



To: Public Works and Transportation Committee **Date:** January 4, 2010
From: John Irving, P.Eng., MPA **File:** 10-6060-04-01/2009-Vol
Director, Engineering 01
Re: **Flood Plain Designation and Protection Bylaw 8204, Amendment Bylaw 8567**

Staff Recommendation

That Flood Plain Designation and Protection Bylaw 8204 Amendment Bylaw 8567 be introduced and given first, second and third reading.

John Irving, P.Eng., MPA
Director, Engineering
(604-276-4140)

Att. Flood Plain Designation and Protection Bylaw 8204, Amendment Bylaw 8567

FOR ORIGINATING DEPARTMENT USE ONLY					
ROUTED TO:		CONCURRENCE		CONCURRENCE OF GENERAL MANAGER	
Law	Y	<input checked="" type="checkbox"/>	N		
Building Approvals	Y	<input checked="" type="checkbox"/>	N		
Development Applications	Y	<input checked="" type="checkbox"/>	N		
Policy Planning	Y	<input checked="" type="checkbox"/>	N		
REVIEWED BY TAG	YES	<input checked="" type="checkbox"/>	NO	REVIEWED BY CAO	YES
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>DEPUTY</i>	<input checked="" type="checkbox"/>
				<i>JK</i>	<input type="checkbox"/>

Staff Report

Origin

In September 2008, Council adopted the Flood Plain Designation and Protection Bylaw 8204 which defined the Flood Construction Levels (FCL) within the City of Richmond. Since the adoption of the bylaw, staff have identified some areas in the bylaw for improvement. The proposed amendments support Council Term Goal #4:

“Sustainability and the Environment – Demonstrate leadership in and significant advancement of the City’s agenda for sustainability through the development and implementation of a comprehensive strategy that includes incorporating sustainability into our City policies and bylaws.”

Analysis

Minimum Flood Construction Level (FCL)

Part Three of Bylaw 8204 sets the FCL requirements by way of reference to the map in Schedule B of the bylaw. Currently, the FCL is 3.5m for all properties outside the dike using the predicted water surface elevations at the most eastern portion of the City as estimated by the Fraser Basin Council. In addition, the perimeter dike design elevation ranges from 4.0m to 4.35m. During the development approval process, developers are encouraged to elevate the habitable building area as needed for added flood protection beyond the required 3.5m FCL. However, developers are reluctant to increase building elevations beyond the minimum 3.5m FCL as increased habitable building area elevations typically result in increased costs. Therefore, to improve flood protection for these properties, the FCL for properties outside of the dike should be equivalent to or higher than the design dike crest elevation as properties located outside of the standard dikes do not benefit from the added structural protection provided by the dikes. Staff proposes to amend Schedule B of the Bylaw to increase the FCL to 4.35m for properties not protected by a standard dike. However, current in-stream applications such as Palmer Yachts (23740 Dyke Rd.) and Richmond Rod and Gun Club (1020 Eburne Pl.) will be processed under Bylaw 8204 with amendment Bylaw 8468, effective November 23, 2009, provided that the project scope does not expand.

In addition, Part Four: General Exemptions, Section 4.1 allows construction of non-habitable areas below the FCL. The intent is to allow effective transitions from the existing road elevation to parking areas. However, for properties outside of the dike, road access is typically along the crest of the dike. Therefore, transitions from the future road to the parking area would not be a concern. Staff proposes to amend this section of the Bylaw to exclude properties on Lulu Island that are outside of the dike. This amendment would require properties outside of the dike to construct all habitable and non-habitable areas at or above the FCL.

Currently, properties in the Burkeville residential area are not protected by a standard dike and as such the properties would be required to build to the 4.35m FCL under the proposed amendment. The majority of the perimeter dike on Sea Island is owned and maintained by the Vancouver Airport Authority with the City owning and maintaining a short section of the dike east of the Burkeville area. The City is working collaboratively with the Vancouver Airport Authority to

improve the perimeter dike system that will provide protection to Sea Island including the Burkeville residential area. The residential homes in the Burkeville area have historically been constructed at or slightly above the elevation of the roads which range from 1.4m to 2.0m elevation. Due to the nature of the small lots in the Burkeville residential area, increasing the FCL to 4.35m would be functionally impossible. Staff proposes to add a general exemption for the Burkeville residential area to address the grade challenges in the area in Part Four: General Exemptions, Section 4.6.

