

Original Issue					
Rev.	Date	Description			
Revision					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Details of Gate

Project: DLF PHASE 1 GURUGRAM (Haryana)

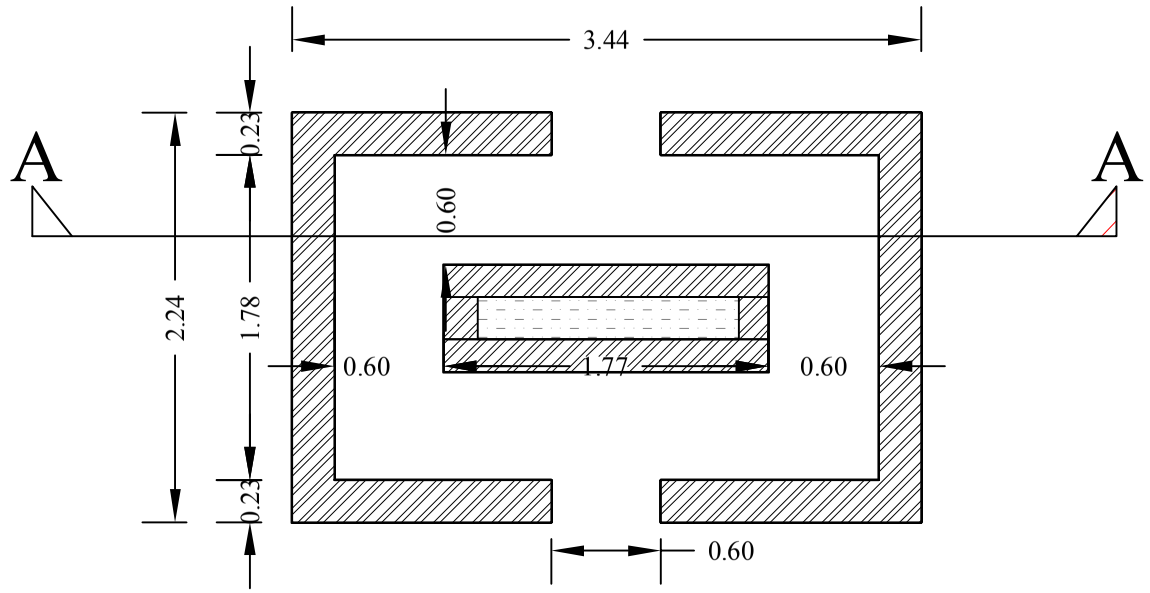
Client: MUNICIPAL CORPORATION GURUGRAM

Consultants: Director Infrastructure for ky Consultants Pvt.Ltd

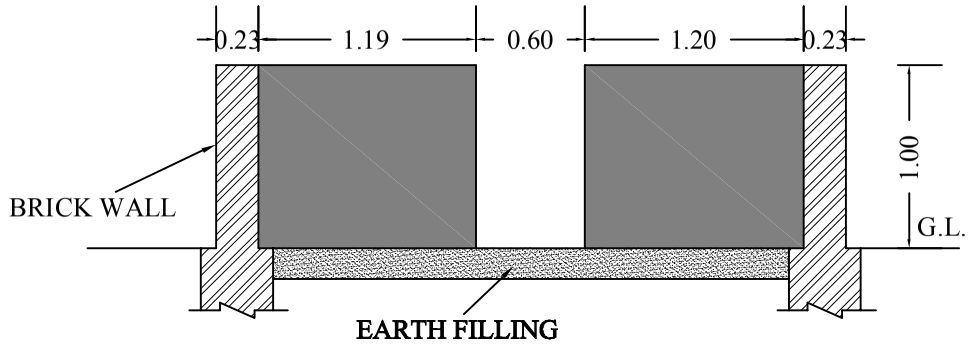
Services Planned & Designed by: Consultants Pvt. Ltd.

72 P,Sector 40, Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

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



PLAN OF BRICK GATE



SECTION A-A

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

Original Issue		1-09-2016			
Rev.	Date	Description			
Revision					
Concept	Submission	DPR	Tender	GFC	As Built

Title: GATE DESIGN 2

Project: DLF PHASE 1 GURGAON

Client: MUNICIPAL CORPORATION GURUGRAM

Consultants: Director Infrastructure for ky Consultants Pvt.Ltd
Services Planned & Designed by: 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	KAMAL	MCG/DLF/G2

Drawing No.
MCG/DLF/WS

UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

GURGAON-MEHRAULI ROAD

TO GURGAON

TO GURGAON

TO NH-8

HUDA MAIN

CONN. FROM HUDA MAIN

HUDA MAIN

30M WIDE SECTOR ROAD TO PHASE IV

30M WIDE SECTOR ROAD

TO DLF CITY PHASE V

TO FARIDABAD

GURGAON-FARIDABAD ROAD

RISING MAIN L=1240M

HUDA MAIN

HUDA MAIN

SHOPPING M. 2.11 ACRE

GROUP HOUSING 14.75 ACRES INCL. ENDS NURSERY SCHOOLS +1 COMMUNITY BUILDING

HIGH SCHOOL 5.186 ACRES

P.SCHOOL 4.89 AC.

COMMUNITY CENTRE 1.73 ACRES

N.SCHOOL 6.04 A

I.H.S.SCHOOL/PRIMARYSCHOOL 6.196 ACRES

DISPENSARY 1.359 ACS

1 DISPENSARY +1 HEALTH CENTRE 4.27 ACS

PARK

LEGEND :-

	BLOCK A EXTENSION
	BLOCK A
	BLOCK B
	BLOCK C
	BLOCK D
	BLOCK E
	BLOCK F
	BLOCK G
	BLOCK H
	EXISTING PIPE LINE
	PROPOSED/ADDITIONAL PIPE LINE
	EXISTING WATER WORKS

Additional Pipe Line	**Length of Pipe**	
DI K-7 Pipe		**M**
100 mm i/d pipe	2386	
150 mm i/d pipe	3534	
200 mm i/d pipe	2001	
DI K-9 Pipe		
250 mm i/d pipe	1060	
300 mm i/d pipe	584	

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: LAY OUT PLAN WATER SUPPLY

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 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.K. Gupta	KAMAL	MCG/DLF/WS

Drawing No.
MCG/DLF/SW

UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM



LEGEND :-

———	EXISTING DRAIN
●	EXISTING RECHARGE WELL
●	PROPOSED RECHARGE WELL

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: LAY OUT PLAN STORM WATER

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG MUNICIPAL CORPORATION of GURUGRAM
NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

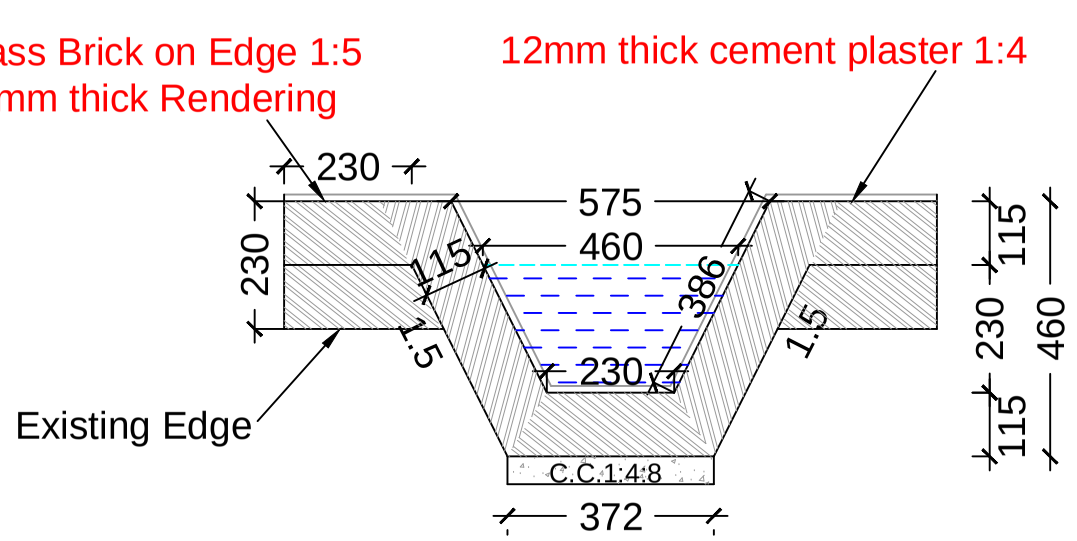
Director Infrastructure
For ky Consultants Pvt.Ltd

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

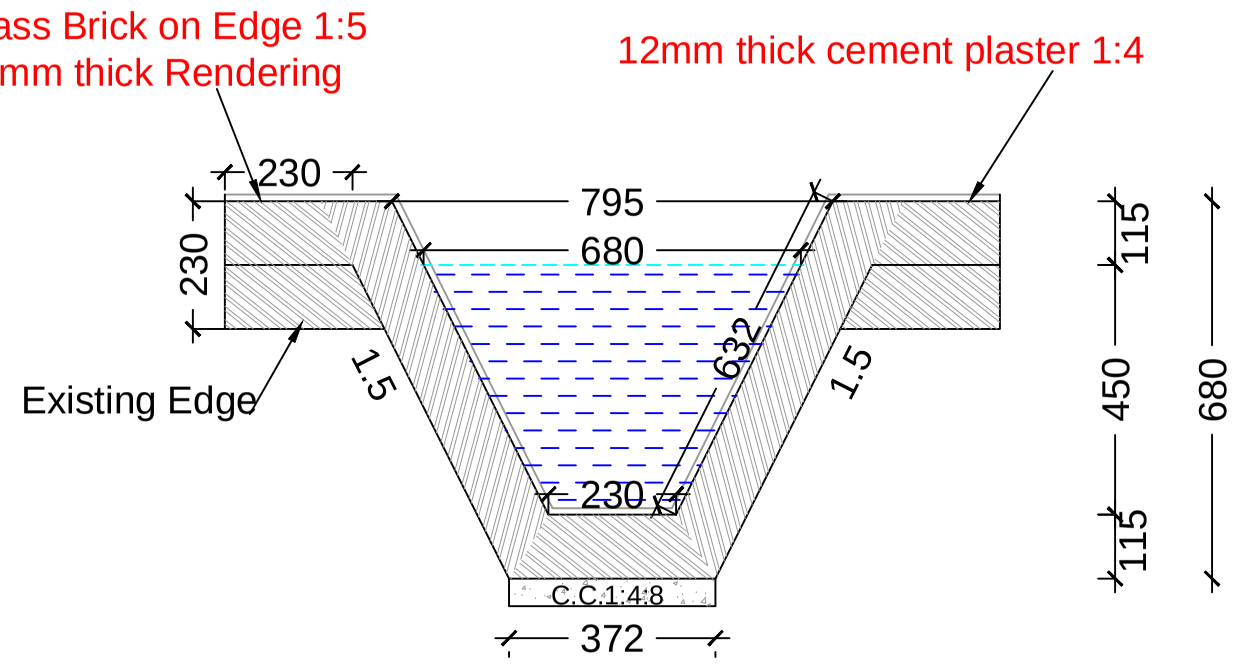
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S ARORA	KAMAL	MCG/DLF/SW

Storm Water Drainage

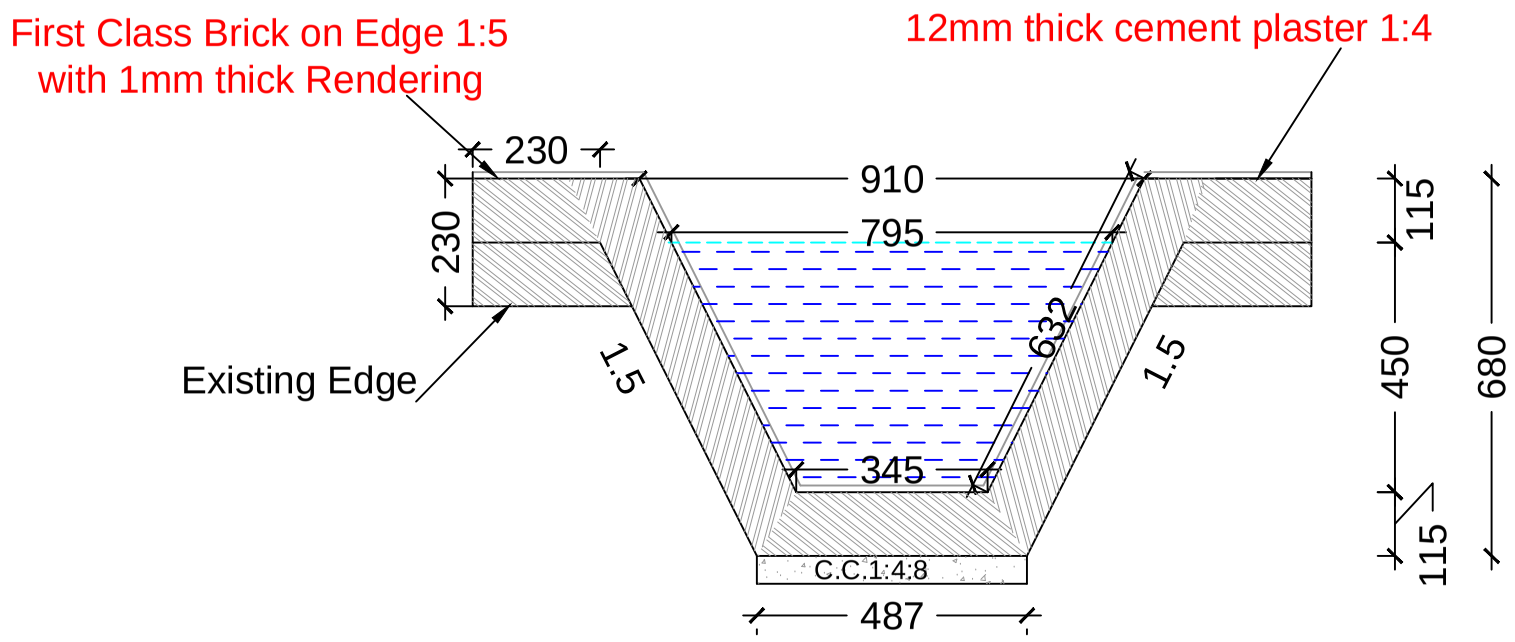
Drawing No.
DLF/D-2



Size 230mmx230mm



Size 230mmx450mm



Size 345mmx450mm

Proposed Work show in Red Colour

Date	27-07-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Drainage System

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG MUNICIPAL CORPORATION OF GURUGRAM NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

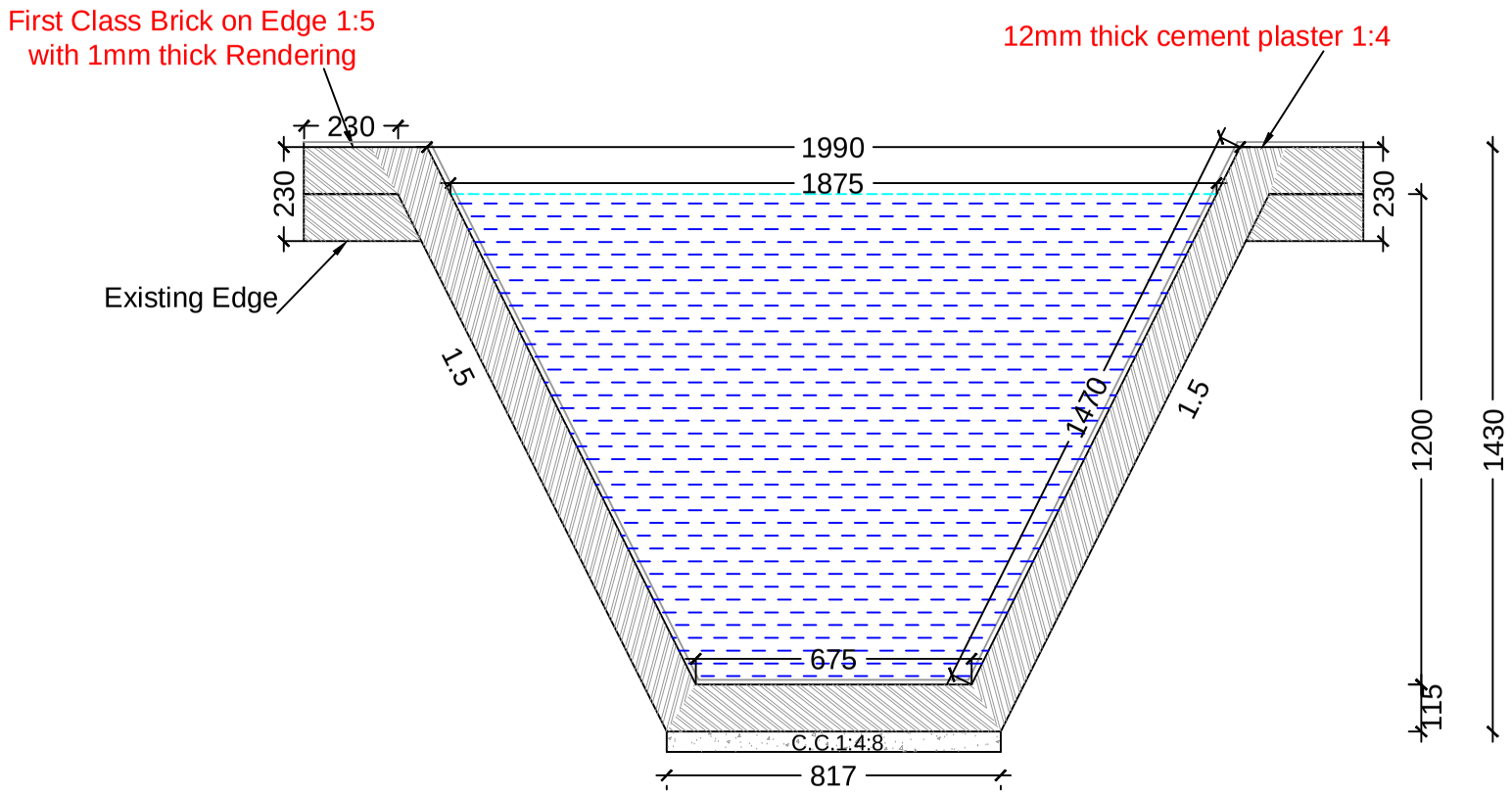
Director Infrastructure
For ky Consultants Pvt.Ltd

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

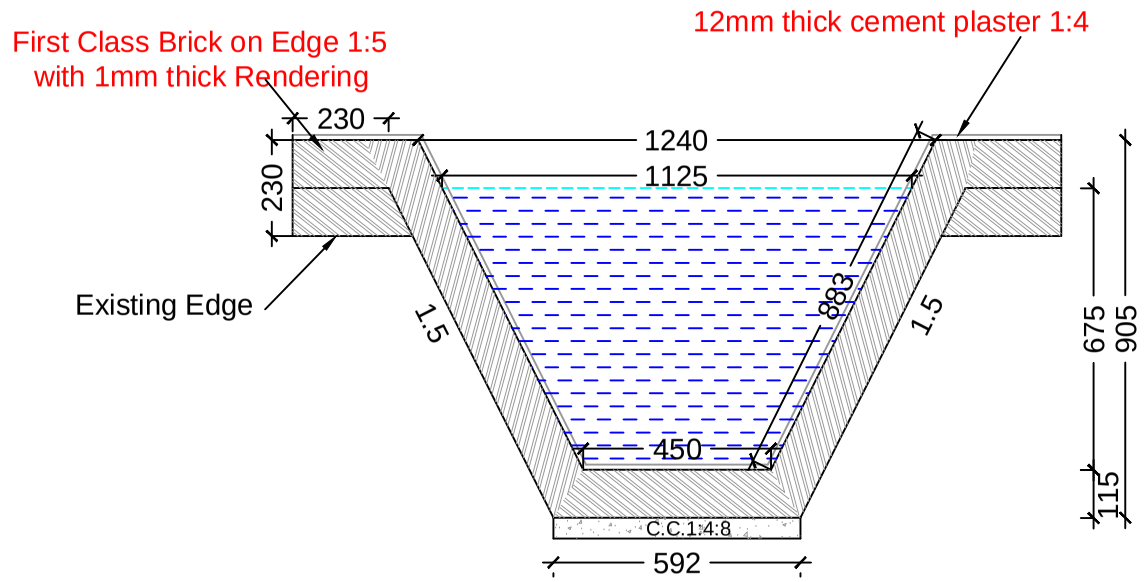
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.K. Gupta	Sunita	MCG/DLF/D-2

Storm Water Drainage

Drawing No.
DLF/D-3



Size 675mmx1200mm



Size 450mmx675mm

Proposed Work show in Red Colour

Date	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Drainage System

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

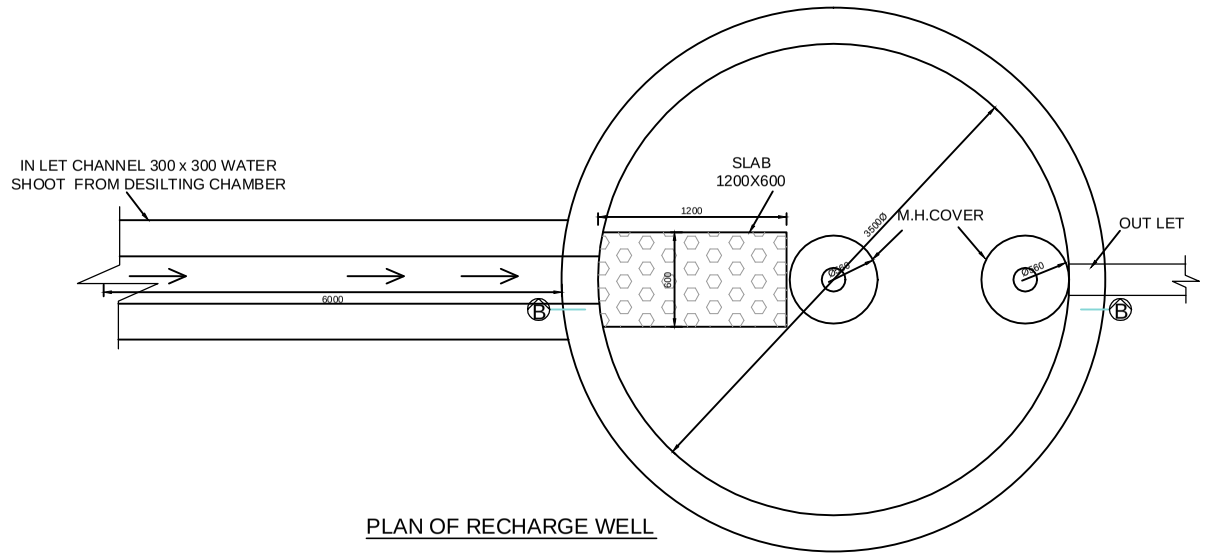
Director Infrastructure
For ky Consultants Pvt.Ltd

