

**May 27, 2025**

File No. **23345**

**City of Pitt Meadows**

12007 Harris Road,  
Pitt Meadows, BC  
V3Y 2B5

**RE: 19963 MC NEIL ROAD, PITT MEADOWS, BC WATER SERVICING PRESSURE ZONE MEMO**

Attention **Allison Dominelli**,

VIS-ENG would like to provide an update on our review of the current water servicing conditions for the property at 19963 McNeil Road and the latest Civil drawing set dated May 23, 2025 as revised per direction from the City of Pitt Meadows (CoPM).

**System Summary**

The CoPM has a community water system providing water supply to the neighbourhood. To the south of the subject lands, an existing 250mm DI watermain runs along McNeil Road. The municipality purchases water from Metro Vancouver, generally through the Coquitlam Watershed via a high pressure main alongside Lougheed Highway.

The existing water infrastructure is owned by the CoPM.

**Design Standards**

Water supply requirements are detailed in CoPM's Subdivision and Development Servicing Bylaw No. 2589, 2013, MMCD and FUS. The key demand requirements as outlined in the bylaw requires the greater of the following:

Either (a) Peak Hour Demand:

2,100 litres per capita per day for residential areas, and 175,000 litres per hectare per day for commercial, institutional and industrial areas.

or (b) Peak Day Demand plus Fire Demand:

1,400 litres per capita per day for residential areas, and 90,000 litres per hectare per day for commercial, institutional and industrial areas plus the applicable fire demand at a location where the pressure drop would be most critical.

Fire Demand requirements:

Fire demands shall be determined based on the latest edition of the Insurance Bureau of Canada's publication Water Supply for Public Fire Protection - A Guide to Recommended Practice. However, the fire demands so determined shall not be less than the minimum fire demands shown below corresponding to the various developments:

Buildings not protected by an automatic fire sprinkler system:

| Type of Development           | Minimum Fire Demand |
|-------------------------------|---------------------|
| Rural Agricultural            | 30 litres/sec       |
| Single & Two Family Dwellings | 60 litres/sec       |

If buildings are protected with automatic sprinkler systems protecting the entire building, the minimum fire flow may be reduced to the greater of:

- (a) the minimum fire flow calculated in accordance with the NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire 1999 Edition allowing for automatic fire sprinklers; or
- (b) the minimum flow required to support the automatic fire sprinkler systems plus all other water requirements for firefighting purposes in the subdivision or the development.

If a main is extended, it must be sized to meet the higher minimum fire flow required for either the existing buildings or for the land use permitted by the Zoning Bylaw on each property adjacent to the extension.

### Water Pressure

The water distribution system shall be designed to supply water at pressures within the following ranges:

Minimum pressure at peak hour demand = 300 KPa (40 PSI)

Maximum pressure at low demand = 1,035 KPa (150 PSI)

Minimum pressure at the fire test location under = 140 Kpa (20 PSI)

Reservoir capacity is provided by Metro Vancouver

### **Proposed System Extension**

It is proposed that a 200 mm DI main be connected to the 250 mm main in McNeil Road via a wet-tap. This would be run approximately 175 m up the existing Road A dedication. Two public hydrants are proposed to serve the new lots and will provide coverage to the existing residence at 19977 McNeil as the hydrants will be closer to the home. There is an existing hydrant near the intersection on McNeil. Two additional public hydrants will be placed along the pipe routing

consistent with the subdivision servicing bylaw to provide coverage to each lot. A private hydrant would be located on lot 5 to meet CoPM hydrant proximity requirements.

It is proposed that a sprinkler covenant would be applied to the lands to address fire protection first response.

### Water Pressure Service Zone

Modelling information from the City of Pitt Meadows model was reviewed by VIS-ENG as part of the design process including historical work done in the area. CoPM modelling was identified for a hydrant 165 meters north of McNeil Road on the subject property and that the model confirmed it could maintain 30.4 PSI at fire flow of 60 l/s.

