



LEGEND :

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

WATER REQUIREMENT CALCULATIONS														
S.No.	Description	Built up Area	Horticulture Water Requirement	No. of Units / Seats	Unit Population	Total Population	Domestic Fresh Water Requirement (A)		Recycle Water Requirement (B)		Total Water Requirement (A+B)	Flow to Sewer		
		(Sq.M)	per Sq.M Area				LPCD	LPD	LPCD	LPD	LPD	Domestic 80%	Flushing 100%	LPD
1	Office Population	52703			10 Sgh/person	5280	25	132000	20	106600	237600	105600	105600	211200
2	Floating Population (Office)				10% of above	528	5	2640	10	5280	7920	2112	5280	7392
3	Office Population (night)					1320	25	33000	20	26400	59400	26400	26400	52800
4	Misc / Cafeteria (LS)							5000			5000	4000	0	4000
5	Maintenance Staff					100	25	2500	20	2000	4500	2000	2000	4000
6	Filter Backwash							10000			10000		10000	10000
7	AC Makeup Water								190000		190000			
8	Horticulture	10393	7							72751	72751			
	Total							1,85,140		4,02,031	5,87,171	1,40,112	1,49,280	2,89,392

SUMMARY OF WATER REQUIREMENT / UGT & STP CAPACITY CALCULATION		
	Description	Water Requirement (KLD)
	Domestic Fresh Water Requirement	185
	Recycle Water Requirement	402
	Flow to Sewer	289
	STP Capacity required	289
	STP Capacity provided (by adding 20% as per MOEF)	347
	STP Capacity rounded off	350

DESIGN OF SEWER LINE			
Total Sewage Load (As per water load sheet)	=	2,89,392 or 3.35	Lit/day Lit/sec
By taking Peak Factor	=	@ 3	
Peak Sewage Generated (3 times of Avg. Flow)	=	10.05	Lit/sec
Sewer Pipe Design			
Final Sewage Pipe Dia Selected	=	200	mm
Slope (1 in ...)	=	250	
Sewer Design as per Manning Formula			
$V = \frac{3.986 \times 10^{-3} \times D^{148} \times S^{1/2}}{n}$			
$V =$		0.78	m/sec
D = Dia (mm)	=	200	mm
S = Slope	=	250	
n = Manning Coefficient	=	0.011	
V = Velocity (m/sec)	=		
Actual Pipe Capacity (Q) at 100% flow	=	$\frac{\pi D^2 \times V}{4}$	
	=	0.024500	m ³ /sec
Q =	=	24.50	Lit/sec
Where -			
D = Dia (mm)	=	200	mm
V = Velocity (m/sec)	=	0.78	
Q =	=		
	=		
	=		
	=		
Peak Sewage Generated (site peak discharge)	=	10.05	Lit/sec
Actual Pipe Capacity at 100% flow	=	24.50	Lit/sec
Site peak discharge is less than 50% of pipe capacity, hence 200 mm Pipe Dia is			

rev. no.	date	revision
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project
PROPOSED IT-3, IT-SEZ,
ON PLOT NO. TZ-6, GREATER NOIDA

title
LAYOUT PLAN

EXTERNAL SEWERAGE SYSTEM

drawing released for

☒ SUBMISSION	☐ APPROVAL
☐ ADVANCE COPY	☐ CONSTRUCTION

drg. no. IT-3 / 23B01 / ES-01	drawn by Prem Saini
scale 1 : 375	designed by Badri Vishal
date 21.07.2023	checked by Anand Havelia

Architects : **ACPL** **Architecture Management Planning** ISO 9001:2015

ACPL Design Ltd

E-24 South Extension -I T: +91 11 24622195
New Delhi 110049, India F: +91 11 24646709
E: contact@acplonline.com F: +91 11 24634069

www.acplonline.com

services consultant
Consummate Engineering Services (P) Ltd.

 Noida Office : B - 67, Sector - 67, Noida - 201 301
Lko. Office : R 006, Rohtas Plumeria, Gombi Nagar, Lucknow
Tel : (0120) 2303500 (30 Lines)
e mail : mail@cespi.in, website : www.cespi.in



2 NOS 33 KV
TRANSFORMER

33 KV VCB ROOM

33 KV HT
METER ROOM