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September 7, 2021

Blocknote Canada Inc.  
106 Barton Blvd.  
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**Attention: Brad Smith, President**

**Re: Water Supply for Fire Protection  
Red Tail East, Loyalist Parkway, Prince Edward,  
ON GGG Project # 21-3-8425  
PEC File # OPA1-2019; Z59-19**

Dear Mr. Smith,

Greer Galloway has conducted a preliminary assessment of the water supply required to be stored on site for fire protection at the Red Tail East winery and resort.

**Background;**

The Greer Galloway Group was requested to conduct a preliminary assessment of the water required to be stored on site for the purposes of fire protection at the proposed development of the Red Tail East winery and resort development at the intersection of Partridge Hollow Road and Loyalist Parkway in Prince Edward County, Ontario.

The proponents propose to construct a winery with resort-style accommodations and spa amenities.

**Assessment**

There are four types of buildings proposed for the site, the lobby/winery, spa buildings, hotel buildings, and production/back-of-house buildings. The buildings are distributed throughout the property. This preliminary 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 is multiple buildings on a single property. In that case NFPA 1142 indicates the water to be stored is the water required to protect the most significant structure. The winery/hotel lobby is the most significant structure in the review package owing to size and occupancy. Although building design is on-going certain assumptions were made in the preliminary assessment:

- Building area – 15,480 sq ft (1438 m<sup>2</sup>)
- Ceiling height – 4 m each floor
- Construction – non-combustible or heavy timber
- Occupancies – assembly (Group A, Division 2), office (Group D), and restaurant (Group D)

**Building Characteristics:**

The total building area after construction will be 1438 m<sup>2</sup>.

All buildings shall be one (2) storeys

Building Exposures: The building is >12 m to adjacent structures or public roadways

**Site parameters**

The building falls within Part 3 of the Ontario Building Code

The building area is greater than 200 m<sup>2</sup> and is not an F-3 occupancy



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**Existing water supply**

The property is not serviced by municipal sources.

**Required water supply**

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<sub>Tot</sub> = total of spatial coefficient values from property line and building exposures.

As a building with A-2 and D occupancies with non-combustible or heavy timber construction and in accordance with Table 1 of the OFM document, **the value of K is 16.**

The total floor area of the building is 1438 m<sup>2</sup>.

The entire building is two storeys with a nominal ceiling height of 4 m (13 ft).

**The total building volume (V) after the contemplated construction is 11,505 m<sup>3</sup>.**

The S<sub>Tot</sub> 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. All distances to adjacent structures or property boundaries are 12 m or greater. In accordance with Figure 1 of the OFM document these exposures do not increase the S<sub>Tot</sub> factor.

**The final value of S<sub>Tot</sub> is 1.**

Using the derived values in Equation 1, Q = 184,080 litres.

Following the procedure from *OFM-TG-03-1999* a minimum volume flow for 30 minutes is required. According to Table 2, because Q between 162,000 and 190,000 L, the flow to be maintained is 5400 L/min. At a 30 minute draw, **the minimum prescribed water supply is 162,000 L.**

Based on the above assessment and the OFM Guideline, the volume of on-site water available for fire suppression should not be less than 162,000 litres (42,800 US Gal).

**Recommendation**

It is recommended that a fire protection water volume not less than 162,000 L (42,800 US Gal) be made available on site at the Red Tail East Winery to meet the requirements of the Ontario Building Code. A buried storage tank installed during construction of the winery/hotel lobby is one possible compliance path. The local authorities having jurisdiction should be consulted regarding placement and connection requirements during the design phase of the project.

We trust this brief letter is sufficient for your present requirements, if you have any questions or point 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**