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

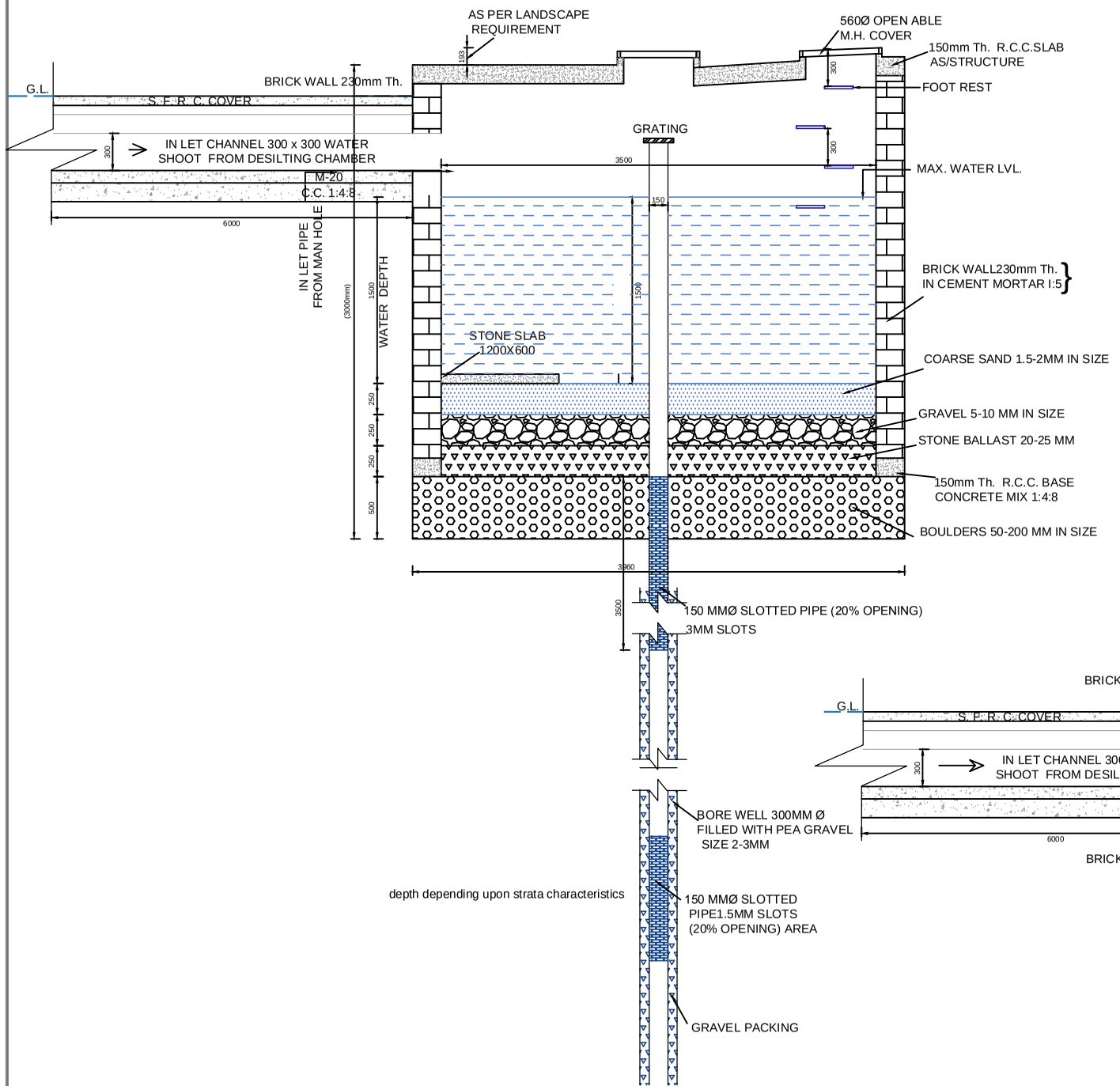
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S.K. Gupta	Sunita	MCG/DLF/D-3

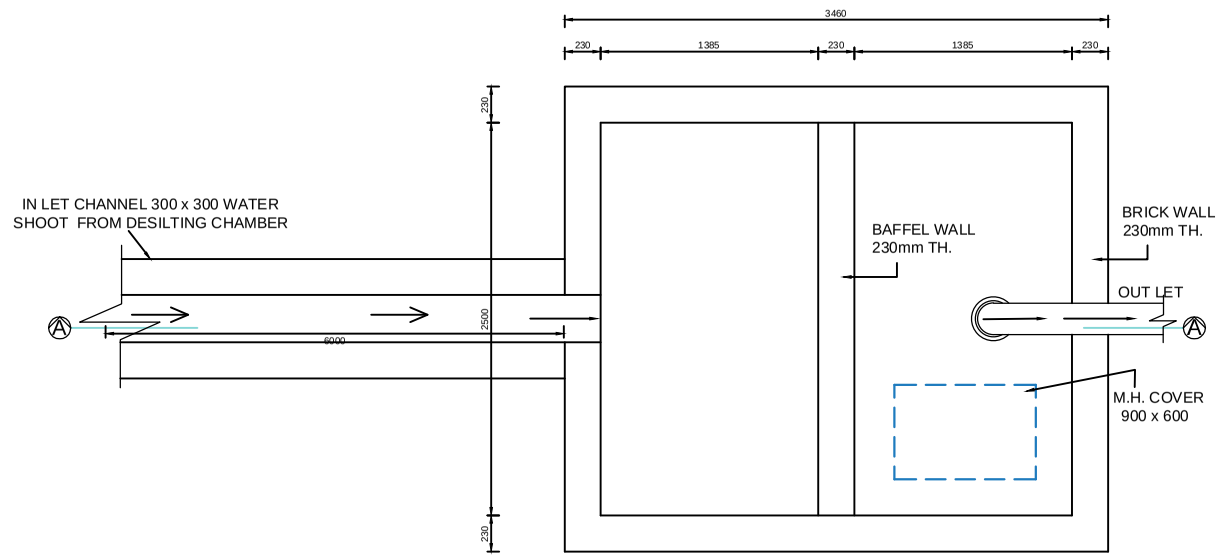
Recharge Well

Drawing No.
DLF/D-4

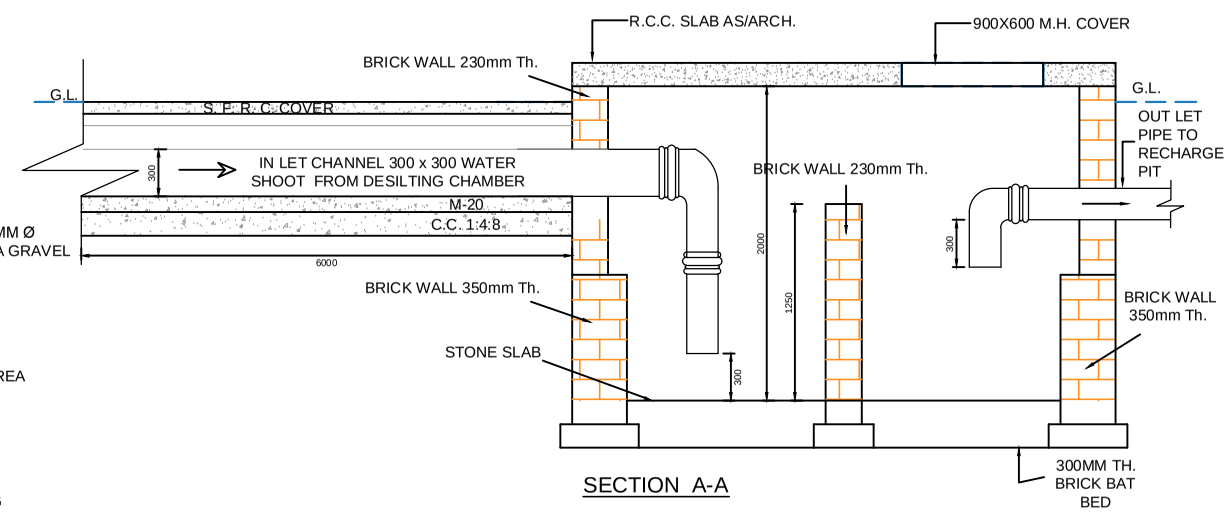


PLAN OF RECHARGE WELL





PLAN OF DESALTING CHAMBER



SECTION A-A

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

Date	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Recharge Well

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

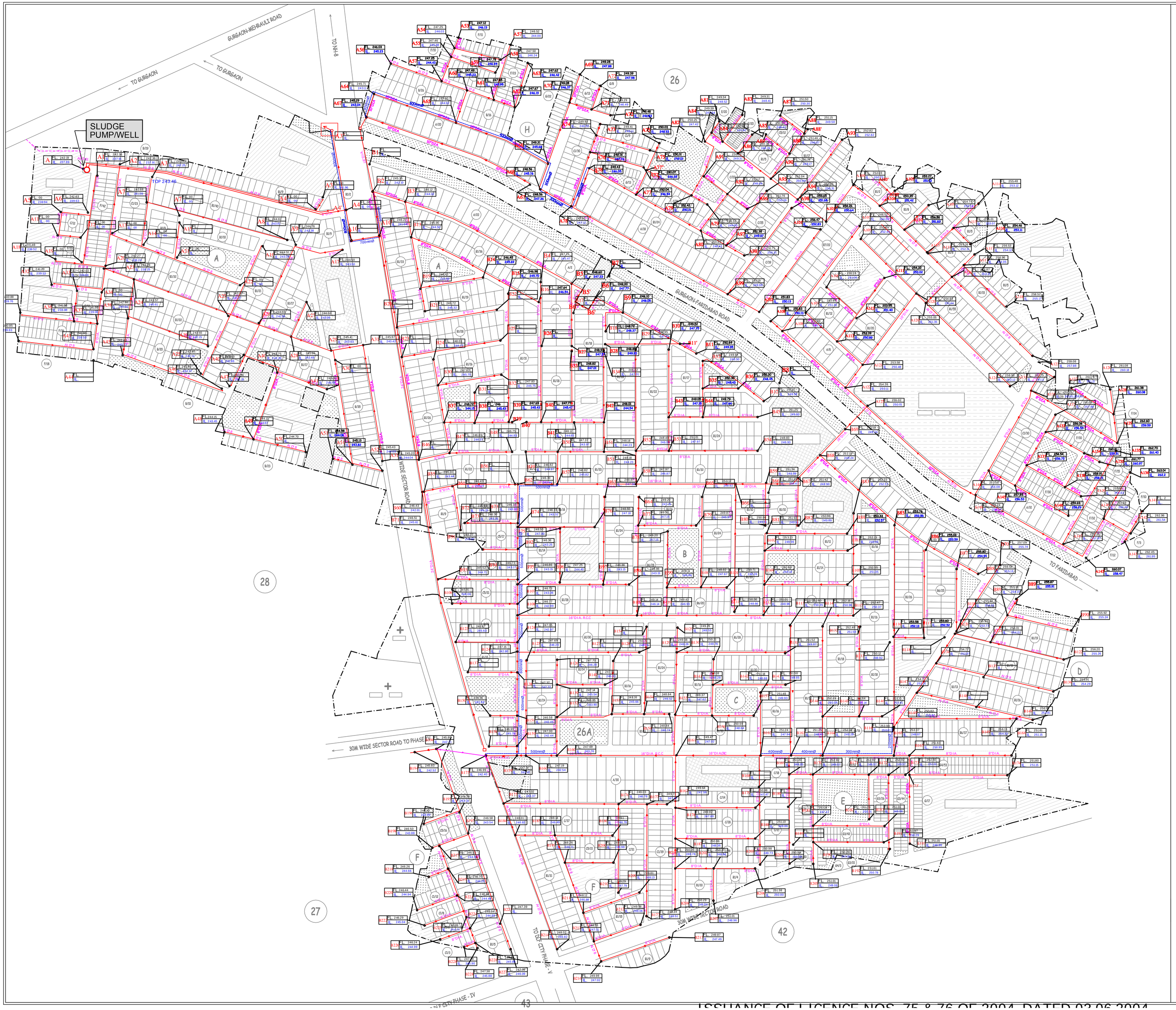
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastrucure
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/D-4

Drawing No.
MCG/DLF/S

UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM



LEGEND :-

	EXISTING PIPE LINE
	PROPOSED/ADDITIONAL PIPE LINE
	EXISTING STP

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: LAY OUT PLAN SEWERAGE

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG MUNICIPAL CORPORATION of GURUGRAM NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

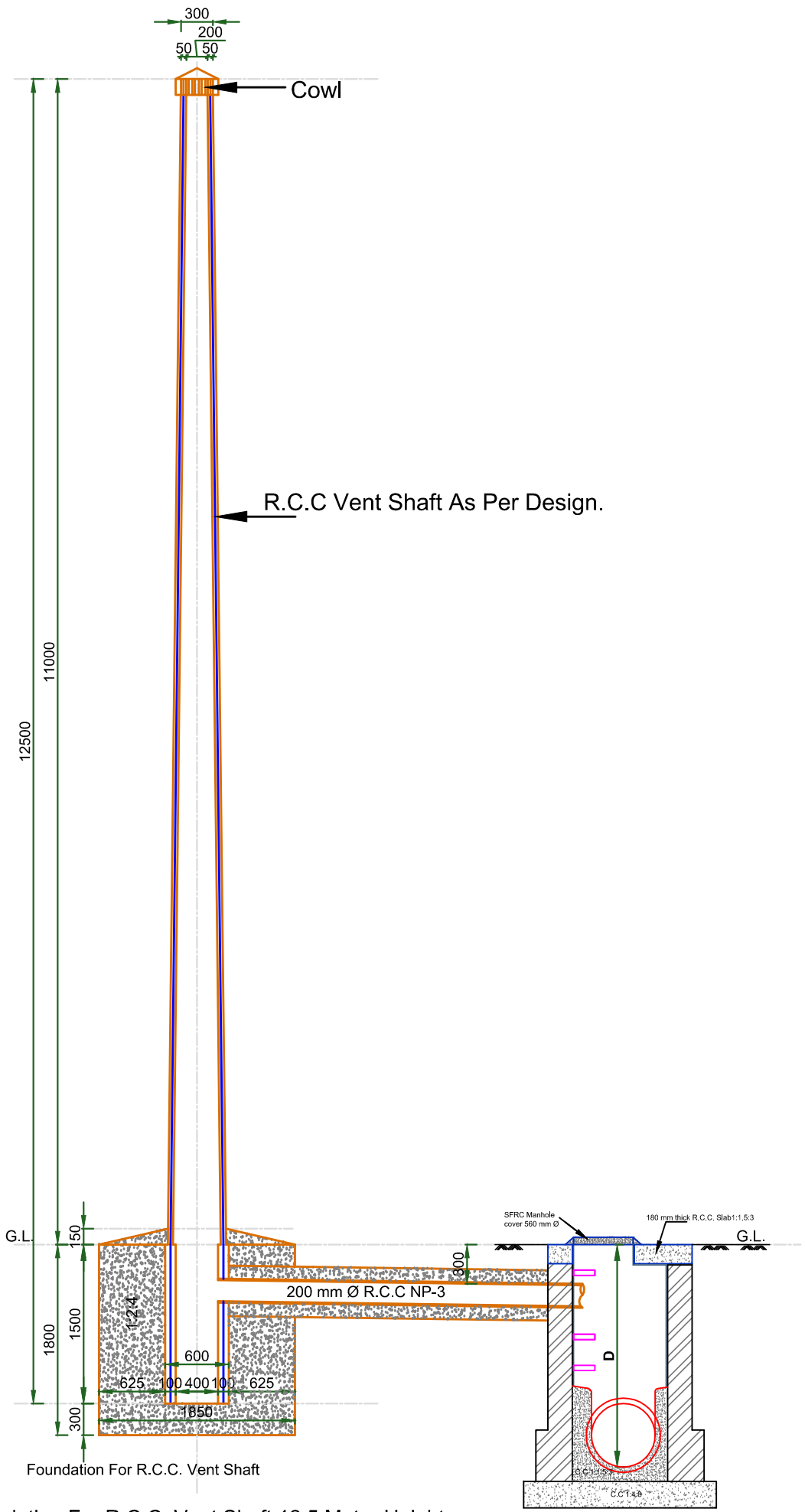
Director Infrastructure
For ky Consultants Pvt.Ltd

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.K. Gupta	KAMAL	MCG/DLF/S

Vent Shaft

Drawing No.:
DLF/S12



Detail of Foundation For R.C.C. Vent Shaft 12.5 Meter Height

Notes:-
1. All Dimensions in Millimeters
2. Dimensions shall not be measured
3. SFRC Man Hole Cover & Frames Marked With IS:12597 Set in C.M.1:2 (EHD-35).
4. Any drawing error or divergences be brought to the Notice

Date	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Vent Shaft

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

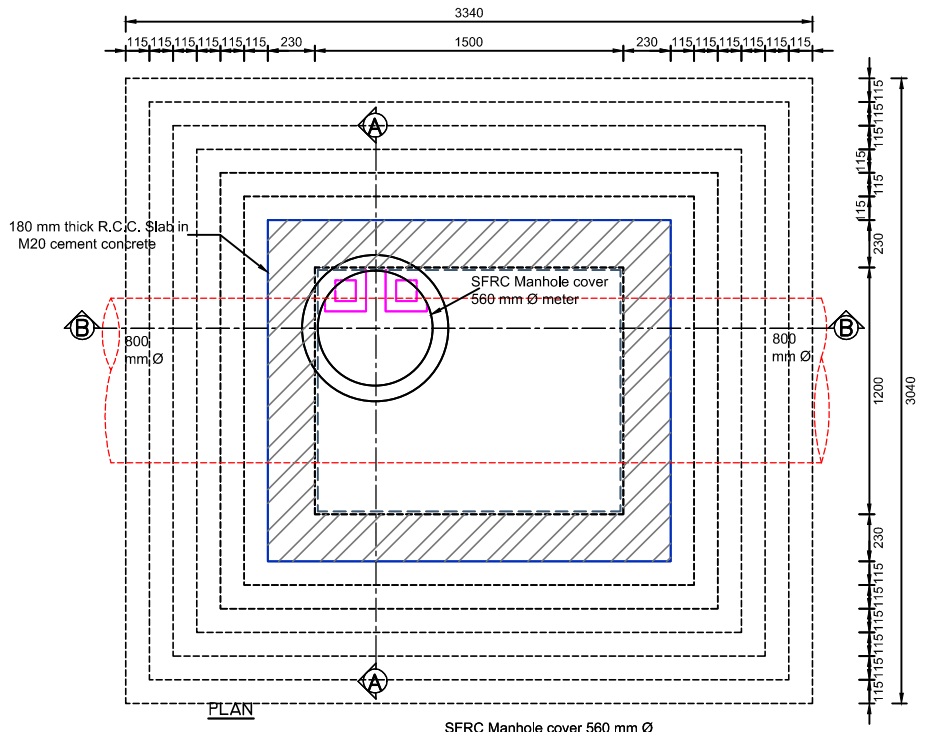
MCG NURTURING GURUGRAM

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

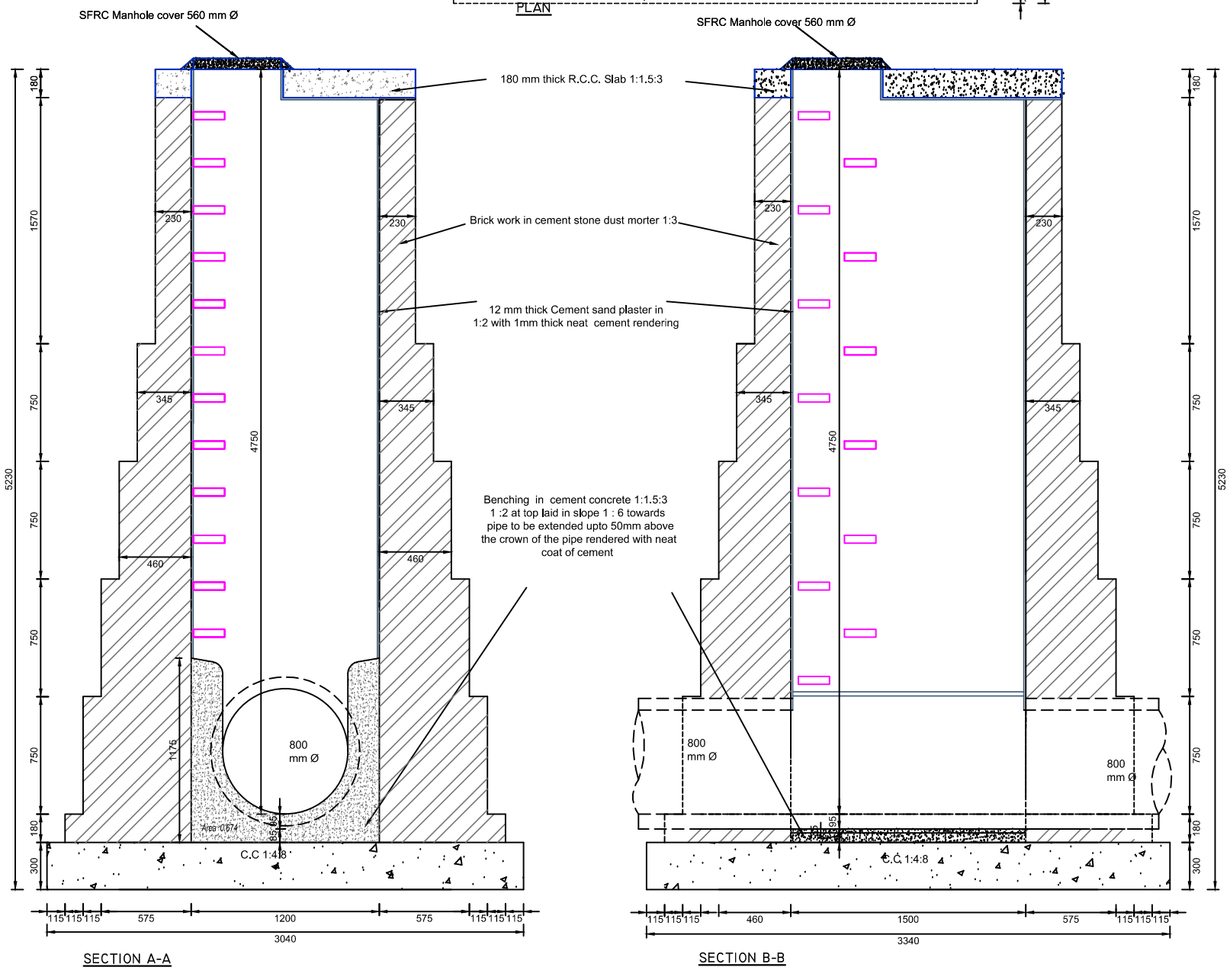
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-12

Section Sewer Manhole
Size : 1500mm x 1200 mm
Size of Pipe = 800 mm
Av. Depth = 4750mm

Drawing No.
DLF/S-11C



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/S4B'
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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

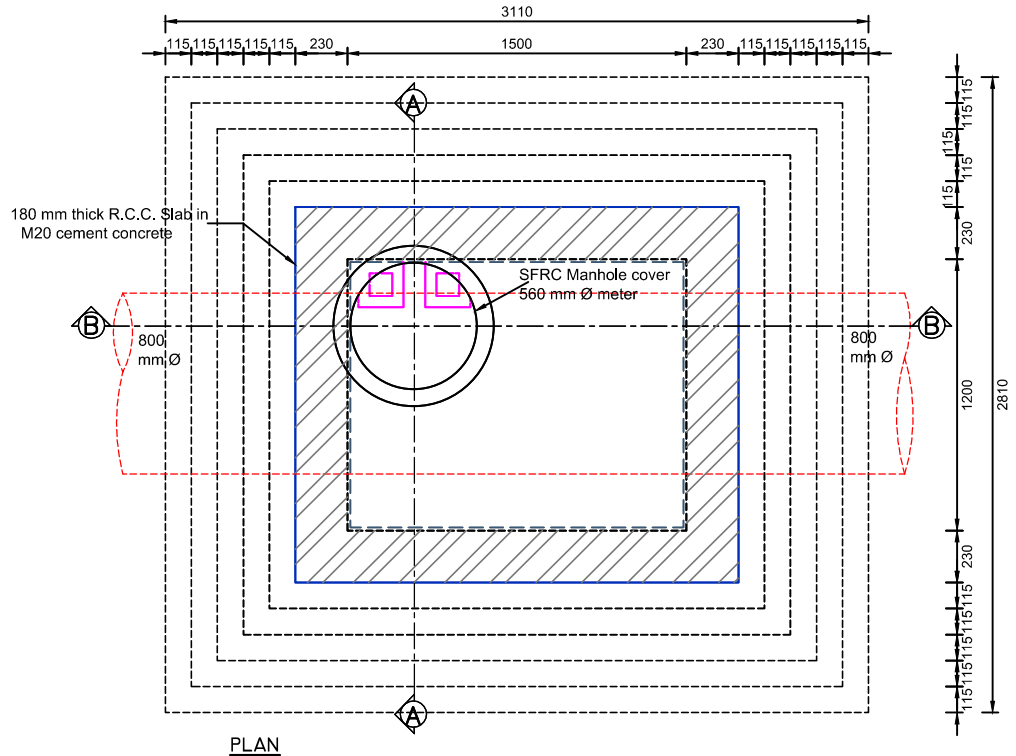
MCG NURTURING GURUGRAM

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

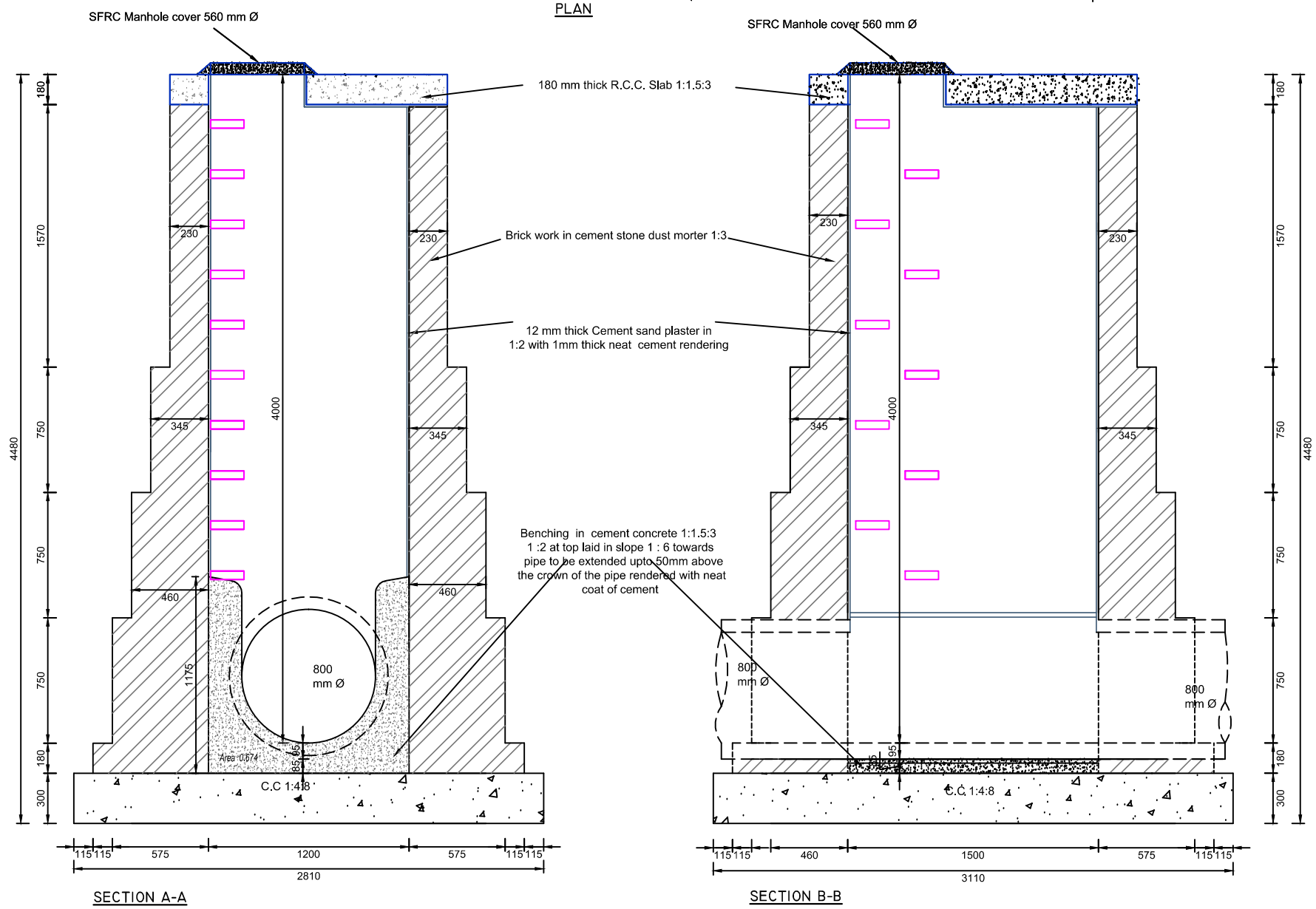
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S11C