In some locations, achieving access relative to the existing dike crest elevation may not be functionally possible (i.e., driveway slopes exceed maximum allowable grade due to the elevation difference from dike crest and FCL). Part Five: Site Specific Exemptions, Section 5.1 has been amended in the Bylaw to allow the Director to grant site specific exemptions for these special cases.

Steveston Village Area

The intent of Part Four: General Exemptions, Section 4.4 of the Bylaw 8204 is to facilitate the ease of wheelchair accessibility to commercial or industrial buildings in the Steveston Village Area while also recognizing the historical development pattern of Steveston Village. Currently, the bylaw requires that the minimum habitable building elevation be equivalent to the highest level of any sidewalk (or road if no sidewalk) that is adjacent to the parcel. Some commercial/industrial properties front more than one road (i.e., corner lots) whereby the sidewalk elevation along each building face may be slightly different. Under this approach the minimum habitable building must be equivalent to the highest adjacent sidewalk, which may result in steps being required to access the building interior which does not facilitate wheelchair access. Therefore, staff proposes to amend Section 4.4 to require the minimum building elevation to be equivalent to the highest elevation of the fronting sidewalk providing pedestrian access adjacent to the building. This amendment would facilitate wheelchair access and a continuous street frontage where commercial/industrial properties front more than one sidewalk.

Other

In addition to the FCL and Steveston Village Area amendments, administrative amendments have also been incorporated. These include clarification of section references in Part Four: General Exemptions, definitions in Part Eight: Definitions, and as well as clean up of the maps in Schedule A and B.

Financial Impact

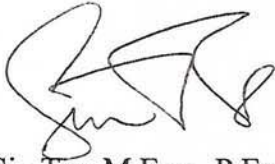
None.

Conclusion

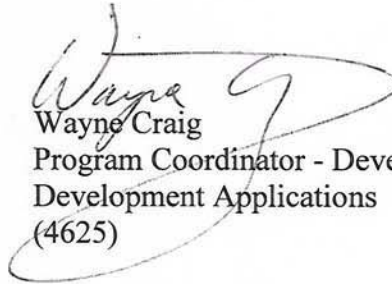
Staff recommends that Schedule B of the bylaw be amended to increase the FCL to 4.35m for properties not protected by standard dikes. In addition, staff recommends that Part Four: General Exemptions, Section 4.1 be amended to require properties not protected by a standard dike to construct all habitable and non-habitable areas at or above the FCL. These amendments will provide added flood protection for properties outside the dikes.

Staff recommends that Part Four: General Exemptions, Section 4.6 be amended to allow the general exemption of the Burkeville residential area. Furthermore, staff recommends that Part Five: Site Specific Exemptions, Section 5.1 be amended to allow site specific exemptions. These amendments provide provisions for properties that can not physically achieve the 4.35m FCL.

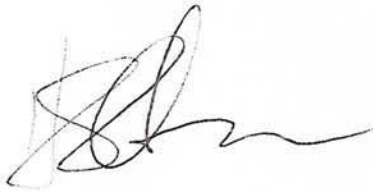
Staff recommends that Part Four: General Exemptions, Section 4.4 be amended to state “In respect of a parcel within the **Steveston Village Area** the elevation requirements of Section 3.1 do not apply to a building or structure where the underside of the floor system or the top of the **pad** supporting any space or room of a building or structure, including a **manufactured home**, is at or above the elevation of the fronting City sidewalk existing at the time of application, (or if no sidewalk, the **road**) providing pedestrian access that is adjacent to the parcel”.



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**Flood Plain Designation and Protection Bylaw 8204, Amendment
Bylaw 8567**

The Council of the City of Richmond enacts as follows:

1. Bylaw 8204 is amended by deleting Part One: Designation of Flood Plain and replacing with the following:

PART ONE: DESIGNATION OF FLOOD PLAIN

- 1.1 All lands within the boundaries of the **City** are designated as floodplain as shown in Schedule A.

2. Bylaw 8204 is amended by deleting Part Four: General Exemptions and replacing with the following:

PART FOUR: GENERAL EXEMPTIONS

- 4.1 In respect of all parcels surrounded by a **standard dike**, or within Sea Island, or within Mitchell Island, the elevation requirements of Section 3.1 do not apply to:
 - (a) the renovation of a building or structure that does not include an addition to the building or structure;
 - (b) an addition to a building or structure that would increase the size of the building or structure by less than twenty-five (25%) percent of the floor area of the building or structure as it existed on the date of adoption of this Bylaw, provided such addition does not exceed 600 m² and is constructed at an elevation not lower than the then existing building or structure;
 - (c) that portion of a building or structure to be used as a carport or garage;
 - (d) enclosed underground parking areas where an unobstructed non mechanized means of pedestrian access and egress is provided above the **flood plain construction level** and where a sign is permanently posted at all points of entry that the parking area is not protected from inundation by flood waters; and
 - (e) farm buildings other than dwelling units.

