

Debbie Beadle

From: Evan Maxim
Sent: Thursday, October 04, 2012 3:43 PM
To: Debbie Beadle
Cc: Kamuron Gurol; Susan Cezar; Kathy Curry; Carl de Simas
Subject: FW: Memo to Sammamish Planning Commission dated 10-4-12 with Exhibits

Follow Up Flag: Follow up
Flag Status: Flagged

Public Comment

EXHIBIT NO. 222

*Evan Maxim
Senior Planner
City of Sammamish
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From: Linda K. Lightfoot [mailto:lk@vnf.com]
Sent: Thursday, October 04, 2012 3:08 PM
To: Debbie Beadle
Cc: Kamuron Gurol; Evan Maxim; gkrabbe@comcast.net; jetosti@msn.com; Brent Carson
Subject: Memo to Sammamish Planning Commission dated 10-4-12 with Exhibits

Brent Carson asked me to email you the link below to access the above-referenced memo to the Sammamish Planning Commission. If you have any difficulty accessing the document, please let me know.

<https://www.dropbox.com/s/g79k8g92qxd1zrs/Memo%20to%20Planning%20Commission%2010-4-12.pdf?m>

Linda Lightfoot
Legal Assistant to Brent Carson

Van Ness Feldman GordonDerr (*Please note our new address & phone numbers*)

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MEMORANDUM

TO: Sammamish Planning Commission

CC: Kamuron Gurol, Evan Maxim, Greg Krabbe, Jim Tosti

FROM: Brent Carson 

DATE: October 4, 2012

RE: Regulation of Development on Erosive Soils with the Potential to Contribute Phosphorous to Lake Sammamish by the Cities of Redmond, Bellevue, and Issaquah

As Greg Krabbe and I have discussed in prior testimony and correspondence, the Lake Sammamish Basin and the areas from which phosphorous has the potential to be released to the Lake is significantly larger in size than the area designed by the City of Sammamish for its Erosion Hazards Near Sensitive Water Bodies special district overlay ("EHNSWB Overlay). The entire lake basin contains large swaths of developable land with slopes between 15% and 40% which also contain the same types of highly erodible Alderwood Sandy Loam soils that exist within the EHNSWB no-disturbance area. According to the Soil Survey of King County (Excerpt Attached as Exhibit 1), up to 30% of King County is comprised of these soils at these slopes. Yet, no other city within the basin has elected or has been required by any other agency to prohibit development in such areas.

Attached to this memo are the critical areas regulations ("CAO") for the cities of Redmond, Bellevue, and Issaquah (Exhibit 2, Tabs A,B, and C respectively). These cities regulate the following types of critical areas: fish and wildlife habitat areas, wetlands, shorelines, geologically sensitive areas, flood hazard areas, and/or critical aquifer recharge areas.

With respect to geologically sensitive areas, these jurisdictions collectively map and regulate the following:

- Erosion Hazard Areas – See RMC 21.64.060.A.1.a. (Tab A); IMC 18.10.520.B. (Tab C).
- Landslide Hazard Areas – See RMC 21.64.060.A.1.b. (Tab A); BLUC 20.25H.125 (Tab B); IMC 18.10.560 (Tab C).
- Steep Slopes – See BLUC 20.25H.125 (Tab B); IMC 18.10.580 (Tab C).
- Seismic Hazard Areas – See RMC 21.64.060.A.1.c. (Tab A); IMC 18.10.570. (Tab C).

- Coal Mine Hazard Areas - See BLUC 20.25H.130 (Tab B); IMC 18.10.520.C. (Tab C).

No other Sammamish Basin jurisdiction regulates water quality or sedimentation within their geologically sensitive area regulations in any way comparable to Sammamish's EHNSWB Overlay and its no-disturbance area restrictions. Redmond, Bellevue, and Issaquah utilize their CAOs solely to address slope stability and prevent against slide risks within geologically sensitive areas. Subdivision of lands containing slopes between 15 and 40% with comparable soils to those in the Sammamish's no-disturbance area, is authorized in all of these other jurisdictions.

The cities of Redmond, Bellevue, and Issaquah take a broader approach to controlling phosphorous drainage into Lake Sammamish and other sensitive water bodies. Each jurisdiction imposes phosphorus controls on all property draining to Lake Sammamish or other sensitive water bodies without dictating more stringent requirements on sites within geologically sensitive areas. All three cities utilize the same approach to phosphorous controls, providing a menu of treatment options that development proposals above a certain threshold must use to reduce phosphorous runoff on sites draining to Lake Sammamish.

City of Redmond

Redmond has adopted the 2005 Department of Ecology Stormwater Management Manual for Western Washington ("2005 Ecology Manual") as the basis of its stormwater management standards. Redmond supplements the 2005 Ecology Manual with its Clearing, Grading, and Stormwater Technical Notebook, dated February 2012 ("Redmond Technical Notebook"), to address City-specific stormwater management needs.

Redmond requires "large projects" draining to Lake Sammamish to provide phosphorous control. See Redmond Technical Notebook, § 2.9.5.3 at 49 (Tab D). Redmond defines large projects as development with at least 5,000 square feet of new impervious area, at least $\frac{3}{4}$ acre of native vegetation converted to lawn or landscaped areas, at least 500 cubic yards of grading, or at least 2.5 acres of native vegetation converted to pasture.

Large projects may select from a "Phosphorous Treatment Menu," as outlined in the 2005 Ecology Manual, to achieve a goal of 50% total phosphorous removal. The Redmond Technical Notebook further provides a credit option for phosphorous reduction through use of low-impact design methods.

City of Bellevue

Bellevue has also adopted the 2005 Ecology Manual, as amended by its Storm and Surface Water Engineering Standards, dated January 2012 ("Bellevue Engineering Standards").

Bellevue generally requires phosphorous treatment of runoff from all project areas tributary to Lake Sammamish. See Bellevue Engineering Standards Phosphorus, § D5-03 at D5-6 (Tab E). Like Redmond, phosphorous treatment is imposed on all projects exceeding certain thresholds (5,000 square feet of new impervious surface, $\frac{3}{4}$ acre of native vegetation converted to lawn or landscaped areas, or 2.5 acres of native vegetation converted to pasture). Phosphorous Treatment options are as outlined in Volume V of the 2005 Ecology Manual.

City of Issaquah

Issaquah uses the 2009 King County Surface Water Drainage Manual as the basis for its stormwater management standards. Issaquah has further adopted the 2011 Addendum to the Surface Water Design Manual to address development within the City ("2011 Issaquah Addendum").

By default, Issaquah considers the entirety of the city to be within the Sensitive Lake Water Quality Treatment Area. See 2011 Issaquah Addendum, §1.2.8.1.B. at 1-66 (Tab F). All development within the City exceeding certain thresholds (5,000 square feet of new impervious surface or 35,000 square feet of clearing/new pervious surface area) must treat runoff from "Target Surfaces" for phosphorous. The Target Surfaces are described in the 2011 Issaquah Addendum. See §1.2.8.1.B. at 1-67 (Tab F)

Like Redmond and Bellevue, Issaquah provides phosphorous treatment options from a "Sensitive Lake Protection Menu," as set forth in the 2009 King County Surface Water Drainage Manual, to achieve a goal of 50% total phosphorous removal. A water quality credit for phosphorous control may be obtained through use of low-impact design methods.

The fact that the EHNSWB no-disturbance area may be in closer proximity to Lake Sammamish than some properties in other cities within the Lake Sammamish basin, does not provide justification for Sammamish prohibiting development in contrast to the more reasonable regulations established by these other jurisdictions. A follow-up letter from Rob Zisette, Water Quality Principal with Herrera Environmental Consultants, Inc., on this point is attached as Exhibit 3. This letter provides further support to his prior statement that total phosphorus inputs to Lake Sammamish are not necessarily higher from residential developments located adjacent to the lake relative to those from developments located up on the plateau that discharge to tributaries of the lake.

The record before the Planning Commission could support elimination of the EHNSWB Overlay and reliance on the existing erosion control regulations and phosphorous treatment requirements for on-going stormwater management. However, we recognize the concerns about eliminating these no-disturbance area regulations. For that reason, we have proposed allowing development only under new strict performance standards as set forth in Citizen Comment 191. We also support a phased approach through some type of a pilot program and are continuing to work with staff toward that end.

We appreciate your consideration of these important issues.

EXHIBIT 1

This is a scanned version of the text of the original Soil Survey report of King County Area, Washington issued November 1973. Original tables and maps were deleted. There may be references in the text that refer to a table that is not in this document.

Updated tables were generated from the NRCS National Soil Information System (NASIS). The soil map data has been digitized and may include some updated information. These are available from <http://soildatamart.nrcs.usda.gov>.

Please contact the State Soil Scientist, Natural Resources Conservation Service (formerly Soil Conservation Service) for additional information.

SOIL SURVEY OF KING COUNTY AREA, WASHINGTON

BY DALE E. SNYDER, PHILIP S. GALE, AND RUSSELL F. PRINGLE,

SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL
CONSERVATION SERVICE, IN COOPERATION WITH THE
WASHINGTON AGRICULTURAL EXPERIMENT STATION

THE KING COUNTY AREA covers 445,500 acres in the western part of King County (fig. 1). For this part of the county, this survey replaces a soil survey of the entire county published in 1952 (12).

Seattle was first settled in 1851, and the Green River Valley south of Seattle in about 1853. The major commercial ventures during the first years following settlement were in the lumbering industry. Lumbering is still a major industry in the Area.

The first cultivated crops were produced almost exclusively for home consumption. Farming, however, became productive enough that many carloads of fresh vegetables were exported from the county. Also, numerous manufacturing enterprises were established.

The large increase in population associated with industrial activity has increased the demand for residential and commercial sites. The demand has been so great that during the period 1954 to 1966, farmland was converted to other uses at the rate of about 3,900 acres per year. Fresh vegetables are now imported from other States (24). The rapid conversion of farmland to urban uses is significant because only about 9 percent of the county, outside of the National Forest, is considered suitable for farming.

Major limitations to use of the soils are erosion on sloping farmland and in urban developments, wetness that affects homesites and onsite sewage disposal, and the high slippage potential of some soils. Flooding has been controlled along a number of the major rivers in the county, but it remains a hazard in the Snoqualmie Valley. In the Green River area near Kent and Auburn, water stands on many soils that have restricted permeability even though the flood hazard has been greatly reduced by the Howard Hanson Dam and by construction of dikes along the river.



Figure 1.--Location of the King County Area in Washington.

Soil scientists made this survey to learn what kinds of soil are in the King County Area, where they are located, and how they can be used. The soil scientists went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. They observed the steepness, length, and shape of slopes, the size and speed of streams, the kinds of native plants and crops, the kinds of rock, and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The soil series and the soil phase are the categories of soil classification most used in a local survey.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Alderwood and Renton, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Kitsap silt loam, 2 to 8 percent slopes, is one of several phases within the Kitsap series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the development of urban areas and the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil phase. These scattered bits are referred to as inclusions.

Some mapping units are made up of soils of different series or of different phases within one series.

Three such kinds of mapping units are shown on the soil map of the King County Area: soil complexes, soil associations, and undifferentiated groups.

A soil complex consists of areas of two or more soils, so intermingled or so small in size that they cannot be shown separately on the soil map. Each area of a complex contains some of each of the two or more dominant soils, and the pattern and relative proportions are about the same in all areas. The name of a soil complex consists of the names of the dominant soils, joined by a hyphen. An example is Everett-Alderwood gravelly sandy loams, 6 to 15 percent slopes.

A soil association is made up of adjacent soils that occur as areas large enough to be shown individually on the soil map but are shown as one unit because the time and effort of delineating them separately cannot be justified. There is a considerable degree of uniformity in pattern and relative extent of the dominant soils, but the soils may differ greatly one from another. The name of an association consists of the names of the dominant soils, joined by a hyphen. Ragnar-Indianola association, sloping, is an example.

An undifferentiated group is made up of two or more soils that could be delineated individually but are shown as one unit because, for the purpose of the soil survey, there is little value in separating them. The pattern and proportion of soils are not uniform. An area shown on the map may be made up of only one of the dominant soils, or of two or more. The name of an undifferentiated group consists of the names of the dominant soils, joined by "and." Alderwood and Kitsap soils, very steep, is an example.

In most areas surveyed there are places where the soil material is so rocky, so shallow, or so severely eroded that it cannot be classified by soil series. These places are shown on the soil map and are described in the survey, but they are called land types and are given descriptive names. Coastal beaches is a land type in the King County Area.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soil in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way as to be readily useful to different groups of users, among them farmers, managers of woodland, engineers, urban planners, appraisers, and homeowners.

On the basis of performance, yield and practice tables, and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists,

urban planners, engineers, and others, and then adjust the groups according to the results of their studies and consultation. Thus, the groups that are

finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management,

GENERAL SOIL MAP

The general soil map at the back of this survey shows, in color, the soil associations in the King County Area. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in an area, who want to compare different parts of an area or who want to know the location of large tracts that are suitable for a certain kind of land use. Such a map is a useful general guide in managing a watershed, a wooded tract, or a wildlife area, or in planning engineering works, recreational facilities, and community developments. It is not a suitable map for planning the management of a farm or field, or for selecting the exact location of a road, building or similar structure, because the soils in any one association ordinarily differ in slope,

depth, stoniness, drainage, and other characteristics that affect their management.

The seven soil associations in the King County Area are described in the following pages.

1. Alderwood Association

Moderately well drained, undulating to hilly soils that have dense, very slowly permeable glacial till at a depth of 20 to 40 inches; on uplands and terraces

This association occurs as large tracts on uplands and terraces in both the northern and southern parts of the survey area. It is about 85 percent Alderwood soils, 8 percent Everett soils, and 7 percent less extensive soils (fig. 2). This association occupies about 52 percent of the survey area.

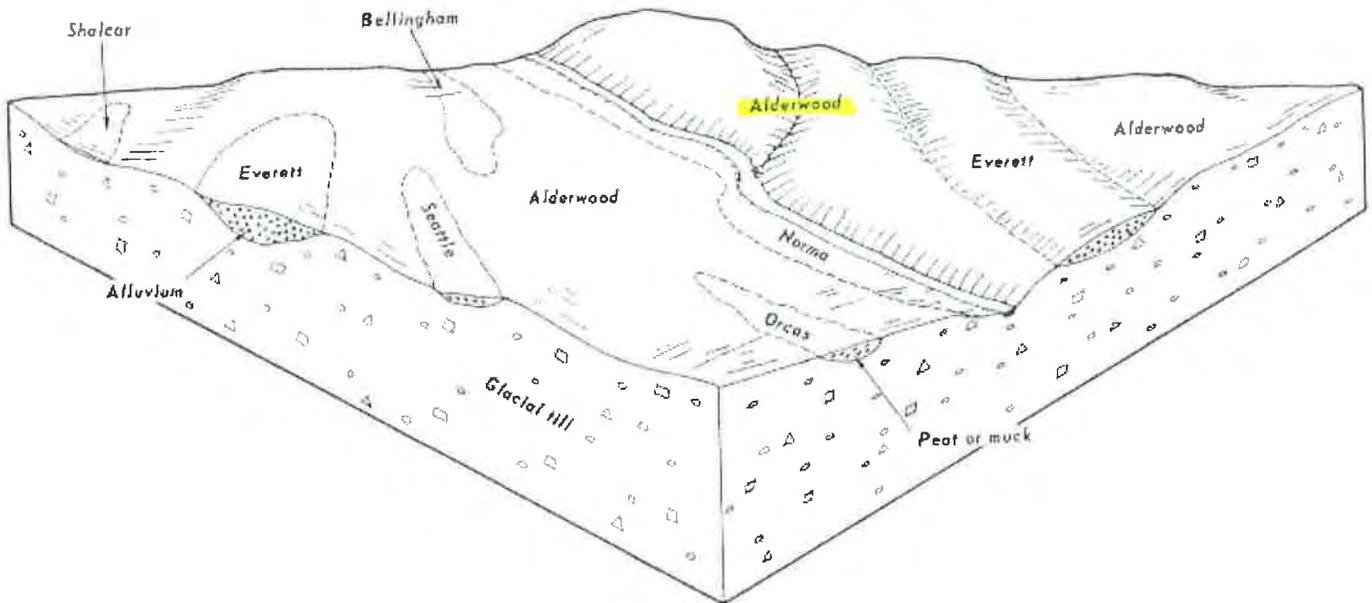


Figure 2.--Pattern of soils and parent material in soil association 1.

3. Buckley-Alderwood Association

Alderwood soils are moderately well drained gravelly sandy loamy that are 24 to 40 inches deep over consolidated glacial till. They have convex slopes. Slopes are dominantly 0 to 30 percent, but range to as much as 70 percent. Slopes of more than 15 percent are generally no more than 200 feet long.

Everett soils are nearly level and undulating to moderately steep. They are on terraces and terrace fronts.

The less extensive soils in this association are in depressions or on terraces along small streams. These soils, mostly the Norma, Bellingham, Orcas, Shalcar, and Seattle soils, have impeded drainage and are subject to flooding. There are significant acreages of Kitsap soils, which have a silty substratum, in the major valleys and around Lake Washington and Puget Sound.

The soils of this association are well suited to pasture and timber production but are poorly suited to cultivated crops. Urban development is occurring rapidly. Limitations for homesites are moderate and slight on most of this association, but are severe on Kitsap soils.

2. Oridia-Seattle-Woodinville Association

Somewhat poorly drained and very poorly drained, nearly level soils; in major stream valleys

This association is in major stream valleys or nearby level areas in both the southern and northern parts of the survey area. It is about 17 percent Oridia soils, 13 percent Seattle soils, and 10 percent Woodinville soils. About 60 percent is soils of small extent, mainly Briscot, Edgewick, Newberg, Nooksack, Pilchuck, Puget, Puyallup, Renton, Si, Sultan, Snohomish, Shalcar, and Tukwila soils. This association occupies about 11 percent of the survey area.

Oridia soils are somewhat poorly drained, stratified silt loamy. Briscot, Edgewick, Newberg, Nooksack, Puget, Renton, Si, and Sultan soils, which are similar to Oridia soils, are stratified, well-drained to poorly drained sandy loams, silt loams, and silty clay loams. Most are subject to flooding.

Seattle, Shalcar, and Tukwila soils are very poorly drained deposits of peat and muck. Pilchuck soils are sandy, excessively drained, and subject to flooding.

Woodinville and Snohomish soils are poorly drained silt loamy that contain layers of peat.

Most soils in this association are well suited to row crops, but a few are better suited to pasture and forage crops. In general, these are the most desirable soils for farming in the survey area. Site preparation for urban development is more costly on this association than on most of the other associations. Limitations are moderate and severe for residential and commercial sites.

Poorly drained and moderately well drained, nearly level to rolling soils that have dense, slowly permeable and very slowly permeable glacial till at a depth of 20 to 40 inches; on glacial till plains and uplands

This association is on glacial till plains and uplands in the southeastern part of the survey area. It is about 60 percent Buckley soils and 35 percent Alderwood soils (fig. 3). The rest is soils of minor extent. This association occupies about 7 percent of the survey area.

Buckley soils are nearly level, poorly drained silt loams and gravelly loams. They have a very dense substratum.

Alderwood soils are undulating to rolling, moderately well drained gravelly sandy loams. Their substratum is consolidated glacial till.

Among the minor soils are level, poorly drained peat and muck soils of the Seattle, Tukwila, and Shalcar series and moderately steep Beausite soils that have bedrock at a depth of 20 to 40 inches.

Most of the farms on this association are dairy farms. Seasonal wetness and gravelly soils are the main limitations for row crops.

Residential development on this association is of moderate extent and has been mostly on Alderwood soils. Alderwood soils have moderate limitations for homesites, and Buckley soils have severe limitations. Both have severe limitations for septic tank filter fields. Seattle, Shalcar, and Tukwila soils have severe limitations for homesites and septic tank filter fields.

4. Everett Association

Somewhat excessively drained, gravelly, gently undulating soils underlain by sand and gravel; on terraces

This association is dominantly on terraces in the southeastern part of the survey area; smaller areas are scattered throughout the northern half. The association occupies about 14 percent of the survey area. It is about 70 percent Everett soils, 15 percent Neilton soils, 7 percent Alderwood soils, and 8 percent less extensive soils (fig. 4).

Everett soils are gravelly sandy loam to a depth of 18 to 36 inches. They are underlain by very gravelly sand. Slopes are dominantly 0 to 15 percent, but are as steep as 30 percent on terrace fronts.

Neilton soils also are on terraces. They are gravelly loamy sand to a depth of 18 to 30 inches.

Alderwood soils have consolidated glacial till in the substratum. These soils are rolling and hilly. Slopes range up to 30 percent.

Less extensive in this association are the Indianola, Seattle, and Norma soils. Indianola soils are somewhat excessively drained and sandy. Slopes

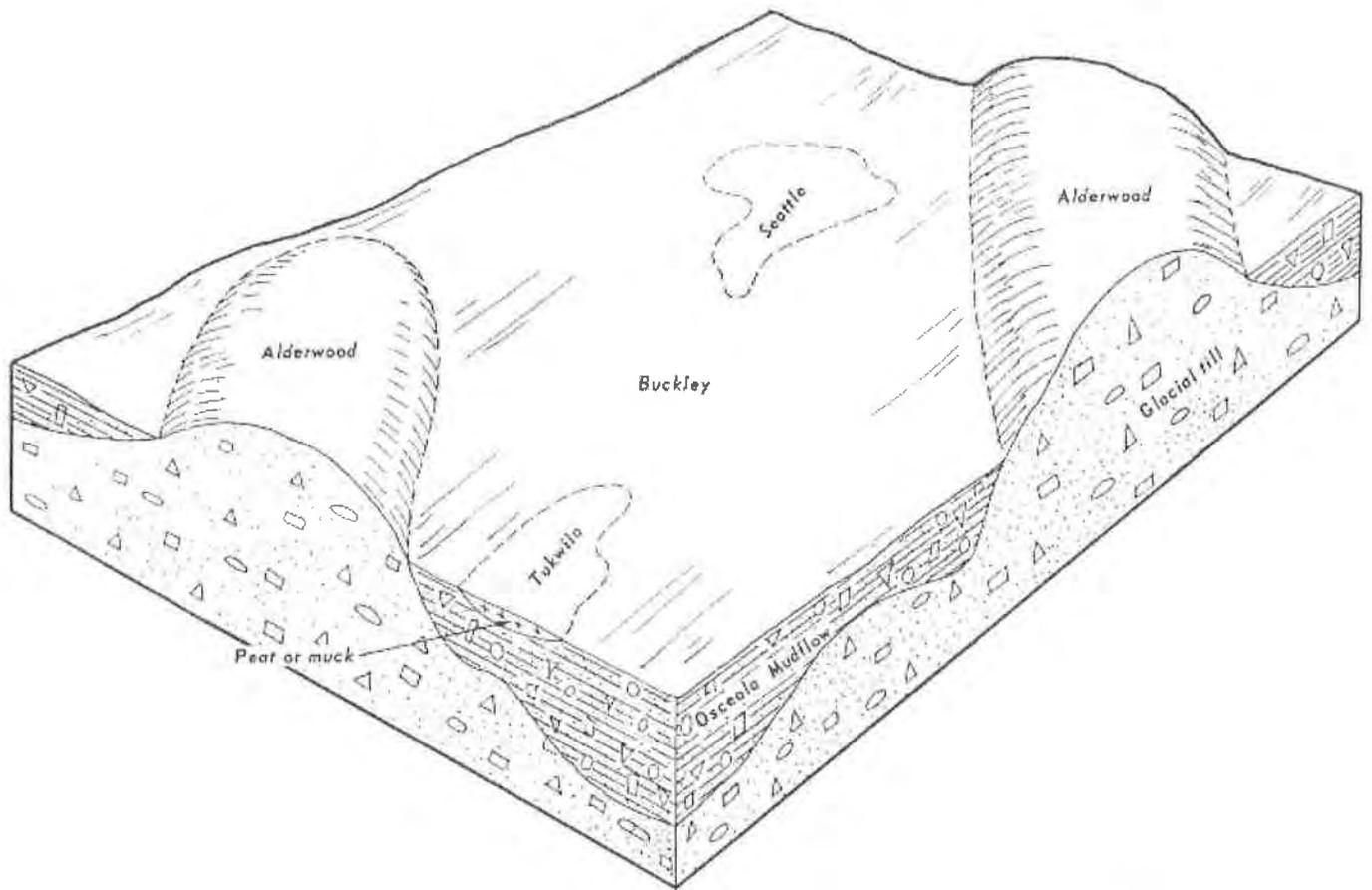


Figure 3.--Pattern of soils and parent material in soil association 3.

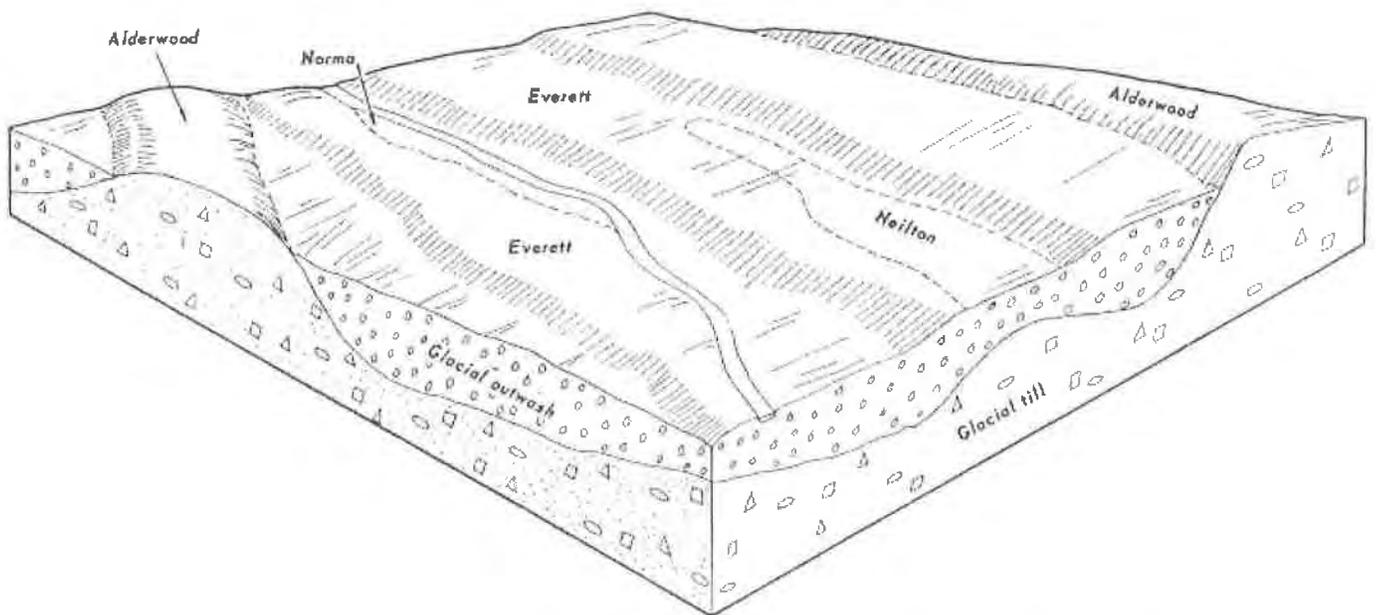


Figure 4.--Pattern of soils and parent material in soil association 4.

are mostly 2 to 15 percent. Seattle muck and Norma sandy loam are very poorly drained and poorly drained. They are in depressions and on flat terraces adjacent to small streams.

The soils of this association are poorly suited to farming but are moderately well suited to timber production. Everett soils have the fewest limitations for residential and industrial development of any soils in the survey area.

5. Beausite-Alderwood Association

Well drained and moderately well drained, gently rolling to very steep soils that have sandstone or shale or dense, very slowly permeable glacial till at a depth of 20 to 40 inches; on uplands

This association is in the central and eastern parts of the survey area. It is about 55 percent Beausite soils, 30 percent Alderwood soils, 10 percent Ovall soils, and 5 percent less extensive soils

(fig. 5). This association occupies about 9 percent of the survey area.

Beausite soils are rolling gravelly sandy loams that have sandstone at a depth of 24 to 40 inches. Slopes are mostly 15 to 30 percent but in some areas are as steep as 75 percent.

Alderwood soils also are rolling gravelly sandy loams and have consolidated glacial till at a depth of 24 to 40 inches. Slopes are 6 to 30 percent in most places.

Ovall soils are rolling to hilly gravelly loams that have strongly weathered andesite at a depth of 20 to 40 inches. Slopes are dominantly 6 to 25 percent, but are as much as 75 percent in some areas.

Soils of minor extent are mostly the poorly drained Norma, Bellingham, and Tukwila soils. All are in depressions on the uplands or on terraces adjacent to small streams.

The soils of this association are well suited to timber production but poorly suited to farming. The gently rolling areas are moderately well suited to pasture. Limitations for residential and commercial sites are moderate to severe. In most places limitations for septic tank filter fields are severe.

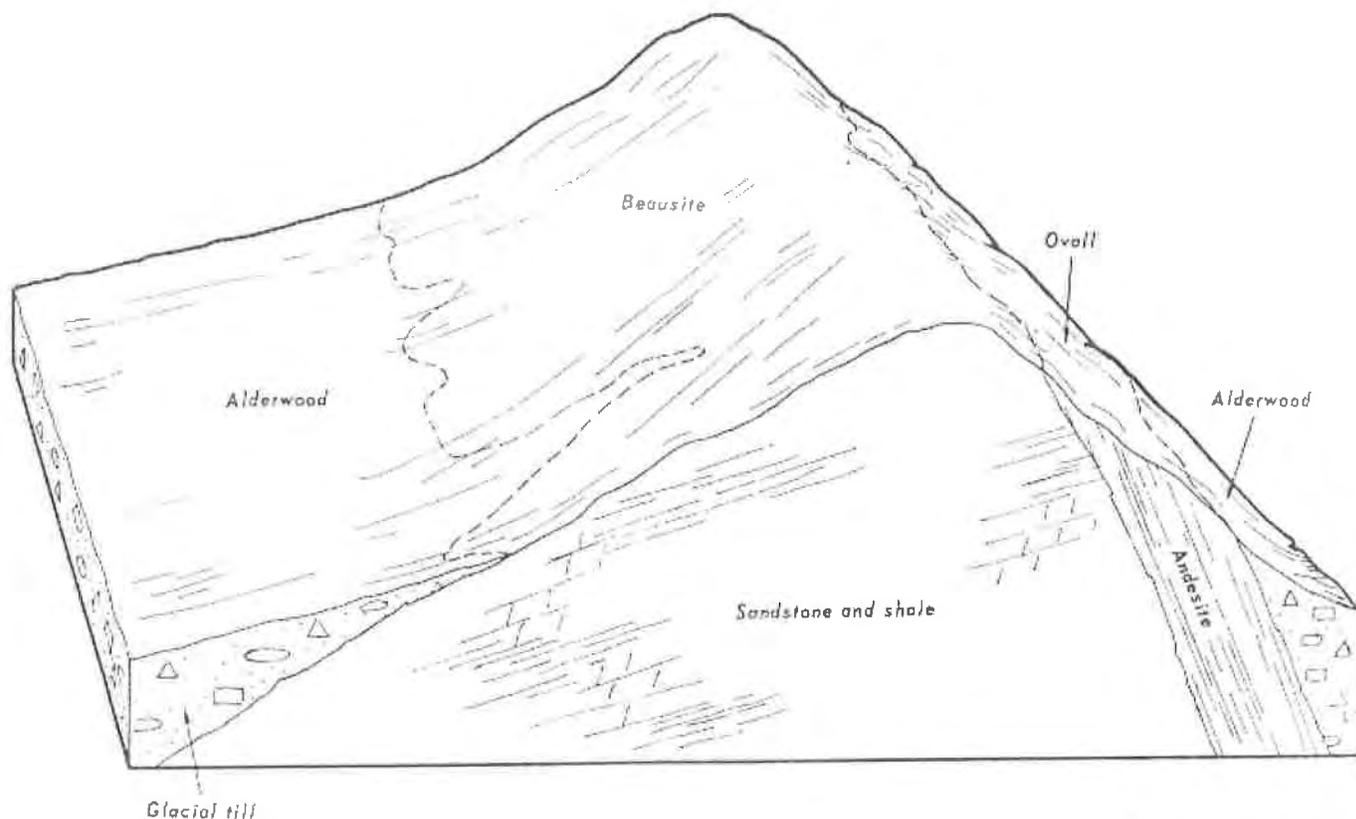


Figure 5.--Pattern of soils and parent material in soil association 5.

6. Alderwood-Kitsap-Indianola Association

Moderately well drained, nearly level to steep soils that have very slowly permeable glacial till or glacial lake deposits at a depth of 16 to 40 inches, and somewhat excessively drained, rolling, deep sandy soils; on uplands and terraces

This association occurs as three scattered areas in the northern half of the survey area. It is about 50 percent Alderwood soils, 30 percent Kitsap soils, 15 percent Indianola soils, and 5 percent other soils (fig. 6). This association occupies about 5 percent of the survey area.

Alderwood soils are rolling soils on uplands and terraces. They have consolidated glacial till in the substratum. Slopes are dominantly 6 to 15 percent but range from 1 or 2 percent to as much as 30 percent where the upland plains break into the ravines and major valleys.

Kitsap silt loams have silty, platy lake sediment in the substratum. Slopes are dominantly 8 to 30 percent. Generally the steeper soils are on terrace fronts that face the major valleys and drainageways.

Indianola soils are sandy and 60 inches or more deep. Slopes are 15 to 30 percent in many places on terrace fronts adjacent to the steeper Kitsap soils. On terraces northeast of Juanita, slopes are mostly 3 to 8 percent.

Less extensive in this association are somewhat excessively drained very gravelly soils, poorly drained silty soils, and very poorly drained peaty soils.

The suitability of the soils in this association for farming ranges from fair to poor. Most of the soils are well suited to timber production. Limitations are slight to severe for residential and commercial sites.

7. Puget-Earlmont-Snohomish Association

Poorly drained and somewhat poorly drained, nearly level soils that have layers of peat within a few feet of the surface; in major stream valleys

This association occurs as three distinct areas in the Sammamish and Snoqualmie Valleys in the northern half of the survey area. It is about 25 percent Puget soils, 25 percent Earlmont soils, 20 percent Snohomish soils, and 30 percent soils of minor extent. This association occupies about 3 percent of the survey area. Slopes do not exceed 2 percent.

Puget soils are mostly silty clay loams that formed in alluvium. Earlmont soils are mostly silt loams that formed in diatomite. Snohomish soils are silt loams that have peat or muck in the substratum.

Most of the soils of this association are well suited to farming and are among the more productive soils in King County for truck crops. The soils have a seasonal high water table and are subject to flooding except where flood protection structures have been installed. The high water table and high compressibility of these soils cause moderate to severe limitations for residential and commercial sites and for septic tank filter fields.

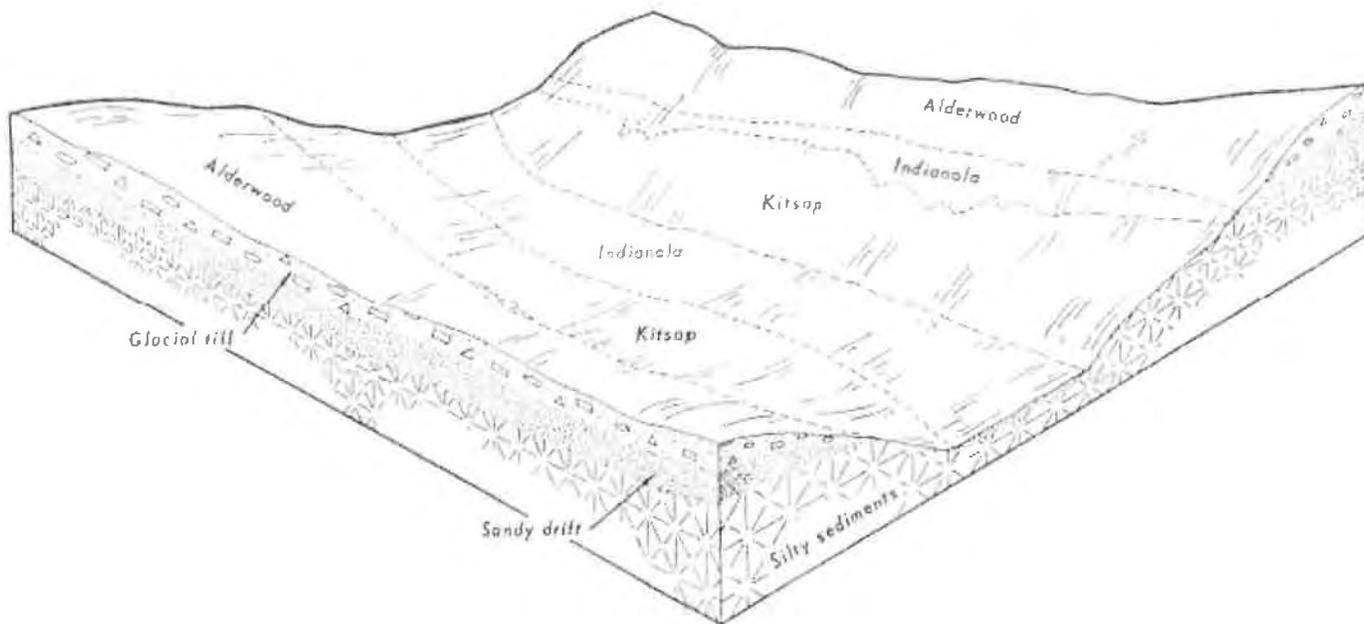


Figure 6.—Pattern of soils and parent material in soil association 6.

DESCRIPTIONS OF THE SOILS

This section describes the soil series and mapping units in the King County Area. Each soil series is described and then each mapping unit in that series. Unless it is specifically mentioned otherwise, it is to be assumed that what is stated about the soil series holds true for the mapping units in that series. Thus, to get full information about any one mapping unit, it is necessary to read both the description of the mapping unit and the description of the soil series to which it belongs.

An important part of the description of each soil series is the soil profile, that is, the sequence of layers from the surface downward to rock or other underlying material. Each series contains two descriptions of this profile. The first is brief and in terms familiar to the layman. The second, detailed and in technical terms, is for scientists, engineers, and others who need to make thorough and precise studies of soils. Unless it is otherwise stated, the colors given in the descriptions are those of a moist soil.

As mentioned in the section "How This Survey Was Made," not all mapping units are members of a soil series. Urban land, for example, does not belong to a soil series, but nevertheless, is listed in alphabetic order along with the soil series.

Following the name of each mapping unit is a 5Ymbol in parentheses. This 5Ymbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit is the capability unit and woodland group in which the mapping unit has been placed. The woodland designation and the page for the description of each capability unit can be found by referring to the "Guide to Mapping Units" at the back of this survey.

The acreage and proportionate extent of each mapping unit are shown in table 1. Many of the terms used in describing soils can be found in the Glossary at the end of this survey, and more detailed information about the terminology and methods of soil mapping can be obtained from the Soil Survey Manual (19).

Alderwood Series

The Alderwood series is made up of moderately well drained soils that have a weakly consolidated to strongly consolidated substratum at a depth of 24 to 40 inches. These soils are on uplands. They formed under conifers, in glacial deposits. Slopes are 0 to 70 percent. The annual precipitation is 35 to 60 inches, most of which is rainfall, between October and May. The mean annual air temperature is about 50° F. The frost-free season is 150 to 200 days. Elevation ranges from 100 to 800 feet.

In a representative profile, the surface layer and subsoil are very dark brown, dark-brown, and grayish-brown gravelly sandy loam about 27 inches thick. The substratum is grayish-brown, weakly consolidated to strongly consolidated glacial till that extends to a depth of 60 inches and more.

Alderwood soils are used for timber, pasture, berries, row crops, and urban development. They are the most extensive soils in the survey area.

Alderwood gravelly sandy loam, 6 to 15 percent slopes (AgC).--This soil is rolling. Areas are irregular in shape and range from 10 to about 600 acres in size.

Representative profile of Alderwood gravelly sandy loam, 6 to 15 percent slopes, in woodland, 450 feet east and 1,300 feet south of the north quarter corner of sec. 15, T. 24 N., R. 6 E.:

- A1--0 to 2 inches, very dark brown (10YR 2/2) gravelly sandy loam, dark grayish brown (10YR 4/2) dry; weak, fine, granular structure; slightly hard, friable, nonsticky, nonplastic; many roots; strongly acid; abrupt, wavy boundary. 1 to 3 inches thick.
- B2--2 to 12 inches, dark-brown (10YR 4/3) gravelly sandy loam, brown (10YR 5/3) dry; moderate, medium, subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; many roots; strongly acid; clear, wavy boundary. 9 to 14 inches thick.
- B3--12 to 27 inches, grayish-brown (2.5Y 5/2) gravelly sandy loam, light gray (2.5Y 7/2) dry; many, medium, distinct mottles of light olive brown (2.5Y 5/6); hard, friable, nonsticky, nonplastic; many roots; medium acid; abrupt, wavy boundary. 12 to 23 inches thick.
- IIC--27 to 60 inches, grayish-brown (2.5Y 5/2), weakly to strongly consolidated till, light gray (2.5Y 7/2) dry; common, medium, distinct mottles of light olive brown and yellowish brown (2.5Y 5/6 and 10YR 5/6); massive; no roots; medium acid. Many feet thick.

The A horizon ranges from very dark brown to dark brown. The B horizon is dark brown, grayish brown, and dark yellowish brown. The consolidated C horizon, at a depth of 24 to 40 inches, is mostly grayish brown mottled with yellowish brown. Some layers in the C horizon slake in water. In a few areas, there is a thin, gray or grayish-brown A2 horizon. In most areas, this horizon has been destroyed through logging operations.

Soils included with this soil in mapping make up no more than 30 percent of the total acreage. Some areas are up to 3 percent the poorly drained Norma, Bellingham, Seattle, Tukwila, and Shalcar soils; some are up to 5 percent the very gravelly Everett and Neilton soils; and some are up to 15 percent Alderwood soils that have slopes more gentle or steeper than 6 to 15 percent. Some areas in Newcastle Hills are 25 percent Beausite soils, some northeast of Duvall are as much as 25 percent Ovall soils, and some in the vicinity of Dash Point are 10 percent Indianola and Kitsap soils. Also included are small areas of Alderwood soils that have a gravelly loam surface layer and subsoil.

Permeability is moderately rapid in the surface layer and subsoil and very slow in the substratum. Roots penetrate easily to the consolidated substratum where they tend to mat on the surface. Some roots enter the substratum through cracks. Water moves on top of the substratum in winter. Available water capacity is low. Runoff is slow to medium, and the hazard of erosion is moderate.

This soil is used for timber, pasture, berries, and row crops, and for urban development. Capability unit IVE-2; woodland group 3d1.

Alderwood gravelly sandy loam, 0 to 6 percent slopes (AgB).--This soil is nearly level and undulating. It is similar to Alderwood gravelly sandy loam, 6 to 15 percent slopes, but in places its surface layer is 2 to 3 inches thicker. Areas are irregular in shape and range from 10 acres to slightly more than 600 acres in size.

Some areas are as much as 15 percent included Norma, Bellingham, Tukwila, and Shalcar soils, all of which are poorly drained; and some areas in the vicinity of Enumclaw are as much as 10 percent Buckley soils.

Runoff is slow, and the erosion hazard is slight.

This Alderwood soil is used for timber, pasture, berries, and row crops, and for urban development. Capability unit IVE-2; woodland group 3d2.

Alderwood gravelly sandy loam, 15 to 30 percent slopes (AgD).--Depth to the substratum in this soil varies within short distances, but is commonly about 40 inches. Areas are elongated and range from 7 to about 250 acres in size.

Soils included with this soil in mapping make up no more than 30 percent of the total acreage. Some areas are up to 25 percent Everett soils that have slopes of 15 to 30 percent, and some areas are up to 2 percent Bellingham, Norma, and Seattle soils, which are in depressions. Some areas, especially on Squak Mountain, in Newcastle Hills, and north of Tiger Mountain, are 25 percent Beausite and Ovall soils. Beausite soils are underlain by sandstone, and Ovall soils by andesite.

Runoff is medium, and the erosion hazard is severe. The slippage potential is moderate.

This Alderwood soil is used mostly for timber. Some areas on the lower parts of slopes are used for pasture. Capability unit VIe-2; woodland group 3d1.

Alderwood and Kitsap soils, very steep (AkF).--This mapping unit is about 50 percent Alderwood gravelly sandy loam and 25 percent Kitsap silt loam. Slopes are 25 to 70 percent. Distribution of the soils varies greatly within short distances.

About 15 percent of some mapped areas is an included, unnamed, very deep, moderately coarse textured soil; and about 10 percent of some areas is a very deep, coarse-textured Indianola soil.

Drainage and permeability vary. Runoff is rapid to very rapid, and the erosion hazard is severe to very severe. The slippage potential is severe.

These soils are used for timber. Capability unit VIIe-1; woodland group 2d1.

Arents, Alderwood Material

Arents, Alderwood material consists of Alderwood soils that have been so disturbed through urbanization that they no longer can be classified with the Alderwood series. These soils, however, have many similar features. The upper part of the soil, to a depth of 20 to 40 inches, is brown to darkbrown gravelly sandy loam. Below this is a grayishbrown, consolidated and impervious substratum. Slopes generally range from 0 to 15 percent.

These soils are used for urban development.

Arents, Alderwood material, 0 to 6 percent slopes (AmB).--In many areas this soil is level, as a result of shaping during construction for urban facilities. Areas are rectangular in shape and range from 5 acres to about 400 acres in size.

Representative profile of Arents, Alderwood material, 0 to 6 percent slopes, in an urban area, 1,300 feet west and 350 feet south of the northeast corner of sec. 23, T. 25 N., R. 5 E.:

0 to 26 inches, dark-brown (10YR 4/3) gravelly sandy loam, pale brown (10YR 6/3) dry; massive; slightly hard, very friable, nonsticky, nonplastic; many roots; medium acid; abrupt, smooth boundary. 23 to 29 inches thick.
26 to 60 inches, grayish-brown (2.5Y 5/2) weakly consolidated to strongly consolidated glacial till, light brownish gray (2.5Y 6/2) dry' common, medium, prominent mottles of yellowish brown (10YR 5/6) moist; massive; no roots; medium acid. Many feet thick.

The upper, very friable part of the soil extends to a depth of 20 to 40 inches and ranges from dark grayish brown to dark yellowish brown.

Some areas are up to 30 percent included soils that are similar to this soil material, but either shallower or deeper over the compact substratum; and some areas are 5 to 10 percent very gravelly Everett soils and sandy Indianola soils.

This Arents, Alderwood soil is moderately well drained. Permeability in the upper, disturbed soil material is moderately rapid to moderately slow, depending on its compaction during construction. The substratum is very slowly permeable. Roots penetrate to and tend to mat on the surface of the consolidated substratum. Some roots enter the substratum through cracks. Water moves on top of the substratum in winter. Available water capacity is low. Runoff is slow, and the erosion hazard is slight.

This soil is used for urban development. Capability unit IVE-2; woodland group 3d2.

Arents, Alderwood material, 6 to 15 percent slopes (AmC).--This soil has convex slopes. Areas are rectangular in shape and range from 10 acres to about 450 acres in size.

EXHIBIT 2

TAB A



RZC 21.64 CRITICAL AREAS REGULATIONS

Introduction to Critical Areas User Guide

21.64.010 Critical Areas

A. **Purpose.** The purposes of this chapter are to:

1. Preserve the City's important environmental features while allowing development to occur if compatible with and in consideration of these critical areas;
2. Assure the conservation and protection of critical areas from loss or degradation by classifying and designating the same and to restrict land uses and development which are incompatible with environmentally critical areas;
3. Achieve no net loss of core preservation areas within fish and wildlife habitat conservation areas, which includes riparian corridors, and minimize impact to and retain character of quality habitat areas, and protect species of concern, priority species, and species of local importance;
4. Avoid wetland impacts and achieve a goal of no net loss of wetland function, value, and acreage; and where possible enhance and restore wetlands;
5. Achieve no net loss of structure, value, and functions of natural systems within frequently flooded areas and to employ no net impact floodplain management in order to avoid impacts to upstream and downstream properties and substantial risk and damage to public and private property and loss of life;
6. Protect critical aquifer recharge areas by avoiding land use activities that pose potential contamination, and minimize impacts to recharge areas through the application of strict performance standards;
7. Avoid and minimize potential impacts to life and property from geologic hazards such that sites are rendered as safe as one not containing such hazard through appropriate levels of study and analysis, application of sound engineering principles, and regulation or limitation of land uses;
8. Avoid impacts to critical areas and preserve the functions of critical areas. In appropriate circumstances, impacts to specified critical areas resulting from regulated activities may be minimized, rectified, reduced, and/or compensated for, consistent with the requirements of this chapter;
9. By limiting development and alteration of critical areas:
 - a. Protect members of the public and public resources and facilities from injury, loss of life, or property damage due to landslides and steep slope failures, erosion, seismic events, or flooding;
 - b. Protect unique, fragile, and valuable elements of the environment, including ground and surface waters, wetlands, and fish and wildlife and their habitats;
 - c. Direct activities not dependent on critical area resources to less ecologically sensitive sites and

mitigate unavoidable impacts to critical areas by regulating alterations in and adjacent to critical areas; and

- d. Prevent cumulative adverse environmental impacts to water quality, wetlands, and fish and wildlife habitat, and the overall net loss of wetlands, frequently flooded areas, and habitat conservation areas;
10. Provide standards, guidelines, and criteria to guide application of these critical areas goals and policies when considered with other goals and policies of the RZC, including those pertaining to natural features and environmental protection;
11. Serve as a basis for exercise of the City's substantive authority under the State Environmental Policy Act (SEPA) and the City's SEPA rules;
12. Protect critical areas in accordance with the Growth Management Act and through the application of best available science, as determined according to WAC 365-195-900 through 365-195-925, and in consultation with state and federal agencies and other qualified professionals; and
13. Coordinate environmental review and permitting of proposals to avoid duplication and delay.

B. Findings. The City finds that:

1. Redmond contains certain areas that can be identified and characterized as environmentally sensitive or critical. Such areas within the City include fish and wildlife habitat conservation areas, wetlands, frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas and their associated buffers.
2. Past growth patterns have in some cases contributed in natural disasters which threaten public health and safety, and that by preventing development on certain critical areas the City can better maintain public health, safety and welfare. In addition, by preserving features that provide for clean water, fisheries, and wildlife, the City can help maintain a positive ecological balance that provides for the immediate and long-term public welfare.
3. Critical areas perform a variety of valuable and beneficial biological and physical functions that benefit the City and its residents. Some types of critical areas may also pose a threat to human safety or to public and private property. The functions of critical areas include the following:
 - a. Fish and Wildlife Habitat Conservation Areas. Wildlife areas are ecosystems composed of unique interacting systems of soils, geology, topography, and plant and animal communities. They consist of land-based areas and aquatic areas. Wildlife habitat provides opportunities for food, cover, nesting, breeding, and movement for fish and wildlife within the City; maintains and promotes diversity of species and habitat within the City; helps to maintain air and water quality; controls erosion; serves as areas for recreation, education and scientific study, and aesthetic appreciation; and provides neighborhood separation and visual diversity within urban areas. Riparian corridors are essential for wild fish populations. Healthy riparian zones are dynamic ecosystems that perform various functions that form salmonid habitat. Some of the major functions include: producing and delivering large and small woody debris to shorelines and stream channels; shoreline protection and habitat formation; removing sediments and dissolved chemicals from water; moderating water temperature; providing favorable microclimate; providing habitat for terrestrial animals; and providing proper nutrient sources for aquatic life. Additionally, aquatic areas and their associated buffers store and convey stormwater and floodwater; recharge groundwater; and serve as areas for recreation, education and scientific study and aesthetic appreciation. The City's overall goal shall be no net loss of riparian corridor functions and values.
 - b. Wetlands. Wetlands are fragile ecosystems which serve a number of important beneficial functions. Wetlands assist in the reduction of erosion, siltation, flooding, ground and surface

water pollution, and provide wildlife, plant, and fisheries habitats. Wetlands destruction and impairment may result in increased public and private costs or property losses. Wetland buffers serve to moderate runoff volume and flow rates; reduce sediment, chemical nutrient and toxic pollutants; provide shading to maintain desirable water temperatures; provide habitat for wildlife; protect wetland resources from harmful intrusion; and generally preserve the ecological integrity of the wetland area.

- c. Frequently Flooded Areas. Floodplains and other areas subject to flooding perform important hydrologic functions and may present a risk to persons and property. Floodplains help to store and convey storm water and flood water; recharge ground water; provide important areas for riparian habitat; and serve as areas for recreation, education, and scientific study. Development within floodplain areas can be hazardous to those inhabiting such development, and to those living upstream and downstream. Floods also cause substantial damage to public and private property that result in significant costs to the public and individuals.
 - d. Critical Aquifer Recharge Areas. Potable water is an essential life-sustaining element. Aquifer recharge areas provide a source of potable water and contribute to stream discharge during periods of low flow. Certain portions of the City's planning area are susceptible to contamination of drinking water and watercourse supplies through rapid infiltration of pollutants through the soil to ground water aquifers. Wellhead Protection Zones 1, 2, and 3 are designated as critical aquifer recharge areas under the provisions of the Growth Management Act, RCW Chapter 36.70A, and are established based on proximity to and travel time of groundwater to the City's public water source wells.
 - e. Geologically Hazardous Areas. Geologically hazardous areas include areas susceptible to erosion, sliding, earthquake, or other geological events. They pose a threat to the health and safety of citizens when incompatible commercial, residential, or industrial development is sited in or near areas of significant hazard. Some geological hazards can be reduced or mitigated by engineering, design, or modified construction so that risks to health and safety are acceptable. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas should be avoided.
4. Identification, regulation, and protection of critical areas are necessary to protect the public health, safety, and general welfare.
 5. This section of the RZC contains standards, guidelines, criteria, and requirements intended to identify, analyze, preserve, and mitigate potential impacts to the City's critical areas and to enhance and restore degraded resources, such as wetlands, riparian stream corridors, or habitat, where possible.

C. Applicability - Regulated Activities.

1. The provisions of this chapter shall apply to any activity that has a potential to significantly adversely impact a critical area or its established buffer unless otherwise exempt. Such activities include but are not limited to:
 - a. Removing, excavating, disturbing, or dredging soil, sand, gravel, minerals, organic matter, or materials of any kind;
 - b. Dumping, discharging, or filling with any material;
 - c. Draining, flooding, or disturbing the water level or water table;
 - d. Driving pilings or placing obstructions;
 - e. Constructing, reconstructing, demolishing, or altering the size of any structure or infrastructure that results in disturbance of a critical area or the addition of any impervious surface coverage to a site;

- f. Destroying or altering vegetation through clearing, grading, harvesting, shading, or planting vegetation that would alter the character of a critical area;
 - g. Activities that result in significant changes in water temperature and physical or chemical characteristics of water sources, including quantity and pollutants; and
 - h. Any other activity that has a potential to significantly adversely impact a critical area or established buffer not otherwise exempt from the provisions of this chapter;
 - i. With regard to frequently flooded areas, the provisions of this chapter shall apply to any activity that would result in change to the flood storage capacity of a floodplain or flood fringe area, or cause an increase in the base flood elevation, unless otherwise exempt.
2. To avoid duplication, Types I, II, III, IV, V, and VI Permits shall be subject to and coordinated with the requirements of this chapter.
 3. For the purposes of this chapter, "Department" shall mean the City of Redmond Department of Planning and Community Development and "Committee" shall mean the City of Redmond Technical Committee.

D. Exemptions.

1. The following activities shall be exempt from the provisions of this chapter:
 - a. Existing and ongoing agricultural activities provided no alteration of flood storage capacity or conveyance occurs and the activity does not adversely affect critical areas, and existing and ongoing agricultural activities identified in a farm plan approved by both the King County Conservation District and the City;
 - b. Activities involving artificially created wetlands or streams intentionally created from non-wetland sites, including but not limited to grass-lined swales, irrigation and drainage ditches, detention facilities, and landscape features, except wetlands, streams, or swales created as mitigation or that provide habitat for salmonid fishes;
 - c. Activities occurring in areas of 40 percent slope or greater with a vertical elevation change of up to 10 feet based upon City review of a soils report prepared by a geologist or geotechnical engineer which demonstrates that no significant adverse impact will result from the exemption;
 - d. Normal and routine maintenance, operation and reconstruction of existing roads, streets, utilities, and associated rights-of-way and structures, provided that reconstruction of any structures may not increase the impervious area, remove flood storage capacity, or further encroach into a critical area or its buffer;
 - e. Normal maintenance and repair, and reconstruction or remodeling of residential or commercial structures, or legal pre-existing and ongoing uses of the site, provided that reconstruction of any structures may not increase the size of the previously approved building footprint (see subsection D.5 of this section);
 - f. Site investigative work and studies necessary for preparing land use applications, including soils tests, water quality studies, wildlife studies and similar tests and investigations, provided that any disturbance of the critical area shall be the minimum necessary to carry out the work or studies and provided that the area is restored to its previous condition;
 - g. Educational activities, scientific research, and outdoor recreational activities, including but not limited to interpretive field trips, and bird watching that will not have a significant adverse effect on the critical area;
 - h. Emergency activities necessary to prevent an immediate threat to public health, safety, or

property;

- i. Normal and routine maintenance and operation of existing landscaping and gardens provided they comply with all other regulations in this chapter;
 - j. Construction of pedestrian trails which are permeable, have a maximum width of six feet, and are located in the outer 25 percent of the buffer; Minor activities not mentioned above and determined by the Department to have minimal impacts to a critical area;
 - k. Previously legally filled wetlands or wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway, or wetlands accidentally created by other human actions within 20 years of the date the development application is filed. The latter shall be documented by the applicant through photographs, statements, and/or other evidence;
 - l. Activities affecting Category IV wetlands which are 250 square feet in size or smaller and hydrologically isolated;
 - m. Installation, construction, replacement, repair, or alteration of utilities and their associated facilities, lines, pipes, mains, equipment, or appurtenances in improved City road rights-of-way and provided that the area is restored to its previous condition;
 - n. Removal of nonnative vegetation providing removal is accomplished using hand methods and that removal is in compliance with this chapter. Hand removal does not include using mechanical equipment, such as weed wackers, mowers, power hedge trimmers, or other similar devices. This does not include the use of herbicides.
2. Notwithstanding the exemptions provided by this section, any otherwise exempt activities occurring in or near a critical area should meet the purpose and intent of RZC 21.64.010.A and should consider on-site alternatives that avoid or minimize significant adverse impacts.
 3. Exempt activities occurring in flood hazard areas shall not alter flood storage capacity or conveyance.
 4. With the exception of subsections D.1.a, D.1.g, D.1.h, and D.1.i of this section, and normal maintenance and repair of residential and commercial structures as in subsection D.1.e of this section, no property owner or other entity shall undertake exempt activities prior to providing 10 days' notice to the Department. In case of any question as to whether a particular activity is exempt from the provisions of this section, the Department's determination shall prevail and shall be confirmed in writing within 10 days of receipt of the owner's or applicant's letter. Those persons performing emergency activities falling under subsection D.1.h of this section shall provide telephone or written communication with the Department within 48 hours of the activity notifying such emergency activity was taken.
 5. Structures shall be allowed to be reconstructed if destroyed by more than 50 percent of its assessed or appraised value, whichever is greater, if located in a buffer. Reconstruction of the structure shall not further encroach into the buffer area or increase the building footprint. Structures that are nonconforming solely due to the provisions of this chapter shall not be governed by RZC 21.76.100.F, Legal Nonconforming Uses and Structures.

