

LOT DRAINAGE UPDATE

EXECUTIVE SUMMARY

This report provides an update to the Lot Drainage Improvement Project. The goal of the project is to achieve stormwater accommodation without negative impact for all categories of development, with a focus on residential development. Outcomes will include lot drainage technical guidelines for residential development, updated bylaws, and a restructured documented process for lot drainage. The end results of the Lot Drainage Improvement Project will be increased awareness for developers, home builders and home owners on the technical requirements for proper lot drainage, a transparent process for development applications with respect to drainage, and updated bylaws to support and enforce the application of the technical requirements. Work is ongoing, and anticipated project completion will be in Q4 2016.

ADMINISTRATION RECOMMENDATION(S)

That the SPC on Planning and Urban Development recommend that Council receive this report for information.

RECOMMENDATION OF THE SPC ON PLANNING AND URBAN DEVELOPMENT, DATED 2015 JUNE 10:

That Council receive this report **and the distribution from Kathi Higgins** for information.

Excerpt from the Minutes of the Regular Meeting of the SPC on Planning and Urban Development, dated 2015 June 10:

“And further, that the Legislative Coordinator attach the distribution to Report PUD2015-0081 prior to being forwarded to Council.”

PREVIOUS COUNCIL DIRECTION / POLICY

On 2014 October 31, Council approved PUD2014-0778, as amended, to “Direct Administration to report back to Council through the SPC on Planning and Urban Development on potential solutions to improvement of stormwater management including, but not limited to, geodetic elevation concerns, permeability, sequencing of applications, and related matters, no later than Q2 2015.”

BACKGROUND

Calgary has an increased awareness with respect to stormwater management, most notably after the events of the 2013 flood, but also as a result of our city densifying to accommodate rapid population growth. The Lot Drainage Improvement Project is a project under the work program for the Drainage line of service. This project was identified to address the challenges with increased densification and increased citizen awareness of the importance of stormwater management.

At SPC on PUD on 2014 October 31, Water Resources reported that the introduction of new requirements for maintaining geodetic elevations will not alleviate drainage concerns- increased runoff to neighbouring parcels can occur even if the geodetic elevations are maintained.

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Drainage concerns for a parcel being redeveloped, as well as the neighbouring parcels, must be addressed by a comprehensive drainage solution. This solution must bring together the most appropriate best management practices, including but not limited to, geodetic elevation considerations.

Many factors contribute to proper drainage at a site, including but not limited to those listed below:

Protection of drainage right of ways

- Direction of downspouts
- Drainage swales functioning as per design and not impeded
- Overland emergency escape route functioning
- Interaction with drainage of public roadways, walkways, etc.

Landscaping

- Amount of impermeable surface
- Soil type and composition
- Topsoil depth
- Use of low impact development (LID) features:
 - Bio-retention areas and bio-swales/rain gardens
 - Green roof systems
 - Permeable pavement, porous pavement
 - Rainwater harvesting systems
 - Soil cells
 - Stormwater capture and reuse
- Landscaping implementation schedules

Lot Grading

- Grades and geodetic elevations
- Minimum building entrance elevations

Other drainage considerations

- Retaining wall functioning
- Groundwater discharge (ex. sump pump discharge)

The City provides technical guidelines in the form of various documents to guide consultants with storm water management. These documents provide technical guidance for lot drainage but are focussed on categories of development where typically, the parcel area is larger, i.e. industrial, commercial and institutional and multi-family residential developments. Guidance specific to low-density residential developments may be inferred from these documents, but may not specifically apply to this type of development.

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A major deliverable of the Lot Drainage Improvement Project will be to provide technical guidelines for residential development. Providing technical guidelines will help residential developers design for lot drainage while clarifying expectations with respect to adjacent parcels, permeability, grading, and other considerations, especially with the smaller residential lots.

Drainage is currently reviewed as a component of the development application process. A challenge is that depending on the type of development, development applications have different submission requirements with respect to drainage. Another challenge is that drainage reviews are done with varying levels of analysis, depending on the type of application and associated risk. Updates in the process are required to provide more consistency in reviews and guidelines to help inform the reviews. Implementation also needs to be coordinated across multiple business units in order to effectively change processes.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

Water Resources initiated the Lot Drainage Improvement Project in Q4 of 2014 to analyze and identify gaps in the existing policy and process and to develop recommendations for improvements. The project has three main deliverables:

1. Technical guidelines for lot drainage – anticipated by Q4 2015
2. Process mapping of existing and to-be processes for drainage reviews – anticipated in Q4 2015
3. Bylaw revisions – anticipated by Q4 2016

The new technical guidelines for lot drainage will be an adaptation of existing technical requirements with a focus on the needs of low-density residential redevelopment (infills). It is envisioned that the new technical guidelines will be used by the developer, builder and homeowner, and will provide transparency to how City reviews will be conducted, clarifying what is acceptable with respect to lot drainage.

Existing guidelines, such as the Stormwater Management and Design Guidelines, Design Guidelines for Development and Site Servicing Plans, and bylaws including the Drainage bylaw, the Lot Grading bylaw and the Land Use Bylaw will be used as the basis for development of the technical guidelines specific to residential development. A framework of parameters will be established within the technical guidelines. A review of all applicable technical guidance documents has been completed. Based on the review, key areas have been identified as the focus for the technical guidelines, and working sessions are planned to discuss parameters and how they should apply to different types of development.