Section Sewer Manhole
Size : 1500mm x 1200 mm
Size of Pipe = 800 mm
Av. Depth = 4000mm

Drawing No.
DLF/S-11B



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/S4B'
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	27-07-2017	Description				
Original Issue						
Concept	Submission	DPR	Tender	GFC	As Built	

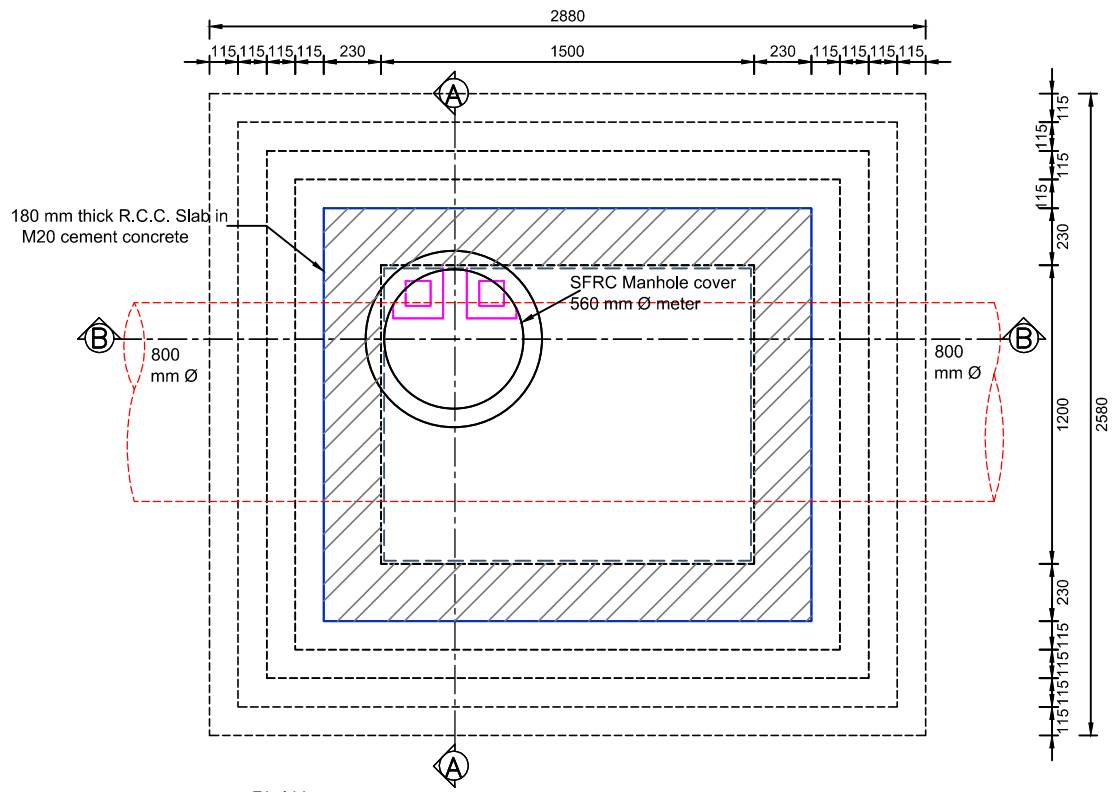
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
Consultants Pvt. Ltd.
303-304 STAR TOWER, Sector-54, Gurgaon-122001
Director Infrastructure For Ivy Consultants Pvt.Ltd
PH: 0124-4037415 FAX: 4034716

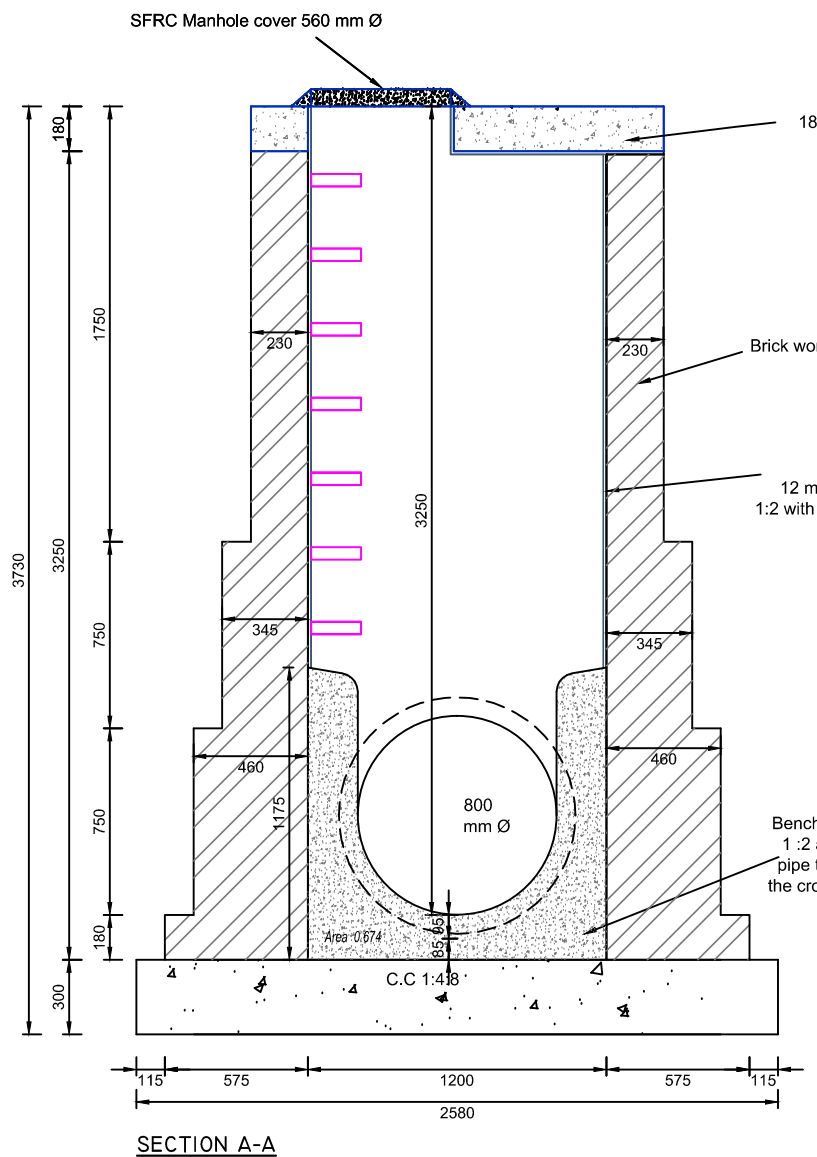
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S11B

Section Sewer Manhole
Size : 1500mm x 1200 mm
Size of Pipe = 800 mm
Av. Depth = 3250mm

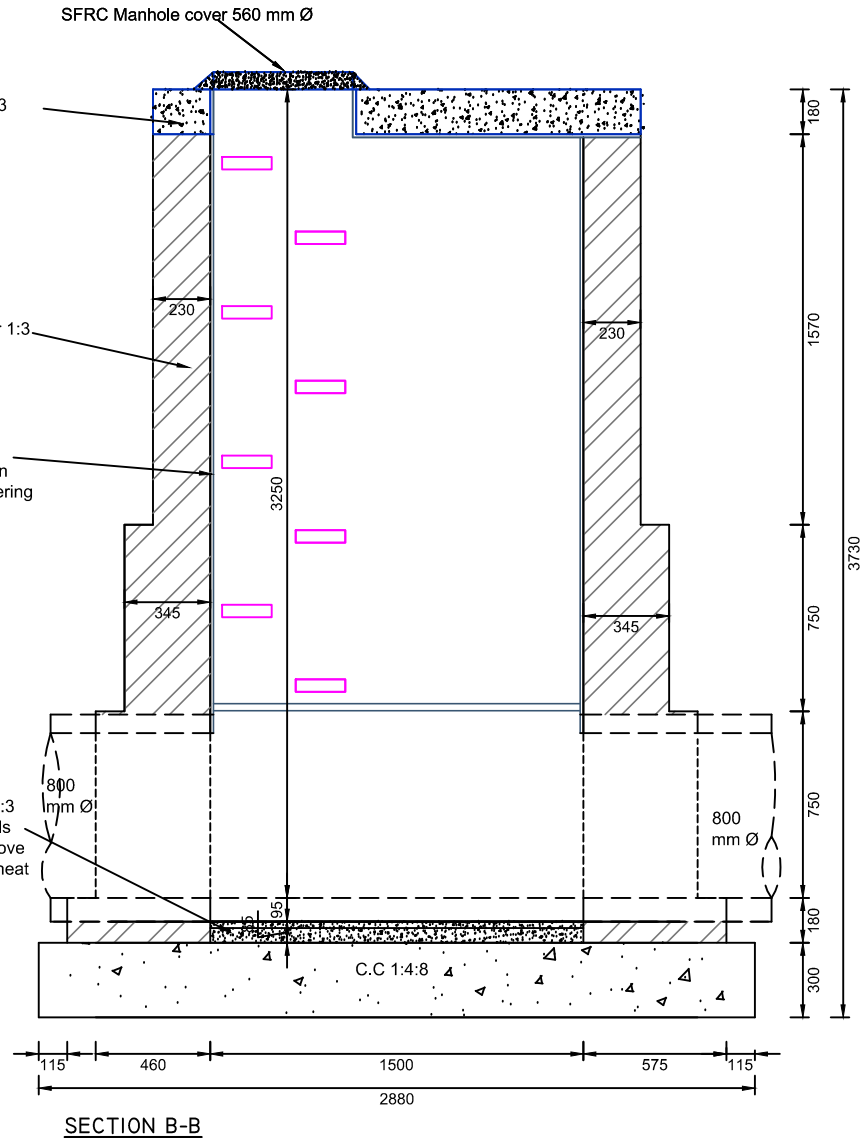
Drawing No.
DLF/S-11A



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/S4B'
6. R.C.C. NP-4 Pipe Manufactured From Sulphate Resistant Cement & Coated inside With VG-40.
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	27-07-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

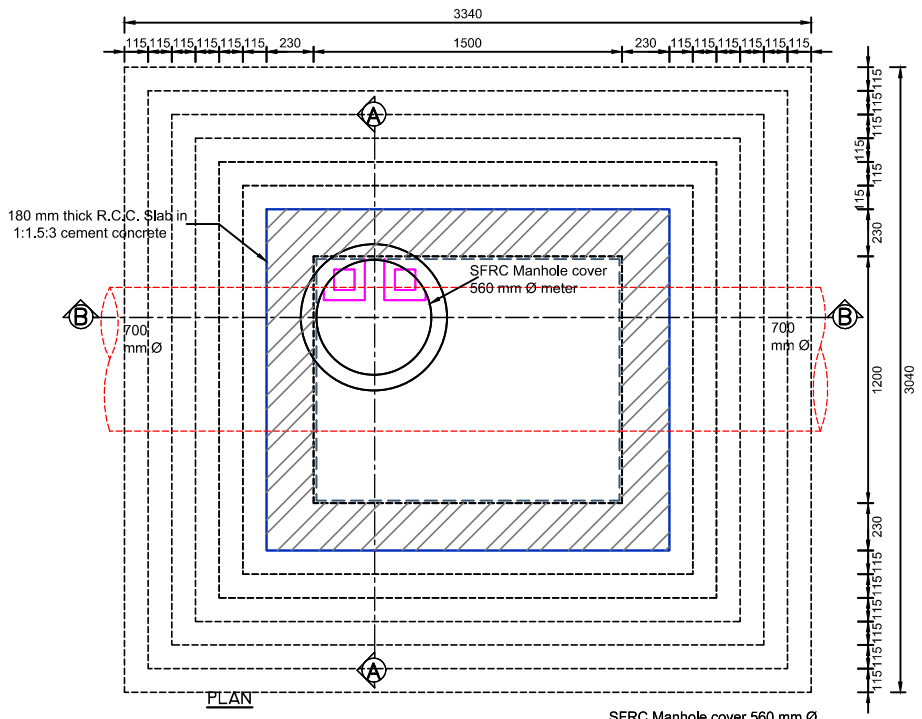
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

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: 4034716

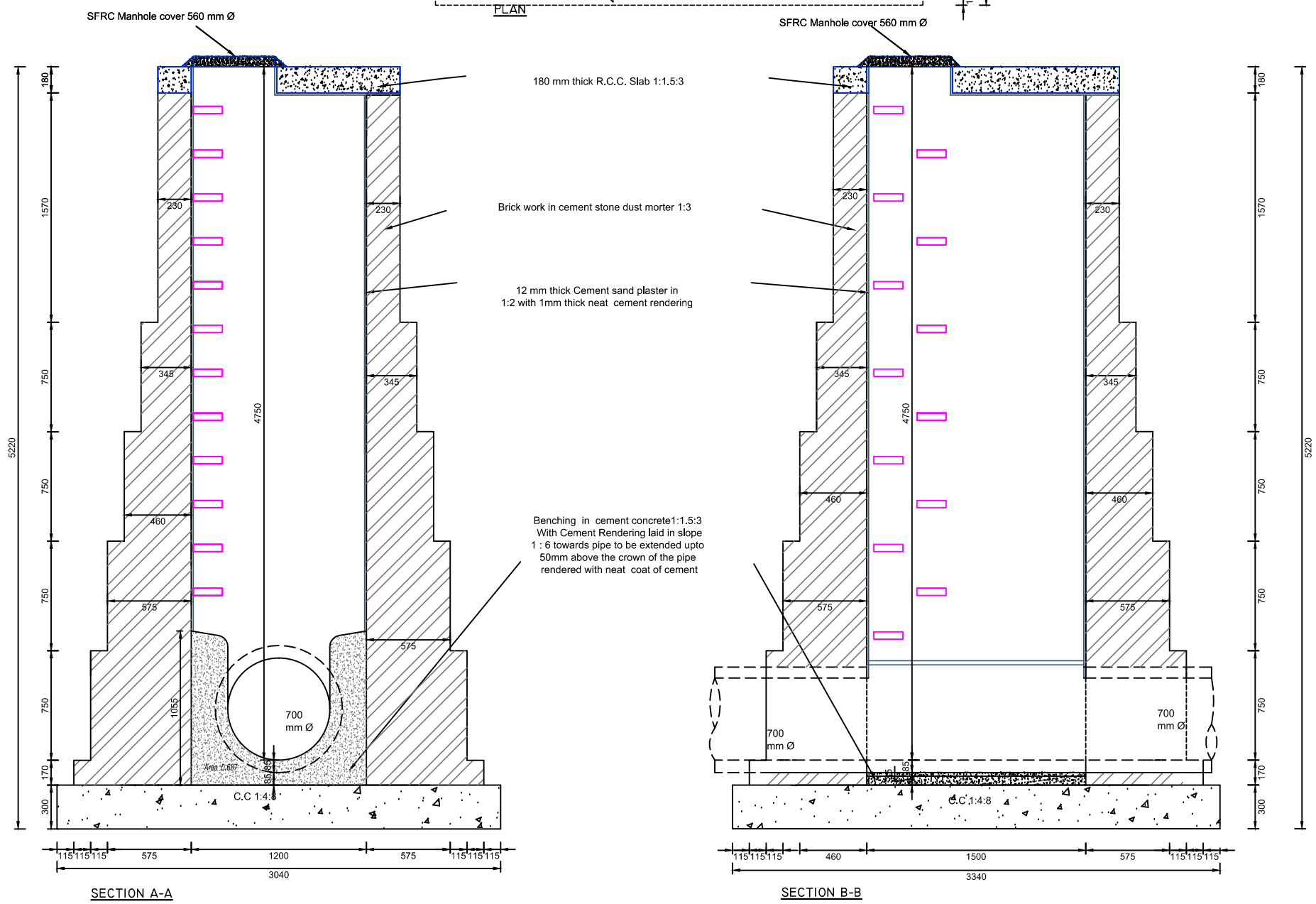
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S11A

Section Sewer Manhole
Size : 1500mm x 1200 mm
Size of Pipe = 700 mm
Av. Depth = 4750mm

Drawing No.
DLF/S-10C



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/S4B'
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-3
8. Any drawing error or divergences be brought to the Notice

Date	27-07-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

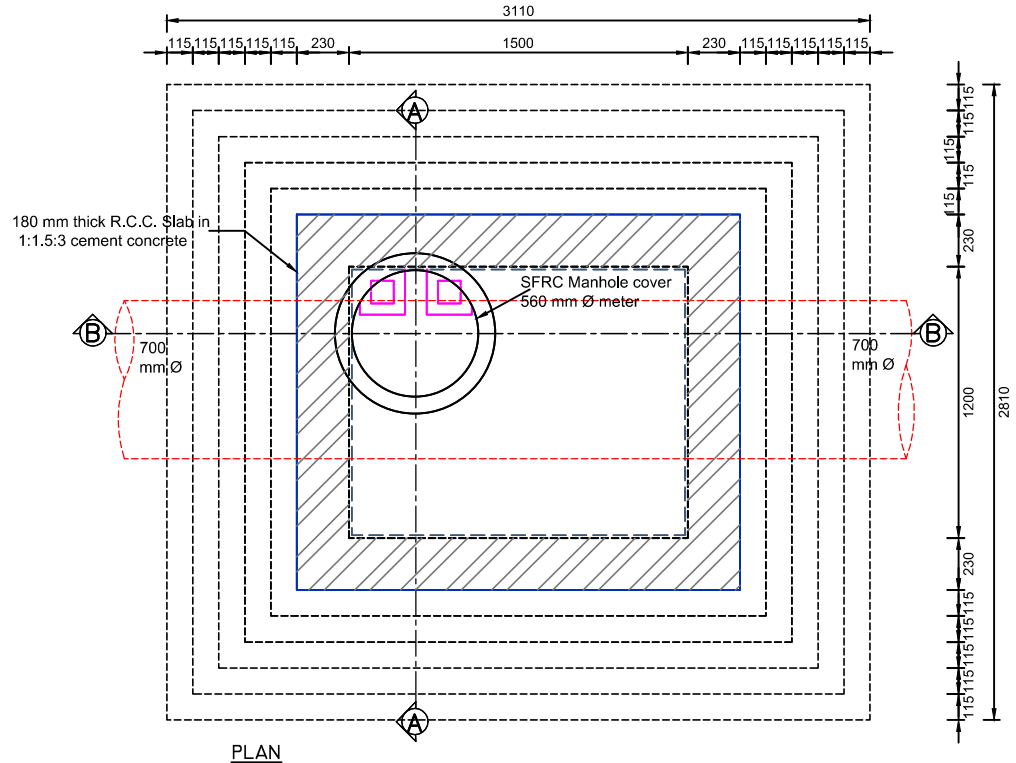
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Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:
K.K.Bhugra Consultants Pvt. Ltd.
Director Infrastructure
For Ky Consultants Pvt.Ltd.
304-304 STAR TOWER, DLF Qutab Gurgaon- 122001 PH: 0124-4104115 FAX: 4104116

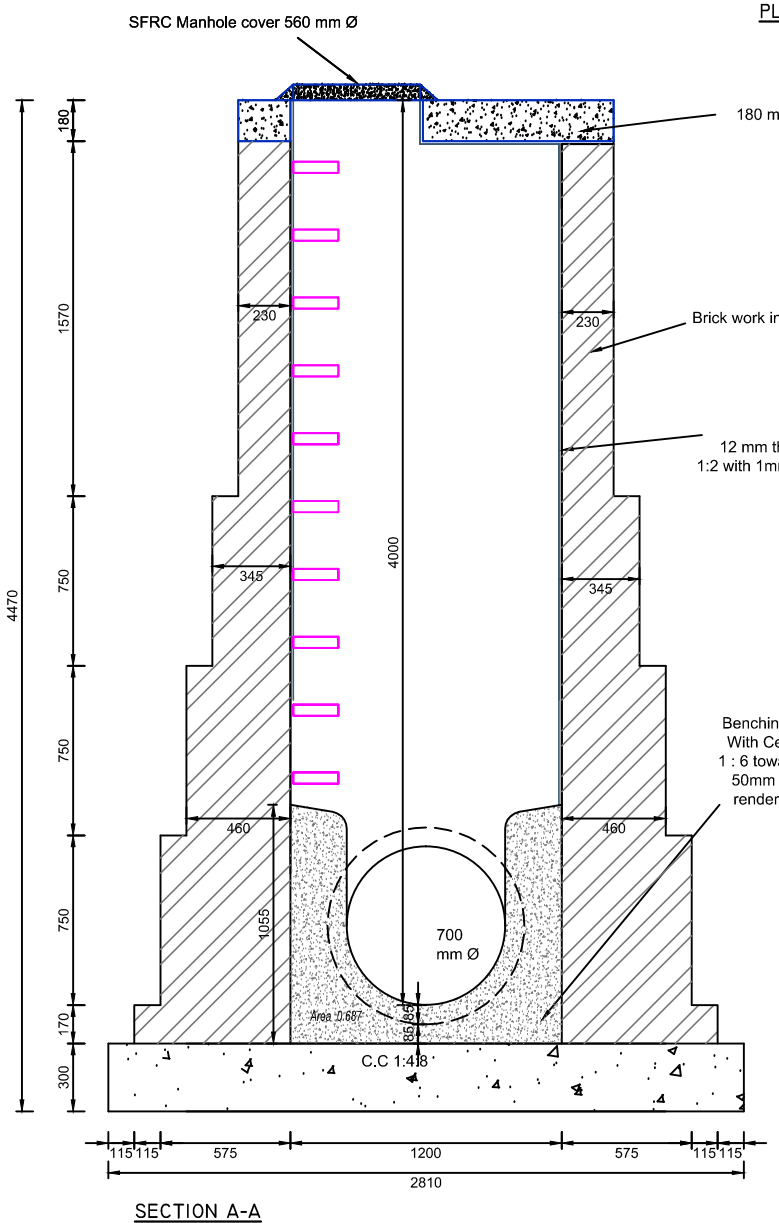
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-10C

Section Sewer Manhole
Size : 1500mm x 1200 mm
Size of Pipe = 700 mm
Av. Depth = 4000mm

