CITY UTILITIES WATER THAT WORKS	**City Utilities Design Standards Manual**	Exhibit GR4-4 Sanitary Sewer Design Summary Part of State Form 53159 (R7 / 2-20)
		Version: April 2022

COLLECTION SYSTEM DESIGN SUMMARY

Design Flow – Refer to 327 IAC 3-6-11 for Design Flow Rate Requirements

Description of Units Served	Design Flow Per Unit	Number of Units	Unit Design Flow
Example: Single family homes	*310 gpd/unit*	*30*	*9,300 gpd*
	(gpd/unit)		gpd
	(gpd/unit)		gpd
	(gpd/unit)		gpd
	(gpd/unit)		gpd
	(gpd/unit)		gpd
		Average Design Flow	gpd
Peaking Factor		**Peak Design Flow**	gpd

Gravity Sewer Pipe

☐ Applicable ☐ Not Applicable

Length	Diameter	Material	ASTM or AWWA Standard	SDR or DR	Pressure Class (psi)	Installation Method
Example: 1,525 ft	*8-inch*	*PVC*	*ASTM D3034*	*SDR-35*	*N/A*	*Open Cut*
ft	in					
ft	in					
ft	in					
ft	in					
ft	in					

Force Main Pipe and Low Pressure Sewer

☐ Applicable ☐ Not Applicable

Length	Diameter	Material	ASTM or AWWA Standard	SDR or DR	Pressure Class (psi)	Installation Method
Example: 1,525 ft	*8-inch*	*PVC*	*ASTM D2241*	*SDR-21*	*200 psi*	*Open Cut*
ft	in					
ft	in					
ft	in					
ft	in					
ft	in					

Connection Location(s)

Example: The proposed sanitary sewer shall connect to an existing 8-inch sewer located approximately 10 ft north and 10 ft west of the intersection of Main Street and Park Avenue and to an existing lift station located approximately 20 ft southeast of the intersection of Oak Lane and Maple Drive.

Inspection / Maintenance

Inspection during construction will be provided by	
Maintenance after completion will be provided by	

Wastewater Treatment

Wastewater treatment will be provided by	

Lift Station

☐ Applicable ☐ Not Applicable

1. Location:
2. Type of pump (example: submersible, dry pit):

3.	Number of pumps:
4.	Constant or variable speed:
5.	Design pump rage (gmp) and TDH (ft):
6.	Operating volume of the wet well (gal):
7.	Average detention time in the wet well (min):
8.	Type of standby power/pump provisions:
9.	Type of alarm:
10.	Additional Information:

Low Pressure Sewer Grinder Pump Station	☐ Applicable ☐ Not Applicable
1.	Number of Stations: simplex duplex triplex
2.	Number of residential connections per simplex station (two maximum): 1 - per City Utilities Rules and Regulations
3.	Design pump rate (gpm) at maximum TDH (ft):
4.	Type of alarm:
5.	Privately or utility owned and maintained: Privately Owned and Maintained - per City Utilities Rules and Regulations
6.	Additional information:

Vacuum Pump Station	☐ Applicable ☐ Not Applicable
1.	Location:
2.	Total volume of vacuum tank (gal):
3.	Operating volume of the vacuum tank (gal):
4.	Number and size (HP) of vacuum pumps:
5.	Number and type of sewage pumps:
6.	Constant or variable speed:
7.	Design pump rage (gpm) and TDH (ft):
8.	Type of standby power/pump provisions:
9.	Type of alarm:
10.	Additional information:

Certification Seal, Signature, and Date	
Printed Name of Engineer or Land Surveyor	
Signature	Date Signed *(month / day / year)* / /

A factor of four (4) is prescribed by 327 IAC 3-6-11. However, an alternative peaking factor may be justified by other means (327 IAC 3-6-32) or as provided by Ten State Standards 11.243: **Peaking Factor = (18 + √P) / (4 + √P)**, where P = population in thousands.

Provide pump and system curves and design calculations for TDH. If connecting to an existing force main, provide upstream lift station pump curves and describe how the proposed flow will affectthe lift station performance during simultaneous operation.

For small diameter low-pressure sanitary sewer systems, provide a spreadsheet that includes the maximum expected simultaneous operation of the proposed grinder pumps, maximum expected flow (gpm)and fluid velocity (ft/sec), static head and accumulated friction loss, and expected accumulated total dynamic head (TDH).

The average detention time in the wet well (cycle time between pump on/off settings) should be between 5 and 30 minutes. The cycle time may be calculated from the following equation: **Cycle Time = (V / (D -Q)) + (V/ Q)**, whereD = discharge flow rate out of the wet well (design pump rate) in gpm, Q = inflow rate into wet well (average design flow) in gpm, and V = operating volume of wet well (between pump on/off settings) in gallons.