Technical guidelines for lot drainage will be compiled into one user-friendly document and will be made available for industry and community use. The guidelines will bring together relevant technical requirements and adapt them to the needs and context of residential development. The guidelines will provide transparency and consistency to the review process, leading to desired drainage outcomes. The new technical guidelines are expected to be completed by Q4 2015.

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Process mapping of how drainage is reviewed is underway and will clarify where technical guidelines can be applied to inform applications. A step-by-step look at how a development submission is reviewed, specifically in respect to drainage, has been mapped and is being validated. Initial complexities that are being addressed are how reviews of the drainage component of a submission are currently done with respect to the review of the overall development application. Currently, a high-level process has been identified and meetings with individual stakeholders are helping to clarify the existing process, assess the feasibility of proposed revisions, and will inform more detailed process mapping. The mapping will show the nuances between four main types of development, including:

- Subdivisions;
- Multi-family residential and Industrial/Commercial/Institutional ;
- Multi-family residential redevelopment, and;
- Semi-detached and single family residential redevelopment.

Specific details with regards to the different types of development will be identified after the general flowchart is mapped. Case scenarios are being developed to test that the recommended operational improvements can be effective tools for industry and achieve the desired drainage outcomes. A confirmation of the resources and timelines required for drainage reviews will be prepared, based on the requirements for each type of application. The updated process mapping, including future states processes is expected to be completed in Q4 2015

As the final piece needed to enforce proper lot drainage, bylaw amendments are anticipated, following the finalization of the technical guidelines and the identification of process improvements. Revisions will be done to incorporate the requirements of the Lot Grading Bylaw into the Drainage Bylaw. The bylaw revisions are expected to be finalized in Q4 2016. By providing industry with additional tools and clarification on expectations for lot drainage particular to residential developments, The City is establishing itself in an advisory capacity rather than a policing role. Voluntary compliance is likely to occur when industry and homeowners are aware of and understand: drainage requirements; the benefits of compliance; that the requirements are reasonable and feasible; and that the consequences of non-compliance are high. Having industry, homeowners, and The City work collaboratively to promote good drainage solutions will foster a positive working relationship for development.

Engagement with industry will be integral to each deliverable and opportunities will be provided at appropriate checkpoints in the development of the technical guidelines, process flow-chart, and bylaw revisions.

The Lot Drainage Improvement Project is scheduled to be completed in Q4 of 2016 (Attachment). The end results of the project will be that developers, home builders and home owners are aware of the technical requirements for proper lot drainage and understand how the requirements apply to their development and the expectations for how their drainage should relate to neighbouring lots. The process for development application reviews with respect to drainage will be transparent, and inspections and reviews will be done to ensure conformance. Bylaws will support the technical guidelines and the operational process and will be enforceable in acting as a deterrent to those who ignore the requirements for lot drainage.

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Stakeholder Engagement, Research and Communication

In order for this project to be successful, buy-in from stakeholders is of paramount importance. The outcomes of this project will greatly impact the development industry, the homebuilders and the individual home owners.

Engagement with key stakeholders including the Urban Development Institute (UDI), the Canadian Home Builders Association (CHBA), and the Federation of Calgary Communities (FCC) will be performed throughout the project. Initial details of the project have already been provided to these important stakeholder groups and various workshops will be scheduled with ample opportunity for concerns or questions to be voiced. It is important that the drainage solutions presented are practical to industry. Focussed engagement with these groups, as well as various other stakeholders, will be done as work progresses.

It is important to hear the concerns of these groups in regards to their interpretation of drainage issues and respond back with a clarification or an action plan. Vetting proposed updates with industry ahead of time will also ensure that we are implementing the right solutions to lot drainage.

Strategic Alignment

The lot drainage improvement project is aligned with the goals of the Municipal Development Plan to create high quality, liveable communities. The outcome of this project aligns with the Municipal Development Plan (MDP)'s goal of a compact city: "Direct future growth of the city in a way that fosters a more compact, efficient use of land, creates complete communities, allows for greater mobility choices and enhances vitality and character in local neighbourhoods."

Social, Environmental, Economic (External)

This project is aligned with the City's Triple Bottom Line (TBL) Policy Framework.

Social: The project will provide a more transparent process and user friendly technical guidelines for lot drainage. The project deliverables will help to minimize drainage issues between adjacent lots.

Environmental: More effective lot drainage solutions will lessen the burden on our stormwater infrastructure and encourage use of low impact development in lots.

Economic: A measure of success of the project is to address drainage issues earlier in the application process, therefore minimizing the community drainage improvement projects required in the future.

Financial Capacity

Current and Future Operating Budget:

The Lot Drainage Improvement Project is underway and funded within the existing Water Resources' operating budget.

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Current and Future Capital Budget:

No future capital budget requirement is identified at this time.

Risk Assessment

A high level risk assessment has been completed as part of the project charter. Updates to risk will be evaluated periodically as part of the project.

REASON(S) FOR RECOMMENDATION(S):

The lot drainage improvement project is ongoing and expected to conclude in Q4 of 2016.

ATTACHMENT(S)

1. Lot Drainage Improvement Project Timeline
2. Distribution from Kathi Higgins