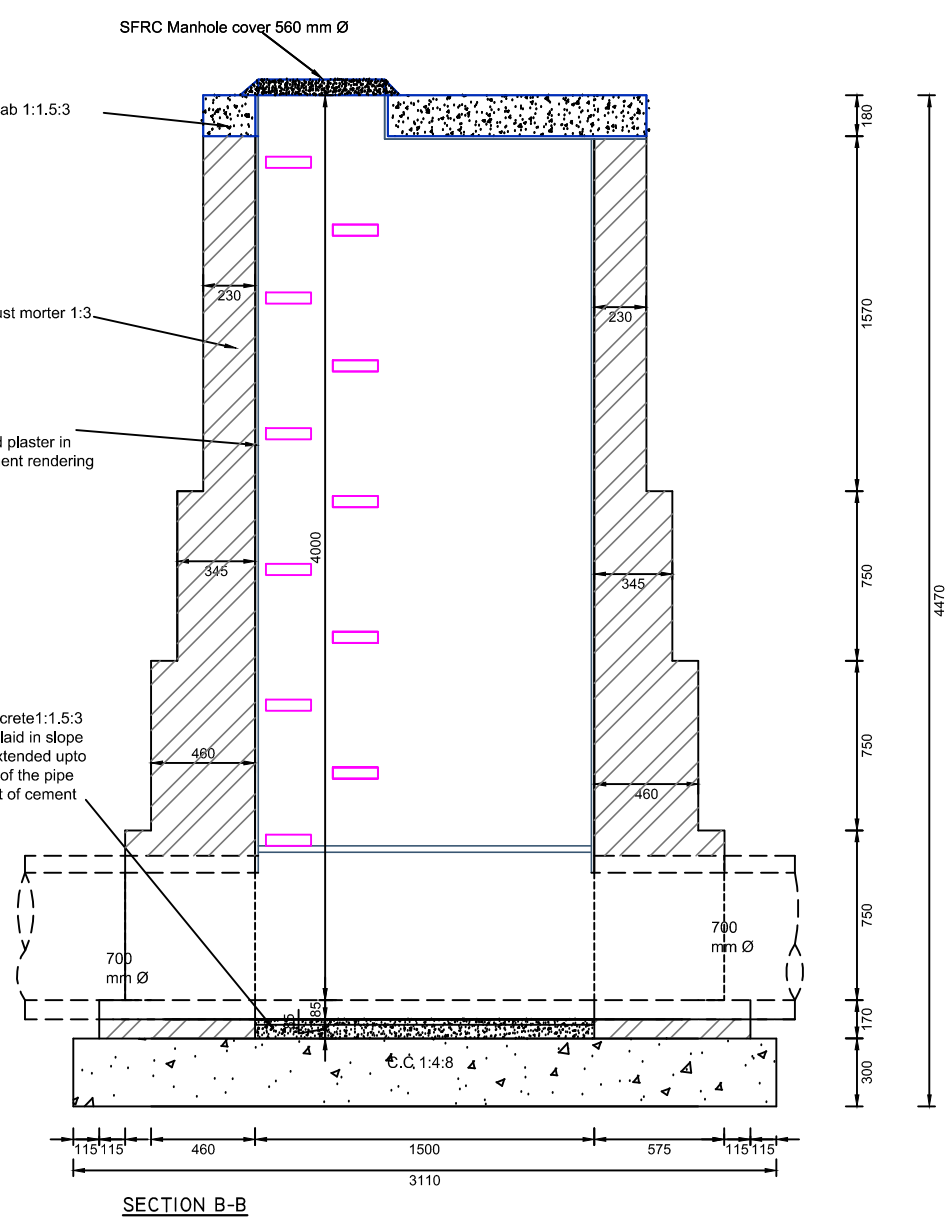
Drawing No.
DLF/S-10B



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/S4B'
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-3
8. Any drawing error or divergences be brought to the Notice

Date	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

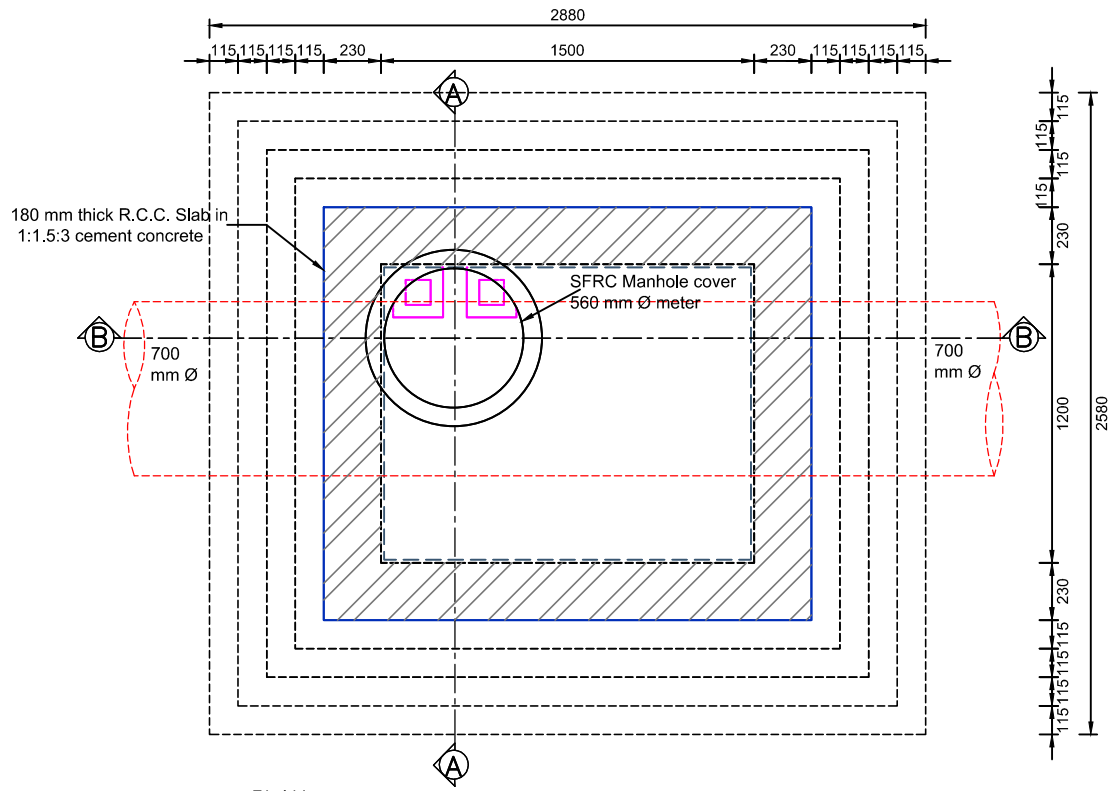
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE I GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

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: 4034716

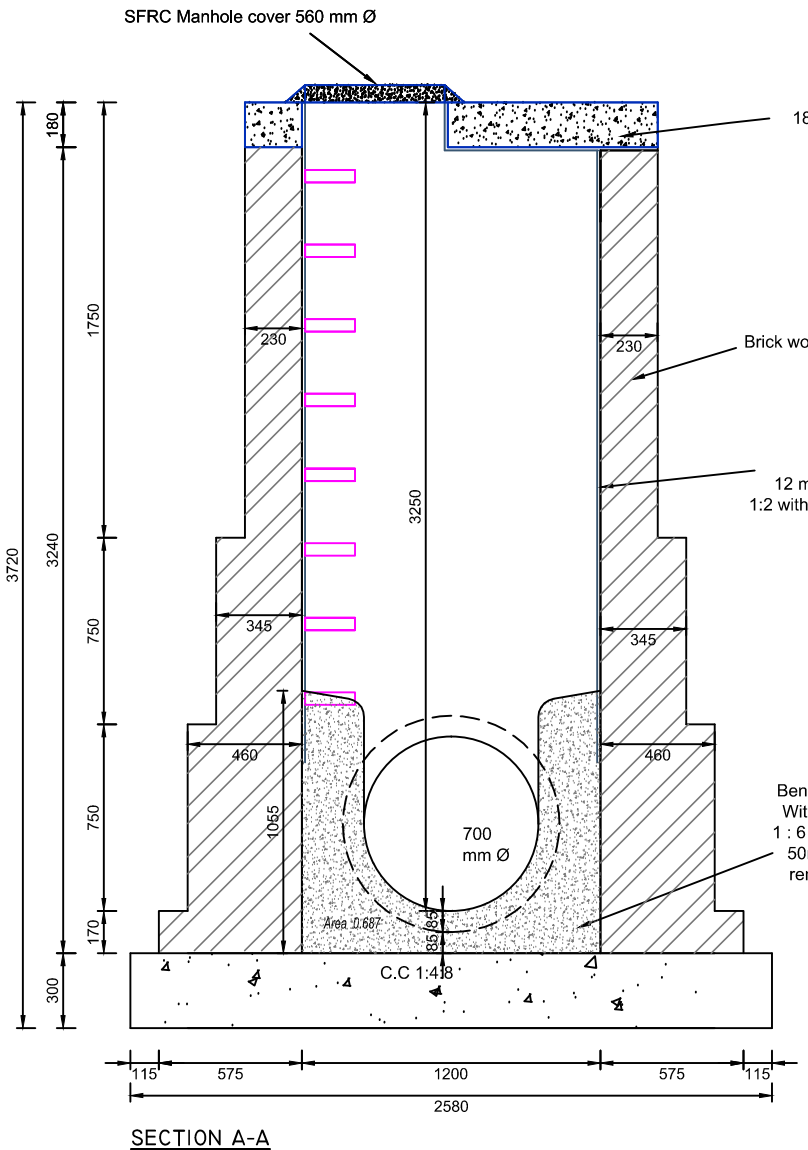
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-10B

Section Sewer Manhole
Size : 1500mm x 1200 mm
Size of Pipe = 700 mm
Av. Depth = 3250mm

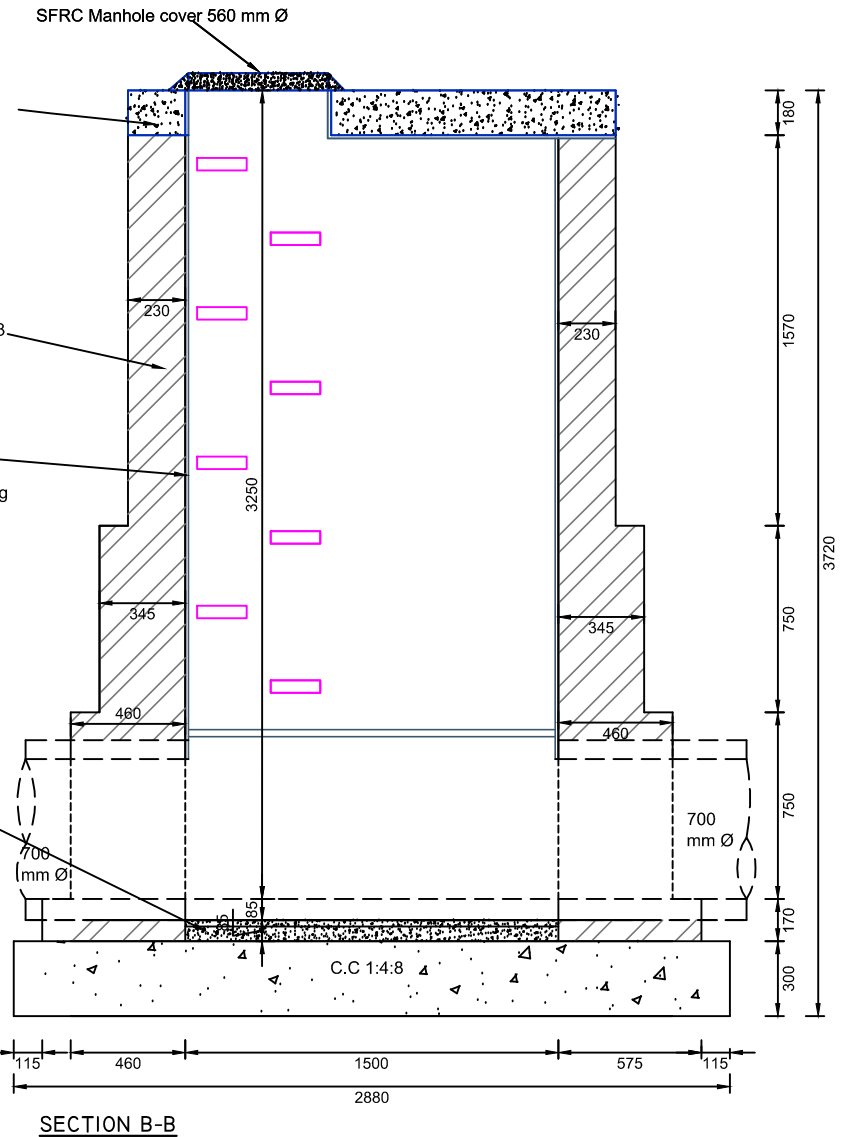
Drawing No.
DLF/S-10A



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/S4B'
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-3
8. Any drawing error or divergences be brought to the Notice

Date	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

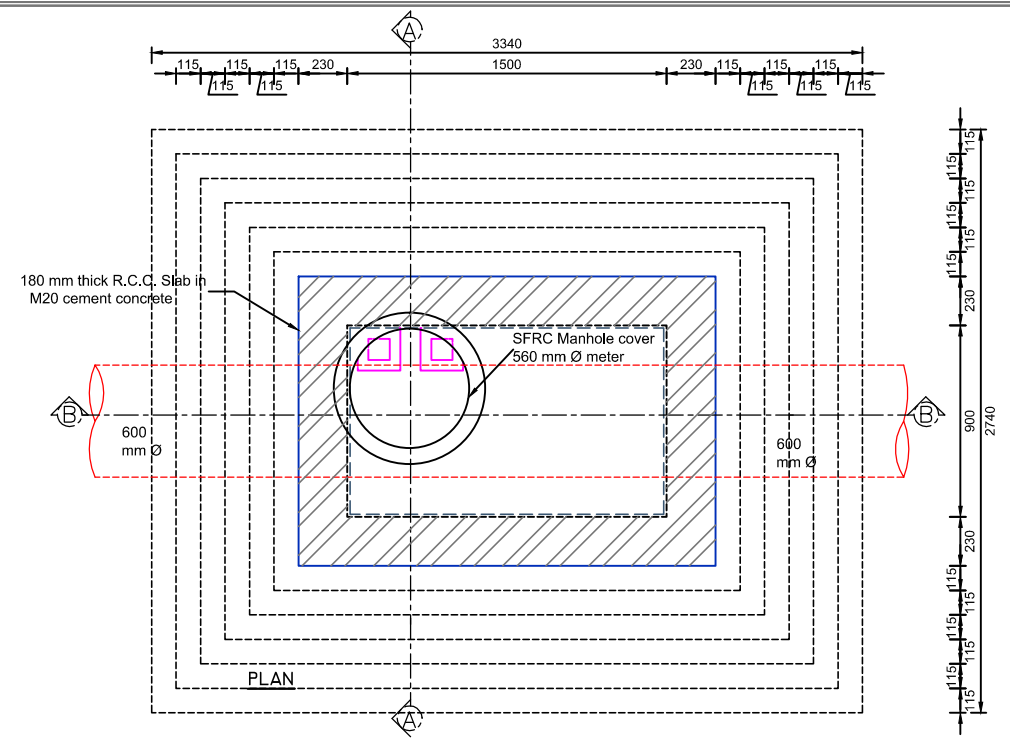
Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For Ky Consultants Pvt.Ltd
303-304 STAR TOWER DLF Sector 30, Gurgaon- 122001 Ph: 0124-4034715 FAX: 4034716

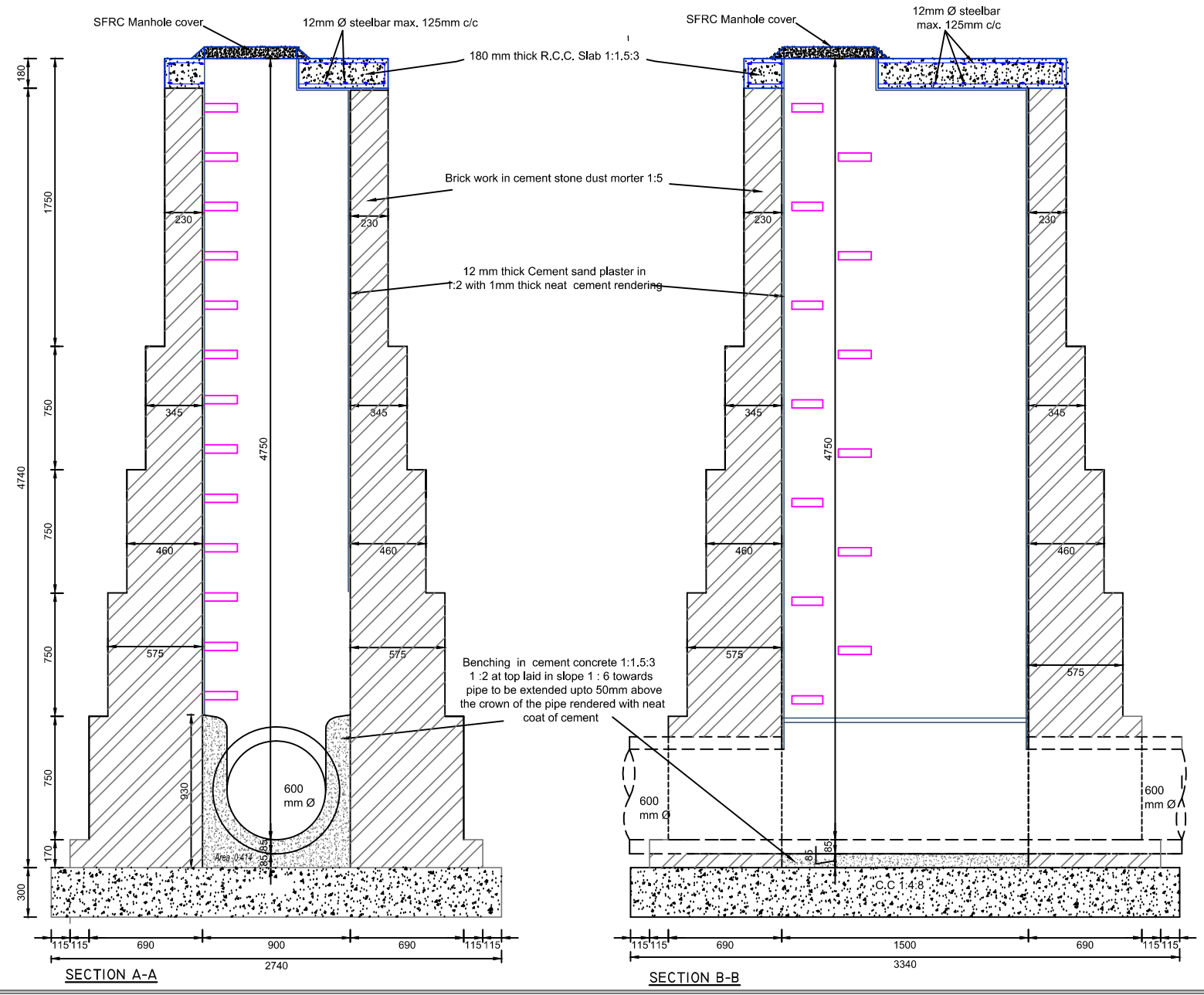
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S10A

Drawing No.:
DLF/S9B

Section Sewer Manhole

Size : 1500mm x 900 mm
Size of Pipe = 600 mm
Av. Depth = 4750mm





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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

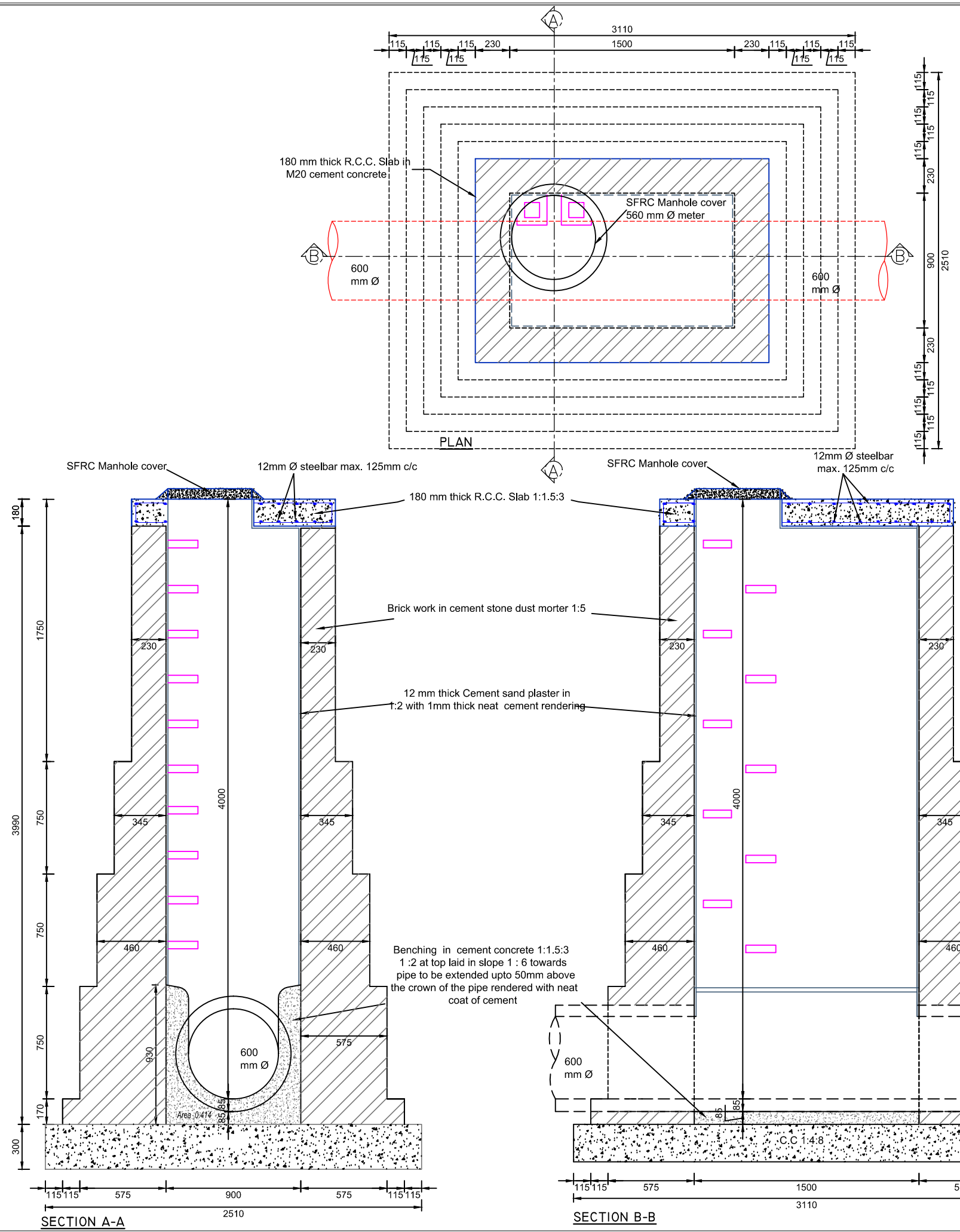
Services Planned & Designed by:

Consultants Pvt. Ltd. Director Infrastructure For Icy 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-9B

Drawing No.:
DLF/S9A

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



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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