- 4.2 In respect of all parcels within **Area A**, the elevation requirements of Section 3.1 do not apply to a building or structure where the underside of the floor system, or the top of the **pad** supporting any space or room, including a **manufactured home** is located at least 0.3 metres above the highest elevation of the crown of any **road** that is adjacent to the parcel.
- 4.3 In respect of a parcel within **Area A** which is used for a commercial or industrial use, the elevation requirements of Section 3.1 do not apply to a building or structure where:
- (a) the main entrance to the building or structure is located three (3) metres or less from the boundary of a **road**; and
 - (b) the underside of the floor system, or the top of a **pad** supporting any space or room within that building or structure is at or above the same elevation as the highest elevation of any **road** that is adjacent to that parcel.
- 4.4 In respect of a parcel within the **Steveston Village Area**, the elevation requirements of Section 3.1 do not apply to a building or structure where the underside of the floor system or the top of the **pad** supporting any space or room of a building or structure, including a **manufactured home**, is at or above the elevation of the fronting **City** sidewalk existing at the time of application, (or if no sidewalk, the **road**) providing pedestrian access that is adjacent to the parcel.
- 4.5 In respect of a parcel within the **Terra Nova/West Cambie Area**, the elevation requirements of Section 3.1 do not apply to a building or structure where the underside of the floor system or the top of the **pad** supporting any space or room of a building or structure, including a **manufactured home**, is at or above 2.6 metres **GSC** elevation.
- 4.6 In respect of a residential parcel within the **Burkeville Area**, the elevation requirements of Section 3.1 do not apply to a building or structure where the underside of the floor system or the top of the **pad** supporting any space or room of a building or structure, including a **manufactured home**, is located at least 0.3 metres above the highest level of the crown of any road that is adjacent to the parcel.
3. Bylaw 8204 is amended by deleting Part Five: Site Specific Exemptions, Section 5.1 and replacing with the following:

PART FIVE: SITE SPECIFIC EXEMPTIONS

- 5.1 Subject to any applicable Provincial regulations and section 910(5) of the *Local Government Act*, an exemption from any requirement or requirements of Part 2 or Part 3 may be granted by the **Director**, subject to

any terms and conditions the **Director** considers necessary or advisable, if:

- (a) the **Director** is of the opinion that the exemption is consistent with the **Provincial Guidelines**; or
- (b) the **Director** receives a report, certified by a **professional engineer** or **professional geoscientist** and experienced in geotechnical engineering, that:
 - (i) the land may be used safely for the use intended, and
 - (ii) protection from a flood of the magnitude used for modelling purposes in the Lower Fraser River Hydraulic Model, 2006 can be achieved through an engineered design without reliance on a **standard dike**.

4. Bylaw 8204 is amended by deleting and replacing the following definitions in Part Eight: Definitions, Section 8.1:

Standard Dike means a dike designated by the **City** as a standard dike, as generally identified in Schedule B, including a dike that meets the standards of design and construction approved by the Ministry of Environment;

Steveston Village Area means that part of the **City** shown on Schedule B of this Bylaw as being “Steveston Village”;

5. Bylaw 8204 is amended by adding to Part Eight: Definitions, Section 8.1, the following:

Burkeville Area means that part of the **City** shown on Schedule B of this Bylaw as being “Burkeville”;

Terra Nova/West Cambie Area means that part of the **City** shown on Schedule B of this Bylaw as being “Terra Nova/West Cambie”;

6. Bylaw 8204 is amended by deleting Schedule A and substituting the attached Schedule A.
7. Bylaw 8204 is amended by deleting Schedule B and substituting the attached Schedule B.
8. This Bylaw is cited as “**Flood Plain Designation And Protection Bylaw 8204, Amendment Bylaw 8567**”.

FIRST READING

SECOND READING

THIRD READING

ADOPTED

CITY OF RICHMOND
APPROVED for content by originating dept <i>[Signature]</i>
APPROVED for legality by Solicitor <i>[Signature]</i>

MAYOR

CORPORATE OFFICER

