

DETAILS OF SEWER LINES												
Manhole No.	Length	Dia. (mm)	Slope	MH Invert Level		MH Invert Level		Depth				
				Upper End	Lower End	Upper End	Lower End					
From	To	(m)	1 in	(m)	(m)	(m)	(m)	(m)				
S1	S2	68	250	0.90	-0.45	1.35	0.90	-0.79	1.69			
S2	S3	50	250	0.90	-0.79	1.69	0.90	-0.99	1.69			
S3	S4	63	250	0.90	-0.99	1.99	0.90	-1.20	2.10			
S4	S5	42	250	0.90	-1.20	2.10	0.90	-1.54	2.24			
S5	S6	57	250	0.90	-1.54	2.24	0.90	-1.53	2.43			
S6	S7	68	250	0.90	-1.53	2.43	0.90	-1.76	2.66			
S7	S8	60	250	0.90	-1.76	2.66	0.90	-1.96	2.86			
S8	S9	67	250	0.90	-1.96	2.86	0.90	-2.18	3.08			
S9	S10	45	250	0.90	-2.18	3.08	0.90	-2.33	3.23			
S10	S11	73	300	0.90	-2.38	3.28	0.90	-2.56	3.46			
S11	S12	65	300	0.90	-2.56	3.46	0.90	-2.73	3.63			
S12	S13	57	300	0.90	-2.73	3.63	0.90	-2.87	3.77			
S13	S22	141	300	0.90	-2.87	3.77	0.90	-3.22	4.12			
S14	S15	54	250	0.90	-0.45	1.35	0.90	-0.72	1.82			
S15	S16	40	250	0.90	-0.72	1.82	0.90	-0.92	1.82			
S16	S17	40	250	0.90	-0.92	1.82	0.90	-1.12	2.02			
S17	S18	27	250	0.90	-1.12	2.02	0.90	-1.26	2.16			
S18	S19	29	250	0.90	-1.26	2.16	0.90	-1.40	2.30			
S19	S20	67	250	0.90	-1.40	2.30	0.90	-1.74	2.64			
S20	S21	24	300	0.90	-1.79	2.69	0.90	-1.87	2.77			
S21	S22	13	300	0.90	-1.87	2.77	0.90	-1.91	2.81			
S22	STP	53	400	0.90	-3.70	4.60	0.90	-3.79	4.69			
OUT	145	400	0.90	-3.70	4.60	0.90	-3.94	4.84				

DESIGN OF SEWER LINE	
Population	
Apartments	= 12,672 Persons
Club	= 1,270 Persons
Floating Population	= 630 Persons
Staff	= 630 Persons
Total Water Demand (Domestic Fresh Water)	
Apartments	= 11,40,480 Liters
Club	= 57,150 Liters
Floating Population	= 3,150 Liters
Staff	= 15,750 Liters
Commercial (L.S)	= 15,000 Liters
Filter Backwash	= 40,000 Liters
Makeup Water for Swimming Pool	= 15,000 Liters
Total Water Demand (Recycle Water)	
Apartments	= 5,70,240 Liters
Floating Population	= 6,300 Liters
Staff	= 12,600 Liters
Horticulture	= 2,09,138 Liters
Flow to Sewer (Domestic Fresh Water) By taking Interception	
Factor	= 80%
Flow to Sewer (Recycle Water) By taking interception factor	= 5,70,228.0 Lit/day
Hence Total Sewage Load	= 15,55,450 Lit/day
or	= 18.00 Lit/sec
By taking Peak Factor	
Peak Sewage Generated (3 times of Avg. Flow)	= 54.01 Lit/sec
Sewer Pipe Design	
Final Sewage Pipe Dia Selected	= 400 mm
Slope (1 in ...)	= 600
Sewer Design as per Manning Formula	
V =	$3.988 \times 10^{-3} \times D^{0.93} \times S^{1/2}$
V =	0.88 m/sec
D =	400 mm
S =	600
n =	0.01
V =	Velocity (m/sec)
Actual Pipe Capacity (Q)	
at 100% flow	= $110^2 \times V$
Q =	0.110457 m ³ /sec
Q =	110.46 Lit/sec
Where -	
D =	Dia (mm)
V =	Velocity (m/sec)
Pipe Capacity	= 0.88
Q =	(at full flow)
m ³ /sec	
Peak Sewage Generated (site peak discharge)	= 54.01 Lit/sec
Actual Pipe Capacity at 100% flow	= 110.46 Lit/sec
Site peak discharge is less than 80% of pipe capacity, hence 400 mm Pipe Dia is OK	



LEGEND :		
S. No.	SYMBOL	DESCRIPTION
1.	M.H. 	MANHOLE
2.		SEWER LINE
3.		BASEMENT RETAINING WALL
4.	F.L. 	FORMATION LEVEL
5.	I.L. 	INVERT LEVEL
6.	C.L. 	CONNECTION LEVEL



project	PROPOSED GROUP HOUSING FOR RG LUXURY AT, PLOT NO. GH 07A SECTOR 16B, GREATER NOKIA WEST GAUTAMBUH NAGAR (UP)
title	LAYOUT PLAN
subtile	EXTERNAL SEWERAGE SYSTEM
drawing released for	☐ APPROVAL ☒ MUN. SUBMISSION ☐ ADVANCE COPY ☐ CONSTRUCTION
dra. no.	RG/10837/LS-01
scale	1 : 750
date	02.05.2018
architects	Confidence B-421, NTC, MD-65, MIDN, Member of IBCSC, ISO : 9001 : 2008 Ph- +91-11-28216066, T-14866478, cse@confidence.com, www.confidence.com
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