Further information from the CoPM's water model at peak daily flow conditions at two nearby locations was reviewed. The two locations where the CoPM model computed the static pressures and residual pressures in the existing system were Menzies Road located less than 1.5km from the project site and Mountain Place approximately 1.7km away from the site. Based on Lidar information, the elevation at which the pressure simulation was computed are; 15m hydrant elevation at Menzies Road and 25m hydrant elevation at Mountain Place. At both locations the pressure data was computed at the end of the watermain in the road. Creus has looked at both locations to determine expected Pressure Service Zone elevations. See *Figure 1* for locations of the hydrants on Menzies Road and Mountain Place relative to the subject property.



Figure 1: CoPM Water Model Simulation Hydrant Locations

At the end of the watermain on Menzies Road the CoPM water model computed a static pressure of 71.5 PSI which was used to calculate the static head at the hydrant elevation;

$$\text{Hydraulic Gradient} = (\text{Static Pressure}/1.42) + \text{hydrant elevation} = (71.5 \text{ PSI}/1.42) + 15\text{m} = 65.35\text{m}$$

The conceptual maximum service elevation for the minimum pressure at peak hour demand (40 PSI) for the area based on the static head at the hydrant on Menzies Road was then calculated;

$$\text{Maximum pressure zone service elevation} = (\text{Minimum pressure at PHD}/1.42) - \text{static head at the hydrant elevation} = (40 \text{ PSI}/1.42) - 65.35\text{m} = 37.2\text{m}.$$

In comparison the CoPM model computed a static pressure of 50.1 PSI at the hydrant at the end of the watermain on Mountain Place at the hydrant elevation of 25m. Which gives a similar Service Zone.

These are static calculations that do not take the hydraulic losses in the pipe into account. The CoPM model indicate there was 30 L/s fire flow at the Menzies hydrant with a computed residual pressure of 46.2 PSI per the CoPM water model. The proposed watermain location is tying into the CoPM main over a kilometre upstream of the two model simulation locations on an unlooped segment. The watermain to Sheridan Drive which services the hydrants test

locations which simulation results were provided for is also a 200 mm diameter pipe which would have more friction loss with some sections shown as 150mm. The proposed new watermain would have more favorable pressure and flows in comparison to the watermains servicing the hydrants for which the CoPM water model computed the static pressure used to calculate the maximum service elevation.

CoPM modelling confirmed the following Static and fire flow pressures at the hydrant at the subject property access location.

### 3: Static and Residual Pressures for 19977 McNeil Rd:

#### **19977 McNeil Rd Rd: 250 mm DI, 1 m Elevation**

Static Pressure: 91.3 PSI

Residual Pressure @ 15 lps Fire Flow: 81.1 PSI

Residual Pressure @ 30 lps Fire Flow: 68.6 PSI

Residual Pressure @ 60 lps Fire Flow: 36.5 PSI

*Figure 2: CoPM Flow Modelling at site*

Based on the available modelling a pressure zone service elevation of 37m was indicated for the development and is shown on the civil drawing set. The lots have adequate pressure and flow based on the city modelling. Refer to *Figure 3* below for proposed servicing and hydrant locations on site.

