

## SANITARY SEWER INFRASTRUCTURE DESIGN GUIDELINES

1. FOLLOWING ARE DESIGN GUIDELINES FOR SANITARY SEWER INFRASTRUCTURE:

- A. MANHOLES SHALL BE INSTALLED AT THE END OF EACH PIPELINE, AT ALL CHANGES OF GRADE, AT CHANGES IN PIPE DIAMETER SIZE, AT HORIZONTAL ANGLE DEFLECTIONS AND AT SEWER PIPE INTERSECTIONS. THE MAXIMUM HORIZONTAL DISTANCE BETWEEN MANHOLES SHALL BE AS FOLLOWS:

PIPE DIAMETER (INCHES)	MAXIMUM MANHOLE SPACING (FEET)
8" – 15"	300 FEET
18" – 30"	500 FEET
36" – 60"	800 FEET

- B. THE MINIMUM ALLOWABLE SIZE FOR SANITARY SEWER GRAVITY PIPELINES SHALL BE 8 INCHES IN DIAMETER.
- C. THE MINIMUM ALLOWABLE SIZE FOR SANITARY SEWER LATERALS SHALL BE 4 INCHES IN DIAMETER.
- D. ALL SANITARY SEWER PIPELINES SHALL BE CONSTRUCTED WITH HYDRAULIC SLOPES SUFFICIENT TO GIVE MEAN VELOCITIES, WHEN FLOWING FULL OR HALF FULL, OF NOT LESS THAN 2.0 FEET PER SECOND, BASED ON *MANNING'S FORMULA*. FOR 8-INCH TO 30-INCH SEWERS, VELOCITIES SHALL BE DETERMINED USING A VALUE OF "N" (FRICTION COEFFICIENT) OF NOT LESS THAN 0.013. THE DESIGN OF OVERSIZED GRAVITY SEWER PIPE TO ACCOMMODATE LONGER RUNS TO AVOID DEEPER CUTS OR LIFT STATIONS IS STRICTLY



PROHIBITED. THE FOLLOWING MINIMUM GRADES ARE REQUIRED FOR GIVEN PIPELINE DIAMETER SIZES.

SEWER DIAMETER SIZE		MINIMUM SLOPE TO MAINTAIN 2.0 FT/SEC VELOCITY – BASED ON <u>N=0.013</u>
8"		0.35%
10"		0.28%
12"		0.22%
15"		0.15%
18"		0.12%
24"		0.10%
30"		0.08%

- E. THE MINIMUM INSIDE DIAMETER OF MANHOLES SHALL BE 4'-0"
- F. THE MANHOLES SHALL NOT BE PROVIDED WITH STEPS.
- G. SANITARY SEWER PIPELINES SHALL BE DESIGNED TO ABSORB SUPERIMPOSED LOADS AND BACKFILL OVERBURDEN WITHOUT DAMAGING THE PIPE MATERIAL AND WITHOUT ADVERSELY AFFECTING THE HYDRAULIC CHARACTERISTICS OF THE PIPE. THE MINIMUM VERTICAL DISTANCE FROM FINISHED PAVEMENT OR FINISH NATIVE SURFACE TO THE TOP OF THE PIPE SHALL BE 3 FEET.
- H. INSTALLATION OF SANITARY SEWER MAINS AND LATERALS IN AREAS NOT CONTAINED WITHIN EASEMENTS OR RIGHT OF WAYS IS PROHIBITED IN THE CITY OF HOLTVILLE.



- I. SANITARY SEWER CALCULATIONS BASED UPON *MANNING'S FORMULA* SHALL BE PREPARED BY THE DESIGN ENGINEER TO DETERMINE THE SANITARY SEWER PIPELINE DIAMETER SIZES FOR A PROJECT. THE CALCULATIONS AND RECOMMENDED PIPELINE DIAMETER SIZES SHALL BE FORWARDED TO THE CITY ENGINEER FOR REVIEW AND APPROVAL.

