

OCP Bylaw No. 8769 and Zoning Bylaw No. 8770 Text and Map Amendment – Riverbank Development Control

APPLICATION SUMMARY

Administration is proposing amendments to Bylaw No. 8769, the Official Community Plan (OCP) and Bylaw No 8770, the Zoning Bylaw to provide policy and regulations for development of specific sites adjacent to the South Saskatchewan River. The proposed regulations will provide for an overlay zoning district that contains development standards for development within the defined area while maintaining the integrity of the riverbank.

RECOMMENDATION

That a copy of this report be forwarded to City Council recommending that at the time of the public hearing, City Council consider Administration's recommendation that the proposed amendment to Bylaw No. 8769, the Official Community Plan and Bylaw No. 8770, the Zoning Bylaw, providing policy and regulations in the form of an overlay zoning district to regulate development of specific sites adjacent to the South Saskatchewan River, be approved.

BACKGROUND

At the May 21, 2013, City Council meeting, Councillor P. Lorje made the following inquiry:

“Will the Administration please report on procedures that could be put into place to declare the East bank of the South Saskatchewan River as a Special Designated Area so that additions to homes, new residential construction, and special landscaping would be subject to special approval prior to changes?”

In 2015, during discussion on the slope failure in the Nutana Slope area, City Council approved the ongoing monitoring and reporting on slope activity. Since that time, the City and its retained experts have been actively monitoring the slope with a focus on maintaining public safety. Administration began reviewing long-term options to support safe and sustainable development for consideration in the Zoning Bylaw.

DISCUSSION

Slope Failure and Development

Slope failure is a natural occurring geological activity. There are three main components that affect slope stability; geology, geometry and groundwater. The manner of slope failure can vary significantly depending on these three components. The following shows how geology, geometry and groundwater affect slope stability:

- Geology - Soil is mainly comprised of sand, silt and clay. Sand particles are typically rounded and can lock together, whereas clay particles are much smaller, flatter and do not lock together as well. Therefore a slope made from sand can

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usually exist at a steeper angle for a longer time than the same slope made from clay. Additional complexities, such as different layers of soil stacked on top of each other and tilted in certain directions can increase or decrease the stability of a slope.

- Geometry - Some slopes can be stable at very steep angles, others need to be almost flat to be stable. Through slope instability, nature self corrects a slope to an angle that maintains equilibrium.
- Groundwater – The groundwater level is the elevation within the ground where water fills the space between the soil particles. The groundwater level will naturally fluctuate and will be present within a slope at some depth. Increases in the groundwater level due to precipitation or changes to a drainage pattern, result in an increase in the pressure of the water in the spaces between the soil particles. This increased pressure effectively pushes the soil particles apart and increases instability. Therefore, the higher the groundwater level in a slope, the greater the impact on the stability of the slope.

An unstable slope may be remediated by one or more of the following ways:

- Modification of slope geometry through removal of mass/weight at the crest of the slope, addition of mass/weight at the toe of slope or flattening of the slope;
- Reduction of groundwater level within the slope; and/or
- Modification of failure surface either by removal of all or portions and replacement with a stronger than existing material.

The degree of slope stability is measured using a Factor of Safety (FOS). FOS is the ratio of forces resisting land sliding to the forces causing land sliding. A slope is considered unstable when it has a FOS less than 1.0. The FOS that a slope is classified can vary depending on the ground conditions of the slope, land use and previous instability. A FOS of 1.5 is considered acceptable for a permanent structure constructed on or close to a slope.

When development is proposed on, or next to a slope, an engineered foundation may be designed to support the development without negatively impacting the existing slope conditions and FOS of the whole slope. Detailed ground investigation, slope stability analysis, foundation design and groundwater control, are key components frequently used to understand and mitigate the risk of development in proximity to slopes. A professional geotechnical engineer would be required to review these components and make recommendations on the engineered foundation design and other site requirements to facilitate development to an acceptable FOS. These recommendations are communicated through a geotechnical report.

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Planning and Development Act, 2007

The Planning and Development Act, 2007 (Act) provides the framework for land use planning in Saskatchewan. Section 32(2)(d) of the Act states that an OCP must contain statements of policy with respect to the management of lands that are subject to natural hazards, including flooding, slumping and slope instability. Section 52(3)(h) of the Act states, in part, that a zoning bylaw may contain provisions that regulate or prohibit development on land that is subject to flooding or subsidence, land that has slopes exceeding specified standards and that is adjacent to, or within, a specified distance of the bank of any natural or artificial lake, river, stream, or other body of water.

Official Community Plan

An amendment to the OCP is proposed to clarify policy with respect to the management of lands that are subject to slumping and slope instability that will allow for reasonable development in the area while maintaining the integrity of the riverbank.