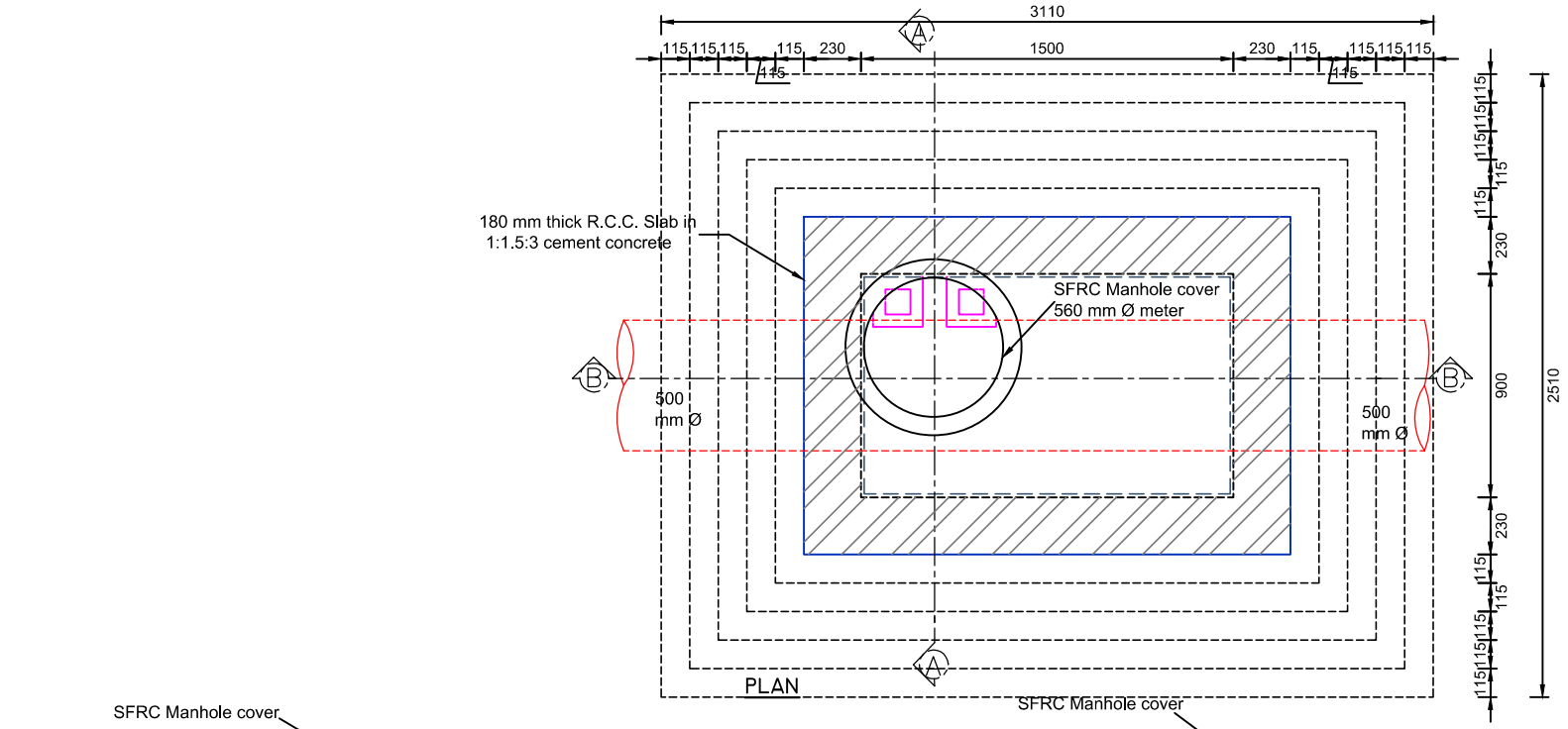
Services Planned & Designed by:
Consultants Pvt. Ltd.
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714
Director Infrastructure
For ky Consultants Pvt.Ltd

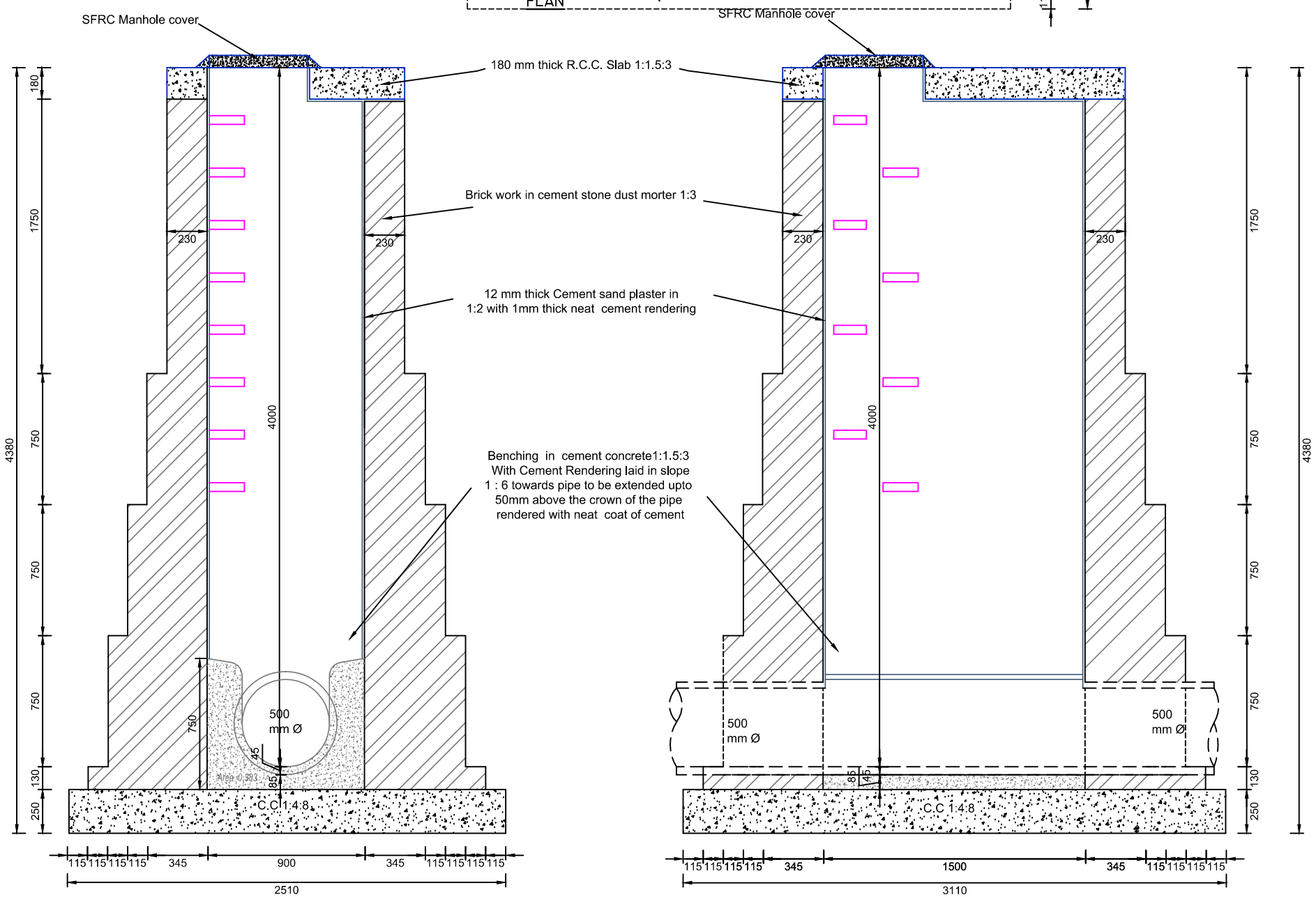
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-9A

Section Sewer Manhole

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

Drawing No. DLF/S8B





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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

Services Planned & Designed by:

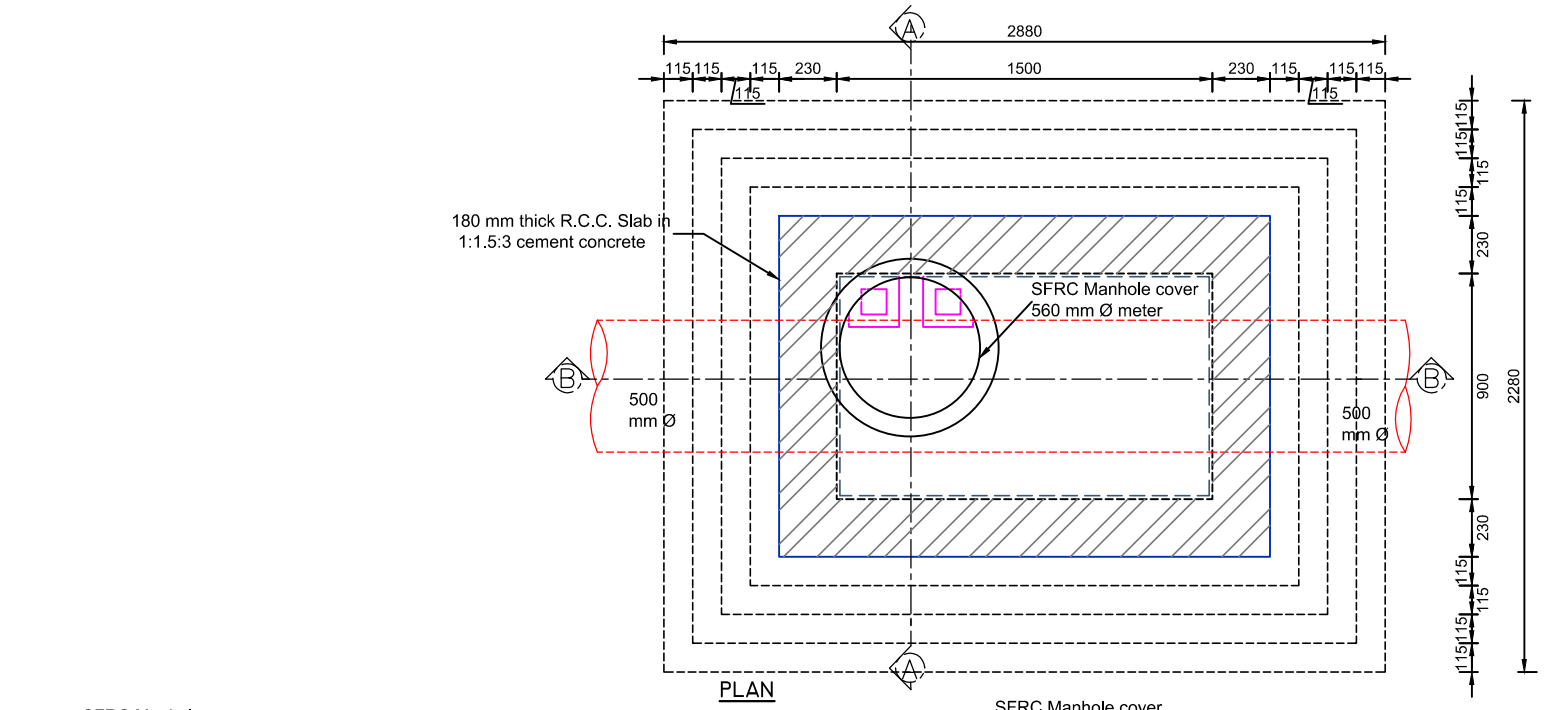
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph.: 0124-4034716
FAX : 4034714
Director Infrastructure
For ky Consultants Pvt.Ltd
Consultants Pvt. Ltd.

Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S8B

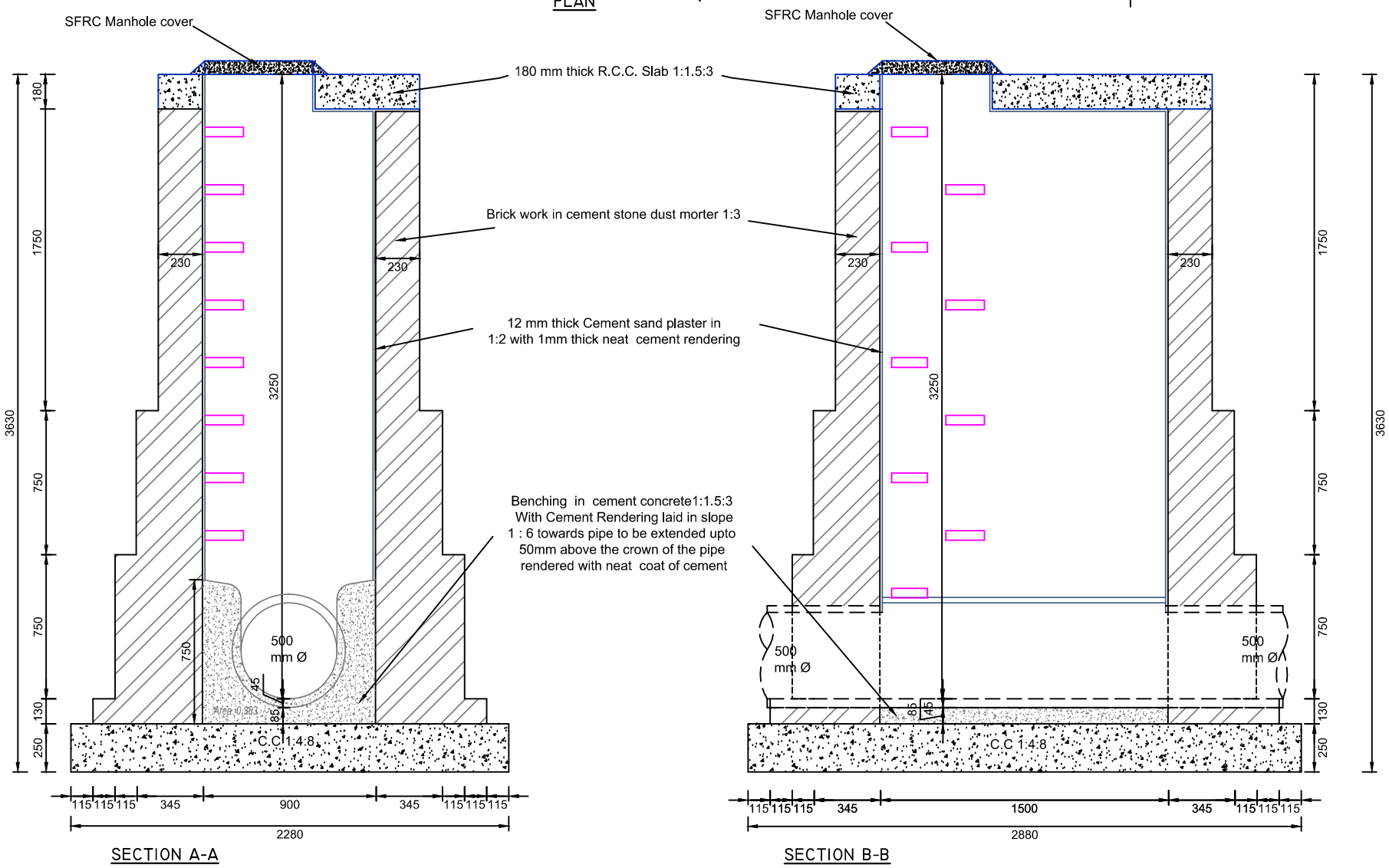
Section Sewer Manhole

Size : 1500mm x 900 mm
Size of Pipe = 500 mm
Max. Depth = 3250 mm

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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

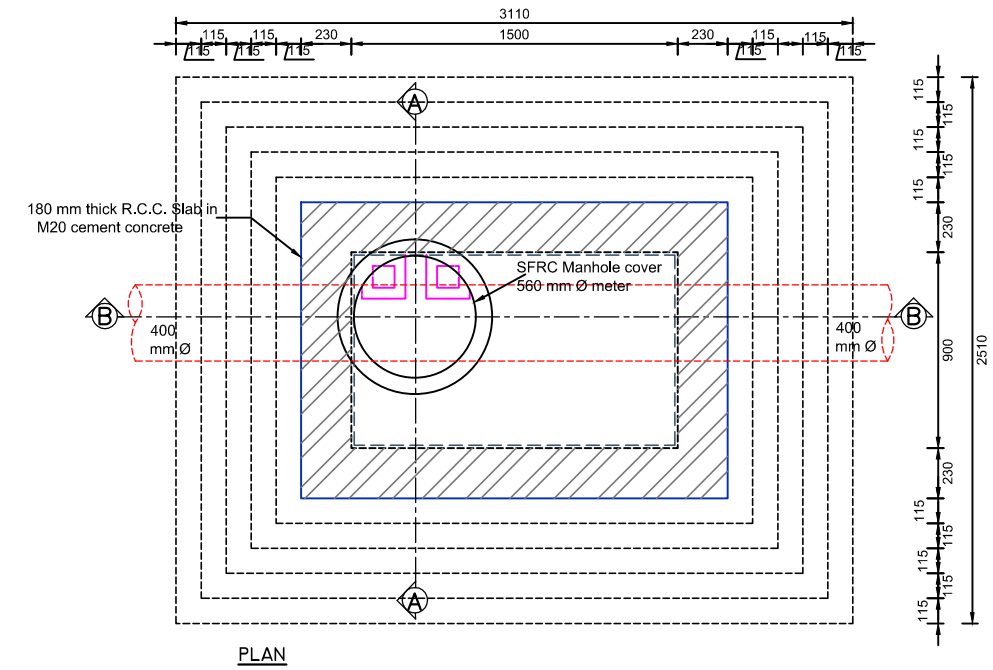
Client: MUNICIPAL CORPORATION GURGAON

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

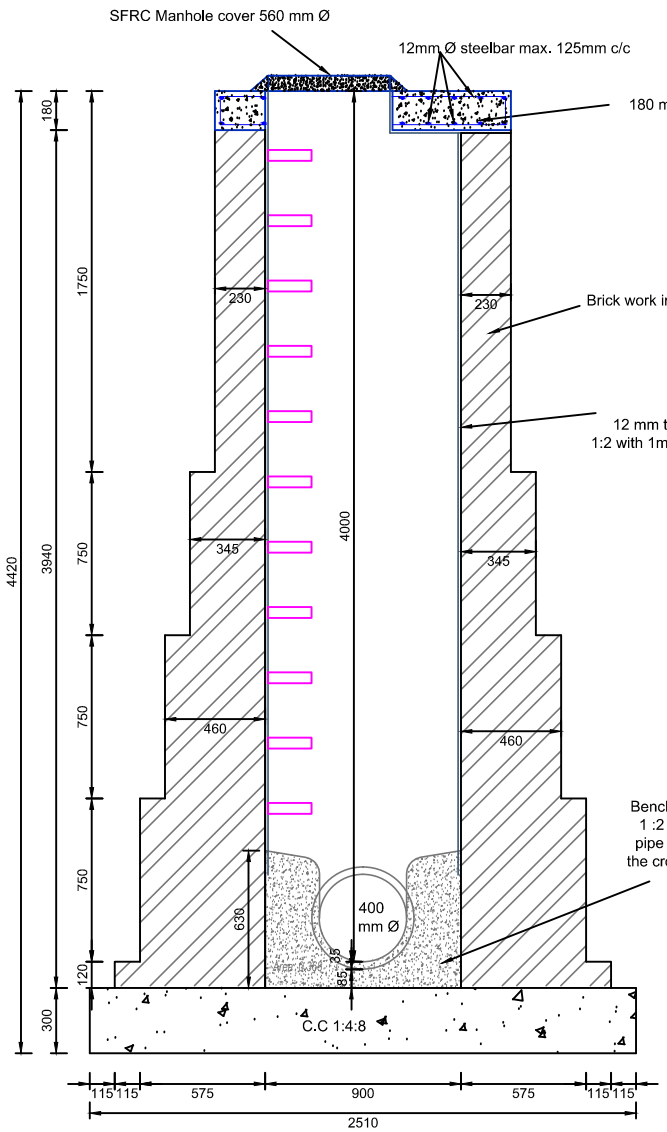
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K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S7A

Drawing No.
DLF/S7C

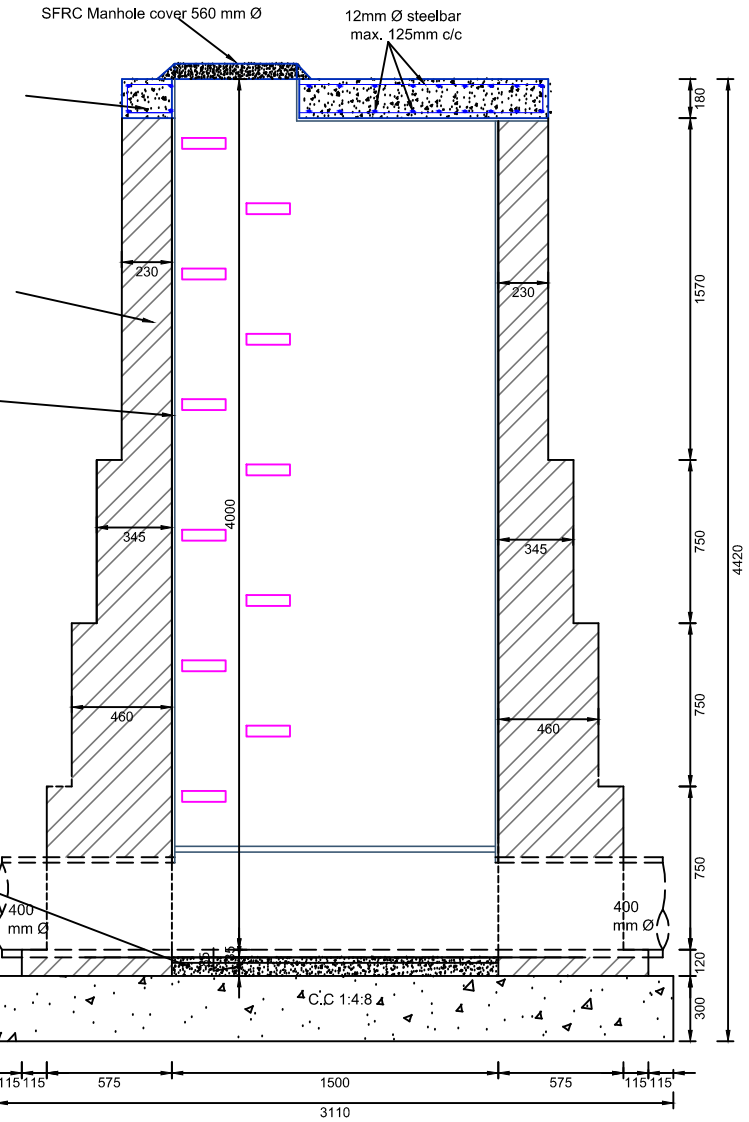
Section Sewer Manhole
Size : 1500mm x 900 mm
Size of Pipe = 400 mm
Max. Depth = 4000 mm



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	27-07-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

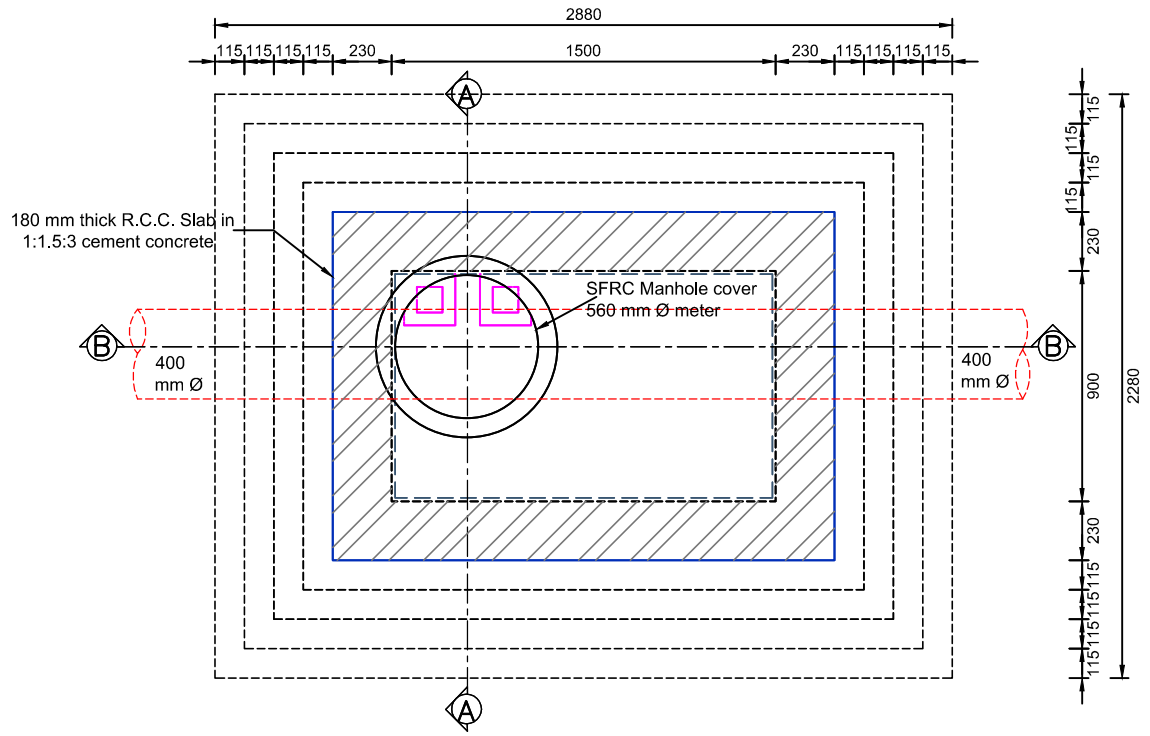
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE I GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