E. Critical Areas Maps.

1. Critical Areas Generally. The following critical areas maps are adopted and included as a part of this chapter:
 - a. Fish and Wildlife Habitat Conservation Areas (Map 64.1);
 - b. Critical Wildlife Habitat Map Willows/Rose Hill Neighborhood (Map 64.2);
 - c. Streams (Map 64.3);

- d. Wetlands (Map 64.4);
 - e. Frequently Flooded Areas (Map 64.5);
 - f. Wellhead Protection Zones (Map 64.6);
 - g. Landslide Hazard Areas (Map 64.7);
 - h. Erosion Hazard Areas (Map 64.8); and
 - i. Seismic Hazard Areas (Map 64.9).
2. These maps shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of critical areas shall be determined in the field by a qualified consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail.

F. Relationship to Other Regulations.

1. These critical area regulations shall apply as an overlay and in addition to zoning, land use, and other regulations established by the City of Redmond. In the event of any conflict between these regulations and any other regulations of the City, the regulations which provide greater protection to environmentally critical areas shall apply.
2. Areas characterized by particular critical areas may also be subject to other regulations established by this chapter due to the overlap or multiple functions of some sensitive or critical areas. Wetlands, for example, may be defined and regulated according to the wetland and fish and wildlife habitat conservation area provisions of this chapter. In the event of any conflict between regulations for particular critical areas in this chapter, the regulations which provide greater protection to environmentally critical areas shall apply.
3. Compliance with the provisions of this chapter does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required.

G. Permit Process and Application Requirements.

1. Pre-Application Conference. All applicants are encouraged to meet with the City prior to submitting an application subject to this section. The purpose of this meeting shall be to discuss the City's critical area requirements, processes and procedures; to review any conceptual site plans prepared by the applicant; to identify potential impacts to critical areas and appropriate mitigation measures; and to generally inform the applicant of any federal or state regulations applicable to the subject critical area. Such conference shall be for the convenience of the applicant and any recommendations shall not be binding on the applicant or the City. The pre-application conference provided for in this section shall be consolidated with any pre-application conference held on any land use permit application.
2. Application Requirements.
 - a. Timing of Submittals. A critical areas report, if applicable, must be submitted to the City during application submittal. This is a required component of determining application completeness. The purpose of the report is to determine the extent, characteristics, and functions of any critical areas located on or that have a potential to be significantly adversely impacted by activities on a site where regulated activities are proposed. The report will also be used by the City to assist in the determination of the appropriate critical area rating and establishment of appropriate buffer requirements in accordance with this chapter.
 - b. Critical Areas Report Contents. Reports and studies required to be submitted by this chapter shall

contain the information indicated in RZC Appendix 1, Critical Areas Reporting Requirements, applicable to each critical area.

3. Consultant Qualifications and City Review. All reports and studies required of the applicant by this section shall be prepared by a qualified consultant as that term is defined in the 21.50.010, *Definitions*. The City may, at its discretion and at the applicant's expense, retain a qualified consultant to review and confirm the applicant's reports, studies, and plans.
 4. Permit Process. This section is not intended to create a separate critical areas permit process for development proposals. The City shall consolidate and integrate the review and processing of critical areas aspects of proposals with other land use and environmental considerations and approvals.
- H. **Alteration or Development of Critical Areas - Standards and Criteria.** Standards and criteria are set forth in subsequent sections of this chapter.
- I. **General Mitigation Standard.**
1. All significant adverse impacts to critical areas functions and values shall be mitigated. Mitigation actions by an applicant or property owner shall occur in the following sequence:
 - a. Avoiding the impact altogether by not taking a certain action or parts of actions;
 - b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
 - c. Rectifying the impact to the critical area by repairing, rehabilitating, or restoring the affected environment to the conditions existing at the time of the initiation of the project;
 - d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
 - e. Compensating for the impact by replacing or providing substitute resources or environments; and/or
 - f. Monitoring the hazard or other required mitigation and taking remedial action when necessary.
- J. **Other Appropriate Mitigation Actions.** Where impacts cannot be avoided and the applicant has exhausted feasible design alternatives, the applicant or property owner shall seek to implement other appropriate mitigation actions in compliance with the intent, standards, and criteria of this chapter. In an individual case, these actions may include consideration of alternative site plans and layouts, reductions in the density or scope of the proposal, and/or implementation of the performance standards listed in subsequent sections of this chapter.
- K. **Proposed Developments.** Development proposed in critical areas shall incorporate and reflect the performance standards contained in subsequent sections of this chapter.
- L. **Mitigation Standards, Criteria, and Plan Requirements.**
1. Mitigation Performance Standards. Significant adverse impacts to critical area functions and values shall be mitigated. Mitigation actions shall be implemented in the preferred sequence identified in RZC 21.64.010.I. *General Mitigation Standard*, which include less preferred and/or compensatory mitigation shall demonstrate that:
 - a. All feasible and reasonable measures will be taken to reduce impacts and losses to the critical area or to avoid impacts where avoidance is required by these regulations; and
 - b. The restored, created or enhanced critical area or buffer will be as viable and persistent as the critical area or buffer area it replaces; and

- c. In the case of wetlands and riparian stream corridors, no overall net loss will occur in wetland or riparian stream corridor functions and values.
2. Location and Timing of Mitigation.
- a. Mitigation shall be provided on-site, unless on-site mitigation is not scientifically feasible due to physical features of the property. The burden of proof shall be on the applicant to demonstrate that mitigation cannot be provided on-site.
 - b. When mitigation cannot be provided on-site, mitigation shall be provided in the immediate vicinity of the permitted activity on property owned or controlled by the applicant, such as an easement, provided such mitigation is beneficial to the critical area and associated resources.
 - c. In-kind mitigation shall be provided except when the applicant demonstrates and the Department concurs that greater functional and habitat value can be achieved through out-of-kind mitigation.
 - d. Only when it is determined by the Department that subsections L.2.a, L.2.b, and L.2.c of this section are inappropriate and impractical, shall off-site, out-of-kind mitigation be considered.
 - e. When wetland or riparian stream corridor mitigation is permitted by these regulations on-site or off-site, the mitigation project shall occur near an adequate water supply (river, stream, ground water, stormwater facility outfall) with a hydrologic connection to the critical area to ensure successful development or restoration.
 - f. Any agreed upon mitigation proposal shall be completed concurrently with project construction, unless a phased schedule that assures completion prior to occupancy has been approved by the Department.
 - g. Wetland acreage replacement ratios shall be as specified in RZC 21.64.030.C.7.b, *Wetland Replacement Ratios*.
 - h. Restored or created riparian stream corridors, where permitted by these regulations, shall be an equivalent or higher riparian stream corridor value or function than the altered riparian stream corridor.
 - i. All off-site mitigation shall be provided within the Redmond city limits.
- M. **Performance Standards for Mitigation Planning.** The performance standards noted in subsequent sections of this chapter shall be incorporated into mitigation plans submitted to the City for impacts to critical areas. Mitigation plans shall contain the information indicated in RZC Appendix 1, *Critical Areas Reporting Requirements*.
- N. **Approved Mitigation Projects - Signature.** On completion of construction, any approved mitigation project must be signed off by the applicant's qualified consultant and approved by the Department. Signature will indicate that the construction has been completed as planned.
- O. **Approved Mitigation Projects - Contingency Planning.** Approved mitigation projects shall implement the monitoring and contingency planning requirements of RZC 21.64.010.P below.
- P. **Monitoring Program and Contingency Plan.**
1. A monitoring program shall be implemented by the applicant to determine the success of the mitigation project and any necessary corrective actions. This program shall determine if the original goals and objectives are being met.
 2. A contingency plan shall be established for correction in the event that the mitigation project is inadequate or fails. A performance and maintenance bond or other acceptable security device is required to ensure the applicant's compliance with the terms of the mitigation agreement. The bond or other security shall meet the requirements set forth in RZC 21.76.090.F, *Performance Assurance*.

3. Monitoring programs prepared to comply with this chapter shall reflect the following guidelines:
- a. Use scientific procedures for establishing the success or failure of the project;
 - b. For vegetation determinations, permanent sampling points shall be established;
 - c. Vegetative success equals 80 percent per year survival of planted trees and 80 percent cover of shrubs, groundcover, and emergent species, and less than 20 percent cover of invasive species;
 - d. Submit monitoring reports on the current status of the mitigation project to the Department. The reports are to be prepared by a qualified consultant and reviewed by the City, and shall be produced on the following schedule: 30 days after planting, early in the growing season of the second year, end of the growing season of the second year, and annually thereafter;
 - e. The monitoring reports shall contain the following information on monitoring method and monitoring components, as relevant:
 - i. **Vegetation Monitoring:** Methods shall include counts, photo points, random sampling, sampling plots, transects, visual inspections, and/or other means deemed appropriate by the Department and a qualified consultant. Vegetation monitoring components shall include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, invasive weeds, and/or other components deemed appropriate by the Department and a qualified consultant.
 - ii. **Water Quantity Monitoring:** Methods shall include piezometers, sampling points, stream gauges, visual observation, and/or other means deemed appropriate by the Department and a qualified consultant. Water quantity monitoring components shall include water level, peak flows, soil saturation depth, soil moisture within root zone, inundation, overall water coverage, and/or other components deemed appropriate by the Department and a qualified consultant.
 - iii. **Water Quality Monitoring:** Methods shall include testing, plant indicators, and/or other means deemed appropriate by the Department and a qualified consultant. Water quality monitoring components shall include temperature, pH, dissolved oxygen, total suspended solids, total metals, herbicides, pesticides, and/or other components deemed appropriate by the Department and a qualified consultant.
 - iv. **Wildlife Monitoring:** Methods shall include visual sightings, aural observations, nests, scat, tracks, and/or other means deemed appropriate by the Department and a qualified consultant. Wildlife monitoring components shall include species counts, species diversity, breeding activity, habitat type, nesting activity, location, usage, and/or other components deemed appropriate by the Department and a qualified consultant.
 - v. **Geomorphic Monitoring:** Methods shall include cross-sectional surveys, profile surveys, point surveys, photo-monitoring, and/or other means deemed appropriate by the Department and a qualified consultant. Monitoring components shall include location and effect of large woody debris, depth and frequency of pools, bank erosion, channel migration, sediment transport/deposition, structural integrity of weirs, and/or other components deemed appropriate by the Department and a qualified consultant.
 - f. Monitoring programs shall be established for a minimum of five years;
 - g. If necessary, correct for failures in the mitigation project;
 - h. Replace dead or undesirable vegetation with appropriate plantings;
 - i. Repair damages caused by erosion, settling, or other geomorphological processes to all affected properties and structures, both on and off the property;

- j. Redesign mitigation project (if necessary) and implement the new design; and
- k. Correction procedures shall be approved by a qualified consultant and the Department.

Q. Buffer Areas.

1. The establishment of buffer areas may be required for development proposals and activities in or adjacent to critical areas. The purpose of the buffer shall be to protect the integrity, function, value, and resource of the subject critical area, and/or to protect life, property, and resources from risks associated with development on unstable or sensitive lands. Buffers shall consist of an undisturbed area of native vegetation established to achieve the purpose of the buffer. If the site has previously been disturbed, the buffer area shall be revegetated pursuant to an approved planting plan. Buffers shall be protected during construction by placement of a temporary barricade, on-site notice for construction crews of the presence of the critical area, and implementation of appropriate erosion and sedimentation controls.
2. Required buffer widths shall reflect the sensitivity of the particular critical area and resource or the risks associated with development and, in those circumstances permitted by these regulations, the type and intensity of human activity and site design proposed to be conducted on or near the critical area.
3. See individual critical areas regulations in RZC 21.64.020.B, 21.64.030.B, and 21.64.060.B for required buffer widths.
4. A residential lot approved in a subdivision that has designated streams or wetlands and their associated buffer in a Native Growth Protection Area established at plat approval shall be allowed to be improved honoring the wetland and stream buffers already established in the plat.

R. General Critical Area Protective Measures.

Critical Areas Sign Specifications User Guide

1. Critical Area Markers and Signs.
 - a. The boundary at the outer edge of critical areas tracts and easement shall be delineated with permanent survey stakes, using iron or concrete markers as established by local survey standards.
 - b. The boundary at the outer edge shall be identified with temporary signs prior to any site disturbance. The temporary signs shall be replaced with permanent signs prior to occupancy or use of the site. The number and spacing of permanent signs shall be designated by the Planning Department.
2. Critical Area Fencing. In order to inform subsequent purchasers of real property of the location of the critical area buffer boundaries and to discourage encroachment into that buffer, the developer of the property shall install split rail fencing or a similar fencing approved by the Department along the boundary of the critical area.
3. Notice on Title.
 - a. In order to inform subsequent purchasers of real property of the existence of critical areas, the owner of any property containing a critical area or buffer on which a development proposal is submitted shall file a notice with the King County Department of Records and Elections. The notice shall state the presence of the critical area or buffer on the property, of the application of

the Critical Areas Ordinance to the property, and the fact that limitations on actions in or affecting the critical area or buffer may exist. The notice shall run with the land.

- b. The applicant shall submit proof that the notice has been filed for public records before the City approves a building permit or, in the case of subdivision of land or binding site plans, at or before recording.

4. Critical Areas Tracts.

- a. Critical areas tracts, or other mechanisms as deemed appropriate by the Department, shall be used to delineate and protect contiguous critical areas and buffers. Areas in critical areas tracts can be included in determining gross site density, floor area ratios, and other area and dimensional regulations for five or fewer lots. Critical area tracts may not be used through the preliminary plat process to credit lot area and dimensional regulations for proposed residential lots.
- b. Critical areas tracts shall be recorded on all documents of title or record for all affected lots.
- c. Critical areas tracts shall be designated on the face of the plat or recording drawing in a format provided by the City Attorney.
- d. The City may require that any required critical areas tract be held in an undivided interest by each owner of a building lot within the development, with the ownership interest passing with the ownership of the lot, or held by an incorporated homeowners' association, or other legal entity which assures the ownership, maintenance, and protection of the tract.

S. Critical Areas Reasonable Economic Use Exception - Private Property. These standards and regulations are not intended, and shall not be construed or applied in a manner, to deny all reasonable economic use of private property. Any private property owner who claims that strict application of these standards would deny all reasonable economic use of their property may apply for an exception under RZC 21.76.070.U.3, *Decision Criteria - Critical Areas Reasonable Economic Use (Private)*.

T. Critical Areas Reasonable Use Exception - Public Project.

1. Any public agency or City department claiming that strict application of these standards would deny construction of a public project may apply for a Critical Areas Reasonable Use Exception - Public Project under RZC 21.76.070.U.4, *Decision Criteria - Critical Areas Reasonable Use (Public Project)*.

(Ord. 2661)

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21.64.020 Fish and Wildlife Habitat Conservation Areas

Fish and Wildlife Habitat Conservation Areas User Guide

A. Classification and Rating of Fish and Wildlife Habitat Conservation Areas.

1. The Growth Management Act identifies fish and wildlife habitat conservation areas. These areas include:
 - a. Areas with which species of concern have a primary association.
 - i. Federally designated endangered and threatened species are those fish and wildlife species identified by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service that are in danger of extinction or threatened to become endangered. The U.S. Fish and Wildlife

- Service and the National Marine Fisheries Service should be consulted as necessary for current listing status.
- ii. State-designated endangered, threatened, and sensitive species are those fish and wildlife species native to the State of Washington, identified by the Washington State Department of Fish and Wildlife, that are in danger of extinction, threatened to become endangered, vulnerable, or declining and are likely to become endangered or threatened in a significant portion of their range within the state without cooperative management or removal of threats. State-designated endangered, threatened, and sensitive species are periodically recorded in WAC 232-12-014 (state endangered species), and WAC 232-12-011 (state threatened and sensitive species). The Washington State Department of Fish and Wildlife maintains the most current listing and should be consulted as necessary for current listing status. Also included are state candidate species which include fish and wildlife species that the Washington Department of Fish and Wildlife will review for possible listing as endangered, threatened, or sensitive.
- b. State Priority Habitats and Areas Associated with State Priority Species. Priority habitats and species are considered to be priorities for conservation and management. Priority species require protective measures for their perpetuation due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element. Priority habitats and species are identified by the Washington State Department of Fish and Wildlife.
 - c. Habitats and Species of Local Importance. Habitats and species of local importance are those identified by the City of Redmond, including those that possess unusual or unique habitat warranting protection because of qualitative species diversity or habitat system health indicators. The City Council shall formally designate habitats and species of local importance, if any, through the Zoning Code amendment process.
 - d. Naturally Occurring Ponds Under 20 Acres. Naturally occurring ponds are those ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds. Naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds, and landscape amenities, unless such artificial ponds were intentionally created for mitigation.
 - e. Waters of the State. Waters of the state include lakes, rivers, ponds, streams, inland waters, underground waters, and other surface waters and watercourses within the jurisdiction of the State of Washington, as classified in WAC 222-16-031.
 - f. Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.
 - g. Land essential for preserving connections between habitat blocks and open spaces.
2. To promote consistent application of the standards and requirements of this chapter, fish and wildlife habitat conservation areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.
 - a. Core Preservation Areas. Core preservation areas include those areas of the City which are already protected through other regulatory mechanisms. They include Native Growth Protection Areas, Class I streams and their buffers, and Class II through IV streams, and other areas similarly protected. They may also include lands where development rights have been sold and some lands

with recorded open space easements, depending on the purpose of the easement. The core preservation area includes wetlands and streams and their associated buffers as they become identified at a site-specific level.

- b. **Species Protection.** Species of concern, priority species, and species of local importance shall be protected through management recommendations. "Species of concern" includes those species listed as state endangered, threatened, sensitive, or candidate, as well as those species listed or proposed for listing by the federal government. Priority species are those species considered to be priorities for conservation and management and are identified in the Washington Department of Fish and Wildlife Priority Habitat and Species (PHS) List. In Redmond, "species of local importance" refers to the Great Blue Heron.
- c. **Quality Habitat Areas.** As sites are assessed for development, the Department shall evaluate each site for the presence of quality habitat using the following methodology. Sites will be qualitatively scored based upon several parameters indicative of habitat qualities. These parameters include size, community diversity, interspersion (spatial patterns), continuity, forest vegetation layers, forest age, and invasive plants. This assessment will allow the City to identify remaining quality habitat in the City; to protect remaining quality habitat by imposition of the performance standards outlined in RZC 21.64.020.G, Fish and Wildlife Habitat Conservation Area Performance Standards, so long as there is no significant adverse economic impact to the developer; and to provide incentives to preserve such quality habitat.
- d. **Riparian Stream Corridors.** Riparian stream corridors include Class I through IV streams and adjacent riparian habitat areas (stream buffers). Streams shall be designated Class I, Class II, Class III, and Class IV according to the criteria in this subsection. When more than one classification is present in short, alternating segments on the property in question, it will be classified according to the stream class which is more restrictive.
 - i. "Class I" streams are those streams identified as "Shorelines of the State" under the City of Redmond Shoreline Master Program.
 - ii. "Class II" streams are those natural streams that are not Class I and are either perennial or intermittent and have salmonid fish use or the potential for salmonid fish use.
 - iii. "Class III" streams are those natural streams that are not Class I or Class II and are either perennial or intermittent and have one of the following characteristics:
 - a. Non-salmonid fish use or the potential for non-salmonid fish use; or
 - b. Headwater streams with a surface water connection to salmon-bearing or potentially salmon-bearing streams (Class I or II).
 - iv. "Class IV" streams are those natural streams that are not Class I, Class II, or Class III. They are either perennial or intermittent, do not have fish or the potential for fish, and are non-headwater streams.
 - v. **Intentionally Created Streams.** These are manmade streams defined as such in these regulations and do not include streams created as mitigation. Purposeful creation must be demonstrated to the Committee through documentation, photographs, statements, and/or other evidence. Intentionally created streams may include irrigation and drainage ditches, grass-lined swales, or other artificial watercourses unless they are used by salmonid fish or created for the purpose of stream mitigation.
- e. Classification of fish and wildlife habitat conservation areas shall be determined by the Department based on consideration of the following factors:
 - i. Maps adopted pursuant to this chapter, including the fish and wildlife habitat conservation

area core preservation areas map, Critical Area Wildlife Habitat Willows/Rose Hill Neighborhood Map, and stream classification map. These maps shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of fish and wildlife habitat conservation areas and streams shall be determined in the field by a qualified consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail;

- ii. Department of Fish and Wildlife priority habitat and species maps;
- iii. Anadromous and resident salmonid distribution maps contained in the habitat-limiting factors reports published by the Washington State Conservation Commission;
- iv. Federal and state information and maps related to species of concern;
- v. Application of the criteria contained in these regulations; and
- vi. Consideration of the technical reports submitted by qualified consultants in connection with the applications subject to these regulations.

B. Stream Buffers.

- 1. Stream buffers shall be sufficiently wide to achieve the full range of riparian and aquatic ecosystem functions, which include but are not limited to protection of instream fish habitat through control of temperature and sedimentation in streams, preservation of fish and wildlife habitat, and connection of riparian wildlife habitat to other habitats.
- 2. Stream buffers shall be measured from the ordinary high water mark.
- 3. The following stream buffers are established for streams:

Table 21.64.020 Stream Buffers	
Riparian Stream Corridor Classification	Stream Buffer Width (feet)
Class I	
■ Sammamish River north of PSE powerline crossing	■ 150-foot inner buffer + 50-foot outer buffer
■ Sammamish River south of PSE powerline crossing	■ 150 feet
■ Bear Creek west of Avondale Road	■ 150 feet
■ Bear Creek east of Avondale Road	■ 150-foot inner buffer + 50-foot outer buffer
■ Evans Creek	■ 150-foot inner buffer + 50-foot outer buffer
Class II	
Class II	100 feet + 50-foot outer buffer
Class III	
Class III	100 feet
Class IV	
■ Perennial	■ 36 feet
■ Intermittent	■ 25 feet

- 4. Increased Stream Buffer Widths. The recommended stream buffer widths may be increased as follows:
 - a. When the Department determines that the recommended width is insufficient to prevent habitat degradation and to protect the structure and functions of the habitat areas;
 - b. When the frequently flooded area exceeds the recommended stream buffer width, the stream

- buffer shall extend to the outer edge of the frequently flooded area;
- c. When the stream buffer is within a landslide hazard area or its buffer, the stream buffer shall be the recommended distance, or the landslide hazard area buffer, whichever is greater. Similarly if the stream buffer is within an erosion hazard area, the stream buffer shall be the recommended distance or the extent of the erosion hazard area.
5. **Reduced Stream Buffer Widths.** Stream buffer widths must meet the required width as described in the table in subsection B.3 above in this section. This does not refer to stream buffer width averaging. See below provisions under which stream buffer width averaging is permitted.
 6. **Stream Buffer Width Averaging.** The Administrator may allow the recommended stream buffer width to be reduced in accordance with best available science only if:
 - a. The width reductions will not reduce stream or habitat functions, including those of non-fish habitat;
 - b. The width reduction will not degrade the habitat, including habitat for salmonid fisheries;
 - c. The proposal will provide additional habitat protection;
 - d. The total area contained in the stream buffer area after averaging is no less than that which would be contained within the standard stream buffer area; and
 - e. The buffer width is not reduced to less than 25 percent of the standard stream buffer width or 25 feet, whichever is greater.
 7. For Class II streams, buffer averaging may be applied to the inner buffer. The following provisions apply to the inner buffer:
 - a. The width of the inner buffer shall not be reduced below 75 percent of the required inner buffer width at any point;
 - b. Encroachment shall not occur into the buffer of an associated wetland;
 - c. The area of the inner buffer after averaging shall be equivalent to the area of the inner buffer prior to averaging;
 - d. There is a net improvement in overall buffer ecological functions; and
 - e. Averaging shall not preclude the opportunity for future recovery of structure and function.
 8. For Class I and II streams, maximum clearing and grading within the outer 50-foot buffer is 35 percent of the outer buffer area. Nothing in this provision shall be construed to require remediation of existing situations where the current clearing and grading is in excess of 35 percent. No net effective impervious surface may be created within this area.
 9. No structures or improvements shall be permitted within the stream buffer, including buildings, decks, and docks, except as otherwise permitted or required under the City's adopted Shoreline Master Program, or under one of the following circumstances:
 - a. When the improvements are part of an approved rehabilitation or mitigation plan; or
 - b. For construction of new road crossings and utilities, and accessory structures, when no feasible alternative location exists; or
 - c. Trails, according to the following criteria:
 - i. Constructed of permeable materials;
 - ii. Designed to minimize impact on the stream system;

- iii. Of a maximum trail corridor width of six feet; and
 - iv. Located within the outer half of the buffer; i.e., the portion of the buffer that is farther away from the stream; See also RZC 21.68.180, Shoreline Access, for trail construction in shorelines of the state;
 - d. Footbridges; or
 - e. Minor educational facilities, such as informational signs; or
 - f. Stormwater conveyance systems, provided that they are designed to maintain the buffers' functions and values; or
 - g. When improvements are part of an approved plan consistent with the no net effective impervious surface provisions of (8) above.
10. Businesses currently located in the stream buffers may continue to operate. A nonconforming use may be expanded provided the expansion does not create significant additional impacts to the stream buffers. Nonconforming structures may be maintained and repaired, and may be enlarged or expanded provided said enlargement does not extend the structure closer to the riparian stream corridor.
 11. Where an approved City capital improvement project moves the ordinary high water mark of a stream from its pre-project location, the buffer width for adjacent properties shall continue to be measured from the pre-capital improvement project ordinary high water mark.
 12. Nothing in this section shall be construed to require the removal of existing structures within stream buffers.

C. **Alteration of Fish and Wildlife Habitat Conservation Areas - Generally.** Alteration of fish and wildlife habitat conservation areas may only be permitted subject to the criteria in RZC 21.64.020.E, RZC 21.64.020.F, RZC 21.64.020.C, RZC 21.64.040.C, RZC 21.64.050.C, and RZC 21.64.020.D.

D. **Alteration of Riparian Stream Corridors.**

1. Relocation of a Class I, II, or III riparian stream corridor in order to facilitate general site design will not be allowed. Relocation of these riparian stream corridors may take place only when it is part of an approved mitigation or rehabilitation plan, will result in equal or better habitat and water quality, and will not diminish the flow capacity of the stream.
2. Bridges shall be used to cross Class I streams.
3. Culverts are allowable only under the following circumstances:
 - a. Only in Class II, III, and IV streams;
 - b. When fish passage will not be impaired;
 - c. When the design criteria of the Washington State Department of Fish and Wildlife, Design of Road Culverts for Fish Passage, 2003, are met; and
 - d. The applicant or successors shall, at all times, keep any culvert free of debris and sediment to allow free passage of water and, if applicable, fish.
4. Stream-bank stabilization to protect new structures from future channel migration is not permitted except when such stabilization is achieved through bioengineering or soft armoring techniques in accordance with an approved critical areas report.
5. Construction of roads and minor road bridging may be permitted in accordance with an approved critical areas report subject to the following:
 - a. There is no other feasible alternative route with less impact on the environment;

- b. The crossing minimizes interruption of downstream movement of wood and gravel;
 - c. Roads in riparian habitat areas shall not run parallel to the water body;
 - d. Crossings, where necessary, shall only occur as near to perpendicular with the water body as possible;
 - e. Mitigation for impacts is provided pursuant to an approved mitigation plan; and
 - f. Road bridges are designed according to the Department of Fish and Wildlife Design of Culverts for Fish Passage, 2003, and the National Marine Fisheries Service Guidelines for Salmonid Passage at Stream Crossings, 2000.
6. The City may require that a stream be removed from a culvert as a condition of approval, unless the culvert is not detrimental to fish habitat or water quality, or removal would be detrimental to fish or wildlife habitat or to water quality.

E. Alteration of Fish and Wildlife Habitat Conservation Areas.

- 1. Alterations that create adverse impacts to core preservation areas shall be avoided, subject to Section 21.64.010.S, Critical Areas Reasonable Economic Use Exception - Private Property, and Section 21.64.010.T, Critical Areas Reasonable Use Exception - Public Project.
- 2. Species Protection. Species management recommendations for development impacting species of concern, priority species, and species of local importance shall be implemented. Management recommendations are based on the following factors: species recommendations of the Washington State Department of Fish and Wildlife; recommendations contained in the wildlife study submitted by a qualified consultant; and the nature and intensity of land uses and activities occurring on the site and on adjacent sites.
- 3. Alteration of Quality Habitat Areas. RZC 21.64.020.G, *Fish and Wildlife Habitat Conservation Area Performance Standards*, shall apply to quality habitat areas unless application of such standards would result in a significant adverse economic impact on the owner or developer.

F. Riparian Stream Corridor Performance Standards. The following standards apply to riparian stream corridor restoration and enhancement:

- 1. Use plants indigenous to the region (not introduced or foreign species);
- 2. Use plants adaptable to a broad range of water depths;
- 3. Plants should be commercially available or available from local sources;
- 4. Plant species high in food and cover value for fish and wildlife must be used;
- 5. Plant mostly perennial species;
- 6. Avoid committing significant areas of the site to species that have questionable potential for successful establishment;
- 7. Plant selection must be approved by a qualified consultant;
- 8. Substrate should consist of a minimum of one foot, in depth, of clean (uncontaminated with chemicals or solid/hazardous wastes) inorganic/organic materials;
- 9. Planting densities and placement of plants should be determined by a qualified consultant and shown on the design plans;
- 10. The planting plan must be approved by the Department;
- 11. Confine stockpiling to upland areas and ensure contract specifications should limit stockpiling of earthen materials to durations in accordance with City clearing and grading standards, unless

otherwise approved by the Committee;

12. Planting instructions shall be submitted which describe proper placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, and transplanted stock;
 13. Apply controlled-release nonphosphorus fertilizer at the time of planting and afterward only as plant conditions warrant (determined during the monitoring process);
 14. Install an irrigation system, if necessary, for the initial establishment period;
 15. Construction specifications and methods must be approved by a qualified consultant and the Department;
 16. Construction management should occur by a qualified consultant and be inspected by the City; and
 17. Limit the use of pesticides near streams.
- G. **Fish and Wildlife Habitat Conservation Area Performance Standards.** The following standards shall apply to all sites where a species protected under this chapter has been identified. These standards shall also apply to sites where quality habitat has been identified unless application of any of these standards would result in a significant adverse economic impact on the owner or developer.
1. Relevant performance standards from RZC 21.64.020.F, *Riparian Stream Corridor Performance Standards*, and RZC 21.64.030.D, *Wetlands Performance/Design Standards*, as determined by the Department, shall be incorporated into mitigation plans.
 2. The following additional mitigation measures shall be reflected in mitigation planning:
 - a. Consider habitat in site planning and design;
 - b. Locate buildings and structures in a manner that preserves and minimizes adverse impacts to important habitat areas;
 - c. Integrate retained habitat into open space and landscaping, consistent with the provisions of RZC 21.32, *Landscaping*;
 - d. Where possible, consolidate habitat and vegetated open space in contiguous blocks;
 - e. Locate habitat contiguous to other habitat, open space, or landscaped areas to contribute to a continuous system or corridor that provides connections to adjacent habitat areas;
 - f. Use native species in any landscaping of disturbed or undeveloped areas and in any enhancement of habitat or buffers;
 - g. Emphasize heterogeneity and structural diversity of vegetation in landscaping;
 - h. Remove and/or control any noxious weeds or animals as defined by the City; and
 - i. Preserve significant trees, preferably in groups, consistent with RZC 21.72, *Tree Preservation*, and with achieving the objectives of these standards.
 3. Landscape plan shall be submitted consistent with the requirements of RZC 21.32.040, *Landscape Area Requirements*, and with the goals and standards of this chapter. The plan shall reflect the report prepared pursuant to RZC 21.64.010.G, *Permit Process and Application Requirements*.

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21.64.030 Wetlands

Wetlands User Guide

- A. **Classification and Rating of Wetlands.** To promote consistent application of the standards and requirements of this chapter, wetlands within the City of Redmond shall be classified according to their characteristics, function and value, and/or their sensitivity to disturbance. Wetlands shall be rated and regulated according to the categories defined by the Washington State Department of Ecology Wetland Rating System for Western Washington (Ecology Publication No. 04-06-025) as revised. This document contains the methods for determining the wetland category.
1. Wetland Classification. Wetlands, as defined by this chapter, shall be designated Category I, Category II, Category III, and Category IV.
 - a. Category I wetlands are those wetlands that represent a unique or rare wetland type, are more sensitive to disturbance than most wetlands, are relatively undisturbed, and contain ecological attributes that are impossible to replace within a human lifetime, or provide a high level of functions. All wetlands with one or more of the following criteria shall be considered a Category I wetland:
 - i. Wetlands that are identified by scientists of the Washington Natural Heritage Program/DNE as high-quality, relatively undisturbed wetlands, or wetlands that support state-listed threatened or endangered plants; or
 - ii. Bogs; or
 - iii. Mature and old-growth forested wetlands over one acre in size; or
 - iv. Wetlands that provide a very high level of functions as evidenced by a score of 70 points or more on the Western Washington Rating System form.
 - b. Category II wetlands are those wetlands that provide high levels of some functions which are difficult to replace. Category II wetlands meet the following criteria:
 - i. Wetlands scoring between 51 to 69 points on the Western Washington Rating System form; or
 - ii. Wetlands that do not meet the criteria of Category I.
 - c. Category III wetlands are those wetlands that provide a moderate level of functions. They are typically more disturbed and have less diversity or are more isolated from other natural resources in the landscape. Category III wetlands meet the following criteria:
 - i. Wetlands scoring between 30 to 50 points on the Western Washington Rating System form; or
 - ii. Wetlands that do not meet the criteria of Category I.
 - d. Category IV wetlands are those wetlands that provide the lowest level of function. These wetlands score less than 30 points on the Western Washington Rating System form.
 2. Classification of wetlands shall be determined by the Committee based on consideration of the following factors:
 - a. Maps adopted pursuant to this chapter, including the wetland map, which identifies the approximate location and extent of wetlands. This map shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of wetlands shall be determined in the field by a qualified consultant according to the procedures, definition, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail;
 - b. National Wetlands Inventory Maps prepared by the U.S. Fish and Wildlife Service;

- c. Application of the criteria contained in these regulations; and
- d. Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.

B. Wetland Buffers.

1. Required buffer widths shall reflect the sensitivity of the particular wetland or the risks associated with development and, in those circumstances permitted by these regulations, the type and intensity of human activity and site design proposed to be conducted on or near the critical area.
2. Wetland buffers shall be measured from the wetland edge as delineated and marked in the field. Wetland buffers shall be established as follows:

Table 21.64.030A Wetland Buffers		
Wetland Category and Characteristics	Buffer Width (feet) by Impact of Land Use* (see below)	Other Measures Recommended for Protection
Category I		
Forested	Buffer size to be based on score for habitat functions or <u>water quality</u> functions.	If forested wetland scores high for habitat, need to maintain connectivity to other natural areas. Restore degraded parts of buffer.
High level of function for habitat (score for habitat 29 – 36 points)	Low: 150 feet Moderate: 225 feet High: 300 feet	Maintain connectivity to other natural areas. Restore degraded parts of buffer.
Moderate level of function for habitat (score for habitat 20 – 28 points)	Low: 75 feet Moderate: 110 feet High: 150 feet	No recommendations at this time.
High level of function for water quality improvement (24 – 32 points) and low for habitat (less than 20 points)	Low: 50 feet Moderate: 75 feet High: 100 feet	No additional discharges of untreated <u>runoff</u> .
Not meeting any of the above criteria	Low: 50 feet Moderate: 75 feet High: 100 feet	No recommendations at this time.
Category II		
High level of function for habitat (score for habitat 29 – 36 points)	Low: 150 feet Moderate: 225 feet High: 300 feet	Maintain connectivity to other natural areas.
Moderate level of function for habitat (score for habitat 20 – 28 points)	Low: 75 feet Moderate: 110 feet High: 150 feet	No recommendations at this time.
High level of function for water quality improvement and low for habitat (score for water quality 24 – 32 points; habitat less than 20 points)	Low: 50 feet Moderate: 75 feet High: 100 feet	No additional discharges of untreated runoff.
Not meeting above criteria	Low: 50 feet Moderate: 75 feet High: 100 feet	No recommendations at this time.
Category III		
Moderate level of function for habitat (score for habitat 20 – 28 points)	Low: 75 feet Moderate: 110 feet High: 150 feet	No recommendations at this time.
Not meeting above criteria	Low: 40 feet Moderate: 60 feet High: 80 feet	No recommendations at this time.

Category IV		
Score for functions less than 30 points	Low: 25 feet Moderate: 40 feet High: 50 feet	No recommendations at this time.
TABLE NOTE: * Consistent with the Department of Ecology classification system identified above, high-, medium-, and low-impact land uses are defined as follows:		

- a. High-impact land uses include: commercial, industrial, institutional, retail sales, high-intensity recreation (golf courses, ball fields), and residential uses with a density of more than one dwelling unit per acre.
 - b. Medium-impact land uses include residential uses with a density of one unit per acre or less, moderate-intensity open space (parks), and paved trails.
 - c. Low-impact land uses include: low-intensity open space, such as passive recreation and natural resources preservation, and unpaved trails.
3. The buffer for a wetland created, restored, or enhanced as compensation for approved wetland alterations shall be that required for the category of the wetland.
 4. Increased Buffer Widths. The Department may extend the width of the buffer in accordance with the recommendations of a qualified wetland professional and the best available science on a case-by-case basis when a larger buffer is necessary to protect wetland functions and values based on site-specific characteristics.
 5. Reduction of Buffer Widths. The Department may allow the standard wetland buffer width to be reduced in accordance with the best available science on a case-by-case basis when it is determined that a smaller area is adequate to protect the wetland functions and values based on site-specific characteristics.
 - a. Reduction in buffer width based on reducing the intensity of impacts from proposed land uses. The buffer widths recommended for land uses with high-intensity impacts to wetlands can be reduced to those widths recommended for moderate-intensity impacts under the following conditions:
 - i. For wetlands that score moderate or high for habitat (20 points or more), the width of the buffer around the wetland can be reduced if both of the following criteria are met:
 - a. A relatively undisturbed vegetated corridor at least 100 feet wide is protected between the wetlands and any other priority habitats as defined by the Washington State Department of Fish and Wildlife. The corridor must be protected for the entire distance between the wetland and the priority habitat via some type of legal protection such as a conservation easement; and
 - b. Measures to minimize the impacts of different land uses on wetlands, such as those developed by the Department of Ecology under BAS, are applied.
 - ii. For wetlands that score less than 20 points for habitat, the buffer width can be reduced to that required for moderate land use impacts if measures to minimize the impacts of different land uses on wetlands, such as those developed by the Department of Ecology under BAS, are applied.
 - b. Reductions in buffer widths where existing roads or structures lie within the buffer. Where a legally established, nonconforming use of the buffer exists, proposed actions in the buffer may be permitted as long as they do not increase the degree of nonconformity. In terms of wetlands, this

means no increase in the impacts to the wetland from activities in the buffer.

- c. Subsection B.7 below does not apply when using this reduction in buffer width provision.
6. **Wetland Buffer Width Averaging.** Wetland buffer widths may be modified by averaging buffer widths as set forth herein. The Department may allow modification of the standard wetland buffer width in accordance with the best available science on a case-by-case basis by averaging buffer widths. Averaging buffer widths may only be allowed where a qualified wetland professional demonstrates that:
 - a. It will not reduce the functions or values;
 - b. The wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation, and the wetland would benefit from a wider buffer in places and would not be adversely impacted by a narrower buffer in other places;
 - c. The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer; and
 - d. The buffer width is not reduced more than 25 percent of the width or 50 feet, whichever is less, except for buffers between Category IV wetlands and low- or moderate-intensity land uses.
 7. Buffer widths may be reduced by buffer width reduction or buffer width averaging as stated above. However, the use of either of these mechanisms or a combination of these mechanisms shall not result in a buffer width less than 75 percent of the standard buffer required as identified in subsection B.2 of this section.
 8. Stormwater management facilities, such as biofiltration swales and outfalls, may be located within the outer 25 percent of the buffer, provided that no other location is feasible and the location of such facilities will not degrade the functions or values of the wetland. Stormwater ponds must be located outside of the required buffer. Underground vaults are also permitted within the outer 25 percent of the buffer provided that the maintenance access area lies outside of the buffer and the area above the vault is planted with native vegetation.

C. Alteration of Wetlands.

1. Wetland alteration shall result in no net loss of wetland area, except where the following criteria are met:
 - a. The lost wetland area provides minimal functions and the mitigation action(s) results in a net gain in wetland functions as determined by a site-specific assessment; or
 - b. The lost wetland area provided minimal functions as determined by a site-specific functional assessment and other replacement habitats provide greater benefits to the functioning of the watershed, such as riparian habitat restoration and enhancement.
2. **Category I Wetlands.** Alterations of Category I wetlands shall be prohibited subject to the reasonable use provisions of this chapter.
3. **Category II, III, and IV Wetlands.**
 - a. Any proposed alteration and mitigation shall comply with the mitigation performance standards and requirements of these regulations; and
 - b. No net loss of wetland function and value may occur.
 - c. Where enhancement or replacement is proposed, ratios shall comply with the requirements of subsection C.7 below in this section.
4. Mitigation for alterations to wetlands shall achieve equivalent or greater biological functions.

Mitigation plans shall be consistent with the Department of Ecology Guidance on Wetland Mitigation in Washington State, Part 2: Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals, April, 2004, as revised.

5. Mitigation actions shall address functions affected by the alteration to achieve functional equivalency or improvement, and shall provide similar wetland functions as those lost except when:
 - a. The filled/impacted wetland provides minimal functions as determined by a site-specific function assessment; and the proposed mitigation action(s) will provide equal or greater functions, or will provide functions shown to be limiting within a watershed through a formal watershed assessment plan or protocol; or
 - b. Out-of-kind replacement will best meet formerly identified regional goals, such as replacement of historically diminished wetland types.
6. Mitigation actions that require compensation by replacing, enhancing, or substitution shall occur in the following order of preference:
 - a. Preserving high-quality wetlands that are under imminent threat.
 - b. Restoring wetlands on upland sites that were formerly wetlands.
 - c. Creating wetlands on disturbed upland sites, such as those with vegetative cover consisting primarily of exotic introduced species.
 - d. Enhancing significantly degraded wetlands.
7. Wetland Replacement Ratios.
 - a. Where wetland alterations are permitted by the City, the applicant shall restore or create areas of wetlands in order to compensate for wetland losses. Equivalent areas shall be determined according to acreage, function, type, location, timing factors, and projected success of restoration or creation.
 - b. When creating or enhancing wetlands, the following acreage replacement ratios shall be used:

Category and Type of Wetland	Creation or Reestablishment	Rehabilitation (Restoration)	Reestablishment or Creation (R/C) and Enhancement	Enhancement Only
Category I Forested	6:1	12:1	1:1 R/C and 10:1 E	24:1
Category I based on score	4:1	8:1	1:1 R/C and 6:1 E	16:1
Category II	3:1	8:1	1:1 R/C and 4:1 E	12:1
Category III	2:1	4:1	1:1 R/C and 2:1 E	8:1
Category IV	1.5:1	3:1	1:1 R/C and 2:1 E	6:1

- c. Increased Replacement Ratio. The Department may increase the ratios under the following circumstances:
 - i. Uncertainty exists as to the probable success of the proposed restoration or creation; or
 - ii. A significant period of time will elapse between impact and replication of wetland functions; or
 - iii. Proposed mitigation will result in a lower category wetland or reduced functions relative to the wetland being impacted; or

- iv. The impact was an unauthorized impact.
- d. Decreased Replacement Ratio. The Department may decrease these ratios under the following circumstances:
 - i. Documentation by a qualified wetland specialist demonstrates that the proposed mitigation actions have a very high likelihood of success;
 - ii. Documentation by a qualified wetland specialist demonstrates that the proposed mitigation actions will provide functions and values that are significantly greater than the wetland being impacted; or
 - iii. The proposed mitigation actions are conducted in advance of the impact and have been shown to be successful.
- e. Enhanced and created wetlands shall be appropriately classified and buffered.

D. Wetlands Performance/Design Standards.

1. Use plants indigenous to the Pacific Northwest region (not introduced or foreign species);
2. Use plants adaptable to a broad range of water depths;
3. Plants should be commercially available or available from local sources;
4. Plant species high in food and cover value for fish and wildlife must be used;
5. Avoid committing significant areas of the site to species that have questionable potential for successful establishment;
6. Plant selection must be approved by a qualified wetland specialist;
7. Water depth is not to exceed six and one-half feet (two meters);
8. The grade or slope that water flows through the wetland is not to exceed six percent for wetland creation sites;
9. Slopes within the wetland basin and the buffer zone may not be steeper than 3:1 (horizontal to vertical) for wetland creation sites;
10. Substrate should consist of a minimum of one foot, in depth, of clean (uncontaminated with chemicals or solid/hazardous wastes) inorganic/organic materials for wetland creation sites;
11. Planting densities and placement of plants should be determined by a qualified wetland professional and shown on the design plans;
12. The planting plan must be approved by the Department;
13. Confine stockpiling to upland areas and ensure contract specifications limit stockpiling of earthen materials to durations in accordance with City clearing and grading standards, unless otherwise approved by the Committee;
14. Planting instructions shall be submitted which describe proper placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, and transplanted stock;
15. Apply controlled-release, non-phosphorus fertilizer at the time of planting and afterward only as plant conditions warrant (determined during the monitoring process);
16. Install an irrigation system, if necessary, for the initial establishment period;
17. Construction specifications and methods must be approved by a qualified consultant and the Department; and
18. Construction management should occur by a qualified consultant and be inspected by the City.

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21.64.040 Frequently Flooded Areas

f Frequently Flooded Areas User Guide

- A. **Classification and Rating of Frequently Flooded Areas.** To promote consistent application of the standards and requirements of this chapter, frequently flooded areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.
1. **Frequently Flooded Areas Classifications.** Frequently flooded areas shall be classified according to the criteria in this section.
 - a. **Floodplain.** The total area subject to inundation by the base flood (the flood that has a one percent chance of occurring in any given year).
 - b. **Flood Fringe.** The portion of the floodplain outside of the floodway which is generally covered by flood waters during the base flood and is generally associated with standing water rather than rapidly flowing water.
 - c. **FEMA Floodway.** The channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the FEMA base flood flow without increasing the FEMA base flood elevation more than one foot.
 - d. **Zero-Rise Floodway.** The channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the base flood flow without increasing the base flood elevation. The zero-rise floodway will always include the FEMA floodway.
 2. **Classification of frequently flooded areas shall be determined by the Committee based on consideration of the following factors:**
 - a. Maps adopted pursuant to this chapter including the frequently flooded areas map, which identifies the approximate location and extent of the 100-year floodplain. This map shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of frequently flooded areas shall be determined in the field by a qualified consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail. The City will employ hydrologic models to define the extent of the zero-rise floodway. If the zero-rise floodway has not yet been defined for the property in question, the applicant will be responsible for modeling the base flood elevation and delineating the extent of the zero-rise floodway, consistent with the assumptions in the Bear Creek Basin Plan as adopted by the City. In the absence of a City hydrologic model, FEMA data will be acceptable;
 - b. Flood Insurance Rate Maps published by the Federal Emergency Management Agency;
 - c. Application of the criteria contained in these regulations; and
 - d. Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.
- B. **Alteration of Frequently Flooded Areas.** Alteration of frequently flooded areas may only be permitted subject to the criteria in RZC 21.64.020.D through RZC 21.64.020.E, RZC 21.64.030.C, RZC 21.64.040.C, RZC 21.64.050.B, and RZC 21.64.060.D.

C. Flood Hazard Areas – Development Standards.

1. Flood Hazard Areas Generally. For all new structures or substantial improvements, the applicant must provide certification by a qualified consultant of the actual as-built elevation of the lowest floor, including basement, and, if applicable, the actual as-built elevation to which the structure is flood-proofed. If the structure has a basement, this must be indicated.
2. The Flood Fringe Outside the Zero-Rise Floodway.
 - a. Except for downtown development along the Sammamish River in the 100-year floodplain from the Puget Sound Energy transmission line crossing to SR 520, development shall not reduce the effective base flood storage volume of the floodplain. Grading or other activity which would reduce the effective storage volume must be mitigated by creating compensatory storage on the site. Off-site compensatory storage may be permitted if binding legal arrangements assure that the effective compensatory storage volume will be preserved over time.
 - b. No structure shall be allowed which would be at risk due to stream bank destabilization, including that associated with channel relocation or meandering.
 - c. All elevated construction must be designed and certified by a professional structural engineer registered in the State of Washington and must be approved by the City prior to construction.
 - d. Subdivisions, short subdivisions, binding site plans, site plan review, special Land Use Permits, and general Land Use Permits shall follow the following requirements:
 - i. New building lots shall contain 3,600 square feet or more of buildable land outside the zero-rise floodway and building setback lines shall be shown on the face of the plat to restrict permanent structures to the area so defined;
 - ii. All utilities and facilities, such as sewer, gas, electrical, telephone, cable communications, and water systems, shall be located and constructed consistent with subsection C.2.i of this section;
 - iii. Base flood data and flood hazard notes shall be shown on the face of the recorded plat, including but not limited to the base flood elevation, required flood protection elevations, and the boundaries of the floodplain and the floodway, if determined; and
 - iv. The following note shall be recorded with the King County Department of Records and Elections for all affected lots:

NOTICE
Lots and structures located within flood hazard areas may be inaccessible by emergency vehicles during flood events.
Residents and property owners should take appropriate advance precautions.

- e. New residential construction and substantial improvement shall meet the following criteria:
 - i. The lowest floor, including basements and below-grade crawl spaces, per FEMA regulations shall be elevated to the flood protection elevation.
 - ii. Portions of the building that are below the flood protection elevation shall not be fully enclosed. The areas below the lowest floor shall be designed to automatically equalize hydrodynamic flood forces on exterior walls by allowing the entry and exit of floodwaters. Designs for meeting this requirement must meet or exceed the following minimum criteria:
 - a. Minimum of two openings on opposite walls having a total open area of not less than one square inch for every square foot of enclosed area subject to flooding shall be

provided;

- b. The bottom of all openings shall be no higher than one foot above grade.
- iii. Openings may be equipped with screens, louvers, or other coverings or devices, provided that they permit the unrestricted entry and exit of floodwaters.
- f. New nonresidential construction and substantial improvement of any existing commercial, industrial, or other nonresidential structure shall meet the elevation requirements of residential construction.
- g. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
- h. For all mobile and manufactured homes, all standards for flood hazard protection for conventional residential construction shall apply. All manufactured and mobile homes must be anchored and shall be installed using methods and practices that minimize flood damage. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- i. Utilities shall meet the following criteria:
 - i. All new and replacement utilities, including sewage treatment facilities, shall be flood-proofed to, or elevated above, the flood protection elevation.
 - ii. New on-site sewage disposal systems shall be located outside the limits of the 100-year floodplain. The installation of new on-site sewage disposal systems in the floodplain is prohibited.
 - iii. Sewage and agricultural waste storage facilities shall be flood-proofed to the base flood elevation plus three feet.
 - iv. Above-ground utility transmission lines, other than electrical transmission lines, shall only be allowed for the transport of nonhazardous substances.
 - v. Buried utility transmission lines transporting hazardous substances (as defined by the Washington State Hazardous Waste Management Act in RCW 70.105.005) shall be buried at a minimum depth of four feet below the maximum depth of scour for the base flood predicted by a professional civil engineer licensed by the State of Washington and shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated.
- j. Critical facilities may be allowed within the flood fringe of the floodplain. All such proposed uses shall be evaluated as part of the underlying land use permit. Critical facilities constructed within the flood fringe shall have the lowest floor elevated to three or more feet above the base flood elevation. Flood-proofing and sealing measures must be taken to ensure that hazardous or toxic substances will not be displaced by or released into floodwaters. Access routes elevated to the flood protection elevation shall be provided to all critical facilities to the nearest maintained public street or roadway located outside of the floodplain.
- k. The Committee shall review all Land Use Permits to determine that all necessary permits have been obtained as required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, as required by Section 60.3(a)(2) of 44 CFR.
- l. Storage and containment of hazardous or dangerous chemicals, substances or materials, as those terms are determined by applicable state and federal regulations, shall be prohibited, provided that existing uses involving storage, etc., shall conform to the flood protection elevation when

applying for any permit.

3. Development in the Zero-Rise Floodway.

- a. Activities allowed within the zero-rise floodway must conform to the requirements of this section, as well as the requirements that apply to the flood fringe outside the zero-rise floodway as identified in subsection C.2 of this section.
- b. No development activity shall reduce the effective storage volume of the floodplain.
- c. No development, including permitted new construction or reconstruction, shall cause any increase in the zero-rise base flood elevation.
- d. No temporary structures or storage of materials hazardous to public health, safety, and welfare shall be permitted in the zero-rise floodway.
- e. Construction of new residential or nonresidential structures is permitted in the zero-rise floodway only in the following circumstances:
 - i. The structure must be on a lot legally in existence at the time the ordinance codified in this chapter becomes effective;
 - ii. The structure must be on a lot that contains less than 3,600 square feet of buildable land outside the zero-rise floodway; and
 - iii. The structure must meet the construction standards set forth in subsections C.2 and C.3.b, C.3.c, and C.3.d of this section.
- f. New lots that include part of the zero-rise floodway may be created only if the lots meet the requirements of subsection C.2.d of this section and administrative rules, or are declared as non-building lots on the face of the plat.
- g. The following circumstances are presumed to produce no increase in base flood elevation and shall not require special studies to establish this fact:
 - i. Substantial improvement on existing residential structures outside the zero-rise floodway where the building footprint is not increased.
 - ii. Substantial improvement of an existing residential structure shall meet the requirements for new residential construction set forth in subsection C.2.e of this section.
- h. Reconstruction of an existing residential structure shall meet the requirements for new residential construction set forth in subsection C.2.e of this section
- i. Utilities and roads are permitted in the zero-rise floodway only when no other location is practicable, or when mitigating measures achieve zero-rise floodway elevations, and shall meet the minimum criteria set forth in subsection C.2.i of this section and the following requirements:
 - i. Construction of sewage treatment facilities shall be prohibited.
 - ii. Utility transmission lines transporting hazardous substances shall be buried at a minimum depth of four feet below the maximum depth of scour for the base flood as predicted by a professional civil engineer licensed by the State of Washington and shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated.
- j. Critical facilities shall not be constructed in the zero-rise floodway.
- k. Floodway Dependent Structures. Installations or structures that are floodway dependent may be located in the floodway, provided that the development proposal receives approval from all other agencies with jurisdiction and meets all standards in RZC 21.64.020.D, *Alteration of Riparian Stream Corridors*, and 21.64.030.C, *Alteration of Wetlands*. Such installations include but are not

limited to:

- i. Dams or diversions for water supply, flood control, hydroelectric production, irrigation, or fisheries enhancement;
 - ii. Flood damage reduction facilities, such as levees and pumping stations;
 - iii. Stream bank stabilization structures where no feasible alternative exists to protecting public or private property;
 - iv. Stormwater conveyance facilities subject to the requirements of the development standards for streams and wetlands, and other relevant City of Redmond development standards;
 - v. Boat launches, docks, and related recreation structures;
 - vi. Bridge piers and abutments; and
 - vii. Fisheries enhancement or stream restoration projects.
- l. Development of the area located downstream of Redmond Way on Bear Creek may be allowed:
 - i. when mitigating measures achieve zero-rise floodway elevations, or
 - ii. when surface water elevations are not increased over one foot provided no significant unmitigated upstream, downstream, or on-site environmental impacts are created.
4. Development in the FEMA Floodway.
- a. Construction or placement of new residential or nonresidential structures is prohibited within the FEMA floodway. Shoreline protective structures, bridges, roads, trails, and railroads are permitted within the FEMA floodway.
 - b. No development subject to these regulations, including permitted new construction or reconstruction, shall cause any increase in the FEMA base flood elevation.
 - c. Substantial improvement of an existing residential structure located in the floodway must meet the requirements set out in WAC 173-158-070 as amended. Such substantial improvement is presumed to produce no increase in base flood elevation and shall not require special studies to establish this fact.

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21.64.050 Critical Aquifer Recharge Areas

- A. **Classification and Rating of Critical Aquifer Recharge Areas.** To promote consistent application of the standards and requirements of this chapter, Critical Aquifer Recharge Areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.
1. Critical Aquifer Recharge Areas Classification. Critical aquifer recharge areas are those areas with a critical recharging effect on aquifers used for potable water. Wellhead protection involves the management of activities that have a potential to degrade the quality of groundwater produced by a supply well. The City of Redmond is classified into four wellhead protection zones that are based on proximity to and travel time of groundwater to the City's public water source wells, and are designated using guidance from the Washington Department of Health Wellhead Protection Program pursuant to Chapter 246-290 WAC.
 - a. Wellhead Protection Zone 1 represents the land area overlying the six-month time-of-travel zone of any public water source well owned by the City.

- b. Wellhead Protection Zone 2 represents the land area that overlies the one-year time-of-travel zone of any public water source well owned by the City, excluding the land area contained within Wellhead Protection Zone 1.
 - c. Wellhead Protection Zone 3 represents the land area that overlies the five-year and 10-year time-of-travel zones of any public water source well owned by the City, excluding the land area contained within Wellhead Protection Zones 1 or 2.
 - d. Wellhead Protection Zone 4 represents all the remaining land area in the City not included in Wellhead Protection Zones 1, 2, or 3.
2. Classification of wellhead protection zones shall be determined in accordance with the City's adopted Wellhead Protection Zone Map, which serves to designate Zones 1 through 4. The Committee, at its discretion, may consider the following factors:
- a. Maps adopted pursuant to this chapter;
 - b. Application of the criteria contained in these regulations; and
 - c. Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.
- B. **Alteration of Critical Aquifer Recharge Areas.** Alteration of critical aquifer recharge areas may only be permitted subject to the criteria in RZC 21.64.020.D, RZC 21.64.020.E, RZC 21.64.030.C, RZC 21.64.040.B, RZC 21.64.050.B, and RZC 21.64.060.D.
- C. **Prohibited Activities in Wellhead Protection Zones.**
1. Land uses or activities for new development or redevelopment that pose a significant hazard to the City's groundwater resources, resulting from storing, handling, treating, using, producing, recycling, or disposing of hazardous materials or other deleterious substances, shall be prohibited in Wellhead Protection Zones 1 and 2. These land uses and activities include, but are not limited to:
 - a. Large on-site sewage systems, as defined in WAC Chapter 246-272A;
 - b. Hazardous liquid pipelines as defined in RCW Chapter 81.88 and ~;
 - c. Solid waste landfills;
 - d. Solid waste transfer stations;
 - e. Liquid petroleum refining, reprocessing, and storage;
 - f. Bulk storage facilities as defined in ~, Definitions;
 - g. The storage or distribution of gasoline treated with the additive MTBE;
 - h. Hazardous waste treatment, storage, and disposal facilities except those defined under permit by rule for industrial wastewater treatment processes per WAC 173-303-802(5)(c);
 - i. Chemical manufacturing, including but not limited to organic and inorganic chemicals, plastics and resins, pharmaceuticals, cleaning compounds, paints and lacquers, and agricultural chemicals;
 - j. Dry cleaning establishments using the solvent perchloroethylene;
 - k. Primary and secondary metal industries that manufacture, produce, smelt, or refine ferrous and nonferrous metals from molten materials;
 - l. Wood preserving and wood products preserving;
 - m. Mobile fleet fueling operations;
 - n. Class I, Class III, Class IV, and the following types of Class V wells: 5A7, 5F1, 5D3, 5D4, 5W9, 5W10,

5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 as regulated under RCW Chapter 90.48 and WAC Chapters 173-200 and 173-218, as amended;

- o. Permanent dewatering of the aquifer for new projects and redevelopment;
 - p. Irrigation with graywater or reclaimed water;
2. Other land uses and activities that the City determines would pose a significant groundwater hazard to the City's groundwater supply.
 3. Wellhead Protection Zones. Development within the City of Redmond shall implement the performance standards contained in RZC 21.64.050.D below that apply to the zone in which it is located.