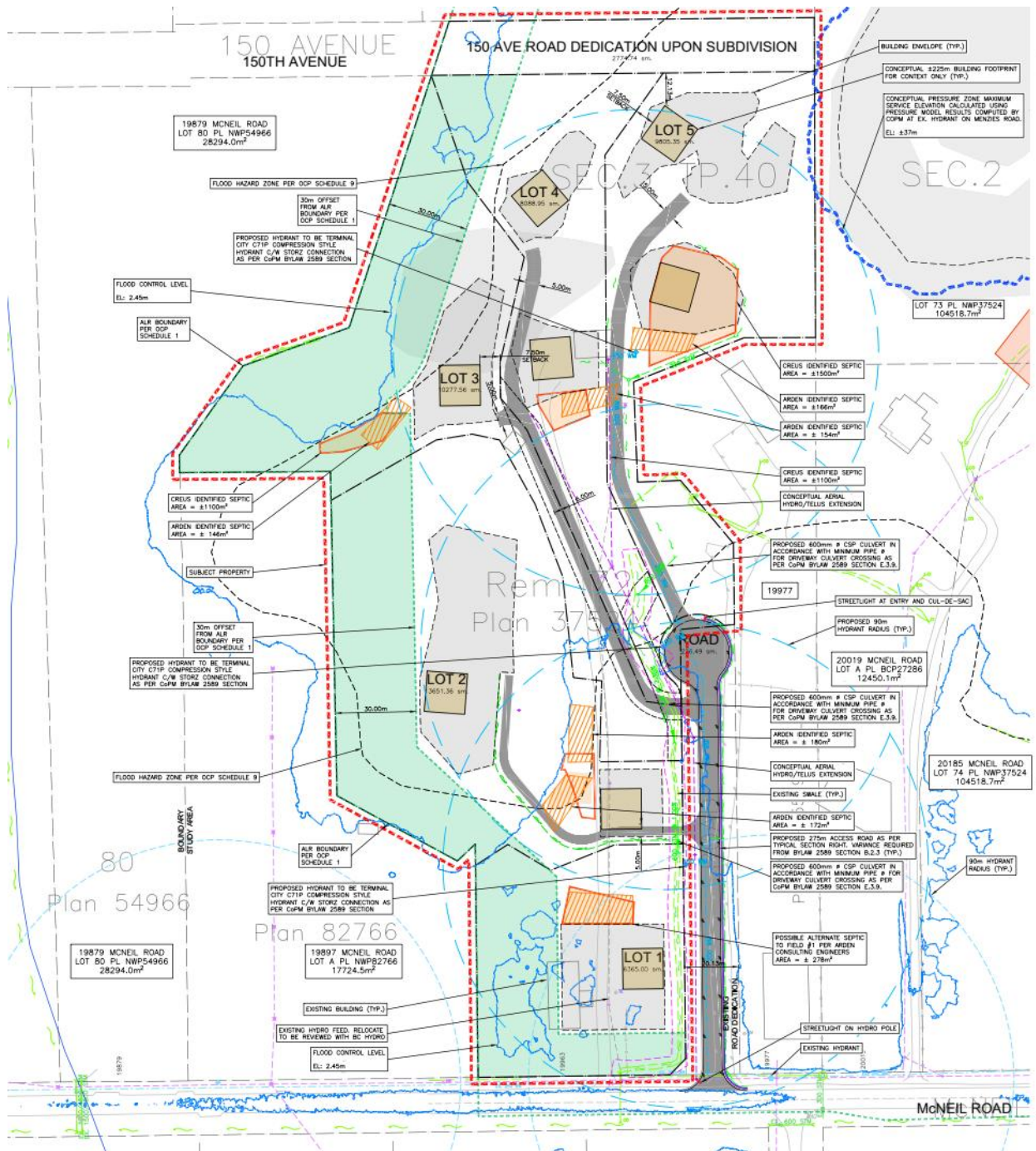


Figure 3: Proposed Servicing

### Impact on CoPM Systems

The existing property had an existing water service. There have been three buildings on the site. The old infrastructure will be replaced by municipal standard installations. The development would add 175 m of main and 2 hydrants to the city infrastructure. The Hydrant will actually benefit 6 properties and the new main 5 properties. Which I roughly 35 m of infrastructure per home. This is less infrastructure per resident than many of the existing residences on McNeil Drive.

### Conclusion

The area is serviced by Metro Vancouver main feeding CoPM system. Based on initial review the area would be in the service zone of the feed. CoPM modelling has been reviewed to confirm that domestic flow and fire flow per CoPM modelling can be achieved at the building envelopes indicated. The pressure service zone is shown on the VIS-ENG plans and all lots have safe building envelopes within the service zone. The actual required Fire Flow necessary will be less than Bylaw requirements as there will be sprinkling in the building. Detailed calculation for the new watermain will be provided with the detailed engineering submission.

If you have further questions in this regard, please do not hesitate to contact me

Respectfully yours,

**VIS-ENG CONSULTING LTD.**

Kevin Healy, P.Eng.  
Director  
Permit to Practice 1005639