

The Corporation of the District of North Cowichan

Subdivision Control Bylaw Amendment Bylaw

BYLAW NO. 3986

A bylaw to update the Water Demand Calculations and the Sewer Flow Calculations in Schedule B [Engineering Standards]

The Council of The Corporation of The District of North Cowichan, enacts in open meeting assembled, as follows:

Citation

1 This Bylaw may be cited as "Subdivision Control Bylaw Amendment Bylaw No. 3986, 2025".

Amendment

- 2 That Bylaw No. 1851, Subdivision Control Bylaw 1979, is amended as follows:
 - (a) Deleting Section 4A.2 [Water Demands] from Schedule "B" Engineering Standards 4A WATER DESIGN, in its entirety and replacing it with the following:

"4A.2 Water Demand Calculation

The water distribution system shall be designed according to the following minimum demand rates.

The design population shall be computed in compliance with the Official Community Plan or based on the planned development, whichever is larger. In the absence of detailed population information, the following minimum design population densities shall be used.

Archetype/Use	Population Density	Units	
Residential			
Manufactured Home	1.47	pers/unit	
Single Family Home	2.36	pers/unit	
Single Family Home w Suite (per dwelling unit)	2.13	pers/unit	
Small Scale Multi Unit Housing	2.13	pers/unit	
Townhome	2.46	pers/unit	
Apartment	1.52	pers/unit	
Non-Residential			
Institutional	50	pers/ha	
Commercial	90	pers/ha	

Archetype/Use	Population	Units
	Density	
Industrial	90	pers/ha
1. per/unit = persons per unit.		
2. per/ha = persons per hectare.		

4A.2.1 Residential Water Demand

Water demand associated with residential loads shall be calculated using the demand rates below.

Average Day Demand (ADD) Rate	450 L/c/d
Maximum Day Demand (MDD) Rate	960 L/c/d
Peak Hour Demand (PHD) Rate	1,470 L/c/d

4A.2.2 Institutional, Commercial, Industrial (ICI) Water Demand

ICI demands shall be determined on a case-by-case basis.

In the absence of detailed water demand information, the minimum design population densities set out in Section 4A.2 and the residential water demand rates set out in Section 4A.2.1 shall be used. The design water demand shall be calculated by first calculating the equivalent ICI population based on the site area. The equivalent ICI population is then multiplied by the maximum day demand rate of 960 L/c/d (litres per capita per day).

It is generally assumed that there is no peak hour demand for ICI uses.

4A.2.3 Fire Flow Requirements

Required fire flows shall be in accordance with the latest release of "Water Supply for Public Fire Protection" as published by the Fire Underwriter's Survey.

During a fire situation, the system shall be designed to supply an adequate volume of water at a minimum residual pressure of 140 kPa (20 psi).

The following table is meant to be a general guide only. In certain circumstances a design based directly on a required fire flow calculated as prescribed in the latest release of "Water Supply for Public Fire Protection" may be required.

Use Description	Required Fire Flow (L/s)	Duration (hrs)
Residential	-	-
Single Family Residential	60	1.40

Use Description	Required Fire Flow (L/s)	Duration (hrs)
Multi-Family Residential	120	2.00
Non-Residential		
Institutional	150	2.00
Commercial	150	2.00
Industrial	225	2.90
 L/s = liters per second. hrs = hours. 		

- (b) Deleting Section 4A.4 [Design Population] from Schedule "B" Engineering Standards 4A WATER DESIGN, in its entirety.
- (c) Deleting Section 5A.2 [Sewage Quantity] from Schedule "B" Engineering Standards 5A SANITARY SEWER DESIGN, in its entirety and replace with the following:

"5A.2 Sewage Flow Calculation

- 5A.2.1 Sanitary sewer systems shall be designed to accommodate peak sewage flows with an allowance for inflow and infiltration.
- 5A.2.2 The design population shall be construed as being that population which contributes to the flow in each section of the system under design.
- 5A.2.3 The design population shall be computed in compliance with the Official Community Plan or based on the planned development, whichever is larger. In the absence of detailed population information, the following minimum design population densities shall be used.

Archetype/Use	Population Density	Units
Residential	-	-
Manufactured Home	1.47	pers/unit
Single Family Home	2.36	pers/unit
Single Family Home w Suite (per dwelling unit)	2.13	pers/unit
Small Scale Multi Unit House	2.13	pers/unit
Townhome	2.46	pers/unit
Apartment	1.52	pers/unit
Non-Residential		
Institutional	50	pers/ha
Commercial	75	pers/ha
Industrial	90	pers/ha
 per/unit = persons per unit. per/ha = persons per hectare. 		

5A.2.4 Residential Sewage Flows

The average dry weather sewage flow shall be calculated by multiplying the average dry weather flow (ADWF) per capita flow rate of 240 L/c/d (litres per capita per day) by the contributory connected population.

The design peak dry weather sewage flow shall then calculated by multiplying the average dry weather flow by a peaking factor. The peaking factor shall be calculated using the Harmon formula:

 $PF_{Harmon} = 1 + 14 / (4 + P^{0.5})$

P is the design contributory population in thousands.

5A.2.5 Institutional, Commercial, Industrial (ICI) Sewage Flows

ICI sewage flow rates shall be determined on a case-by-case basis.

In the absence of detailed sewage flow information, the minimum design population densities set out in Section 5A.2.3 shall be used. The design sewage flows shall be calculated by first calculating the equivalent ICI population based on the site area. The equivalent ICI population is then multiplied by the average dry weather flow (ADWF) per capita flow rate of 240 L/c/d (litres per capita per day).

It is generally assumed that there is no peak flow for ICI uses.

- 5A.2.6 Peak inflow and infiltration (I&I) shall be calculated based on a minimum rate of 22,500 L/ha/d (liters per hectare of design tributary area per day).
- 5A.2.7 The discharge of storm water into the sanitary sewer system is prohibited."

READ a first time on READ a second time on READ a third time on _____ ADOPTED on _____.

CORPORATE OFFICER

PRESIDING MEMBER