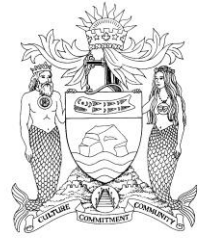


THE CORPORATION OF THE  
**CITY OF WHITE ROCK**  
CORPORATE REPORT



**DATE:** February 8, 2021

**TO:** Mayor and Council

**FROM:** Carl Isaak, Director, Planning and Development Services

**SUBJECT:** Review of Approaches to Measuring Building Heights and Managing Soils

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**RECOMMENDATION**

THAT Council direct staff to incorporate the consideration of alternative approaches to measuring building heights into the review of single-family home zones in the Zoning Bylaw Update anticipated in fall 2021.

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**EXECUTIVE SUMMARY**

A resident recently shared concerns about the potential for landowners to manipulate the grading of their property in a manner which would ultimately enable the construction of a taller dwelling. The issue raised pertains to how building height is defined and measured in Zoning Bylaw No. 2000, which uses the “average natural grade” as the base point from which the building is measured, and the potential for ground levels to be increased over time by adding soil without these additions being discounted when the natural elevations on the property are surveyed. Further, the inquiry presents an opportunity to discuss local regulatory control that could be used to manage the deposit or removal of soils. The purpose of this report is to present the Land Use and Planning Committee with a summary of approaches to measuring the height of buildings and structures, using zoning controls, and to acknowledge how other municipalities are using bylaws to manage the deposit or removal of soils on private property.

Staff recommend that consideration of alternative approaches to measuring building heights be deferred to the review of single family home zones in the Zoning Bylaw Update, which is currently scheduled in Council’s Strategic Priorities for fall 2021.

**PREVIOUS COUNCIL DIRECTION**

<b>Motion # &amp; Meeting Date</b>	<b>Motion Details</b>
2020-620 <i>December 07, 2020</i>	THAT Council directs staff to review and report back to Council, given a recent circumstance between two (2) properties (Cliff Avenue and Lee Street) on the City’s process / regulations in relation to:  1. The City’s Zoning Bylaw where it regulates building height (the Bylaw measures “height” on the basis of an “average natural grade”); and  2. The City possibly regulating activities involving the stock-piling / relocation of soils on private property.

## **INTRODUCTION/BACKGROUND**

In November 2020, a resident raised concerns regarding site alteration activities that were reportedly occurring on an adjacent property. The concerns pertained in large part to the way in which City of White Rock Zoning Bylaw, 2012, No. 2000 ('Zoning Bylaw') regulates building height and the perceived potential for site alteration activities to artificially enable, through the stock-piling of soil, a taller building. Further, concerns were voiced over a lack of local regulation (i.e., a municipal bylaw) that could be used to control "the removal of soil and the deposit of soil or other material," as enabled by Part 2, Division 1, Section 8 (3)(m) of the *Community Charter*.

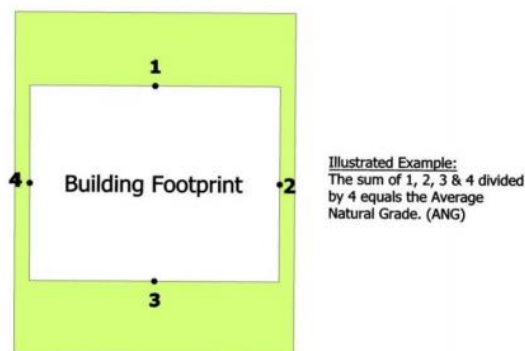
On December 7, 2020, Council directed that staff undertake a review of the Zoning Bylaw as it relates to building height and, more specifically, the use of an "average natural grade" in measuring this height. Further, the motion directed staff to look at the possibility of regulating soil stock-piling and relocation activities on private property. The following sections of this report address each of the two topics within the motion.

### **Regulating Building Height in White Rock**

The City's Zoning Bylaw regulates building height based on an "average natural grade". Specific details regarding the measurement of building height are outlined in Section 4.8 of the Bylaw, which reads as follows:

#### **4.8 Building Heights**

- 4.8.1 The height of buildings and structures shall be interpreted as the vertical distance between the highest point of the building or structure and average natural grade, except as indicated for principal buildings in the CR-3 zone.
- 4.8.2 For the purposes of this Bylaw, average natural grade shall be calculated as the average grade, as determined by measuring the natural grade at the midpoints of the walls on all sides of the building or structure, then divided by the number of all sides, as illustrated below using four sides as an example (the sum of 1, 2, 3 & 4, divided by 4 = ANG). Natural grade shall be determined by a registered BC Land Surveyor and shall be determined as the grades prior to any construction or alteration of the land.



