OAKVILLE

REPORT

COMMUNITY SERVICES COMMITTEE

MEETING DATE: SEPTEMBER 16, 2019

FROM: Roads and Works Operations Department

DATE: August 15, 2019

SUBJECT: **Ditch Treatment Options for Drummond Road**

LOCATION: 458, 462, 466 Drummond Road
WARD: Ward 3

RECOMMENDATION:

1. That the staff report, *Ditch Treatment Options for Drummond Road* from the Roads and Works Operations Department, dated August 15, 2019, be received; and

2. That the open drainage ditch across the frontage of 462 Drummond Road be reinstated with pebble or beach stone, similar to the existing upstream treatment.

KEY FACTS:

The following are key points for consideration with respect to this report:

- The Town's municipal storm water drainage network is a combination of underground storm sewers (approx. 1,400kms) and roadside ditches (approx. 200km).
- The Town's storm water network was designed to collect 'storm water runoff' generated from rainfall events.
- Residential sump pumps draw groundwater from around the foundation of a home. This flow is traditionally directly or indirectly connected to the municipal storm water network. Where a home basement penetrates the normal groundwater level of an area, we can have instances of 'highly active' sump pump operations. 'Highly active' sump pumps that direct drainage to a roadside ditch can give rise to nuisance concerns of constantly wet ditch conditions.
- Staff have been dealing with nuisance concerns regarding the roadside ditch on the west side of Drummond Road since 2012.
- The ditch in this location does receive groundwater flows from an upstream residential 'highly active' sump pump, resulting in wet ditch conditions.

- The subject roadside ditch has been regraded and although positive runoff is achieved, it is slow with water being visibly present within the ditch line.
- In order to mitigate the visible presence of water, staff have proposed the ditch bottom be reinstated with pebble or beach stone.

BACKGROUND:

The Town maintains a storm water drainage network which consist of 1,400 kms underground storm sewer pipes and 200kms of roadside ditches. The storm water drainage network is designed to convey storm water runoff from the roadway as well from the adjacent land surface. Storm water is defined as the runoff (drainage flow) that is the result of a precipitation event (rain/snow melt).

Water flow can however be generated from other sources such groundwater sources. Home construction involving the creation of a basement, typically requires the installation of a perimeter foundation drain to ensure groundwater is effectively removed from the perimeter of the foundation. This is done to minimize the presence of ground water and hydrostatic pressure under the basement floor slab. Figure 1 below sets out the typical arrangement for a sump pump installation.

