

NO: R128

COUNCIL DATE: June 24, 2024

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## REGULAR COUNCIL

TO: **Mayor & Council** DATE: **June 20, 2024**

FROM: **General Manager, Planning & Development** FILE: **6700-01**  
**General Manager, Engineering**

SUBJECT: **Proposed Amendments relating to Stormwater Drainage of Single-Family Zoned Basements**

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## RECOMMENDATION

The Planning & Development Department and the Engineering Department recommend that Council:

1. Receive this report for information; and
2. Endorse the policy options below and as further described in this report:
  - a. Amend the Residential Storm Pumps bulletin and procedure to permit the private pumping of foundation drainage water into the City's existing stormwater sewers in cases where no emergency gravity overflow is available;and
  - b. Permit basements where they would otherwise be precluded by the local hydraulic grade line, which may include:
    - i. amending *Surrey Zoning By-law, 1993, No. 12000*,
    - ii. supporting variance applications that propose to vary the definition of "finished grade" (by up to .5m) and "building height" (by up to .5m) for single-family homes, and/or
    - iii. developing policy and procedure guidelines for staff to support such variance applications.

## INTENT

The intent of this report is to respond to Council Resolution No. RES23-2612 directing staff to: "Consider options to deal with situations where drainage issues restrict development of single-family homes, including:

1. Allow stormwater pump connections in basement suites;
2. Increase height restrictions to allow the house to be built on a slab; and
3. Conduct a review of what other jurisdictions are doing."

## BACKGROUND

The City currently permits single-family residential lots to pump sanitary sewage; however, the City's practice is to not permit the pumping of stormwater drainage from residential lots. As such, the depth of storm sewers in some single-family neighbourhoods prevents the construction of full basements on some lots, while other homes with the same zoning and within the same neighbourhood may be able to construct basements. As basement floor area is exempted for the calculation of floor area in most residential zones in *Surrey Zoning By-law, 1993, No. 12000* (the "Zoning By-law"), this creates a perceived equity issue between lots with the same zoning.

Whether a habitable basement is permitted within a particular house is determined by two calculated elevations: the minimum building elevation ("MBE") and the "finished grade" elevation on the lot. The MBE is often set in response to the local grade of the City's storm sewers (the local hydraulic grade line), and the finished grade is calculated in relation to the pre-construction grade of the lot.

A basement is defined in the Zoning By-law as habitable area whose constructed volume is at least 50% under ground, as calculated by comparing the proposed basement floor level (usually the MBE) with the "finished grade" level for the lot as defined in the Zoning By-law. The finished grade calculation derives either from an approved lot grading plan filed at the time of initial subdivision, or, where there is no approved lot grading plan, from the average grade of the lot.

In setting the MBE, the City's practice is to require that the elevation of any proposed habitable floor area within a foundation is a minimum of 0.3m above the local hydraulic grade line associated with a 100-year return storm event, exclusive of any mechanical devices such as pumps and backflow preventers.

However, the City's procedures set out in the Residential Storm Pumps Information Bulletin, dated December 2013 (Appendix "I") permit exceptions to this design standard by allowing for the private pumping of stormwater from foundation drains, where a number of conditions are met, including:

- No storm sewer service is available to a site, or if a site is below an available storm sewer 100-year hydraulic grade line level;
- Service connections into the City storm sewers is consistent with the Engineering Design Criteria Manual;
- There is an emergency gravity overflow available on the lot in the event that the pump fails;
- Any such storm pump system is designed and sealed by a duly registered Professional Engineer; and
- A Section 219 restrictive covenant ("RC") is registered on the title of the property.

A review of other municipalities in the Lower Mainland shows a mix of approaches on pumping basement foundation stormwater:

- West Vancouver, Vancouver, Port Coquitlam, Burnaby, and Abbotsford currently permit it;
- Surrey, Delta, and Coquitlam permit it with conditions or as exceptions; and
- City of Langley and Township of Langley do not currently permit it.

## **DISCUSSION**

Council Resolution No. RES 23-2612 has two slightly independent components, including reviews of:

### **Component #1**

- the policy on when the City would permit pumping of stormwater from basements below the 100-year hydraulic grade line; and

### **Component #2**

- the manner in which the City calculates building grades for the purposes of defining a basement on specific lots.

## **Permit Pumping of Stormwater**

It is possible to amend the City's practice to permit the private pumping of stormwater from foundation drains in cases where there is no emergency gravity overflow available on the lot. Doing so will be subject to the current requirements for engineered design and sealing, and the registration of an RC protecting the City from liability.