D. Wellhead Protection Zone Performance Standards.

1. Any uses or activities locating in the City of Redmond which involve storing, handling, treating, using, producing, recycling, or disposing of hazardous materials or other deleterious substances shall comply with the following standards that apply to the zone in which they are located. Residential uses of hazardous materials or deleterious substances are exempt from the following standards.
2. If a property is located in more than one wellhead protection zone, the Director of Public Works shall determine which standards shall apply based on an assessment evaluation of the risk posed by the facility or activity. The assessment evaluation shall include, but not be limited to: (a) the location, type, and quantity of the hazardous materials or deleterious substances on the property; (b) the geographic and geologic characteristics of the site; and (c) the type and location of infiltration on the site.
3. Development within Wellhead Protection Zones 1 or 2, and any facility or activity per RMC Chapter 13.07.100(A), shall implement the following performance standards:
 - a. Secondary Containment.
 - i. The owner or operator of any facility or activity shall provide secondary containment for hazardous materials or other deleterious substances in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid or in quantities specified in the Redmond Fire Code, RMC Chapter 15.06, whichever is smaller.
 - ii. Hazardous materials stored in tanks that are subject to regulation by the Washington State Department of Ecology under WAC Chapter 173-360, Underground Storage Tank Regulations, are exempt from the secondary containment requirements of this section, provided that documentation is provided to demonstrate compliance with those regulations.
 - b. Vehicle Fueling, Maintenance, and Storage Areas. Fleet and automotive service station fueling, equipment maintenance, and vehicle washing areas shall have a containment system for collecting and treating all runoff from such areas and preventing release of fuels, oils, lubricants, and other automotive fluids into soil, surface water, or groundwater. Appropriate emergency response equipment and spill kits shall be kept on-site during transfer, handling, treatment, use, production, recycling, or disposal of hazardous materials or other deleterious substances.
 - c. Loading and Unloading Areas. Secondary containment or equivalent best management practices, as approved by the Director of Public Works, shall be required at loading and unloading areas that store, handle, treat, use, produce, recycle, or dispose of hazardous materials or other deleterious substances in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid.
 - d. Stormwater Infiltration Systems. Design and construction of new stormwater infiltration systems must address site-specific risks of releases posed by all hazardous materials on-site. These risks may be mitigated by physical design means or equivalent best management practices in accordance with an approved Hazardous Materials Management Plan. Design and construction of

said stormwater infiltration systems shall also be in accordance with RMC Chapter 15.24.020 and the City of Redmond Clearing, Grading and Stormwater Technical Notebook, and shall be certified for compliance with the requirements of this section by a professional engineer or engineering geologist registered in the State of Washington.

- e. Well construction and operation shall comply with the standards in RMC Chapter 15.24.095.
- f. Protection Standards During Construction. The following standards shall apply to construction activities occurring where construction vehicles will be refueled on-site and/or the quantity of hazardous materials that will be stored, dispensed, used, or handled on the construction site is in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid, exclusive of the quantity of hazardous materials contained in fuel or fluid reservoirs of construction vehicles. As part of the City's project permitting process, the City may require any or all of the following items:
 - i. A development agreement;
 - ii. Detailed monitoring and construction standards;
 - iii. Designation of a person on-site during operating hours who is responsible for supervising the use, storage, and handling of hazardous materials and who has appropriate knowledge and training to take mitigating actions necessary in the event of fire or spill;
 - iv. Hazardous material storage, dispensing, refueling areas, and use and handling areas shall be provided with secondary containment adequate to contain the maximum release from the largest volume container of hazardous substances stored at the construction site;
 - v. Practices and procedures to ensure that hazardous materials left on-site when the site is unsupervised are inaccessible to the public. Locked storage sheds, locked fencing, locked fuel tanks on construction vehicles, or other techniques may be used if they will preclude access;
 - vi. Practices and procedures to ensure that construction vehicles and stationary equipment that are found to be leaking fuel, hydraulic fluid, and/or other hazardous materials will be removed immediately or repaired on-site immediately. The vehicle or equipment may be repaired in place, provided the leakage is completely contained;
 - vii. Practices and procedures to ensure that storage and dispensing of flammable and combustible liquids from tanks, containers, and tank trucks into the fuel and fluid reservoirs of construction vehicles or stationary equipment on the construction site are in accordance with the Redmond Fire Code, RMC Chapter 15.06; and
 - viii. Practices and procedures, and/or on-site materials adequate to ensure the immediate containment and cleanup of any release of hazardous substances stored at the construction site. On-site cleanup materials may suffice for smaller spills whereas cleanup of larger spills may require a subcontract with a qualified cleanup contractor. Releases shall immediately be contained, cleaned up, and reported if required under RMC Chapter 13.07.120. Contaminated soil, water, and other materials shall be disposed of according to state and local requirements.
- g. Fill Materials. Fill material shall comply with the standards in RMC Chapters 15.24.080 and 15.24.095.
- h. Cathodic Protection Wells. Cathodic protection wells shall be constructed following the standards in RMC Chapter 15.24.095.
- i. Underground Hydraulic Elevator Cylinders. All underground hydraulic elevator pressure cylinders shall be constructed following the standards in RMC Chapter 15.24.095.
- j. Best Management Practices. All development or redevelopment shall implement Best

Management Practices (BMPs) for water quality and quantity, as approved by the Technical Committee, such as biofiltration swales and use of oil-water separators, BMPs appropriate to the particular use proposed, clustered development, and limited impervious surfaces.

4. Development Within Wellhead Protection Zone 3 shall implement the following performance measures:
 - a. Compliance with the performance standards for vehicle fueling, maintenance and storage areas; loading and unloading areas; well construction and operation; fill materials; cathodic protection wells; underground hydraulic elevator cylinders, and best management practices in subsections D.3.b, D.3.c, D.3.e, D.3.h, D.3.i, and D.3.j of this section; and
 - b. Development Within Wellhead Protection Zone 4 shall implement best management practices (BMPs) for water quality and quantity as approved by the Committee.
5. An incremental environmental improvement to a system protective of groundwater shall not alter, expand, or intensify an existing nonconformance but may proceed without having to meet the following City codes, with prior approval from the Director of Public Works or his/her designee:
 - a. Restrictions associated with critical areas and critical area buffers, if the footprint of the original system protective of groundwater is located within the same critical area buffer, and it can be demonstrated through best available science that there will be no significant adverse impacts to the critical area and its buffer;
 - b. Any requirement to bring a portion of the facility up to current building, fire, or land use codes that is triggered by the value or design of the incremental environmental improvement to a system protective of groundwater;
 - c. The incremental improvement shall not qualify as a redevelopment that would otherwise be prohibited by RZC 21.64.050.C.1.

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Effective on: 4/16/2011

21.64.060 Geologically Hazardous Areas

Geological Hazard Areas User Guide

- A. **Classification and Rating of Geologically Hazardous Areas.** To promote consistent application of the standards and requirements of this chapter, geologically hazardous areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.
 1. **Geologically Hazardous Area Classifications.** Geologically hazardous areas shall be classified according to the criteria in this section.
 - a. **Erosion Hazard Areas.** Erosion hazard areas are lands or areas underlain by soils identified by the U.S. Department of Agriculture Soil Conservation Service (SCS) as having “severe” or “very severe” rill and inter-rill erosion hazards. This includes, but is not limited to, the following group of soils when they occur on slopes of 15 percent or greater: Alderwood-Kitsap (AkF), Alderwood gravelly sandy loam (AgD), Kitsap silt loam (KpD), Everett (EvD), and Indianola (InD).
 - b. **Landslide Hazard Areas.** Landslide hazard areas are areas potentially subject to significant or severe risk of landslides based on a combination of geologic, topographic, and hydrogeologic factors. They include areas susceptible because of any combination of bedrock, soil, slope, slope aspect, structure, hydrology, or other factors. They are areas of the landscape that are at a high

risk of failure or that presently exhibit downslope movement of soil and/or rocks and that are separated from the underlying stationary part of the slope by a definite plane of separation. The plane of separation may be thick or thin and may be composed of multiple failure zones depending on local conditions, including soil type, slope gradient, and groundwater regime.

Landslide hazard areas include:

- i. Areas of historic failures, such as:
 - a. Areas designated as quaternary slumps or landslides on maps published by the United States Geologic Survey (USGS); or
 - b. Those areas designated by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) as having a "severe" limitation for building site development.
 - ii. Areas containing a combination of slopes steeper than 15 percent, springs or groundwater seepage, and hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock;
 - iii. Areas that have shown movement during the Holocene epoch (from 10,000 years ago to the present) or which are underlain or covered by mass wastage debris of that epoch;
 - iv. Slopes that are parallel or subparallel to planes of weakness in subsurface materials;
 - v. Slopes having gradients steeper than 80 percent subject to rockfall during seismic shaking;
 - vi. Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action; or
 - vii. Any area with a slope 40 percent or steeper with a vertical relief of 10 feet or more.
- c. Seismic Hazard Areas. Seismic hazard areas are lands subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting.
2. Classification of geologically hazardous areas shall be determined by the Committee based on consideration of the following factors:
- a. Maps adopted pursuant to this chapter include the landslide hazard area, erosion hazard area, and seismic hazard areas maps, which identify the approximate location and extent of these hazard areas. These maps shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of geologically hazardous areas shall be determined in the field by a qualified consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail;
 - b. Maps published by other governmental agencies such as:
 - i. USGS landslide hazard and seismic hazard maps;
 - ii. Department of Natural Resources (DNR) seismic hazard maps for western Washington and slope stability maps;
 - c. Application of the criteria contained in these regulations; and
 - d. Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.

B. Landslide Hazard Area Buffers.

1. Landslide hazard area buffers shall be measured from the top and toe, and along sides of the slope.
2. Minimum Landslide Hazard Area Buffer. Required buffers shall be 50 feet. The width of the buffer shall reflect the sensitivity of the landslide hazard area in question and the types and density of uses proposed on or adjacent to the geologic hazard. In determining the appropriate buffer width, the Committee shall consider the recommendations contained in any technical report required by these regulations and prepared by an applicant's qualified consultant.
3. Buffer Reduction. Buffers may be reduced to a minimum of 15 feet when a qualified professional demonstrates through technical studies that the reduction will adequately protect the proposed and surrounding development from the critical landslide hazard.
4. Increased Buffer. The buffer may be increased where the Technical Committee determines a larger buffer is necessary to prevent risk of damage to proposed and existing development.

C. **Alteration of Geologically Hazardous Areas – Generally.** Alteration of geologically hazardous areas or their established buffers may only be permitted subject to the criteria in RZC 21.64.050.D, RZC 21.64.020.E, RZC 21.64.030.C, RZC 21.64.040.B, RZC 21.64.050.B, RZC 21.64.060.D, and RZC 21.76.070.E.

D. **Alteration of Geologically Hazardous Areas.**

1. The City shall approve, condition, or deny proposals in a geologically hazardous area as appropriate based upon the effective mitigation of risks posed to property, health, and safety. The objective of mitigation measures shall be to render a site containing a geologically hazardous site as safe as one not containing such hazard. Conditions may include limitations of proposed uses, modification of density, alteration of site layout, and other appropriate changes to the proposal. Where potential impacts cannot be effectively mitigated, or where the risk to public health, safety and welfare, public or private property, or important natural resources is significant notwithstanding mitigation, the proposal shall be denied.
2. Landslide Hazard Areas. Development shall be prohibited in landslide hazard areas except as noted below:
 - a. Pin pilings or footings for decks are permitted provided that they do not impact the stability of the slope, as demonstrated by geotechnical studies; and
 - b. The installation and construction of streets and/or utilities, subject to the criteria and process set forth in RZC 21.76.070.E, Alteration of Geologic Hazard Areas.

E. **Geologically Hazardous Area Performance Standards.**

1. Relevant performance standards from RZC 21.64.020.F, RZC 21.64.020.G, and RZC 21.64.030.D, as determined by the Committee, shall be incorporated into mitigation plans.
2. Development within a geologically hazardous area shall meet the following basic requirements unless it can be demonstrated that an alternative design that deviates from one or more of these standards provides equivalent or greater long-term slope stability. The following performance standards shall be reflected in proposals within landslide and erosion hazard areas:
 - a. Geotechnical studies shall be prepared by a qualified consultant to identify and evaluate potential hazards and to formulate mitigation measures;
 - b. Construction methods will reduce or not adversely affect geologic hazards;
 - c. Structures and improvements shall minimize alterations to the natural contour of the slope and foundations shall be tiered where possible to conform to existing topography;
 - d. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

- e. Structures and improvements shall be clustered to avoid geologically hazardous areas;
- f. Unless otherwise provided or as part of an approved alteration, removal of vegetation from an erosion or landslide hazard area or related buffer shall be prohibited;
- g. Development shall be designed to minimize impervious surface coverage;
- h. Disturbed areas should be replanted as soon as feasible pursuant to an approved landscape plan;
- i. Clearing and grading regulations as set forth by the City shall be followed;
- j. Use of retaining walls that allow maintenance of existing natural slope areas are preferred over graded artificial slopes;
- k. Temporary erosion and sedimentation controls, pursuant to an approved plan, shall be implemented during construction;
 - l. A master drainage plan shall be prepared for large projects as required by the City Engineer;
- m. A monitoring program shall be prepared for construction activities permitted in geologically hazardous areas;
- n. Development shall not increase instability or create a hazard to the site or adjacent properties, or result in a significant increase in sedimentation or erosion; and
- o. Point discharges from surface water facilities and roof drains onto or upstream from an erosion or landslide hazard area shall be prohibited except as follows:
 - i. Conveyed via continuous storm pipe downslope to a point where there are no erosion hazard areas downstream from the discharge;
 - ii. Discharged at flow durations matching predeveloped conditions, with adequate energy dissipation, into existing channels that previously conveyed stormwater runoff in the predevelopment state; or
 - iii. Dispersed discharge upslope of the steep slope onto a low-gradient undisturbed buffer demonstrated to be adequate to infiltrate all surface and stormwater runoff, and where it can be demonstrated that such discharge will not increase the saturation of the slope.

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21.64.070 Procedures

A. Procedural Provisions.

1. Interpretation and Conflicts. Any question regarding interpretation of these regulations shall be resolved pursuant to the procedures set forth in RZC Article VI, Review Procedures.
2. Penalties and Enforcement. Compliance with these regulations and penalties for their violation shall be enforced pursuant to the procedures set forth in RZC Article VI.
3. Appeals from Permit Decisions. Appeals from permit decisions shall be governed by the procedures set forth in RZC Article VI.

B. Severability. If any provision of these regulations or its application to any person or circumstance is held invalid by a court of competent jurisdiction, the remainder of these regulations or the application to other persons or circumstances shall not be affected.

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TAB B

Part 20.25H Critical Areas Overlay District Amended Ord. 6013**I. SCOPE AND PURPOSE****20.25H.005 Scope.**

This part establishes standards and procedures that apply to development within the "Critical Areas Overlay District," which includes any site that is in whole or in part designated as a critical area or critical area buffer. All development within the Critical Areas Overlay District must be reviewed and approved pursuant to this part in addition to being subject to all other relevant standards of the Bellevue City Code. The Critical Areas Overlay District does not apply to the Downtown. (Ord. 5680, 6-26-06, § 3)

20.25H.010 Purpose.

The Critical Areas Overlay District is a mechanism by which the City recognizes the existence of natural conditions which affect the use and development of property. Through this part, the City designates and classifies ecologically sensitive and hazard areas and imposes regulations on the use and development of affected property in order to protect the functions and values of these areas and the public health, safety and welfare, and to allow the reasonable use of private property. (Ord. 5680, 6-26-06, § 3)

20.25H.015 Applicable procedure.

The Critical Areas Overlay District consists of two parts: that part of a site that is not contained within a critical area, critical area buffer, or critical area structure setback, and that part of a site that is within a critical area, critical area buffer, or critical area structure setback.

A. If a proposal avoids all disturbance or modification of the critical area, critical area buffer, and critical area structure setback, the proposal is subject to the provisions of this part through the review process for the underlying permit or approval required for the development, and a decision on such application may be appealed according to the appeal process for the underlying permit or approval.

B. If a proposal involves disturbance to or modification of the critical area, critical area buffer, or critical area structure setback, then in addition to the review process for the underlying permit or approval required for the development, the proposal shall require a Critical Areas Land Use Permit, Part 20.30P LUC, except where otherwise indicated in this part. (Ord. 5680, 6-26-06, § 3)

20.25H.020 Submittal requirements.

A. The Director shall specify the submittal requirements, including type, detail and number of copies, for a use or development application to be deemed complete and accepted for filing.

B. The Director may waive specific submittal requirements determined to be unnecessary for review of an application. (Ord. 5680, 6-26-06, § 3)

II. DESIGNATION OF CRITICAL AREAS AND DIMENSIONAL STANDARDS**20.25H.025 Designation of critical areas.**

The following areas are hereby designated as critical areas. For additional information about identifying each critical area, see the specific sections noted.

Critical Area Category or Type	Additional Information Identifying Critical Area
Streams	
Type S water	LUC 20.25H.075
Type F water	LUC 20.25H.075
Type N water	LUC 20.25H.075
Type O water	LUC 20.25H.075
Closed segment, regardless of type; Kelsey Creek drainage basin	LUC 20.25H.075
Closed segment, regardless of type; all other drainage basins	LUC 20.25H.075
Wetlands	
Category I	LUC 20.25H.095
Category II	LUC 20.25H.095
Category III	LUC 20.25H.095
Category IV over 2,500 square feet	LUC 20.25H.095
Shorelines	
Shorelines	LUC 20.25E.017.D
Geologic Hazard Areas	
Landslide hazards	LUC 20.25H.120
Steep slopes	LUC 20.25H.120
Coal mine hazard areas	LUC 20.25H.120
Habitat Associated with Species of Local Importance	
Habitat associated with species of local importance	LUC 20.25H.150
Areas of Special Flood Hazard	
Areas of special flood hazard	LUC 20.25H.175

(Ord. 5680, 6-26-06, § 3)

20.25H.030 Identification of critical area.

A. Determining Presence of Critical Area.

A determination of whether a site contains a critical area, critical area buffer, or critical area structure setback shall be made as part of the review process for the proposal, based on information provided by the applicant. The Director may specify the information required to determine the presence and extent of such areas, including, but not limited to: site surveys, topographic maps, technical environmental analysis, peer reviews, or other information the Director deems necessary. The location and extent of critical areas, critical area buffers, and critical area structure setbacks may be required to be surveyed, marked in the field with permanent signage, and fenced to separate such areas from development.

B. Recording Required.

1. Site Plan. The property owner receiving approval of a use or development within the Critical Areas Overlay District pursuant to this part shall record a site plan or other instrument clearly delineating the critical area, critical area buffer, and critical area

structure setback with the King County Division of Records and Elections. The site plans must include a statement that the provisions of this part as now or hereafter amended control use and development of the subject property. Single lot residential development in single-family residential land use districts is exempt from this recording requirement, except where explicitly required in this part or where required as part of a voluntary compliance agreement or corrective action for a violation of this part, pursuant to Chapter 1.18 BCC.

2. Native Growth Protection Area/Easement. The Director may also require recording of the delineation of, and restrictions of, Native Growth Protection Areas (NGPA) or Native Growth Protection Easements (NGPE) designated as part of an approval of a subdivision, short subdivision or Planned Unit Development within the Critical Areas Overlay District, and as part of any approval to modify a critical area or critical area buffer. The NGPA or NGPE shall contain at minimum:

- a. An assurance that the NGPA or NGPE will be kept free from all development and disturbance except where allowed or required for habitat improvement projects, vegetation management, and new or expanded City parks pursuant to LUC 20.25H.055; and that native vegetation, existing topography, and other natural features will be preserved for the purpose of preventing harm to property and the environment, including, but not limited to, controlling surface water runoff and erosion, maintaining slope stability, buffering and protecting plants and animal habitat;
- b. The right of the City of Bellevue to enter the property to investigate the condition of the NGPA or NGPE upon reasonable notice;
- c. The right of the City of Bellevue to enforce the terms of the restriction; and
- d. A management plan for the NGPA or NGPE designating future management responsibility. (Ord. 5680, 6-26-06, § 3)

20.25H.035 Critical area buffers and structure setbacks.

A. Critical Area Buffer.

The following critical area buffers and structure setbacks are established for each critical area set forth below. For information about modifying required critical area buffers and structure setbacks, see the referenced sections noted in the table.

Critical Area Category or Type	Critical Area Buffer Width		Structure Setback		Modification of Buffer or Setback
	Undeveloped Site ¹	Developed Site ¹	Undeveloped Site ¹	Developed Site ¹	
Streams					
Type S water	100 ft	50 ft	20 ft	50 ft	LUC 20.25H.075 LUC 20.25H.230
Type F water	100 ft	50 ft	20 ft	50 ft	LUC 20.25H.075 LUC 20.25H.230
Type N water	50 ft	25 ft	15 ft	25 ft	LUC 20.25H.075 LUC 20.25H.230

Type O water	25 ft	25 ft	10 ft	None	LUC 20.25H.075 LUC 20.25H.230
Closed segment, regardless of type; Kelsey Creek drainage basin	None	None	50 ft or combined buffer and structure setback required for stream type, whichever is less	50 ft or combined buffer and structure setback required for stream type, whichever is less	LUC 20.25H.075 LUC 20.25H.230
Closed segment, regardless of type; all other drainage basins	None	None	10 ft	10 ft	LUC 20.25H.075 LUC 20.25H.230
Wetlands					
	Undeveloped Site²	Developed Site²	Undeveloped Site²	Developed Site²	
Category I		As established through previously approved and recorded NGPA or NGPE for wetland	20 ft	20 ft from edge of previously approved and recorded NGPA or NGPE	LUC 20.25H.095 LUC 20.25H.230
Natural heritage wetland	190 ft				
Bogs	190 ft				
Forested wetland	Based on score for habitat or water quality				
Habitat score of 29 to 36	225 ft				
Habitat score of 20 to 28	110 ft				
Water quality score of 24 to 32 and habitat score of less than 20	75 ft				
All others	75 ft				
Category II		As established through previously approved and recorded NGPA or NGPE for wetland	20 ft	20 ft from edge of previously approved and recorded NGPA or NGPE	LUC 20.25H.095 LUC 20.25H.230
Habitat score of 29 to 36	225 ft				
Habitat score of 20 to 28	110 ft				
Water quality score of 24 to 32 and habitat score of less than 20	75 ft				
All others	75 ft				
Category III			15 ft		LUC 20.25H.095

Habitat score of 20 to 28	110 ft	As established through previously approved and recorded NGPA or NGPE for wetland	None	15 ft from edge of previously approved and recorded NGPA or NGPE	LUC 20.25H.230
All others	60 ft				
Category IV over 2,500 square feet		As established through previously approved and recorded NGPA or NGPE for wetland	None	None	LUC 20.25H.095 LUC 20.25H.230
All	40 ft				
Shorelines					
	Undeveloped Site³	Developed Site³	Undeveloped Site³	Developed Site³	
All shorelines	50 ft	25 ft	None	25 ft	LUC 20.25H.115 LUC 20.25H.230
Geologic Hazard Areas					
Landslide hazards	Toe-of-slope: None		Toe-of-slope: 75 ft		LUC 20.25H.120 LUC 20.25H.230
	Top-of-slope: 50 ft		Top-of-slope: None		
Steep slopes	Toe-of-slope: None		Toe-of-slope: 75 ft		LUC 20.25H.120 LUC 20.25H.230
	Top-of-slope: 50 ft		Top-of-slope: None		
Coal mine hazard areas	See LUC 20.25H.130		See LUC 20.25.130		LUC 20.25H.120 LUC 20.25H.230
Habitat Associated with Species of Local Importance					
Habitat associated with species of local importance	Only if required for known species on site		None		N/A
Naturally occurring ponds with no other critical area designation	35 ft		None		LUC 20.25H.230
Areas of Special Flood Hazard					
Areas of special flood hazard	None		None		N/A

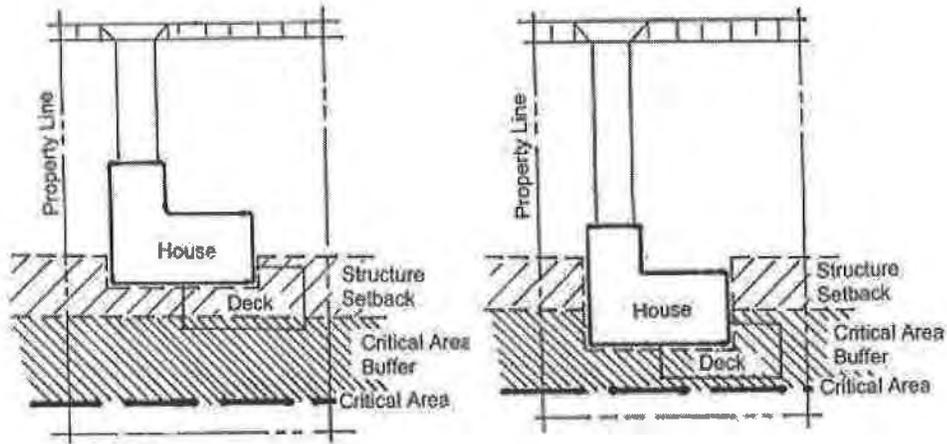
1 For a definition of "undeveloped site" and "developed site" for sites with streams, see LUC 20.25H.075.C.1.a.

2 For a definition of "undeveloped site" and "developed site" for sites with wetlands, see LUC 20.25H.095.C.1.a.

3 For a definition of "undeveloped site" and "developed site" for sites with shorelines, see LUC 20.25H.115.B.1.a.

B. Buffer and Setback on Sites with Existing Primary Structure(s).

Where a primary structure legally established on a site prior to August 1, 2006, encroaches into the critical area buffer or structure setback established in subsection A, the critical area buffer and/or structure setback shall be modified to exclude the footprint of the existing primary structure. Expansion of any existing structure into the critical area buffer or critical area structure setback shall be allowed only pursuant to the provisions of LUC 20.25H.055 (single-family primary structures) or LUC 20.25H.230 (all other primary structures).



(Ord. 5680, 6-26-06, § 3)

20.25H.040 Standards for modifying non-critical area setbacks.

A. When Applicable.

Certain provisions of this part allow disturbance within a critical area or critical area buffer. This section applies when, pursuant to another section of this part, the applicant must demonstrate that non-critical area setbacks have been modified to the maximum extent allowed under this section. The provisions of this section may not be modified through a critical areas report.

B. Allowed Modifications to General Dimensional Chart.

The required dimensions of LUC 20.20.010 for non-critical area setbacks may be reduced to no less than the minimums set forth in this subsection; provided, that the modification shall be the minimum necessary to allow avoidance of the critical area and critical area buffer. All other provisions of LUC 20.20.010 shall apply, including the applicable footnotes from the general dimensional chart.

Land Use District	R-1	R-1.8	R-2.5	R-3.5 R-4 R-5 R-7.5*	R-10 R-15 R-20	R-30
Front Yard (ft) (1)	25	20	10	10	10	10
Rear Yard (ft)	20	20	20	15	20	20
Side Yard (ft)	5	5	5	5	5	5 (2)

2 Side Yards (ft)	15	10	10	10	10	10
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**Not effective within the jurisdiction of the East Bellevue Community Council.*

Notes:

1. Any garage or other structure shall be set back the minimum necessary to allow on-site parking on any driveway without blocking a sidewalk. For proposals without garages, there shall be sufficient area on the site to allow for required on-site parking without blocking a sidewalk.
2. A side yard setback in R-30 Districts increases to 20 feet on any side yard where the structure exceeds 30 feet above average finished grade.

C. Allowed Modifications to Transition Area Requirements.

The minimum structure setback established in subsection B.1 of this section may not be modified under this section. The minimum separation between structures established in subsection B.2 of this section may be reduced to no less than six feet between structures; provided, that the modification shall be the minimum necessary to allow avoidance of the critical area and critical area buffer. (Ord. 5680, 6-26-06, § 3)

20.25H.045 Development density/intensity.

A. General.

For development in the Critical Areas Overlay District, the number of dwelling units per acre and the maximum floor area ratio for office space is determined pursuant to this section. The provisions of this section may not be modified through a critical areas report.

B. Dwelling Units per Acre.

The maximum density allowed for a site in the Critical Areas Overlay District is equal to the number of dwelling units per acre as specified in LUC 20.20.010, times the buildable area in acres, plus the dwelling units per acre times the total area of critical area and critical area buffer in acres times the development factor derived from subsection D of this section:

$$[(DU/acre)(Buildable area in acres) + (DU/acre)(Total critical area and critical area buffer in acres)(Development factor)] = \text{Maximum dwelling unit potential}$$

The dwelling unit per acre calculation contained in this subsection does not apply in the Bel-Red Land Use Districts.

C. Floor Area Ratio.

1. Office floor area outside the Bel-Red Land Use Districts.

- a. The maximum allowable office floor area for a site which contains a critical area or critical area buffer is equal to 0.5 times the buildable area in square feet plus 0.5 times the total area in critical area and critical area buffer in square feet times the development factor derived from subsection D of this section:

$$[(0.5)(Buildable area in square feet) + (0.5)(Total critical area and critical area buffer in square feet)(Development factor)] = \text{Maximum office development potential}$$

b. A property within the Critical Areas Overlay District is exempt from the sliding scale FAR requirement of LUC 20.20.010, Note (8). The applicable maximum floor area ratio to the buildable area is 0.5 regardless of building square footage.

2. Floor area within the Bel-Red Land Use Districts.

The maximum allowable floor area for a site which contains a critical area or critical area buffer is equal to the maximum FAR for the applicable Bel-Red Land Use District (refer to dimensional requirements of LUC 20.25D.080) times the buildable area in square feet plus the maximum FAR for the applicable Bel-Red Land Use District times the total area in critical area and critical area buffer in square feet times the development factor derived from subsection D of this section:

$$[(\text{Maximum FAR for the applicable Bel-Red Land Use District})(\text{Buildable area in square feet}) + (\text{Maximum FAR for the applicable Bel-Red Land Use District})(\text{Total critical area and critical area buffer in square feet})(\text{Development factor})] = \text{Maximum development potential within the Bel-Red Land Use Districts.}$$

D. Development Factor.

The development factor is a percent credit to be used in computing the number of allowed dwelling units or the maximum allowed office floor area for a site within the Critical Areas Overlay District. The development factor is determined by figuring the percentage of the total site that is buildable area, divided by 100. The result should be rounded to the nearest hundredth. The following table illustrates the development factor:

Total site (as %)	Critical area and critical area buffer total (as % of total site)	Buildable area (as % of total site)	Development factor (% BA/100)
100	10	90	.9
100	35	65	.65
100	50	50	.5
100	75	25	.25
100	90	10	.1

(Ord. 5876, 5-18-09, § 25; Ord. 5680, 6-26-06, § 3)

III. USE AND DEVELOPMENT IN THE CRITICAL AREAS OVERLAY DISTRICT

20.25H.050 Uses and development in the Critical Areas Overlay District.

A. Uses.

1. General. The uses established by LUC 20.10.440 for the applicable land use district may be undertaken in the Critical Areas Overlay District as allowed for in the underlying land use district. All development associated with the use shall comply with the provisions of this part.

2. Shorelines. Where the Critical Areas Overlay District and Shoreline Overlay District apply to the same site, the uses established by LUC 20.10.440 for the underlying land use district may be undertaken. Additional uses in the Shoreline Overlay District are set forth in LUC 20.25E.080. The applicable permitting process to establish the allowed uses

within the Shoreline Overlay District is set forth in LUC 20.25E.070. All development associated with the use shall comply with the provisions of this part and Part 20.25E LUC.

B. Development.

1. Coal Mine Hazard Areas and Habitat Associated with Species of Local Importance. The coal mine hazard areas and habitat associated with species of local importance designated as critical areas by this part do not include absolute restrictions on development or activity. Instead, uses allowed under subsection A of this section may be undertaken in such critical areas, so long as the performance standards of LUC 20.25H.130 (coal mine hazard areas) or LUC 20.25H.160 (habitat associated with species of local importance) are satisfied.

2. Other Critical Areas. Except as set forth in subsection B.1 of this section, all development, use, land alteration or other activity within the Critical Areas Overlay District shall be located outside of the critical area and the critical area buffer, unless such use or development is allowed pursuant to the following:

- a. Uses and development allowed within critical area or critical area buffer, see LUC 20.25H.055;
- b. Critical area buffer modifications for the following critical areas:
 - i. Streams, see LUC 20.25H.075;
 - ii. Wetlands, see LUC 20.25H.095;
 - iii. Shorelines, see LUC 20.25H.115;
 - iv. Geologic hazards, see LUC 20.25H.120.
- c. Uses and development in the area of special flood hazard, see LUC 20.25H.180;
- d. Modifications where allowed through a critical areas report, see LUC 20.25H.230;
- e. Reasonable use exceptions, see LUC 20.25H.190;
- f. Variances, see Part 20.30G and 20.30H LUC; or
- g. Shoreline-specific uses and development, where allowed within the shorelines critical area or critical area buffer, see Part 20.25E LUC.

C. No Modification.

The critical areas report may not be used to modify the uses allowed in the Critical Areas Overlay District as set forth in LUC 20.10.440 or in the Shoreline Overlay District as set forth in Part 20.25E LUC; nor the provisions of this section. (Ord. 5680, 6-26-06, § 3)

20.25H.055 Uses and development allowed within critical areas – Performance standards.

The uses and/or development described in subsection B of this section may be undertaken in a critical area or critical area buffer if all of the requirements of the referenced sections are met. A Critical Areas Land Use Permit shall be required unless otherwise noted.

A. Hierarchy of Alteration.

Where a use or development is proposed on a site with more than one type of critical area, preference shall be given to disturbing those critical areas with the least sensitivity to human disturbance, based on a consideration of both existing functions and values, and future functions and values if left undisturbed.

B. Uses and Development Allowed within Critical Areas.

The following chart lists uses and development that may be allowed in a critical area, critical area buffer, or critical area structure setback. The sections noted in the chart for each use or activity and critical area refer to the applicable performance standards that must be met.

		Type of Critical Area				A
		Streams	Wetlands	Shorelines	Geologic Hazard Areas ⁷	
Allowed Use or Development	Repair and maintenance of parks and parks facilities, including trails ^{1, 2}	20.25H.055.C.1 20.25H.080.A	20.25H.055.C.1 20.25H.100	20.25H.055.C.1 20.25E.080.B 20.25E.080.P	20.25H.055.C.1 20.25H.125	2i 2i 2i
	Repair and maintenance of utility facilities, utility systems, stormwater facilities and essential public facilities ^{1, 2}	20.25H.055.C.1 20.25H.080.A	20.25H.055.C.1 20.25H.100	20.25H.055.C.1 20.25E.080.B 20.25E.080.U	20.25H.055.C.1 20.25H.125	2i 2i
	Repair and maintenance of public rights-of-way, private roads, access easements, surface parking areas, and driveways ^{1, 2}	20.25H.055.C.1 20.25H.080.A	20.25H.055.C.1 20.25H.100	20.25H.055.C.1 20.25E.080.B 20.25E.080.H 20.25E.080.R	20.25H.055.C.1 20.25H.125	2i 2i
	Repair and maintenance of bridges	20.25H.055.C.1 20.25H.080.A	20.25H.055.C.1 20.25H.100	20.25H.055.C.1 20.25E.080.B 20.25E.080.R	20.25H.055.C.1 20.25H.125	2i 2i

Allowed Use or Development	and culverts ^{1, 2}					
	Construction staging ^{1, 2, 11}	20.25H.055.C.1 20.25H.080.A	20.25H.055.C.1 20.25H.100	20.25H.055.C.1 20.25E.080.B 20.25E.080.H	20.25H.055.C.1 20.25H.125	2I 2I
	Existing agricultural activities ²	20.25H.055.C.1 20.25H.055.C.3.a 20.25H.080.A	20.25H.055.C.1 20.25H.055.C.3.a 20.25H.100	20.25H.055.C.1 20.25H.055.C.3.a 20.25E.080.B 20.25E.080.C	20.25H.055.C.1 20.25H.055.C.3.a 20.25H.125	2I 2I 2I
	Emergency actions	20.25H.055.C.3.b	20.25H.055.C.3.b	20.25H.055.C.3.b	20.25H.055.C.3.b	2I
	New or expanded utility facilities, utility systems, stormwater facilities ³	20.25H.055.C.2 20.25H.080.A 20.25H.080.B	20.25H.055.C.2 20.25H.100	20.25H.055.C.2 20.25E.080.B 20.25E.080.U	20.25H.055.C.2 20.25H.125	2I 2I
	New or expanded essential public facilities	20.25H.055.C.2 20.25H.080.A 20.25H.080.B	20.25H.055.C.2 20.25H.100	20.25H.055.C.2 20.25E.080.B	20.25H.055.C.2 20.25H.125	2I 2I 2I
	Public flood protection measures ⁴	20.25H.055.C.2 20.25H.055.C.3.c 20.25H.080.A 20.25H.080.B	20.25H.055.C.2 20.25H.055.C.3.c 20.25H.100	20.25H.055.C.2 20.25H.055.C.3.c 20.25E.080.B	20.25H.055.C.2 20.25H.055.C.3.c 20.25H.125	2I 2I 2I 2I
	Instream structures ⁵	20.25H.055.C.2 20.25H.055.C.3.d 20.25H.080.A 20.25H.080.B	20.25H.055.C.2 20.25H.055.C.3.d 20.25H.100	20.25H.055.C.2 20.25H.055.C.3.d 20.25E.080.B	20.25H.055.C.2 20.25H.055.C.3.d	2I 2I 2I
	New or expanded public rights- of-way, private roads, access easements and driveways	20.25H.055.C.2 20.25H.080.A 20.25H.080.B	20.25H.055.C.2 20.25H.100	20.25H.055.C.2 20.25E.080.B 20.25E.080.R	20.25H.055.C.2 20.25H.125	2I 2I 2I
	New or expanded bridges and culverts	20.25H.055.C.2 20.25H.055.C.3.e 20.25H.080.A	20.25H.055.C.2 20.25H.055.C.3.e 20.25H.100	20.25H.055.C.2 20.25H.055.C.3.e 20.25E.080.B 20.25E.080.R	20.25H.055.C.2 20.25H.055.C.3.e 20.25H.125	2I 2I 2I
	New or expanded private	20.25H.055.C.2 20.25H.055.C.3.f 20.25H.080.A	20.25H.055.C.2 20.25H.055.C.3.f 20.25H.100	20.25H.055.C.2 20.25H.055.C.3.f 20.25E.080.B	20.25H.055.C.2 20.25H.055.C.3.f 20.25H.125	2I 2I 2I

nonmotorized trails			20.25E.080.G		
New or expanded City and public parks	20.25H.055.C.3.g 20.25H.080.A	20.25H.055.C.3.g 20.25H.100	20.25H.055.C.3.g 20.25E.080.B 20.25E.080.P	20.25H.055.C.3.g 20.25H.125	21 21 21
Existing landscape maintenance ²	20.25H.055.C.3.h 20.25H.080.A	20.25H.055.C.3.h 20.25H.100	20.25H.055.C.3.h 20.25E.080.B 20.25E.080.G	20.25H.055.C.3.h 20.25H.125	21 21
Vegetation management ⁶	20.25H.055.C.3.i 20.25H.080.A	20.25H.055.C.3.i 20.25H.100	20.25H.055.C.3.i 20.25E.080.B 20.25E.080.G	20.25H.055.C.3.i 20.25H.125	21 21
Habitat improvement projects	20.25H.055.C.3.j 20.25H.080.A	20.25H.055.C.3.j 20.25H.100	20.25H.055.C.3.j 20.25E.080.B 20.25E.080.G	20.25H.055.C.3.j 20.25H.125	21 21
Forest practices	20.25H.055.C.3.k 20.25H.080.A	20.25H.055.C.3.k 20.25H.100	20.25H.055.C.3.k 20.25E.080.B	20.25H.055.C.3.k 20.25H.125	21 21
Aquaculture	20.25H.055.C.3.l 20.25H.080.A	20.25H.055.C.3.l 20.25H.100	20.25H.055.C.3.l 20.25E.080.B 20.25E.080.D	20.25H.055.C.3.l	21 21
Stabilization measures	20.25H.055.C.3.m 20.25H.080.A	20.25H.055.C.3.m 20.25H.100	20.25E.080.B 20.25E.080.E	20.25H.055.C.3.m 20.25H.125	21 21
Expansion of existing single-family primary structures	20.25H.055.C.3.n 20.25H.080.A	20.25H.055.C.3.n 20.25H.100	20.25H.055.C.3.n 20.25E.080.B 20.25E.080.Q	20.25H.055.C.3.n 20.25H.125	21 21 21 21
Reasonable use exception ⁸	20.25H.080.A	20.25H.100	20.25E.080.B	20.25H.125	21 21
Recreational vehicle storage ¹⁰					21 21
Additional shoreline-specific uses or development			Part 20.25E		

Notes:

1. For purposes of this section, repair and maintenance includes replacement of facilities and systems, or expansion so long as the area of permanent disturbance of the critical area or critical area buffer is not expanded. As applicable to public rights-of-way, private roads, access easements, parking areas and driveways, repair and maintenance also includes removing and replacing improvements within the area of permanent

disturbance, and expansion of paved areas, so long as the area of permanent disturbance within the critical area or critical area buffer is not expanded.

2. These uses do not require a Critical Areas Land Use Permit. The requirements of this part shall be applied through the review process applicable to the underlying use or activity.

3. In the event of a conflict between this section and the utilities code, the utilities code shall prevail.

4. Examples of public flood protection measures include, but are not limited to: flood control projects, flood damage reduction facilities such as levees, revetments, and pumping stations, streambank stabilization structures and surface water conveyance facilities, bridge piers and abutments.

5. Examples of instream structures include, but are not limited to: sediment ponds, instream ponds, dams, and weirs.

6. Permit requirements may vary. See subsection C.3.i of this section.

7. For geologic hazards other than coal mine hazard areas. Uses and performance standards for coal mine hazard areas set forth in LUC 20.25H.050.

8. Development authorized pursuant to a reasonable use exception, LUC 20.25H.190, shall incorporate the required performance standards to the maximum extent feasible.

9. Authorized only pursuant to a reasonable use exception, LUC 20.25H.190.

10. Such storage is not allowed in critical areas or critical area buffers except within the area of special flood hazard in compliance with applicable performance standards.

11. Authorized only in areas of the critical area buffer within areas of existing permanent disturbance, including, for example: paved or gravel surface parking areas, access drives, and other similar disturbed areas.

C. Performance Standards.

The following performance standards apply as noted in the table in subsection B of this section. The critical areas report may not be used to modify the performance standards set forth in this subsection C:

1. Repair and Maintenance and/or Construction Staging.

a. Work shall be consistent with all applicable City of Bellevue codes and standards;

b. Removal of significant trees is prohibited; and

c. Areas of temporary disturbance associated with the work shall be restored to pre-project conditions, pursuant to a restoration plan meeting the requirements of LUC 20.25H.210.

2. New and Expanded Uses or Development. As used in this section, "facilities and systems" is a general term that encompasses all structures and improvements associated

with the allowed uses and development described in the table in subsection B of this section:

- a. New or expanded facilities and systems are allowed within the critical area or critical area buffer only where no technically feasible alternative with less impact on the critical area or critical area buffer exists. A determination of technically feasible alternatives will consider:
 - i. The location of existing infrastructure;
 - ii. The function or objective of the proposed new or expanded facility or system;
 - iii. Demonstration that no alternative location or configuration outside of the critical area or critical area buffer achieves the stated function or objective, including construction of new or expanded facilities or systems outside of the critical area;
 - iv. Whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact of proposed disturbance; and
 - v. The ability of both permanent and temporary disturbance to be mitigated.
- b. If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the following:
 - i. Location and design shall result in the least impacts on the critical area or critical area buffer;
 - ii. Disturbance of the critical area and critical area buffer, including disturbance of vegetation and soils, shall be minimized;
 - iii. Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;
 - iv. Any crossing over of a wetland or stream shall be designed to minimize critical area and critical area buffer coverage and critical area and critical area buffer disturbance, for example by use of bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area or critical area buffer than multiple intrusions into the critical area or critical area buffer;
 - v. All work shall be consistent with applicable City of Bellevue codes and standards;
 - vi. The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume or flood storage capacity, or hydroperiod;

vii. Associated parking and other support functions, including, for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists; and

viii. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

3. Performance Standards for Specific Uses or Development. In the event of a conflict between the generally applicable performance standards and specific standards, those more protective of critical area functions and values shall prevail.

a. Existing Agricultural Uses.

i. Erosion control measures, such as crop rotation, mulching, strip cropping and contour cultivation, must be used in conformance with guidelines and standards established by the Natural Resources Conservation Service, U.S. Department of Agriculture;

ii. Wetland areas must be protected from significant impacts of agricultural chemicals and pesticides as required by the Storm and Surface Water Utility Code, BCC 24.06.195, now or as hereafter amended, and must meet the water quality standards of BCC 24.06.060.K, now or as hereafter amended;

iii. All development shall be consistent with the City of Bellevue's "Environmental Best Management Practices Manual" now or as hereafter amended.

b. Emergency Actions. Emergency actions are those that must be undertaken immediately or within a time too short to allow full compliance with this part, to avoid an imminent threat to public health or safety, to prevent an imminent danger to public or private property, or to prevent an imminent threat of serious environmental degradation. The Director, or the designee thereof, shall designate when such an action constitutes an emergency action.

Emergency actions within the critical area or critical area buffer shall use reasonable methods to address the emergency; in addition, they must have the least possible impact to the critical area or critical area buffer. The person or agency undertaking such action shall notify the Director of the existence of the emergency and emergency actions within one working day following commencement of the emergency activity. Within 10 working days following completion of the emergency activity, the person or agency undertaking such action shall provide a written description of the work undertaken, site plan, description of pre-emergency site conditions and such other information required by the Director to make the determination required under this subsection.

Within 30 days, the Director shall determine if the action taken was within the scope of the emergency actions allowed in this subsection. If the Director determines that the action taken, or any part of the action taken, was beyond the scope of an allowed emergency action, then the applicant shall be subject to penalties and enforcement pursuant to Chapter 1.18 BCC. If the Director determines that the action taken was within the scope of an allowed emergency action, the applicant shall submit a restoration and/or mitigation plan pursuant to

LUC 20.25H.210 based on the impacts of the emergency action to the critical area or critical area buffer within 60 days following the Director's determination.

- c. **Public Flood Protection Measures.** New public flood protection measures and expansion of existing ones may be permitted only in accordance with a design prepared by a qualified professional.
- d. **Instream Structures.** Instream structures may be permitted only in accordance with a design prepared by a qualified professional and where the applicant demonstrates measurable benefits, such as decreased erosion, peak flow reduction, improved water quality, stream stabilization or improved habitat from the proposal. The applicant shall obtain any required state or federal permits prior to undertaking development.
- e. **New or Expanded Bridges and Culverts.** New culverts shall be designed in accordance with the Washington State Department of Fish and Wildlife "Design of Road Culverts for Fish Passage" now or as hereafter amended. Culvert expansions shall be considered new culverts and be required to be designed in accordance with "Design of Road Culverts for Fish Passage" now or as hereafter amended when the expansion is associated with a project increasing vehicular capacity and (i) there are fish present downstream; (ii) there is potential fish habitat upstream; and (iii) the benefits of so designing the culvert are substantial when compared to expanding the culvert based on its then-existing design.
- f. **Private Nonmotorized Trails.** New nonmotorized trails within the critical area or critical area buffer are limited to those serving nonresidential uses, multifamily residential uses and more than one single-family lot. Private nonmotorized trails shall comply with the performance standards for trails in subsection C.3.g of this section. Nothing in this section prohibits the creation of a soft surface nonmotorized trail in a critical area buffer on a single-family lot for use of the residents of that lot. Such trail shall not exceed four feet in width, and shall not involve the removal of any significant trees or bank-stabilizing roots. In stream and wetland buffers, trails shall not be generally parallel to the stream or wetland edge closer than a distance of 25 feet. Any clearing of brush or vegetation shall be the minimum necessary, and shall be with hand tools only.
- g. **New and Expanded City and Public Parks.**
 - i. **Trails.** New nonmotorized trails within the critical area or critical area buffer must meet following standards:
 - (A) Trail location and design shall result in the least impacts on the critical area or critical area buffer;
 - (B) Trails shall be designed to compliment and enhance the environmental, educational, and social functions and values of the critical area with trail design and construction focused on managing and controlling public access and limiting uncontrolled access;
 - (C) Trails shall be designed to avoid disturbance of significant trees and to limit disturbance of native understory vegetation;

- (D) Trails shall be designed to avoid disturbance of habitat used for salmonid rearing or spawning or by any species of local importance;
- (E) The trail shall be the minimum width necessary to accommodate the intended function or objective;
- (F) All work shall be consistent with the City of Bellevue's "Environmental Best Management Practices" and all applicable City of Bellevue codes and standards, now or as hereafter amended;
- (G) The facility shall not significantly change or diminish overall aquatic area flow peaks, duration or volume or flood storage capacity, or hydroperiod;
- (H) Where feasible and consistent with any accessibility requirements, any trail shall be constructed of pervious materials;
- (I) Crossings over and penetrations into wetlands and streams shall be generally perpendicular to the critical area, and shall be accomplished by bridging or other technique designed to minimize critical area disturbance considering the entire trail segment and function; and
- (J) Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

ii. Public Use Structures.

- (A) New or expanded permanent public use structures, including interpretative centers, community centers, and other structures designed for public use and access are allowed in the critical area or critical area buffer only if no technically feasible alternative with less impact on the critical area or critical area buffer exists. A determination of technically feasible alternatives will consider:
 - (1) The location of existing infrastructure;
 - (2) The function or objective of the proposed new or expanded structure;
 - (3) Demonstration that no alternative achieves the stated function or objective;
 - (4) Whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact of proposed disturbance; and
 - (5) The ability of both permanent and temporary disturbance to be mitigated.
- (B) If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the generally applicable performance standards of subsection C.2.b of this section.

iii. Other Parks Uses. Other parks uses proposed within the critical area or critical area buffer, including public access drives, public loading areas, and public boat launches and ramps, shall meet the generally applicable performance standards of subsection C.2.b of this section; provided, that active use playfields shall not be allowed in critical area or critical area buffers; and provided, that parking supporting parks uses shall be allowed in a critical area buffer only if no technically feasible alternative, as demonstrated through application of the criteria of subsection C.2.a of this section, exists.

h. Existing Landscape Maintenance. Routine maintenance of existing legally established landscaping and landscape features developed prior to August 1, 2006, in the critical area or critical area buffer may be continued in accordance with this section. For purposes of this section, "routine maintenance" includes mowing, pruning, weeding, planting annuals, perennials, fruits and vegetables, and other activities associated with maintaining a legally established ornamental or garden landscape and landscape features. Also, for purposes of this subsection, "landscape features" refers to fences, trellises, rockeries and retaining walls, pathways, arbors, patios, play areas and other similar improvements. To be considered routine maintenance, activities shall have been consistently carried out so that the ornamental species predominate over native or invasive species. Maintenance shall be performed with hand tools or light equipment only, and no significant trees may be removed, except in accordance with a Vegetation Management Plan under subsection C.3.i of this section. Use of fertilizers, insecticides and pesticides is prohibited unless performed in accordance with the City of Bellevue's "Environmental Best Management Practices" now or as hereafter amended.

i. Vegetation Management. Modification of vegetation in a critical area or critical area buffer that is not considered routine maintenance under subsection C.3.h of this section may be allowed if it meets the requirements of this section. Except where otherwise noted, a Critical Areas Land Use Permit is required. The following activities may also require a Clearing and Grading Permit, Chapter 23.76 BCC and/or SEPA review and must comply with all other Land Use Code provisions related to tree preservation and landscaping, including but not limited to LUC 20.20.520 and 20.20.900.

i. Noxious Species. The removal of the following vegetation with hand labor and hand-operated equipment from a critical area buffer, or from a geologic hazard critical area, is allowed without requiring a Critical Areas Land Use Permit or a Vegetation Management Plan:

- (A) Invasive and noxious weeds;
- (B) English Ivy (*Hedera helix*);
- (C) Himalayan blackberry (*Rubus discolor*, *R. procerus*); and
- (D) Evergreen blackberry (*Rubus laciniatus*).

ii. Hazard Trees. The removal of trees from the critical area or critical area buffer that are hazardous, posing a threat to public safety, or posing an imminent risk of damage to an existing structure, public or private road or sidewalk, or other permanent improvement, is allowed without requiring a Critical Areas Land Use Permit or a Vegetation Management Plan; provided, that:

- (A) The applicant submits a report on a form provided by the Director from a certified arborist, registered landscape architect, or professional forester that documents the hazard and provides a replanting schedule for the replacement trees;
- (B) Tree cutting shall be limited to pruning and crown thinning, unless otherwise justified by a qualified professional. Where pruning or crown thinning is not sufficient to address the hazard, trees should be converted to wildlife snags and completely removed only where no other option removes the identified hazard;
- (C) All vegetation cut (tree stems, branches, etc.) shall be left within the critical area or buffer unless removal is warranted due to the potential for creating a fire hazard or for disease or pest transmittal to other healthy vegetation;
- (D) The landowner shall replace any trees that are removed pursuant to a restoration plan meeting the requirements of LUC 20.25H.210;
- (E) If a tree to be removed provides critical habitat, such as an eagle perch, a qualified wildlife biologist shall be consulted to determine timing and methods for removal that will minimize impacts; and
- (F) Hazard trees determined to pose an imminent threat or danger to public health or safety, to public or private property, or of serious environmental degradation may be removed or pruned by the landowner on whose property the tree is located prior to receiving the permits required under this part; provided, that the landowner makes reasonable efforts to notify the City, and within 14 days following such action, the landowner shall submit a restoration plan that demonstrates compliance with the provisions of this part.
- iii. Forest Health. Measures to control a fire or halt the spread of disease or damaging insects; provided, that the removed vegetation shall be replaced pursuant to a restoration plan meeting the requirements of LUC 20.25H.210.
- iv. Fire Safety. Where required pursuant to the International Fire Code, Section 304.1.2, as adopted and amended by the City of Bellevue, vegetation may be removed from the critical area or critical area buffer; provided, that the removed vegetation shall be replaced pursuant to a restoration plan meeting the requirements of LUC 20.25H.210.
- v. Vegetation Management Plan – Maintenance for Utility, Transportation, Parks and Public Facility Projects. Vegetation may be periodically removed from the critical area or critical area buffer as part of an ongoing routine maintenance plan for utility, transportation, park and other public facility projects allowed pursuant to subsection B of this section. Such removal shall be pursuant to a Vegetation Management Plan meeting the requirements of this subsection.
- (A) The Vegetation Management Plan shall be prepared by a qualified professional.
- (B) The Vegetation Management Plan shall include:

- (1) A description of existing site conditions, including existing critical area functions and values;
- (2) A site history;
- (3) A discussion of the plan objectives;
- (4) A description of all sensitive features;
- (5) Identification of soils, existing vegetation, and habitat associated with species of local importance present on the site;
- (6) Allowed work windows;
- (7) A clear delineation of the area within which clearing and other vegetation management practices are allowed under the plan; and
- (8) Short- and long-term management prescriptions, including restoration and revegetation requirements. Cleared areas shall be restored and revegetated with native species to the extent such vegetation does not interfere with the function of the allowed structure, trail, facility or system.

vi. Vegetation Management Plan – Other Uses. The Director may approve proposals for vegetation replacement in a critical area buffer, or within a geologic hazard critical area, pursuant to a Vegetation Management Plan. The Vegetation Management Plan may also include a description of proposed vegetation pruning, including pruning techniques and timing and extent of proposed pruning; provided, that proposals to prune vegetation within geologic hazard areas and geologic hazard area buffers may be undertaken without a Critical Areas Land Use Permit or a Vegetation Management Plan in accordance with subsection C.3.i.vii of this section. The Vegetation Management Plan shall satisfy the requirements of subsection C.3.i.v.(B) of this section, except that the following replaces subsection C.3.i.v.(B)(8):

- (8) Short- and long-term management prescriptions, including characterization of trees and vegetation to be removed, and restoration and revegetation plans with native species, including native species with a lower growth habit. Such restoration and revegetation plans shall demonstrate that the proposed Vegetation Management Plan will not significantly diminish the functions and values of the critical area or alter the forest and habitat characteristics of the site over time.

Trees and vegetation may not be removed pursuant to this subsection if removal would result in a significant impact to habitat associated with species of local importance, unless the impacted function can be replaced elsewhere within the management area subject to the plan. In no event may a tree or vegetation which is an active nest site for a species of local importance be removed pursuant to this subsection.

In determining whether the vegetation management plan should be approved, the Director shall take into consideration any applicable neighborhood restrictive covenants that address view preservation or vegetation management if so requested in writing. The existence of and

provisions of neighborhood restrictive covenants shall not be entitled to any more or less weight than other reports and materials in the record.

vii. **Select Vegetation Pruning.** Pruning of existing trees and vegetation within a geologic hazard critical area or geologic hazard critical area buffer, with hand labor and hand-operated equipment in accordance with this subsection is allowed without requiring a Critical Areas Land Use Permit or a Vegetation Management Plan, so long as the area is not included within a Native Growth Protection Area (NGPA) or Native Growth Protection Area Easement (NGPE). A Clearing and Grading Permit, Chapter 23.76 BCC, and SEPA review may still be required. The pruning allowed by this subsection shall be performed in accordance with guidelines established by the Director for each of the following pruning techniques: canopy reduction; canopy cleaning; canopy thinning; canopy raising or lifting; structural pruning; and canopy restoration. Where vegetation has been consistently managed by topping or other pruning methods, nothing in this part shall preclude the continuation of such practices. Pruning shall be performed in a manner that ensures continued survival of the vegetation.

In no event may a tree or vegetation which is an active nest site for a species of local importance be pruned pursuant to this subsection.

j. **Habitat Improvement Projects.** Disturbance, clearing and grading are allowed in the critical area or critical area buffer for habitat improvement projects demonstrating an improvement to functions and values of a critical area or critical area buffer. Habitat improvement projects shall be:

- i. Sponsored or cosponsored by a public agency or federally recognized tribe and whose primary function is habitat restoration; or
- ii. Approved by the Director pursuant to LUC 20.25H.230.

k. **Forest Practices.** Forest practices may be allowed without requiring a Critical Areas Land Use Permit, where such practice is regulated and conducted in accordance with the provisions of Chapter 76.09 RCW, now or as hereafter amended, and forest practices regulations, WAC Title 222, now or as hereafter amended, and those that are exempt from the City's jurisdiction; provided, that forest practice conversions are not exempt. The applicant shall demonstrate that all required federal and state permits have been obtained prior to undertaking any work.

l. **Aquaculture.**

- i. Aquaculture development must be conducted in a way which does not adversely affect the aesthetic or environmental quality of the wetland and interrelated stream habitat; and
- ii. Aquaculture must to the extent feasible use underwater structures for fish-rearing facilities.

m. **Stabilization Measures.** See LUC 20.25E.080.E for standards regulating shoreline stabilization measures. Proposed stabilization measures within a critical area or critical area buffer to protect against streambank erosion or steep slopes or landslide hazards may be approved in accordance with this subsection.

i. When Allowed. New or enlarged stabilization measures shall be allowed only to protect existing primary structures and infrastructure, or in connection with uses and development allowed pursuant to subsection B of this section. Stabilization measures shall be allowed only where avoidance measures are not technically feasible.

ii. Type of Stabilization Measure Used. Where a stabilization measure is allowed, soft stabilization measures shall be used, unless the applicant demonstrates that soft stabilization measures are not technically feasible. An applicant asserting that soft stabilization measures are not technically feasible shall provide the information relating to each of the factors set forth in subsection C.3.m.iii.(D) of this section for a determination of technical feasibility by the Director. Only after a determination that soft stabilization measures are not technically feasible shall hard stabilization measures be permitted.

iii. Definitions.