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

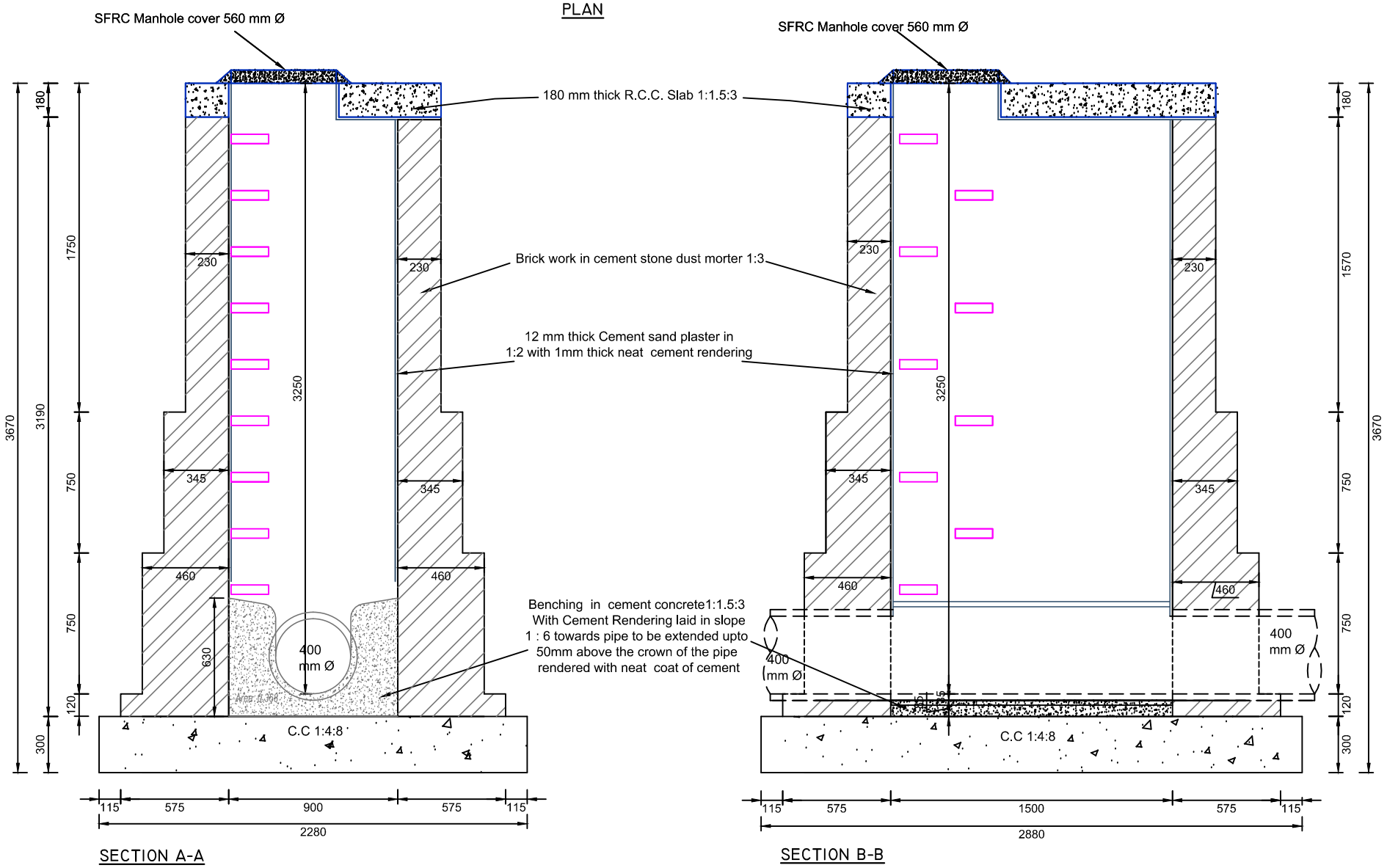
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S7C

Drawing No.
DLF/S7B

Section Sewer Manhole
Size : 1500mm x 900 mm
Size of Pipe = 400 mm
Max. Depth = 3250 mm



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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

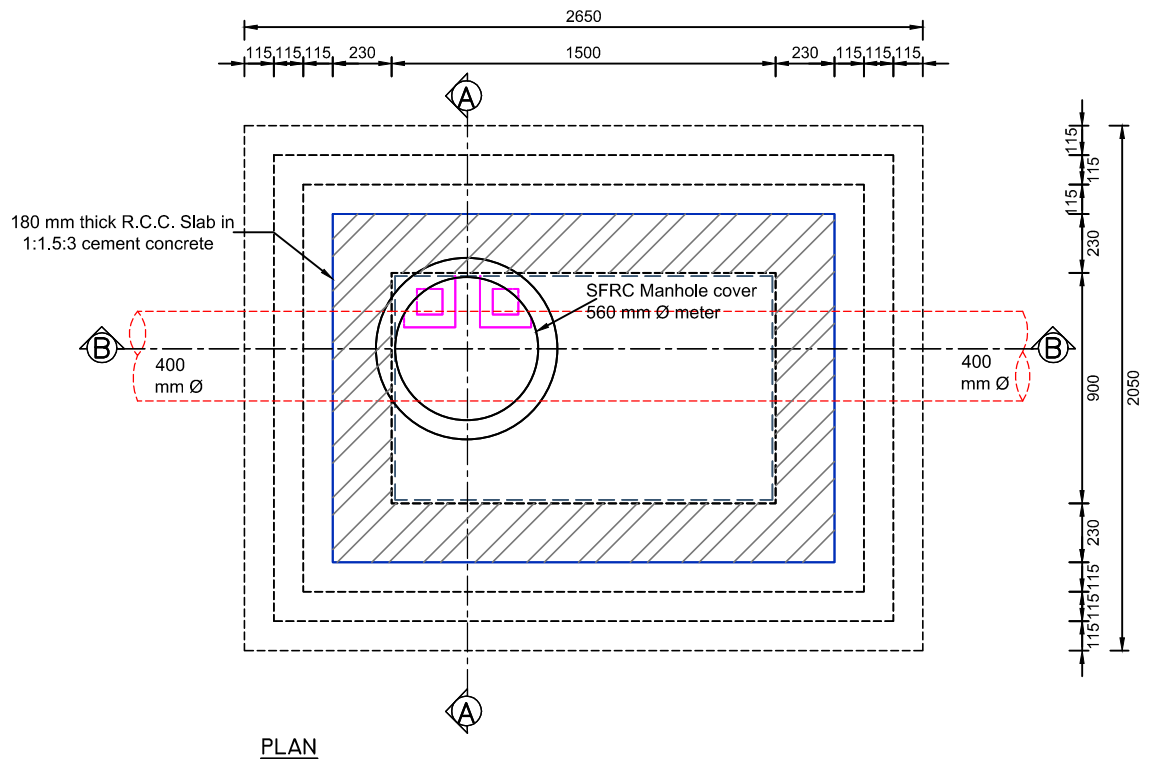
Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For Ky Consultants Pvt.Ltd
303-304 STAR TOWER DLF,Sector 30, Gurgaon- 122001 Ph: 0124-4034715 FAX: 4034714

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

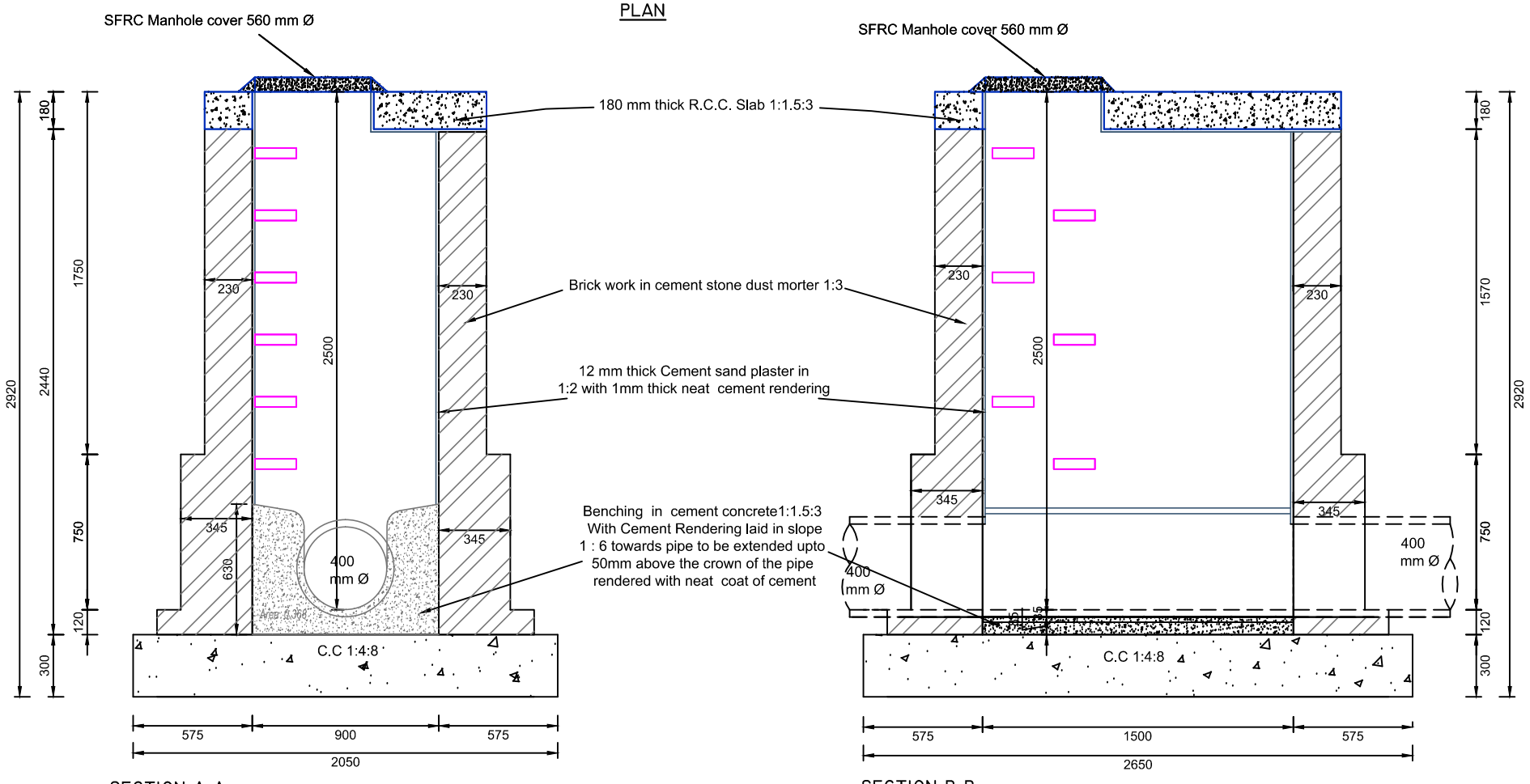
Drawing No.
DLF/S7A

Section Sewer Manhole

Size : 1500mm x 900 mm
Size of Pipe = 400 mm
Max. Depth = 2500 mm



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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

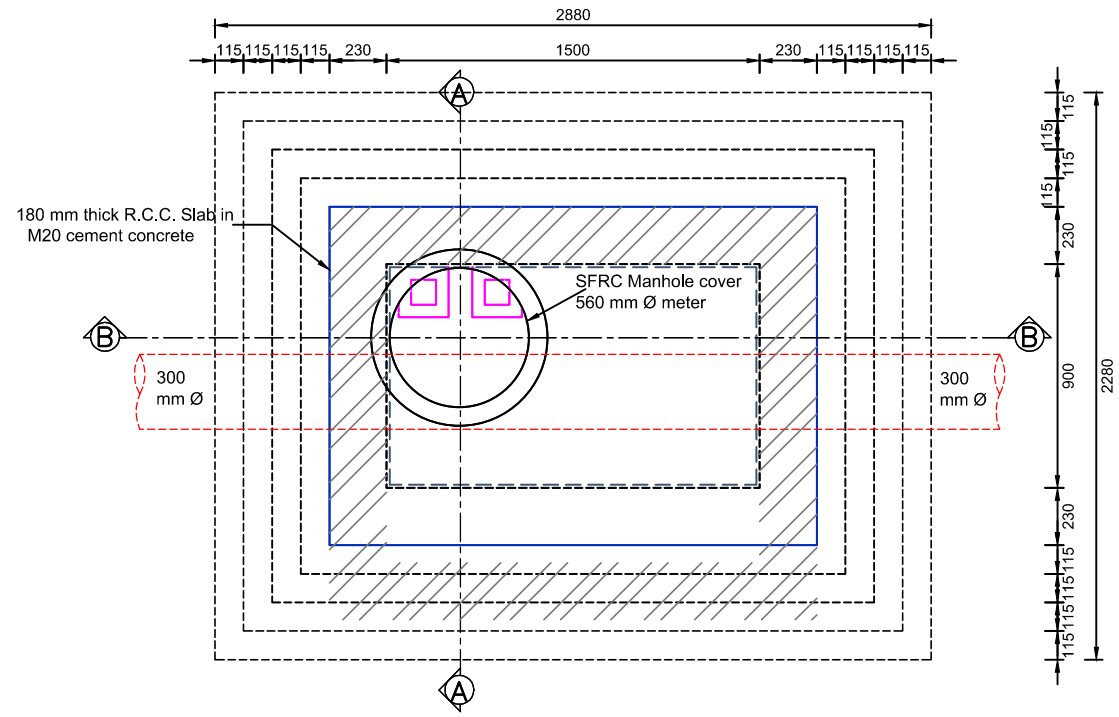
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

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

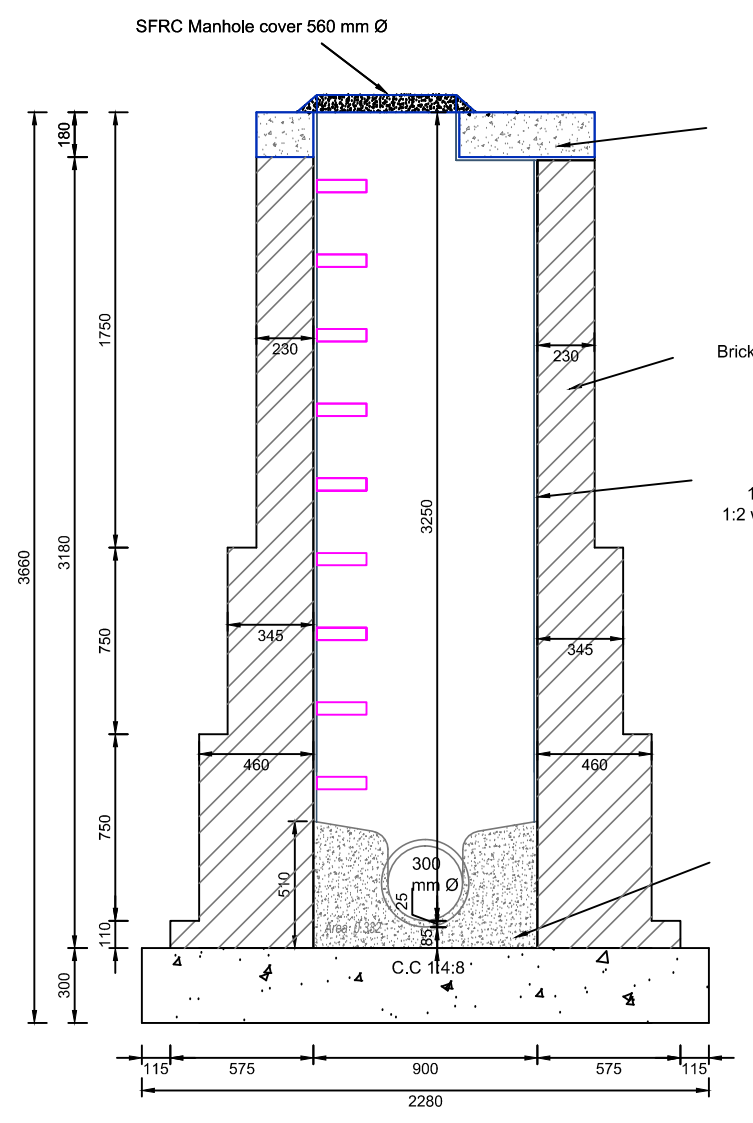
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S7A

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

Drawing No.
DLF/S6B



PLAN



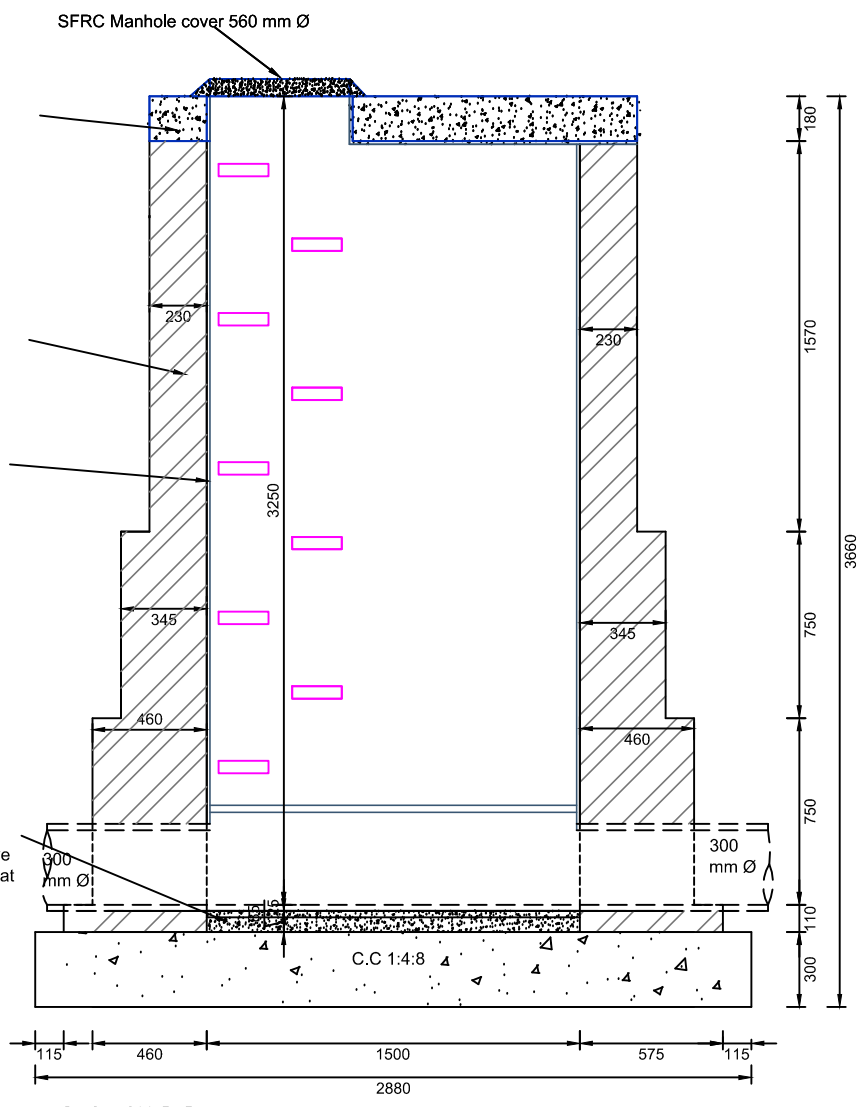
SECTION A-A

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

Brick work in cement stone dust morter 1:3

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	27-07-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

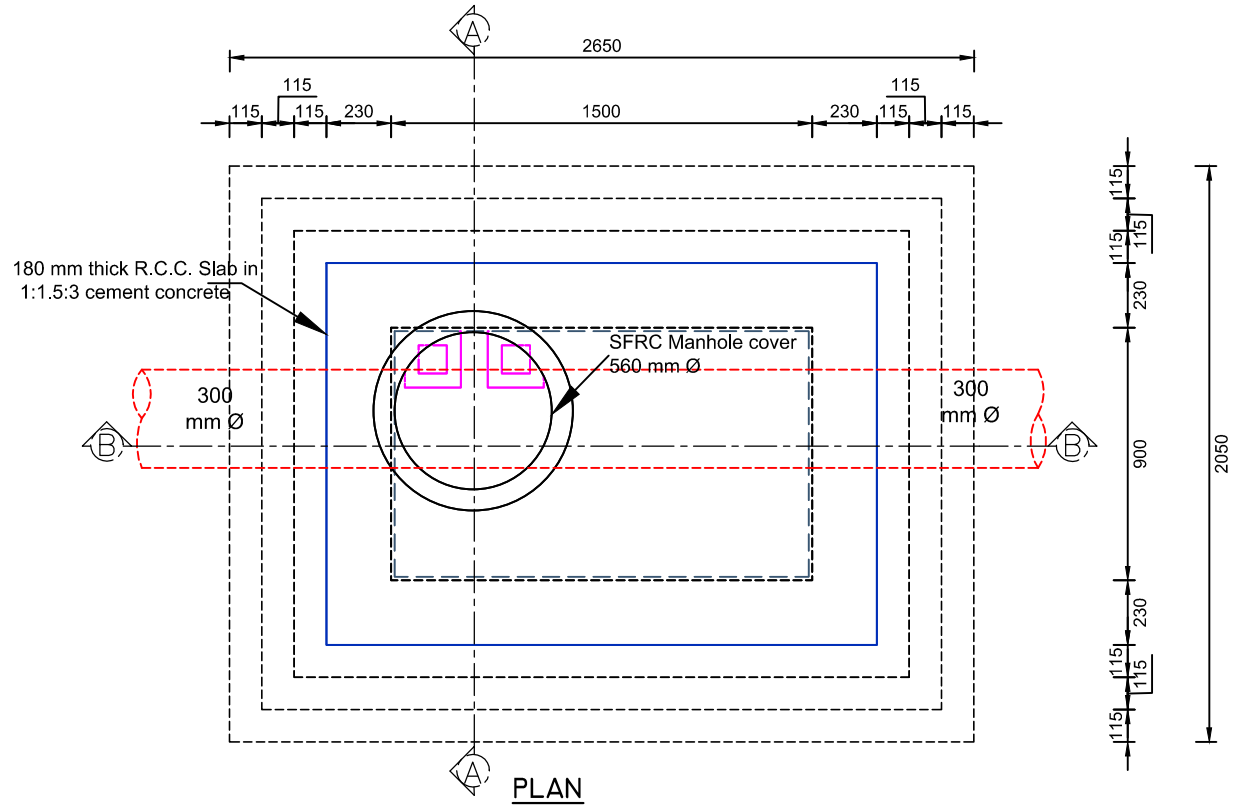
Client: MUNICIPAL CORPORATION GURGAON

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

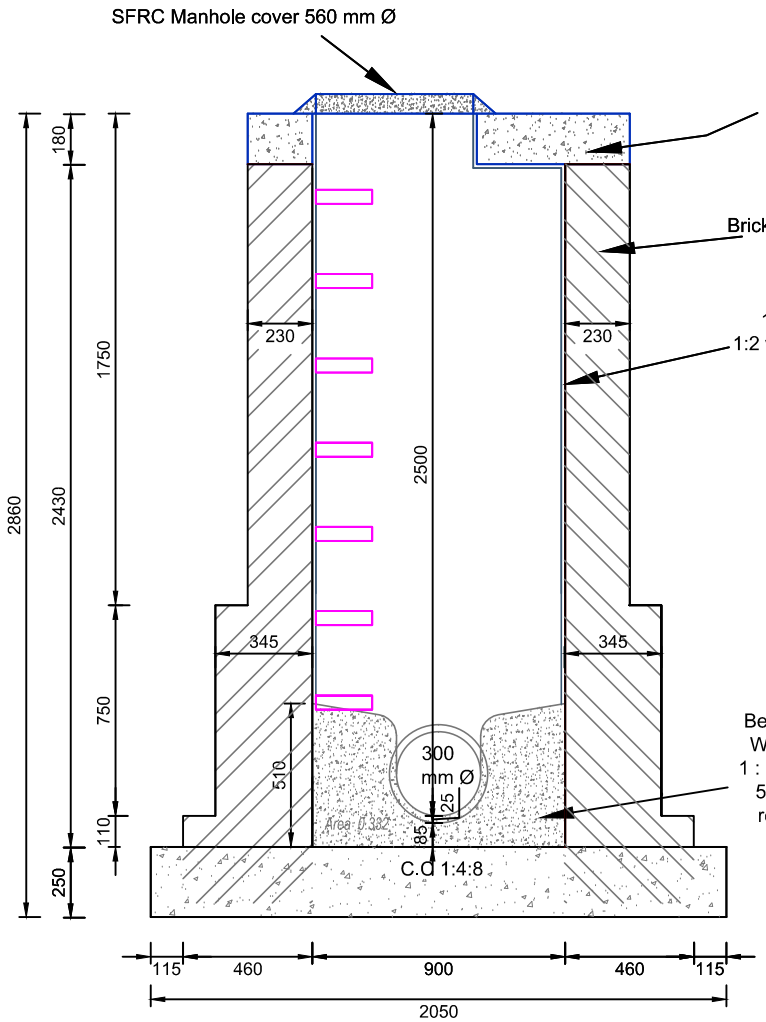
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S6B

