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October 11, 2024

23-3-6610

Jocelyn Bamford
3131 Victoria Road,
Ameliasburgh, ON
K0K 3A0

**Re: 3131 Victora Road, Ameliasburgh, ON
Fire Protection**

Dear Ms. Bamford,

We have concluded our review of the fire protection water supply for the proposed event barn at 3131 Victoria Road, Ameliasburgh, ON.

Background;

The Greer Galloway Group was retained to complete an assessment of the water required to be stored on site for the purposes of fire protection at the proposed event barn at 3131 Victoria Road, Ameliasburgh. The property is located on Victoria Road and 500 m east of the intersection of Victoria Road and County Road 33 in Ameliasburgh, Prince Edward County, Ontario.

The proponents propose to renovate the existing barn as an event space. The property has other structures including a two-storey dwelling, storage buildings and a garage. The north border of the property is Victoria Road. The west border is County Road 33 (Loyalist Parkway). The south and west borders are rural property.

Building Assessment

Building Characteristics:

This assessment is based on OFM guideline OFM-TG-03-1999 (Fire Protection Water Supply Guideline for Part 3 in the OBC) and NFPA 1142 (Standard on Water Supplies for Suburban and Rural Fire Fighting).

The development proposal is for the renovated building on a single property. The building size is not being altered by the renovation.

- Building area – 286 m²
- Building height – 13.5 m
- Construction –combustible with no fire separations
- Occupancies – Assembly (Group A, Division 2),

Site Parameters:

The building falls within Part 3 of the Ontario Building Code.

The building area is greater than 200 m² and is not an F-3 occupancy.

Existing Water Supply:

The property is served by a small diameter residential pipe across the field from County Road 33. The supply line provides potable water for the two-storey residence.

Water Supply Calculation:

Under *OFM-TG-03-1999 Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code* there are four (4) categories of buildings to consider for the amount of fire protection required:

- 1) Buildings not requiring on-site fire protection water supply;
- 2) Sprinklered buildings;



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- 3) Buildings requiring on-site fire protection water supply; and
- 4) Additions to existing buildings.

The category selection is based on an elimination basis. The building is not served by municipal water or a conforming transportable water supply according to the requirements of category 1. In accordance with the OBC (3.2.2.66), the building does not require sprinklers and does not fall in category 2. The building is a renovation and change of use and does not conform to the requirements of category 4. Therefore, the building will require an on-site fire protection water supply under category 3.

The equation for fire protection water quantity is:

$$Q = K V S_{Tot} \text{ (Equation 1)}$$

Where

Q = Minimum supply of water in litres (L)

K = Water supply coefficient

V = Total building volume in cubic metres

S_{Tot} = Total of spatial coefficient values from property line and building exposures

The water supply coefficient is taken from table 1 of the OFM guideline. Because the building is being renovated for a Group A Division 2 occupancy and the construction is combustible without fire separations, **the value of K is 23.**

The total floor area of the building is 286 m².

The height of the building to the ridge beam is 13.5 m

The total building volume (V) is 3861 m³.

The S_{Tot} equation is:

$$S_{Tot} = 1.0 + [(S_{Side1}) + (S_{Side2}) + (S_{Side3}) + \dots + (S_{SideN})]$$

Where N is the number of exposures to be accounted. There are no exposures closer than 10 m to the building.

The final value of S_{Tot} is 1.

Using the derived values in Equation 1, Q = 88,803 litres.

Following the procedure from *OFM-TG-03-1999* a minimum volume flow for 30 minutes is required. According to Table 2, because $Q < 108,000$ L, and the building is not an F-1 occupancy, the flow to be maintained is 2700 L/min. At a 30 minute draw, **the minimum prescribed water supply is 81,000 L.**

Required Water Supply Provision

Based on the above assessment and the OFM Guideline, the volume of on-site water available for fire suppression should not be less than 81,000 litres (21,000 US Gal). Commercial water storage systems for this application are available in 20,000 L (10,000 US Gal) to 94,635 L (25,000 US Gal) capacities. Single or connected tanks will provide the required water storage.

We understand there is a 2" municipal water service to the property. The owner may choose to investigate the level of effort associated with upgrading the service to support a hydrant accessible to fire and emergency services.

The property is located 3 km from the Carrying Place Fire Hall and 6.8 km from the Consecon Fire Hall. The owner may wish to have the Prince Edward County Emergency Services review their equipment and response times to verify if alternative sources or equipment will satisfy this requirement.

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Recommendation

Under the requirements of *OFM-TG-03-1999 Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code* a fire protection water volume of 81,000 litres (21,000 US Gal) shall be made available at 3131 Victoria Road, Ameliasburgh, Prince Edward County, ON to meet the requirements of the Ontario Building Code to protect the renovated event barn. The storage of water may be by buried storage tank(s) or by upgraded municipal service. Prince Edward County Emergency Services shall confirm the storage and dry hydrant design meet local requirements.

We trust this brief letter is sufficient for your present requirements, if you have any questions or points that require clarification, please contact the undersigned at your convenience.

Best Regards,

**THE GREER GALLOWAY GROUP INC.
CONSULTING ENGINEERS**



**Peter Zandbergen, P. Eng.
Mechanical Engineer**