(A) Hard Stabilization Measures. As used in this part, "hard stabilization measures" include: rock revetments, gabions, concrete groins, retaining walls, bulkheads and similar measures which present a vertical or nearly vertical interface with the water.

(B) Soft Stabilization Measures. As used in this part, "soft stabilization measures" include: biotechnical measures, bank enhancement, anchor trees, gravel placement, stepped back rockeries, vegetative plantings and similar measures that use natural materials engineered to provide stabilization while mimicking or preserving the functions and values of the critical area.

(C) Avoidance Measures. As used in this part, "avoidance measures" refer to techniques used to minimize or prevent erosion or slope collapse that do not involve modification of the bank or slope. "Avoidance measures" include vegetation enhancement, upland drainage control, and protective walls or embankments placed outside of the critical area and critical area buffer.

(D) Technically Feasible. The determination of whether a technique or stabilization measure is "technically feasible" shall be made by the Director as part of the decision on the underlying permit after consideration of a report prepared by a qualified professional addressing the following factors:

- (1) Site conditions, including topography and the location of the primary structure in relation to the critical area;
- (2) The location of existing infrastructure necessary to support the proposed measure or technique;
- (3) The level of risk to the primary structure or infrastructure presented by erosion or slope failure and ability of the proposed measure to mitigate that risk;
- (4) Whether the cost of avoiding disturbance of the critical area or critical area buffer is substantially disproportionate as compared to the

environmental impact of proposed disturbance, including any continued impacts on functions and values over time; and

(5) The ability of both permanent and temporary disturbance to be mitigated.

n. Expansion of Existing Single-Family Primary Structures into Critical Area Buffer and Critical Area Structure Setback. Expansion into the critical area buffer and critical area structure setback may be allowed, pursuant to a Critical Areas Land Use Permit, where expansion outside of the critical area buffer and critical area structure setback is not feasible and where the purpose of the expansion is to serve a function that is an essential component of a single-family residence. Expansion into the critical area is prohibited. Any expansion must comply with all other applicable requirements of the code, including LUC 20.20.010.

i. Where allowed, expansions into the critical area buffer and critical areas structure setback shall be limited as follows:

(A) The expansion shall be along the existing building line parallel to the edge of the critical area, unless such expansion is not feasible. Only when such expansion is not feasible may expansion encroach further into the critical area buffer and critical area structure setback.

(B) Expansions shall be the minimum necessary to achieve the intended functions of the expansion, but in no event may the footprint expansion within the critical area buffer and critical area structure setback exceed 500 square feet over the life of the structure. Expansions into stream critical area buffers allowed pursuant to the City's previous critical areas regulations (prior LUC 20.25H.085.B) shall be included in determining the allowed lifetime expansion; and

(C) Areas of new permanent disturbance and all areas of temporary disturbance within the critical area buffer shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

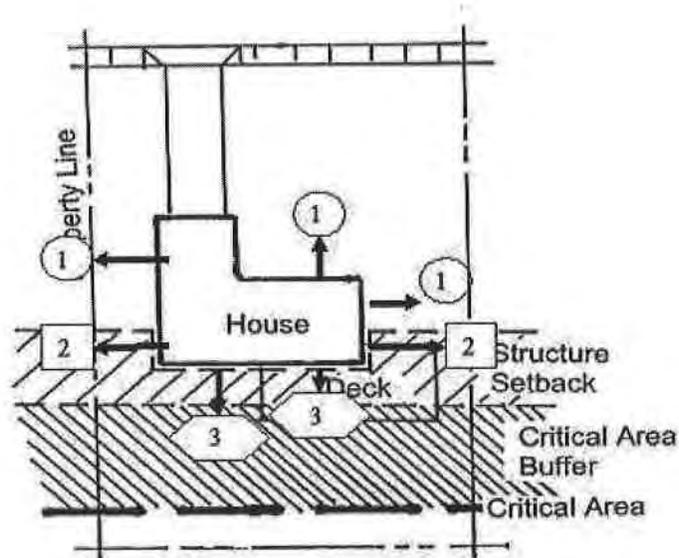
ii. For purposes of this section, expansion outside of the critical area buffer and critical area structure setback shall be considered not feasible only when, considering the function to be served by the expansion and the existing structure's layout and infrastructure (including plumbing, drainage and electrical systems):

(A) Expansion away from the critical area buffer and critical area structure setback within the buildable area of the site will not realize the intended functions of the expansion; and

(B) Expansion away from the critical area buffer and critical area structure setback, including into non-critical area setbacks modified pursuant to LUC 20.25H.040, will not realize the intended functions of the expansion; and

(C) Expansion upwards to the maximum building height of the underlying land use district, within the existing footprint, or together with expansions

permitted under subsections C.3.n.ii.(A) and (B) of this section, will not realize the intended functions of the expansion.



(Ord. 5680, 6-26-06, § 3)

20.25H.065 Uses and development within critical area buffer or critical area structure setback not allowed pursuant to LUC 20.25H.055.

This section applies to uses and development legally established within the critical area or critical area buffer prior to August 1, 2006, and which is not included as an allowed use or development in LUC 20.25H.055. LUC 20.25E.055 applies to uses and development within the shoreline critical area and shoreline critical area buffer. See performance standards at LUC 20.25H.180 for provisions relating to the repair, remodeling, expansion or reconstruction of structures located in the area of special flood hazard. Any alterations to existing development allowed under this section shall also comply with provisions for the area of special flood hazard. In the event of conflict, the provisions that result in most protection for the critical area or critical area buffer shall govern.

A. Existing Primary Structures.

See LUC 20.25H.035.B

B. Existing Nonprimary Structures.

A structure, other than a primary structure, legally established within a critical area, critical area buffer or critical area structure setback prior to August 1, 2006, shall be considered a nonconforming structure. If no modifications to a nonconforming structure are proposed, then the structure may continue without coming into compliance with the regulations of this part. Compliance may in whole or in part be required when changes to a structure are proposed, as follows:

1. Repair and remodeling of a nonconforming structure is limited to minor, nonstructural repairs, and repairs of mechanical systems within or supporting the accessory structure. If repair or remodeling exceeds these limits, the structure shall be brought into compliance with existing Land Use Code requirements, including requirements of this part.

2. Expansion of existing nonconforming structures, other than as allowed under LUC 20.25H.055, into the critical area or critical area buffer is prohibited.

3. If an existing nonconforming structure is destroyed by fire, explosion or other unforeseen circumstance requiring repairs consistent with those allowed under subsection B.1 of this section, it may be repaired within the footprint existing at the time of destruction; provided, that such repair is commenced within one year of the date of destruction and diligently pursued. Areas of temporary disturbance resulting from the reconstruction shall be restored pursuant to a mitigation plan approved by the Director under LUC 20.25H.210. If such a structure is destroyed and requires structural or other repairs more extensive than those allowed under subsection B.1 of this section, then any reconstruction of such structure shall be in compliance with existing Land Use Code requirements, including requirements of this part.

The critical areas report process may not be used to modify the provisions of this subsection B.

C. Nonconforming Sites.

Nonstructural development legally established within a critical area or critical area buffer prior to August 1, 2006, shall be considered a nonconforming site condition. A nonconforming site condition may not be changed unless the change conforms to the regulations of this code. (Ord. 5680, 6-26-06, § 3)

IV. STREAMS

20.25H.075 Designation of critical area and buffers.

A. Definition of Stream.

An aquatic area where surface water produces a channel, not including a wholly artificial channel, unless the artificial channel is:

1. Used by salmonids; or
2. Used to convey a stream that occurred naturally before construction of the artificial channel.

B. Designation of Streams.

The following streams are hereby designated as critical areas subject to the regulations of this part:

1. "Type S water" means all waters, other than shoreline critical areas designated under LUC 20.25E.017, within their bankfull width, as inventoried as "shoreslines of the state" under Chapter 90.58 RCW and the rules promulgated pursuant to Chapter 90.58 RCW including periodically inundated areas of their associated wetlands.
2. "Type F water" means all segments of waters that are not type S waters, and that contain fish or fish habitat, including waters diverted for use by a federal, state, or tribal fish hatchery from the point of diversion for 1,500 feet or the entire tributary if the tributary is highly significant for protection of downstream water quality.

- 3. "Type N water" means all segments of waters that are not type S or type F waters and that are physically connected to a type S or F waters by an above ground channel system, stream or wetland.
- 4. "Type O water" means all segments of waters that are not type S, F or N waters and that are not physically connected to type S, F or N waters by an above ground channel system, stream, or wetland.

C. Designation of Stream Critical Area Buffers.

The following critical areas buffers are established:

1. Stream Critical Area Buffers:

a. General – Open Streams (Except West Tributary in the Kelsey Basin).

i. Undeveloped Site. An undeveloped site is a site that contains no primary structure. Open streams on undeveloped sites shall have the following critical area buffers, measured from the top-of-bank:

Type S	100 feet
Type F	100 feet
Type N	50 feet
Type O	25 feet

ii. Developed Site. A developed site is a site that contains a primary structure or any site where the stream and stream buffer have been included within an approved and recorded NGPE or NGPA prior to August 1, 2006. Lots created through subdivision, short subdivision, or the Planned Unit Development process from a developed site shall be considered undeveloped and subject to the requirements of subsection C.1.a.i of this section, except that the lot containing the existing primary structure shall be considered developed. Open streams on developed sites shall have the following critical area buffers, measured from the top-of-bank:

Type S	50 feet or the buffer established with the existing NGPE/NGPA, whichever is greater
Type F	50 feet or the buffer established with the existing NGPE/NGPA, whichever is greater
Type N	25 feet or the buffer established with the existing NGPE/NGPA, whichever is greater
Type O	25 feet or the buffer established with the existing NGPE/NGPA, whichever is greater

b. General – Closed Stream Segments. Regardless of type, closed stream segments shall have no critical area buffer and shall have the structure setback established in subsection D.2.b of this section.

c. West Tributary, Kelsey Basin – Open Streams. Regardless of type, open stream segments of the West Tributary on developed and undeveloped sites shall have a stream critical area buffer of 50 feet, measured from the top-of-bank.

d. Buffer and Setback on Sites with Existing Primary Structure(s). Where a primary structure legally established on a site prior to August 1, 2006, encroaches into the critical area buffer or structure setback established in this section, the critical area

buffer and/or structure setback shall be modified to exclude the footprint of the existing primary structure. Expansion of any existing structure into the critical area buffer or critical area structure setback shall be allowed only pursuant to the provisions of LUC 20.25H.055 (single-family primary structures) or LUC 20.25H.230 (all other primary structures).

e. Measurement of Buffer on Eroding Stream Bank. A stream critical area buffer and any applicable structure setback may be measured from a fixed location representing the historic location of the top-of-bank where an applicant demonstrates that:

- i. The location of the top-of-bank has changed over time as a result of natural stream processes; and
- ii. The applicant provides existing surveys, maps or other information acceptable to the Director, which accurately determines the historic location of the top-of-bank.

f. Buffers Modified Under Prior LUC 20.25H.070.A.2.d. Where the critical area buffer on a site was modified through an approved reach study and restoration plan pursuant to the City's previous critical areas regulations (prior LUC 20.25H.070.A.2.d), the critical area buffer for that site shall be as determined in that adopted reach study and restoration plan.

2. Buffer Modification. Modifications to the stream critical area buffer may be approved pursuant to this section. Modifications to the stream critical area buffer that do not meet the criteria of this subsection may be considered through a critical areas report, LUC 20.25H.230:

a. Buffer Averaging. Buffer averaging may be allowed if all the following criteria are satisfied. Proposals to average the stream critical area buffer under this subsection shall require a Critical Areas Land Use Permit; provided, that a mitigation or restoration plan is not required for buffer averaging.

- i. Buffer averaging may be approved only if the applicant demonstrates that a modification to non-critical area setbacks pursuant to LUC 20.25H.040 would not accommodate the proposed development in a manner consistent with its intended use and function.
- ii. Through buffer averaging, the ecological structure and function of the resulting buffer is equivalent to or greater than the structure and function before averaging;
- iii. The total buffer area is not reduced;
- iv. The buffer area is contiguous;
- v. Averaging does not result in any impact to slope stability and does not increase the likelihood of erosion or landslide hazard;
- vi. Averaging does not result in a significant adverse impact to habitat associated with species of local importance; and

vii. At no point is the critical area buffer width less than 75 percent of the required buffer dimension.

b. Transportation or Utility Infrastructure. Where a legally established right-of-way, railroad right-of-way or other similar infrastructure of a linear nature crosses a stream critical area buffer, the edge of the improved right-of-way shall be the extent of the buffer, if the part of the critical area buffer on the other side of the right-of-way provides insignificant biological or hydrological function in relation to the portion of the buffer adjacent to the stream.

D. Structure Setbacks.

1. General. The requirements of this section apply along with any other dimensional requirements of the Land Use Code (see LUC [20.20.010](#), [20.20.130](#), [20.20.190](#) and Parts [20.25A](#) – 20.25G LUC). The most restrictive dimension controls. Structure setbacks are required in order to:

- a. Minimize long-term impacts of development adjacent to critical areas and critical area buffers; and
- b. Protect critical areas and critical area buffers from adverse impacts during construction.

2. Minimum Setback of Structures.

a. General – Open Streams (Except West Tributary in Kelsey Basin).

i. Undeveloped Site. An undeveloped site is a site that contains no primary structure. The following structure setbacks apply on undeveloped sites, measured from the edge of the critical area buffer:

Type S	20 feet
Type F	20 feet
Type N	15 feet
Type O	10 feet

ii. Developed Site. A developed site is a site that contains a primary structure or any site where the stream and stream buffer have been included within an approved and recorded NGPE or NGPA prior to August 1, 2006. Lots created through subdivision, short subdivision, or the Planned Unit Development process from a developed site shall be considered undeveloped and subject to the requirements of subsection D.2.a.i of this section, except that the lot containing the existing primary structure shall be considered developed. The following structure setbacks apply on developed sites, measured from the edge of the critical area buffer or the boundary of the existing NGPE/NGPA, as applicable:

Type S	50 feet
Type F	50 feet
Type N	25 feet
Type O	None

- b. **General – Closed Stream Segments.** Closed stream segments, regardless of type, shall have a structure setback of 10 feet; provided, that closed stream segments in the Kelsey Creek drainage basin shall have a structure setback of 50 feet or a structure setback representing the combined dimension of the critical area buffer and structure setback required for its stream type, whichever is less.
 - c. **West Tributary – Open Stream Segments.** Regardless of type, open stream segments of the West Tributary on developed and undeveloped sites shall have a structure setback of 20 feet, measured from the edge of the critical area buffer.
3. **Structure Setback Modification – Open Streams on Undeveloped Sites.** The Director may waive or modify the structure setback on an undeveloped site as part of the permit or approval for the underlying proposal if the applicant demonstrates that:
- a. Water quality, or slope stability as documented in a geotechnical report, will not be adversely affected;
 - b. Encroachment into the structure setback will not disturb habitat of a species of local importance within a critical area or critical area buffer;
 - c. Vegetation in the critical area and critical area buffer will not be disturbed by construction, development or maintenance activities and will be maintained in a healthy condition for the anticipated life of the development; and
 - d. Enhancement planting on the boundary between the structure setback and the critical area buffer will reduce impacts of development within the structure setback.
4. **Structure Setback Modification – Open Streams on Developed Sites.** Structure setbacks on developed sites may be modified only through an approved critical areas report.
5. **Structure Setback Modification – Closed Stream Segments.** Structure setbacks associated with closed streams may be modified only through an approved critical areas report. (Ord. 5680, 6-26-06, § 3)

20.25H.080 Performance standards.

A. **General.**

Development on sites with a type S or F stream or associated critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

1. Lights shall be directed away from the stream.
2. Activity that generates noise such as parking lots, generators, and residential uses shall be located away from the stream or any noise shall be minimized through use of design and insulation techniques.
3. Toxic runoff from new impervious area shall be routed away from the stream.
4. Treated water may be allowed to enter the stream critical area buffer.
5. The outer edge of the stream critical area buffer shall be planted with dense vegetation to limit pet or human use.

6. Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream critical area buffer shall be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as hereafter amended.

B. Modification of Stream Channel.

1. When Allowed. A stream channel shall not be modified by relocating the open channel, or by closing the channel through pipes or culverts unless in connection with the following uses allowed under LUC 20.25H.055:

- a. A new or expanded utility facility or system;
- b. A new or expanded essential public facility;
- c. Public flood control measures;
- d. In-stream structures;
- e. New or expanded public right-of-way, private roads, access easements or driveways;
- f. Habitat improvement project; or
- g. Reasonable use exception; provided, that a modification may be allowed under this section for a reasonable use exception only where the applicant demonstrates that no other alternative exists to achieve the allowed development.

A critical areas report may not be used to modify the uses set forth in this subsection B.1.

2. Critical Areas Report Required. Any proposal to modify a stream channel under this section may be approved only through a critical areas report.

3. Relocation of Closed Stream Channel. Any proposal to relocate an existing closed stream channel may be approved only through a critical areas report. (Ord. 5680, 6-26-06, § 3)

20.25H.085 Mitigation and monitoring – Additional provisions.

In addition to the provisions of LUC 20.25H.210, mitigation plans designed to mitigate impacts to streams and stream critical area buffers shall meet the requirements of this section.

A. Mitigation Preference.

Mitigation plans for streams and stream critical area buffers shall provide mitigation for impacts to critical area functions and values in the following order of preference:

1. On-site, through replacement of lost critical area buffer;
2. On-site, through enhancement of the functions and values of remaining critical area buffer;
3. Off-site, through replacement or enhancement, in the same sub-drainage basin;
4. Off-site, through replacement or enhancement, out of the sub-drainage basin but in the same drainage basin.

Mitigation off-site and out of the drainage basin shall be permitted only through a critical areas report.

B. Buffer Mitigation Ratio.

Critical area buffer disturbed or impacted under this part shall be replaced at a ratio of one -to-one. (Ord. 5680, 6-26-06, § 3)

20.25H.090 Critical areas report – Additional provisions.

A. Limitation on Modifications.

A stream critical area buffer shall not be modified below the widths set forth in this section, measured from the top-of-bank:

Type S waters	25 feet
Type F waters	25 feet
Type N waters	10 feet
Type O waters	10 feet

B. Additional Content – Closed Stream Segments.

Any critical areas report proposing a modification to the structure setbacks required for closed stream segments shall be based on a consideration of the impact of the modification on the feasibility of reopening the closed stream segment in the future, when compared with the feasibility of reopening the closed stream segment without the proposed modification. Where the proposed modification significantly decreases the feasibility of a future reopening, such modification shall be denied, unless the proposal includes mitigation for the functions and values that could have been achieved by reopening the stream segment. (Ord. 5680, 6-26-06, § 3)

V. WETLANDS

20.25H.095 Designation of critical area and buffers.

A. Definition of Wetland.

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands.

B. Designation of Critical Area.

The following wetlands are hereby designated as critical areas subject to the requirements of this part. Wetlands are classified into category I, category II, category III and category IV wetlands based on the adopted Washington State Wetland Rating System for Western Washington, Washington State Department of Ecology Publication Number 04-06-025, published August, 2004.

1. **Category I Wetlands.** Category I wetlands are those that (a) represent a unique or rare wetland type; or (b) are more sensitive to disturbance than most wetlands; or (c) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or (d) provide a high level of functions.
2. **Category II Wetlands.** Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions. These wetlands occur more commonly than category I wetlands, but still need a relatively high level of protection. Category II wetlands in western Washington include: wetlands scoring between 51 to 69 points (out of 100) on the questions related to the functions present. Wetlands scoring 51 to 69 points were judged to perform most functions relatively well, or performed one group of functions very well and the other two moderately well.
3. **Category III Wetlands.** Category III wetlands are wetlands with a moderate level of functions (scores between 30 to 50 points). Wetlands scoring between 30 to 50 points generally have been disturbed in some ways, and are often less diverse or more isolated from other natural resources in the landscape than category II wetlands.
4. **Category IV Wetlands Over 2,500 Square Feet.** Category IV wetlands have the lowest levels of functions (scores less than 30 points) and are often heavily disturbed. These are wetlands that we should be able to replace, and in some cases be able to improve. However, experience has shown that replacement cannot be guaranteed in any specific case. These wetlands may provide some important functions, and also need to be protected.

C. Designation of Wetland Critical Area Buffer.

The following critical area buffers are hereby established:

1. Wetland Critical Area Buffer.
 - a. General.
 - i. **Undeveloped Sites.** An undeveloped site is any site where the wetland and wetland buffer have not previously been included within a Native Growth Protection Area (NGPA) or Native Growth Protection Easement (NGPE), regardless of whether the site contains a primary structure. Wetlands on undeveloped sites shall have the following critical area buffers, measured from the wetland boundary:

Category	Wetland Characteristic	Buffer
I	Natural heritage wetlands	190 feet
	Bogs	190 feet
	Forested	Based on score for habitat or water quality functions
	Habitat score of 29 to 36	225 feet
	Habitat score of 20 to 28	110 feet
	Water quality score of 24 to 32 and habitat score of less than 20	75 feet
	Not meeting any of the above	75 feet

II	Habitat score of 29 to 36	225 feet
	Habitat score of 20 to 28	110 feet
	Water quality score of 24 to 32 and habitat score of less than 20	75 feet
	Not meeting any of the above	75 feet
III	Habitat score of 20 to 28 points	110 feet
	Not meeting any of the above	60 feet
IV over 2,500 square feet	Score for functions less than 30 points	40

ii. Developed Site. A developed site is any site where the wetland and wetland buffer have been included within an NGPE or NGPA approved and recorded prior to August 1, 2006, or any site abutting an NGPA approved and recorded prior to August 1, 2006, containing the wetland and wetland buffer where such site does not also contain a wetland. Wetlands on developed sites shall be governed by the buffer established within the approved and recorded NGPA or NGPE, no additional wetland buffer shall apply.

b. Buffer and Setback on Sites with Existing Development. Where a primary structure legally established on a site prior to August 1, 2006, encroaches into the critical area buffer or structure setback established in this section, the critical area buffer and/or structure setback shall be modified to exclude the footprint of the existing primary structure. Expansion of any existing primary structure into the critical area buffer or critical area structure setback shall be allowed only pursuant to the provisions of LUC 20.25H.055 (single-family primary structures) or LUC 20.25H.230 (all other primary structures).

2. Buffer Modification. Modifications to the wetland critical area buffer may be approved pursuant to this section. Modifications to the wetland critical area buffer that do not meet the criteria of this subsection may be considered through a critical areas report, LUC 20.25H.230:

a. Buffer Averaging. Buffer averaging may be allowed if all the following criteria are satisfied. Proposals to average the wetland critical area buffer under this subsection shall require a Critical Areas Land Use Permit; provided, that a mitigation or restoration plan is not required for buffer averaging.

i. Buffer averaging may be approved only if the applicant demonstrates that a modification to non-critical area setbacks pursuant to LUC 20.25H.040 would not accommodate the proposed development in a manner consistent with its intended use and function;

ii. Through buffer averaging, the ecological structure and function of the resulting buffer is equivalent to or greater than the structure and function before averaging;

iii. The total buffer area is not reduced;

iv. The buffer area is contiguous;

v. Averaging does not result in any impact to slope stability and does not increase the likelihood of erosion or landslide hazard;

- vi. Averaging does not result in a significant adverse impact to habitat associated with species of local importance; and
- vii. At no point is the critical area buffer width less than 75 percent of the required buffer dimension.

b. Transportation or Utility Infrastructure. Where a legally established right-of-way, railroad right-of-way or other similar infrastructure of a linear nature crosses a wetland critical area buffer, the edge of the improved right-of-way shall be the extent of the buffer, if the part of the critical area buffer on the other side of the right-of-way provides insignificant biological or hydrological function in relation to the portion of the buffer adjacent to the wetland.

D. Structure Setbacks.

1. General. The requirements of this section apply along with any other dimensional requirements of the Land Use Code (see LUC [20.20.010](#), [20.20.130](#), [20.20.190](#) and Parts [20.25A](#) – 20.25G). The most restrictive dimension controls. Structure setbacks are required in order to:

- a. Minimize long-term impacts of development adjacent to critical areas and critical area buffers; and
- b. Protect critical areas and critical area buffers from adverse impacts during construction.

2. Minimum Setback of Structures – Undeveloped and Developed Sites. The following structure setbacks apply to both undeveloped and developed sites. Structure setbacks shall be measured from the edge of the critical area buffer on undeveloped sites, or from the edge of the approved and recorded NGPE or NGPA on developed sites:

Category I wetlands	20 feet
Category II wetlands	20 feet
Category III wetlands	15 feet
Category IV wetlands	None required

3. Structure Setback Modification – Undeveloped Sites. The Director may waive or modify the structure setback on an undeveloped site as part of the permit or approval for the underlying proposal if the applicant demonstrates that:

- a. Water quality, or slope stability as documented in a geotechnical report, will not be adversely affected;
- b. Encroachment into the structure setback will not disturb habitat of a species of local importance within a critical area or critical area buffer;
- c. Vegetation in the critical area and critical area buffer will not be disturbed by construction, development, or maintenance activities and will be maintained in a healthy condition for the anticipated life of the development; and
- d. Enhancement planting on the boundary between the structure setback and the critical area buffer will reduce impacts of development within the structure setback.

4. Structure Setback Modification – Developed Sites. Structure setbacks on developed sites may be modified only through an approved critical areas report. (Ord. 5680, 6-26-06, § 3)

20.25H.100 Performance standards.

Development on sites with a wetland or wetland critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

- A. Lights shall be directed away from the wetland.
- B. Activity that generates noise such as parking lots, generators, and residential uses, shall be located away from the wetland, or any noise shall be minimized through use of design and insulation techniques.
- C. Toxic runoff from new impervious area shall be routed away from the wetlands.
- D. Treated water may be allowed to enter the wetland critical area buffer.
- E. The outer edge of the wetland critical area buffer shall be planted with dense vegetation to limit pet or human use.
- F. Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream buffer shall be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as hereafter amended. (Ord. 5680, 6-26-06, § 3)

20.25H.105 Mitigation and monitoring – Additional provisions.

In addition to the provisions of LUC 20.25H.210, mitigation plans designed to mitigate impacts to wetlands and wetland critical area buffers shall meet the requirements of this section.

- A. Preference of Mitigation Actions.
 1. Mitigation for Impacted Wetland Critical Area. Mitigation actions that require compensation of impacted wetland critical area shall occur in the following order of preference, subject to the location requirements of subsection B of this section:
 - a. Restoring wetlands on upland sites that were formerly wetlands.
 - b. Creating wetlands on disturbed upland sites such as those with vegetative cover consisting primarily of nonnative introduced species. This should only be attempted when there is a consistent source of hydrology and it can be shown that the surface and subsurface hydrologic regime is conducive for the wetland community that is being designed.
 - c. Enhancing significantly degraded wetlands.
 2. Mitigation for Impacted Wetland Critical Area Buffer. Mitigation actions that require compensation of impacted critical area buffer shall occur in the following order of preference and in the following locations:
 - a. On-site, through replacement of lost critical area buffer;
 - b. On-site, through enhancement of the functions and values of remaining critical area buffer;
 - c. Off-site, through replacement or enhancement, in the same sub-drainage basin;

- d. Off-site, through replacement or enhancement, out of the sub-drainage basin but in the same drainage basin.

B. Type and Location of Mitigation for Wetland Critical Area.

Compensatory mitigation for critical areas functions and values shall be either in-kind and on-site, or in-kind and within the same drainage sub-basin. Mitigation actions may be conducted off-site and outside of the drainage sub-basin when all of the following are demonstrated through a critical areas report:

1. There are no reasonable on-site or in-sub-drainage basin opportunities or on-site and in-sub-drainage basin opportunities do not have a high likelihood of success, after a determination of the natural capacity of the site to mitigate for the impacts. Consideration should include: anticipated wetland mitigation replacement ratios, buffer conditions and proposed widths, hydrogeomorphic classes of on-site wetlands when restored, proposed flood storage capacity, and potential to mitigate stream fish and wildlife impacts (such as connectivity);
2. Off-site mitigation has a greater likelihood of providing equal or improved wetland functions than the impacted wetland; and
3. Off-site locations shall be in the same sub-drainage basin unless established watershed goals for water quality, flood or conveyance, habitat, or other wetland functions have been established and strongly justify location of mitigation at another site.

C. Mitigation Ratios.

1. Wetland Acreage Replacement Ratios. The following ratios shall apply to creation or restoration that is in-kind, is on-site, is the same category of wetland, is timed prior to or concurrent with alteration, and has a high probability of success. The first number specifies the acreage of replacement wetlands and the second specifies the acreage of wetlands altered.

Category I	6-to-1
Category II	3-to-1
Category III	2-to-1
Category IV	1.5-to-1

2. Increased Replacement Ratio. The Director may increase the ratios where proposed mitigation will result in a lower category wetland or reduced functions relative to the wetland being impacted.
3. Critical Area Buffer Mitigation Ratio. Critical area buffer disturbed or impacted under this part shall be replaced at a ratio of one-to-one.

D. Wetlands Enhancement as Mitigation.

Impacts to wetland critical area functions may be mitigated by enhancement of existing significantly degraded wetlands. Applicants proposing to enhance wetlands must produce a critical areas report meeting the requirements of LUC [20.25H.110](#) and [20.25H.230](#) that identifies how enhancement will increase the functions of the degraded wetland and how this increase will adequately mitigate for the loss of wetland area and function at the

impact site. An enhancement proposal must also show whether existing wetland functions will be reduced by the enhancement actions. (Ord. 5680, 6-26-06, § 3)

20.25H.110 Critical areas report – Additional provisions.

A. Limitation on Modification.

A critical areas report may not be used to fill a wetland critical area, except where filling is required to allow a use set forth in LUC 20.25H.055.

B. Additional Content.

In addition to the general requirements of LUC 20.25H.230, a critical areas report for wetlands shall include a written assessment and accompanying maps of the wetlands and buffers within 300 feet of the project area, including the following information at a minimum:

1. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing wetlands and restore any wetlands that were degraded prior to the current proposed land use activity.
2. A habitat and native vegetation conservation strategy that addresses methods to protect and enhance on-site habitat and wetland functions.
3. Functional evaluation for the wetland and adjacent buffer using a local or state agency staff-recognized method and including the reference of the method and all data sheets. (Ord. 5680, 6-26-06, § 3)

VI. SHORELINES

20.25H.115 Designation of critical area and buffers.

A. Designation of Shoreline Critical Areas.

See LUC 20.25E.017 for designated shoreline critical areas.

B. Designation of Shoreline Critical Area Buffers.

The following critical area buffers are established. The shoreline critical area buffer on Lake Sammamish shall be measured from elevation 31.8 NAVD 88. The shoreline critical area buffer on all other shoreline critical areas shall be measured from the ordinary high water mark.

1. Shoreline Critical Area Buffers.

a. General – All Shoreline Critical Areas.

- i. Undeveloped Sites. An undeveloped site is a site that contains no primary structure. All shoreline critical areas on undeveloped sites shall have a 50-foot critical area buffer.
- ii. Developed Sites. A developed site is a site that contains a primary structure. Lots created through subdivision, short subdivision, or the Planned Unit Development process from a developed site shall be considered undeveloped and subject to the requirements of subsection B.1.a.i of this section, except that the lot containing the existing primary structure shall be considered developed.

All shoreline critical areas on developed sites shall have a 25-foot critical area buffer.

b. **Buffer and Setback on Sites with Existing Development.** Where a primary structure legally established on a site prior to August 1, 2006, encroaches into the critical area buffer or structure setback established in this section, the critical area buffer and/or structure setback shall be modified to exclude the footprint of the existing primary structure. Expansion of any existing primary structure into the critical area buffer or critical area structure setback shall be allowed only pursuant to the provisions of LUC 20.25H.055 (single-family primary structures) or LUC 20.25H.230 (all other primary structures).

2. **Buffer Modification.** Modifications to the shoreline critical area buffer may be approved pursuant to this section as part of the permit or approval for the underlying proposal. Modifications to the shoreline critical area buffer that do not meet the criteria of this subsection may be considered through a critical areas report, LUC 20.25H.230:

a. **Adjustment Based on Surrounding Development.** Where the shoreline critical area buffer on all developed properties immediately abutting the site is less than the buffer required in subsection B.1 of this section, the required buffer may be modified as set forth in this subsection. Such modification shall allow only a primary structure to encroach into the required buffer. The buffer adjustment shall be determined by connecting the portion of each adjacent primary structure that most encroaches into the required buffer. The line established represents the shoreline critical area buffer for the site; however, in no event may the adjusted shoreline critical area buffer be less than 25 feet.

b. **Transportation or Utility Infrastructure.** Where a legally established right-of-way, railroad right-of-way or other similar infrastructure of a linear nature crosses a shoreline critical area buffer, the edge of the improved right-of-way shall be the extent of the buffer, if the part of the critical area buffer on the other side of the right-of-way provides insignificant biological or hydrological function in relation to the portion of the buffer adjacent to the shoreline.

C. **Structure Setbacks.**

1. **General.** The requirements of this section apply along with any other dimensional requirements of the Land Use Code (see LUC 20.20.010, 20.20.130, 20.20.190 and Parts 20.25A – 20.25G LUC). The most restrictive dimension controls. Structure setbacks are required in order to:

- a. Minimize long-term impacts of development adjacent to critical areas and critical area buffers; and
- b. Protect critical areas and critical area buffers from adverse impacts during construction.

2. **Minimum Setback of Structures.**

- a. **Undeveloped Site.** An undeveloped site is a site that contains no primary structure. Undeveloped sites shall not require a shoreline critical area structure setback.

b. **Developed Site.** A developed site is a site that contains a primary structure. Lots created through subdivision, short subdivision, or the Planned Unit Development process from a developed site shall be considered undeveloped and subject to the requirements of subsection C.2.a of this section, except that the lot containing the existing primary structure shall be considered developed. Developed sites shall require a 25-foot shoreline critical area structure setback, measured from the edge of the shoreline critical area buffer.

3. **Structure Setback Modification.**

a. **Modification Based on Surrounding Development.** Where the shoreline critical area structure setback on all developed properties immediately abutting the site is less than the structure setback required in subsection C.2 of this section, the required structure setback may be modified as set forth in this subsection. Such modification shall allow only a primary structure to encroach into the required structure setback. The modification shall be determined by connecting the portion of each adjacent primary structure that most encroaches into the required structure setback. The line established represents the shoreline critical area structure setback for the site, however, in no event may this subsection modify the required critical area buffer.

b. **Structure Setback Modification – Other (Developed Sites).** Structure setbacks on developed sites not meeting the requirements of subsection C.3.a of this section may be modified only through an approved critical areas report. (Ord. 5680, 6-26-06, § 3)

20.25H.118 Mitigation and monitoring – Additional provisions.

In addition to the provisions of LUC 20.25H.210, mitigation plans designed to mitigate impacts to shorelines and shoreline critical area buffers shall meet the requirements of this section.

A. **Mitigation Preference.**

Mitigation plans for shorelines and shoreline critical area buffers shall provide mitigation for impacts to critical area functions and values in the following order of preference:

1. On-site, through replacement of lost critical area buffer;
2. On-site, through enhancement of the functions and values of remaining critical area buffer;
3. Off-site, through replacement or enhancement, in the same sub-drainage basin;
4. Off-site, through replacement or enhancement, out of the sub-drainage basin but in the same drainage basin.

Mitigation off-site and out of the drainage basin shall be permitted only through a critical areas report.

B. **Buffer Mitigation Ratio.**

Shoreline critical area buffer disturbed or impacted under this part shall be replaced at a ratio of one-to-one.

20.25H.119 Critical areas report – Additional provisions.

An applicant proposing a modification to the shoreline critical area buffer which would reduce the buffer to less than 25 feet shall establish by survey the site's ordinary high water mark, notwithstanding any other provision of this part or Part 20.25E LUC. (Ord. 5680, 6-26-06, § 3)

VII. GEOLOGIC HAZARD AREAS**20.25H.120 Designation of critical area and buffers.****A. Designation of Critical Areas.**

The following geologic hazard areas are hereby designated critical areas subject to the regulations of this part.

1. **Landslide Hazards.** Areas of slopes of 15 percent or more with more than 10 feet of rise, which also display any of the following characteristics:

- a. Areas of historic failures, including those areas designated as quaternary slumps, earthflows, mudflows, or landslides.
- b. Areas that have shown movement during the Holocene Epoch (past 13,500 years) or that are underlain by landslide deposits.
- c. Slopes that are parallel or subparallel to planes of weakness in subsurface materials.
- d. Slopes exhibiting geomorphological features indicative of past failures, such as hummocky ground and back-rotated benches on slopes.
- e. Areas with seeps indicating a shallow ground water table on or adjacent to the slope face.
- f. Areas of potential instability because of rapid stream incision, stream bank erosion, and undercutting by wave action.

2. **Steep Slopes.** Slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area.

3. **Coal Mine Hazards.** Areas designated on the Coal Mine Area Maps or in the City's coal mine area regulations, LUC 20.25H.130, as potentially affected by abandoned coal mines; provided, that compliance with the coal mine area regulations shall constitute compliance with the requirements of this chapter in regard to coal mines.

B. Geologic Hazard Area Buffers.

The following critical area buffers are established.

1. **General Geologic Hazard Critical Area Buffers.**

- a. Landslide hazards Top-of-slope buffer of 50 feet.
- b. Steep slopes Top-of-slope buffer of 50 feet

2. **Existing Development.** Where a primary structure legally established on a site prior to August 1, 2006, encroaches into the critical area buffer established in subsection B.1 of this section, the critical area buffer and structure setback shall be modified to exclude the

footprint of the existing structure. Expansion of an existing structure into the critical area buffer shall be allowed only pursuant to the provisions of LUC 20.25H.065.

3. Buffer Modification. Modifications to the geologic hazard critical area buffer may be considered through a critical areas report, LUC 20.25H.230.

C. Structure Setbacks.

1. General. The requirements of this section apply along with any other dimensional requirements of the Land Use Code (see LUC 20.20.010, 20.20.130, 20.20.190 and Parts 20.25A – 20.25G). The most restrictive dimension controls. Structure setbacks are required in order to:

- a. Minimize long-term impacts of development adjacent to critical areas and critical area buffers; and
- b. Protect critical areas and critical area buffers from adverse impacts during construction.

2. Minimum Setback of Structures.

- a. Landslide hazards Toe-of-slope setback of 75 feet.
- b. Steep slopes Toe-of-slope setback of 75 feet.

3. Structure Setback Modification. Structure setbacks may be modified only through an approved critical areas report. (Ord. 5680, 6-26-06, § 3)

20.25H.125 Performance standards – Landslide hazards and steep slopes.

In addition to generally applicable performance standards set forth in LUC 20.25H.055 and 20.25H.065, development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function.

A. Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

B. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

C. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

D. The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;

E. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;

F. Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic

modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;

G. Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;

H. On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;

I. On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; and

J. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210. (Ord. 5680, 6-26-06, § 3)

20.25H.130 Performance standards – Coal mine hazard area.

The requirements of this section may not be modified through a critical areas report.

A. Application of Regulation and Disclosure on Plats.

1. The subdivision or development of land potentially affected by abandoned coal mines, as described in these regulations or as designated on the Coal Mine Area (CMA) Map, or the Coal Seams Map, maintained by the Department of Planning and Community Development (PCD), shall be subject to the requirements of this section. Development includes construction of buildings, utilities, and other infrastructure as defined in subsection B of this section. The requirements of this section are in addition to other pertinent City of Bellevue requirements.

Exceptions:

- a. Additions to existing single-family residences, in CMS Zone 1, that were not originally subject to this section, are exempted as follows:
 - i. Additions of 500 square feet or less of new covered floor area are completely exempted.
 - ii. Additions and replacements which are less than 50 percent of the total proposed floor area are exempted, except for subsections I.1.e, I.4.c, I.4.d, and I.4.e of this section.
- b. Detached uninhabited structures less than 500 square feet in CMS Zone 1, which are accessory to single-family residences and on the same property, are completely exempted.

2. Any subdivision or short subdivision that includes property designated as within a CMS Zone shall disclose the designation on the face of the plat and shall include a reference to the requirements of this section.

B. Definitions.

For purposes of this section only, the following defined terms apply:

1. "Angle of draw" (also termed "limit angle") means the angle of inclination from the vertical of the line connecting the edge of the coal mine workings with the outer limit of the trough subsidence area. For inclined coal seams (such as those in the Coal Creek area), downdip and updip limit angles (which in general will not be identical) are defined at the downdip and updip limits of the coal mine workings, respectively. See Figure 1.

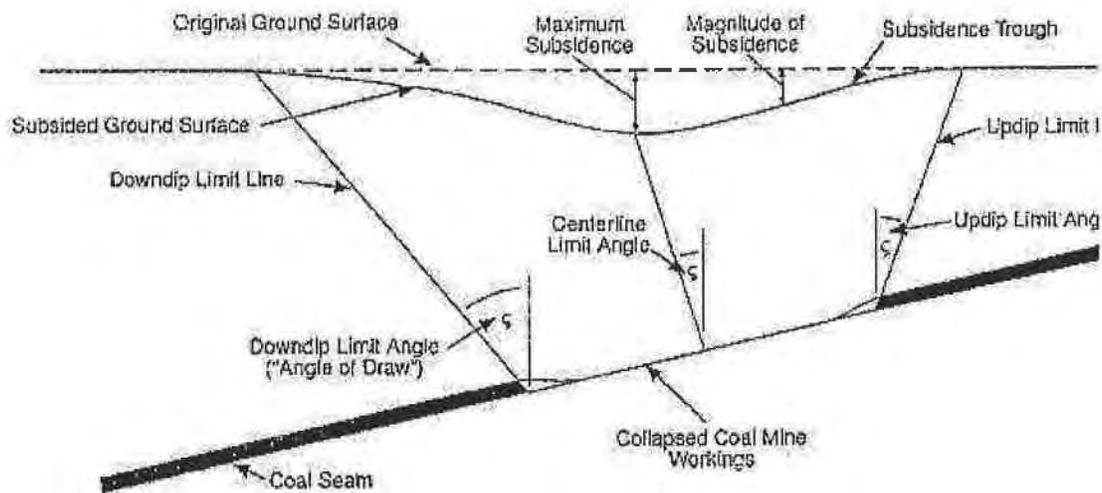


Figure 1

2. "Coal Mine Subsidence (CMS) Zones" means areas where there is a potential for future trough subsidence or sinkhole development due to collapse of abandoned coal mines as delineated on the Coal Mine Area (CMA) Map.
3. "Coal Mine Area (CMA) Map" means a map (Exhibit A attached to the ordinance codified in this chapter) delineating zones of possible mine subsidence and hazards due to abandoned coal mines based on calculated potential surface strains and tilts, and documented possible coal mine hazards.
4. Coal Mine Waste Dump. Also termed "spoil piles," "coal mine waste dumps" are a loose-dumped mix of soil, rock, coal and any other materials that are produced as a waste product during mining.
5. "Development" means any structure, habitable or nonhabitable, or other modification of the natural landscape above and below ground or water.
6. "Extraction ratio" means ratio or percentage of extracted coal relative to total coal in a given area of a seam.
7. "Gas emissions" means explosive, poisonous, or suffocating gases emitted from coal seams.
8. "Lithology" means type of rock, such as sandstone, siltstone, or shale.
9. Limit Angle. See "angle of draw."

10. "Mine hazard" means any hazard associated with abandoned coal mines or prospects including but not limited to trough subsidence, coal mine waste dumps, and public safety mine hazards such as sinkholes and shafts.
11. "Mine subsidence" means lowering of the ground surface, with resulting tilts and strains, due to movement of the underlying soil and/or rock into a void resulting from an underground mine or mine entry.
12. "Outcrop" means the exposure of bedrock or strata projecting through the overlying soil cover.
13. "Panel" means the area of a seam from which coal has been systematically extracted.
14. "Prospect" means an excavation used for exploration or sampling of coal seam.
15. "Public safety mine hazards" means mine hazards that may constitute a danger to public safety, including sinkholes, shafts, mine entries, slope entries, gas emissions, mine fires, and others identified as a public safety hazard by a qualified engineer or geologist.
16. "Qualified engineer or geologist" means a Washington State registered geotechnical (civil branch) or mining engineer, or an engineering geologist, who is experienced in evaluation of coal mine subsidence and coal mine hazards, and who is accepted by the City of Bellevue to undertake such evaluations for projects regulated by the City of Bellevue; engineers or geologists without such experience may not be considered to be qualified.
17. "Remaining mine height" means current true thickness (measured perpendicular to the seam) of cumulative voids in and above mine workings which corresponds approximately to the original coal seam thickness less the subsidence that has already occurred at depth.
18. "Seam" means a stratum or bed of coal or other mineral. Individual coal seams in the Coal Creek area are generally identified by name, such as the Primrose, Jones, and Muldoon seams.
19. "Shaft" means a vertical or inclined tunnel for access to, or ventilation of, mine workings.
20. "Sinkhole" means a type of subsidence consisting of collapse of the ground surface into an underground void in which the surface expression has a characteristic funnel or shaft shape. Also referred to as a "collapse pit." See Figure 2.

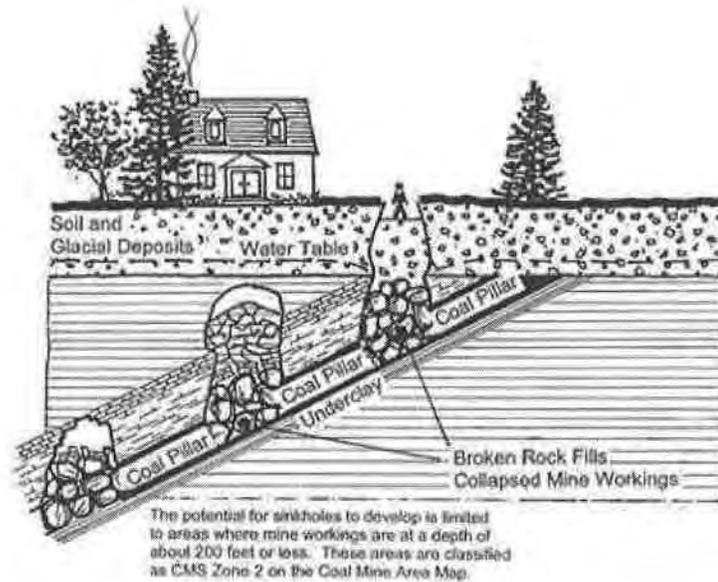


Figure 2

- 21. "Slope entry" means a mine entry where the mine access tunnel is inclined to horizontal or sloped.
- 22. "Sphere of influence" means the City of Bellevue's potential annexation area based on an agreement among the cities of Bellevue, Renton and Issaquah.
- 23. Spoil Pile. See "coal mine waste dump."
- 24. "Strain" means change in length per unit length, e.g., a change in length of 0.1 feet over a 100-foot length corresponds to a strain of 0.001.
- 25. "Subcrop" means location of strata such as a coal seam beneath an overlying soil cover.
- 26. "Subsidence factor" means the ratio of maximum surface subsidence to extracted coal seam thickness.
- 27. "Tilt" means differential settlement per unit length, e.g., a tilt of one in 500 corresponds to a differential settlement of 0.2 feet over a length of 100 feet.
- 28. "Trough subsidence" (also termed "regional downwarping") means a surface depression caused by mine subsidence that is generally characterized by a gentle and continuous dish shape that extends beyond the vertical projections of the limits of mining within the seam. See Figure 1.

C. Overview of Coal Mine Subsidence (CMS) Zones.

The Coal Mine Area (CMA) Map delineates areas within the City of Bellevue and associated potential annexation area (sphere of influence) that could be affected by subsidence of abandoned coal mines. The CMA Map defines and identifies Coal Mine Subsidence (CMS) Zones based on potential surface tilts and strains and whether there is a potential for sinkhole development.

The CMS Zones have been developed based on generalized evaluation of available mine maps and records. Direct subsurface information (boring data) on the condition of the mine workings was not available for development of these zones and regulations except for the Newcastle-King Mine. This Newcastle-King Mine information was used to evaluate potential coal mine impacts associated with the existing plat of The Woods. Alternative interpretations of potential subsidence effects could result from site-specific evaluation and analysis based on detailed review of historic data, direct subsurface information, or alternative assumptions.

A surface reconnaissance report and site-specific evaluations are required prior to permitting subdivision or development on any site in a CMS Zone. Methods of analysis shall be described as appropriate. Construction will be permitted in any CMS Zone after elimination of risk to public safety associated with abandoned coal mines, and mitigation of coal mine waste dumps (if any) and potential trough subsidence.

1. CMS Zone 1.

Strain exceeds 0.003.

Tilt exceeds 1:350.

Construction is permitted only after a site-specific evaluation of potential trough subsidence and incorporation of appropriate mitigation measures.

Site-specific structural and civil design is required in all areas per subsections I and J of this section.

2. CMS Zone 2. Areas directly underlain by coal mine workings at a depth of 200 feet or less, documented prospects and areas within 100 feet of such areas.

There is a potential for sinkhole development, or for other public safety mine hazards. Construction is permitted only after potential public safety mine hazards are investigated and eliminated. A direct subsurface investigation program is required to investigate potential sinkhole development. In addition, if any mine workings could potentially cause trough subsidence at the site, construction is permitted only after a site-specific evaluation of potential trough subsidence and incorporation of project-specific mitigation measures as required for CMS Zone 1.

3. Areas of Potential Undocumented Workings. CMS Zones are based on an evaluation of documented workings. There is, however, some potential for undocumented workings to exist in the vicinity of outcropping or subcropping seams. The potential for undocumented workings must be evaluated for any property within 100 feet of the subcrop lines of the Jones and Primrose seams between and beyond known coal mine workings, except for construction of attached additions to, or miscellaneous structures accessory to and within 50 feet of, existing residential buildings. The subcrop lines indicating those areas of potential undocumented workings are shown on the Coal Seams Map.

Note: The Primrose seam subcrop through the plats of Forest Ridge Estates Divisions I and II, The Woods, and Forest Park No. 4 has not been shown on the Coal Seams Map because geotechnical exploration and abandoned mine hazard assessments were completed and accepted by the City at the time these plats were developed. Therefore, as no undocumented workings were found by those

investigations and subsequent development, the Primrose seam subcrop through those plats has not been shown on the Coal Seams Map so that it is clear that future building permit applications for lots in those plats are not subject to these regulations.

4. Changing a CMS Zone Designation. The CMS Zone designation for a property in CMS Zone 1 may be removed if it is demonstrated by site-specific evaluation of trough subsidence that magnitudes of potential surface strains and tilts at the property are less than the levels specified above.

The site-specific evaluation of trough subsidence shall be completed by a qualified engineer or geologist and shall be performed in accordance with the requirements of these regulations. The same or similar assumptions as were used in developing these regulations and the CMA Map shall be used when undertaking the site-specific evaluation of trough subsidence. If the evaluation results in a proposed change to the CMS Zone designation based on additional information identified from mine records, or new information available from direct investigation of subsurface conditions by drilling or other means, then the engineer shall be required to demonstrate that the tilts and strains calculated represent the maximum tilts and strains at the site for all possible time sequences of mine collapse.

A CMS Zone 2 designation may be changed to a Zone 1 designation if a direct subsurface investigation demonstrates the absence of coal mine workings or that the coal mine workings, if present, are in a fully collapsed condition.

Any change in a CMS Zone designation must be accepted by the Director of the Department of Planning and Community Development or his or her designee.

D. Application/Pre-Permit Issuance Requirements.

1. General Requirements. A surface reconnaissance shall be undertaken for the CMS Zones and for areas of potential undocumented workings. All surface reconnaissance and evaluation of coal mine hazards and potential trough subsidence shall be performed by, or under the direct supervision of, a qualified engineer or geologist.
2. CMS Zone 1. Applicants shall:
 - a. Conduct a surface reconnaissance and submit at application a report identifying any public safety mine hazards, coal mine waste dumps, or evidence of mine subsidence.
 - b. If hazards other than trough subsidence are identified in the surface reconnaissance reports, mitigate the hazards after acceptance of an evaluation and remediation plan by PCD.
 - c. Conduct a site-specific evaluation of potential trough subsidence.
 - d. Mitigate for trough subsidence including future surface settlements above collapsed mine workings by developing site-specific design that can accommodate calculated potential subsidence effects.
3. OMS Zone 2. Applicants shall:

- a. Conduct a surface reconnaissance and submit at application a report identifying all public safety mine hazards, coal mine waste dumps, and evidence of mine subsidence.
- b. Conduct site-specific evaluation of potential for sinkhole development, including subsurface investigation. Test pits may be used to investigate coal mine waste dumps and other shallow hazards such as slope entry portals and shaft collar areas. Drilling is required for coal mine workings or other hazards that cannot be adequately investigated by investigations from surface. Drilling may demonstrate that there is no risk of sinkhole development due to the absence or fully collapsed condition of mine workings. Alternatively, drilling may document sinkhole risks, and the applicant must then design a mitigation program to eliminate all such risks.
- c. Eliminate risk of sinkhole development and mitigate other public safety mine hazards and/or coal mine waste dumps after acceptance of an evaluation and remediation plan by PCD.
- d. If the site could be subject to trough subsidence due to coal mine workings, conduct a site-specific evaluation of potential trough subsidence.
- e. Mitigate for trough subsidence including future surface settlements above collapsed mine workings by developing site-specific design that can accommodate calculated potential subsidence effects as required for CMS Zone 1.

4. Areas of Potential Undocumented Workings. If the property lies within 100 feet of a coal seam outcrop or subcrop shown on the Coal Seams Map, but outside any CMS Zones, applicants shall (except as exempted under subsection C.3 of this section):

- a. Conduct a surface reconnaissance and submit at application a report identifying any public safety mine hazards, coal mine waste dumps, or evidence of mine subsidence.
- b. If hazards other than trough subsidence are identified in the surface reconnaissance report, mitigate the hazards after acceptance of an evaluation and remediation plan by the DCD.

5. Requirements for More Than One Zone. If a property lies within more than one CMS Zone and development will include construction of multiple structures, each structure shall be designed to meet the regulatory requirements for the zone in which the structure is located. Any structure except roads and utility lines that lies within more than one zone shall be designed in accordance with the requirements for the higher zone number. Roads and utility lines shall be designed in accordance with the requirements for each zone throughout the length of the facility located within that zone.

E. Surface Reconnaissance Reports.

A surface reconnaissance shall be undertaken for all CMS Zones and for areas of potential undocumented workings.

The surface reconnaissance shall be undertaken following review of available geologic hazard maps, mine maps, mine hazard maps, and air photographs to identify any subsidence features or mine hazards including but not limited to surface depressions, sinkholes, mine shafts, mine entries, coal mine waste dumps, and any indication of combustion in underground workings or coal mine waste dumps that are present on or

within 100 feet of the property. The surface reconnaissance shall include, but not be limited to, inspection, review, and documentation of any known hazards that have previously been documented by the Office of Surface Mining, Abandoned Mined Land Program (Skelly and Loy, 1985), or that have been identified from review and interpretation of air photographs or other sources.

The surface reconnaissance report shall include:

1. Historical mining data, including available copies of original mine records for mine workings in coal seams.
2. A map showing property boundaries, CMS Zone boundaries, and any potential hazards identified on or within 100 feet of the property.
3. If hazards are identified, a proposed program of detailed site investigation to support engineering design for remediation.
4. For sites in CMS Zone 2, proposed subsurface investigation program, including exploratory test pit and drill hole locations, and mine plans for all seams that lie within 200 feet of the ground surface.

For sites where trough subsidence must be calculated, the surface reconnaissance report may also include proposed site evaluation and trough subsidence calculation methodology; alternatively, that can be submitted in a separate report.

F. Remediation or Mitigation of Hazards Other Than Trough Subsidence.

If hazards are identified in the surface reconnaissance report:

1. Include a separate section in the surface reconnaissance report that proposes a program of detailed site investigation to support engineering for remediation of the hazards.
2. Upon acceptance of the site investigation approach by the PCD, conduct the evaluation. Submit the results to the PCD along with a proposal for remediation design including the following types of mitigation:
 - a. Mine Entries and Shafts. Mine entries and shafts shall be permanently sealed using controlled backfill and/or grouting, or an approved, engineered seal. Acceptable seal construction consists of a tapered, reinforced concrete plug constructed within a steel form; a below grade reinforced concrete cap constructed over shaft collars; and a reinforced concrete plug for sealing horizontal mine entries.

Site preparation prior to installation of the plug shall include permanently diverting surface drainage away from the shaft or mine entry, and excavating loose rock and soil away from the collar of the shaft or the mine entry portal.

Shaft and slope entry seals shall be designed and installed so that they are bearing on competent bedrock or dense, competent till. The top of the tapered plug or the base of the cap shall extend a minimum of two feet in all directions beyond the shaft or slope entry. The length of any plug used to seal a horizontal mine entry shall not be less than the maximum dimension of the entry. The need for installing additional backfill behind the seal of a horizontal mine entry to

prevent potential subsidence over the entry shall be determined on a case-by-case basis.

- b. Existing Sinkholes and Shallow Prospect Excavations. Existing sinkholes and shallow prospect excavations shall be backfilled to surface using controlled placement of suitable backfill. Surface drainage shall be permanently diverted away from existing sinkholes and prospect excavations.
- c. Potential Sinkholes. Demonstrate by direct subsurface investigation that coal mine workings either do not exist, or that the workings have fully collapsed so that there is no remaining potential for sinkhole development; or show that the hazards associated with any voids that are identified are fully mitigated by backfilling, grouting, or other approved means such that the potential for sinkhole development is eliminated.

A fence may be required to be constructed along the CMS Zone 2 boundary, or around known hazards, to prevent access to the area if the potential for sinkhole development has not been eliminated. If a fence is required, signs shall be posted on it, at intervals of no more than 100 feet, warning of danger due to possible sinkholes.

Any sinkholes that develop shall be promptly backfilled and surface drainage shall be diverted away from the sinkhole.

- d. Coal Mine Waste Dumps. Any coal mine waste dump from which springs or seeps are discharging, or which shows evidence of seasonal discharge of springs or seeps, shall be removed or regarded to expose the source of the spring or seep.

Unless the stability of the coal mine waste dump is verified by a slope stability analysis meeting the requirements of the Minimum Standards for Slope Stability Analysis of the City of Bellevue Development Standards, the coal mine-waste dumps shall be removed from the site, or shall be regarded as necessary such that no slope in the coal waste material exceeds 2(H):1(V) and meets City of Bellevue stability criteria.

All coal mine waste material shall be covered with a minimum of two feet of clean soil and shall be revegetated in accordance with Chapter 23.76 BCC.