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

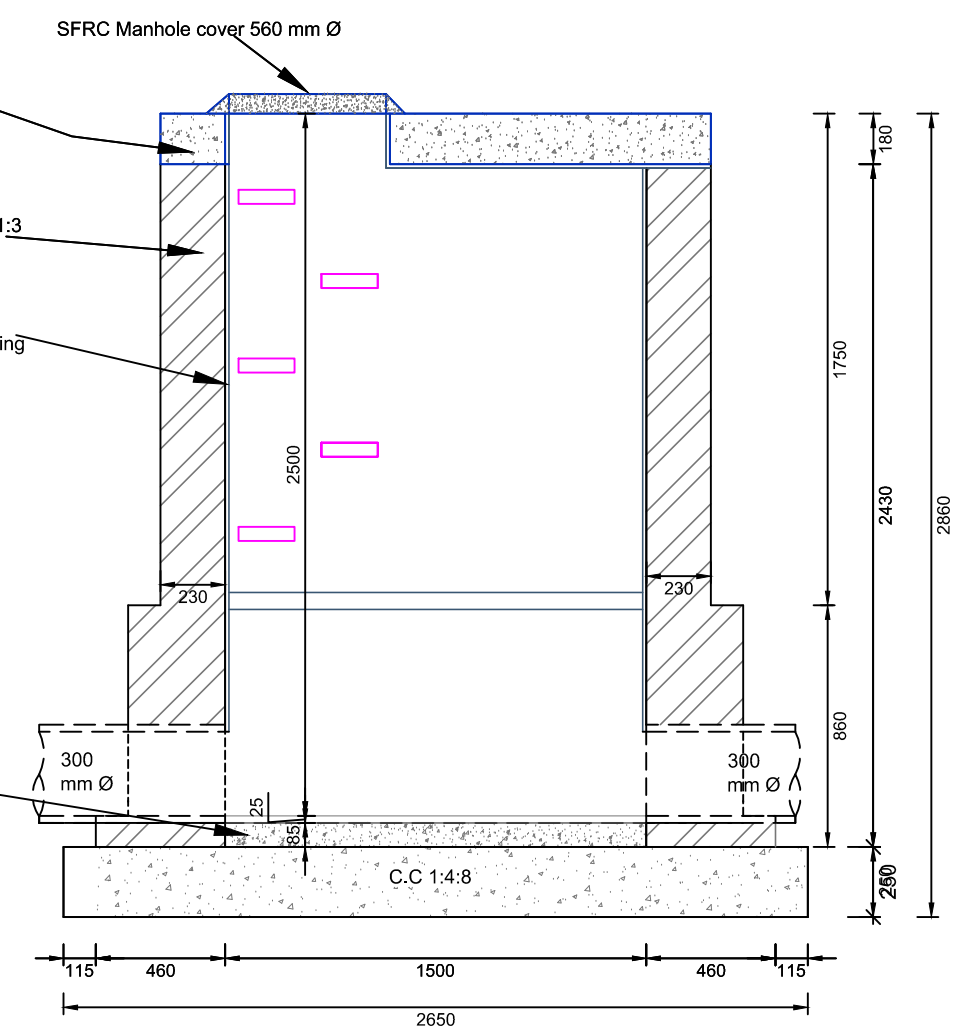
Drawing No.
DLF/S6A



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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

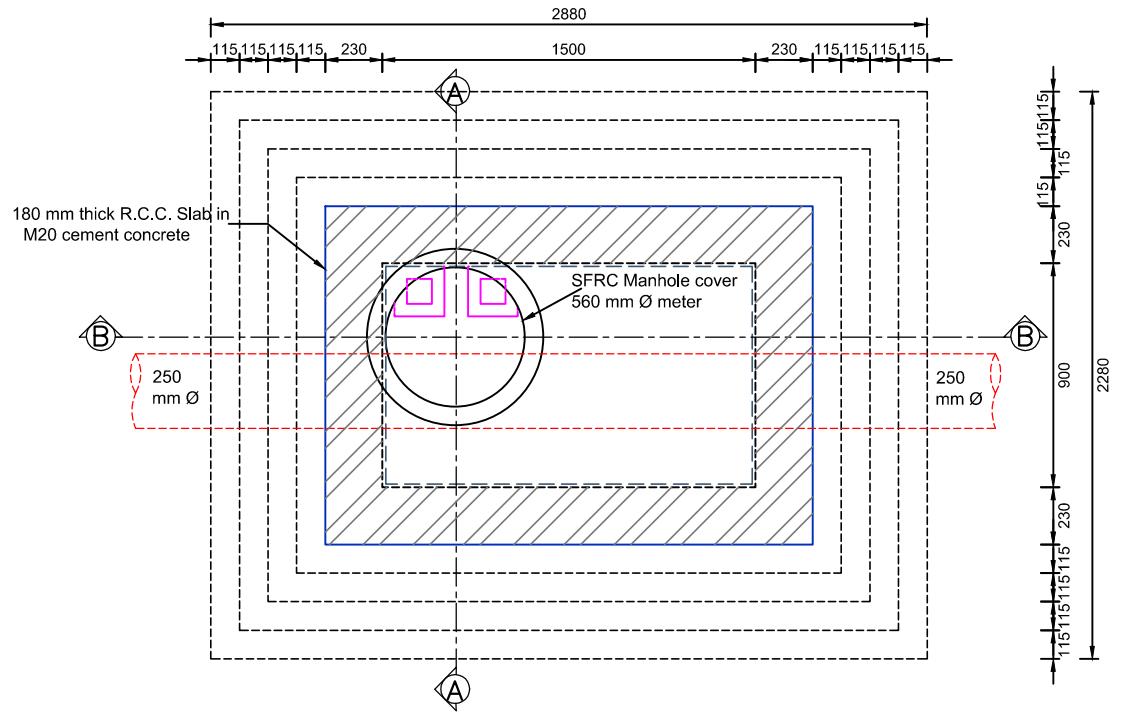
Title: Detail of Main Hole
Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM
Client: MUNICIPAL CORPORATION GURGAON

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

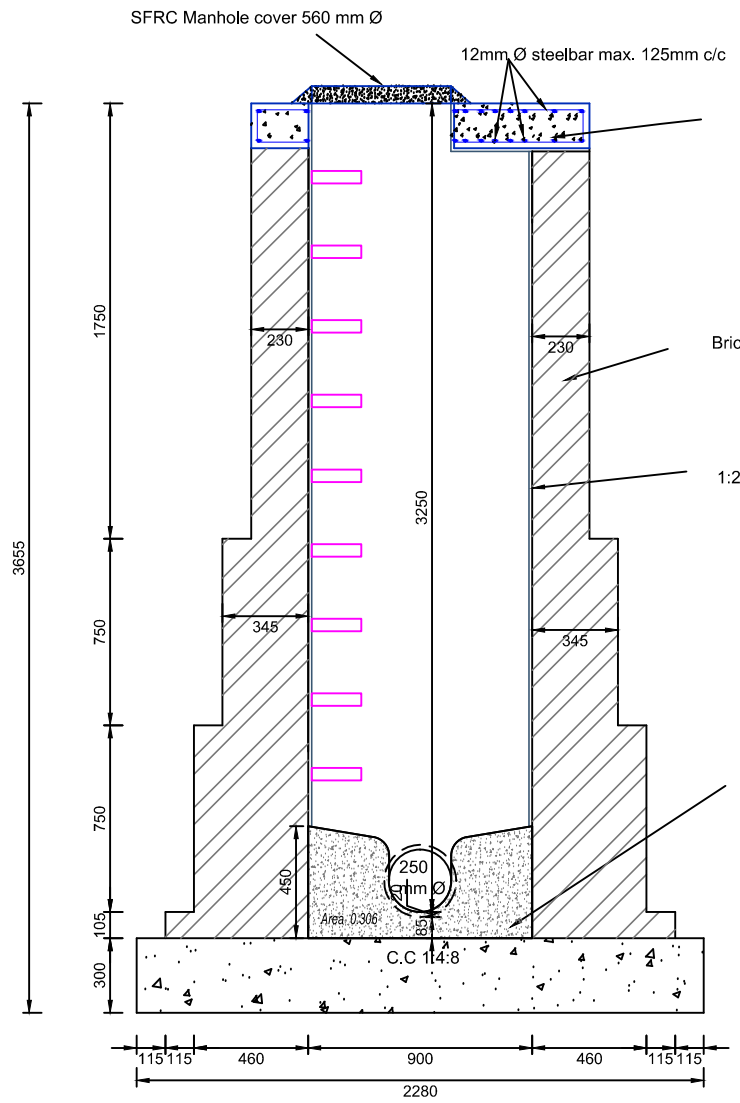
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S6A

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

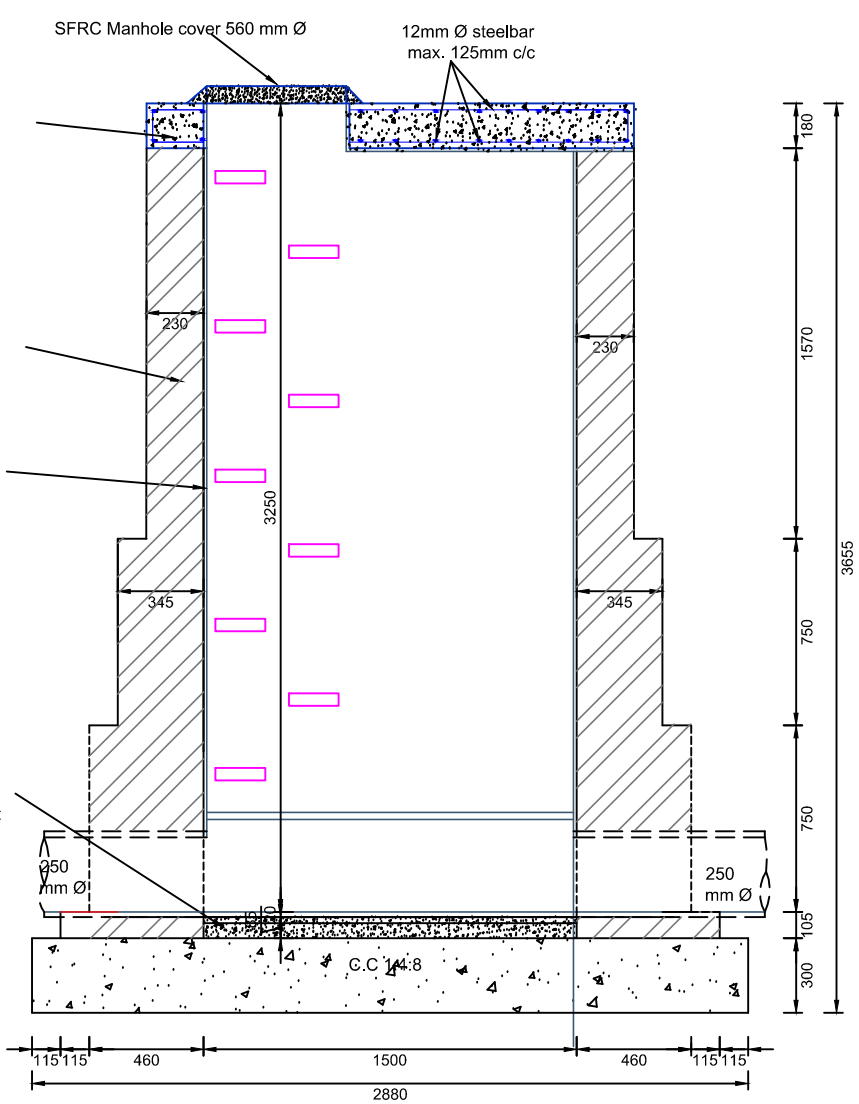
Drawing No.
DLF/S5B



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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG MUNICIPAL CORPORATION GURUGRAM

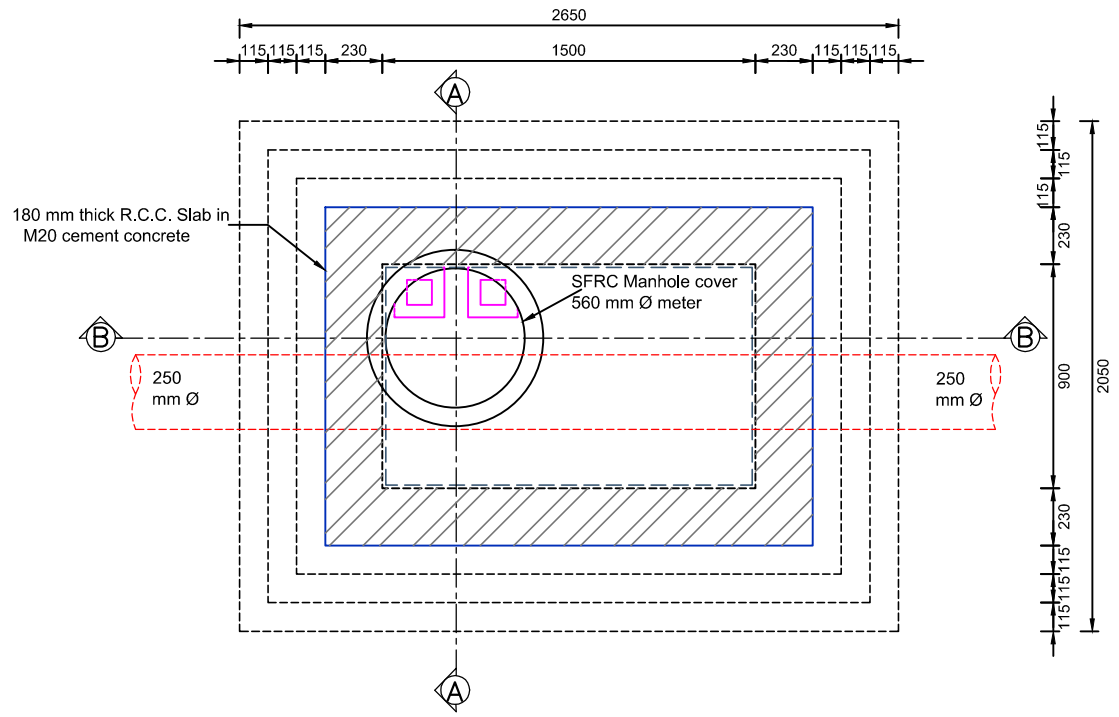
Services Planned & Designed by:

Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd
303-304 STAR TOWER
DLF Sector 30,
Gurgaon- 122001
Ph: 0124-4334715
FAX: 4034714

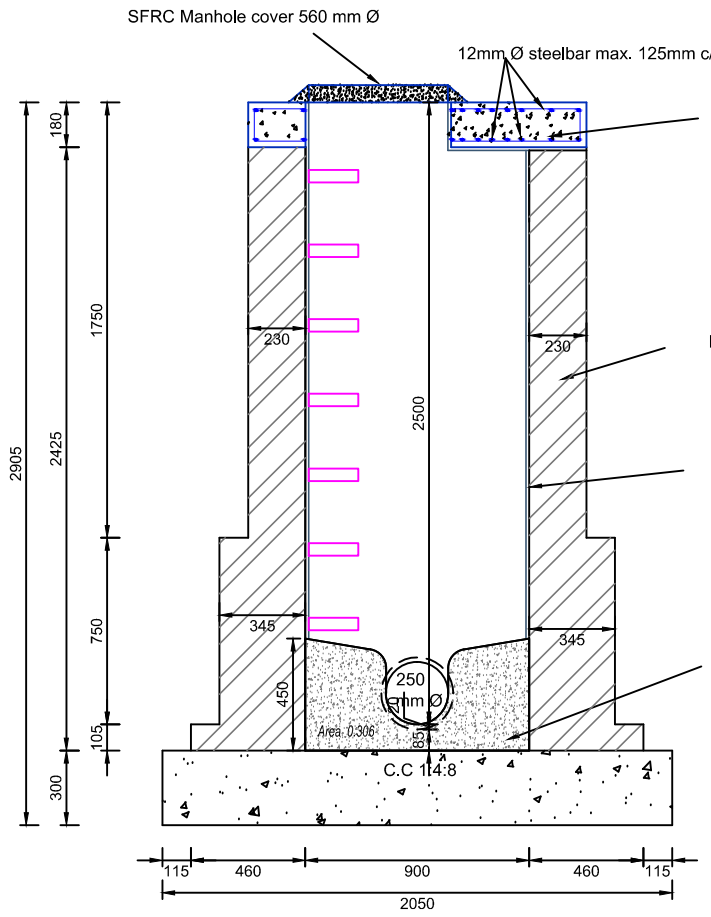
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S5B

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

Drawing No.
DLF/S5A



PLAN



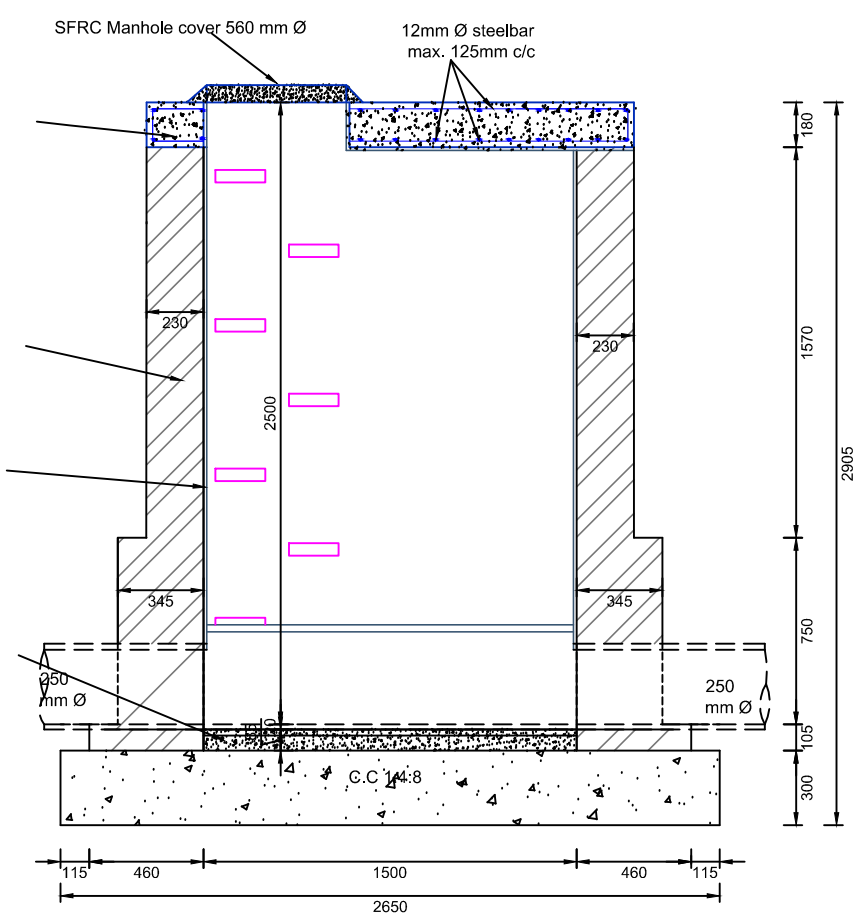
SECTION A-A

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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Main Hole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

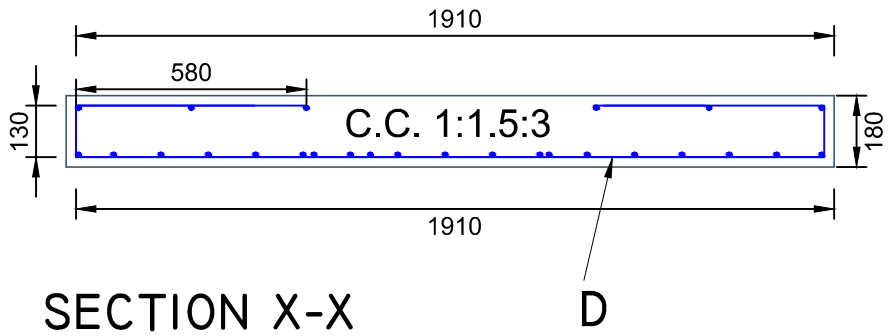
MCG MUNICIPAL CORPORATION GURGAON
MUSTERING GURUGRAM

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

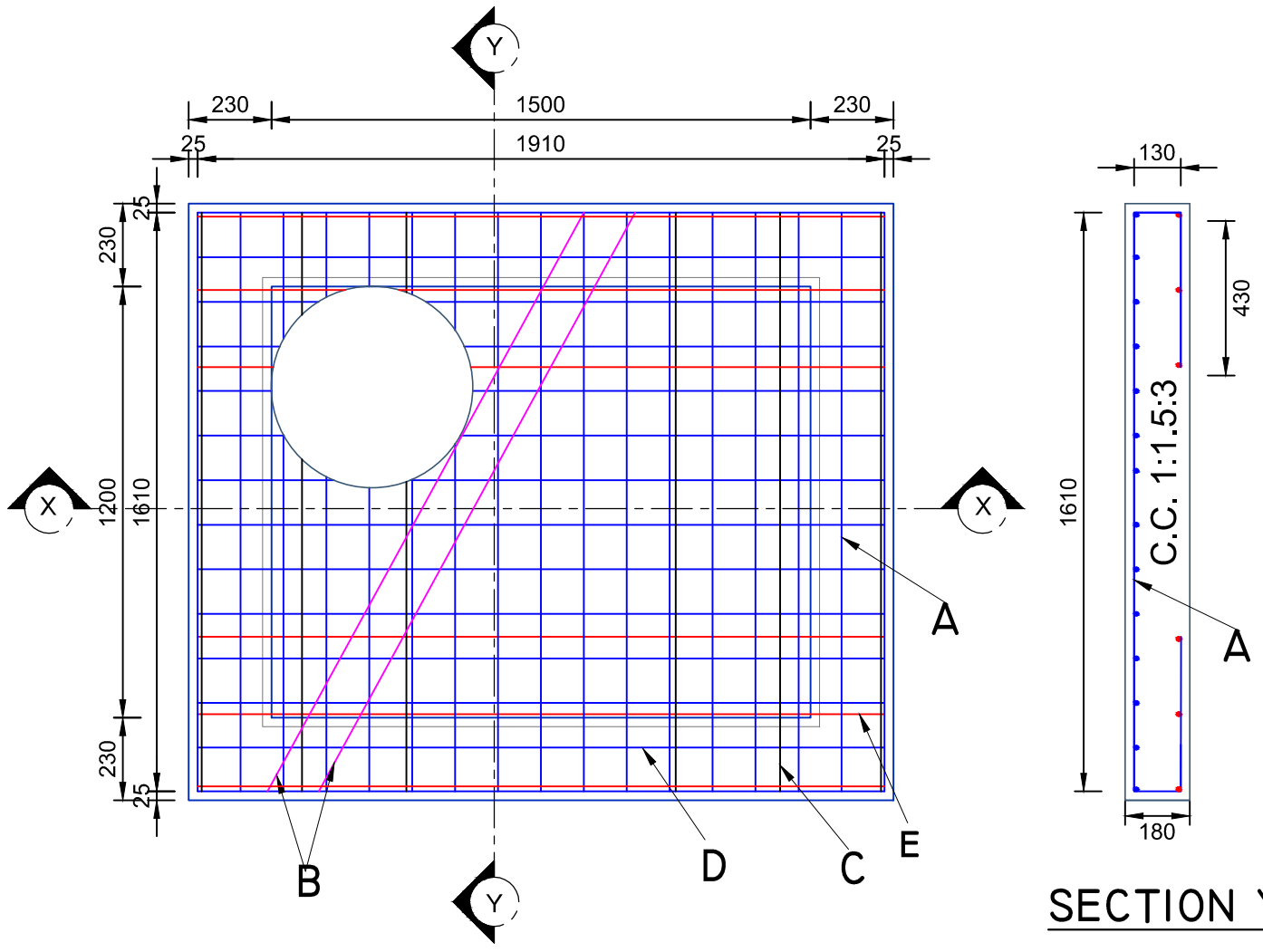
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S5A

Detail of Slab
1500 x 1200

Drawing No.:
DLF/S4B



SECTION X-X



TOP SLAB I500xI200

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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Slab

