



**PROJECT - PROPOSED "VIP YAMUNA" GROUP HOUSING  
AT PLOT NO. GH-01B/2, SECTOR-22D, YAMUNA EXPRESS WAY (U.P.)**

**DESIGN OF SEWER LINE**

Population		
Total No. of Apartments	-	484 Nos.
Total Permanent Population	@ 5.0	2,420 Persons
Club & Floating Population	-	750 Persons
Staff	-	300 Persons
<b>Total Water Demand</b>		
Apartments	@ 135 lpcd	320,700 Liters
Club & Floating	@ 15 lpcd	11,250 Liters
Staff	@ 45 lpcd	13,500 Liters
<b>Total Water Demand = 351,450 Liters</b>		
By taking Interception factor @ 90%		
Hence Total Sewage Load	-	316,305 Lit/Day or 3.66 ltr/sec
By taking Peak Factor @ 3		
Peak Sewage Generated (3 times of Avg. Flow)	-	10.98 Lit/sec
<b>Sewer Pipe Design</b>		
Final Sewage Pipe Dia Selected	-	250 mm
Slope (1 in ...)	-	250
Sewer Design as per Manning Formula		
$V = \frac{3.186 \times 10^{-3} \times R^{2/3} \times S^{1/2}}{n}$		
$V = 1.00 \text{ m/sec}$		
D = Dia (mm) = 250 mm		
S = Slope = 250		
n = Manning Coefficient = 0.01		
V = Velocity (m/sec)		
Actual Pipe Capacity (Q) at 100% flow		
$Q = 0.048863 \text{ m}^3/\text{sec}$		
$Q = 48.86 \text{ Lit/sec}$		
Where:		
D = Dia (mm) = 250 mm		
V = Velocity (m/sec) = 1.00		
Q = Pipe Capacity (at full flow) m <sup>3</sup> /sec		
Peak Sewage Generated (site peak discharge)	-	10.98 Lit/sec
Actual Pipe Capacity at 100% flow	-	48.86 Lit/sec
Site peak discharge is less than 50% of pipe capacity, hence 250 mm Pipe Dia is OK		

**LEGEND :**

S. No.	SYMBOL	DESCRIPTION
1.	M.H.	MANHOLE
2.	—○—	SEWERLINE
3.	---	BALANCE TREATED WATERLINE
4.	----	BASEMENT LINE



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AT PLOT NO. GH-01B/2, SECTOR-22D, YAMUNA  
EXPRESSWAY INDUSTRIAL DEVELOPMENT  
AUTHORITY (YEIDA), G. B. HAZAR (U.P.)