No construction shall be permitted over coal mine waste material unless a geotechnical investigation is completed by a soils engineer, and specific design and construction criteria are developed to mitigate the potential impacts of the coal mine waste on foundation stability and performance. Construction shall not be permitted within 100 feet of any coal mine waste dump that shows evidence of current or past combustion.

- e. Mine Gases. Potential hazards associated with mine gases shall be mitigated by backfilling all mine entries, shafts, and sinkholes in accordance with this section.
- f. Mine Fires. Construction shall not be permitted over workings where surface or subsurface investigations indicate the possible presence of combustion in the underlying seam or seams.

3. Once the proposed remediation approach is accepted by PCD, complete the engineering design drawings and specifications for the remediation. Upon acceptance by the DCD, complete the actual remediation.
4. Document the hazard mitigation by submitting as-builds and a remediation construction report. PCD must agree that hazards have been mitigated before any construction is allowed on the site.
5. Any public safety mine hazards shall be eliminated prior to any other development activities on the site. Hazard mitigation shall be performed by or under the direction of a qualified engineer or geologist. Any hazards found during any development activities shall be immediately reported to PCD.
6. No construction shall be allowed within 100 feet of an existing public safety mine hazard, regardless of whether the hazard is located on the property for which the permit application is being submitted or not. The decision on whether to permit construction directly over a public safety mine hazard that has been mitigated will be made on a case-by-case basis based on the type of mitigation and the proposed construction.

G. Site-Specific Evaluation – Potential Trough Subsidence.

1. Review of Available Records. The site-specific evaluation of potential trough subsidence shall include a detailed review of available copies of original mine records for mine workings in coal seams that could potentially influence the site by trough subsidence. The locations, depths, and thicknesses of such seams and workings shall be documented. Coal mine workings that could potentially influence the site shall be determined by projecting the downdip limit angle from the lowest limit of the documented workings to the ground surface. Mine workings are considered to potentially influence the property if the property lies within the line at which the limit angle intersects the ground surface.
2. Subsurface Investigations. Subsurface conditions may be evaluated by drilling. Although drilling is not compulsory, it is the most acceptable method for providing information that is acceptable for reducing the remaining mine height value used in subsidence calculations.

If the applicant wishes to conduct a subsurface investigation, the proposed approach must be submitted to PCD for review and acceptance.

Rotary drilling is an acceptable method of drilling, provided it is used in combination with downhole geophysical logging, including caliper logs. Core drilling is preferred, but is not compulsory, immediately above and through the predicted coal seam locations to facilitate interpretation of the condition of the mine workings. Rotary drillholes shall be logged continuously from 100 feet above to 20 feet below mine workings, including lithology at five-foot intervals, drill fluid circulation, penetration rate, and free fall of the drill string. Greater confidence will be placed in core drilling logs than rotary drilling logs.

As a guideline, it is recommended that a minimum of one drillhole penetrating each coal seam that could potentially cause trough subsidence at the site should be drilled for each 200-foot length of the south property boundary.

If a drillhole encounters solid or broken coal in an area that available mine maps indicates has been mined out, it shall be assumed that the true thickness of coal represents the thickness of intact or crushed pillars, and corresponds to the remaining mine height for calculating potential trough subsidence affects at surface. If the drillhole encounters voids at or above the location of the coal seam, the cumulative length of the voids shall be used to calculate the true cumulative thickness of the voids, which shall be taken to correspond to the remaining mine height. These assumptions can be modified based on additional drilling.

Direct evidence of the condition of panels in the same seam with similar dimensions, similar extraction ratios, and at a similar or shallower depth, shall be accepted as evidence of the condition of mine workings at any point.

Surface geophysics, or other indirect means, may be used to assist in projecting information between and beyond drillholes, but shall not be accepted as the sole method for evaluating the condition of underground mine workings and calculating remaining mine height. Assumptions concerning the extent of collapse of mine workings based on recorded extraction ratios shall be conservative because of possible inaccuracies of mine records, the likely presence of remnant pillars and the lack of data to accurately locate them, and because uncollapsed mine workings have been documented under similar conditions in King County.

3. Calculation of Trough Subsidence Magnitudes, Tilts, and Strains. Proposed calculation methods, design parameters, and assumptions that will be used shall be submitted for review and acceptance by the Director prior to calculating trough subsidence.

The recommended method for calculating potential trough subsidence magnitudes, strains, and tilts is the empirical function method of the British National Coal Board, as presented in their Subsidence Engineers' Handbook, adjusted to reflect the effects of inclined seams and a downdip limit angle of 45 degrees. Recommended calculation procedures are detailed in subsection K.1 of this section.

Calculations shall be based on a conservative evaluation of site conditions developed from the review of available records, site investigation or other acceptable means, such as previous documentation by subsurface exploration of the condition of the coal seam(s) in the immediate vicinity of the site and at an equivalent depth below the ground surface. A subsidence factor of 0.5, a downdip limit angle of 45 degrees, and a value of remaining mine height equal to the seam thickness shall be used for the subsidence calculations unless direct field evidence or a review of detailed mine records is used to modify these values. The effects of individual panel widths and barrier pillar widths shall be considered in the calculation of potential tilts and strains. If direct subsurface investigation indicates that the mine workings are fully collapsed, an estimate of potential surface settlements due to consolidation of rubble and loose material shall be made for sites directly underlain by coal mine workings.

The subsidence analysis shall evaluate the cumulative effect of all seams that could induce trough subsidence at the site.

Alternative methods of calculating potential subsidence magnitudes, strains, and tilts may be used provided they incorporate similar assumptions to those specified in the preceding paragraphs. If alternative design parameters and assumptions are

proposed, detailed justification must be provided to the DCD for consideration during their review and acceptance of the proposed calculation approach.

4. Documentation of Trough Subsidence Evaluation. The results of the detailed site evaluation shall be documented. Site plans shall be prepared showing the proposed development and calculated magnitudes of potential subsidence, strains, and tilts at the property boundaries and at the locations of any proposed structures. In addition, a map showing contours of potential subsidence magnitudes, strains, and tilts throughout the property shall be submitted for use in design of roads and utilities.

Appropriate recommendations shall be provided for structural and civil design requirements outlined in subsections I and J of this section, respectively.

H. Site-Specific Evaluation – Potential Sinkhole Development or Other Public Safety Mine Hazards.

1. Review of Available Record. To evaluate the potential for sinkholes in CMS Zone 2, the applicant's qualified engineer or geologist shall first conduct a detailed review of available copies of the original mine records for mine workings that could potentially influence the property. Coal mine workings that could potentially influence the site shall be determined by projecting the downdip limit angle from the lowest limit of the documented workings to the ground surface. Mine workings are considered to potentially influence the property if the property lies within the line at which the limit angle intersects the ground surface. The locations, depths, and thicknesses of such seams shall be documented.

2. Proposed Site Investigation. Based on the review of available mine records, the qualified engineer or geologist shall then propose a site investigation program and submit it for review and acceptance by PCD as part of the surface reconnaissance report. The proposed program shall include the items and meet the requirements listed below:

a. Drillhole Locations. Subsurface conditions for coal seams located within 200 feet of the ground surface shall be investigated by drilling. Drillhole sites shall be selected at representative locations and at representative coal seam depths. Drillholes shall be located adjacent to, but not within, coal pillars that are shown on the mine plans. A minimum of five drillholes shall be drilled along the alignment of any linear structure, such as roads or utility lines designed to cross CMS Zone 2, or within the property boundary for other development of properties of five acres or less. The minimum number of drillholes for properties larger than five acres shall be one hole per acre or as determined by the Director.

b. Method of Drilling. Rotary drilling is an acceptable method of drilling provided it is used in combination with downhole geophysical logging, including caliper logs. Core drilling is preferred, but is not compulsory, immediately above and through the predicted coal seam locations to facilitate interpretation of the condition of the mine workings. Drillholes shall be logged continuously throughout their length, including lithology at five-foot intervals for rotary drillholes, drill fluid circulation, penetration rate, and free fall of the drill string. Greater confidence will be placed in core drilling logs than in rotary drilling logs; this may result in less drillholes being required if core drilling is used in the vicinity of coal seams instead of rotary drilling.

c. Shallow Public Safety Hazards. Shallow hazards such as slope entry portals, shaft collars, prospects and mine waste dumps may be investigated by test pits or

trenching, providing the method enables investigation to an adequate depth for the hazard being investigated.

d. Any Other Site Investigation Techniques Proposed. Indirect means of subsurface evaluation, including geophysics, geologic projection, and evaluation of mining records, may be used to supplement drilling results, but shall not be used as the sole source for evaluating subsurface conditions prior to construction in Zone 2 areas.

3. Investigation Results and Interpretation. Once the Director has accepted the proposed site-evaluation, the applicant can proceed to the actual site investigation and must submit the results and the interpretation of those results to PCD.

The need for additional drilling shall be determined by the Director based on the results of the initial five drillholes. If a drillhole encounters solid or broken coal in an area that available mine maps indicate has been mined out, it shall be assumed that the true thickness of coal represents the thickness of intact or crushed pillars. If true coal thickness approximately corresponds to the original seam thickness, it shall be assumed that the mine workings have not collapsed. If the drillhole encounters a void at the location of the coal seam, the true length of the void shall be taken to correspond to the remaining mine height for evaluating the potential for sinkhole development. These assumptions can be modified based on additional drilling. If all drillholes verify that mine workings have effectively collapsed at all depths, further subsurface investigation shall not be required.

I. Mitigation of Trough Subsidence – Buildings in CMS Zone 1.

These mitigation requirements apply to all new construction in CMS Zone 1, except as exempted by subsection A.1 of this section.

1. General Design Requirements.

a. Every building site shall be investigated by a qualified engineer or geologist who shall calculate tilts and strains, and determine appropriate design values for the building site.

b. The foundation elements of each building or structure shall be designed by a Washington State licensed structural engineer, with consideration of the subsidence effects anticipated at the site. The requirements of this subsection I are minimum standards. The structural engineer is responsible to ensure the adequacy of the foundation for the building or structure under consideration. The Building Official may accept alternate designs meeting the intent of these standards. Any portion of the building lateral system not meeting the conventional bracing requirements of the International Building Code, as adopted and amended by the City of Bellevue, must be designed by a structural engineer.

c. Building and structure foundations shall be designed for the loads and conditions specified in subsections I.2, I.3, and I.4 of this section in conjunction with all applicable loads stipulated in the International Building Code, as adopted and amended by the City of Bellevue. Vertical steps and horizontal offsets of footings and walls must be reinforced to meet the requirements of the International Building Code, as adopted and amended by the City of Bellevue, and the American Concrete Institute, to provide continuity of the reinforcement.

d. The forces generated by subsidence effects of tilt and strain shall be treated as live loads with the appropriate load factors and/or factors of safety in design. The friction drag force loads of subsection I.2 of this section must be combined simultaneously with the lateral earth pressure loads specified in subsection I.3 of this section, with both loads treated as earth pressure in load combinations. The subsection I.4.a, I.4.b, and I.4.d design requirements may be applied independently of the friction and earth pressure loads.

e. Utility lines shall not be rigidly connected to the foundation wall. A flexible joint shall be provided at the point of transition from soil support to building support for all utilities.

2. Design for Friction Force Loads.

a. CMS Zone 1 includes both tension and compression ground strain zones. Foundations and slabs on grade shall be designed to resist not less than the following ultimate friction forces for tension and/or compression as determined from the geotechnical investigation. Rigid crosstie struts may be used to reduce the span of foundation elements under horizontal load.

$$F_d = f(DL + 0.5 LL)$$

where F_d = Drag force parallel to ground strain direction

f = Ultimate coefficient of friction from soil to footing

DL = Design dead load

LL = Design live load (including snow load).

b. Isolated pad footings and posts shall be designed and constructed to ensure that the post remains plumb. This may be accomplished by reducing the friction under the footing, by rigid bracing of the post in each of four directions, or by other approved means. When post footings are incorporated into rigid crosstie struts, the struts must meet the requirements of subsection I.4.a of this section.

3. Design for Lateral Earth Pressure Loads.

a. Ultimate passive soil pressure shall be assumed to act on all vertical surfaces in contact with foundation soil due to horizontal strain occurring from a subsidence event. This applies to the horizontal projection of all below grade elements. These ultimate pressures, and the distribution, shall be determined by a qualified engineer or geologist in accordance with established engineering practice. Rigid crosstie struts may be used to reduce the span of foundation elements under horizontal load.

b. Where walls and footings are subject to compression zone forces, these lateral forces may be reduced by the use of compressible backfill material such as wood chips, shredded rubber, or other approved materials. If such a material is used, it is the responsibility of a qualified engineer or geologist to determine the appropriate design loads to be applied to the structure.

4. Design for Tilt and Curvature Conditions.

- a. Foundations shall be rigid and shall be designed in accordance with standard engineering practices, but shall be able to resist as a minimum the shears and moments generated by (DL + 0.5 LL) on the support conditions specified in subsections I.4.a.i and I.4.a.ii of this section, where L is the total length of the building foundation in the direction under consideration.
 - i. An unsupported simple span length of eight feet or 0.4 L, whichever is less, anywhere within each segment of the foundation in each direction of the building.
 - ii. An unsupported cantilever length, fixed at one end and pinned at the other end, of four feet or 0.2 L, whichever is less, anywhere within each segment of the foundation in each direction of the building.
- b. Rigid foundations longer than 60 feet in severe subsidence conditions (tilts greater than one in 200) shall be designed based on an analysis made by a qualified engineer or geologist to account for the specific curvature, but shall meet subsection I.4.a of this section as a minimum.
- c. If rigid materials, such as masonry, veneer or stucco, are used in construction, allowance shall be made at all corners, joints and transitions to other materials for differential movement and settlement.
- d. Stone, brick or masonry arches are not allowed unless the supporting footing is designed per subsection I.4.a of this section for any downward gravity load directly supported on it and upward full allowable soil bearing pressure, spanning unsupported the entire outer length of the arch.
- e. The superstructure shall be bolted to the foundation to resist earth pressure, wind, and seismic forces. Bolts shall have four inches of additional thread such that the building can be disconnected, releveled, shimmed and reconnected if so required.

J. Mitigation of Trough Subsidence: Roads, Utilities, Grading, Retaining Walls.

Utilities shall be designed to accommodate the magnitudes of strains and tilts specified in these regulations by using available engineering design techniques, such as those presented by Yokel and others (1981). The following requirements shall apply to CMS Zones 1 and 2.

Structures associated with roads and utilities shall be strong enough to resist the forces induced by maximum predicted subsidence-related tilts and strains, or flexible enough to accommodate the resulting deformations. Where more stringent performance criteria are specified in these regulations, the more stringent criteria apply.

1. Grading. Gradients of landscaped areas shall be designed for the intended drainage under the most critical predicted subsidence conditions. Minimum required slopes needed for positive drainage shall be increased and maximum allowable slopes decreased by amounts equal to the slope of the predicted subsidence profile averaged over a 50-foot length. Gradients away from building foundations shall be not less than two percent.
2. Retaining Walls. Concrete or masonry retaining walls, not used as foundation elements for buildings or structures, shall be constructed with expansion joints spaced not greater than 40 feet along the length of the wall and at each corner. The joints shall extend through the wall and footing. Smooth reinforcing dowels may be used for shear

connection if one end is greased to prevent bonding of the concrete or grout. Such retaining walls shall be designed to meet the International Building Code, as adopted and amended by the City of Bellevue, other City of Bellevue regulations, and any requirements determined to be appropriate by a qualified engineer or geologist, or a licensed structural engineer.

3. Water. The system design shall be able to provide for twice the maximum predicted tilts and strains, including service lines, structures, and related appurtenances.

4. Sewer. The system design shall be able to provide for 1.5 times the maximum predicted tilts and strains, including service lines, structures, and related appurtenances. Design grades shall provide positive grade after allowing for the maximum predicted subsidence profiles.

5. Storm Drainage. The system design shall be able to provide for 1.5 times the predicted tilts and strains, including service lines, structures, and related appurtenances. Design grades shall provide positive grade after allowing for the maximum predicted subsidence profile. Detention and retention facilities shall be designed to remain functional following the occurrence of twice the maximum predicted tilts and strains. Such facilities shall only be located in CMS Zone 2 if all risk of sinkhole development has been eliminated. Detention and retention facilities shall be designed and located so that they will not cause damage or a risk to public safety.

6. Roadways and Bridges. All roadways shall be flexible material. Roadways shall have a minimum slope of not less than one-half percent plus the slope of the maximum predicted subsidence profile to facilitate maintaining positive drainage. Bridges shall be designed to safely accommodate twice the maximum strains and tilts predicted at the bridge location.

7. Private Utilities. Utility cables and pipelines shall be designed to accommodate the maximum predicted tilts and strains with suitable safety factors applied to these magnitudes. Utilities shall be designed such that failure of the utility line will not present a risk to public safety. The applicant shall present certification from the respective private utility that utilities have been designed in accordance with the above.

K. Background Information – References, and Sources for Site Evaluation.

The Coal Mine Subsidence Zone Maps have been developed in general by using conservative design criteria for shallow workings and by explicitly considering the condition of the workings in some of the northernmost deeper workings. The Zone 1 boundary is intended to represent the limit of subsidence effects that could potentially occur; the probable magnitudes of future subsidence within Zone 1 may be less or more severe based on site specific analysis. The methods used to develop the maps are described below to facilitate calculation of potential subsidence effects at specific sites.

1. CMS Zone 1. Development of the zone boundary for Zone 1 was based on conservative assumptions regarding the existing condition of the documented workings within 700 feet of the ground surface and with explicit consideration of the condition of the workings below approximately 700 feet based on available records of the mining activities in the No. 3, No. 4 and Muldoon seams.

Analyses of the workings above 700 feet and workings below 700 feet not explicitly considered as described above (i.e., No. 3, No.4 and Muldoon seams) included the

assumption that the coal seams were worked with a high extraction ratio, but have not collapsed so that the remaining mine height is equal to the seam thickness, and that the magnitude of the remaining subsidence (equivalent to the remaining mine height times the subsidence factor) will occur in the future. Individual seam thicknesses are taken from a published survey of abandoned coal mines in the Coal Creek area (Skelly and Loy, 1985). The distribution of coal mine workings has been based primarily on maps prepared for the Office of Surface Mining by Dunrud (1987). These maps are basically skeletal and do not provide complete details of past coal extraction activities. They were spot checked against the most recent submittals of the more detailed mine maps available from the Washington Department of Natural Resources, Division of Geology and Earth Resources.

Analyses of the workings in the No. 3, No. 4 and Muldoon seams below a depth of 700 feet considered the average panel width, the width and location of the barrier pillars, and the extraction ratio. The likelihood of previous collapse was assumed to have been high where mine records indicated pillars have been recovered, resulting in a high extraction ratio. Previous collapse and high extraction ratios were modeled through a reduced subsidence factor. Extraction ratios were estimated based on detailed mine maps available from the Washington Department of Natural Resources.

Subsidence profiles, tilts, and strains were calculated using the methods detailed in the Subsidence Engineers' Handbook (SEH, 1975) with adjustments as noted below. Important assumptions and calculation procedures were as follows:

- a. A subsidence factor of 0.5 was used for workings above approximately 700 feet depth and for any deeper workings not explicitly considered as noted above. The subsidence factor is based on site conditions and previous experience under similar conditions. For workings below 700 feet, a maximum subsidence factor of 0.25 was used for workings with extraction ratios of 50 percent. This subsidence factor was reduced using a curve approximating an inverted parabola. For extraction ratios of 90 percent and 10 percent on the parabolic curve, a subsidence factor of 0.1 was used.
- b. The maximum vertical subsidence for each seam was calculated as the maximum subsidence that would be predicted for a horizontal seam, multiplied by the cosine of the seam dip (Whittaker, et al., 1989, Equation 62). Coal seams in the Newcastle area of King County generally dip about 40 degrees.
- c. The maximum vertical subsidence for each panel of the workings below 700 feet was corrected for the panel width to depth ratio and for the face length to depth ratio as per Fig. 3 and Fig. 4 of the Subsidence Engineers Handbook (SEH, 1975, pp. 8-11). Barrier pillar widths were estimated from available mine maps.
- d. Downdip, centerline, and updip limit angles of 45, 15, and 15 degrees, respectively, have been assumed based on data developed by Ren, et al., as presented by Whittaker (1989, pp. 254-255). These limit angles are considered to be conservative based on lithology, but have been used in the absence of specific site data.
- e. Topography is considered in determining the point at which the limit angle intersects the ground surface.

- f. Trough subsidence profiles were first calculated for a flat seam, and then adjusted to account for seam inclination by proportioning the subsidence profile for a flat seam between the limit lines at which the limit angles determined for the inclined seams intersect the ground surface.
- g. Predicted ground tilts are calculated as the slope between adjacent points of the calculated subsidence profile.
- h. Maximum ground strains applicable for horizontal seams were multiplied by correction factors for inclined seams prior to calculating the strain profile. Correction factors to determine the updip and downdip maximum tensile strain are 0.25 and 1.75, respectively, based on Table 6 of SEH. A correction factor of 1.75 was used to determine the maximum compressive strain (Whittaker, 1989, p. 239). Strain profiles were first calculated for flat seam conditions and then converted to develop inclined seam strain profiles using the same limit angles used for the subsidence profiles. Additional correction factors for ground strain calculations considering the panel width to depth ratio (SEH, 1975, Fig. 15, p. 28) have been included in the analysis.
- i. The inclined seam subsidence and strain profiles were determined by superimposing the effects of multiple seams across eight cross sections. Subsidence and strain values were calculated at 10-foot intervals along the cross sections.

The interaction of the subsidence effects of multiple seams results in canceling of calculated tilts and strains as, for example, when the zone of compressive strains from the subsidence of one seam corresponds to the zone of tensile strains from the subsidence of an underlying seam. Depending on the assumptions that are made regarding the timing of collapse of coal mine workings, a variety of different strain and tilt values could be calculated at points located within areas potentially influenced by multiple seams.

2. CMS Zone 2. The zone of potential sinkhole development (CMS Zone 2) has been defined as all areas directly underlain by coal mine workings at a depth of 200 feet or less, documented prospects, and the area within 100 feet of such areas. The area within 100 feet of a shaft collar or slope entry is included in CMS Zone 2 even if additional coal mine workings have not been identified in the immediate area. Gangways between documented mine workings that are within 300 feet of the ground surface and are accessed by the same entry as the documented workings are included in CMS Zone 2 because of the possibility of undocumented workings at such locations.

3. References and Sources for Detailed Site Evaluation. The following sources have been used in developing these regulations. Additional information available from these sources could be used in performing detailed site evaluations for specific properties.

Dunrud, Richard, 1987, Mine Map of Newcastle Area, King County, Washington. Prepared for U.S. Department of the Interior, Office of Surface Mining, Denver, Colorado.

National Coal Board, 1975, Subsidence Engineers' Handbook.

Skelly and Loy, 1985, Abandoned Coal Mine Survey, Coal Creek, King County, Washington. Prepared for the U.S. Department of the Interior, Office of Surface Mining, Denver, Colorado.

Washington Department of Natural Resources, Division of Geology and Earth Resources. Available copies of original mine maps for the No. 3, No. 4 and Muldoon seams.

Whittaker, Barry N., and David J. Reddish, 1989, Subsidence, Occurrence, Prediction, and Control. Developments in Geotechnical Engineering, 56, published by Elsevier.

Yokel, F. Y., L. A. Salomone, and R. M. Chung, 1981, Construction of Housing in Mine Subsidence Areas. NBSIR 81-2215. (Ord. 5680, 6-26-06, § 3)

20.25H.135 Mitigation and monitoring – Additional provisions for landslide hazards and steep slopes.

In addition to the general mitigation and restoration plan requirements of LUC 20.25H.210, each mitigation or restoration plan for geologic hazard critical areas shall include:

A. Erosion and Sediment Control Plan.

The erosion and sediment control plan shall be prepared in compliance with requirements set forth in Chapter 23.76 BCC, now or as hereafter amended. Such plans shall also include, if not otherwise addressed in Chapter 23.76 BCC, the location and methods of drainage, surface water management, locations and methods of erosion control, a vegetation management and/or replanting plan, and/or other means for maintaining long-term soil stability;

B. Drainage Plan.

The technical information shall include a drainage plan for the collection, transport, treatment, discharge, and/or recycle of water prepared in accordance with applicable City codes and standards. The drainage plan should consider on-site septic system disposal volumes where the additional volume will affect the erosion or landslide hazard area;

C. Monitoring Surface Waters.

If the Director determines that there is a significant risk of damage to downstream receiving waters due to potential erosion from the site, based on the size of the project, the proximity to the receiving waters, or the sensitivity of the receiving waters, the technical information shall include a plan to monitor the surface water discharge from the site. (Ord. 5680, 6-26-06, § 3)

20.25H.140 Critical areas report – Additional provisions for landslide hazards and steep slopes.

In addition to the provisions of LUC 20.25H.230, any proposal to modify a landslide hazard or steep slope or associated critical area buffer through a critical areas report shall comply with the requirements of this section.

A. Limitation on Modification.

The provisions for coal mine hazard areas in LUC 20.25H.130 may not be modified through a critical areas report.

B. Area Addressed in Critical Area Report.

In addition to the general requirements of LUC 20.25H.230, the following areas shall be addressed in a critical areas report for geologically hazardous areas:

1. Site and Construction Plans. The report shall include a copy of the site plans for the proposal and a topographic survey;
2. Assessment of Geological Characteristics. The report shall include an assessment of the geologic characteristics of the soils, sediments, and/or rock of the project area and potentially affected adjacent properties, and a review of the site history regarding landslides, erosion, and prior grading. Soils analysis shall be accomplished in accordance with accepted classification systems in use in the region;
3. Analysis of Proposal. The report shall contain a hazards analysis including a detailed description of the project, its relationship to the geologic hazard(s), and its potential impact upon the hazard area, the subject property, and affected adjacent properties; and
4. Minimum Critical Area Buffer and Building Setback. The report shall make a recommendation for a minimum geologic hazard critical area buffer, if any, and minimum building setback, if any, from any geologic hazard based upon the geotechnical analysis. (Ord. 5717, 2-20-07, § 10; Ord. 5680, 6-26-06, § 3)

20.25H.145 Critical areas report – Approval of modification.

Modifications to geologic hazard critical areas and critical area buffers shall only be approved if the Director determines that the modification:

- A. Will not increase the threat of the geological hazard to adjacent properties over conditions that would exist if the provisions of this part were not modified;
- B. Will not adversely impact other critical areas;
- C. Is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the provisions of this part were not modified;
- D. Is certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington;
- E. The applicant provides a geotechnical report prepared by a qualified professional demonstrating that modification of the critical area or critical area buffer will have no adverse impacts on stability of any adjacent slopes, and will not impact stability of any existing structures. Geotechnical reporting standards shall comply with requirements developed by the Director in City of Bellevue Submittal Requirements Sheet 25, Geotechnical Report and Stability Analysis Requirements, now or as hereafter amended;
- F. Any modification complies with recommendations of the geotechnical support with respect to best management practices, construction techniques or other recommendations; and
- G. The proposed modification to the critical area or critical area buffer with any associated mitigation does not significantly impact habitat associated with species of local importance, or such habitat that could reasonably be expected to exist during the anticipated life of the development proposal if the area were regulated under this part. (Ord. 5680, 6-26-06, § 3)

VIII. HABITAT ASSOCIATED WITH SPECIES OF LOCAL IMPORTANCE

20.25H.150 Designation of critical area.**A. Definition of a Species of Local Importance.**

The following species are hereby designated as species of local importance:

1. Bald eagle (*Haliaeetus leucocephalus*);
2. Peregrine falcon (*Falco peregrinus*);
3. Common loon (*Gavia immer*);
4. Pileated woodpecker (*Dryocopus pileatus*);
5. Vaux's swift (*Chaetura vauxi*);
6. Merlin (*Falco columbarius*);
7. Purple martin (*Progne subis*);
8. Western grebe (*Aechmophorus occidentalis*);
9. Great blue heron (*Ardea herodias*);
10. Osprey (*Pandion haliaetus*);
11. Green heron (*Butorides striatus*);
12. Red-tailed hawk (*Buteo jamaicensis*);
13. Western big-eared bat (*Plecotus townsendii*);
14. Keen's myotis (*Myotis keenii*);
15. Long-legged myotis (*Myotis volans*);
16. Long-eared myotis (*Myotis evotis*);
17. Oregon spotted frog (*Rana pretiosa*);
18. Western toad (*Bufo boreas*);
19. Western pond turtle (*Clemmys marmorata*);
20. Chinook salmon (*Oncorhynchus tshawytscha*);
21. Bull trout (*Salvelinus confluentus*);
22. Coho salmon (*Oncorhynchus kisutch*);
23. River lamprey (*Lampetra ayresi*).

B. Habitat (other than the critical areas and critical area buffers otherwise designated in LUC 20.25H.025) associated with species of local importance is hereby designated a critical area; provided, that compliance with these species of local importance regulations, LUC 20.25H.150 through LUC 20.25H.170 inclusive, shall constitute compliance with the requirements of this part where such habitat is located outside of other critical areas designated in this part.

C. Naturally occurring ponds of under 20 acres (see LUC 20.50.036) are hereby designated critical areas.

D. Designation of Critical Area for Naturally Occurring Ponds. The following critical area buffer is hereby established for naturally occurring ponds that are not classified as a stream, shoreline, or wetland:

Naturally occurring ponds where no other critical area designation applies: 35 feet

(Ord. 5680, 6-26-06, § 3)

20.25H.155 Uses in habitat for species of local importance.

The uses allowed in the underlying land use district are allowed within habitat associated with species of local importance, so long as the development complies with the performance standards of LUC 20.25H.160. The section does not allow modification of other critical areas or critical area buffers. (Ord. 5680, 6-26-06, § 3)

20.25H.160 Performance standards.

If habitat associated with species of local importance will be impacted by a proposal, the proposal shall implement the wildlife management plan developed by the Department of Fish and Wildlife for such species. Where the habitat does not include any other critical area or critical area buffer, compliance with the wildlife management plan shall constitute compliance with this part.

20.25H.165 Critical areas report – Additional provisions.

In addition to the general critical areas report requirements of LUC 20.25H.230, critical areas reports to modify the performance standards for habitat for species of local importance must meet the requirements of this section.

A. Habitat Assessment.

A habitat assessment is an investigation of the site to evaluate the potential presence or absence of designated species of local importance or habitat for species of local importance. A critical areas report for habitat for species of local importance shall contain an assessment of habitats including the following site- and proposal-related information at a minimum:

1. Detailed description of vegetation on and adjacent to the site;
2. Identification of any species of local importance that have a primary association with habitat on or adjacent to the site, and assessment of potential project impacts to the use of the site by the species;
3. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the site;
4. A detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts to water quality;
5. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to

the current proposed use or activity and to be conducted in accordance with the mitigation sequence set forth in LUC 20.25H.215; and

6. A discussion of ongoing management practices that will protect habitat after the site has been developed, including proposed monitoring and maintenance programs. (Ord. 5680, 6-26-06, § 3)

20.25H.170 Process to identify additional species of local importance.

A. Designation Process.

Additional species of local importance may be designated pursuant to the Land Use Code amendment process, Part 20.30J LUC.

B. Additional Decision Criteria.

In addition to the decision criteria of LUC 20.30J.135, a species may be designated a species of local importance only if it demonstrates the following characteristics:

1. Local populations of native species are in danger of extirpation based on existing trends:
 - a. Local populations of native species that are likely to become endangered; or
 - b. Local populations of native species that are vulnerable or declining;
2. The species or habitat has recreation, commercial, game, tribal, or other special value;
3. Long-term persistence of a species is dependent on the protection of the species through the provisions of this part;
4. Protection by other county, state, or federal policies, laws, regulations, or nonregulatory tools is not adequate to prevent degradation of the species or habitat in the City; and
5. Without protection, there is a likelihood that the species or habitat will be diminished over the long term.

C. Effect of Designation.

Designation of a species of local importance under this section shall not impact projects or proposals with a vested application or approved permit. (Ord. 5680, 6-26-06, § 3)

IX. AREAS OF SPECIAL FLOOD HAZARD

20.25H.175 Designation of critical area. Amended Ord. 6013

A. Designation of Critical Area.

Areas of special flood hazard shall include:

1. Land Subject to One-Hundred-Year Flood. The land in the floodplain subject to the flood having a one percent chance or greater of being equaled or exceeded in any given year as determined by customary methods of statistical analysis defined in the Utility Code, Chapter 24.06 BCC. Also referred to as the 100-year flood.

2. Areas Identified on the Flood Insurance Rate Map(s). Those areas identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Bellevue" dated December 1978, with an accompanying flood insurance map(s) and any revisions thereto. The Flood Insurance Study and accompanying map(s) are hereby adopted by reference, declared part of this part, and are available for public review at the City of Bellevue.
3. Additional Areas. Other areas designated by the Director pursuant to this section shall be considered areas of special flood hazard.
4. Designation of Areas of Special Flood Hazard. Flood Insurance Rate Maps are to be used as a guide for the City of Bellevue, project applicants, and/or property owners to identify areas of special flood hazard. Flood Insurance Rate Maps may be continuously updated as areas are reexamined or new areas are identified. Newer and more restrictive information for flood hazard area identification shall be the basis for regulation.
5. Use of Additional Information. The Director may use additional flood information that is more restrictive or detailed than that provided in the Flood Insurance Study to designate areas of special flood hazard, including data on channel migration, historical data, high water marks, photographs of past flooding, location of restrictive floodways, maps showing future build-out conditions, maps that show stream habitat areas, or similar information.
6. Flood Elevation Data. When base flood elevation data is not available (A and V zones), the Director shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source, in order to administer provisions for the area of special flood hazard. In areas of special flood hazard where the BFE has increased due to remapping efforts, the new BFE will establish the regulatory limit. (Ord. 5680, 6-26-06, § 3)

20.25H.177 Definitions. Amended Ord. 6013

For purposes of the regulations for the area of special flood hazard, the following definitions apply:

"Base flood elevation (BFE)" means the flood having a one percent chance of being equaled or exceeded in any given year as determined by customary methods of statistical analysis defined in the Utility Code, Chapter 24.06 BCC. Also referred to as the 100-year flood.

"Basement" means any area of the building having its floor subgrade (below ground level) on all sides.

"Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters; or
2. The unusual and rapid accumulation or runoff of surface waters from any source.

"Flood Insurance Rate Map" means the map delineating special flood hazard areas effective December, 1978, that was prepared by the Federal Insurance Administration for the City or as subsequently revised by the Federal Emergency Management Agency.

"Floodproofing" means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

"Hyporheic zone" means the saturated zone located beneath and adjacent to streams that contains some portion of surface waters, serves as a filter for nutrients and maintains water quality.

"Lowest floor" means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking vehicles, building access or storage, in an area other than a basement area, is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable nonelevation design requirements of this part found in LUC 20.25H.180.

"Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include "recreational vehicle."

One-Hundred-Year Flood. See "Base flood elevation (BFE)."

"Pre-FIRM building" means a building constructed prior to December 1, 1978.

"Recreational vehicle" means a vehicle which is:

1. Built on a single chassis;
2. Four hundred square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light duty truck; and
4. Designed primarily not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel, or seasonal use.

"Structure" means a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a mobile home.

"Substantial improvement" includes the following: Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the replacement value of the structure either (1) before the improvement or repair is started, or (2) if the structure has been damaged, and is being restored, before the damage occurred. For the purpose of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either (1) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions or (2) any alteration of a structure listed on the National Register of Historic Places. (Ord. 5680, 6-26-06, § 3)

20.25H.180 Development in the area of special flood hazard. Amended Ord. 6013

No use, development or activity may occur in an area of special flood hazard except as specifically allowed by this part. All use, development or activity which is allowed is subject to the performance standards of this subsection and shall not result in a rise in the BFE. The requirements of this section may not be modified through a critical areas report.

A. Existing Development Declared Legally Nonconforming.

All development within the area of special flood hazard for which a vested Building Permit application exists prior to the effective date of this part and which fails to comply with the requirements of this part is legal nonconforming development. Lateral additions, new development or substantial improvements to a legally nonconforming development shall be allowed in compliance with subsection D of this section, and shall comply with the applicable performance standards of this section. Any other modification to a legally nonconforming development shall not result in a rise in the BFE.

B. Review of Proposed Development – Applicable Process.

Proposals for development in the areas of special flood hazard shall require a Critical Areas Land Use Permit, Part 20.30P LUC. The Director shall determine that all necessary permits have been obtained from federal, state, or local agencies prior to approval.

C. General Performance Standards.

Where use or development is allowed pursuant to LUC 20.25H.055, the following general performance standards apply.

1. Intrusion Over the Area of Special Flood Hazard Allowed. Any structure may intrude over the area of special flood hazard if:

- a. The intrusion is located above existing grade, and does not alter the configuration of the area of special flood hazard; and
- b. The intrusion is at an elevation and orientation which maintains the existing vegetation of the area of special flood hazard in a healthy condition. Solar access to vegetation must be maintained at least 50 percent of daylight hours during the normal growing season.

Development not meeting the requirements of this subsection C.1 may be allowed pursuant to LUC 20.25H.055 and only in accordance with the requirements set forth in the remainder of this section C.

2. Elevation Certificate Following Construction. Following construction of a structure within the area of special flood hazard, where the base flood elevation is provided, the applicant shall obtain an elevation certificate. The elevation certificate shall be completed by a surveyor or engineer licensed in the state of Washington and shall be submitted to City of Bellevue, Utilities Department. The Director of Planning and Community Development shall obtain and transmit to the Director of the Utilities Department the elevation in relation to City of Bellevue vertical datum (NAVD 88) of the lowest floor, including basement, and attendant utilities of a new or substantially improved structure permitted by this part.

3. Construction Materials and Methods.

- a. Site Design. All structures, utilities, and other improvements shall be located on the buildable portion of the site out of the area of special flood hazard unless there is no buildable site out of the area of special flood hazard. For sites with no buildable area out of the area of special flood hazard, structures, utilities, and other improvements shall be placed on the highest land on the site, oriented parallel to flow rather than perpendicular, and sited as far from the stream and other critical areas as

- possible. Located in flood-fringe where flood flow velocities are less than three feet per second and flood depths are less than three feet. If the Director detects any evidence of active hyporheic exchange on a site, the development shall be located to minimize disruption of such exchange.
- b. **Methods that Minimize Flood Damage.** All new construction and substantial improvements shall be constructed using flood-resistant materials and using methods and practices that minimize flood damage.
 - c. **Utility Protection.** Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
 - d. **Anchoring.** All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
4. **No Rise in the Base Flood Elevation (BFE).** Any allowed use or development shall not result in a rise in the BFE.
- a. **Post and Pile.** Post and piling techniques are preferred and are presumed to produce no increase in the BFE. Demonstration of no net rise in the BFE through calculation is not required.
 - b. **Compensatory Storage.** Proposals using compensatory storage techniques to assure no rise in the BFE shall demonstrate no net rise in the BFE through the calculation by methods established in the Utilities Engineering Standards, Section D4-04.5, Flood Plain/Floodway Analysis.
5. **Modification of Stream Channel.** Alteration of open stream channels shall be avoided, if feasible. If unavoidable, the following provisions shall apply to the alteration:
- a. Modifications shall only be allowed in accordance with the habitat improvement projects.
 - b. Modification projects shall not result in blockage of side channels.
 - c. The City of Bellevue shall notify adjacent communities, the state departments of Ecology and Fish and Wildlife, and the Federal Insurance Administration about the proposed modification at least 30 days prior to permit issuance.
 - d. The applicant shall maintain the altered or relocated portion of the stream channel to ensure that the flood-carrying capacity is not diminished. Maintenance shall be bonded for a period of five years, and be in accordance with an approved maintenance program.
6. **Compensatory Storage.** Development proposals must not reduce the effective base flood storage volume of the area of special flood hazard. Grading or other activity that would reduce the effective storage volume must be mitigated by creating compensatory storage on the site. The compensatory storage must:
- a. Provide equivalent elevations to that being displaced;
 - b. Be hydraulically connected to the source of flooding;

- c. Be provided in the same construction season and before the flood season begins on September 30th;
- d. Occur on-site or off-site if legal arrangements can be made to assure that the effective compensatory storage volume will be preserved over time;
- e. Be supported by a detailed hydraulic analysis that:
 - i. Is prepared by a licensed engineer;
 - ii. Demonstrates that the proposed compensatory storage does not adversely affect the BFE; and
- f. Meet all other critical areas rules subject to this part. If modification to a critical area or critical area buffer is required to complete the compensatory storage requirement, such modification shall be mitigated pursuant to an approved mitigation and restoration plan, LUC 20.25H.210.

D. Specific Performance Standards.

Where use or development is allowed pursuant to LUC 20.25H.055, the following specific performance standards apply.

1. Modification of Existing Development and Existing Nonconforming Development. Lateral additions and substantial improvements to existing development and existing nonconforming development is allowed only through a reasonable use exception, LUC 20.25H.190.

a. Substantial Improvements. Substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation (BFE). Fully enclosed areas below the BFE that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

- i. A minimum of two openings having a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding shall be provided.
- ii. The bottom of all openings shall be no higher than one foot above grade.
- iii. Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.
- iv. Enclosed areas (including breakaway walls) below the BFE shall be no larger than 300 square feet.

b. Lateral Additions. Lateral additions to structures that qualify as a substantial improvement must meet the elevation standards of new construction. If the common wall between the lateral addition and the existing structure is demolished as part of the project, then the entire structure must meet the elevation standards of new

construction. If only a doorway or similar opening is knocked through, only the addition has to meet the elevation standards.

c. **Pre-FIRM Buildings.** Pre-FIRM buildings that qualify as a substantial improvement (including lateral additions) must meet the elevation standards of new construction.

2. **Repair and Maintenance of Existing Parks and Park Facilities – New or Expanded City and Public Parks.** Substantial improvement of any structure in the area of special flood hazard must comply with the nonresidential performance standards found in this section.

3. **New or Expanded Essential Public Facilities.**

a. The facility is elevated or protected to the 100-year flood elevation.

b. Dry floodproofing and sealing measures must be taken to ensure that hazardous or toxic substances will not be displaced by or released into floodwaters.

4. **New or Expanded Public Rights-of-Way, Private Roads, Access Easements and Driveways.**

a. The low chord on the bridge structure will be no less than the elevation of the BFE.

b. Access to Essential Public Facilities must be elevated to or above the BFE to the nearest maintained public street or roadway.

5. **Public Flood Protection Measures.** Such projects may be allowed in the area of special flood hazard and may increase the BFE; provided, that the project produces measurable benefits, such as decreased erosion, peak flow reduction, improved water quality, improved aquatic habitat and doesn't threaten structures. Prior to approval, the applicant shall obtain conditional approval from the Region X FEMA office to increase the BFE, where applicable.

6. **Recreational Vehicles.** Recreational vehicles are required to either:

a. Be on the site for fewer than 180 consecutive days; and

b. Be fully licensed and ready for highway use on its wheels or jacking system, be attached to the site only by quick-disconnect-type utilities and security devices, and have no permanently attached additions; or

c. Obtain a development permit and meet the requirements, including elevation and anchoring, for manufactured homes.

7. **Reasonable Use Exception.** Where a reasonable use exception is granted under LUC 20.25H.190, the following performance standards apply:

a. **Residential Construction (Single-Family and Multifamily Dwellings).**

i. **Must Be Above Base Flood Elevation.** New construction of any residential structure shall have the lowest floor, including basement and attendant utilities, elevated one foot or more above the base flood elevation.

ii. Enclosed areas (including breakaway walls) below the BFE shall be no larger than 300 square feet.

b. **Manufactured Homes.** All manufactured homes must meet the elevation standards for new construction. All manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors.

c. **Nonresidential Construction.**

i. New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot or more above the base flood elevation, or

ii. Together with attendant utility and sanitary facilities, shall:

(A) Be floodproofed so that below one foot or more above the base flood elevation the structure is watertight with walls substantially impermeable to the passage of water;

(B) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(C) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications, and plans. Such certification shall be provided to the Department of Planning and Community Development. Following construction of the structure, elevation certificates shall be submitted to the City that record the actual (as-built) elevation to which the structure was floodproofed.

iii. Fully enclosed areas below the BFE that are not floodproofed shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect, or must meet or exceed the following minimum criteria:

(A) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;

(B) The bottom of all openings shall be no higher than one foot above grade; and

(C) Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.

iv. **Lateral Additions.** Lateral additions to structures that qualify as a substantial improvement must meet the elevation standards of new nonresidential construction. If the common wall between the lateral addition and the existing structure is demolished as part of the project, then the entire structure must meet

the standards of new, nonresidential construction. If only a doorway or similar is knocked through, only the addition has to meet the construction standards.

v. Pre-FIRM Buildings. Pre-FIRM buildings that qualify as a substantial improvement (including lateral additions) must meet the elevation standards of new construction. (Ord. 5680, 6-26-06, § 3)

X. REASONABLE USE EXCEPTION

20.25H.190 Reasonable use exception – Purpose.

The reasonable use exception is a mechanism by which the City may approve limited use and disturbance of a critical area and critical area buffer when no other use of the property constitutes a reasonable alternative. (Ord. 5680, 6-26-06, § 3)

20.25H.195 Reasonable use exception – Process.

A request for a reasonable use exception shall be processed as a Critical Areas Land Use Permit, Part 20.30P LUC. (Ord. 5680, 6-26-06, § 3)

20.25H.200 Reasonable use exception – Applicability.

A. When Allowed.

A reasonable use exception may be granted when no other reasonable use of property exists by the application of the regulations of this part. "Reasonable use" is defined for each land use district and site as follows:

1. Single-Family Land Use Districts – Large Lots.

a. Large Lot Defined. A "large lot" is any lot that earns more than one unit of density under the density/intensity calculation set forth in LUC 20.25H.045.

b. Reasonable Use for Large Lots. A large lot will be considered to have no reasonable uses under the regulations of this part where no more than one unit can be created through the subdivision process, Part 20.45A LUC, or the short subdivision process, Part 20.45B LUC, after maximizing the dimensional modifications allowed in LUC 20.25H.040 and in Part 20.45A or 20.45B LUC for conservation subdivisions or conservation short subdivisions, as applicable. In such cases, the Director may allow disturbance within a critical area and critical area buffer as follows:

i. Up to 10 percent of the total site area may be disturbed for development, including all structures, grading, utility installation, landscaping and other necessary land alteration; but not including areas of temporary disturbance associated with construction, which areas shall be restored pursuant to LUC 20.25H.210. The Director shall allow more than 10 percent of the total site area to be disturbed where necessary to allow the creation of two units, each of which includes an area for development equal to the area set forth in subsection A.2.b of this section;

ii. Density shall not exceed the density allowed under LUC 20.25H.045; provided, that in no event shall allowed density be less than two units;

iii. Where more than one unit is created, the applicant shall also follow the processes of subdivision (Part 20.45A LUC), short subdivision (Part 20.45B

LUC), or Planned Unit Development (Part 20.30D LUC), including applicable decision criteria, except as modified in this section; and

iv. Through this reasonable use exception, minimum lot size and other dimensional requirements may be modified as necessary to accommodate the allowed reasonable development; provided, that the resulting development is compatible with other development or potential development in the immediate vicinity of the subject property in the same zone and with similar site constraints.

c. Performance Standards. Where disturbance of a critical area or critical area buffer is allowed under this section, development is subject to the performance standards of LUC 20.25H.205 below.

2. Single-Family Land Use Districts – Small Lots.

a. Small Lot Defined. A "small lot" is any lot that does not earn more than one unit under the density/intensity calculation of LUC 20.25H.045.

b. Reasonable Use for Small Lots. A small lot will be considered to have no reasonable use under the regulations of this part where the area available for development, including all structures, grading, utility installation, landscaping and other necessary land alteration, is less than the amount set forth in the table in subsection A.2.b.i of this section; but not including areas of temporary disturbance associated with construction, which areas shall be restored pursuant to LUC 20.25H.210. In such cases, the Director may allow disturbance within a critical area and critical area buffer as allowed in this subsection A.2. For purposes of this section, the area available for development is that consolidated area of the site outside of the critical area and critical area buffer.

i. Minimum available development area:

Land Use District	R-1	R-1.8	R-2.5	R-3.5	R-4	R-5	R-7.5
Area available for development (in square feet)	3,000	3,000	3,000	2,625	2,231	2,160	1,410

**Not effective within the jurisdiction of the East Bellevue Community Council*

ii. Where the area available for development is less than described above, the Director may allow disturbance in a critical area and critical area buffer to the extent required to create a consolidated area for development equal to the amounts set forth in subsection A.2.b.i of this section.

c. Performance Standards. Where disturbance of a critical area or critical area buffer is allowed under this section, development is subject to the performance standards of LUC 20.25H.205.

3. Single-Family Land Use Districts – Nonresidential Uses.

a. Reasonable Use. The reasonable use process applies to lots that are more than 90 percent constrained by critical area and critical area buffer and proposed for a nonresidential use. In such cases, the Director may allow disturbance within a critical area and critical area buffer as follows:

- i. Up to 10 percent of the total site area, or 3,000 square feet, whichever is greater, may be disturbed for development, including all structures, grading, utility installation, landscaping and other necessary land alteration; but not including areas of temporary disturbance associated with construction, which areas shall be restored pursuant to LUC 20.25H.210; and
 - ii. Density shall not exceed the density allowed under LUC 20.25H.045.
 - b. Performance Standards. Where disturbance of a critical area or critical area buffer is allowed under this section, development is subject to the performance standards of LUC 20.25H.205.
4. All Other Land Use Districts.
 - a. Reasonable Use. The reasonable use process applies to lots that are more than 90 percent constrained by critical area and critical area buffer. In such cases, the Director may allow disturbance within a critical area and critical area buffer as follows:
 - i. Up to 10 percent of the total site area, or 3,000 square feet, whichever is greater, may be disturbed for development, including all structures, grading, utility installation, landscaping and other necessary land alteration; but not including areas of temporary disturbance associated with construction, which areas shall be restored pursuant to LUC 20.25H.210; and
 - ii. Density shall not exceed the density allowed under LUC 20.25H.045. (Ord. 5680, 6-26-06, § 3)

20.25H.205 Reasonable use exception – Performance standards.

Where disturbance of a critical area or critical area buffer is allowed under this section, development is subject to the following performance standards. Additional performance standards apply to development in streams (LUC 20.25H.080), wetlands (LUC 20.25H.100), geologic hazard areas (LUC 20.25H.125), and areas of special flood hazard (LUC 20.25H.180). Where a conflict exists with the performance standards of this section, the provisions providing the most protection to critical area functions and values apply.

- A. The structure shall be located on the site in order to minimize the impact on the critical area or critical area buffer, including modifying the non-critical area setbacks to the maximum extent allowed under LUC 20.25H.040;
- B. Ground floor access points on portions of the structure adjacent to undisturbed critical area or critical area buffer shall be limited to the minimum necessary to comply with the requirements of the International Building Code and International Fire Code, as adopted and amended by the City of Bellevue;
- C. Associated development, including access driveways and utility infrastructure shall be located outside of the critical area or critical area buffer to the maximum extent technically feasible;
- D. Areas of disturbance for associated development, including access and utility infrastructure shall be consolidated to the maximum extent technically feasible;
- E. All areas of temporary disturbance associated with utility installation, construction staging and other development shall be determined by the Director and delineated in the field prior to

construction and temporary disturbance shall be restored pursuant to a restoration plan meeting the requirements of LUC 20.25H.210;

F. Areas of permanent disturbance shall be mitigated to the maximum extent feasible on-site pursuant to a mitigation plan meeting the requirements of LUC 20.25H.210; and

G. Fencing, signage and/or additional buffer plantings should be incorporated into the site development in order to prevent long-term disturbance within the critical area or critical area buffer. (Ord. 5680, 6-26-06, § 3)

XI. GENERAL MITIGATION AND RESTORATION REQUIREMENTS

20.25H.210 Applicability.

Where a mitigation or restoration plan is required under this part or Part 20.25E LUC, the plan shall be developed in accordance with the standards of LUC 20.25H.210 through 20.25H.225 inclusive. Any mitigation or restoration plan shall be approved as part of the permit or approval required for the underlying activity. Where a project requires a critical areas report and a mitigation or restoration plan, the mitigation or restoration plan may be included with the critical areas report. (Ord. 5680, 6-26-06, § 3)

20.25H.215 Mitigation sequencing.

Applicants shall demonstrate that all reasonable efforts have been examined with the intent to avoid and minimize impacts to the critical area and/or critical area buffer. When an alteration to a critical area is proposed, such alteration shall be avoided, minimized, or compensated for in the following order of preference:

- A. Avoiding the impact altogether by not taking a certain action or parts of an action;
- B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
- C. Performing the following types of mitigation (listed in order of preference):
 1. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
 2. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
 3. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;
- D. Monitoring the hazard or other required mitigation and taking remedial action when necessary.

Mitigation for individual actions may include a combination of the above measures. (Ord. 5680, 6-26-06, § 3)

20.25H.220 Mitigation and restoration plan requirements.

The applicant shall submit a mitigation or restoration plan for approval as part of the review of the underlying proposal. Where standard restoration requirements or templates have been approved by the Director for the proposal in question, those requirements or templates may be followed without need for submission of an individual mitigation or restoration plan. These

general requirements shall be modified for areas of temporary disturbance included as part of an approved Critical Areas Land Use Permit or use or development allowed under LUC 20.25H.055, so long as the requirements of subsection H of this section are met.

A. Plan Phases.

Where an applicant is seeking modifications to this part or Part 20.25E LUC through a critical areas report pursuant to LUC 20.25H.230, the mitigation plan required for the proposal may be submitted in phases. A conceptual plan shall be submitted as part of the critical areas report and approved with the land use approval for the proposal. A detailed plan shall be approved prior to or with approval of the first permit or other approval required to perform work associated with the proposal.

B. Restoration and Mitigation Project Details.

The plan shall be prepared by a qualified professional and shall at minimum include the content identified in this section. Additional requirements may be found for specific critical areas in LUC 20.25H.085 (streams); 20.25H.105 (wetlands); and 20.25H.135 (geologic hazard areas). Additional detail about the contents of restoration and mitigation plans may be developed by the Director in submittal requirements. The Director may waive any of the plan requirements where, in the Director's discretion, the information is not necessary to develop a mitigation or restoration plan that addresses the impacts of the proposed action.

1. A written report identifying environmental goals and objectives of the restoration or compensation proposed, based on replacing or restoring the critical area and critical area buffer functions and values impacted by the proposal;
2. Measurable specific criteria for evaluating whether or not the goals and objectives of the mitigation or restoration project have been successfully attained and whether or not the requirements of this part have been met; and
3. Written specifications and descriptions of the restoration or mitigation proposed.
 - a. When the mitigation plan is submitted as a single-phase, or for the detailed plan phase when submitted in two phases, these written specifications shall be accompanied by detailed site diagrams, scaled cross sectional drawings, topographic maps showing slope percentage and final grade elevations, and any other drawings appropriate to show construction techniques or anticipated final outcome.
 - b. When the mitigation plan is submitted in phases pursuant to subsection A of this section, the written specifications may be general in nature for the conceptual phase, including general identification of areas for work, planting species, size and number. The more precise details may be provided in the detailed plan phase.

C. Timing of Work.

Unless a different time period is established in another section of this part, or is established by the Director in the approval for a specific project, all work required in a mitigation or restoration plan shall be completed prior to final inspection or issuance of a temporary certificate of occupancy or certificate of occupancy, as applicable, for the development.

D. Monitoring Program.

The plan shall include a program for monitoring construction of the mitigation project and for assessing a completed project. The mitigation project shall be monitored for a period necessary to establish that performance standards have been met, but not for a period less than five years. The required monitoring period for a plan involving restoration only shall be reduced to a period of not less than three years.

E. Contingency Plan.

The mitigation plan shall include identification of potential courses of action, and any corrective measures to be taken if monitoring or evaluation indicates project performance standards are not being met and such failure would result in significant impact on the critical area or buffer. A plan involving restoration only is not required to include a contingency plan.

F. Assurance Devices.

The Director may require assurance devices in compliance with LUC 20.40.490 to ensure that the approved mitigation, monitoring program, contingency plan and any conditions of approval are fully implemented.

G. Mitigation for City Park Projects.

Through a critical areas report, impacts of City park projects on critical areas and critical area buffers may be mitigated through restoration or enhancement of critical areas on other City park sites. Such restoration or enhancement may include restoration or enhancement projects completed prior to the proposal for which mitigation is required, so long as the restoration or enhancement project was not performed as mitigation for any other public or private project. The critical areas report shall demonstrate that the proposed mitigation restores the impacted critical area functions and values at least as well as mitigation performed on-site and in-kind associated with the development proposal. The Director may require an NGPE or NGPA be recorded for the mitigation area to ensure that it is maintained in perpetuity.

H. Restoration for Areas of Temporary Disturbance.

The Director may impose conditions for the restoration of areas of temporary disturbance included as part of an approved Critical Areas Land Use Permit or use or development allowed under LUC 20.25H.055, without requiring the restoration plan and other measures described in this section, so long as the following requirements are satisfied:

1. All areas of temporary disturbance shall be identified in the plans approved with the Critical Areas Land Use Permit or allowed use or development and shall be the minimum necessary to allow the completion of the approved use or development. For uses and development involving the repair or renovation of existing structures that can be accessed from non-critical area or critical area buffer, the minimum necessary area of temporary disturbance shall be no greater than 10 feet around the perimeter of the existing structure. Proposals involving areas of greater disturbance shall require a full restoration plan under this section. The Director may impose conditions requiring areas of temporary disturbance to be marked in the field through the use of markers, fencing, or other means;
2. The condition of the areas of temporary disturbance existing prior to undertaking any development activity shall be documented with the proposal. The Director may require

photographic evidence, site plans showing the size, location and type of existing vegetation, or other materials to document existing conditions;

3. The Director shall impose a condition that the area be restored to existing conditions prior to final approval of the work performed, or within 30 days following completion of the work if no final approval is required; and

4. The Director shall impose a condition requiring monitoring of the restored area and additional restoration to achieve existing conditions, consistent with subsection D of this section; provided, that the Director may reduce the monitoring period to not less than one year from completion of the original restoration. (Ord. 5680, 6-26-06, § 3)

20.25H.225 Innovative mitigation.

The Director may encourage, facilitate, and approve innovative mitigation projects that are based on the best available science. (Ord. 5680, 6-26-06, § 3)

XII. CRITICAL AREAS REPORT

20.25H.230 Critical areas report – Purpose.

A critical areas report is a mechanism by which the requirements of this part, certain requirements of Part 20.25E LUC as set forth in that part, and the impervious surface standards set forth in LUC 20.20.010 may be modified for a specific proposal.

The critical areas report is intended to provide flexibility for sites where the expected critical area functions and values are not present due to degraded conditions or other unique site characteristics, or for proposals providing unique design or protection of critical area functions and values not anticipated by this part. The scope and complexity of information required in a critical areas report will vary, depending on the scope and complexity and magnitude of impact on critical areas and critical area buffers associated with the proposed development. Generally, the critical areas report must demonstrate that the proposal with the requested modifications leads to equivalent or better protection of critical area functions and values than would result from the application of the standard requirements. Where the proposal involves restoration of degraded conditions in exchange for a reduction in regulated critical area buffer on a site, the critical areas report must demonstrate a net increase in certain critical area functions. (Ord. 5680, 6-26-06, § 3)

20.25H.235 Critical areas report – Review process.

Requests for modifications to the requirements of this part through a critical areas report shall be processed through a Critical Areas Land Use Permit. Where additional permits are required for the underlying use or activity, the permits may be merged. (Ord. 5680, 6-26-06, § 3)

20.25H.240 Critical areas report – Limitation on modifications.

