



City of Richmond

Report to Committee

To: Public Works and Transportation Committee

From: John Irving, P.Eng. MPA
Director, Engineering

Re: **Burkeville Drainage**

Date: October 27, 2017

File: 10-6060-04-01/2017-
Vol 01

Staff Recommendation

That a moratorium on ditch infills in the Burkeville neighbourhood until a piped drainage network is implemented as outlined in the report titled "Burkeville Drainage" dated October 27, 2017, from the Director, Engineering be endorsed.

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

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance Department	<input checked="" type="checkbox"/>	
Sewerage & Drainage	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Transportation	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: CJ	APPROVED BY CAO

Staff Report

Origin

Significant numbers of non-permitted ditch infills have been identified in Burkeville. The current drainage system configuration does not support standard City ditch infills and Engineering staff have not issued a ditch infill permit in Burkeville since 2011. This report describes drainage issues in Burkeville and a proposed solution to those issues.

This report supports Council's 2014-2018 Term Goal #6 Quality Infrastructure Networks:

Continue diligence towards the development of infrastructure networks that are safe, sustainable, and address the challenges associated with aging systems, population growth, and environmental impact.

6.1. Safe and sustainable infrastructure.

6.2. Infrastructure is reflective of and keeping pace with community need.

Findings of Fact

Drainage

Burkeville was originally constructed in 1941 as housing for war time Boeing aircraft manufacturing. The drainage system has not been significantly updated for decades, but has served the community well. The soils in Burkeville are permeable and significant drainage flows are percolated through the soil, resulting in lower flows in the ditch network.

Over time, and primarily driven by new home construction and renovations, there has been a corresponding increase in ditch infill requests in Burkeville. In 2011, the number of completed ditch infills combined with the increasing number of requested ditch infills were identified as problematic from a drainage capacity perspective. Piping the drainage network increases the storm water flows in the drainage network significantly, due to the reduced opportunity for percolation into the soil, and will be beyond the capacity of the existing system at build out.

Burkeville ditches are not deep enough to accommodate City standard piping and cannot be improved in a manner that will increase capacity to the required levels. On this basis, staff pursued comprehensive drainage upgrade planning for the area. The planning effort identified an overall cost of \$13 million for drainage improvements, which includes upgrading the Miller Road pump station to accommodate the higher anticipated flows that will be generated by the piped system. A \$2 million capital project to begin implementation of a piped drainage network in Burkeville has been included in the 2018 Capital Plan for Council's consideration. \$1 million per year for Burkeville drainage has been included in the subsequent four years of the five year capital plan for Council's consideration.

Of the 287 single family homes in Burkeville, 60 have permitted ditch infills and there are an additional 20 ditch infills that were completed without permits. The majority of the infills constructed without permits were completed after 2011. Engineering has been addressing the

non-permitted infills as staff have become aware of them, however, the impacted residents are often unaware of the Bylaw requirements for ditch infills and are distressed by the requirements to address the non-permitted ditch infills.

Staff will implement a public information program on the drainage issue including mail outs to residents and a public open house.

Future Development Considerations in Burkeville

Staff anticipate bringing a report to the Planning Committee in early 2018, to consult with Burkeville residents regarding coach houses, granny flats, retaining the existing pre 1945 houses including the front, side and rear yards, incentives, design guidelines, and parking policies.

In addition, the Vancouver Airport Authority (VAA) advises that they anticipate meeting with representatives of Burkeville later this year, as part of their ongoing information sharing sessions regarding activities at the airport.

Analysis

Given the current drainage capacity limitations in Burkeville, staff recommend a moratorium on ditch infills in this neighbourhood until a piped drainage system can be implemented. It is anticipated that the moratorium will be lifted on a block by block basis as the piped drainage system is installed. A program for implementation of a piped drainage system that will include capacity for granny flat and coach house development has been included in the 2018 capital budget and 2018 to 2022 five year financial plan for Council's consideration.

Financial Impact

None.

Conclusion

The drainage system in Burkeville relies on percolation to minimize flows in the ditched drainage network. Ditch infills reduce the drainage system's capacity for percolation, increasing drainage system flows which will ultimately cause flooding in the neighbourhood. Staff have discontinued approval of ditch infills in Burkeville on this basis and recommend that Council issue a moratorium on ditch infills until such time as a piped drainage system can be implemented. Staff has included the Burkeville Drainage Improvement program in the proposed 2018 capital plan and the 2018 to 2022 Five Year Financial Plan for Council's consideration.



Lloyd Bie, P.Eng.
Manager, Engineering Planning
(604-276-4075)
LB:lb