As noted above, building height is measured from the highest point of a building or structure to the "average natural grade". Natural grade itself is defined as "the grade of the lot, as determined by a B.C. Land Surveyor, *prior to any construction or alteration of the site*" [emphasis added]. Where a historic record of grades, or sufficient landmarks do not exist for a surveyor to interpolate the natural grade, there may be a perception the "natural grade" of the lot has been manipulated over time, thereby allowing a future building to be built to a greater height (i.e., above sea level), than would have otherwise been permitted prior to the alteration.

Staff have undertaken a review of alternative approaches to measuring building height in other jurisdictions in Metro Vancouver. Table 1 summarizes, generally, the variety of approaches taken to measure the height of low-profile residential buildings (e.g., single detached dwellings, duplexes, etc.). There are a few notes beneath the table to recognize what are believed to be unique aspects of the regulations.

**Table 1: Comparative Review of Approaches to Measuring Building Heights**

Method of Measuring Building Height – Defining the Base Point of Measurement [Note Ref.]	City of White Rock	City of Burnaby	City of Langley	North Vancouver	Coquitlam	Delta	New Westminster	North Vancouver	Pitt Meadows	Port Coquitlam	Port Moody	Richmond	Surrey	Langley (T)
<b>Natural Grade</b> using mid-point of building walls [1]	✓													
<b>Natural Grade</b> using average elevation taken along front building elevation [2]		✓												
<b>Natural Grade</b> using average low point along front & rear building face – points connected								✓						
<b>Existing Grades</b> using average of points at corners of site [1]							✓				✓			
<b>Average Building Grade</b> being lower of natural grade or finished grade at each outer corner of building [1]					✓									
<b>Finished Grade</b> using lowest ground elevation at any point adjoining one exterior wall of a building or structure			✓											
<b>Finished Grade</b> using average of highest finished ground level within 3.048m of structure & lowest finished grade around outside wall				✓										
<b>Finished Grade</b> using averages along front and rear lot lines						✓								
<b>Finished Grade</b> using outermost corners of the building (where building intersects with ground)									✓	✓				✓
<b>Finished Grade</b> not exceeding 0.3 or 0.6m metres above the highest crown elevation of abutting public road												✓		
<b>Finished Grade</b> using perimeter of building [1][3]													✓	

**Note 1:** Measurement requires involvement of BC Land Surveyor

**Note 2:** Where no front setback is required height is measured from the curb

**Note 3:** Surrey defines “finished grade” as that outlined in an approved grading plan OR where there wasn’t a plan when the lot was first created, the lowest ground elevation existing prior to construction – defined by a BC Land Surveyor – existing elevation must exclude materials placed on the lot to raise the ground elevations up and the elevation cannot exceed the average elevation of adjacent lots at the adjoining lot lines

As summarized in Table 1, municipalities throughout the region measure building height using either a natural (existing) grade, commonly defined by a BC Land Surveyor, or a finished grade, which is defined through the civil engineering (grading) designs of the project. The base points used in starting the measurement, whether relying on natural (pre-development) grades or finished (post-development) grades, are either taken from defined points related to the building (e.g., perimeter walls, mid-points, corners, etc.) or from points tied to the property (e.g., corners of the lot, average along front and rear lot lines, average using grades within set distance of building, etc.); in the case of Richmond, height is partly dictated by the height of the crown of any abutting public road.

One of the challenges with how height is measured in White Rock is that the base point at which the height measurement is taken inside the property, at the midpoint of walls on all four sides of the proposed building. This means that the measurement will, for the most part, be taken at a position equal to or greater than the required yard setbacks applicable to the lot; for most residentially-zoned properties the setbacks range from 1.5 metres (interior side yard) to 7.5 metres (rear yard). As most lots in the city have an existing building located on them, it is likely that some modification/landscaping of the yard in the setback area has occurred since the property was built on. If, alternative to this approach of using points inside the property lines, the measurement were tied to the corners or another point(s) around the perimeter (legal boundaries) of the property, the potential to manipulate grades to enable a taller building would be alleviated as any such manipulation could affect the grading of a neighbouring property, resulting in a matter that could be resolved through civil proceedings. There may also be instances where alterations along the property affect City-owned property requiring approvals through the Engineering and Municipal Operations Department.