The critical areas report may not be used to modify sections of the Land Use Code outside of this part and Part 20.25E LUC unless otherwise expressly permitted. The critical areas report may not be used to modify the definitions of critical areas or definitions of stream types or wetland categories, or any other provision of this part that expressly prohibits modification. The critical areas report may not be used to modify streams, wetlands, or the shoreline below the ordinary high water mark unless otherwise expressly permitted. Additional limitations on modifications for specific critical areas may be found in the sections of this part addressing that critical area. (Ord. 5680, 6-26-06, § 3)

20.25H.245 Incorporation of best available science.

The critical areas report shall use scientifically valid methods and studies in the analysis of critical area data and field reconnaissance and reference the source of science used, where applicable. The critical area report shall evaluate the proposal and all probable impacts to critical areas in accordance with the provisions of this part. (Ord. 5680, 6-26-06, § 3)

20.25H.250 Critical areas report – Submittal requirements.**A. Specific Proposal Required.**

A critical areas report must be submitted as part of an application for a specific development proposal. In addition to the requirements of this section, additional information may be required for the permit applicable to the development proposal.

B. Minimum Report Requirements.

The critical areas report shall be prepared by a qualified professional and shall at minimum include the content identified in this section. The Director may waive any of the report requirements where, in the Director's discretion, the information is not necessary to assess the impacts of the proposal and the level of protection of critical area function and value accomplished. At a minimum, the report shall contain the following:

1. Identification and classification of all critical areas and critical area buffers on the site;
2. Identification and characterization of all critical areas and critical area buffers on those properties immediately adjacent to the site;
3. Identification of each regulation or standard of this code proposed to be modified;
3. A habitat assessment consistent with the requirements of LUC 20.25H.165;
4. An assessment of the probable cumulative impacts to critical areas resulting from development of the site and the proposed development;
5. An analysis of the level of protection of critical area functions and values provided by the regulations or standards of this code, compared with the level of protection provided by the proposal. The analysis shall include:
 - a. A discussion of the functions and values currently provided by the critical area and critical area buffer on the site and their relative importance to the ecosystem in which they exist;
 - b. A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through application of the regulations and standards of this Code over the anticipated life of the proposed development; and
 - c. A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through the modifications and performance standards included in the proposal over the anticipated life of the proposed development;
6. A discussion of the performance standards applicable to the critical area and proposed activity pursuant to LUC 20.25H.160, and recommendation for additional or modified performance standards, if any;

7. A discussion of the mitigation requirements applicable to the proposal pursuant to LUC 20.25H.210, and a recommendation for additional or modified mitigation, if any; and
8. Any additional information required for the specific critical area as specified in the sections of this part addressing that critical area.

C. Additional Report Submittal Requirements.

1. Unless otherwise provided, a critical areas report may be supplemented by or composed, in whole or in part, of any reports or studies required by other laws and regulations or previously prepared for and applicable to the development proposal site, as approved by the Director.
2. Where a project requires a critical areas report and a mitigation or restoration plan, the mitigation or restoration plan may be included with the critical areas report, and may be considered in determining compliance with the applicable decision criteria, except as set forth in subsection C.4 of this section.
3. The applicant may consult with the Director prior to or during preparation of the critical areas report to obtain approval of modifications to the required contents of the report where, in the judgment of a qualified professional, more or less information is required to adequately address the potential critical area impacts and required mitigation.
4. Proposals to obtain reductions in regulated critical area buffers below the buffers required by this part shall include the following information in addition to the minimum critical areas report contents described in subsection B of this section. The restoration proposed to improve existing function included in the proposal must be separate from any impact mitigation proposal:
 - a. The specific restoration actions proposed and the specific regulated buffer dimensions proposed.
 - b. The functions that will be enhanced by the restoration actions, addressing at minimum habitat, hydrology, water quality and (where applicable) stream process functions.
 - c. Functions that will be provided outside of the reduced regulated buffer dimension proposed by the project, if any (for example, stormwater quality and quantity controls or low impact development features).
 - d. The relative importance of the enhanced functions to the ecosystem in which they exist.
 - e. A description of the net gain in functions by the restoration actions in the reduced regulated buffer area and the proposal, compared to the functions that would be preserved under standard buffer provisions of the CAO without restoration.

D. Incorporation of Previous Study.

Where a valid critical areas report or report for another agency with jurisdiction over the proposal has been prepared within the last five years for a specific site, and where the proposed land use activity and surrounding site conditions are unchanged, said report may be incorporated into the required critical areas report. The applicant shall submit an

assessment detailing any changed environmental conditions associated with the site.
(Ord. 5680, 6-26-06, § 3)

20.25H.255 Critical areas report – Decision criteria.

A. General.

Except for the proposals described in subsection B of this section, the Director may approve, or approve with modifications, the proposed modification where the applicant demonstrates:

1. The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as application of the regulations and standards of this code;
2. Adequate resources to ensure completion of any required mitigation and monitoring efforts;
3. The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and
4. The resulting development is compatible with other uses and development in the same land use district.

B. Decision Criteria – Proposals to Reduce Regulated Critical Area Buffer.

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

1. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;
2. The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;
3. The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;
4. Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;
5. The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and
6. The resulting development is compatible with other uses and development in the same land use district. (Ord. 5680, 6-26-06, § 3)

20.25H.260 Critical areas report – Assurance devices.

The Director may require assurance devices to ensure that any conditions of approval are fully implemented. Assurance devices shall be posted in accordance with LUC 20.40.490. (Ord. 5680, 6-26-06, § 3)

20.25H.265 Critical areas report – City technical review.

The City may require the applicant to pay for technical review of the critical areas report and related proposal by a consultant retained by the City to assist in determining compliance with the requirements for incorporating best available science, LUC 20.25H.245; compliance with submittal requirements, LUC 20.25H.250; and compliance with the applicable decision criteria, including LUC 20.25H.255 and LUC 20.30P.140. (Ord. 5680, 6-26-06, § 3)

20.25H.270 Critical areas report – Independent third-party review.

Regardless of whether the City conducts a technical review pursuant to LUC 20.25H.265, the applicant may request independent third-party review of the critical areas report and related proposal following the procedures of this section where disagreement exists between the City and the applicant on the critical areas report findings or technical recommendations contained in the critical areas report.

A. Timing of Independent Third-Party Review.

The applicant may request independent third-party review at any time during the applicable decision process. If the City and applicant agree, the review may be conducted prior to issuance of any decision. If the City and applicant do not agree to pre-decision review, the review shall be conducted as part of the applicable appeal process. If conducted as part of the applicable appeal process, the timing of review and associated impact on the hearing date and the appeal schedule shall be determined during a pre-hearing conference held pursuant to the Hearing Examiner's rules of procedure.

B. Qualified Reviewers.

The independent third-party review shall be performed by a qualified professional who was not involved in preparing the critical areas report, and who was not engaged by the City to perform any technical review pursuant to LUC 20.25H.265.

C. Selection of Qualified Professional.

1. **Pre-Decision Independent Third-Party Review.** The qualified professional shall be chosen by mutual agreement between the City and the applicant. If the City and the applicant cannot agree on a qualified professional, the City shall issue its decision on the proposal pursuant to the applicable decision process. If the applicant appeals the decision and requests independent third-party review, the qualified professional shall be selected as set forth in subsection C.2 of this section.

2. **Independent Third-Party Review on Appeal.** The Hearing Examiner shall select a qualified professional from among candidates submitted by the City and the applicant. The Hearing Examiner's selection shall be made during a pre-hearing conference held pursuant to the Hearing Examiner's rules of procedure.

D. Impact on Required Project Timelines.

1. **Timelines Suspended During Third-Party Review Process.** The applicant shall agree in writing that the time period between initiating the selection process for the qualified professional to conduct the independent third-party review through issuance of any written report of that qualified professional shall not count against any project timelines applicable to the decision or appeal process pursuant to City code or state law.

2. **Timelines Suspended During Revisions.** The applicant shall agree in writing that the time period during which the applicant prepares revisions to the proposal as a result of the

independent third-party review shall not count against any project timelines applicable to the decision or appeal process pursuant to City code or state law.

3. Additional Time for City Review. The applicant shall agree in writing that any project timeline applicable to the decision or appeal process pursuant to City code or state law shall be extended by 30 days to allow for City or Hearing Examiner review of any written report of the qualified professional.

E. Effect of Independent Third-Party Report.

The report of the qualified professional shall not be binding, but shall be considered, together with all other reports and materials in the record, in determining compliance with the applicable decision criteria. The report of the qualified professional shall not be entitled to any more or less weight than other reports and materials in the record.

F. Cost of Independent Third-Party Review.

The applicant shall bear the cost of independent third-party review, unless the applicant is determined to be the prevailing party on issues associated with the critical areas report and associated conditions and recommendations. (Ord. 5680, 6-26-06, § 3)

This page of the Bellevue Land Use Code is current through Ordinance 5926, passed December 14, 2009.
Disclaimer: The City Clerk's Office has the official version of the Bellevue Land Use Code. Users should contact the City Clerk's Office for ordinances passed subsequent to the ordinance cited above.

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TAB C

CITY OF ISSAQUAH

Chapter 18.10 ENVIRONMENTAL PROTECTION*

Critical Areas Regulations

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Critical Areas Regulations

18.10.340 Purpose.

The purpose of this chapter is to identify environmentally critical areas and to supplement the development requirements contained in the various use classifications in the Issaquah Municipal Code by providing for additional controls without violating any citizen's constitutional rights. (Ord. 2108 § 10.2.1, 1996).

18.10.350 Intent.

It is the intent of the City to balance the community vision which includes:

- A. Environmental protection and preservation;
- B. Diversified economic growth which has been planned and which is compatible with the vision of the community; and

C. Overall improvement of the quality of life for the residents of Issaquah.

The City shall implement this vision through directing appropriate development to areas of the City in which the development will have the least adverse impact to the environment. High impact land use shall be located in areas that will have the least detrimental adverse effect to environmentally critical areas. In areas that development may have a substantial risk to potentially, adversely impact environmentally critical areas, only low impact land use shall be permitted. (Ord. 2301 § 3, 2001; Ord. 2233 § 17, 1999; Ord. 2108 § 10.2.2, 1996).

18.10.360 Environmentally critical areas.

Coal mines, streams, wetlands, steep slopes, protective buffers, watersheds, aquifer recharge areas, as well as areas subject to erosion, flooding, landslides, and seismic hazards, constitute environmentally critical areas that are of special concern to the City. The standards and mechanisms established in this chapter are intended to protect these environmentally critical areas in Issaquah. By regulating development and alterations to critical areas, this chapter seeks to:

- A. Protect members of the public and public resources and facilities from injury, loss of life, property damage or financial losses due to flooding, erosion, landslides and seismic events, soil subsidence and steep slope failures;
- B. Protect unique, fragile and valuable elements of the environment including wildlife and its habitat;
- C. Mitigate unavoidable impacts to environmentally critical areas by regulating alterations in and adjacent to critical areas;.
- D. Prevent cumulative adverse environmental impacts to water availability, water quality, wetlands and streams;
- E. Minimize erosion potential;
- F. Avoid alteration to wetland hydrology that causes either short- or long-term changes in native vegetational composition, soils characteristics, nutrient cycling or water chemistry;
- G. Protect the public trust as to navigable waters and aquatic resources;
- H. Meet the requirements of the National Flood Insurance Program and maintain Issaquah as an eligible community for federal flood insurance benefits;
- I. Alert members of the public including, but not limited to, appraisers, owners, potential buyers or lessees to the development limitations of critical areas;
- J. Provide City officials with sufficient information to protect critical areas;

K. Implement the policies of the State Environmental Policy Act, Chapter 43.21C RCW, the Issaquah Municipal Code, the City of Issaquah Comprehensive Plan and the Shoreline Master Program; and

L. Educate the public about the long-term care of critical areas. (Ord. 2500 § 5, 2007; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.3, 1996).

18.10.370 Applicability.

A. The regulations and standards of the Issaquah Municipal Code and the Land Use Code pertaining to the several use classifications shall be subject to the general provisions, requirements, and conditions contained in this chapter. When any provision of any chapter of the Issaquah Municipal Code, Shoreline Master Program or the Land Use Code conflicts with this chapter, that provision which provides more protection to the critical areas shall apply unless specifically provided otherwise in this chapter. The provisions of this Code shall prevail over any inconsistent ordinance that has not been reviewed for compliance with the City's GMA Comprehensive Plan. Streams and wetlands classified under the City of Issaquah Shoreline Master Program shall be governed by the rules and regulations pertaining to setbacks and buffer requirements under that ordinance only when a critical area study documents that the smaller buffer required through the Shoreline Master Program would not cause significant impacts to the stream or wetlands. Development for which the City of Issaquah Shoreline Master Program is applicable will still be governed by and need to conform to regulations, other than buffer and setback requirements, as set forth in this Code, including: flood storage capacity; flood-proofing measures, etc.

B. The provisions of this Code shall be held to be the minimum requirements in their interpretation in order to serve the purposes of this chapter.

C. The City, prior to fulfilling the requirements of this chapter, shall not grant any approval or permission to alter the condition of any land, water or vegetation, or to construct or alter any structure or improvement including, but not limited to, the following: Commercial or Residential Building Permits or other land use actions; Right-of-Way Construction Permits; Grading and Clearing permits; Right-of-Way Permits; Shoreline Conditional Use Permits; shoreline environmental redesignations; Shoreline Substantial Development Permits; shoreline variances; short subdivisions; subdivisions; utility and other use permits; variances; zone reclassifications; or any subsequently adopted permits or required approvals not expressly exempted by this chapter.

D. The City shall perform a critical areas review for any permit or approval requested for a development proposal on a site which includes or is adjacent to one (1) or more critical areas, unless otherwise provided in this chapter. The critical area review requires, at a minimum, that the following review process occur, as part of all development applications:

1. The City shall review the information submitted by the applicant to:
 - a. Confirm the nature and type of the critical areas and evaluate the critical areas study;
 - b. Determine whether the development proposal is consistent with this chapter;

- c. Determine whether any proposed alterations to critical areas are necessary;
 - d. Determine if the mitigation and monitoring plans and bonding measures proposed by the applicant are sufficient to protect the public health, safety and welfare consistent with the goals, purposes, objectives and requirements of this chapter;
 - e. Determine if the proposed action warrants a biological assessment based on the requirements of the Endangered Species Act.
2. The applicant shall submit an affidavit which:
- a. Declares that the applicant has no knowledge that critical areas on the proposed development site have been illegally altered; or
 - b. Shall list all known alterations to the critical area.
3. The applicant shall demonstrate that any development proposal submitted conforms to the purposes, standards and protection mechanisms of this chapter.
4. The development proposal shall, if required, contain a critical areas study in accordance with IMC 18.10.400.

E. The City may approve, approve with conditions, or deny any development proposal in order to comply with the requirements and carry out the goals, purposes, objectives and requirements of this chapter.

F. It shall be the responsibility of the Director to implement the policies and objectives of this Code.

G. All decisions in regards to this chapter shall be made through the appropriate land use permitting process or as noted in this chapter. In the event that the proposal, as it relates to this chapter, does not require any other related or unrelated permits or approvals and this chapter does not specify a review process, it shall be reviewed by the City through the Level 1 Review process.

H. The Director is authorized to adopt written procedures and establish administrative rules for the purpose of carrying out the provisions of this Code.

I. The Director shall maintain and make available to the public all available information applicable to any critical area and its buffer.

J. The Director shall on an annual basis establish a list of qualified professional scientists and technical experts to assist in the implementation of the provisions of this Code.

K. Approval of a development proposal pursuant to the provisions of this chapter does not discharge the obligation of the applicant to comply with the provisions of this chapter.

L. The provisions of this chapter shall apply to all forest practices over which the City has jurisdiction pursuant to Chapter 76.09 RCW, WAC Title 222, and any Memorandum of Understanding between the Washington Department of Natural Resources and the City. In addition, this chapter shall apply to all property which has been cleared and/or graded without an approved forest practice application and which is subsequently proposed for development. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.4, 1996).

18.10.380 Agency resource maps.

A. The approximate location and estimated extent of critical areas in the City are displayed on the Issaquah Natural Resources and Critical Areas Map Folios, the National Wetlands Inventory, the Issaquah Shoreline Environment Designation Maps and any other pertinent maps the City utilizes as resource material. These maps are to be used as a guide to the general location and extent of critical areas.

B. It is presumed that critical areas not shown on these maps may exist in the City. These critical areas not currently mapped are protected under all the provisions of this Code.

C. In the event that any of the critical area designations shown on the maps conflict with the criteria set forth in this chapter, the criteria shall control.

D. Any areas which are requesting to be annexed to the City shall be required to perform a critical areas inventory as a requirement of annexation. (Ord. 2108 § 10.2.5, 1996).

18.10.390 Definitions.

Adjacent: For the purpose of critical areas, within one hundred (100) feet of a critical area, or more, as decided by the Director, if development of the property may impact the critical area.

Alteration: Any human-induced action which adversely impacts the existing condition of a critical area. Alterations include, but are not limited to, grading; filling; dredging; draining; channeling; cutting, pruning, limbing or topping, clearing, relocating or removing vegetation; applying herbicides or pesticides or any hazardous or toxic substance; discharging pollutants (excluding treated storm water); grazing domestic animals; paving (including construction and application of gravel); modifying for surface water management purposes; or any other human activity that adversely impacts the existing vegetation, hydrology, wildlife or wildlife habitat. Alteration does not include walking, passive recreation, fishing or other similar activities.

Applicant: Any person or business entity which applies for a development proposal, permit or approval subject to review under this chapter.

Appropriate land use permitting process: The permitting process (Level 1, Level 2, Level 3, Level 4, Building Permit, Grading Permit, etc.) in which the proposed project is proceeding through for approval. For instance, if a proposed project requires a Level 3 Review for approval, prior to the Building Permit stage, then the Level 3 process would be considered the "appropriate land use permitting process."

Aquifer: A body of soil or rock that contains sufficient saturated material to conduct groundwater and yield usable quantities of groundwater to springs and/or wells.

Aquifer recharge area: Areas that are determined to have a recharging effect on aquifers used as a source for potable water, and are vulnerable to contamination from recharge.

Base flood: A flood having a one (1) percent chance of being equaled or exceeded in any given year. It is also referred to as the "one hundred (100) year flood." The base flood is determined as defined by the latest FEMA FIRM maps. In areas where the Flood Insurance Study includes detailed base flood calculations, those calculations may be used until projections of future flows are completed and approved by the City.

Base flood elevation: The water surface elevation of the base flood. It shall be referenced to the National Geodetic Vertical Datum of 1929.

Best management practices: The physical, structural, and/or managerial practices that use the best available technologies or techniques, either separately or in combination, to prevent or reduce the degradation of any critical area or natural resources. For example, these conservation practices or systems of practices and management measures would:

- A. Control soil loss and reduce water quality degradation caused by nutrients, animal waste, toxins, and sediment; and
- B. Minimize adverse impacts to surface water and groundwater flow, circulation patterns, and to the chemical, physical, and biological characteristics of critical areas.

Biofiltration swale: A shallow drainage conveyance with relatively gentle side slopes, generally with flow depths less than one (1) foot which are designed to reduce pollutant concentrations in water by filtering the polluted water through biological materials.

Biological assessment (Endangered Species Act): An analysis of a proposed action by a qualified professional in order to determine if the action will result in a "take" of a threatened or endangered species, as listed under the Endangered Species Act.

Biologist: A person who has earned a degree in biological sciences from an accredited college or university, or a person who has equivalent educational training and has experience as a practicing biologist.

Building setback area: The area between the critical area buffer and the building setback line. This area is provided to ensure that the building and associated construction activities do not result in significant adverse impacts to the adjacent critical area, and to provide physical and/or visual separation between the development and the critical area.

Building setback line: A line which establishes a definite point beyond which the foundation of a structure shall not extend.

Canopy: The highest layer of vegetation within a forest community.

Clearing: The destruction or removal of vegetation from a site by physical, mechanical, chemical, or other means. This does not mean landscape maintenance or pruning consistent with accepted horticultural practices which does not impair the health or survival of the trees.

Coal mine hazard areas: Those areas of the City directly underlain by or affected by abandoned coal mine workings such as adits, tunnels, drifts or air shafts.

Compensatory mitigation: Replacing project-induced losses or impacts.

Compensatory storage: New, excavated storage volume equivalent to any flood storage capacity which has been or would be eliminated by filling or grading within the floodplain. Equivalent shall mean that the storage removed shall be replaced by equal volume between corresponding one (1) foot contour intervals that are hydraulically connected to the floodway through their entire depth.

Conservation easement: An easement dedicated to the City to restrict the use of environmentally sensitive property in order to protect, preserve, maintain, improve, restore, and otherwise conserve the property in perpetuity.

Critical aquifer recharge areas (CARAs): Areas that are determined to have a critical recharging effect on aquifers used as a source for potable water, and are vulnerable to contamination from recharge.

Critical area buffer: A designated area adjoining to and a part of a steep slope or landslide hazard area which protects slope stability, attenuation of surface water flows and landslide hazards reasonably necessary to minimize risk, or a designated area adjacent to and a part of a stream or wetland that is an integral part of the stream or wetland ecosystem. Critical area buffers are essential to maintenance and protection of the critical area. Buffer areas protect critical areas from degradation in various ways, including the following: stabilizing slopes and preventing erosion; filtering suspended solids, nutrients and harmful toxic substances; moderating the impacts of storm water runoff; moderating microclimate; supporting and protecting plant and animal species and biotic communities associated with the critical area; and reducing disturbances to the resources to the critical area typically caused by the activities of humans and domestic animals.

Critical areas: Any of those areas of King County and the City which are subject to natural hazards or those land features which support unique, fragile, or valuable natural resources including fish, wildlife and other organisms and their habitat and such resources which, in their natural state, carry, hold or purify water. Critical areas include the following landform features: erosion hazard areas, flood hazard areas, coal mine hazard areas, landslide hazard areas, seismic hazard areas, steep slope areas, streams, wetlands, and aquifer recharge areas. Critical area buffers are integral to the health of the critical area

and therefore for functional purposes are considered a part of the critical area. However, unless indicated otherwise, measurements from critical areas are made from the outside edge of the protected landform feature (e.g., wetland, stream, etc.) and not from the outside edge of the buffer.

Critical Areas Mitigation Fund: The special fund created for the purpose of creating, restoring or purchasing critical areas, including wetlands and/or wetland buffers. All funds received from civil penalties resulting from violations of this Code are deposited into the fund, and administered by the City Director of Finance.

Critical areas review: The evaluation performed by the City as part of its review of an application for a permit or approval to ensure that impacts to critical areas have been addressed where appropriate.

Critical areas study: A study prepared by a qualified professional on any of the following elements of a critical area: existing conditions, potential impacts and mitigation measures. The study is typically prepared in conjunction with a development proposal.

Critical areas tract: A separate tract that is created to protect the critical area and its buffer, whose ownership is assured, as provided in IMC 18.10.460.

Critical drainage area: An area which has been formally determined by the Public Works Department to require more restrictive regulation than City-wide standards afford, in order to mitigate severe flooding, drainage, erosion or sedimentation problems, which have resulted or will result from the cumulative impacts of development and urbanization.

Critical facilities: Those facilities necessary to protect the public health, safety or welfare which are defined under the occupancy categories of Essential Facilities, Hazardous Facilities and Special Occupancy Structures in the Uniform Building Code as adopted. These facilities include but are not limited to schools, hospitals, police stations, fire departments and other emergency response facilities, and nursing homes. Critical facilities also include hazardous material storage or production-sites.

Deleterious substances: Include, but are not limited to, chemical and microbial substances that are not classified as hazardous materials per this chapter, whether the substances are in usable or waste condition, that have the potential to pose a significant groundwater hazard, or for which monitoring requirements or treatment-based standards are enforced under Chapter 246-290 WAC.

Density credits: A system/formula used to transfer a portion of the allowed development density for critical areas onto another area of the proposal site/property.

Developable site area: Developable site area is the gross site area minus deductions for critical areas and associated buffers as required by this chapter.

Development activity: Any activity which would require a Land Use Permit or approval from the City or any other local, state or federal jurisdiction. Development activity includes, but is not limited to: clearing or grading activity, building or constructing activity, dredging or filling, etc.

Development Commission: Refers to the City Development Commission.

Development, high impact: See High impact land use.

Development, low impact: See Low impact land use.

Development proposal site: The legal boundaries of the parcel or parcels of land for which an applicant has applied for authority from the City to carry out a development proposal.

Director: The Director of the Planning Department of the City or his/her designees unless otherwise noted. In the absence of a Director, the Planning Manager shall assume the responsibilities of the Director as set forth in this Code.

Ditch: A long, narrow human-built excavation that conveys storm water, agricultural runoff or irrigation water that is not identified as a classified or unclassified stream in the Issaquah Creek Final Basin and Nonpoint Action Plan (1996). Also see definition of "streams."

Economic Growth: Residential, commercial and industrial development which provides housing, jobs, services and other community needs. It also includes community facilities and utilities such as parks, trails, and sewer, water and transportation systems.

Emergent wetland: A regulated wetland with at least thirty (30) percent of the surface area covered by erect, rooted, herbaceous vegetation as the uppermost vegetative strata.

Enhancement: Actions performed to increase the functions and values of a stream, wetland or other areas.

Erosion: The process in which soil particles are mobilized and transported by natural agents such as wind, rain splash, frost action or stream flow.

Erosion hazard areas: Those areas of King County and the City containing soils which, according to the USDA Soil Conservation Service, the 1973 King County Soils Survey and any subsequent revisions or additions thereto, may experience severe to very severe erosion hazard. This group of soils includes, but are not limited to, the following when they occur on slopes of fifteen (15) percent or greater: Alderwood gravelly sandy loam (AgD), Alderwood-Kitsap (Akf), Beausite gravelly sandy loam (BeD and BeF), Kitsap silt loam (Kpd), Oval gravelly sand loam (OvD and OvF), Ragnar fine sandy loam (RaD), Ragnar-Indianola Association (RdE), and any occurrence of River Wash (Rh).

Essential habitat: Habitat necessary for the survival of federally listed threatened, endangered and sensitive species and state-listed priority species.

Excavation: The mechanical removal of earth.

Existing and ongoing agriculture: Those activities conducted on lands defined in RCW 84.34.020(2) and those activities involved in the production of crops or livestock, for example, the operation and maintenance of farm and stock ponds or drainage ditches; operation and maintenance of ditches; irrigation systems including irrigation laterals, canals, or irrigation drainage ditches, changes between agricultural activities; and normal maintenance, repair, or operation of existing serviceable structures, facilities, or improved areas.

Activities which bring a nonagricultural area into agricultural use are not part of an ongoing operation. An operation ceases to be ongoing when the area on which it is conducted is converted to a nonagricultural use or has lain idle for more than two (2) years, unless the idle land is registered in a federal or state soils conservation program, or unless the activity is maintenance of irrigation ditches, laterals, canals, or drainage ditches related to an existing and ongoing agricultural activity. Forest practices are not included in this definition.

Exotic: Any plant or animal that is not native to the Puget Sound region.

FEMA: Federal Emergency Management Agency.

Fill/Fill material: A deposit of material placed by human or mechanical means.

Flood hazard areas: Those areas of the City subject to inundation by the base flood. These include, but are not limited to, streams, lakes, wetlands, closed depressions, floodways and floodplains. A flood hazard area consists of the following components which shall be determined by the City after obtaining, reviewing and utilizing base flood elevation and available floodway data:

- A. Floodplain means the total area subject to inundation by the base flood. The floodplain includes both rapidly flowing water and standing water.
- B. Floodway means the channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the base flood flow without increasing the base flood elevation more than one (1) foot. The floodway is determined by the latest FEMA FIRM map.

Flood insurance rate map (FIRM): The official map on which the Federal Insurance Administration has delineated flood hazard areas.

Flood protection elevation: An elevation that is one (1) foot above the highest base flood elevation, as defined by FEMA Flood Insurance Rate Map (FIRM) and the Issaquah Creek Basin and Nonpoint Action Plan, whichever is greater.

Floodproofing: Any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate the potential of flood damage to real estate or improved real

property, water and sanitary facilities, structures and their contents (from IMC 16.36.030, Flood Hazard Ordinance).

Forested wetland: A regulated wetland with at least thirty (30) percent of the surface area covered by woody vegetation greater than twenty (20) feet in height.

Geologist: A practicing, geologist licensed as a professional geologist with the State of Washington.

Geotechnical engineer: A practicing, geotechnical/civil engineer licensed as a professional civil engineer with the State of Washington who has at least four (4) years of professional employment as a geotechnical engineer.

Grading: An act which changes or alters the predevelopment conditions of the site surface.

Grazed wet meadows: Emergent wetlands, typically having up to six (6) inches of standing water during the wet season and dominated under normal conditions by meadow emergents such as reed canary grass, spike rushes, bulrushes, sedges, and rushes. During the growing season, the soil is often saturated but not covered with water. Grazed wet meadows frequently have been or are being used for livestock activities.

Hazardous materials: Any material, either singularly or in combination, that is a physical or health hazard, whether the materials are in usable or waste condition; and any material that may degrade surface water or groundwater quality when improperly stored, handled, treated, used, produced, recycled, disposed of, or otherwise mismanaged. Hazardous materials shall also include: all materials defined as or designated by rule as a dangerous waste or extremely hazardous waste under Chapter 70.105 RCW and Chapter 173-303 WAC; hazardous materials shall also include petroleum or petroleum products that are in liquid phase at ambient temperatures, including any waste oils or sludges.

Heron rookery: A nesting area for a colony of heron or egrets which is generally located in a grove of tall trees.

High impact land use: A land use which would require substantial environmental mitigation in order to alleviate adverse impacts to the environment or the community's health, safety or welfare. Substantial mitigation would be determined through the SEPA process.

Hydric soil: A soil that is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions in the upper part. The presence of hydric soil shall be determined following the methods described in the currently followed federal manual for identifying and delineating jurisdictional wetlands.

Hydrophytic vegetation: Macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. The presence of hydrophytic

vegetation shall be determined following the methods described in the "1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands."

In-class compensation: The provision of the same class wetlands, as determined based on sensitivity to disturbance, rarity, irreplaceability and the function of the disturbed wetland.

In-kind compensation: To replace wetlands with substitute wetlands whose characteristics (vegetative class, function and value) closely approximate those destroyed or degraded by a regulated activity. It does not mean replacement "in-class."

Landslide: The movement of a mass of loosened rocks or earth down a hillside or slope, and includes snow avalanches.

Landslide hazard areas: Those areas of the City subject to a severe risk of landslide. A geotechnical report is required for all relevant projects to determine steepness of slope, permeability of soils, occurrence of springs, and groundwater level. The study shall be performed by a licensed geotechnical engineer. Landslide hazard areas include the following areas:

- A. Slopes greater than forty (40) percent.
- B. Any area with a combination of:
 - 1. Slopes of greater than fifteen (15) percent;
 - 2. Impermeable soils (typically silt and clay) frequently interbedded with granular soils (predominantly sand and gravel); and
 - 3. Springs or ground water seepage.
- C. Any area which has shown movement during the Holocene epoch (from ten thousand (10,000) years ago to present) or which is underlain by mass wastage debris of that epoch.
- D. Any area potentially unstable as a result of rapid stream incision, stream bank erosion, or undercutting by wave action.
- E. Any area which shows evidence of, or is at risk from, snow avalanches.
- F. Any area located on an alluvial fan, presently subject to or potentially subject to, inundation by debris flows or deposition of stream-transported sediments.

Light equipment: Construction equipment including, but not limited to, chain saws, wheelbarrows, post-hole diggers and all hand-held tools.

Low impact land use: Land use which would not require substantial environmental mitigation in order to alleviate adverse impacts to the environment or the community's health, safety or welfare. Substantial mitigation would be determined through the SEPA process.

Lowest floor: The lowest enclosed area, including the basement, of a structure. An area used solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided, that any such enclosed area meets all of the structural requirements of the flood hazard protection and alteration standards.

Maintenance: A procedure intended to assist with the long-term health of critical areas. Aside from the maintenance period relating to a restoration or creation project, activities may include removal of weeds, litter control, etc., not the performance of complex restoration efforts. Maintenance allows for the critical areas to evolve as a natural part of the environment.

Master planned developments: A comprehensive site plan intended to guide the development of a specific parcel of land, including necessary utilities, locations of land uses, and density provisions.

Mitigation: The use of any or all of the following actions that are listed in descending order of preference:

- A. Avoiding the impact altogether by not taking the action or parts of the action;
- B. Minimizing the impact by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce the impact;
- C. Rectifying the impact by repairing, rehabilitating or restoring the affected critical area;
- D. Reducing or eliminating the impact over time by preservation or maintenance operations during the life of the development proposal;
- E. Compensating for the impact by replacing, enhancing or providing substitute critical areas and environments; or
- F. Monitoring the impact and taking appropriate corrective measures including any combination of the measures listed in subsections A through E of this section; and/or, possibly paying penalties as prescribed in IMC 18.10.860, Criminal penalties, if a violation exists.

Mitigation banking: A system for providing compensatory mitigation in advance of authorized impacts of development in which credits are generated through restoration, creation, and/or enhancement of the critical area, for example, the restoration, creation, and/or enhancement of wetlands, and in exceptional circumstances, preservation of adjacent wetlands, wetland buffers, and/or other aquatic resources; provided, that no net loss of wetlands occurs.

Mitigation plan: A plan conducted by a qualified professional describing the design and/or implementation of any or all of the actions listed in the definition of "mitigation" in this section.

Mitigation project: Actions necessary to replace project-induced critical areas and buffer losses, including land acquisition, planning, construction plans, monitoring and contingency action.

Monitoring: Evaluating the impacts of development on the biological, hydrological and geological elements of such systems and assessing the performance of required mitigation measures through the collection and analysis of data by various methods for the purposes of understanding and documenting changes in natural ecosystems and features, and includes gathering baseline data.

Native Growth Protection Easement (NGPE): An easement granted to the City or other nonprofit entity for the protection of native vegetation within a critical area or critical area buffer.

Native vegetation: Vegetation comprised of plant species which are indigenous to the Puget Sound region and which reasonably could have been expected to naturally occur on the site. Native vegetation does not include noxious weeds.

Nonnative invasive vegetation: Vegetation, plant species and cultivars that are not indigenous to the Puget Sound region in the vicinity of the City of Issaquah and which establish and propagate with such vigor as to outcompete native vegetation and result in the degradation of the natural environment. Nonnative invasive vegetation includes noxious weeds (defined below) such as but not limited to Himalayan blackberry (*Rubus discolor*, *R. procerus*), Evergreen blackberry (*R. laciniatus*), Ivy (*Hedera* spp.), Holly (*Ilex* spp.), and Japanese knotweed (*Polygonum cuspidatum*).

Normal rainfall: That rainfall which is at or near the mean of the accumulated annual rainfall record, based upon the water year for the City as recorded at an official rain gauge in the Issaquah area designated in an administrative rule by the Public Works Director, or if no such designation is made, the official annual rainfall as obtained from information in the Draft Issaquah Valley Groundwater Management Plan.

Noxious weed: Any plant which when established is highly destructive, competitive, or difficult to control by cultural or chemical practices (see Chapter 5.10 RCW). The state noxious weed list in Chapter 16-750 WAC is the officially adopted list of noxious weeds as compiled by the State Noxious Weed Control Board. Also included as noxious weeds are those listed with the King County Noxious Weed List, WAC 16-750-0005.

Off-site compensation: To replace wetlands away from the site on which a wetland has been impacted by a regulated activity.

On-site compensation: To replace wetlands at the site on which a wetland has been impacted by a regulated activity.

Ordinary high water mark: The mark that will be found by examining the bed and banks of a stream and ascertaining where the presence and action of waters are so common and usual, and so long maintained in all ordinary years, as to mark upon the soil a vegetative character distinct from that of the abutting upland. In any area where the ordinary high water mark cannot be found, the line of mean high water shall substitute. In any area where neither can be found, the top of the channel bank shall be substituted. In braided channels and alluvial fans, the ordinary high water mark or substitute shall be measured so as to include the entire stream feature.

Out-of-kind compensation: To replace wetlands with substitute wetlands whose characteristics (vegetative class, functions and values) do not closely approximate those destroyed or degraded by a regulated activity. It does not refer to replacement "out-of-class."

Plant associations of infrequent occurrence: One (1) or more plant species on a landform type which because of the rarity of the habitat or the species involved or both, or for other botanical or environmental reasons, do not often occur in the City or King County.

Practicable alternative: An alternative that is available and capable of being carried out after taking into consideration existing technology, cost and logistics in light of overall project purposes, and having fewer impacts to critical areas. It may include an area not owned by the applicant, which could reasonably have been or be obtained, utilized, expanded, or managed in order to fulfill the basic purpose of the proposed activity.

Public agency: Any agency, political subdivision, or unit of local government of this state including, but not limited to, municipal corporations, special purpose districts, local service districts, any agency of the State of Washington, the United States or any state thereof, or any federally recognized Indian tribe.

Qualified professional: A person or persons who perform studies, field investigations, plans, etc., on critical areas and have an educational background and/or relevant experience in the field in which they are performing the study. (Example: a qualified professional to perform a critical area report on wetlands must have an undergraduate or higher degree, from an accredited university or college, in biology, botany, environmental science or similar field and five (5) years work experience performing wetland studies (and/or professional certification), including field delineations, written reports, mitigation plans, etc.)

Raptor: A bird of prey which is a member of either the Falconiformes or Strigiformes orders.

Reasonable use: A legal concept that has been articulated by federal and state courts in regulatory takings cases. In a takings case, the decision-maker must balance the public's interests against the owner's interests by considering the nature of the harm the regulation is intended to prevent, the availability and effectiveness of alternative measures, and the economic loss borne by the owner. Public interest factors include the seriousness of the public problem, the extent to which the land involved contributes to the problem, the degree to which the regulation solves the problem, and the feasibility of less oppressive solutions.

A reasonable use variance must balance the public interests against the regulation being unduly oppressive to the landowner. The following criteria are guidelines when making a decision regarding a reasonable use variance:

- A. The extent to which the proposal would contribute to increasing the level of the harm the regulation is designed to prevent;
- B. The feasibility of alternative solutions;
- C. The amount and percentage of lost (economic) value to the land owner;
- D. The extent of remaining uses available to the land owner, if the regulation were strictly enforced;
- E. The past, present and future uses of the property; however, the use does not need to be the owner's planned use, or prior use or the highest and best use;
- F. The temporary or permanent nature of the regulation.

Regional retention/detention facility: A surface water control structure proposed or defined by the City Public Works Department, to provide surface water control for a specific area, which will be determined by the City Public Works Department on a case-by-case basis.

Regional stormwater management facility: A surface water control structure installed in or adjacent to a stream or wetland of a basin or sub-basin by the King County Land and Water Resources Division (KCLWR) or a project proponent. Such facilities protect downstream areas identified by KCLWR as having previously existing or predicted significant regional basin flooding or erosion problems.

Regulated activities: Any of the following activities which are directly undertaken or originate in a regulated critical area or its buffer:

- A. The removal, excavation, grading, or dredging of soil, sand, gravel, minerals, organic matter, or material of any kind;
- B. The dumping, discharging, or filling with any material;
- C. The draining, flooding, or disturbing of the water level or water table;
- D. The driving of pilings;
- E. The placing of obstructions;
- F. The construction, reconstruction, demolition, or expansion of any structure;

G. The destruction or alteration of wetlands vegetation through clearing, harvesting, shading, intentional burning, or planting of vegetation that would alter the character of a regulated wetland; provided, that these activities are not part of a forest practice governed under Chapter 76.09 RCW and its rules; or

H. Activities that result in a significant change of water temperature, a significant change of physical or chemical characteristics of wetlands water sources, including quantity, or the introduction of pollutants.

Repair or maintenance: An activity that restores the character, scope, size, and design of a serviceable area, structure, or land use to its previously authorized and undamaged condition. Activities that change the character, size, or scope of a project beyond the original design and drain, dredge, fill, flood, or otherwise alter additional regulated wetlands are not included in this definition.

Restoration: Actions performed to return a stream, wetland, or other areas to a state in which its stability and functions approach its unaltered state as closely as possible.

Retention/detention facility: A type of drainage facility designed either to hold water for a considerable length of time and then release it by evaporation, plant transpiration and/or infiltration into the ground; or to hold runoff for a short period of time and then release it to the surface and stormwater management system.

Right-of-way: Any road, alley, street, avenue, arterial, bridge, highway, or other publicly owned ground or place used for the free passage of vehicular and pedestrian traffic and other services, including utilities.

Routine stream maintenance: The removal of instream organic and inorganic materials which could exacerbate erosion or flooding.

Salmonid: A member of the fish family salmonidae. In the City these include chinook, coho, chum, sockeye and pink salmon and steelhead.

Scrub-shrub wetland: A wetland with at least thirty (30) percent of its surface area covered by woody vegetation less than twenty (20) feet in height as the uppermost strata.

Sediment: Waterborne particles, graded or undefined, occurring by erosive action.

Sedimentation: The action or process of deposition of soil and organic particles displaced, transported and deposited by water or wind.

Seismic hazard areas: Those areas of the City subject to severe risk of earthquake damage as a result of seismically induced settlement or soil liquefaction. These conditions may occur in areas underlain by cohesionless soils of low density usually in association with a shallow groundwater table.

SEPA: State Environmental Policy Act (Chapter 43.21C RCW) or as amended.

Serviceable: Presently usable.

Steep slope hazard areas: Any ground that rises at an inclination of forty (40) percent or more within a vertical elevation change of at least ten (10) feet (a vertical rise of ten (10) feet or more for every twenty-five (25) feet of horizontal distance). A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten (10) feet of vertical relief.

A. The "toe of a slope" is a distinct topographic break in a slope which separates slopes inclined at less than forty (40) percent from slopes equal to or in excess of forty (40) percent. Where no distinct break exists, the toe of a steep slope is the lowermost limit of the area where the ground surface drops ten (10) feet or more vertically within a horizontal distance of twenty-five (25) feet.

B. The "top of a slope" is a distinct, topographic break in a slope which separates slopes inclined at less than forty (40) percent from slopes equal to or in excess of forty (40) percent. Where no distinct break in slope exists, the top of a slope shall be the uppermost limit of the area where the ground surface rises ten (10) feet or more vertically within a horizontal distance of twenty-five (25) feet.

Stormwater facility: A human-built system or structure for the conveyance or control of stormwater runoff.

Streams: Those areas of the City where surface waters from natural sources such as streams, lakes, groundwater, springs or surface flows produce a defined channel or bed. A defined channel or bed is an area which demonstrates clear evidence of the passage of water and includes, but is not limited to, bedrock channels, gravel beds, sand and silt beds and defined-channel swales. The channel or bed need not contain water year-round. Streams also include constructed or channelized streams used to convey water which flowed in a naturally defined channel prior to construction of such watercourse. This definition is not meant to include excavated or other entirely artificial watercourses, including irrigation ditches, swales, roadside ditches, canals, storm or surface water runoff devices.

Structure: That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

Substantial improvement: Any repair, reconstruction, or improvement of a structure that would displace floodwater.

Unavoidable and necessary impacts: Impacts to regulated critical areas that remain after a person proposing to alter regulated wetlands has demonstrated that no practicable alternative exists for the proposed project.

Utilities: Water, sewer, storm drainage, natural gas, telephone, electric and cable communications, etc.

Utility corridor: Areas identified in the Comprehensive Plan for utility lines, including electric, gas, sewer and water lines, and public right-of-way and other dedicated utility right-of-way on which one (1) or more utility lines are currently located. The term "other dedicated utility right-of-way" means ownership, easements, permits, licenses or other authorizations affording utilities the right to operate and maintain utility facilities on private property.

Variance: An adjustment in the application of a zoning regulation to a particular piece of property in a situation where the property, because of special circumstances found to exist on the land, is deprived, as a result of imposition of the zoning regulations, of privileges commonly enjoyed by other properties in the same vicinity and zone. The adjustment in the application of the regulations shall remedy the disparity in privilege. A variance shall not be used to convey special privileges not enjoyed by other properties in the same vicinity and zone and subject to the same Land Use Code restrictions.

Vegetation: Any and all organic plant life growing at, below, or above the soil surface.

Vegetative classes: Descriptive classes of the wetlands taxonomic classification system of the U.S. Fish and Wildlife Service ("Classification of Wetlands and Deepwater Habitats of the United States," Cowardin, et al., 1979, FWS/OBS-79/31).

Violation: The violation of: any provision of this chapter; the administrative rules promulgated thereunder; or any permit, approval or stop work order; or any other order issued pursuant thereto.

Water dependent use: A principal use which can only exist when the land/water interface provides biological or physical conditions necessary for the use.

Wellhead protection area (WHPA): The surface and subsurface area surrounding a well or well field that supplies a public water system through which contaminants are likely to pass and eventually reach the water well(s) as designated under the Federal Clean Water Act.

Wetlands: "Wetland" or "wetlands" means areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas created to mitigate conversion of wetlands.

For the purpose of regulation, the exact location of the wetland edge shall be determined by the wetlands expert hired at the expense of the applicant through the performance of a field delineation using the procedures provided in the Washington State Wetlands Identification and Delineation Manual (March 1997) or the manual currently recommended by the Washington State Department of Ecology. Where the

vegetation has been removed or substantially altered, a wetland shall be determined primarily by the presence or evidence of hydric or organic soil. Other documentation of the previous existence of wetland vegetation such as aerial photographs will also be used.

Wetland buffers: A parcel or strip of land that is designated to remain permanently vegetated to provide protection to an adjacent wetland from impact.

Wetland classes, classes of wetlands or wetland types: Descriptive classes of the wetlands taxonomic classification system of the United States Fish and Wildlife Service (Cowardin, et al., 1979). See also definition of "vegetative classes."

Wetland creation: Actions performed to intentionally establish a wetland at a site where one did not formerly exist.

Wetland delineation: The field identification and survey of a wetland edge, conducted by a qualified wetland professional, based on the procedures provided in the Washington State Wetlands Identification and Delineation Manual (March 1997) or the manual currently recommended by the Washington State Department of Ecology.

The City shall review a wetland delineation report submitted by the applicant. In the event that the delineation is contested by the City, the applicant shall, at the applicant's expense, obtain the services of an additional qualified wetlands expert to review the original study and render a subsequent delineation. A final wetlands delineation is valid for two (2) years. Extensions for additional years can be approved by the Director if an application is proceeding in a timely manner through the permit process.

A wetland delineation report shall be prepared for a proposed project which has any class wetland indicated on the project site. The report shall consist of a survey of the existing wetland (through the delineation of the wetland boundary), the relationship of the proposed development to the wetland and required buffer area, a written report documenting the existing conditions including the classification, quality and function of the wetland, impacts of the proposed development on the wetland and proposed mitigation measures in accordance with IMC 18.10.410.

Wetland edge: The line delineating the outer edge of a wetland established through field investigation and by using the federal manual currently adopted by the U.S. Army Corps of Engineers for identifying and delineating jurisdictional wetlands.

Wetland functions, beneficial functions, or functions and values: The beneficial roles served by wetlands including, but not limited to, water quality protection and enhancement, fish and wildlife habitat, food chain support, flood storage, conveyance and attenuation, groundwater recharge and discharge, erosion control, wave attenuation, historical and archaeological and aesthetic value protection, and recreation. These beneficial roles are not listed in order of priority.

Wetland professional: A professional scientist or technical expert who by training and/or experience is qualified to provide expertise in matters related to wetlands.

Wetpond: An artificial body of water dug as a part of a surface water management system. (Ord. 2525 §§ 4, 7, 2008; Ord. 2500 § 6, 2007; Ord. 2497 § 6, 2007; Ord. 2491 § 4, 2007; Ord. 2455 § 2, 2006; Ord. 2314 § 1, 2001; Ord. 2301 § 3, 2001; Ord. 2164 § 10, 1997; Ord. 2108 § 10.2.6, 1996).

18.10.400 Exemptions.

The following are general exemptions to the provisions of this chapter and the administrative rules; however, provisions of this section are not exempt from the City of Issaquah Shoreline Master Program when applicable. These exemptions are not subject to any review or approval process, except where noted.

A. Emergencies that threaten the public health, safety and welfare as determined by the Director are exempt and shall not be subject to any review and approval process.

B. Structures which are in existence on the date the ordinance codified in this chapter becomes effective and which do not meet the setback or buffer requirements of this chapter for wetlands, streams, or steep slope hazard areas are exempt. These structures may be remodelled, reconstructed or replaced (through the appropriate land use permitting process or if none is required, then through Level 1 Review); provided, that the new construction or related activity does not further intrude into a stream, wetland, or steep slope buffer; and provided, that the remodel, reconstruction or replacement is still subject to the restrictions (of the critical areas regulations) set forth in this chapter. Structures undergoing reconstruction or replacement shall not develop outside of the original building footprint in size or location. Further provided, that no portion of a remodeled structure is located closer to the stream, wetland or steep slope than the existing structure. Except that single family structures may remodel, reconstruct or replace an existing single family structure (through Level 1 Review) that further intrudes into a buffer, or is outside of the original building footprint in size or location, provided a critical area study is performed and the Director determines that the following criteria have been met:

1. There will be no increased adverse impacts as a result of the remodel, reconstruction or replacement of the single family structure, based on the results of a critical area study; and
2. That the granting of an approval to remodel, reconstruct or replace the single family structure will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and zone in which the subject property is situated; and
3. That alternative development concepts for remodelling, reconstructing or replacing a single family structure that does not further intrude into a buffer, or is not outside of the original building footprint in size or location, have been evaluated and that undue hardship would result if the strict adherence to the Code provisions is required.

C. The following agricultural activities in existence on the date that the ordinance codified in this chapter becomes effective, and performed not less than once every five (5) years thereafter, are exempt and not subject to any review and approval process:

1. Grazing of livestock;
2. Mowing of hay, grass or grain crops;
3. Tilling, disking, planting, seeding, harvesting and related activities for pasture, food crops, grass seed or sod; provided, that such activities shall not involve the conversion of any Class 1 or 2 wetland or buffer or Class 1 or 2 stream or buffer not currently under agricultural use and shall not take place on steep slopes;
4. Normal and routine maintenance of farm ponds, fish ponds, manure lagoons, and livestock watering ponds; provided, that such activities shall not involve conversion of any wetland not currently being used for such activity.

D. Normal and routine maintenance of existing irrigation and drainage ditches, including, but not limited to, vegetation control, and removal of sediment and debris, is exempt from this chapter and not subject to any review or approval process as an isolated action, except that the City shall be notified prior to such activities occurring; provided, however, that this exception shall not apply to any ditches used by salmonids unless the Washington State Department of Fisheries will grant hydraulic approval concurrently with or following City approval.

E. Public water, electric and natural gas distribution, public sewer collection, cable communications, telephone utility and related activities undertaken pursuant to City-approved best management practices, as follows:

1. Normal and routine maintenance or repair of existing utility structures, utility corridors or rights-of-way;
2. Relocation, repair, replacement, modification, operation and upgrading of facilities (i.e., lines, mains, pipes, equipment and/or appurtenances, and electric facilities, not including substations) within rights-of-way or utility corridors; provided, that such activities shall be undertaken in accordance with City-approved best management practices, which shall include restoration;
3. The relocation and upgrading of utilities within established easements and dedicated tracts shall include prior notification of the Director.

This does not exempt projects from other City permit review processes or SEPA review if required by the City's codes and regulations.

F. Maintenance, operation, repair, modification or replacement of publicly improved roadways or recreation areas. Any alteration involving the expansion of improvements into previously unimproved areas shall include approval of the Director.

G. Public agency development proposals whose construction contract was awarded before the effective date of the ordinance codified in this chapter are exempt; provided, that any regulation in effect at the time of such award shall apply to such proposal, except for the provisions established in IMC 18.10.420 (Public Agency and Utility Exemption).

H. Routine stream maintenance by a public entity which has been approved through the SEPA review process and by the Washington State Department of Fish and Wildlife.

I. Master planned developments, where these developments are subject to binding development requirements approved by the City, including protection of the critical areas. Approved critical areas requirements shall meet or exceed the intent of the City's adopted critical areas regulations. Master planned developments which do not contain critical areas regulations within their binding development requirements will be subject to the requirements of the City's adopted critical areas regulations.

The following are exemptions to various sections in this chapter and listed only for reference to those applicable sections:

1. IMC 18.10.410 (Critical Areas Studies) lists provisions in which a critical area study may not be required and where certain development proposals, due to their nature, may not require a critical areas study based on City field investigations. See IMC 18.10.410(B) for the specifics.

2. IMC 18.10.515 (Critical Area Tracts, Buffer Areas and Building Setback Areas) lists when street trees are allowed in and along the roadway rights-of-way portion of a critical area buffer. See IMC 18.10.515(C) for the specifics.

J. IMC 18.10.580 (Steep Slope Hazards) lists provisions in which an exception from the requirements of that chapter may be approved by the Director. See IMC 18.10.580(D) for the specifics.

K. Alterations to erosion, landslide and steep slope critical areas may be allowed for mineral resource and extraction activities, processing, facilities, and related uses in existence prior to August 2, 1999, and performed not less than once every twelve (12) months thereafter.

L. Removal of Nonnative Invasive Vegetation: Removal of nonnative invasive vegetation from critical areas and associated buffers is encouraged within the City of Issaquah. Removal shall be accomplished through the use of hand labor and/or hand-held light equipment and without the use of herbicides unless alternative methods are approved by the Planning Department.

1. Maintenance: Maintenance includes the removal of nonnative invasive vegetation within a total area extent of less than one hundred (100) square feet. Maintenance removal of nonnative invasive vegetation does not require City approval.

2. Enhancement: Enhancement includes the removal of nonnative invasive vegetation within a total area extent of one hundred (100) square feet or more. Enhancement requires Planning Department approval and additional supporting documentation may be required depending on the scale, scope and complexity of the proposal. Supporting documentation may include but is not limited to erosion control measures, plans for revegetation with native plant species and future monitoring/maintenance. (Ord. 2491 § 5, 2007; Ord. 2301 § 3, 2001; Ord. 2233 § 18, 1999; Ord. 2108 § 10.2.7, 1996).

18.10.410 Critical areas studies.

A. Required: An applicant for a development proposal that includes, or is adjacent to, or could have probable significant adverse impacts to critical areas shall submit a critical areas study as required by the Director, for all critical areas defined in this chapter, to adequately evaluate the proposal and all probable impacts. The need for a critical areas study shall be determined through:

1. Agency resource maps or studies; or
2. At the request of the Director after field investigation (by City staff) has been conducted.

B. Waivers: The Director may waive the requirement for a critical areas study if there is a substantial showing that:

1. There will be no alteration of the critical areas or required buffers; and
2. The development proposal will not affect the critical areas in a manner contrary to the goals, purposes, objectives and requirements of this chapter; and
3. The minimum standards required by this chapter are met;
4. When no alteration of or adverse impact to the critical area will occur as a result of a remodel activity or any associated construction for additional parking for a single family residential Building Permit for the remodel of a structure; or
5. A critical areas study was prepared and provided previously for a development which currently requires a single family residential Building Permit and that the previous critical areas study adequately identified the impacts associated with the current development proposal.

C. Contents of Critical Areas Study: At a minimum a critical areas study shall be prepared at the applicant's expense, to identify and characterize any critical area as a part of the larger development proposal site; assess any hazards to the proposed development; assess impacts of the development proposal on any critical areas located on or adjacent to the development proposal site; and assess the

impacts of any alteration proposed for a critical area. Studies shall propose adequate mitigation, maintenance and monitoring plans and bonding measures. Critical areas studies shall include among other requirements, a scale map of the development proposal site and a written report. The following criteria are the basic requirements for a critical areas study. Refer to the Permit Center in the Planning Department for more specific requirements.

1. Vicinity Information:

- a. A description and maps at a scale no smaller than one (1) inch = fifty (50) feet (unless otherwise approved by the Director), showing the entire parcel of land owned by the applicant; adjacent area; and the exact boundary of the critical area on the parcel as determined in compliance with appropriate section of this chapter. Maps can be overlaid on aerial photographs;
- b. For parcels containing wetlands, the study must include the location and description of the vegetative cover, including dominant species of the regulated wetland and adjacent area.

2. Site Plan:

- a. A site plan for the proposed activity at a scale no smaller than one (1) inch = twenty (20) feet (unless otherwise approved by the Director), showing the location, width, depth and length of all existing and proposed structures, roads, sewage treatment, and installations to be located within the critical area and/or its buffer;
- b. The exact sizes and specifications for all regulated activities including the amounts and methods.

3. Project Description:

- a. The purposes of the project and an explanation why the proposed activity cannot be located at another location on the project site, including an explanation of how the proposed activity is dependent upon the chosen specific location; and
- b. Specific means to mitigate any potential adverse environmental impacts of the applicant's proposal.

4. Additional Information: The Director may at a minimum require the following additional information:

- a. Topographic map, including elevations of the site and adjacent lands within the critical area and its buffer at contour intervals as specified by the Director but in most cases no greater than five (5) feet;

- b. Elevations and cross sections;
- c. Assessment of critical area functional characteristics including but not limited to a discussion of the methodology used and documentation of the ecological, aesthetic, economic, or other values of the critical area;
- d. A study of flood, erosion, coal mine or other hazards at the site and the effect of any protective measures that might be taken to reduce such hazards; and
- e. Any other information deemed necessary to verify compliance with the provisions of this Code or to evaluate the proposed use in terms of the purposes of this Code.

D. The City shall develop a list of qualified critical area specialists to conduct critical areas studies. The applicant shall be responsible for the total cost of the critical areas study.

E. The Director shall circulate the critical areas study to the SEPA Responsible Official, Public Works Department, Planning Department and the River and Streams Board for review and comment.

F. The Director shall make a final decision regarding the adequacy of the critical areas study or wetland reconnaissance based on the information provided and on comments from the City departments, Rivers and Streams Board and if applicable, the specialist selected to review the study.

G. If it is determined that the proposed regulated activity will occur within a critical area or critical area buffer, an approval must be granted through the appropriate land use permitting process prior to any development activity occurring on the site. (Ord. 2108 § 10.2.8, 1996).

18.10.420 Public agency and utility exemption.

A. This section only applies to development proposals not qualifying under IMC 18.10.400. If the application of this chapter would prohibit a development proposal by a public agency or public or private utility, the agency or utility may apply for an exception pursuant to this section. The exemption shall be reviewed through the appropriate land use permitting process or if none is required, then through Level 1 Review. The agency or utility shall prepare a report requesting the exemption and submit it to the Permit Center and shall incorporate other required documents such as land use or Building Permit applications, critical areas studies and SEPA documents.

B. The Director shall review the report and applications and make the final decision to approve, approve with conditions or deny the exemption based on the following criteria:

1. There is no other practical alternative to the proposed development with less impact on the critical area; and
2. The proposal minimizes the impact on critical areas; and

3. Mitigation measures are proposed as needed to avoid any significant adverse impacts to the critical area.

C. This exemption shall not allow the use of the following critical areas for regional retention/detention facilities except where there is a clear showing that the facility is required to protect public health and safety or to repair damaged natural resources including:

1. Class 1 streams or buffers covered by the City's Shoreline Management Program;
2. Class 1 or 2 wetlands or their buffers with plant associations of infrequent occurrence; and
3. Class 1 or 2 wetlands or their buffers which provide critical or outstanding actual habitat for the following unless the applicant clearly demonstrates that there would be no adverse impact on critical or outstanding actual habitat for:
 - a. Species listed as endangered or threatened by the federal or state government,
 - b. Washington Department of Fish and Wildlife Priority Species,
 - c. Herons,
 - d. Raptors,
 - e. Salmonids, salmon habitat. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.9, 1996).