Zoning Bylaw

The proposed regulations were developed using historical geological studies of the South Saskatchewan River and surrounding area, geological assessments from work that the City has undertaken along the east riverbank and an evaluation of municipal practices across Canada related to slope stability and development regulations. From this review, Administration is proposing an amendment to the Zoning Bylaw to create a new overlay zoning district that will apply additional regulations to properties along the riverbank of the South Saskatchewan River that may be subject to slumping or slope instability. With an overlay zoning district, the regulations of the underlying zoning district would still be in effect.

Based on review of conditions on the east and west riverbanks, two areas were identified on the east riverbank that are most susceptible to slumping and slope failure where the overlay zoning district would be applied. The first area, referred to as Zone 1 in the overlay zoning district, is an area with recent slope movement affecting private property located between McPherson Avenue and Victoria Avenue. The second area, referred to as Zone 2 in the overlay zoning district, runs from the University Bridge to Victoria Avenue and 8th Street East to just past Hilliard Street. All areas identified to be included within Zone 1 and Zone 2 are located within 30 metres of the top of the natural riverbank. (See Appendix 1)

The proposed overlay zoning district will define geotechnical report requirements for major and minor development and will identify uses that are not permitted within the defined area. The geotechnical report must be submitted with any development and building permit application as required and must be accepted by the City prior to issuance of any permit. A general summary of the regulations is provided below with further details outlined in Appendix 2.

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Summary of Proposed Overlay Zoning District	
Major Development Requirements (includes development such as new dwelling units, attached garages, additions greater than 10m ² and site grading)	
Zone 1	Zone 2
<ul style="list-style-type: none"> Geotechnical report required with the development designed to a FOS of 1.5 	<ul style="list-style-type: none"> Geotechnical report required with the development designed to a FOS of 1.5 No geotechnical report required for site grading
Minor Development Requirements (includes development such as detached accessory buildings, decks, additions less than 10m ² and demolitions)	
Zone 1	Zone 2
<ul style="list-style-type: none"> Geotechnical report required with the development designed to a FOS of 1.3 OR a letter from a geotechnical engineer 	<ul style="list-style-type: none"> Geotechnical report with the development designed to a FOS of 1.3 OR a letter from a geotechnical engineer No geotechnical report required for detached accessory buildings, raised patios, or decks < 10 m²
Development Not Permitted	
Zone 1	Zone 2
<ul style="list-style-type: none"> In ground swimming pools 	<ul style="list-style-type: none"> In ground swimming pools

Next Steps

Monitoring of the riverbank will continue and, if needed in the future, regulations for the overlay zoning district may be modified.

COMMUNICATIONS AND ENGAGEMENT

The engagement plan for this project was established with a goal to inform and consult with property owners, residents and key stakeholder groups, on the proposed riverbank development control measures being proposed.

Stakeholder meetings were held in June and July of 2019, and included meetings with the Association of Consulting Engineering Companies, the University of Saskatchewan and Meewasin. These meetings provided an opportunity for discussion and feedback on specific aspects of the project in preparation of the draft Riverbank Development Controls. A come-and-go open house was also held on July 22, 2019, to provide an opportunity for stakeholders to engage in a discussion one on one with project team members. Stakeholder groups invited to the come-and-go event included geoscientists, engineers, architects, realtors and construction professionals.

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Three public information meetings were held on July 15, July 17 and August 13, 2019, to inform affected property owners and residents about the proposed riverbank development controls. The meetings provided an opportunity to ask questions and obtain feedback on the proposed regulations. In total, 24 property owners and residents attended the three sessions. The main themes discussed at the public information meetings included:

1. Concerns and questions on existing conditions with the Nutana slope area;
2. Questions and discussion on research and past geotechnical work;
3. Cost and purpose of geotechnical reports;
4. Why there are differences between proposed zones;
5. Impact of civic infrastructure on slope stability (such as leaking water lines);
6. Why certain developments, such as in ground swimming pools, are not permitted; and,
7. Concerns about recent construction and road weight restrictions not being followed.

A community engage page was placed on the City website to provide details on the proposed regulations and review process.

Based on feedback provided, Administration has done additional work and made minor changes to the area subject to the overlay zoning district and geotechnical requirements for minor development. Details on the engagement plan are included in Appendix 3.

PUBLIC NOTICE

Public notice is required for consideration of this matter, pursuant to Section 11(a) of Policy No. C01-021, Public Notice Policy.

Once this application has been considered by the Municipal Planning Commission, it will be advertised in accordance with Policy No. C01-021, Public Notice Policy and a date for a public hearing will be set. A notice will be placed in The StarPhoenix, two weeks prior to the public hearing.

APPENDICES

1. Map – Riverbank Slope Overlay District
2. Overview of Proposed Official Community Plan and Zoning Bylaw Amendments
3. Riverbank Development Controls - Engagement Plan Summary

Report Approval

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