As part of the upcoming Zoning Bylaw Update it would be worthwhile to further explore the opportunity to measure “natural grade” using points around the boundaries of the property as opposed to points that are defined by the planned position of the new building within the lot. Any change to the approach to height measurement will impact properties differently depending on the approach and the specific site context, therefore any proposed changes should be examined carefully and designed to cause the least impact while supporting a clear and consistent approach to applying the standards. Due to the complexity of this topic and potential for unintended consequences, staff recommend, as noted at the outset of this report, that consideration of alternative approaches to measuring building height be part of the Zoning Bylaw Update.

### **Management of Soils**

In addition to evaluating the measurement of building heights staff have researched soil management regulations found within the Lower Mainland and surrounding regions. The bylaws reviewed commonly contain provisions related to the following matters:

1. Type of soil or material to be removed or deposited;
2. Threshold (volume in cubic metres) of soil requiring a permit;
3. Permit fees tied to the volume of soil in addition to administrative fee; and
4. Exemptions to permitting requirements.

Regarding Item 1, the type of material captured by soil bylaws most often includes: “soil”, defined with reference to clay, silt, sand, gravel, cobbles, boulders, peat and other naturally composed materials; wood waste, including lumber, sawdust, wood chips, and bark; aggregate; masonry rubble; concrete rubble; and asphalt rubble.

Per Item 2, the volume of soil tied to the permitting requirements outlined in the bylaws ranged from 10 cubic metres in Delta and New Westminster, to 200 cubic metres in Port Coquitlam and Mission. A standard dump truck is capable of transporting between 7.6 and 10 cubic metres of

soil (i.e., 10 to 14 cubic yards) therefore most bylaws are scoped to regulate between 1 and 20 truckloads of material. Of note, the City of Chilliwack requires public notice for any work involving more than 350 cubic metres of material and Council must approve of work involving more than 20,000 cubic metres of material.

Table 2 below summarizes the volume of soil necessitating a permit and the related permitting fees. As outlined in the Table, the general administrative fee for permits differs between municipality with the lowest fee being \$50 and the highest being \$1,000. In addition to the administrative fee, most of municipalities charge a fee per cubic metre of material, ranging from \$0.10 per cubic metre in Port Coquitlam (tied to high volumes of soil movement) to \$0.75 per cubic metre in New Westminster.

**Table 2: Review of Permitting Thresholds and Fees**

Municipality	Threshold Requiring Permit (cubic metres)	Fees
Abbotsford	None	\$0.67 per cubic metre
Chilliwack	None	\$250 application + \$0.50 per cubic metre
Coquitlam	>500*	\$50 application + \$4.00 per \$1,000 of construction value in excess of \$1,000 to maximum \$500
Delta	>10 (residential)* >30 (non-res)*	\$100 + \$0.50 per cubic metre
Langley (Township)	>14	\$250 (up to 600m <sup>3</sup> ) or \$500 for >600m <sup>3</sup>
Maple Ridge	>25*	\$50 (up to 350m <sup>3</sup> ), \$350 (351 to 5,000m <sup>3</sup> ), \$750 (>5,000m <sup>3</sup> )
Mission	>200*	\$360 + \$0.70 per cubic metre
New Westminster	>5 (parcels <558m <sup>2</sup> )** >10 (parcels >558m <sup>2</sup> )**	\$675 + \$0.75 per cubic metre
North Vancouver (District)	>18*	\$215 (single family) or \$430 (non-res)
Pitt Meadows	>50	\$250 + \$0.50 per cubic metre
Port Coquitlam	>200*	\$150 + \$0.20 per cubic metre (up to 100,000m <sup>3</sup> ) + \$0.10 per cubic metre (>100,000m <sup>3</sup> )
Surrey	>15*	\$762 + \$0.57 per cubic metre
Squamish	>30*	\$150 + \$0.30 per cubic metre
West Vancouver	None	\$1,000 (no building permit) or \$2,500 deposit with permit ( <i>limited to "rock removal"</i> )

\* Volume measured over a 12 month period | \*\* Volume measured over a 24 month period

The following exemptions (Item 4) were commonly cited in the soil bylaws reviewed:

- works undertaken by the local, province or federal government;
- works tied to an approved building permit (e.g., materials used to backfill foundation);
- works necessary to address a threat to the health, safety and welfare of public;
- material deposited for a professionally designed septic field (rural context);
- material tied to agricultural practices;

- wood waste generated on the same parcel;
- landscaping, often specifying depth of work (e.g., limited to 1 metre or less).

