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TO: Planning Commission Ordinance Committee
FROM: Scott Gustin
DATE: September 2, 2021
RE: Steep Slopes

The Comprehensive Development Ordinance has long-standing provisions to address steep slopes and site topography in two sections (5.2.4 & 6.2.2). Section 5.2.4 essentially deducts steep slopes from lot coverage and residential density calculations in the RCO, RL, and RM zoning districts. Sec. 6.2.2 (a) speaks to preserving steep slopes and other significant natural features on a site, and 6.2.2. (b) guides development towards working with existing topography rather than significantly altering it as part of any development proposal. There is nothing addressing slope stability or suitability for development.

A slope failure along Riverside Avenue in October 2019 and a number of prior slope failures have sparked interest in the Conservation Board and among some members of the Burlington community to develop standards to assess stability and suitability for development of steep slopes. Note that [Chapter 18: Soils and Foundations](#) of the International Building Code contains standards specifying when geotechnical analysis of development site soils are needed and what is required as part of that analysis. Any new zoning standard should not duplicate or contradict those standards. There is opportunity with a zoning amendment to establish a clear, local threshold for requiring such analysis – where and under what conditions. There is no need to create new technical specifications for what is included in that analysis.

A number of other communities have dedicated steep slope ordinances or specific zoning standards for them. In order to put together our own standards, we need to consider where such standards might apply and under what circumstances. Existing CDO language is below and is followed by an outline of considerations pertinent to developing more specific steep slope standards for inclusion in the CDO.

Existing Standards:

Sec. 5.2.4 Buildable Area Calculation

The intent of this section is to:

- To protect sensitive natural features;
- To prevent overdevelopment of properties that contain sensitive and unbuildable areas, and
- To ensure that new development fits within the existing scale and intensity of the surrounding neighborhood.

For any properties two (2) or more acres in size within any RCO, WRM, RM, WRL, or RL zoning district, the maximum building density or lot coverage shall be calculated using the buildable area only. Buildable area shall be deemed to include only those portions of a property that are not inundated at least six months per year by water

including streams, ponds, lakes, wetlands and other bodies of water; and lands with a slope in excess of 30%.

The DRB may under conditional use criteria allow up to 50% of the maximum building density or lot coverage to be calculated on lands with a slope between 15-30% if the applicant can demonstrate that the additional density or lot coverage will be compatible within the existing scale and intensity of the surrounding neighborhood, and not have an undue negative impact on sensitive natural features.

Sec. 6.2.2 Review Standards

(a) Protection of Important Natural Features:

The landscape, existing terrain and any significant trees and vegetation shall be preserved in their natural state insofar as practicable in keeping with the objectives of the underlying zoning district. Development and site disturbance shall preserve watercourses, wetlands, steep slopes, flood-prone areas, rock outcroppings, wildlife habitat and travel corridors, specimen trees and contiguous stands of forest, and other sensitive ecological and geological areas insofar as practicable in keeping with the objectives of the underlying zoning district. Site plans shall provide suitable buffers from any proposed site improvements, and maintain continuity and contiguousness of greenspace while allowing reasonable development in support of the overall intent of the zoning district. Where any natural features are proposed to be removed or the topography altered, special attention shall be given to replace or mitigate the loss of such features. Any development occurring on parcels containing significant natural areas identified in the city's *Open Space Protection Plan* shall avoid disturbance to these natural areas and establish appropriate buffers that protect their natural functions.

(b) Topographical Alterations:

Alteration to the natural contour of the site shall minimize grading, cut, and fill, and shall take necessary measures to protect against erosion and future instability. Any grade changes shall be in keeping with the general appearance of neighboring developed areas. In areas where more intense levels of development are encouraged, development should seek to take advantage of topographical changes to hide and/or blend new construction into the landscape. Proposed design and construction details for any cut and fill, or retaining walls over 3-feet in height, or any height along the lakeshore, shall be subject to review and approval by the city engineer before receiving approval of the site plan.

Considerations for creating steep slope standards in the CDO:

What areas are affected and based on what characteristics?

- Citywide, certain zoning districts, or certain areas (i.e. like Riverside Ave)

- Establish a steep slope overlay zone (this would make sense with a minimum interval assessment) or lot-by-lot assessment upon permit application. Overlay zones appear to be commonly used by other municipalities with steep slope standards.
- Percentage of lot (i.e. at least 10%), or
- Average slope over minimum interval (i.e. 50 ft)

What is the bar for applicability of steep slope standards?

- Presently, steep slope considerations in the CDO come into play on lots of 2 acres or more in the RCO, RL, and RM zones. The only implication is to buildable area (i.e. steep slopes are discounted from buildable area acreage).
- Should the CDO specify standards to apply for any development on a lot with steep slopes?
- Should there be a minimum threshold for applicability (i.e. 400 sf or more, within a certain distance of a steep slope)?
- Use the existing slope threshold of 15% or 30% or other?

Establish development standards

- Modify existing Article 5 Section 5.2.4 or establish a separate section
- Require geotechnical analysis as part of application
 - Finds slope suitable for development?
 - Or simply defer to the Building Inspector review under the IBC, Chapter 18?
- Minimum setback from top or toe of slope?
- Maybe geotechnical analysis if not set back from top of slope?
- Vegetation clearing limitations (or structural stabilization in the alternative)?
- Prohibit increase in slope on finished grades.
- Maximum buildable slope (25% is noted a few times in other municipalities' steep slope standards, Burlington's CDO cites 30%)

Standards found in other municipalities' steep slope standards already addressed in CDO

- Erosion prevention and sediment control
- Stormwater management
- Landscaping / tree retention
- Build with existing topography