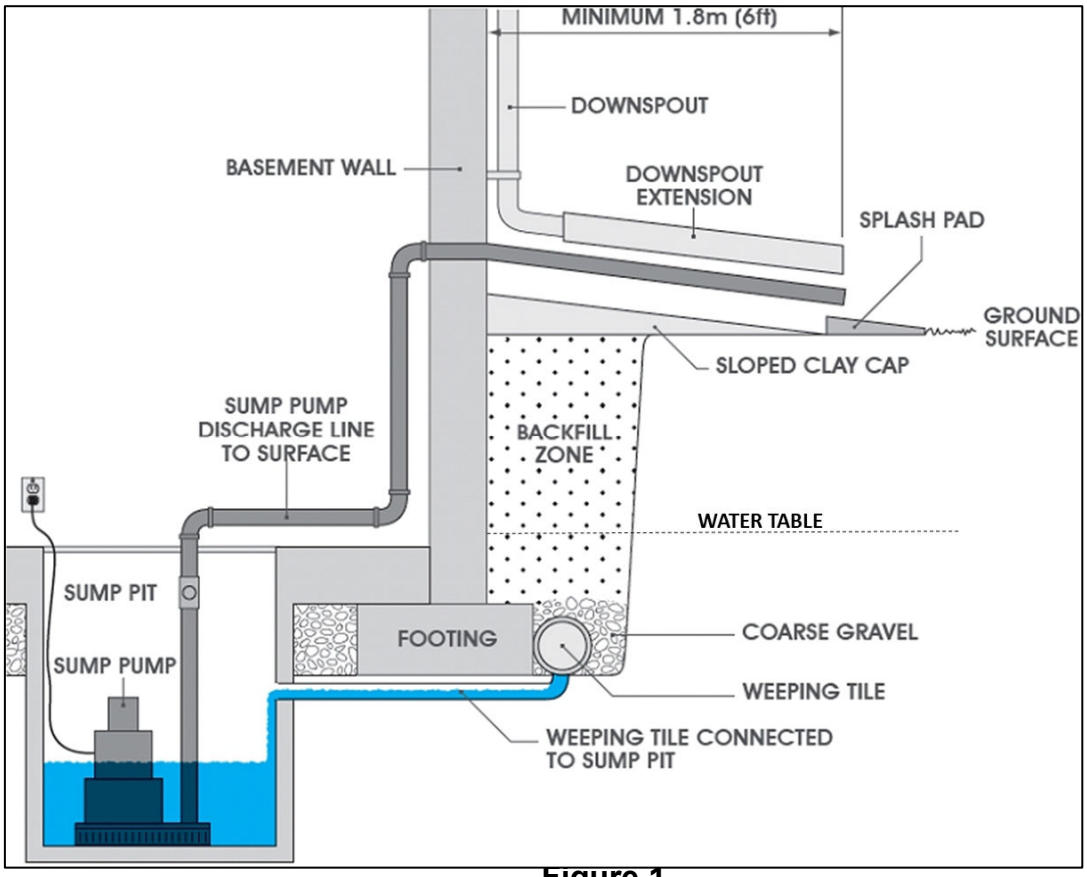

Figure 1

Some of the original homes in our older community areas were built with shallower basements (above the groundwater table) and/or no basement at all, thus negating the need for foundation drains/sump pumps. New home developments however area typically designed with deeper basements that allow for finished basements that then form part of the overall available living space of the home. While it may be an option to build above the water table line, our zoning bylaw restricts the overall height of new home construction in our older areas, thus those that desire 'livable space' within their basement simply 'dig deeper' as opposed to raising the level of their overall building.

In cases where a foundation penetrates the ground water table, we tend to find sump pumps that activate on a frequent/continuous basis. Active sump pump operations tend to be a concern in areas where drainage relief is provided by the roadside ditch system. In these situations, groundwater is directed to the roadside ditch where it can (in instances of a 'highly active' sump pump) create constant/continuous wet ditch conditions.

Roadside ditches, can, over time fill with sediment or erode requiring remedial maintenance and restoration to ensure the ditch provides the necessary conveyance capacity and/or ability to drain efficiently. Ditches by design, drain slowly as their slopes are gentle and their surface, lined with grass. Ditches provide several key functions: treatment (removal of sediment), infiltration, storage and conveyance. As noted within the findings of the 2018 Municipal Natural Asset Initiative, maintaining these key functions of 'natural' drainage network is important.

The town utilizes the following remedial methods for maintaining ditches:

- Regrading to restore or improve drainage
- Restoration of eroded ditch bottom with sod or with an alternative permeable liner such as pebble or beach stone
- In areas of high overland flow, the installation of a sub-drain pipe below the ditch may be utilized subject to an available drainage outlet (for the sub-drain) into an adjacent municipal storm sewer system.

The town has a long standing policy where piping of ditches is not permitted in any residential or commercial area, where drainage is conveyed by an open ditch system. This policy is in keeping with the findings of the Municipal Natural Asset Initiative as enclosing a ditch system effectively removes/reduces its ability to treat, store and allow for infiltration of drainage flows.

At the December 17, 2018 meeting of Town Council, the following direction was provided to staff:

> *That staff report back to the Community Services Committee by April 2019 on available ditch treatment options to remedy water concerns that have been ongoing since 2012 in the ditches in front of 458,462 and 466 Drummond Road, including placement of a buried pipe.*

At the June 17, 2019 meeting of Community Services Committee, the report *Ditch Treatment Options for Drummond Road* dated May 16, 2019 was tabled and the following direction was provided to staff:

> *That this item be referred back to staff to consult with the residents to evaluate and consider additional option, and to report back at the September 16, 2019 Community Services Committee meeting.*

The water concerns within the ditch along the front of 458, 462 and 466 Drummond Road are the result of a 'highly active' sump pump and this report has been prepared in response to Council's direction.

COMMENT/OPTIONS:
The current storm sewer system on Drummond Road between Avon Crescent and Ario Road consists of roadside drainage ditches**.** The drainage ditches are generally finished with sod, with the exception of a short section adjacent to 470 Drummond Road, which is lined with stone pebbles along its bottom.

Roadside open ditches are an effective method to convey storm water runoff from the roadway as well as storm water runoff from adjacent land surfaces. Furthermore, ditches with sod bottoms and sides help to trap sediment and contaminants carried by storm water before discharging into lakes, wetlands, or streams.

