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**CITY OF GREATER SUDBURY**

**SUPPLEMENTAL  
DESIGN CRITERIA FOR SANITARY SEWERS, STORM SEWERS AND FORCEMAINS  
FOR ALTERATIONS AUTHORIZED UNDER ENVIRONMENTAL COMPLIANCE APPROVAL**

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**City of Greater Sudbury**

**Supplemental Design Criteria for Sanitary Sewers,  
Storm Sewers and Forcemains  
for Alterations Authorized under Environmental Compliance Approval**

**2.0. Design Of Sanitary Sewers**

**2.1. Design Flows**

**2.1.1. Residential Flows**

Delete the following:

1. The average daily residential flows of 225 to 450 L/cap/day shall be used in the design for sizing the pipe.

Add in the following:

1. The average daily residential flows used for sizing the pipe are to follow the community flows from the table below for the community the system will be connected to.

<b>RECOMMENDED DESIGN FLOWS BY LOCATION</b>						
<b>LOCATION</b>	<b>PER CAPITA FLOW RATE</b>	<b>UNITS OF PEAK EXTRANEIOUS FLOW</b>				
		<b>ℓ/ha/s</b>		<b>ℓ/ha/day</b>		
		<b>Existing</b>	<b>New</b>	<b>Existing</b>	<b>New</b>	
Azilda	360	0.26	0.26	22450	22450	
Capreol	500	0.39	0.39	33700	33700	
Chelmsford	360	0.39	0.39	33700	33700	
Coniston	410	0.39	0.39	33700	33700	
Copper Cliff	500	0.26	0.39	22450	33700	
Dowling	360	0.39	0.39	33700	33700	
Falconbridge	410	0.39	0.39	33700	33700	
Garson	360	0.13	0.13	11250	11250	
Levack	410	0.26	0.26	22450	22450	
Lively	410	0.39	0.39	33700	33700	
Mikkola	360	0.39	0.39	33700	33700	
Onaping	410	0.39	0.39	33700	33700	
Sudbury	410	0.39 Over 40 ha	0.52 Under 40 ha	0.20	33700 over 40 ha 44900 under 40 ha	17280
Valley East	360	0.39	0.39	33700	33700	
Walden	450	0.21	0.21	18050	18050	

### **2.1.2. Commercial Flows, #2**

Delete the following:

1. The minimum allowance for commercial flows shall be 28 m<sup>3</sup>/ha/day.  
Actual flow monitoring data (covering at least 2 years) at the subject site or a similar site observed locally can be used.

### **2.1.5. Extraneous Flow, #1**

Delete the following:

of up to 0.28 L/s/ha.

Add in the following:

found in table from section 2.1.1. above.

## **2.10. Sanitary Maintenance Holes**

**2.10.1.** Delete the following:

for Sewers up to 400 mm in diameter, and 150 m for Sewers between 450 mm to 750 mm in diameter

## **2.11. Inverted Siphons**

Delete in its entirety.

Add in the following:

Inverted Siphons are not permitted.

## **2.12. Service Connections (Service Laterals)**

**2.12.3.** Delete the following:

1%

Replace with the following:

2%

Delete the following:

(2% slope is recommended).

**2.12.7.** Delete in its entirety.

## **5.0. Storm Sewers**

### **5.1. Design of Storm Sewers**

**5.1.3.** Delete in its entirety and replace with the following:

Storm sewers shall be designed, using the rainfall intensity, duration, and frequency (IDF) curves described by the following equations:

$$i=a/(t+b)^c,$$

where, i = rainfall intensity (mm/hr), and t = rainfall duration (minutes)

Return Intervals (Years)	a	b	c
Yearly/90 <sup>th</sup> percentile	28mm		
2	429.375	4.250	0.7325
5	600.938	4.000	0.7325
10	726.563	3.938	0.7400
25	847.030	3.938	0.7400
50	986.250	3.750	0.7375
100	1092.988	3.656	0.7350

Note: from section 6.1 of the CGS 2006 Stormwater Background Study.

**5.1.4.** Delete in its entirety and replace with the following:

In the design of conveyance drainage system, local climate data is to be used to establish design storm frequency criteria. The storm frequency to be used in the design of storm sewers (minor system) will vary depending on the nature of the area being serviced, and the consequences of more intense storms being experienced.

The range for frequencies used in Greater Sudbury is as follows:

a) Residential Areas

- 2 years for local streets
- 5 years for trunk storm sewers – collector streets
- 25 years for arterial roads

b) Commercial Areas

- 5 years for local streets
- 10 years for trunk storm sewers – collector streets
- 25 years for arterial roads

**5.1.7.** Delete the following:

Maximum depths of flows at the surface and maximum hydraulic grade lines in the Storm Sewers shall be verified for up to the 100-year design storm.

Replace with the following:

Maximum depths of flows at the surface and maximum hydraulic grade lines in the Storm Sewers shall be verified for up to the 100-year design storm or Regional (Timmins Storm) whichever is greater.

**5.2. Runoff Calculations**

**5.2.4.** Delete the following:

(e.g., 50 or 100-year storm)

Replace with the following:  
(e.g., 100-year storm or Regional storm (Timmins))

#### **5.4. Pipe Diameter**

**5.4.1.** Delete the following:  
250 mm

Replace with the following:  
300 mm

Delete the last 2 sentences in their entirety.

#### **5.10. Storm Maintenance Holes**

**5.10.1.** Delete the last 2 sentences in their entirety.

**5.10.2.** Delete in its entirety and replace with the following:

Maximum maintenance holes spacing shall follow the following intervals to facilitate maintenance operations:

- i) Sizes 300 mm to 1050 mm – linear spacing not to exceed 100 m.
- ii) Sizes greater than 1050 mm – no limit on spacing.

#### **5.11. Catch Basins**

**5.11.3.** Delete the following:  
250 mm

Replace with the following:  
300 mm

#### **5.12. Inverted Siphons**

Delete in its entirety.

Add the following:  
Inverted siphons are not permitted.

#### **5.13. Service Connections (Service Laterals)**

Delete in its entirety.

Add in the following:  
Service connections are not permitted.

#### **6.0. Third Pipe Collection System**

Delete in its entirety.

Add in the following:  
Third Pipe Collection System is not permitted.