18.10.430 Variances.

A. Purpose: The variance provision is provided to property owners who, due to the strict implementation of this chapter and/or to unusual circumstances regarding the subject property, are deprived of privileges commonly enjoyed by other properties in the same vicinity, zone and under the same land use regulations or have been denied all reasonable use of the property; provided, however, that the fact that surrounding properties have been developed under regulations in force prior to the adoption of this Code shall not be the sole basis for the granting of a variance.

B. Variance Granted: Before any variance may be granted, the applicant must file an application with the Permit Center and must demonstrate to the satisfaction of the Hearing Examiner the ability to meet all of the criteria in IMC 18.10.430(C). In the event that the applicant is not able to fulfill all of the criteria in IMC 18.10.430(C), a demonstration must be made to the satisfaction of the Hearing Examiner, regarding the ability to successfully meet all of the criteria established in IMC 18.10.430(D).

A variance application shall be submitted to the Permit Center along with a critical areas special study, where applicable.

C. Variance Criteria Established:

1. The variance is in harmony with the purpose and intent of the relevant City ordinances and the Comprehensive Plan;
2. The variance shall not constitute a grant of special privilege which would be inconsistent with the permitted uses, or other properties in the vicinity and zone in which the subject property is located;
3. That such variance is necessary, because of special circumstances relating to the size, shape, topography, location or surroundings of the subject property, to provide it with use rights and privileges permitted to other properties in the vicinity, located in the same zone as the subject property and developed under the same land use regulations as the subject property requesting the variance;
4. That the granting of such variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and zone in which the subject property is situated;
5. That alternative development concepts that comply with the Code provisions to which the variance is requested have been evaluated, and that undue hardship would result if the strict adherence to the Code provisions is required;
6. The variance granted is the minimum amount that will comply with the criteria listed above and the minimum necessary to accommodate the permitted uses proposed by the application, and the scale of the use shall be reduced as necessary to meet this requirement; and
7. The need for the variance is not the result of actions of the applicant or property owner.

D. Reasonable Use Variance Criteria Established: Only after the determination, by the Hearing Examiner, that the proposal does not meet all of the variance criteria listed above, may the application be reviewed, by the Hearing Examiner at the same public hearing, under the following criteria:

1. There is no reasonable use of the property left; and
2. That the granting of this variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and zone in which the subject property is situated; and
3. The variance granted is the minimum amount that will comply with the criteria listed above and the minimum necessary to accommodate the permitted uses proposed by the application, and the scale of the use shall be reduced as necessary to meet this requirement; and
4. The need for the variance is not the result of actions of the applicant or property owner.

E. Cumulative Impact of Area Wide Requests: In the granting of variances from this Code, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example, if variances were granted to other developments in the area where similar circumstances exist, the total of the variances should also remain consistent with the policies and intent set forth in this chapter.

F. Public Hearing: The Hearing Examiner shall hold a public hearing and notice shall be provided under the provisions of the Land Use Code and Issaquah Municipal Code. The applicant or representative(s) shall appear in person at the hearing.

G. Notice of Hearing Examiner's Decision: Copies of the Hearing Examiner's decision shall be mailed to the applicant and to other parties of record not later than three (3) working days following the filing of the decision. "Parties of record" shall include the applicant and all other persons who specifically request notice of the decision by signing a register provided for such purpose at the public hearing.

H. Appeals: Decisions by the Hearing Examiner may be appealed to the City Council in accordance with IMC 18.04.250, Administrative appeals. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.10, 1996).

18.10.440 Nonconforming activities.

Regulated activities approved prior to the adoption of this chapter but which are not in conformity with the provisions of this chapter are subject to the provisions of Chapter 18.08 IMC. (Ord. 2108 § 10.2.11, 1996).

18.10.450 Density calculation in critical areas.

A. The following formula for density calculations is designed to provide incentives for the preservation of critical areas and critical area buffers, flexibility in design, and consistent treatment of different types of development proposals. The formula shall apply to all properties on which critical areas such as streams, wetlands, steep slopes, and floodways of streams and associated critical area buffers limit land area available for development. The formula lists the maximum density credits that may be transferred on a particular site from the critical area to a developable site area. However, in some cases the maximum density credits may not be attainable due to other site constraints including but not limited to acreage constraints of the developable site area.

B. For development proposals containing critical areas and associated critical area buffers that limit development, the Director shall determine allowable dwelling units for residential and allowable floor area for nonresidential or commercial development proposals based on the formulas below.

1. Residential: The maximum number of dwelling units (DU) for a lot or parcel which contains critical areas and associated critical area buffers that limit development shall be equal to the number of acres in critical area and critical area buffer that limit development, times the number of dwelling units allowed per acre, times the percentage of density credit, plus the number of dwelling units allowed on the remainder of the site; or: (Max. DU) = (Acres in Critical Area and Critical Area Buffer) (DU/Acre) (Density Credit) + (DU allowed on remaining acreage of site).

2. The density credit figure is derived from the following table:

Density Credits

Percentage of site in buffers and/or critical areas	translates into	Density Credit
1 – 10%		100%
11 – 20%		90%
21 – 30%		80%
31 – 40%		70%
41 – 50%		60%
51 – 60%		50%
61 – 70%		40%
71 – 80%		30%
81 – 90%		20%
91 – 100%		10%

3. The density credit can only be transferred within the development proposal site. The applicant may reduce lot sizes below the minimum required for that zone to accommodate the transfer of density. The applicant may not propose any uses which are not permitted in the underlying zone.

To the extent that application of the formula may result in lot sizes less than the minimum allowed by the underlying district, they are hereby authorized; provided, that the resultant lot is of sufficient size for an on-site waste disposal system if no sanitary sewer system exists. In any case, all other established setbacks shall be required, pursuant to Chapter 18.07 IMC.

4. Nonresidential: The maximum nonresidential or commercial square footage will be determined by the site constraints, including but not limited to: critical areas, associated critical area buffers, impervious surface ratio, height, setbacks, parking requirements, etc. (Ord. 2525 § 7, 2008; Ord. 2447 § 59, 2005; Ord. 2108 § 10.2.12, 1996).

18.10.460 Notice on title.

A. The owner of any property containing critical areas or buffers on which a development proposal is submitted, except for a public right-of-way or the site of a permanent public facility, shall file for record with the Records and Elections Division of King County a notice approved by the City. Such notice shall provide documentation in the public record of the presence of a critical area or buffer, the application of this chapter to the property, and that limitations on actions in or affecting such areas or buffers may exist. The required contents and form of the notice shall be set forth in administrative rules.

B. The applicant shall submit proof that the notice has been filed for record before the City shall approve any development proposal for such site or, in the case of subdivisions, short subdivisions and binding site plans, at or before recording. The notice shall run with the land and failure to provide such notice to any purchaser prior to transferring any interest in the property shall be a violation of this chapter. (Ord. 2108 § 10.2.13, 1996).

18.10.470 Critical area tracts, buffer areas and building setback areas.

Repealed by Ord. 2301. (Ord. 2108 § 10.2.14, 1996).

18.10.480 Temporary marking – Permanent survey marking – Signs.

A. Temporary Marking: The location of the outer extent of the critical area buffer and building setback line pursuant to an approved Development or Land Use Permit shall be marked in the field with orange construction fencing or other appropriate apparatus, as determined by the Director during critical area review. The location of such marking in the field shall be approved by the Director, prior to the commencement of permitted activities. Such field markings shall be maintained throughout the duration of the construction activities.

B. Survey Markers: Permanent survey stakes using iron or cement markers as established by current survey standards shall be set delineating the boundaries between adjoining properties and the critical areas tracts.

C. Signs: Boundaries between critical area tracts and adjacent lands shall be identified using permanent signs explaining the type and value of the critical area. The signs shall be designed as follows, unless alternative designs are approved by the Director:

1. Size and Height: Minimum eight and one-half (8.5) inches tall by eleven (11) inches wide. The overall sign shall be three (3) to five (5) feet high;
2. Color: White lettering on dark background;
3. Material: Aluminum sign and wood posts;
4. Content: The language content of the sign shall be as determined by the Planning Department (examples available at the Permit Center). The title shall be a minimum one-half (1/2) inch tall letters and the text a minimum one-quarter (1/4) inch tall letters;
5. Installation: The sign shall be secured to a four (4) inch by four (4) inch wood post, long enough to set the post thirty-six (36) inches below grade and back fill with dirt (see Permit Center for sign diagram). (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.15, 1996).

18.10.490 Mitigation.

A. Prior to development activities, mitigation measures shall be in place to protect critical areas and critical area buffers from alterations occurring on all or portions of the site that are being developed.

B. A mitigation plan shall be required for the design, implementation, maintenance and monitoring of mitigation.

C. A financial surety in the form of a performance and maintenance bond shall be required for all critical area mitigation efforts. The bonding amounts shall be listed in the mitigation plan, with the performance amount intended to cover the cost of design, installation, monitoring, and maintenance, and shall be an agreed-upon percentage of the performance bond. The bond shall be one hundred fifty (150) percent of the mitigation cost and the maintenance period shall be for five (5) years. If additional work is required after the five (5) year maintenance period is over, the bonding may be extended per the Director.

D. Other Agency Review: The Director may consult with and solicit comments from any federal, state, regional, or other local agency, including tribes, having any special expertise with respect to any environmental impact prior to approving a mitigation plan. The project proponents should provide sufficient information on plan design and implementation in order for such agencies to comment on the overall adequacy of the mitigation plan. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.16, 1996).

18.10.500 Monitoring.

A. The City shall require monitoring when mitigation is required for the alteration of a critical area.

B. Monitoring is required for a minimum of five (5) years.

C. Where monitoring reveals a significant deviation from predicted impacts or a failure of mitigation measures, the applicant shall be responsible for appropriate corrective action as specified by the Director which, when approved, shall be subject to monitoring. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.17, 1996).

18.10.510 Critical Areas Mitigation Fund.

There is hereby created a Critical Areas Mitigation Fund which shall be administered by the Finance Department. All funds received from civil penalties resulting from violations of this chapter shall be deposited in the fund which shall be used only for the purpose of paying all or part of the cost and expense of enforcing and implementing this chapter. Monies in said fund not needed for immediate expenditure shall be invested for the benefit of the Critical Areas Mitigation Fund pursuant to RCW 36.29.020. For investment purposes, the Director of Finance is hereby designated the Fund Manager. (Ord. 2108 § 10.2.18, 1996).

18.10.515 Critical area tracts, buffer areas and building setback areas.

A. Critical Area Tracts: Critical area tracts shall be used to protect all landslide and steep slopes hazard areas; mine, flood, erosion and seismic hazard areas; streams; and wetlands in proposals for subdivisions or other development proposals to which they apply, and shall be recorded on all documents of title of record for all affected lots.

1. Critical area tracts are legally created tracts containing critical areas and their buffers that shall remain undeveloped in perpetuity. Critical area tracts are an integral part of the lot in which

they are created, are not intended for sale, lease or transfer, and shall be included in the area of the parent lot for purposes of subdivision method and minimum lot size.

2. Permanent survey stakes using iron or cement markers as established by current survey standards shall be set delineating the boundaries between adjoining properties and the critical area tracts.

B. Protection of Critical Area Tracts: The Director shall require, as a condition of any permit issued pursuant to this Code, that the critical area tract or tracts created pursuant to this section be protected by one of the following methods:

1. The permit holder shall convey an irrevocable offer to dedicate to the City or other public or nonprofit entity specified by the Director, a native growth protective easement for the protection of native vegetation within a critical area and/or its buffer; or

2. The permit holder shall establish and record a permanent and irrevocable deed restriction on the property title of all lots containing a critical area tract or tracts created as a condition of this permit. Such deed restriction(s) shall prohibit in perpetuity the development, alteration, or disturbance of vegetation within the critical area tract except for purposes of habitat enhancement as part of an enhancement project that has received prior written approval from the City, and any other agency with jurisdiction over such activity.

C. Buffer Areas: Buffer areas shall be established from the outer edge of the critical area for wetlands, streams, steep slope hazard areas and landslide hazard areas, as determined by the Director, through review of the critical areas study and based on the minimum buffer requirements set forth in the appropriate section of this Code.

Landscaping, with the exception of street trees, that occurs as a result of new development, shall not intrude into the buffer of any critical area, unless approved by the Director (through a Level 1 Review or through the appropriate land use permitting process). Street trees, consistent with the City "Street Tree Master Program" and approved by the Director, shall be allowed in and along the roadway rights-of-way portion of a critical area buffer. When critical area buffers overlap, the largest buffer width shall be applied to ensure adequate protection for each critical area.

D. Building Setback Areas: A minimum fifteen (15) foot building setback area shall be established from the outer edge of the critical area buffer for wetlands, streams, steep slope hazard areas and landslide hazard areas.

1. Prohibitions on the use of hazardous or toxic substances and pesticides or certain fertilizers in this area shall be imposed for setbacks from streams and wetlands.

2. Minor structural intrusions (e.g., architectural features, patios, decks less than thirty (30) inches above finished grade) may be allowed into the building setback area, if consistent with IMC 18.07.040.

3. The building setback area shall be illustrated on all preliminary plats, final plats, land use permits, and building permit site plans containing or adjacent to critical areas. (Ord. 2455 § 3, 2006; Ord. 2301 § 3, 2001).

Development Standards

18.10.520 Mine hazard areas and erosion hazard areas – Protection mechanisms and permitted alterations.

A. Coal Mine Hazard Areas:

1. General Requirements: Alteration of a site containing a coal mine hazard area may be permitted only when all significant risks associated with abandoned mine workings have been eliminated or mitigated. Appropriate mitigation shall be based upon a critical areas study that has been prepared by a qualified professional.

2. Building Setback Lines: Building setback lines to accomplish this objective shall be determined by the Director based on the critical areas study.

B. Erosion Hazard Areas: Alteration of a site containing an erosion hazard area shall meet the following requirements:

1. Clearing on erosion hazard areas is allowed only from April 1st to November 1st.

2. Only that clearing necessary to install temporary sedimentation and erosion control measures shall occur prior to clearing for roadways or utilities.

3. Clearing limits for roads, sewer, water and stormwater utilities, and temporary erosion control facilities shall be marked in the field and approved by the Department of Public Works prior to any alteration of existing native vegetation.

4. The authorized clearing for roads and utilities shall be the minimum necessary to accomplish project-specific engineering designs and provide necessary electrical clearances.

5. Clearing of trees permitted pursuant to Chapter 18.12 IMC, Landscaping, may occur in conjunction with clearing for roadways and utilities.

6. Retained trees, understory, and stumps may subsequently be cleared only if such clearing is a specific element of residential, multifamily, or commercial structure site plan approval. This shall be carried out as a part of a vegetation management plan developed pursuant to criteria established in the administrative rules.

7. Hydroseeding or other erosion control methods as required in temporary erosion control plans shall be required.

8. All development proposals shall submit an erosion control plan consistent with this section and other adopted requirements prior to receiving approval. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.19, 1996).

18.10.530 Areas of special flood hazard – Protection mechanisms and permitted alterations.

A. Application:

1. Development proposals located within areas of special flood hazard shall meet the requirements and definitions of this chapter and Chapter 16.36 IMC, Areas of Special Flood Hazard. Where any conflicts between this section and Chapter 16.36 IMC exist, the more strict standard shall apply.

2. In addition to the provisions of this section, requirements for buffers, critical area tracts, building setback lines, permitted alterations, mitigation and monitoring for a development proposal site on or adjacent to a flood hazard area shall be as established in this chapter for the streams, wetlands or other areas which form the constituent elements of the floodplain.

3. In all flood hazard areas, the City shall honor all existing contractual obligations with any federal agency.

B. General Requirements:

1. Areas of Special Flood Hazard: The areas of special flood hazard include, but are not limited to, those areas identified by the Federal Emergency Management Agency (FEMA) in a scientific and engineering report entitled "Flood Insurance Study, King County, Washington" dated March 30, 1998, with accompanying flood insurance rate maps which define base flood elevations and floodway boundaries, and any subsequent revisions, which are adopted by reference and declared to be part of this chapter. In addition to the FEMA flood insurance rate maps, areas of special flood hazard include the areas identified in the Montgomery Water Group remapping project.

2. Use of Available Flood Information: Compliance with this chapter, including hydraulic analyses and other computations, shall be based on the base flood elevations and floodway delineations from the referenced floodplain map sources and supplemented with detailed site topographic information. If available flood information, including but not limited to high water elevations from historical flood events, provide sufficient evidence that the base flood elevations shown on the flood insurance rate maps are not accurate, or if the development site area is not within the mapped coverage of the flood insurance rate maps and flood hazards exist at the site due to proximity to a stream or evidence of past flooding, a development proposal may be required to submit a floodplain hydraulic based on available flood and site information in order to

generate accurate and up-to-date estimates of the extent of special flood hazard area at the development site.

3. **Compensatory Storage Required:** Development proposals shall not reduce the effective base flood storage volume of the floodplain. Grading or other activity which would reduce the effective storage volume must be mitigated by creating compensatory storage either on-site, or off-site. The compensatory storage must be hydraulically connected to the source of floodwaters and excavated at an elevation at or below the elevation of the filled storage that is being compensated. Property located outside the FEMA one hundred (100) year floodplain but within the one hundred (100) year floodplain identified in the Issaquah Creek Basin and Nonpoint Action Plan should not be required to provide compensatory storage, but shall oversize the storm drainage system to contain local stormwater runoff that may not readily drain into the creeks during times of flooding. The intent is to not impede flood waters.

4. **No Reduction in Floodplain Conveyance:** Development proposals shall not reduce the hydraulic capability of the floodplain on-site to convey floodwaters through the property during the base flood event. No rise in base flood elevations is allowed on adjacent properties. Providing this compensatory conveyance capacity can be done in conjunction with the compensatory storage, either on-site or off-site.

5. **Compliance with the compensatory storage, compensatory conveyance requirements, and other requirements of this chapter and Chapter 16.36 IMC shall be documented in a floodplain hydraulic study prepared by a licensed civil engineer registered in the state of Washington. If requested, floodplain study submittals shall be accompanied by electronic copies of floodplain models and topographic maps.**

C. **Exemptions:** If the provisions of subsection (B)(1) of this section would prohibit a development proposal due to physical constraints of the development site, the applicant may apply for an exemption from those provisions through a Level 1 Review in Chapter 18.04 IMC. The applicant shall prepare a report requesting the exemption and submit it to the Permit Center and shall incorporate other required documents, such as land use or Building Permit applications, critical areas studies and SEPA documents. Variances from the provisions in Chapter 16.36 IMC, Areas of Special Flood Hazard, shall follow the variance process in IMC 16.36.160.

The Director shall review the report and applications and make the final decision to approve, approve with conditions or deny the exemption based on the following criteria:

1. There is no other practical alternative to the proposed development with less impact on the critical area;
2. The proposal minimizes the impact on critical areas;

3. Grading for construction of livestock manure storage facilities to control nonpoint source water pollution designed to the standards of and approved by the City are exempt from the compensatory storage and conveyance requirements. This exemption applies only to existing livestock facilities; and

4. Mitigation measures are proposed or available, as needed, to avoid any significant adverse impacts to the critical area.

D. No structure shall be allowed which would be at risk due to stream bank destabilization including that associated with channel relocation or meandering.

E. Flood Hazard Notification:

1. Base flood data and flood hazard notes shall be shown on the face of the recorded plat, including, but not limited to, the base flood elevation, required flood protection elevations, and the boundaries of the floodplain.

2. The following note, or similar language, shall appear on the face of the recorded plat and on the individual titles for all affected lots:

"N O T I C E"

"Lots and structures located within flood hazard areas may be inaccessible by emergency vehicles and personnel during flood events. Residents and property owners should take appropriate advance precautions. Property damage and personal safety risks may occur."

F. The proponent shall be responsible for obtaining all necessary permits required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, as required by Section 60.3(a)(2) of 44 CFR, as amended.

G. No development proposal, including permitted new construction or reconstruction, shall cause any increase in base flood elevation unless the following conditions are met:

1. Amendments to the flood insurance rate map have been adopted by FEMA in accordance with 44 CFR 70 to incorporate the increase in base flood elevations;

2. Appropriate legal documents are prepared in which all property owners affected by the increased flood elevations consent to the impacts on their property. These documents shall be filed with the title of record for the affected properties.

H. Where compensatory storage is not provided, residential structures shall be elevated using piers, columns, or similar construction techniques which allow unimpeded flow from all sides under the structure in flood hazard areas where depths of water for the one hundred (100) year event are at least one (1) foot. The columns or piers shall not be considered to displace flood waters.

I. All temporary structures shall be removed from the floodplain during the flood season from September 30th to May 1st.

J. Construction of new residential or nonresidential structures is allowed in the one hundred (100) year floodplain, as defined by FEMA Flood Insurance Rate Map (FIRM) and the Issaquah Creek Basin and Nonpoint Action Plan, whichever is more extensive, subject to the following:

1. The structure must be outside the floodway;
2. The structure must meet the following construction standards:
 - a. The lowest floor shall be elevated to the flood protection elevation;
 - b. Use materials and methods which are resistant to and minimize flood damage;
 - c. Floodproof to or elevate above the flood protection elevation all electrical, heating, ventilation, plumbing, air conditioning equipment, and other utility and service facilities; and
 - d. No flood walls are allowed. A flood wall is not meant to include a building wall.

K. Utilities shall be located in the floodplain only when no other location is practicable, and shall meet the minimum criteria set out in IMC 18.10.530 and the following requirements:

1. Installation of new on-site sewage disposal systems shall be prohibited unless a waiver is granted by the Seattle/King County Department of Public Health;
2. Construction of sewage treatment facilities shall be prohibited, unless it is essential to ensuring that the public health and safety is not compromised; and
3. Utility transmission lines transporting hazardous substances shall be buried at a minimum depth of four (4) feet below the maximum depth of scour for the base flood as predicted by a Washington State licensed professional civil engineer and shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated.

L. Floodway Dependent Structures: Installations or structures which are floodway dependent may be located in the floodway; provided, that the development proposal receives approval from all other agencies with jurisdiction and meets all standards for flood hazard areas in this chapter and Chapter 16.36 IMC. Such installations include, but are not limited to:

1. Dams or diversions for water supply, flood control, hydroelectric production, irrigation or fisheries enhancement;
2. Flood damage reduction facilities such as levees and pumping stations;

3. Stream bank stabilization structures where no feasible alternative exists to protecting public or private property;
4. Storm water conveyance facilities subject to the requirements of the development standards for streams and wetlands, and the City's currently adopted Surface Water Design Manual;
5. Boat launches and related recreation structures;
6. Bridge piers and abutments; and
7. Fisheries enhancement or stream restoration projects. (Ord. 2405 § 2, 2004; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.20, 1996).

18.10.540 Protection mechanisms and permitted alterations for the one hundred (100) year floodplain.

Repealed by Ord. 2301. (Ord. 2164 § 10, 1997; Ord. 2108 § 10.2.21, 1996).

18.10.550 Floodway – Protection mechanisms and permitted alterations.

Repealed by Ord. 2301. (Ord. 2108 § 10.2.22, 1996).

18.10.560 Landslide hazard areas – Protection mechanisms and permitted alterations.

Development proposals on sites containing landslide hazard areas shall meet the following requirements:

- A. **Buffers:** A minimum buffer of fifty (50) feet shall be established from all edges of landslide hazard areas and from landslide hazard areas with slopes of less than forty (40) percent unless these areas are approved for alteration pursuant to this section. Existing native vegetation within the buffer area shall be maintained, and the buffer shall be extended beyond these limits as required to mitigate steep slope and erosion hazards, or as otherwise necessary to protect the public health, welfare or safety.
- B. **Building Setback:** An additional fifteen (15) foot building setback shall also be established from the outer edge of the buffer as regulated by IMC 18.10.515(D), Building Setback Areas.
- C. **Alterations:**
 1. A landslide hazard area located on a slope forty (40) percent or steeper shall be altered only as allowed under standards for steep slope hazard areas. A landslide hazard area, located on a slope less than forty (40) percent, may only be altered under the following circumstances:
 - a. The development proposal will not decrease slope stability on adjacent properties; and
 - b. The landslide hazard area can be modified or the development proposal can be designed so that the landslide hazard to the project and adjacent property is eliminated or mitigated, based on criteria including altering of drainage patterns and subsurface flow, and

the development proposal on that site is certified as safe by a licensed geotechnical engineer.

2. Where such alterations are approved, buffers and critical area tracts may also be altered. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.23, 1996).

18.10.570 Seismic hazard areas – Protection mechanisms and permitted alterations.

Development proposals on sites containing a seismic hazard area shall meet the requirements of this section.

A. Development proposals on-sites containing mapped seismic hazard areas may make alterations to a seismic hazard area only when the applicant demonstrates and the Director concludes that:

1. Evaluation of site specific subsurface conditions show that the site is not located in a seismic hazard area; or
2. Mitigation is implemented to the greatest extent feasible, and shall minimize any potential adverse impacts.

B. Development proposals will be subject to two (2) levels of review standards based on occupancy types – critical facilities and standard structures. The review standards for critical facilities will be based on larger earthquake reoccurrence intervals than the earthquakes considered for standard occupancy structures. The review standards will be set forth in the administrative rules. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.24, 1996).

18.10.580 Steep slope hazard areas – Protection mechanisms and permitted alterations.

Steep slope hazard areas and associated buffers shall not be altered except as expressly authorized below.

Development proposals on sites containing a steep slope hazard area shall meet the requirements of this section.

A. Buffers:

1. A minimum buffer shall be established at a horizontal distance of fifty (50) feet from the top or toe and along all sides of slopes forty (40) percent or steeper. Existing native vegetation within the buffer area shall be maintained and the buffer shall be extended beyond these limits as required to mitigate landslide and erosion hazards, or as otherwise necessary to protect the public health, safety and welfare.
2. The buffer may be reduced to a minimum of ten (10) feet when an applicant demonstrates to the Director, pursuant to a critical areas study, that the reduction will not reduce the level of protection to the proposed development and the critical area as provided by the fifty (50) foot

buffer. An occupied building shall not be closer than twenty-five (25) feet (including buffer) to the toe of a steep slope (or altered steep slope).

3. A decision by the Director to reduce the buffer shall be based on a critical area study that includes the following assessment criteria:

a. Steep slope development areas shall be subject to site-specific geotechnical studies.

b. Steep slope development areas shall be subject to engineering design considerations that ensure the stability of steep slope areas. Engineering design considerations shall include but are not limited to the following:

(1) Soil cuts require slope stability analysis to evaluate the change in relative stability. Based on the results of the stability analysis, retaining structures will be required to replace any lateral soil support lost. In no case shall the factor of safety be less than one and one-half (1.5).

(2) Soil fills require slope stability analysis and engineering design measures, including keying the fill, compaction, drainage measures, reinforced earth, and structural retaining walls.

(3) Foundations must be extended to firm, undisturbed native soil, and embedded deep enough to resist lateral loads caused by soil creep (surficial slope movement inherent to all steep slope areas) and other lateral loads which the foundation may be subject to (i.e., seismic and deep seated slope failures).

(4) Provide subgrade (i.e., reinforced compacted subgrade) or retaining wall design (rockeries are not considered retaining walls or engineered structures) that replaces the support of cuts; designed with a factor of safety of at least one and one-half (1.5). Compacted subgrade without reinforcement or retaining structures will not be considered for the support of cuts.

(5) Provide effective, positive drainage for all underground elements of structures or facilities.

(6) All utility connections within steep slope and landslide hazards shall have sufficient flexible connections to avoid utility failure.

c. All geotechnical analyses prepared shall have a third-party independent review by a qualified geotechnical engineer.

4. The decision by the Director to reduce the buffer shall include the following conditions:

a. The applicant shall establish a mechanism that is acceptable to the Director which notifies all future buyers of the lot that the steep slope buffer was reduced and that development has occurred within fifty (50) feet of the steep slope or the steep slope has been eliminated (e.g., notice on title); and

b. The applicant shall execute an agreement on a form approved by the City Attorney, which indemnifies and holds the City harmless for development within fifty (50) feet of the steep slope.

Both conditions shall be met prior to the issuance of a building permit. The Director may attach additional conditions as necessary to achieve the purpose and intent of this section.

B. Building Setback: An additional fifteen (15) foot building setback shall also be established from the outer edge of the buffer as regulated by IMC 18.10.515(D), Building Setback Areas.

C. Critical Areas Tracts: Any continuous steep slope hazard area and its buffers one (1) acre or greater in size shall be placed in separate critical areas tracts in development proposals as described in IMC 18.10.515.

D. Alterations: Alterations to steep slopes shall be allowed only as follows:

1. Surface Water Management: Steep slopes may be used for approved surface water conveyance as specified in the City's currently adopted Surface Water Design Manual. Installation techniques shall minimize disturbance to the slope and vegetation.

2. Trails: Construction of public and private trails may be allowed on steep slopes, provided they receive site-specific approval by the City as guided by the construction and maintenance standards in the U.S. Forest Service "Trails Management Handbook" (FSH 2309.18, June 1987 as amended) and "Standard Specifications for Construction of Trails" (EM-7720-102, June 1984 as amended); but in no case shall trails be constructed of concrete, asphalt or other impervious surface which would contribute to surface water runoff unless such construction is necessary for soil stabilization or soil erosion prevention.

3. Utilities: Construction of public and private utility corridors may be allowed on steep slopes in accordance with adopted standards. In the event that standards have not been adopted or are not applicable, the activity may be allowed; provided, that a critical areas study indicates that such alteration will not subject the area to the risk of landslide or erosion.

4. View Corridors: The City may allow the limited trimming and limbing of vegetation on steep slopes for the creation and maintenance of views; provided, that the soils are not disturbed, plant health is not compromised, and the activity is subject to the applicable City ordinance.

E. Limited Exemptions:

1. Slopes forty (40) percent and steeper with a vertical elevation change of up to twenty (20) feet may be exempted from the provisions of this section (through Level 1 Review or through the appropriate land use permitting process), based on the City review and acceptance of a soils report prepared by a geologist or licensed geotechnical engineer when no adverse impact will result from the exemption.
2. Any slope which has been created through previous, legal grading activities may be regarded as part of an approved development proposal. Any slope which remains equal to or in excess of forty (40) percent following site development shall be subject to the protection mechanisms for steep slopes.

F. Removal or Introduction of Vegetation on Landslide or Steep Slopes: Unless otherwise specified, the following restrictions apply to vegetation removal or introduction in steep slope hazard areas, landslide hazard areas and their buffers:

1. There shall be no removal of any vegetation from any steep slope hazard area or buffer except for the limited plant removal necessary for surveying purposes and for the removal of hazardous trees determined to be unsafe by the City Horticulturist or a private, qualified arborist.
2. On slopes which have been disturbed by human activity or infested by noxious weeds, replacement with native species or other appropriate vegetation may be required subject to approval by the City of an enhancement plan. (Ord. 2525 § 4, 2008; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.25, 1996).

18.10.590 Wetlands – General protection mechanisms.

Development activity on sites containing wetlands or wetland buffers shall meet the requirements of this chapter. Wetlands and associated buffers shall not be altered except as expressly authorized by this chapter. The applicant is responsible for ensuring that the requirements of all other agencies with jurisdiction have been met. (Ord. 2455 § 4, 2006; Ord. 2108 § 10.2.26.1 – 4, 1996).

18.10.600 Regulated wetland activities.

Project Permit approval through the appropriate land use permitting process, or if none is required, then through Level 1 Review shall be obtained from the City prior to undertaking the following activities in a regulated wetland or its buffer unless authorized by IMC 18.10.610(A):

- A. The removal, excavation, grading, or dredging of soil, sand, gravel, minerals, organic matter, or material of any kind;
- B. The dumping, discharging, or filling with any material;
- C. The draining, flooding, or disturbing of the water level or water table;
- D. The driving of pilings;

- E. The placing of obstructions or fences;
- F. The construction, reconstruction, demolition, or expansion of any structure;
- G. The destruction or alteration of wetlands vegetation through clearing, grubbing, harvesting, shading, intentional burning, or planting of vegetation that would alter the character of a regulated wetland; provided, that these activities are not part of a forest practice governed under Chapter 76.09 RCW and its rules;
- H. Activities that result in a significant change of water temperature, a significant change of physical or chemical characteristics of wetlands water sources, including quantity, or the introduction of pollutants;
- I. Any development or construction activity not specifically authorized as an allowed activity in IMC 18.10.610(A);
- J. Filling or grading, which would reduce the total size of an existing wetland that is greater than one (1) acre in size to less than one (1) acre. This regulation applies to a total wetland size whether it is contained on the project site or exists over several properties;
- K. Restoration or enhancement projects; or
- L. Introduction into any wetland area or associated buffers of all vegetation or wildlife shall be indigenous to the Issaquah region unless authorized by the state of Washington or a federal license or permit. (Ord. 2455 § 5, 2006; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.26.5, 1996).

18.10.610 Allowed wetland activities.

A. Activities Not Subject to Review or Approval: The following activities shall be allowed without a wetland reconnaissance or wetland study and without notice to the Director, within a wetland or wetland buffer to the extent that they are not prohibited by any other ordinance or law and provided they are conducted using best management practices, except where such activities result in the conversion of a regulated wetland or wetland buffer to an activity to which it was not previously subjected; and provided further, that forest practices and conversions shall be governed by Chapter 76.09 RCW and its rules. These activities are not subject to any review or approval process.

1. Conservation or preservation of soil, water, vegetation, fish, shellfish, and other wildlife;
2. Outdoor recreational activities, including fishing, bird watching, hiking, hunting, boating, swimming and canoeing. Horseback riding and bicycling are allowed only on designated, established, public trails;
3. The noncommercial harvesting of wild crops in a manner that is not injurious to natural reproduction of such crops and provided the harvesting does not require tilling of soil, planting of crops, or alteration of the wetland by changing existing topography, water conditions or water sources;

4. Existing and ongoing agricultural activities including farming, horticulture, aquaculture, irrigation, ranching or grazing of animals. Activities on areas lying fallow as part of a conventional rotational cycle are part of an ongoing operation. Activities which bring an area into agricultural use are not part of an ongoing operation. An operation ceases to be ongoing when the area on which it was conducted has been converted to another use or has lain idle for twenty-four (24) consecutive months;
5. The maintenance (but not construction) of existing ditches. Maintenance includes clearing the ditch of sediment, debris and/or vegetation, but does not include additional excavation that increases the depth or width of the ditch. Excavation of sediment deposited in the ditch shall not exceed the original construction elevation;
6. Education, scientific research, and use of publicly designated nature trails;
7. Navigation aids and boundary markers;
8. Boat mooring buoys;
9. Normal maintenance, repair, or operation of existing serviceable structures, facilities, or improved areas. Maintenance and repair does not include any modification that changes the character, scope, or size of the original structure, facility, or improved area and does not include the construction of a maintenance road;
10. Minor modification of existing serviceable structures (e.g., utilities, monitoring equipment, etc.) within a buffer where modification does not adversely impact wetland functions;
11. Site investigative work necessary for land use application submittals such as delineations, surveys, soil logs, percolation tests and other related activities; and
12. Removal of exotic, invasive plants in wetlands and buffers as established in IMC 18.10.400(L), Removal of Nonnative Invasive Vegetation.

B. Activities Allowed in Wetland Buffers: In wetland buffers, regulated activities which have minimal adverse impacts within the buffers and no adverse impacts on wetlands may be allowed through the Land Use Permit process, provided they are conducted using best management practices and restoration. These activities include:

1. Low impact, passive recreation-related activities such as development of pervious recreation trails, nonpermanent wildlife watching blinds, short-term scientific or educational activities; or
2. Stormwater management facilities having no feasible alternative on-site locations, where appropriate restoration is included, and which would not adversely affect the function or values of the buffer or wetland, may be allowed in buffers associated with Class 2 and 3 wetlands only. Any wetland or buffer area displaced by a stormwater management facility shall be compensated

for by adding wetland or buffer area in accordance with IMC 18.10.650(D)(3) so that no net loss of wetland or buffer area results from the construction of the facility; or

3. Flood conveyance compensatory storage, where there is no other feasible alternative, where appropriate restoration is included, and where wetland hydrology or vegetation will not be significantly impacted; or

4. Surface water discharge to a wetland from a detention facility, presettlement pond or other surface water management activity or facility may be allowed if the discharge enhances the wetland and/or does not increase the rate of flow, change the plant composition in a forested wetland, or decrease the water quality of the wetland; or

5. Trails: Construction of public and private trails may not be allowed in wetland buffers unless a critical areas study per IMC 18.10.410 documents no loss of buffer functions and values. Additional buffer width equal to the width of the trail tread and the cleared trail shoulders shall be required, except where existing development prevents adding buffer width. In this case, other mitigating measures shall be required to ensure no loss of buffer functions and values.

C. Utilities in Wetland Buffers: Sewer utility corridors may be allowed in wetland buffers only if the applicant demonstrates that sewer lines are necessary for gravity flow and no other technologically practical alternative exists, and:

1. The corridor is not located in a wetland or buffer used by species listed as endangered or threatened by the state or federal government or containing critical or outstanding actual habitat of those species, and consider construction timing in areas with heron rookeries or raptor nesting trees;

2. The corridor alignment including, but not limited to, any allowed maintenance roads follows a path beyond a distance equal to seventy-five (75) percent of the buffer width from the wetland edge;

3. Corridor construction and maintenance protects the wetland and buffer and is aligned to avoid cutting trees greater than twelve (12) inches in diameter at breast height, when practical;

4. An additional, contiguous and undisturbed buffer, equal in width to the proposed nonvegetated areas, including any allowed maintenance roads, is provided to protect the wetland;

5. The corridor is revegetated with appropriate vegetation native to King County at preconstruction densities or greater immediately upon completion of construction or as soon thereafter as possible, and the sewer utility ensures that such vegetation is established for at least five (5) years;

6. Any additional corridor access for maintenance is provided, to the extent possible at specific points rather than by a parallel road; and

7. The width of any necessary parallel road providing access for maintenance is as small as possible, but not greater than fifteen (15) feet, and the location of the road is within the utility corridor on the side away from the wetland.

D. Construction Disturbance: Except as otherwise specified, where buffer disturbance has occurred during construction, revegetation with native vegetation may be required. (Ord. 2491 § 6, 2007; Ord. 2455 § 6, 2006; Ord. 2314 § 1, 2001; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.26.6 – 7, 1996).

18.10.620 Wetland rating system.

A. To promote consistent application of standards, wetlands within the City of Issaquah shall be classified according to their characteristics, function and value, and/or their sensitivity to disturbance. Wetlands shall be rated and regulated according to the categories defined by the Washington State Department of Ecology Wetland Rating System for Western Washington, (Ecology Publication #04-06-025). This document contains the methods for determining the wetland category.

1. Wetlands, as defined by this chapter, shall be classified into Category I, Category II, Category III, and Category IV, as follows:

a. Category I Wetlands: Category I wetlands are those that (1) represent a unique or rare wetland type; or (2) are more sensitive to disturbance than most wetlands; or (3) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or (4) provide a high level of functions. All wetlands with one (1) or more of the following criteria shall be considered a Category I wetland:

(1) Wetlands that are identified by scientists of the Washington Natural Heritage Program/DNR as high quality, relatively undisturbed wetlands, or wetlands that support State-listed threatened or endangered plants; or

(2) Bogs; or

(3) Mature and old-growth forested wetlands over one (1) acre in size; or

(4) Wetlands that provide a very high level of functions as evidenced by a score of seventy (70) points or more on the Western Washington Rating System form.

b. Category II Wetlands: Category II wetlands are those wetlands that provide high levels of some functions which are difficult to replace. Category II wetlands meet the following criteria:

(1) Wetlands scoring between fifty-one (51) and sixty-nine (69) points on the Western Washington Rating System form.

c. **Category III Wetlands:** Category III wetlands are those wetlands that provide a moderate level of functions. They are typically more disturbed and have less diversity or are more isolated from other natural resources in the landscape than Category II wetlands. Category III wetlands meet the following criteria:

(1) Wetlands scoring between thirty (30) and fifty (50) points on the Western Washington Rating System form.

d. **Category IV Wetlands Over Two Thousand Five Hundred (2,500) Square Feet:** Category IV wetlands are those wetlands that provide the lowest level of functions and are often heavily disturbed. Category IV wetlands meet the following criteria:

(1) Wetlands scoring less than thirty (30) points on the Western Washington Rating System form. (Ord. 2455 § 7, 2006; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27 – 10.2.27.3, 1996).

18.10.630 Wetland buffers.

Requirement for Native Vegetation: Except as otherwise specified, where buffer disturbance has occurred during construction, revegetation with native vegetation may be required. (Ord. 2108 § 10.2.27.4, 1996).

18.10.640 Wetland buffer width requirements.

A. Wetland buffers shall be required for all regulated activities adjacent to wetlands.

B. Any wetland created, restored or enhanced as mitigation or compensation for approved wetland alterations shall also include the standard wetland buffer required for the class category of the created, restored, or enhanced wetland.

C. All wetland buffers shall be measured from the wetland boundary as delineated using the DOE Wetland Manual and surveyed in the field. The width of the wetland buffer shall be determined according to the wetland category, as follows:

Table 18.10.640.C Wetland Buffer Standards

Category	Wetland Characteristic	Buffer
I (Wetlands with a total score of 70 points or more on the DOE Wetland Rating form)	Natural heritage wetlands	190 feet
	Bogs	190 feet
	Forested	Based on score for habitat or water quality functions
	Habitat score of 31 to 36	225 feet
	Habitat score of 26 to 30	150 feet
	Habitat score of 22 to 25	100 feet

	Habitat score of 21 or less	75 feet
II (Wetlands with a total score of 51 to 69 points on the DOE Wetland Rating form)	Habitat score of 31 to 36	225 feet
	Habitat score of 26 to 30	150 feet
	Habitat score of 22 to 25	100 feet
	Habitat score of 21 or less	75 feet
III (Wetlands with a total score of 30 to 50 points on the DOE Wetland Rating form)	Habitat score of 26 to 30	110 feet
	Habitat score of 22 to 25	75 feet
	Habitat score of 21 or less	50 feet
IV over 2,500 square feet (Wetlands scoring less than 30 points on the DOE Wetland Rating form)	Total score for functions less than 30 points	40 feet

D. **Building Setback:** An additional fifteen (15) foot building setback shall also be established from the outer edge of the buffer as regulated by IMC 18.10.515(D), Building Setback Areas. (Ord. 2455 § 8, 2006; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27.5 – 9, 1996).

18.10.650 Exceptions to wetland buffer width requirements.

A. **Existing Conditions:**

1. **Previously Established Buffers:** Where a wetland buffer has been previously established through City or County development approval on or after November 27, 1990, and is permanently recorded on title or placed within a separate tract, the buffer shall be as previously established, provided it is at least fifty (50) percent of the required standard wetland buffer width in Table 18.10.640.C.

2. **Roads or Infrastructure in Wetland Buffers:** Where a legally established road right-of-way or similar infrastructure is located within a wetland buffer, the edge of the improved right-of-way shall be the extent of the buffer, provided it is demonstrated that the buffer area on the opposite side of the right-of-way provides insignificant biological or hydrological functions in relation to the buffer area adjacent to the wetland.

B. **Buffer Requirements for Wetlands Adjacent to Steep Slopes:** Wetlands within twenty-five (25) feet of the toe of slopes equal to or greater than thirty (30) percent but less than forty (40) percent shall have the following minimum buffers:

1. Where the horizontal length of the slope including small benches and terraces is within the buffer for that wetland class, the buffer width shall be the greater of:

a. The minimum for that wetland class; or

- b. Twenty-five (25) feet beyond the toe of the slope.
2. Where the horizontal length of the slope extends beyond the minimum buffer for that wetland class, the buffer shall extend to a point twenty-five (25) feet beyond the minimum buffer for that wetland class.
3. The Director may recommend buffer averaging in instances where it will provide additional resource protection; provided, that the total area on-site contained in the buffer remains the same.

C. Increasing Wetland Buffer Requirements: The Director shall require increased buffer widths as necessary to protect wetlands. The additional buffer widths and other issues shall be determined by development application review on a case-by-case basis. This determination shall be supported by appropriate documentation demonstrating that an increased buffer is necessary to:

1. Maintain viable populations of existing species;
2. Protect critical fish and wildlife habitat;
3. Protect critical drainage areas;
4. Protect groundwater recharge or discharge areas;
5. Protect adjacent land from landslides or severe erosion.

D. Reducing Wetland Buffer Requirements:

1. Wetland Buffer Reduction with Buffer Vegetation Enhancement:

a. Purpose: The standard wetland buffer widths identified in Table 18.10.640.C may be reduced when enhancement of the existing wetland buffer vegetation would demonstratively improve water quality and habitat functions.

b. Applicability – Qualifying Wetland Buffers: A wetland buffer may qualify for a buffer reduction under this section when:

(1) The wetland buffer proposed to be enhanced/reduced meets all of the following characteristics:

(A) More than forty (40) percent of the buffer area is covered by nonnative and/or invasive plant species; or,

(B) Tree and/or shrub vegetation cover less than twenty-five (25) percent of the buffer area; and

(C) The wetland buffer has slopes of less than twenty-five (25) percent.

(2) Buffer width averaging authorized in subsection (D)(3) of this section is not being proposed for the wetland.

(3) The proposed development incorporates performance standards to minimize the impacts of the proposed land use, consistent with IMC 18.10.660.

c. Critical Area Study Required: A critical area study consistent with the requirements of IMC 18.10.410(C) and the following provisions is required in order to evaluate and approve a reduction of the standard buffer width. The critical area study shall:

(1) Evaluate the water quality, habitat, groundwater recharge, stormwater detention, and erosion protection functions of the wetland buffer;

(2) Document whether or not the:

(A) Wetland buffer under consideration meets the criteria established in subsection (D)(1)(b) of this section and qualifies for consideration of a buffer reduction under this section;

(B) Buffer reduction would adversely affect the functions and values of the adjacent wetland; and

(C) Ecological structure and function of the reduced buffer after planting enhancement would improve water quality and habitat functions.

(3) Propose a wetland buffer enhancement plan including:

(A) Removal of all invasive, nonnative vegetation; and

(B) Planting of appropriate native tree and shrub species at a minimum planting density of ten (10) feet on-center for trees and five (5) feet on-center for shrubs; and

(C) A monitoring and maintenance plan for the enhanced buffer for a five (5) year period, consistent with IMC 18.10.760 and 18.10.810.

d. Allowed Buffer Reduction: Following are the wetland buffer reductions allowed when all of the criteria in subsections B and C of this section are met:

Wetland Category	Maximum Buffer Reduction at Any Location
Category 1 and 2 wetlands	25 percent of the standard buffer

	width
Category 3 wetlands with habitat scores of 26 points or more	25 percent of the standard buffer width
Category 3 with habitat scores less than 26 points and Category 4 wetlands	15 percent of the standard buffer width

2. Wetland Buffer Reduction with Removal of Impervious Surface Area: The standard wetland buffer area may be reduced at a 2:1 ratio with the removal of existing, legally nonconforming impervious surface area located within the wetland buffer area. For example, if one hundred (100) square feet of existing impervious area is removed, the wetland buffer area may be reduced by two hundred (200) square feet. The removed impervious area must be restored with native vegetation, consistent with the wetland buffer enhancement plan requirements in subsection (D)(1)(c)(3) of this section. Existing site characteristics, including buffer vegetation, slopes, etc., and the proposed development shall be considered in determining the location of the allowed reduced buffer area.

3. Wetland Buffer Averaging Requirements: Standard wetland buffer widths may be modified by averaging buffer widths after review of a critical area study prepared by a qualified wetland professional for compliance with the following criteria:

- a. The proposed site plan demonstrates efforts to avoid and minimize wetland and wetland buffer impacts;
- b. Buffer width averaging is consistent with the best available science and will not adversely impact functions or values;
- c. The total area within the wetland buffer after averaging is not less than the area within the standard buffer prior to averaging. The location of the replacement buffer area shall be contiguous to the standard buffer to be averaged;
- d. The buffer width shall not be reduced by more than twenty-five (25) percent of the standard buffer width at any location, unless a variance is approved in accordance with IMC 18.10.430;
- e. A maximum of fifty (50) percent of the buffer perimeter on a site may be reduced by buffer averaging;
- f. Buffer averaging shall consider physical characteristics on a site, including but not limited to existing wetland and buffer vegetation, slopes, floodplain, hydrology, surface drainage, and association with nearby wetlands and/or streams;
- g. Buffer averaging credit shall not be allowed in areas already protected by the critical area regulations; and

- h. Mitigation, such as revegetation and enhancement of existing vegetation, may be required by the Director.
4. Variance: The Hearing Examiner may reduce the wetland buffer widths required by this section, only through review and approval of a variance application.
- a. In addition to the variance requirements the applicant must demonstrate that:
 - (1) The adjacent land is extensively vegetated, that no direct or indirect, short-term or long-term, adverse impacts to wetlands, as determined by the Director, will result from a regulated activity; or
 - (2) The project includes a buffer enhancement plan using native vegetation which substantiates that an enhanced buffer will improve the functional attributes of the buffer to provide additional protection for wetlands functions and values and that the new buffer will provide the same level of protection to the wetland as the original buffer. (Ord. 2455 § 9, 2006; Ord. 2108 § 10.2.27.10, 1996).

18.10.660 Performance standards.

Development on sites with a wetland or wetland buffer shall incorporate the following performance standards to minimize the impacts of the proposed land use, as applicable:

- A. Lights shall be directed away from the wetland. Lighting levels shall meet the outdoor lighting standards for spillover into critical areas, per IMC 18.07.107.
- B. Activities that generate noise shall be located away from the wetland, or noise impacts shall be minimized through design or insulation techniques.
- C. Toxic runoff from new impervious surface area shall be directed away from wetlands.
- D. Treated stormwater runoff may be allowed into wetland buffers. Channelized flow should be prevented.
- E. Use of pesticides, insecticides and fertilizers within one hundred fifty (150) feet of wetland boundary shall be limited and follow best management practices (BMPs).
- F. The outer edge of the wetland buffer shall be planted with dense vegetation and/or fencing to limit pet and human disturbance. (Ord. 2455 § 10, 2006; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27.11, 1996).

18.10.670 Mitigation sequence.

To further the goal of no net loss of wetland functions or values, in order of preference, activities and development on-sites containing wetlands shall:

- A. Avoid impacts to the wetland and/or its buffer by not taking a certain action or parts of an action;

B. Minimize impacts to the wetland and/or its buffer by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impact by repairing, rehabilitating or restoring the affected environment;

C. Compensate for the impact to the wetland and/or its buffer by restoring, creating, or enhancing substitute resources or environments. (Ord. 2455 § 11, 2006; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27.12, 1996).

18.10.680 Reducing buffer requirements.

A. The Hearing Examiner may reduce the wetland buffer widths required by this section, only through review and approval of a variance application.

B. In addition to the variance requirements the applicant must demonstrate that:

1. The adjacent land is extensively vegetated, that no direct or indirect, short-term or long-term, adverse impacts to wetlands, as determined by the Director, will result from a regulated activity; or

2. The project includes a buffer enhancement plan using native vegetation which substantiates that an enhanced buffer will improve the functional attributes of the buffer to provide additional protection for wetlands functions and values and that the new buffer will provide the same level of protection to the wetland as the original buffer. (Ord. 2108 § 10.2.27.13 – 14, 1996).

18.10.690 Utilities in wetland buffers.

Sewer utility corridors may be allowed in wetland buffers only if the applicant demonstrates that sewer lines are necessary for gravity flow and no other technologically practical alternative exists, and:

A. The corridor is not located in a wetland or buffer used by species listed as endangered or threatened by the state or federal government or containing critical or outstanding actual habitat of those species, and consider construction timing in areas with heron rookeries or raptor nesting trees;

B. The corridor alignment including, but not limited to, any allowed maintenance roads follows a path beyond a distance equal to seventy-five (75) percent of the buffer width from the wetland edge;

C. Corridor construction and maintenance protects the wetland and buffer and is aligned to avoid cutting trees greater than twelve (12) inches in diameter at breast height, when practical;

D. An additional, contiguous and undisturbed buffer, equal in width to the proposed nonvegetated areas, including any allowed maintenance roads, is provided to protect the wetland;

E. The corridor is revegetated with appropriate vegetation native to King County at preconstruction densities or greater immediately upon completion of construction or as soon thereafter as possible, and the sewer utility ensures that such vegetation is established for at least five (5) years;

F. Any additional corridor access for maintenance is provided, to the extent possible at specific points rather than by a parallel road; and

G. The width of any necessary parallel road providing access for maintenance is as small as possible, but not greater than fifteen (15) feet and the location of the road is within the utility corridor on the side away from the wetland. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27.15, 1996).

18.10.700 Avoiding wetland impacts.

A. To further the goal of no net loss of wetland functions or values, regulated activities shall not be authorized in a wetland except as provided in IMC 18.10.700 or where it can be demonstrated that the impact is both unavoidable and necessary and/or that all reasonable uses are denied through the variance provision established in IMC 18.10.420.

B. With respect to Class 1 and 2 wetlands, an applicant must demonstrate through the variance provision as established in IMC 18.10.420, that denial of the proposal would preclude all reasonable use of the subject property on the part of the applicant brought about by circumstances peculiar to the subject property.

C. With respect to Class 3 wetlands, the following provisions shall apply:

1. For water-dependent activities, unavoidable and necessary impacts can be authorized by the Director where it is demonstrated that there are no practicable alternatives that would not involve a wetland or which would not have less adverse impact on a wetland, and would not have other significant adverse environmental consequences.

2. Where nonwater-dependent activities are proposed, it shall be presumed that adverse impacts are avoidable. This presumption may be rebutted upon a demonstration to the Director that:

a. The basic project purpose cannot reasonably be accomplished using one (1) or more other sites in the general region (outside the hydraulic influence area) that would avoid, or result in less, adverse impact on a regulated wetland;

b. The basic purpose of the project cannot be accomplished by reducing the size, scope, configuration, or density of the project, as proposed, and by using any alternative designs of the project, as proposed, that would avoid, or result in less adverse impact on a wetland or its buffer;

c. In cases where the applicant has rejected alternatives to the project, as proposed, due to constraints such as zoning, deficiencies of infrastructure, or parcel size, the applicant has made reasonable attempt to remove or accommodate such constraints.

D. If an applicant for a development proposal which has Class 3 wetlands can demonstrate to the satisfaction of the Director that application of the standards provided in this chapter will deny all reasonable use of the property, development as conditioned shall be allowed if the applicant also demonstrates all of the following to the satisfaction of the Director. The Director has the option to forward the decision to a Hearing Examiner through the variance provision outlined in IMC 18.10.430.

1. That the proposed project is water-dependent or requires access to the wetland as a central element of its basic function, or is not water-dependent but has no practicable alternative pursuant to IMC 18.10.700;
2. That no reasonable use with less impact on the wetland and its buffer is possible (e.g., agriculture, aquaculture, transfer or sale of development rights or credits, sale of open space easements, etc.);
3. That there is no feasible on-site alternative to the proposed activities, including reduction in density, phasing of project implementation, change in timing of activities, revision of road and lot layout, and/or related site planning considerations, that would allow a reasonable use with less adverse impacts to wetlands and wetland buffers;
4. That the proposed activities will result in minimum feasible alteration or impairment to the wetland's functional characteristics and its existing contours, vegetation, fish and wildlife resources, and hydrological conditions;
5. That disturbance of wetlands has been minimized by locating any necessary alteration in wetland buffers to the extent possible;
6. That the proposed activities will not jeopardize the continued existence of endangered, threatened, rare, sensitive, or monitor species as listed by the federal government or the state of Washington;
7. That the proposed activities will not cause significant degradation of groundwater or surface-water quality;
8. That the proposed activities comply with all state, local and federal laws, including those related to sediment control, pollution control, floodplain restrictions, and on-site wastewater disposal;
9. That any and all alterations to wetlands and wetland buffers will be mitigated as provided in IMC 18.10.750;
10. That there will be no damage to nearby public or private property and no threat to the health or safety of people on or off the property; and

11. That the inability to derive reasonable use of the property is not the result of actions by the applicant in segregating or dividing the property and creating the undevelopable condition after the effective date of the ordinance codified in this chapter. (Ord. 2108 § 10.2.27.16 – 19, 1996).

18.10.710 Minimizing wetlands impacts.

A. After it has been determined by either the Hearing Examiner or the Director pursuant to IMC 18.10.700 (Avoiding Wetland Impacts) that losses of wetlands are necessary and unavoidable or that all reasonable use has been denied, the applicant shall take deliberate measures to minimize wetland impacts.

B. Minimizing impacts to wetlands shall include but is not limited to:

1. Limiting the degree or magnitude of the regulated activity;
2. Limiting the implementation of the regulated activity;
3. Using appropriate and best available technology;
4. Taking affirmative steps to avoid or reduce impacts;
5. Sensitive site design and siting of facilities and construction staging areas away from regulated wetlands and their buffers;
6. Involving resource agencies early in site planning;
7. Providing protective measures such as siltation curtains, hay bales and other siltation prevention measures, scheduling the regulated activity to avoid interference with wildlife and fisheries rearing, resting, nesting or spawning activities;
8. Prohibiting the intentional introduction of nonnative vegetation, except in conjunction with approved restoration projects; and
9. Providing preventative measures for soil erosion such as inspections and a monitoring plan. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27.20 – 21, 1996).

18.10.720 Compensating for wetland impacts.

After it has been determined by the Hearing Examiner pursuant to IMC 18.10.420 that losses of wetlands are necessary and unavoidable or that all reasonable use has been denied, the applicant shall take deliberate measures to compensate for wetland losses.

A. Goal: The overall goal of any compensatory mitigation project shall be no net loss of wetlands function and acreage and to strive for a net resource gain in wetlands function and acreage over present conditions.

B. Criteria for Approval: Given the uncertainties in scientific knowledge and the need for expertise and monitoring, wetland compensatory projects may be permitted only when the Director finds that the compensation project is associated with an activity or development proposal directly associated with an approved Hearing Examiner's and/or Director's decision (as set forth in IMC 18.10.700) or an approved variance (IMC 18.10.420), and that the restored, created, or enhanced wetland will be as persistent as the wetland it replaces. A maintenance bond will be required pursuant to IMC 18.10.810.

C. Type of Compensation Project: Compensation areas shall be determined according to function, acreage, type, location, time factors, ability to be self sustaining and projected success. Wetland functions and values shall be calculated using the best professional judgement of a qualified wetland professional using the best available techniques. Multiple compensation projects may be proposed for one (1) project in order to best achieve the goal of no net loss.

D. Cooperative Projects:

1. The Director may encourage, facilitate, and approve cooperative projects wherein a single applicant or other organization with demonstrated capability may undertake a compensation project with funding and/or support from other applicants under the following circumstances:

- a. Restoration, creation or enhancement at a particular site may be scientifically difficult or impossible; or
- b. Creation of one (1) or several larger wetlands may be preferable to many small wetlands.

2. Persons proposing cooperative compensation projects shall:

- a. Submit a joint permit application;
- b. Demonstrate compliance with all standards;
- c. Demonstrate the organizational and fiscal capability to act cooperatively; and
- d. Demonstrate that long-term management can and will be provided.

E. Restoration, Creation or Enhancement Required:

1. As a condition of any approval allowing alteration of wetlands and/or wetland buffers, or as an enforcement action pursuant to IMC 18.10.820, the Director shall require that the applicant engage in the restoration, creation or enhancement of wetlands and their buffers in order to offset the impacts resulting from the applicant's or violator's actions.

2. Compensatory mitigation is not required for regulated activities for which an approval has been obtained that occur only in the buffer or expanded buffer and which have no adverse impacts to wetlands.