In relation to the policy objectives, permitting pumped stormwater more broadly meets the equity objective and the consistency objective.

It should be noted that broadly permitting pumped stormwater may encourage developers to propose shallow sewers in new subdivisions (which are less costly) which can potentially increase risk relating to property damages. This risk can be mitigated by ensuring that any change in policy on pumping stormwater is limited to existing lots of record and infill subdivisions where fronting storm sewers are already in place.

## **Permit Basements Currently Precluded by Zoning By-law**

The City can also permit home builders to raise the grade of a basement so that gravity flow into the local storm sewer is maintained, without losing the floor space exemption for basements. In order to accomplish this, a variance to the Zoning By-law would be required, differing in amount on a case-by-case basis.

Varying the definition of "finished grade" on a particular lot would essentially permit more of the volume of a basement level to protrude above the average existing level of the grade on the lot, or the level established on the original approved lot grading plan. This would in turn result in houses that are somewhat higher (above the local grade) than would have been permitted without the variance. Such a variance would only be supported where the overland drainage system within and between lots was acceptable to the City, and only on "infill" lots served by existing storm sewers.

## **LEGAL SERVICES REVIEW**

This report has been reviewed by Legal Services.

## CONCLUSION

The issue of permitting or restricting pumping of stormwater from the foundation drains of single-family homes is related to the ability of home builders to achieve a basement, and therefore the floorspace that comes with it, which is excluded from density calculations.

Staff have provided a revised process for Council's consideration, which allows for the permitting of private pumping of foundation drainage water into the City's existing stormwater sewers in cases where no emergency gravity overflow is available. As well, allowing for basements where they would otherwise be precluded by the local hydraulic grade line, such that variances to certain definitions and to height can be supported by staff, potential amendments to the Zoning By-law can be considered, and policy and procedures may be developed in support of such variance applications.

*Original signed by*  
Don Luymes  
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*Original signed by*  
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General Manager, Engineering

Appendix "I" Residential Storm Pumps Information Bulletin, December 2013

December, 2013  
BUILDING DIVISION

# RESIDENTIAL STORM PUMPS

A Guide to Surrey Policy and Procedure for Pumping Foundation Drainage.

## Fundamentals:

- Foundation drainage is a BC Building Code requirement, Section 9.14.2.
- A *major* rainfall event is defined as a 1 in 100 year occurrence, calculated statistically. The surface level of stormwater within storm sewer systems or upon the land's surface in such a storm is referred to as the *100 yr hgl* (hgl = hydraulic grade line).
- City of Surrey design standards require that the elevation of any proposed habitable floor area within a foundation be set a minimum of 0.3m (1') above the local *100 yr hgl*, exclusive of any mechanical devices such as pumps or back flow preventers.
- If a foundation's drainage system is pumped, any adjoining garage slab elevations must meet the same drainage (elevation) criteria as habitable floor area.

## Site Conditions and Requirements:

Pumping of foundation drainage water may be considered when **all** of the following are true.

1. There is no storm sewer service available to the site **or** the site is below the available storm service level and the potential 100 yr hgl of the storm sewer.
2. A facility to receive the pumped foundation stormwater must be available. The proposed receiving facility must have adequate capacity and be acceptable to the Surrey Building Division.
3. The topography of the land and/or proposed building elevation allows for the development of an emergency **gravity** overflow as a failsafe that is both:
  - a. Hydraulically relieved on the property at land surface above the local 100 yr hgl; and
  - b. Minimum 300mm (1ft) below the lowest proposed habitable floor elevation.

**Design, Document and Legal Requirements:**

1. Any storm pump drainage system servicing habitable floor area must be designed by a Professional Engineer, registered in the Province of British Columbia.
2. Engineer sealed design drawings containing at a minimum the following information:
  - a. Accurate plan and profile drawings of the proposed system detailing materials, switches, devices, power supply, foundation location and elevations;
  - b. All relevant inlet, outlet, land surface, overflow and floor elevations (Geodetic metric units); and
  - c. A recommended minimum building elevation (MBE) based on the design submitted.
3. A "Schedule B" from the BC Building Code completed by the design engineer committing responsibility for Plumbing 4.2 '*Site and Foundation Drainage Systems*'.
4. Undertake to register a **Section 219 Covenant** on the property's title at the Land Title Office to the City's standard. A copy outlining the appropriate format is available upon request.

***See Page 3 for a concept drawing of a suitable storm pump design.***