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

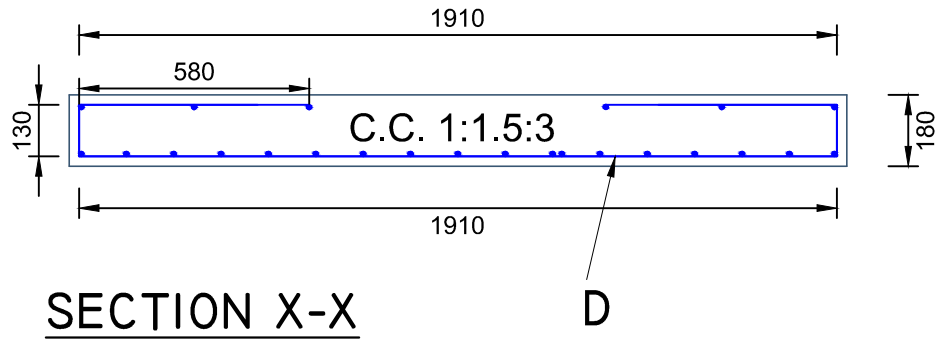
Services Planned & Designed by:
Consultants Pvt. Ltd.
Director Infrastructure
For ky Consultants Pvt.Ltd

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

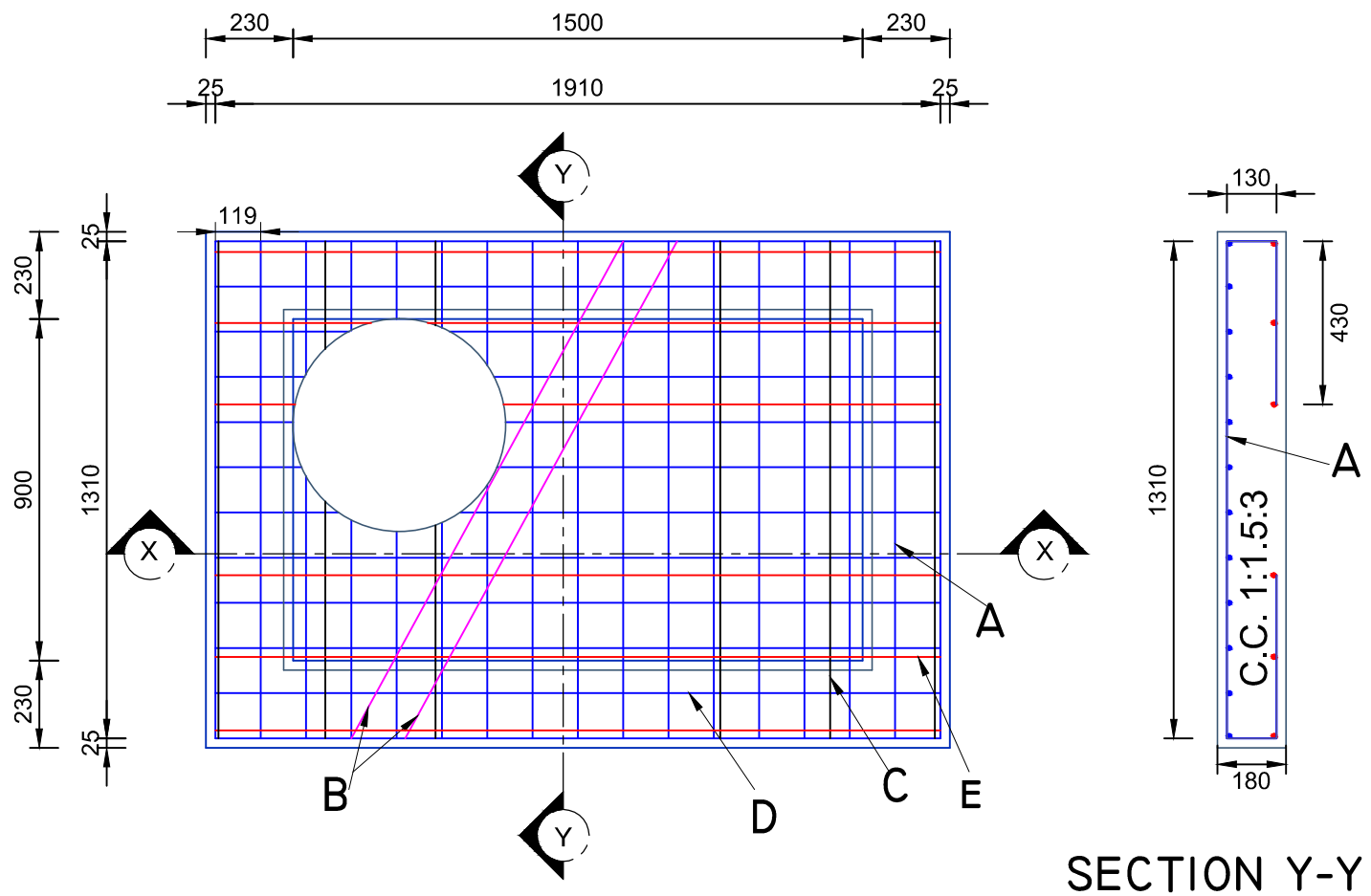
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-4B

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	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Slab

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 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

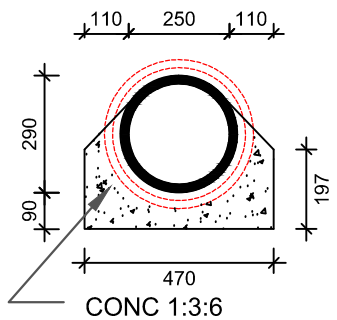
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-4A

UPGRADATION OF AVAILABLE INFRASTRUCTURES
OF DLF PHASE 1 GURUGRAM

Drawing No.:
DLF/S3A

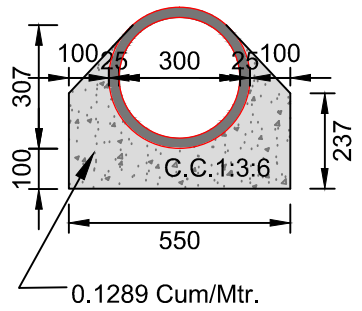
RCC.NP3 Pipes

SIZE 250 MM Ø



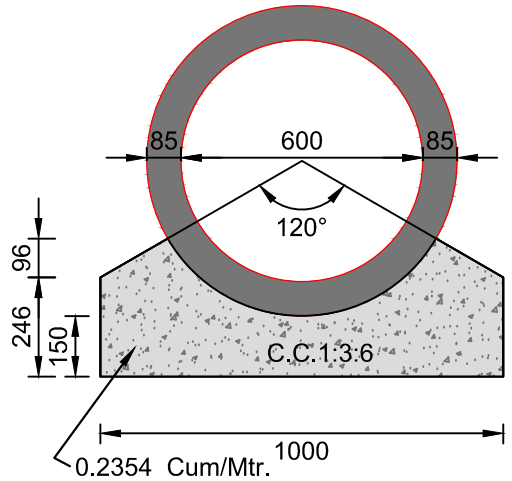
CONC 1:3:6
0.0930 Cum/Mtr.

SIZE 300MM Ø RCC NP3 HDPE LINED PIPES



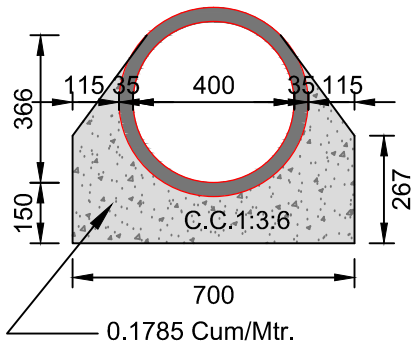
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Size 600 MM Ø NP3 HDPE LINED PIPES



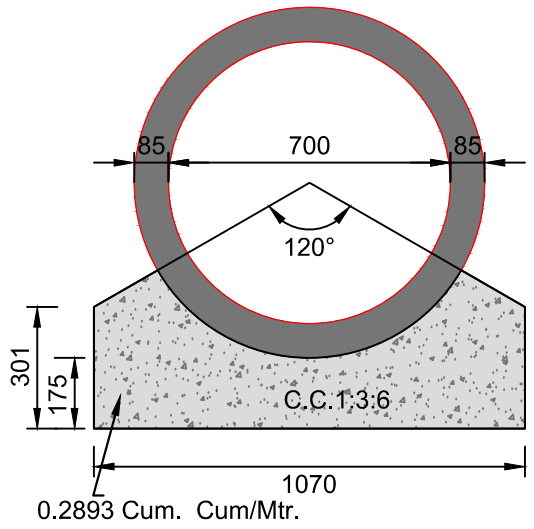
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SIZE 400 MM Ø NP3 HDPE LINED PIPES



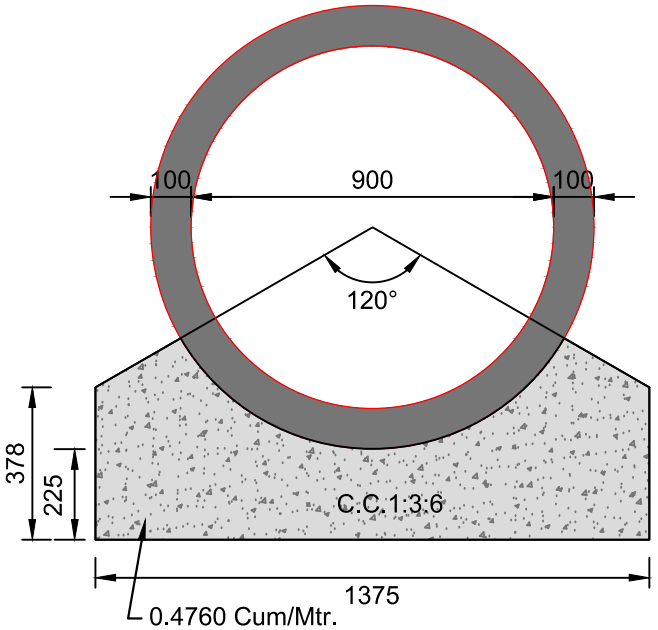
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Size 700 MM Ø NP3 HDPE LINED PIPES



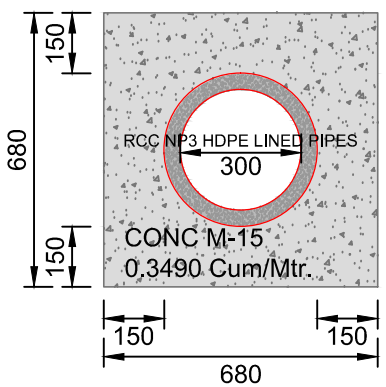
0.2893 Cum. Cum/Mtr.

Size 900 MM Ø NP3 HDPE LINED PIPES

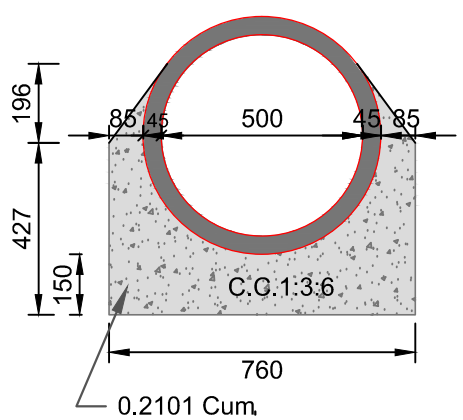


0.4760 Cum/Mtr.

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

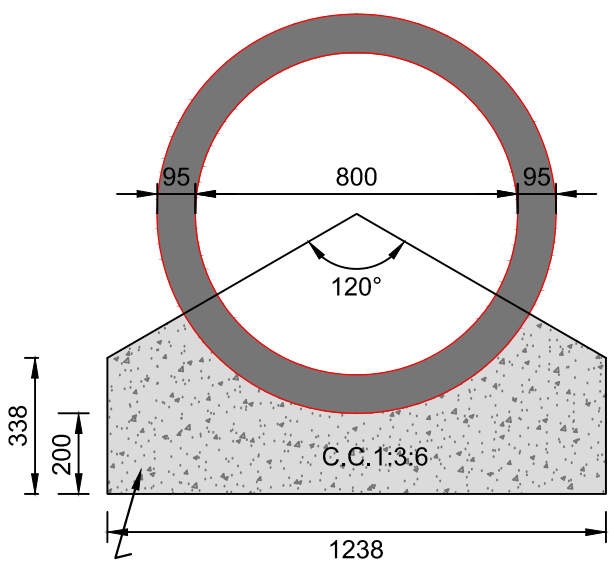


Size 500 MM Ø NP3 HDPE LINED PIPES



0.2101 Cum.

Size 800 MM Ø NP3 HDPE LINED PIPES



0.3826 Cum/Mtr.

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	27-07-2017	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 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG MUNICIPAL CORPORATION OF GURGAON 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

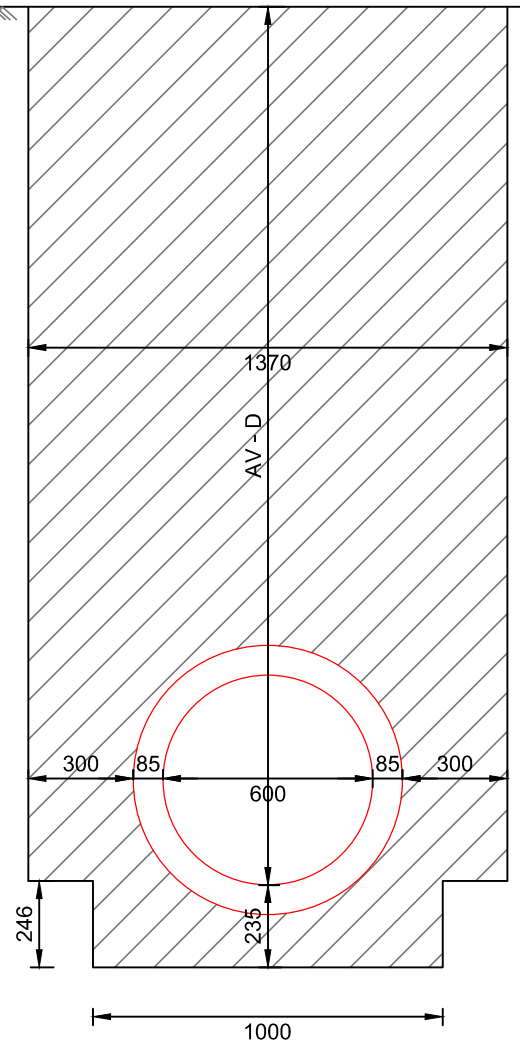
Approved	Design	Checked	Drawing	Drawing No.
K.K.Bhugra	Y.P.Mathur	S. Arora	Sunita	MCG/DLF/S-3A

Excavation X-Section
Sewer water
RCC Pipe NP-3

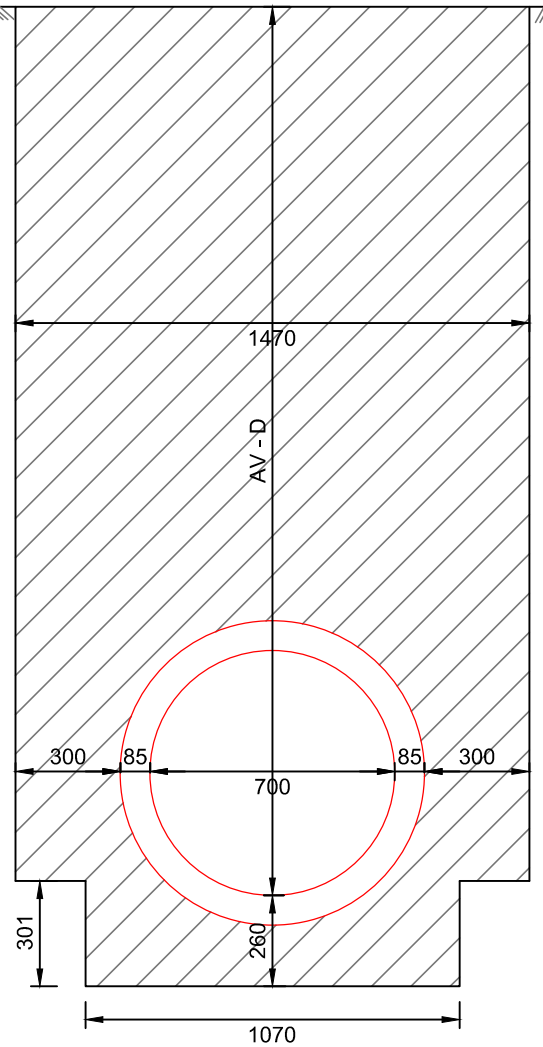
Pipe Size = 600MM Ø, 700MM Ø & 800MM Ø

Drawing No.
DLF/S2B

Ground Level

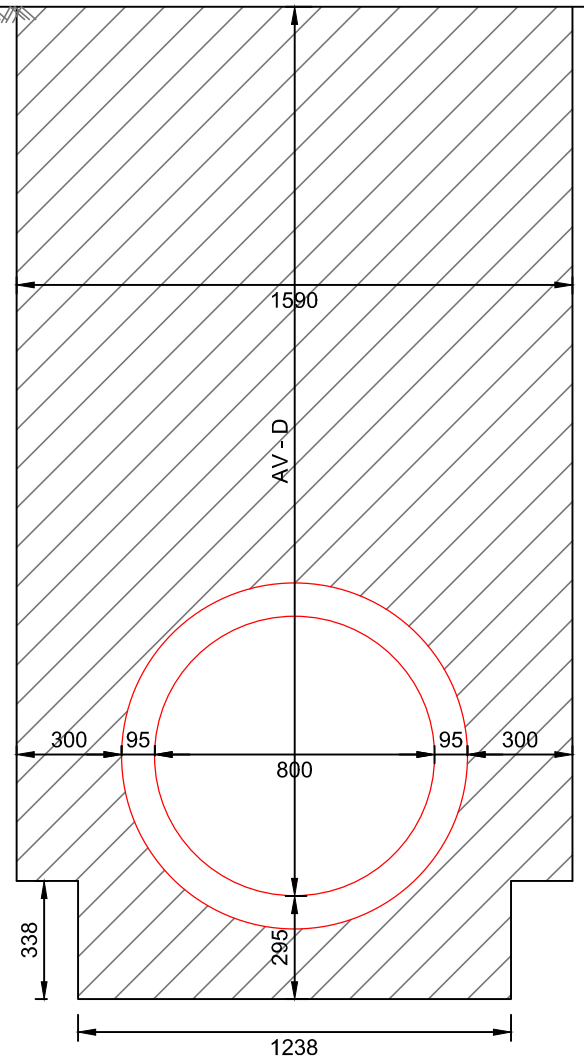


Size 600 MM Ø



Size 700 MM Ø

Ground Level



Size 800 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

RCC NP3 Pipe Size = 600MM Ø, 700MM Ø & 800MM Ø

Date	27-07-2017	Description			
Original Issue					
Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Excavation Manhole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.

Director Infrastructure
For ky Consultants Pvt.Ltd

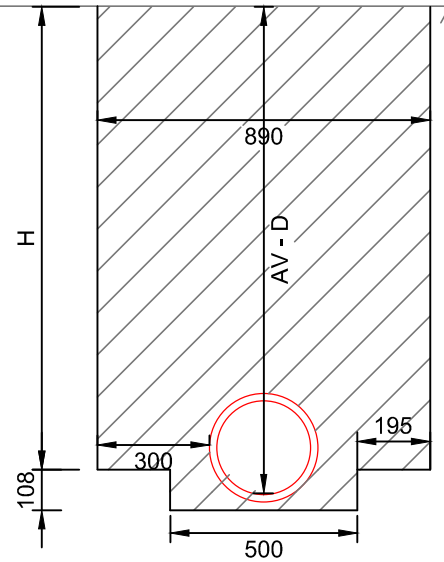
303-304 STAR TOWER
DLF,Sector 30,
Gurgaon- 122001
Ph: 0124-4034715
FAX: 4034714

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

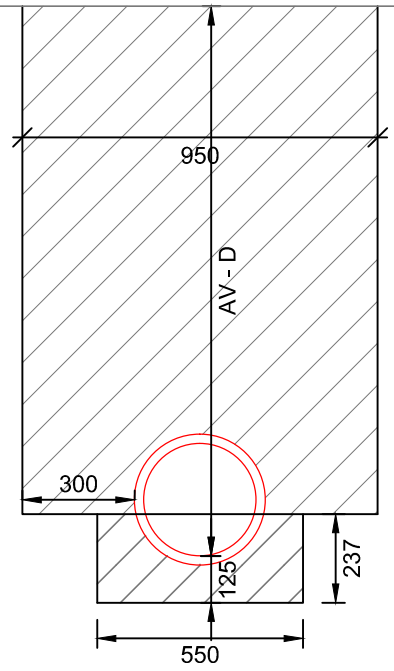
Excavation X-Section
Sewerage System

Drawing No.:
DLF/S2A

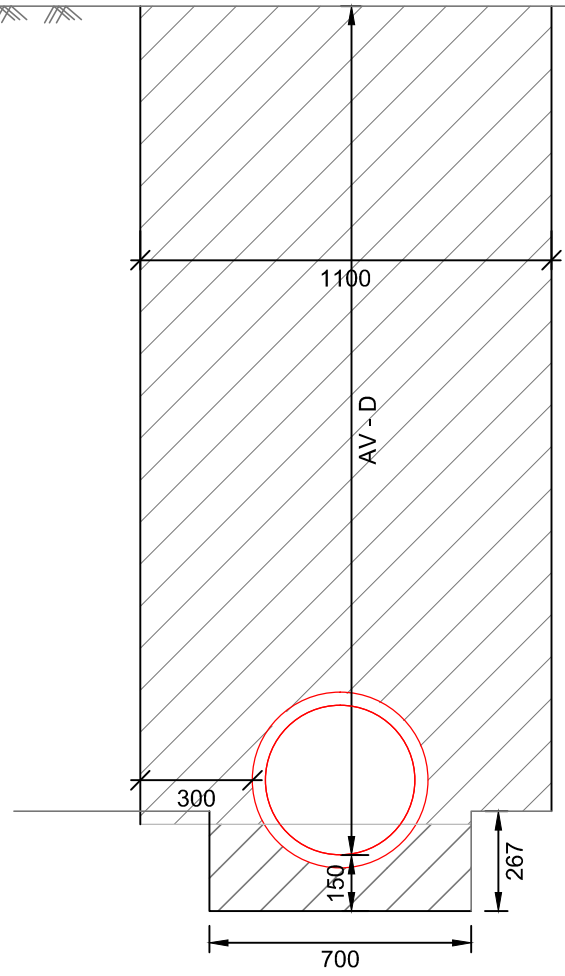
Ground Level



Ø = 250mm

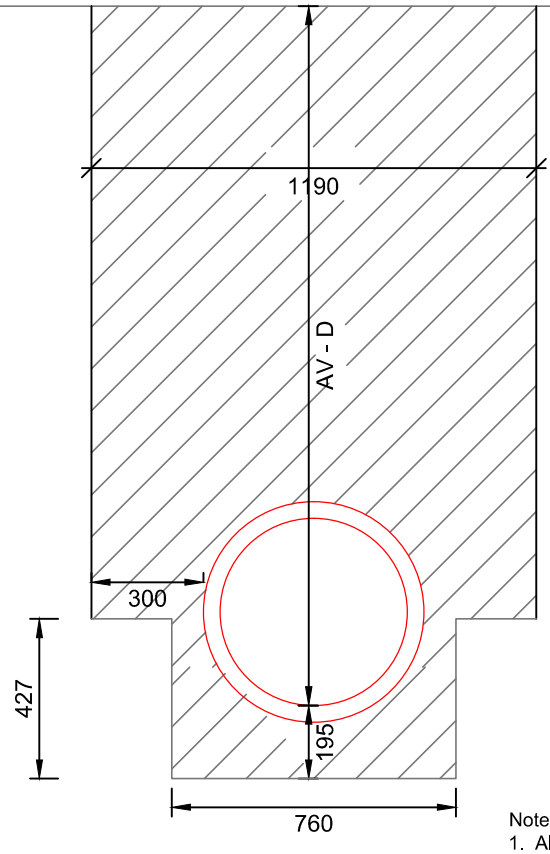


Ø = 300mm



Ø = 400mm

Ground Level



Ø = 500mm

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

Excavation X-Section Sewerage System 250mmØ,300mmØ, 400mmØ & 500mmØ

Date	27-07-2017	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: Detail of Excavation Manhole

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

Client: MUNICIPAL CORPORATION GURGAON

MCG Municipal Corporation Gurgaon NURTURING GURUGRAM

Services Planned & Designed by:

Consultants Pvt. Ltd.
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For ky Consultants Pvt.Ltd
303-304 STAR TOWER
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Ph: 0124-4034715
FAX: 4034714

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

Drawing No.
MCG/DLF/RC

UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 GURUGRAM

LEGEND :-

	PROPOSED PIPE LINE
	EXISTING STP

Rev.	Date	Description
Original Issue		

Concept	Submission	DPR	Tender	GFC	As Built

Title: LAY OUT PLAN RECYCLING WATER

Project: UPGRADATION OF AVAILABLE INFRASTRUCTURES OF DLF PHASE 1 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.K. Gupta	KAMAL	MCG/DLF/RC