In addition to storm water, the roadside ditches upstream of 458, 462, 466 Drummond Road also receive flow from a residential sump pump located at 1288 Avon Crescent (corner of Avon and Drummond), which is 'highly active' providing a frequent and somewhat continuous flow of water to the subject ditch. The home at 1288 Avon Crescent was built according to and in compliance with its approved plans.

Since 2012, residents of 458, 462 and 466 Drummond Road have raised concerns regarding the ongoing flow of water, operation and aesthetics of the ditch in front of their respective properties (see Appendix A for reference map and photos).

The town has regraded and remediated the ditch along these properties as well as the upstream section near Avon Crescent. However, ditch grading and increasing the ditch profile is restricted due to invert elevations of the existing driveway

culverts, and although positive runoff is achieved, it is slow with water being visibly present within the ditch line.

One resident, has requested a 'French drain' be installed to mitigate the presence of water within the ditch. A 'French drain' is a trench filled with gravel and/or a perforated pipe, that redirects surface water/groundwater away from an area. Staff have reviewed the area and there is no adjacent outlet for such an underground drain system. Without an outlet, a French drain would surcharge and not drain water, therefore this option is not recommended.

In order to mitigate the visible presence of water, staff have proposed the ditch bottom be reinstated with pebble or beach stone, similar to the existing up stream treatment. This treatment mitigates the visual presence of the wet ditch bottom while at the same time allowing the ditch to continue to provide the functions of drainage treatment, infiltration, storage and conveyance.

Further to the direction received at the June 2019 Community Services Committee meeting, staff of Roads and Works worked with the residents of 462 and 458 Drummond Road to review additional options to address concerns regarding the ditches fronting these properties. This work culminated in a review meeting held on July 17, 2019. The following is a summary of the options that were reviewed:

- **Redirect sump pump flow at 1288 Avon Crescent** – Roads and Works staff contacted the property owners at 1288 Avon Crescent to ask if they would be interested in redirecting the flow of water from their sump pump. The discharge from this sump currently flows south in the subject ditch, across the frontage of a number of properties on Drummond Road including 458, 462, 466 Drummond Road. The property owners at 1288 Avon Crescent did not respond.
- **Redirect ditch drainage through an easement/underground pipe between 462 and 458 Drummond Road** – The feasibility of providing an easement and installing a underground pipe between 462 and 458 Drummond Road that would connect the subject ditch to the creek that runs behind these properties was explored. Elevation data was obtained and a cost estimate ($30,000) was developed by Roads and Works staff. At the meeting of July 17, 2019 the residents of 462 and 458 Drummond Road indicated that they did not wish to further pursue this option.
- **Stone and sod installation** - At the meeting of July 17, 2019 the residents of 462 and 458 Drummond Road suggested the installation of stone, covered by a layer of fabric cloth and sod in the subject ditch. This option essentially amounts to enclosing the ditch, which as referenced earlier in this report, is contrary to town policy.

- **Summary** - Following this consultation process, staff continue to recommend that the subject ditch bottom be reinstated with pebble or beach stone, similar to the existing up stream treatment.

It is worthy to note that in April of 2018, the Town expanded its use of Site Plan control, specifically targeting residential re-developments within our older established community areas. This expanded site plan control is scoped in nature, however it does allow for an improved examination of the drainage component needs of a property. Since April of 2018, staff have been obligating re-development properties to implement measures to better control storm water and now ground water being released/produced from the lands. In cases where such controls are required, staff have further registered agreements on title requiring these properties to maintain such features in perpetuity. Enforcement of these conditions is through our Lot Maintenance Bylaw. Aside from these actions, staff still continue to examine additional ways to proactively address roadside drainage which may be impacted by these developments.

CONSIDERATIONS:

(A) PUBLIC

Staff worked with residents at 462 and 466 Drummond Road to review additional options to address concerns regarding the drainage ditch on Drummond Road, culminating in a review meeting held July 17, 2019.

(B) FINANCIAL

There are no financial impacts associated with this report.

(C) IMPACT ON OTHER DEPARTMENTS & USERS

Development Engineering are responsible for storm water management policies and standards; and have been consulted in the preparation of this report. Groundwater treatment systems fall within the purview of the Ontario Building Code and as such, the Building Department has also been involved in the preparation of this report.

(D) CORPORATE AND/OR DEPARTMENT STRATEGIC GOALS

This report addresses the corporate strategic goal to:
• enhance our natural environment
• have environmentally sustainable programs/services

(E) COMMUNITY SUSTAINABILITY

An effective storm water drainage system is vital to the economic, social and environmental sustainability of the community.

APPENDICES:

A: Drummond Road Reference Plan and Ditch Photos

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