(c) Develop a preliminary design including flow rate, pipe size, and pipe slope for a trunk sewer to be laid between 3rd and 5th st. in the town shown in **Figure 1.** Use the following data.

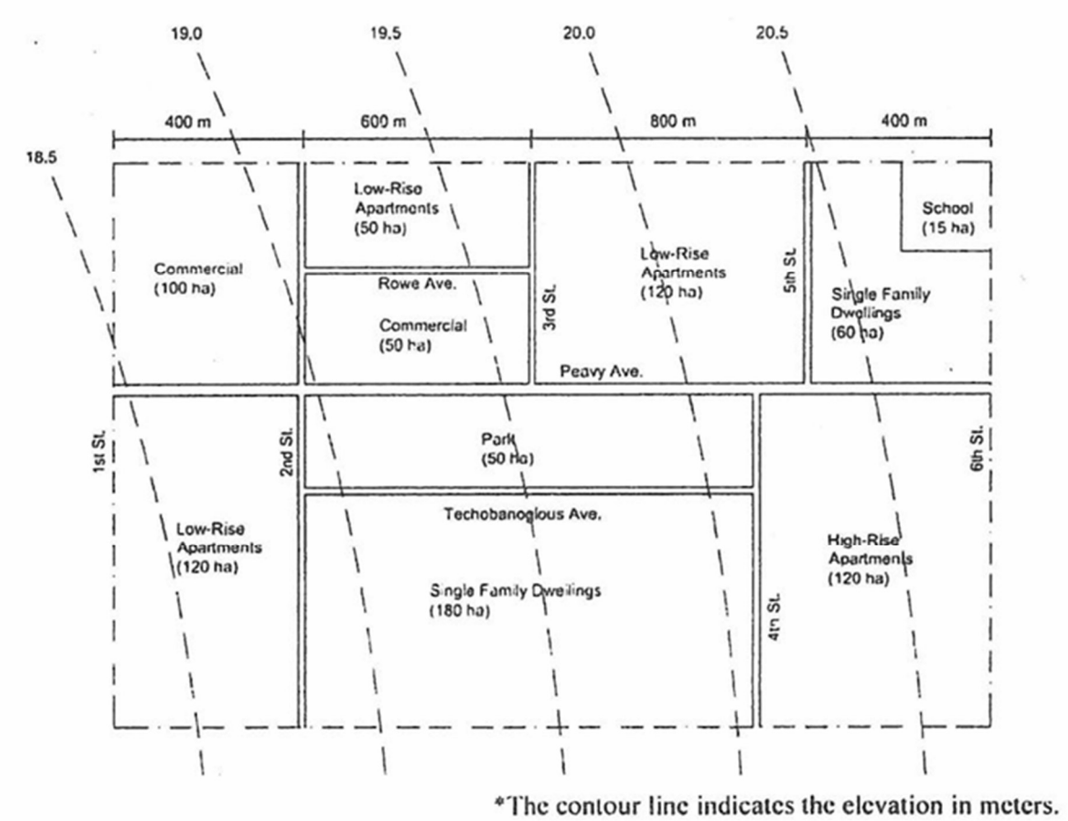
Saturation population, flow and peak factor data:

Zoning	Type of development	Saturation population density, person/ha	Wastewater flow, L/capita - d	Peak Factor
Residential	Single-family dwellings	30	380	4.0
Residential	Low-rise apartments	100	260	3.5
Residential	High-rise apartments	160	220	3.2

Flow and peak factor for commercial areas and institutional facilities:

Area/facility	Flow basis	Value	Peak factor
Park	m^3/ha - d	30	4.0
Commercial	m^3/ha - d	32	1.5
School	L/student - d	80	3.5

Assume average daily attendance at school is 1,000 students and average user of the park is 500 people per day.



*The contour line indicates the elevation in meters.

Figure 1. Layout of the Area to be under sewer network

Use the graphs and Tables mentioned in the example shown in the class lecture.