Based on the aforementioned review, soil management bylaws tend to be used to regulate soil deposition and removal activities that are not otherwise captured by another municipal approvals process (e.g., building permit process, site servicing approval, etc.), and are concerned largely with agricultural or industrial impacts and applications. Given the agricultural/industrial application of these bylaws, it may not be an appropriate tool in White Rock where soil deposition tends to be small scale and related to residential landscaping.

The situation that resulted in the motion initiating this review reportedly involved the stockpiling of enough quantities of soil that the concerned resident believes could impact slope stability and stormwater runoff. In the absence of a soil management bylaw, the City does not have a legal mechanism with which to prohibit site alteration activities that are not otherwise subject to a municipal approvals process (e.g. such as a Development Permit in ravine lands or watercourse area). If the City of White Rock were to pursue the creation of a soil management bylaw, additional due diligence would be needed regarding the additional resourcing needed to administer the bylaw and to monitor / enforce compliance.

### **FINANCIAL IMPLICATIONS**

Not applicable. If the City of White Rock were to pursue the creation of a soil management bylaw, additional due diligence would be needed regarding the additional resourcing needed to create the program, administer the bylaw and to monitor / enforce compliance.

### **LEGAL IMPLICATIONS**

Under Section 8 (3)(m) of the *Community Charter*, the City has the authority to enact bylaws to regulate the removal of soil and the deposit of soil or other material.

### **COMMUNICATION AND COMMUNITY ENGAGEMENT IMPLICATIONS**

If Council were to direct staff to create a bylaw for the regulation of soils it is anticipated that a non-statutory public meeting would be held to raise local awareness of the bylaw. Additional awareness could be raised using social media outlets and banners on the City's webpage.

### **INTERDEPARTMENTAL INVOLVEMENT/IMPLICATIONS**

This corporate report has been prepared with input from the Manager of Engineering and Municipal Operations and the Manager of Building and Bylaw Enforcement.

### **CLIMATE CHANGE IMPLICATIONS**

Not applicable.

### **ALIGNMENT WITH STRATEGIC PRIORITIES**

The preparation and implementation of a soil management bylaw is not identified within Council's Strategic Priorities and would require additional staff time and resources to initiate and administer.

Considering alternative methods for calculating building heights is within the scope of the review of single family zones in the Zoning Bylaw Update, which is identified as a High Priority in the "Our Community" section of Council Strategic Priorities, and is scheduled to occur in Fall

2021. This action falls under the objective to “guide land use decisions of Council to reflect the vision of the community.”

### **OPTIONS / RISKS / ALTERNATIVES**

The following options are available for Council’s consideration:

1. Direct staff to prioritize amendments to the Zoning Bylaw to revise the method of measuring building height, ahead of the planned review of this topic in the Zoning Bylaw Update in fall 2021, and request a report on how this will impact other Council Strategic Priorities;
2. Direct staff to prepare a draft soil management bylaw for review and discussion by the Land Use and Planning Committee, including a report on how this work will impact other Council Strategic Priorities; or
3. Direct staff to undertake both of Options 1 and 2.

### **CONCLUSION**

City staff have evaluated alternative approaches to measuring building height and to managing soils in response to a general inquiry raised by a White Rock resident. The result has been the identification of opportunities to control building height measured from points based the edges/corners of a property instead of the building footprint within the property. Staff recommend that consideration of alternative approaches to measuring building heights be incorporated into the review of single family home zones in the Zoning Bylaw Update anticipated in fall 2021.

Further, a comparative review of soil management bylaws is included in this report, identifying how such a bylaw could be applied and noting that typical usage of these bylaws is to regulate agricultural and industrial-type activities rather than soil applications for minor residential landscaping.

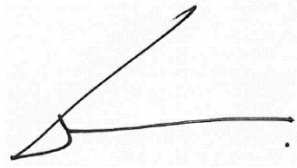
Respectfully submitted,

A handwritten signature in black ink, reading "Carl Isaak". The signature is written in a cursive, flowing style.

Carl Isaak, MCIP, RPP  
Director, Planning and Development Services

**Comments from the Chief Administrative Officer**

I concur with the recommendation of this corporate report.

A handwritten signature in black ink, consisting of a stylized 'G' followed by a horizontal line and a small dot at the end.

Guillermo Ferrero  
Chief Administrative Officer