**Title**  
SITE PLAN (Authority Submission)  
**Subtitle**  
EXTERNAL SEWERAGE SYSTEM

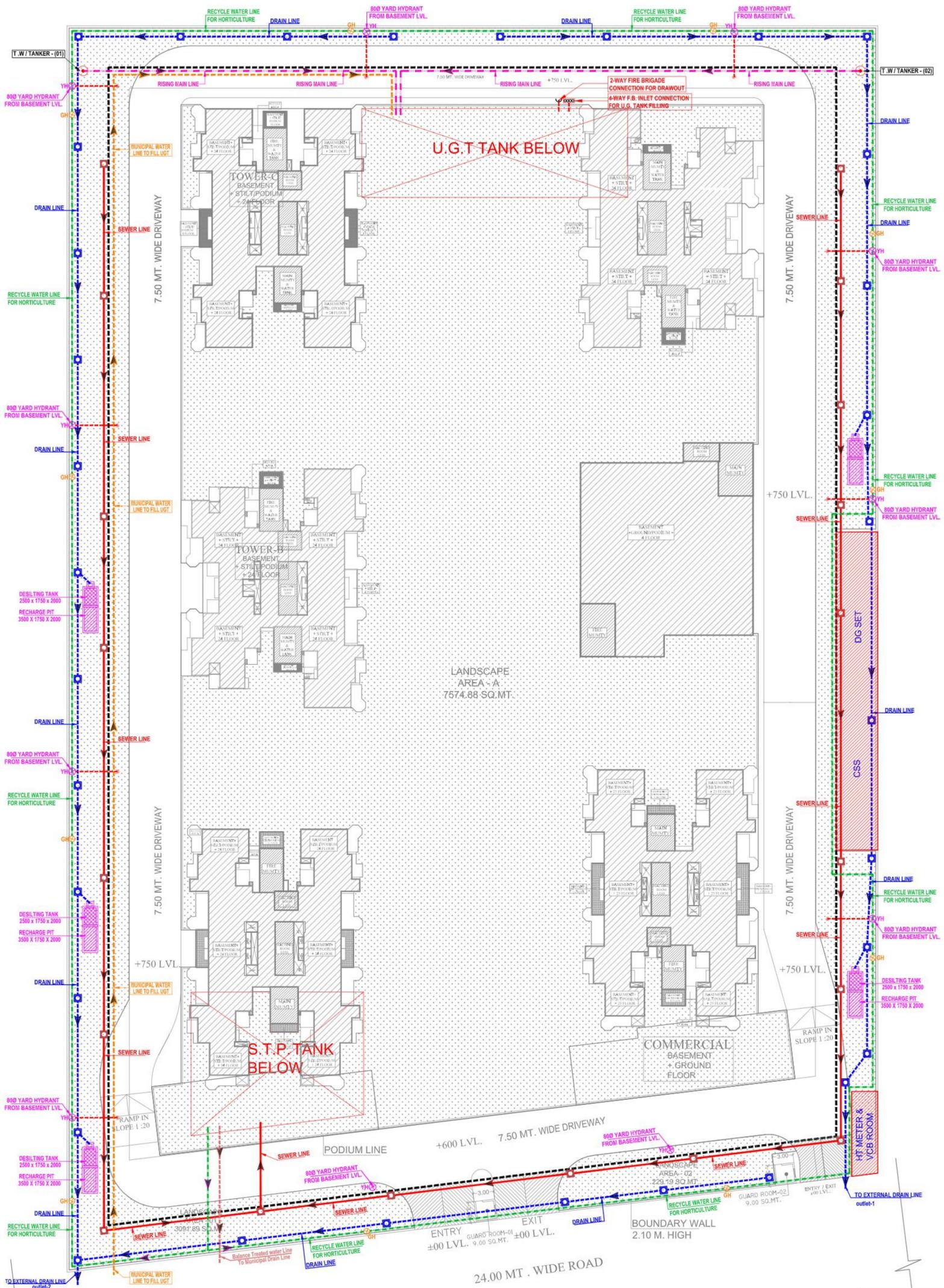
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 CONSTRUCTION

**Drg. no.**  
WVIP YA / EX / S-01  
**Scale**  
1 : 310  
**Date**  
Sep. 2025

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**LEGEND :**

S. No.	SYMBOL	DESCRIPTION
1	M.H.	MANHOLE
2	—	SEWER LINE
3	---	BALANCE TREATED WATER LINE
4	C.P.	CATCH PIT
5	—	UNDERGROUND DRAIN
6	—	RAIN WATER HARVESTING
7	---	RECYCLED WATER SUPPLY PIPE LINE
8	---	RISEING MAIN WATER PIPE LINE
9	---	MUNICIPAL WATER SUPPLY PIPE LINE
10	—	ISOLATING VALVE
11	—	MASONRY CHAMBER FOR ISOLATING VALVE
12	—	PROPOSED TUBE WELL
13	—	BASEMENT LINE
14	GH	GARDEN HYDRANT

**LEGEND : FIRE SYSTEM**

S. No.	SYMBOL	DESCRIPTION
1.	---	FIRE LINE
2.	YH	YARD HYDRANT 63 ILL DIA. SINGLE HEADED HYDRANT VALVE WITH 2 NOS. 15 ILL LONG, 63 ILL DIA. FIRE HOSE PIPE & 1 NO. BRANCH PIPE WITH NOZZLE
3.	—	FIRE BRIGADE CONNECTION
4.	—	BUTTERFLY VALVE
5.	—	NONRETURN VALVE (CHECK VALVE)
6.	—	ISOLATING VALVE WITH MASONRY CHAMBER



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 AT PLOT NO. GH-01/02, SECTOR-23, YAMUNA  
 EXPRESSWAY INDUSTRIAL DEVELOPMENT  
 AUTHORITY (EIDA), G. B. NAGAR (I.P.)

**Title**  
**SITE PLAN (Authority Submission)**

**Subtitle**  
**EXTERNAL COMBINED SERVICES**

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