3. Compensatory mitigation is not required for allowed activities pursuant to IMC 18.10.610(A) provided such activities utilize best management practices to protect the functions and values of wetlands and their buffers.

F. All wetland restoration, creation and/or enhancement projects required pursuant to this Code either as a permit condition or as the result of an enforcement action shall follow a mitigation plan prepared by qualified wetland professionals and approved by the Director.

G. The applicant shall receive written approval of the mitigation plan by the Director prior to commencement of any wetland restoration, creation or enhancement activity. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27.22 – 28, 1996).

18.10.730 Wetland restoration and creation.

A. Any person who alters wetlands shall restore or create equivalent areas or greater areas of wetlands than those altered in order to compensate (see IMC 18.10.730(F)) for wetland losses.

B. Wetlands shall be restored or created to maximize their biological and hydrological potential.

C. In-Kind Compensation:

1. In-kind compensation shall be provided except where the applicant can demonstrate that:

- a. Scientific problems such as exotic vegetation and changes in watershed hydrology make implementation of in-kind compensation impossible; or
- b. Out-of-kind replacement will best meet identified regional goals (e.g., replacement of historically diminished wetland types).

D. Location:

1. On-site compensation shall be provided except where the applicant can demonstrate that:

- a. The hydrology and ecosystem of the original wetland and those who benefit from the hydrology and ecosystem will not be substantially damaged by the on-site loss; and
- b. On-site compensation is not scientifically feasible due to problems with hydrology, soils, waves, or other factors; or
- c. Compensation is not practical due to potentially adverse impact from surrounding land uses; or

- d. Existing functional values at the site of the proposed restoration are significantly greater than lost wetland functional values; or
 - e. Established regional goals for flood storage, flood conveyance, habitat or other wetland functions have been established and strongly justify location of compensatory measures at another site.
2. Off-site compensation shall occur within the same watershed as the wetland loss occurred.
 3. In selecting compensation-sites, applicants shall pursue siting in areas conducive to wetland creation, enhancement, or restoration based on recommendations of a wetland biologist and approved by the City.

E. Timing:

1. Compensatory projects shall be completed before activities that will disturb wetlands are initiated, or where temporary disruptions are allowed, immediately after such activities cease.
2. Construction of compensation projects shall be timed to reduce impacts to existing wildlife and flora.

F. Acreage Replacement Ratios:

1. The following ratios will be increased for remedial actions along with other penalties resulting from illegal, unpermitted wetland alterations.
2. The following ratios apply to creation or restoration which is in-kind, on-site, timed prior to or concurrent with alteration, and has a high probability of success. The first number specifies the acreage of required new wetlands to be created or restored and the second number specifies the acreage of existing wetlands proposed for alteration.
 - a. Classes 1 and 2 wetlands require a 2:1 ratio, i.e., for each one (1) acre of existing wetland altered, two (2) acres must be created or restored;
 - b. Class 3 wetlands require a 1:1 ratio, i.e., for each one (1) acre of existing wetland altered, one (1) acre must be created or restored.
3. Increased Replacement Ratio: The Director may increase the ratios under the following circumstances:
 - a. Uncertainty as to the probable success of the proposed restoration or creation;
 - b. Significant period of time between destruction and replication of wetland functions;

- c. Projected losses in functional value; or
 - d. Off-site compensation.
4. Decreased Replacement Ratio:
- a. The Director may decrease the replacement ratios specified in IMC 18.10.730(F); provided, that findings of critical areas studies coordinated with the participation of agencies having expertise demonstrates that no net loss of wetlands function or value is attained under the decreased ratio.

G. Wetland Mitigation Banking: The City may consider and approve replacement or enhancement of unavoidable adverse impacts to wetlands caused by development activities through an approved wetland mitigation bank, in advance of authorized impacts. Criteria governing the creation and use of a mitigation bank shall be established in administrative rules. (Ord. 2108 § 10.2.27.29 – 35, 1996).

18.10.740 Wetland enhancement.

- A. Any applicant proposing to alter wetlands may propose to enhance existing significantly degraded wetlands to partially compensate for wetland losses. The Director's approval is required.
- B. Applicants proposing to enhance wetlands shall identify how enhancement conforms to the overall goals and requirements of the local wetlands protection program and established regional goals.
- C. A wetlands enhancement compensation project shall be determined pursuant to IMC 18.10.720(A) (Compensating for Wetland Impacts); provided, that enhancement for one (1) function and value will not degrade another function or value.
- D. Class I wetland enhancement activities should be limited to the removal of exotic vegetation and the planting of native vegetation. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27.36 – 39, 1996).

18.10.750 Mitigation plan required.

- A. Compensatory mitigation shall follow an approved mitigation plan. Any compensation project prepared pursuant to this section and approved by the Director shall become part of the application for the project proposal.
- B. The applicant's wetland expert shall develop a plan that provides for land acquisition, construction, maintenance and monitoring of replacement wetlands that recreate as nearly as possible the original wetlands in terms of acreage, function, geographic location and setting. Acreages for the recreated wetland should be larger than the original wetlands. Refer to IMC 18.10.760 for Mitigation Plan Information Requirements.
- C. Demonstration of Competence: Applicants shall meet the following minimum performance requirements to the satisfaction of the Director:

1. Demonstrate sufficient scientific expertise, supervisory capability, and financial resources to successfully carry out the project;
2. Demonstrate the capability of monitoring the site and make corrections during this period if the project fails to meet projected goals; and
3. Protect and manage or provide for the protection and management of the compensation area to avoid further development or degradation and to provide for long-term persistence of the compensation area. (Ord. 2108 § 10.2.27.40 – 42, 1996).

18.10.760 Mitigation plan information requirements.

A required mitigation plan shall be prepared in consultation with the Director and qualified wetland professionals. The scope and specific requirements of a mitigation plan are dependent on the size and nature of the development proposal, the nature of the impacted wetland, and the degree of cumulative impacts on the wetland from other development proposals. The mitigation plan shall contain at a minimum the following components; however, the Director may request additional information as required for the decision-making process:

- A. Identification of Project Team: A Compensation Project Manager shall be named and the qualifications of each team member involved in preparing the mitigation plan and implementing and supervising the project shall be provided, including educational background and areas of expertise, training and experience with comparable projects.
- B. Baseline Information: A written assessment and accompanying maps of the environmental conditions of the impacted regulated wetland and the mitigation site if different.
- C. Environmental Goals and Objectives: A written report shall be provided identifying goals and objectives of the mitigation plan. The goals and objectives shall be related to the functions and values of the original wetland or if out-of-kind, the type of wetland to be emulated and an analysis of the likelihood of success of the created or restored wetland.
- D. Evaluation Criteria: Specific criteria, including ecological, geological, or hydrological criteria, shall be provided for evaluating whether or not the goals and objectives of the project will be met and whether or not remedial action or contingency measures should be initiated.
- E. Detailed Landscape Construction Plans: Drawings and written specifications describing the mitigation techniques and materials to be used.
- F. Monitoring Program: A program outlining the approach for monitoring construction of the compensation project and for assessing a completed project shall be provided, including a protocol of how the monitoring data will be evaluated by agencies that are tracking the progress of the mitigation project. All mitigated wetlands shall be monitored at least annually for a minimum of five (5) years.

Additional monitoring may be required by the Director depending on the recommendations of the first monitoring report.

G. Maintenance Program: All wetlands located adjacent to proposed development shall be maintained by the property owner in perpetuity based on direction from the Director with input from City staff.

H. Contingency Plan: Identification of potential courses of action, and any corrective measures to be taken when monitoring or evaluation indicates project performance standards are not being met. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.27.43 – 49, 1996).

18.10.770 Streams – General protection mechanisms.

Development activity on sites containing streams or stream buffers shall meet the requirements of this chapter. Streams and associated buffers shall not be altered except as expressly authorized by this chapter. The applicant is responsible for ensuring that the requirements of all other agencies with jurisdiction have been met. In addition, the following general protections apply to streams and associated buffers:

A. Development proposals on sites containing streams shall meet the requirements of IMC 18.10.770 through 18.10.795. Streams and associated buffers shall not be altered except as expressly authorized by this chapter and all approved alterations require mitigation plans. The applicant is responsible for ensuring that the requirements of all other agencies with jurisdiction have been met.

B. The applicant must notify affected communities and native tribes of alteration plans prior to any alteration of a stream, submit evidence of such notification to the Federal Insurance Administration, and any alterations must be consistent with IMC 18.10.520 through 18.10.530.

C. There shall be no introduction of any vegetation or wildlife which is not indigenous to the Pacific Northwest into any stream critical area or associated buffers unless authorized by the state of Washington or a federal license or permit. (Ord. 2525 § 4, 2008; Ord. 2455 § 12, 2006; Ord. 2108 § 10.2.28, 1996).

18.10.775 Alterations to streams and buffers.

No structures shall be permitted within streams or stream buffers except as outlined in the following subsections:

A. Stream Crossings: Stream crossings may be allowed only if they meet the requirements as follows:

1. All road and utility crossings shall use bridges or other construction techniques which do not disturb the stream bed or bank; however, in the case of Class 2, 3 or 4 streams, appropriate methods demonstrated to provide fisheries protection may be used if the applicant demonstrates that such methods and their implementation will pose no harm to the stream and will not inhibit migration of fish and will accommodate one hundred (100) year flood flows as established by the City. This shall be accomplished through bridge crossing design and/or appropriate flood control

facilities constructed as part of the project design. Any structure spanning a stream shall be designed so the supporting foundation is outside the ordinary high water mark;

2. All crossings shall be constructed during summer low flow and be timed to avoid stream disturbance during periods when use is critical to salmonids;
3. Crossings shall not occur over salmonid spawning areas unless no other possible crossing site exists on the subject property;
4. Crossings shall not diminish the flood carrying capacity of the stream;
5. Underground utility crossings shall be located at a preferred depth of four (4) feet below the maximum depth of scour for the base flood predicted by a Washington State licensed civil engineer and be constructed in a manner approved by the Washington State Department of Fisheries; and
6. Crossings shall be minimized and serve multiple purposes and properties whenever possible.

B. Relocations: The following relocations may be allowed if they meet all requirements and are approved by all agencies with jurisdiction.

1. Class 1 streams shall not be relocated, except for approved restoration projects.
2. Class 2 streams shall not be relocated except for approved restoration projects and public road projects which have been authorized by the exemption process set out in IMC 18.10.400.
3. Class 3 and 4 streams may be relocated under a mitigation plan for the purpose of enhancement of in-stream resources. Appropriate floodplain protection measures must be used. The relocation shall occur on-site; provided, that upon demonstration that on-site relocation is impracticable, the City may consider off-site relocation if the location is in the same drainage sub-basin and the applicant obtains all necessary easements and waivers from affected property owners.
4. Prior to any stream relocation, an applicant must demonstrate that the proposed project meets the following criteria, based on information provided by a licensed geotechnical engineer and a biologist. All work performed must also be carried out under the supervision of a licensed geotechnical engineer and a biologist. The criteria includes the following:
 - a. The equivalent base flood storage volume and function will be maintained;
 - b. There will be no adverse impact to local groundwater;
 - c. There will be no increase in velocity;

- d. There will be no interbasin transfer of water;
- e. The biological values of the stream will be maintained or enhanced;
- f. Performance standards as set out in the mitigation plan are met;
- g. The relocation conforms to other applicable laws.

C. Trails: Construction of public and private trails is not allowed in stream buffers unless a critical areas study per IMC 18.10.410, Critical areas studies, documents no loss of buffer functions and values. The buffer area used for the trail tread and cleared trail shoulders shall be replaced by adding an equal area to the buffer. Where existing development prevents adding the replacement buffer, other mitigation measures shall be required to ensure no loss of buffer functions and values. Other mitigating measures may include off-site mitigation along the same stream as the trail. The critical areas study shall evaluate and recommend the best location(s) for the replacement buffer and any off-site mitigation.

D. Stream Channel Stabilization: Stream channels may be stabilized when movement of the stream channel threatens existing residential or commercial structures, public improvements, unique natural resources, or the only existing access to property, and when stabilization is done in accordance with the requirements in IMC 18.10.530 and the administrative rules.

E. Surface Water Management: The following surface water management actions may be allowed (through the appropriate review and approval process, or Level 1 Review if none is specified) only if they meet the following requirements:

1. Surface water discharges to streams from detention facilities, presettlement ponds, or other surface water management structures may be allowed so long as the discharge complies with the provisions of the City's currently adopted Surface Water Design Manual.
2. Flood conveyance compensatory storage, where there is no other feasible alternative, where appropriate restoration is included, and where wetland hydrology will not be significantly affected.
3. Class 2, 3 and 4 stream buffers may be used for regional retention/detention facilities when:
 - a. Authorized by the exemption process set out in IMC 18.10.400; and
 - b. All requirements of the City's currently adopted Surface Water Design Manual are met; and
 - c. The use will not alter the rating or the factors used in rating the stream; and there are no significant adverse impacts to the stream or its resources; and

d. The retention/detention facilities do not encroach within twenty-five (25) feet of the high water mark of the stream; and

e. Any stream buffer area displaced by a stormwater management facility shall be compensated for by adding stream buffer area in accordance with IMC 18.10.790(D)(3) so that no net loss of stream buffer area results from the construction of the facility.

4. Streams and buffers may be altered to remove exotic or invasive vegetation, and for restoration of flood plains and habitat, so long as the project will have no lasting adverse impacts that result from construction on any stream and all requirements of the City's currently adopted Surface Water Design Manual and all other applicable codes are met.

F. Utilities in Stream Buffers:

1. Utility Construction: Construction of utilities shall be permitted in the outermost twenty-five (25) percent of a stream buffer only when it has been determined through Level 1 Review or through the appropriate land use permitting process that:

a. No practical alternative location is available; and

b. The utility corridor meets the criteria set forth in the applicable City ordinance including, but not limited to, requirements for installation, replacement of vegetation, and maintenance; and

c. Impacts to the buffer area are minimized and restoration is implemented to the greatest extent feasible; and

d. The requirements for sewer utility corridors in IMC 18.10.690 shall also apply to streams.

G. Enhancement Independent of Development Proposals:

1. Enhancement of streams, not associated with any other development proposal, may be allowed when the City, or any state agency with jurisdiction, determines that such enhancement benefits stream functions. Such enhancement shall be performed under a plan for the design, implementation, maintenance and monitoring of the project prepared by a civil engineer and a biologist and shall be carried out under the direct supervision of a biologist.

2. Stream restoration projects for fish habitat enhancement by a public agency unassociated with mitigation of a specific development proposal may be allowed. Such projects are limited to placement of log controls, spawning gravel, and other specific salmonid habitat improvements to be performed under direct supervision of a biologist, within the approved Washington State Department of Fisheries window, if applicable.

3. Removal of exotic or invasive plants within streams and buffers is allowed. A City-approved mitigation plan is required before removal of vegetation commences.

H. Drainage Ditch Maintenance: Drainage ditches must be maintained through use of best management practices developed in consultation with City, state and federal agencies with expertise or jurisdiction.

I. Revegetation shall include only native plant species, except in conjunction with approved restoration projects.

J. Where construction activities occur adjacent to a stream buffer, an erosion control specialist, provided by the applicant, shall visit the site at least once a day during construction, and report daily to the City's inspector, for the purpose of monitoring potential erosion problems and specifying erosion control measures necessary to protect the critical area. (Ord. 2525 § 4, 2008; Ord. 2455 § 13, 2006).

18.10.780 Stream rating system.

A. Class 1 Streams: "Class 1 streams" means those streams identified as "shorelines of the state" under the City Shoreline Master Program, pursuant to Chapter 90.58 RCW.

B. Class 2 Streams with Salmonids: "Class 2 streams with salmonids" means those streams smaller than Class 1 streams that flow year-round during periods of normal rainfall and all streams that are used by salmonids.

C. Class 2 Streams: "Class 2 streams" means those streams smaller than Class 1 streams that flow year-round during years of normal rainfall with no salmonids.

D. Class 3 Streams: "Class 3 streams" means those streams that are intermittent or ephemeral during years of normal rainfall and areas not used by salmonids.

E. Class 4 Streams: "Class 4 streams" are constructed or channelized streams, that are intermittent, are not used by salmonids and do not provide salmonid habitat, and/or are not directly connected to a Class 1, 2, or 3 stream by an above ground channel. (Ord. 2455 § 14, 2006; Ord. 2301 § 3, 2001; Ord. 2164 § 11, 1997; Ord. 2108 § 10.2.29, 1996).

18.10.785 Stream buffer width requirements.

A. Location of Ordinary High Water Mark: All buffers shall be measured from the ordinary high water mark as identified in the field or, if that cannot be determined, from the top of the bank. In braided channels, the ordinary high water mark or top of bank shall be determined so as to include the entire stream feature.

B. Special Exception: For properties on which easements were granted for creek channel improvements constructed by the City to increase conveyance and on the same side of the creek as the improvements, the ordinary high water mark (OHWM) existing prior to the construction of the improvements by the City shall govern the establishment of building setbacks for the properties. The

buffer area established using the OHWM identified at the time the channel improvements are constructed shall be surveyed and recorded as a covenant running with the land. Buildings on these parcels of land shall adhere to the fifteen (15) foot building setback to the stream buffer. The establishment of the OHWM under this exception does not establish the OHWM used for building setbacks under the City's Shoreline Master Program. (Note: Both OHWM standards, Critical Areas – Stream buffer and the Shoreline Master Program, shall be used in determining the appropriate building setback lines for development of these properties.)

C. Stream Buffer Width Standards: The following buffers on each side of the ordinary high water mark are minimum requirements:

1. Class 1 streams – one hundred (100) foot buffer.
2. Class 2 streams used by salmonids – one hundred (100) foot buffer.
3. Class 2 streams – seventy-five (75) foot buffer.
4. Class 3 streams – fifty (50) foot buffer.
5. Class 4 streams – twenty-five (25) foot buffer.

D. Any stream restored, relocated, replaced or enhanced because of alterations should have at least the minimum buffer required for the class of stream involved.

E. Building Setback: An additional fifteen (15) foot building setback shall also be established from the outer edge of the buffer as regulated by IMC 18.10.515(D), Building Setback Areas. (Ord. 2455 § 15, 2006).

18.10.790 Exceptions to stream buffer width requirements.

A. Buffer Requirements for Streams Adjacent to Steep Slopes: When the ordinary high water mark of any stream is within twenty-five (25) feet of the toe of slopes equal to or greater than thirty (30) percent but less than forty (40) percent the following minimum buffers shall be provided:

1. Where the horizontal length of the slope including small benches and terraces is within the buffer for that stream class, the buffer shall be the greater of:
 - a. The minimum buffer for that stream class; or
 - b. Twenty-five (25) feet beyond the top of the slope.
2. Where the horizontal length of the slope extends beyond the minimum buffer for that stream class, the buffer shall extend to a point twenty-five (25) feet beyond the minimum buffer for that stream class.

B. Buffer Requirements for Streams Adjacent to Other Critical Areas: Any stream adjoined by riparian wetland or other adjacent critical area shall have the buffer which applies to the wetland or other adjacent critical area, unless the stream buffer requirements are more expansive.

C. Increasing Stream Buffer Requirements: Issaquah shall require increased buffer widths as necessary to protect streams. The additional buffer widths and other issues shall be determined during project review and will be based on the results of a critical area study with consideration of and including, but not limited to:

1. Critical drainage areas;
2. Location of hazardous materials;
3. Critical fish and wildlife habitat;
4. Landslide or erosion hazard areas;
5. Groundwater recharge and discharge; and
6. The location of trail or utility corridors.

D. Reducing Stream Buffer Requirements:

1. Stream Buffer Reduction with Buffer Vegetation Enhancement:

a. Purpose: The standard stream buffer widths identified in IMC 18.10.785(C) may be reduced when enhancement of the existing stream buffer vegetation would demonstratively improve water quality and habitat functions.

b. Applicability – Qualifying Stream Buffers: A stream buffer may qualify for a buffer reduction under this section when:

(1) The stream buffer proposed to be enhanced/reduced meets all of the following characteristics:

(A) More than forty (40) percent of the buffer area is covered by nonnative and/or invasive plant species; or

(B) Tree and/or shrub vegetation cover less than twenty-five (25) percent of the buffer area; and

(C) The stream buffer has slopes of less than twenty-five (25) percent.

(2) Buffer width averaging authorized in subsection (D)(3) of this section is not being proposed for the stream buffer.

(3) The proposed development incorporates performance standards to minimize the impacts of the proposed land use, consistent with IMC 18.10.660.

c. Critical Area Study Required: A critical area study consistent with the requirements of IMC 18.10.410(C) and the following provisions is required in order to evaluate and approve a reduction of the standard buffer width. The critical area study shall:

(1) Evaluate the water quality, habitat, groundwater recharge, stormwater detention, and erosion protection functions of the stream buffer;

(2) Document whether or not the:

(A) Stream buffer under consideration meets the criteria established in subsection (D)(1)(b) of this section and qualifies for consideration of a buffer reduction under this section;

(B) Buffer reduction would adversely affect the functions and values of the adjacent stream; and

(C) Ecological structure and function of the reduced buffer after planting enhancement would improve water quality and habitat functions.

(3) Propose a stream buffer enhancement plan including:

(A) Removal of all invasive, nonnative vegetation; and

(B) Planting of appropriate native tree and shrub species at a minimum planting density of ten (10) feet on-center for trees and five (5) feet on-center for shrubs; and

(C) A monitoring and maintenance plan for the enhanced buffer for a five (5) year period, consistent with IMC 18.10.760 and 18.10.810.

d. Stream Buffer Reduction for Class 1 and Class 2 Streams with Salmonids: Prior to the City's approval of a stream buffer reduction, an applicant shall first demonstrate the proposed site plan avoids and minimizes the amount of buffer reduction, consistent with IMC 18.10.670.

e. Allowed Buffer Reduction: Following are the stream buffer reductions allowed when all of the criteria in subsections B, C and D of this section are met:

Stream Class	Maximum Buffer Reduction at Any Location
Class 2, 3, and 4 streams	25 percent of the standard buffer width

Class 2(S) and Class 1
streams

25 percent of the standard buffer width
(see subsection (D)(1)(d) of this section)

2. **Stream Buffer Reduction with Removal of Impervious Surface Area:** The standard stream buffer area may be reduced at a 2:1 ratio with the removal of existing, legally nonconforming impervious surface area located within the stream buffer area. For example, if one hundred (100) square feet of existing impervious area is removed, the stream buffer may be reduced by two hundred (200) square feet. The removed impervious area must be restored with native vegetation, consistent with the stream buffer enhancement plan requirements in subsection (D)(1)(c)(3) of this section. Existing site characteristics, including buffer vegetation, slopes, etc., and proposed development shall be considered in determining the location of the allowed reduced buffer area.

3. **Stream Buffer Averaging Requirements:** Standard stream buffer widths may be modified by averaging buffer widths after review of a critical area study prepared by a qualified professional for compliance with the following criteria:

- a. The proposed site plan demonstrates efforts to avoid and minimize stream and stream buffer impacts;
- b. Buffer width averaging is consistent with the best available science and will not adversely impact functions or values;
- c. The total area within the stream buffer after averaging is no less than the area within the standard buffer prior to averaging. The location of the replacement buffer area shall be contiguous with the standard buffer to be averaged;
- d. The buffer width shall not be reduced by more than twenty-five (25) percent of the standard buffer width at any location, unless a variance is approved in accordance with IMC 18.10.430;
- e. A maximum of fifty (50) percent of the buffer perimeter on a site may be reduced by averaging;
- f. Buffer averaging shall consider physical characteristics on a site, including but not limited to existing buffer vegetation, slopes, floodplain, hydrology, surface drainage, and association with nearby streams and wetlands. Buffer averaging shall not be allowed within the designated floodway of streams;
- g. Buffer averaging credit shall not be allowed in areas already protected by the critical area regulations; and
- h. Mitigation, such as revegetation and enhancement of existing vegetation, may be required by the Director.

4. Variances: The Hearing Examiner may reduce the stream buffer widths required by this section, only through review and approval of a variance application. (Ord. 2455 § 16, 2006; Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.30, 1996).

18.10.795 Mitigation for streams.

A. Mitigation shall be conducted as defined in IMC 18.10.390, as provided in IMC 18.10.490, and in this section.

B. Standards for Restoration, Enhancement or Replacement:

1. Restoration is required when a stream or its buffer has been altered in violation of this chapter or any other ordinance applying to the treatment of streams, or when an unapproved or unanticipated alteration occurs during the construction of an approved development proposal; provided, that a mitigation plan for the restoration demonstrates that:

- a. The stream is degraded and will not be further degraded by the restoration activity;
- b. The restoration will reliably and demonstrably improve the water quality and fisheries and wildlife habitat of the stream;
- c. The restoration will have no lasting significant adverse impacts on any in-stream resource; and
- d. All work will be carried out under the direct supervision of a biologist.
- e. The following minimum performance standards shall be met for restoration of a stream; provided, that these standards may be modified if the applicant can demonstrate that greater habitat value can be obtained:

(1) The natural or channel dimensions existing immediately prior to the development proposal (unless illegally altered), including identical depth, width, length and gradient at the location and the horizontal alignment (meander lengths) should be replaced to replicate the conditions immediately prior to the development proposal (unless illegally altered);

(2) The bottom should be restored with identical or similar materials;

(3) The bank and buffer configuration should be restored to the natural conditions;

(4) The channel, bank and buffer areas should be replanted with native vegetation which replicates the optimal in species, sizes and densities; and

(5) The natural habitat value should be restored.

2. Replacement or enhancement is required when the City permits or approves the alteration of a stream or buffer. There will be no net loss of stream functions on a development proposal site and no impact on stream functions above or below the site due to approved alterations.

a. Replacement: When an approved alteration involves the relocation of a stream, the performance standards in subsection (B)(1)(e) of this section are required in order to replicate the structure and function of the original stream, unless the applicant can demonstrate that greater habitat value can be obtained through varying these standards.

b. Enhancement: Enhancement, when allowed, should improve the functions and values of the streams. Surface water management or flood control alterations shall not be considered enhancement unless other functions and values are simultaneously increased.

c. On-Site: Replacement or enhancement for streams shall be accomplished in streams, and shall occur on-site unless the applicant demonstrates that: on-site replacement or enhancement is not possible; the off-site alternative is in the same drainage sub-basin; and greater biological and hydrological values will be derived.

3. Monitoring Program: Stream and stream buffer monitoring shall be required in accordance with IMC 18.10.500.

4. Maintenance Program: All streams and stream buffers adjacent to proposed development shall be maintained in perpetuity based on direction from the Director with input from City staff. (Ord. 2301 § 3, 2001; Ord. 2108 § 10.2.31, 1996. Formerly 18.10.800).

18.10.796 Critical aquifer recharge areas (CARAs).

A. Purpose and Intent: The purpose of this section is to establish critical aquifer recharge areas (CARAs) and groundwater protection standards to protect the Issaquah Creek Valley aquifer from degradation and depletion. The intent is to minimize loss of recharge quantity, to maintain the protection of supply wells for public drinking water, and to prevent contamination of groundwater.

B. Applicability:

1. The provisions of this section shall apply to regulated activities occurring within Class 1, Class 2 and Class 3 CARAs as identified in subsection (C) of this section, Classification, and on the City of Issaquah Critical Aquifer Recharge Area Classification Map, as may be updated as new information becomes available, on file with the Planning Department and incorporated into this section by reference.

2. A hydrogeologic critical area assessment report shall be submitted to add or remove areas to the CARA classification map. The City will determine if site characteristics meet the mapping criteria for a CARA designation.

C. Classification: CARAs shall be classified based on the following criteria:

1. Class 1 CARAs include those mapped areas located within the one (1) or five (5) year capture zone of a wellhead protection area.
2. Class 2 CARAs include those mapped areas located within the ten (10) year capture zone of a wellhead protection area.
3. Class 3 CARAs include those mapped areas outside wellhead protection areas that are identified as high aquifer recharge potential areas based on characteristics of surficial geology and soil types.

D. Implementation: Best management practices governing groundwater quality standards for CARAs are found in Chapter 13.29 IMC, Groundwater Quality Protection Standards. Groundwater quantity standards and requirements for infiltration are found in Chapter 13.28 IMC, Stormwater Management Policy.

E. Groundwater Reports: In order to protect groundwater quality, the City may require a groundwater monitoring plan and/or a hydrogeologic critical area assessment report for new development projects.

F. Prohibited and Restricted Uses: The Table of Permitted Land Uses (IMC 18.06.130) establishes the land uses and related activities that are prohibited in Class 1, 2 and 3 CARAs. Existing uses that have a long-term potential to degrade water quality in the WHPA shall discontinue, remove or mitigate potential impacts.

G. State and Federal Regulations: Applicants shall be required to provide documentation of compliance with state and/or federal standards and regulations. Nothing in this section shall relieve an applicant from the requirements of any other federal, state, or local law or regulation. (Ord. 2525 § 4, 2008; Ord. 2500 § 7, 2007).

Administration

18.10.805 Long-term maintenance of wetlands and streams.

All regulated wetlands and streams located on property to be developed shall be maintained in perpetuity by the property owner in accordance with the provisions of this chapter. (Ord. 2301 § 3, 2001).

18.10.810 Bonds for restoration and mitigation activities.

A. Performance Bonds: Mitigation required pursuant to a development proposal must be completed prior to the City's granting of final approval of the development proposal. If the applicant demonstrates that seasonal requirements or other circumstances beyond its control prevent completion of the mitigation prior to final approval, the applicant may post a performance bond equal to one hundred fifty (150) percent of the total cost of the mitigation project to complete, or other security instrument which guarantees that all required mitigation measures will be completed no later than the time established by the City in accordance with this chapter.

- B. Maintenance/Monitoring Bonds: The City shall require the applicant whose development proposal is subject to a mitigation plan to post a maintenance/monitoring bond equal to fifty (50) percent of the estimated maintenance and monitoring cost, or other security instrument in an amount determined sufficient to guarantee satisfactory workmanship, materials, and performance of structures and improvements allowed or required by this chapter for a period of five (5) years.
- C. Performance and maintenance/monitoring bonds or other security instruments shall also be required for restoration of a critical area not performed as part of a mitigation plan, except no bond shall be required for minor stream restoration carried out pursuant to this chapter.
- D. Bonds or other security instruments shall be in a form and amount approved by the Director and the City Attorney and shall remain in effect until the Director determines in writing that performance and maintenance standards have been met.
- E. Enforcement of Bonds: Depletion, failure, or collection of bond funds shall not discharge the obligation of an applicant or violator to complete required mitigation or restoration. (Ord. 2108 § 10.2.32, 1996).

18.10.820 Enforcement and penalties for critical areas.

- A. The enforcement provisions for critical areas are intended to encourage compliance and protect critical areas and the public from harm. To achieve these ends, violators will not only be required to restore damaged critical areas, insofar as that is possible, but will also be required to pay a civil penalty for the redress of ecological, recreational, and economic values lost or damaged due to their unlawful action. The provisions in this section are in addition to, and not in lieu of, any other penalty, sanction or right of action provided by law.
- B. In all cases, the owner of the land shall be named as a party to the notice and order. In addition to any other persons who may be liable for violations, the owner shall be jointly and severally liable for the restoration of a site and payment of any civil penalties imposed.
- C. Violation of this chapter means the violation of any provision of this chapter; the administrative rules promulgated hereunder; any permit or approval or stop work order; any other order issued pursuant hereto; any of the terms and conditions of any critical area tract or setback area, easement or other covenant, plat restriction or binding assurance; any mitigation plan; or of any contract or agreement concluded pursuant to the above-mentioned provisions of this chapter.
- D. Each violation of this Code, or any rule or regulation adopted, or any permit, permit condition, or order issued pursuant to this Code, shall be a separate offense, and, in the case of a continuing violation, each day's continuance shall be deemed to be a separate and distinct offense.
- E. Any person incurring a penalty may apply in writing within thirty (30) calendar days of receipt of the penalty to the Director for remission or mitigation of such penalty. Upon receipt of the application, the

Director may remit or mitigate the penalty only upon a demonstration of extraordinary circumstances, such as the presence of information or factors not considered in setting the original penalty.

F. All costs, fees, and expenses in connection with enforcement actions may be recovered as damages against the violator.

G. Aiding or Abetting: Any person who, through an act of commission or omission procures, aids or abets in the violation shall be considered to have committed a violation for the purposes of the penalty.

H. The Director may bring appropriate actions at law or equity, including actions for injunctive relief, to ensure that no uses are made of critical areas or their buffers that are inconsistent with this Code. (Ord. 2108 §§ 10.2.33.1 – 8, 1996).

18.10.830 Civil penalties.

A. Any person in violation of this chapter shall be subject to civil penalties assessed as follows:

1. An amount reasonably determined by the Director to be equivalent to the economic benefit that the violator derives from the violation as measured by the greater of the resulting increase in market value of the property or the value received by the violator, or savings of construction costs realized by the violator performing any act in violation of this chapter.
2. An amount, not to exceed \$25,000, that is reasonably based upon the nature and gravity of the violation and the cost to the City of enforcing this chapter against the violator.
3. Penalties under this section shall be imposed by a notice in writing, either by certified mail with return receipt requested or by personal service, to the person incurring the same from the City. The notice shall describe the violation, approximate the date(s) of violation, and shall order the acts constituting the violation to cease and desist, or, in appropriate cases, require necessary corrective action within a specific time.
4. Any civil penalty recovered under this section shall be deposited in the Critical Areas Mitigation Fund for use by the City in protecting or restoring critical areas as set forth in IMC 18.10.510.
5. No civil penalty shall be imposed under this chapter upon the City or City employees for any act or omission relating to the administration or enforcement of this chapter. (Ord. 2108 § 10.2.33.9, 1996).

18.10.840 Notices and orders.

The Director is authorized to issue violation notices and administrative orders, levy fines, and/or institute legal actions in court.

A. Recourse to any single remedy shall not preclude recourse to any of the other remedies.

B. The Director may serve upon a person a cease and desist order if an activity being undertaken on a critical area or its buffer is in violation of this Code or related Director's decision. Whenever any person violates this Code or any permit issued to implement this Code, the Director may issue an order reasonably appropriate to cease such violation and to mitigate any environmental damage resulting therefrom.

1. The order shall set forth and contain:
 - a. A description of the specific nature, extent, and time of violation and the damage or potential damage; and
 - b. A notice that the violation or the potential violation cease and desist or, in appropriate cases, the specific corrective action to be taken within a given time. A civil penalty may be issued with the order.
2. The cease and desist order issued under this section shall become effective immediately upon receipt by the person to whom the order is directed.
3. Failure to comply with the terms of a cease and desist order can result in enforcement actions including, but not limited to, the issuance of a civil penalty.
4. Orders and penalties issued pursuant to this subsection may be appealed as provided for in IMC 18.10.880.

C. Any person who undertakes any activity within a critical area or its buffer without first obtaining a permit required by this Code, except as allowed in each section under the allowed activities provision, or any person who violates one (1) or more conditions of any permit required by this Code or of any order issued pursuant to subsection (C)(2) of this section, shall incur a penalty allowed per violation.

1. In the case of a continuing violation, each permit violation and each day of activity without a required permit shall be a separate and distinct violation.
2. The penalty amount shall be set in consideration of the previous history of the violator and the severity of the environmental impact of the violation.
3. Penalties provided from this section shall be appealable to King County Superior Court. (Ord. 2108 §§ 10.2.33.10 – 12, 1996).

18.10.850 Revocation or refusal to accept application.

A. 1. In addition to revocation and suspension upon violation of this chapter, a permit or approval that is subject to critical areas review may be revoked or suspended upon failure by an applicant to disclose a change of circumstances on the development proposal site which materially affects his or her ability to meet the permit or approval conditions, or which makes inaccurate the critical area study that was the basis for imposing permit or approval conditions.

2. In addition to any other enforcement method, to further the remedial purposes of this section, the City shall refuse to accept any application for a permit or approval for a development proposal for any property on which a violation of this chapter; the administrative rules promulgated thereunder; or any permit, approval, order, easement, plan, or agreement issued pursuant thereto has occurred. Such refusal shall continue until the violation is cured by restoration and accepted as complete by the City and by payment of any civil penalty imposed for the violation; provided, that applications for permits or approvals shall be accepted to the extent necessary to accomplish any required cure.

3. In order to further the remedial purpose of this section, the City shall refuse to accept any application for a Development Proposal Permit or approval from any person found to have violated this chapter until the violation is cured by restoration accepted as complete by the City, or until a mitigation plan and performance bond to ensure completion has been approved by the City and payment of any civil penalty imposed has been made; provided, that applications shall be accepted to the extent necessary to accomplish any required cure.

4. For the purposes of this subsection, a person will be deemed to have been found in violation of this chapter:

- a. When a notice and order alleging a violation is issued and not timely appealed; or
- b. When a determination is made by the code enforcement officer that a person has committed a violation, unless that determination is timely appealed to an appropriate court and is thereupon reversed or otherwise stayed.

B. Any person subject to the provisions of this chapter who violates any provision of this chapter shall be liable for all damage to public or private property arising from such violation, including the cost of restoring the affected area, within a reasonable time, to its condition prior to such violation. (Ord. 2108 §§ 10.2.33.12 – 13, 1996).

18.10.860 Criminal penalties.

As an alternative to any other judicial or administrative remedy provided in this chapter or by law or other ordinance, any person who willfully or knowingly violates any provision of this chapter, or any order issued pursuant to this chapter, or by each act of commission or omission procures, aids or abets such violation, is guilty of a misdemeanor and upon conviction shall be punished by a fine not to exceed \$1,000 and/or imprisonment in the City jail for a term not to exceed ninety (90) days. Each day such violation continues to occur, shall be considered an additional misdemeanor offense. (Ord. 2108 § 10.2.34, 1996).

18.10.870 Vesting.

Pursuant to WAC 197-11-660, mitigation measures or denials shall be based on policies, plans, rules, or regulations formally designated by the City as a basis for the exercise of substantive authority and in effect when the DNS, MDNS, or DEIS is issued. Any other projects under review or initiated that have not filed a complete Building Permit application or complete subdivision applications shall not be vested,

including projects in the EIS stage. Nothing herein shall be deemed to create or extend an applicant's vesting rights. (Ord. 2108 § 10.2.35, 1996).

18.10.880 Appeals.

Refer to IMC 18.04.250 to 18.04.260 regarding appeals. (Ord. 2301 § 5, 2001; Ord. 2108 § 10.2.36, 1996).

18.10.890 Judicial review.

Refer to IMC 18.04.250 to 18.04.260 regarding appeals. (Ord. 2301 § 5, 2001; Ord. 2108 § 10.2.37, 1996).

18.10.900 Administrative rules.

A. The Director is authorized to establish administrative rules to carry out the purposes and intents of this chapter.

B. Consolidation: The processing of Land Use Permits which have a critical area or areas located on the subject property or properties shall consolidate the review of the land use proposal and the review of the critical area. Critical area review shall be incorporated into the appropriate land use permitting process and all aspects of that review and decision-making shall be governed by the rules, regulations and procedures applicable to the Land Use Permit requested. (Ord. 2108 § 10.2.38, 1996).

18.10.910 Amendments.

A. These regulations and the National Wetlands Inventory and Issaquah Critical Areas Map Folios may from time to time be amended as new information concerning critical areas location, soils, hydrology, flooding, plants and wildlife, etc., become available.

B. Amendments shall be made in accordance with the procedures and requirements in the general statutes. As new information becomes available that would facilitate the decision-making process that information need not be formally adopted for such purposes. (Ord. 2108 § 10.2.39, 1996).

18.10.920 Fees.

A. At the time of a land use application which requires a critical areas study or a wetland reconnaissance or other request for service, or appeal, the applicant shall pay a fee as established in the City Fee Schedule adopted pursuant to Chapter 3.65 IMC.

B. Sufficient fees shall be charged to the applicant to cover the costs of evaluation of the critical areas study, reconnaissance or other request. These fees will be used to recover costs for City staff review and may be used by the Director to retain expert consultants to provide services pertaining to the review of the critical areas study or aspects thereof including: determinations, functional assessments, and evaluation of mitigation measures.

C. As deemed necessary, the Director may assess additional reasonable fees as needed to monitor and evaluate critical area regulations compliance and mitigation measures. (Ord. 2108 § 10.2.40, 1996).

18.10.930 Assessment relief.

The King County Assessor shall consider critical area regulations in determining the fair market value of land. Any owner of an undeveloped critical area who has dedicated an easement or entered into a perpetual conservation restriction with the City or a nonprofit organization to permanently control some or all regulated activities in the critical area shall have that portion of land assessed consistent with those restrictions. Such landowner shall also be exempted from special assessments on the controlled critical area to defray the cost of municipal improvements such as sanitary sewers, storm sewers, and water mains. (Ord. 2108 § 10.2.41, 1996).

Shoreline Regulations

18.10.940 Shoreline Master Program adopted.

The final Issaquah Shoreline Master Program, dated October, 1990, is adopted as the City's Shoreline Master Program pursuant to RCW 90.58.080. (Ord. 2108 § 10.3.1, 1996; Ord. 1863 § 2, 1990).

18.10.950 Exemption application.

A. To provide a record of all activities, an exemption shall be applied for and issued prior to commencement of any construction or activity upon the shorelines of the City which does not qualify as a substantial development. The application for exemption shall be filed with and approved by the Planning Director/Manager.

B. In the case of development subject to the policies and regulations of the Shoreline Master Program but exempt from the Shoreline Permit process, the Building Official, through consultation and coordination with the Planning Director/Manager, shall attach shoreline management terms and conditions to the Building Permit. (Ord. 2108 § 10.3.2, 1996; Ord. 1863 § 2, 1990).

18.10.960 Permit application.

A. Any person desiring to commence development on the shorelines of the City shall file a properly completed application for the substantial development, variance or Conditional Use Permit, together with all information necessary for the evaluation of the proposal.

B. The applicant is responsible for the accuracy of all data submitted in support of the requested substantial development, variance or Conditional Use Permit. If at any time in processing the requested permit inaccuracies are found in the submitted data, the Planning Director/Manager may suspend further processing of the application until the inaccuracies are rectified, or may set the process back to incorporate the revised data. (Ord. 2108 § 10.3.3, 1996; Ord. 1863 § 2, 1990).

18.10.970 Permit fee.

All applications for substantial development, variances and/or Conditional Use Permits shall be accompanied by a processing fee as set forth in Chapter 3.64 IMC, except for applications filed by or on behalf of the City. (Ord. 2108 § 10.3.4, 1996; Ord. 1863 § 2, 1990).

18.10.980 Public notice.

See IMC 18.04.180, Public notification. (Ord. 2301 § 5, 2001; Ord. 2108 §§ 10.3.5 – 10.3.5.3, 1996; Ord. 1863 § 2, 1990).

18.10.990 Planning Director/Manager review.

A. The Issaquah Planning Director/Manager shall consider the application for the substantial development, variance or Conditional Use Permit.

B. The application shall be reviewed for consistency with:

1. The policies and procedures of the Shoreline Management Act of 1971;
2. The guidelines and regulations of the Department of Ecology; and
3. The Shoreline Master Program for the City.

C. Applicants for permits shall have the burden of proving that the proposed development is consistent with the criteria which must be met before a permit is granted.

D. The Planning Director/Manager shall approve the application, deny the application, or approve the application with conditions.

E. Any ruling on an application for a substantial development, variance, or Conditional Use Permit shall be sent by the City within eight (8) working days of the date of the City's approval or disapproval to the following:

1. The applicant;
2. The State Department of Ecology;
3. The Attorney General of the State of Washington; and
4. Any person who requested notification of final action taken by the City.

In addition, copies of the original application, affidavit of public notice, site plan, vicinity map, permit and final order shall be filed with the State Department of Ecology and the Attorney General. (Ord. 2108 § 10.3.5.4, 1996; Ord. 2033 § 4, 1994; Ord. 2014 § 4, 1993; Ord. 1863 § 2, 1990).

18.10.1000 Appeals.

Refer to IMC 18.04.250 to 18.04.260 regarding appeals. (Ord. 2301 § 5, 2001; Ord. 2108 § 10.3.5.5, 1996; Ord. 1863 § 2, 1990).

18.10.1010 Review period.

Construction pursuant to the substantial Development Permit, variance or Conditional Use Permit is not authorized until twenty-one (21) days from the date of the filing with the Department of Ecology or until all

review proceedings initiated within twenty-one (21) days from the date of such filing have been terminated. (Ord. 2108 § 10.3.5.6, 1996; Ord. 1863 § 2, 1990).

18.10.1020 Nonconforming development.

Nonconforming development is a shoreline use or structure which was lawfully constructed or established prior to the effective date of the Shoreline Management Act or the Shoreline Master Program, or amendments thereto, but which does not conform to present regulations or standards of the Shoreline Master Program or policies of the Shoreline Management Act. In such cases, the following standards will apply to the nonconforming development:

- A. Nonconforming development may be continued; provided, that it is not enlarged, intensified, increased, or altered in any way which increases its nonconformity toward the shoreline;
- B. A nonconforming development which is moved any distance must be brought into conformance with the Shoreline Master Program and the Shoreline Management Act;
- C. If a nonconforming development is damaged to an extent not exceeding seventy-five (75) percent replacement cost of the original structure, it may be reconstructed to those configurations existing immediately prior to the time the structure was damaged (except a single family residence may be reconstructed to those configurations existing immediately prior to the time the structure was damaged, regardless of the extent of the damage), so long as restoration is completed within one (1) year of the date of damage;
- D. If a nonconforming use is discontinued for twelve (12) consecutive months or for any twelve (12) months during any two (2) year period, any subsequent use shall be conforming. It shall not be necessary to show that the owner of the property intends to abandon such nonconforming use in order for the nonconforming rights to expire;
- E. A nonconforming use shall not be changed to another nonconforming use, regardless of the conforming or nonconforming status of the building or structure in which it is housed; and
- F. An undeveloped lot, tract, parcel, site, or division which was established prior to the effective date of the Shoreline Management Act and the Shoreline Master Program but which does not conform to the present lot size or density standards may be developed so long as such development conforms to other requirements of the Shoreline Master Program and the Shoreline Management Act. (Ord. 2108 § 10.3.5.7, 1996; Ord. 1863 § 2, 1990).

18.10.1030 Rescinding permits.

Any substantial Development Permit, variance or Conditional Use Permit may be rescinded by the Planning Director/Manager upon the finding that the permittee has not complied with the conditions of the permit or has violated the provisions of the Shoreline Master Program, the Shoreline Management Act, or this chapter. (Ord. 2108 § 10.3.5.8, 1996; Ord. 1863 § 2, 1990).

18.10.1040 Expiration of permits.

A. Shoreline Substantial Development Permits, variances and Conditional Use Permits shall expire within two (2) years after approval by the City unless substantial progress has been taken toward completion of the project. Substantial progress shall include all of the following where applicable:

1. The making of contracts;
2. Signing of notice to proceed;
3. Completion of grading and excavation;
4. Laying of major utilities;
5. Where no construction is involved, commencement of the activity.

B. Except as provided in subsection A of this section, Shoreline Substantial Development Permits, variances and Conditional Use Permits shall expire within five (5) years after approval by the City unless a shorter expiration period is established by the City.

C. The Planning Director/Manager may authorize a single extension for up to one (1) year from the time limits imposed by subsections A and/or B of this section; provided, that the application for extension is made to the City before the end of the time period. Prior to any extension, the Planning Director/Manager shall give prior notice to parties of record and the Department of Ecology.

D. The running of the permit time periods shall not include the time which an activity was not actually pursued due to the pendency of reasonably related administrative appeals or litigation. (Ord. 2108 § 10.3.5.9, 1996; Ord. 1863 § 2, 1990).

18.10.1050 Definitions.

Terms used in this chapter shall have the same meaning as defined in RCW 90.58.030 and WAC 173-14-030. (Ord. 2108 § 10.3.5.10, 1996; Ord. 1863 § 2, 1990).

TAB D

2.9.5.3 Chapter 3: Treatment Facility Menus

3.2 - Oil Control Menu

Applies. However, the Stormwater Engineer may direct substitution of an alternative treatment method based on the preferences noted in Table 4.4R of Section 2.3.1 of the Stormwater Notebook.

3.3 - Phosphorous Treatment Menu

Applies. However, the Stormwater Engineer may direct substitution of an alternative treatment method based on the preferences noted in Table 4.4R of Section 2.3.1 of the Stormwater Notebook.

Projects within the Lake Sammamish Basin that are "Large Projects" as defined in Chapter 3 of the Stormwater Notebook (subject to Minimum Requirement #6) are required to provide phosphorus controls.

In addition to the Treatment Methods listed in the 2005 Ecology Manual, phosphorous control may be provided by applying measures listed below such that a score of 10 points or more is achieved. Credit options for phosphorus reduction are as summarized in Table 3.3R and are described as follows:

1. Leaving part of the site undisturbed, including undevelopable land. Full credit, or 10 points, is awarded for leaving 65 percent of a site in undisturbed native vegetation or areas re-established in native vegetation. Critical Areas and their buffers may be counted. All areas for phosphorus credit must be in tracts dedicated to the City protected in accordance with the requirements set forth for general critical area protective measures in RZC 21.64. A descending scale of points applies where lower percentages of the site are left undisturbed. Possible credit = 1 to 10 points.
2. Directing runoff from pollution-generating surfaces to grassy areas with level spreading. Directing runoff from pollution-generating areas to grassy areas that are not fertilized (a notice shall be made on the plat and signage posted to this effect) or to areas of native vegetation (protected by critical area tract) results in pollutant removals similar to those obtained in swales while also providing an increased opportunity for infiltration. To use this option, flows must remain unconcentrated and be spread uniformly over the intended area. The vegetated area receiving dispersed flows should be at least 25 percent as large as the area contributing flow. The receiving area should be increased by one percent for each percent increase in slope over four percent. The area should be configured so that the length of the flow path is no longer than the width over which flows are dispersed.

Example:

Assume a parking lot is 100' x 600', or 60,000 s.f. Flows will be dispersed through an adjacent area of native vegetation with a slope of 8 percent.

The area of vegetation must be at least 17,400 s.f. (25% +4% (for steeper slope) x 60,000 s.f.). Assuming runoff is dispersed continuously along the wider edge of the parking lot, the flow path would need to be at least 29 feet (17,400' ÷ 600'). If the

water were dispersed along the shorter edge, flow path would be 174 feet ($17,400' \div 100'$). However, this flow path would be longer than the width over which flows were dispersed (100'), and would not be a satisfactory option. The parking lot could be graded, however, so that flows would be dispersed at both of the 100 foot ends, making each flow path 87 feet, which would be acceptable.

Credit is proportional to the total volume of runoff diverted; one point is earned for every 25 percent of total volume so directed. Possible credit = 1 to 4 points.

3. Providing covered parking areas isolated from the stormwater conveyance system. This item applies to all land uses for which covered parking for employees, residents, guests, and the general public is provided. This can be achieved for commercial land uses simply by covering the parking required by code. For other land uses, provision of additional covered parking for guests or the general public (total parking) in lieu of on-street parking can be used to provide this assurance. It is intended that covered parking would isolate the area from stormwater run-on as well as direct rainfall. A low curb, berm, or enclosing walls, in addition to a roof, would typically be needed. The water quality credit is proportional to the percentage of the total surface area that is effectively covered. One point is earned for every 25 percent of parking covered and protected from run-on. Possible credit = 1 to 4 points.
4. Providing covered vehicle washing areas connected to the sanitary sewer system. This item applies to commercial, industrial, and multi-family sites. Frequent car-washing can contribute significant amounts of phosphorus to stormwater. Note that sewer districts may have pretreatment requirements before allowing connection to the sanitary sewer. Possible credit = 3 points.
5. Providing covered waste disposal and recycling areas isolated from the stormwater conveyance system. One point is earned if all solid waste management areas are covered and protected from stormwater run-on. Possible credit = 1 point.

Credit shall be applied to the whole site.

If the credit option is used, it should be applied for during initial drainage review by the City. The preliminary stormwater report should include a written request for credit based on either the site plan or the grading plan for the project. The request should outline how the point totals are to be achieved. Credit is not given unless requested. Use of the credit option does not release the project from the need for basic or enhanced treatment (as applicable).

Table 3.3R Water Quality Credit for Phosphorus Control	
Credit Option	Points
Leaving site undisturbed, in native vegetation. Buffers without trails may be counted.	At least 65% = 10 60% = 9 55% = 8 50% = 7 45% = 6 40% = 5 35% = 4 30% = 3 25% = 2 20% = 1
Directing road runoff to pervious, non-pollution-generating vegetated area.	100% of volume = 4 75% of volume = 3 50% of volume = 2 25% of volume = 1
Covered parking protected from run-on	100% of parking = 4 75% of parking = 3 50% of parking = 2 25% of parking = 1
Covered car wash area connected to sanitary sewer (multi-family)	3
Covered solid waste storage area	1

3.4 - Enhanced Treatment Menu

Applies. However, the Stormwater Engineer may direct substitution of an alternative treatment method based on the preferences noted in Table 4.4R of Section 2.9.1.4 of the Stormwater Notebook.

3.5 - Basic Treatment Menu

Applies. However, the Stormwater Engineer may direct substitution of an alternative treatment method based on the preferences noted in Table 4.4R of Section 2.9.1.4 of the Stormwater Notebook.

2.9.5.4 Chapter 4: General Requirements for Stormwater Facilities

4.3.2 - Side Slopes and Embankments

TAB E

D5-03.6 Oil Control

Treatment to achieve Oil Control applies to projects that have "high-use sites." High-use sites are those that typically generate high concentrations of oil due to high traffic turnover or the frequent transfer of oil. High-use sites include:

1. An area of a commercial or industrial site subject to an expected average daily traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area;
2. An area of a commercial or industrial site subject to petroleum storage and transfer in excess of 1,500 gallons per year, not including routinely delivered heating oil;
3. An area of a commercial or industrial site subject to parking, storage or maintenance of 25 or more vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.);
4. A road intersection with a measured ADT count of 25,000 vehicles or more on the main roadway and 15,000 vehicles or more on any intersecting roadway, excluding projects proposing primarily pedestrian or bicycle use improvements.

All Oil Control facilities shall be designed in accordance with criteria set forth in Volume V of the DOE Manual as modified herein.

Locate a spill control separator upstream from the detention system, or immediately before leaving the site if there is no detention system per section D4-06.1

Design Requirements for API and CP Separators

High-Flow Bypass: A high flow bypass is required if the separator is not capable of treating the 100-year storm peak runoff rate. Bypassing storm flows greater than the treatment capacity of the separator prevents "flushing" during peak events, substantially increases the effectiveness of the oil/water separator, and reduces size requirements.

Drainage Area: Uncontaminated water (roof runoff, pervious area runoff, etc.) should not drain to the oil/water separator.

D5-03.7 Phosphorus Treatment

All Phosphorus Treatment facilities shall be designed in accordance with criteria set forth in the DOE Manual, Volume V, Section 3.3 as modified herein.

Phosphorus treatment is required for land uses with potentially phosphorus-rich runoff, including but are not limited to: nurseries, gardening supplies, animal care and boarding facilities, golf courses, turf sports fields, livestock stables, paddocks and pastures.

Runoff from all project areas tributary to Larsen Lake, Phantom Lake, and Lake Sammamish shall require Phosphorus Treatment, except areas that typically do not generate pollutants. Surfaces that typically do not generate pollutants include roof areas (except uncoated metal roofs) that do not receive organic debris and sidewalks. Such runoff need not be treated and may bypass the phosphorous treatment facility, if feasible.

The approved options for providing Phosphorus Treatment are listed in Figure 5.1 and presented in more detail in Volume V of the DOE Manual. Additional means of meeting the phosphorus treatment requirement may be approved by the City if the proposal fulfills the design criteria in the Department of Ecology's General Use Level Designation (GULD) approval process.

D5-03.8 Enhanced Treatment

All Enhanced Treatment facilities shall be designed in accordance with criteria set forth in Volume V of the DOE Manual as modified herein.

Enhanced treatment for reduction in dissolved metals is required for the following types of projects throughout Bellevue:

- Industrial project sites;
- Commercial project sites;
- Multi-family project sites; and
- High AADT roads as follows:
 - 1) Fully controlled and partially controlled limited access highways with Annual Average Daily Traffic (AADT) counts of 15,000 or more, and
 - 2) All other roads with an AADT of 7,500 or greater.

However, such sites listed above that discharge directly to Lake Washington (Basic Treatment Receiving Waters per Appendix I-C of the DOE Manual, except Lake Sammamish which requires Phosphorus Treatment) via an entirely closed piped conveyance system or via sheet flow from waterfront property are not subject to Enhanced Treatment Requirements. Areas of the above-listed project sites that are identified as being subject to Basic Treatment requirements are not subject to Enhanced Treatment requirements.

For developments with a mix of land use types, the Enhanced Treatment requirement shall apply when the runoff from the areas subject to the Enhanced Treatment requirement comprises 50% or more of the total runoff within a threshold discharge area.

D5-03.9 Basic Treatment

All Basic Treatment facilities shall be designed in accordance with criteria set forth in Volume V of the DOE Manual.

Basic Treatment generally applies to:

- Project sites that discharge to the ground, UNLESS:
 - 1) The soil suitability criteria for infiltration treatment are met; (see Chapter 3 of Volume III of the DOE Manual for soil suitability criteria) or
 - 2) The project uses infiltration strictly for flow control – not treatment - and the discharge is within ¼-mile of a phosphorus sensitive lake (use a Phosphorus Treatment facility), or within ¼ mile of a fish-bearing stream or lake (use an Enhanced Treatment facility). Phosphorous sensitive lakes include Larsen Lake, Phantom Lake, and Lake Sammamish.
- Residential projects not otherwise needing phosphorus control as designated by Section D5-03.7, the US EPA, or the Department of Ecology; and

TAB F

B. SENSITIVE LAKE WQ TREATMENT AREAS

The City of Issaquah is located within the Lake Sammamish watershed. In accordance with the adopted Issaquah Creek Final Basin Nonpoint Action Plan and, unless specified or exempted otherwise in this chapter, WQ treatment facilities in the City of Issaquah shall be designed to the **Sensitive Lake WQ Treatment menu** requirement.

The Enhanced Basic WQ Treatment menu may also apply to certain types of projects, as described below.

Required Treatment Menu

Within Sensitive Lake WQ Treatment Areas, a treatment facility option from the **Sensitive Lake Protection menu** shall be used to treat runoff from the surfaces listed under "Target Surfaces" below, except where such treatment is waived or reduced by the area-specific exceptions at the end of this subsection and except where the **Enhanced Basic WQ menu** is applicable as follows. If 50% or more of the runoff that drains to any proposed treatment facility is from one or more of the **following land uses**, then a treatment facility option common to both the **Sensitive Lake Protection menu and Enhanced Basic WQ menu** shall be used for the design of this facility, except if such treatment is waived or reduced by the area-specific exceptions at the end of this subsection:

1. Residential subdivision development in which the actual density of single family units is equal to or greater than 8 units per acre of developed area.
2. Industrial, commercial, or multifamily development.
3. A road with an expected ADT count of 2,000 or more vehicles or expected to serve 200 or more homes. *Note: those roads defined in the City of Issaquah Street Standards as residential and residential collector or higher are assumed to meet this definition.*

Treatment Goal and Options

The treatment goal for facility options in the Sensitive Lake Protection menu is 50% annual average total phosphorus (TP) removal assuming typical pollutant concentrations in urban runoff.³⁹ This goal was chosen as a realistic and cost-effective level of phosphorus removal. The Sensitive Lake Protection menu includes options for using either Basic WQ facilities of larger size, combinations of two facilities in series,⁴⁰ or a single facility in combination with land use planning elements that reduce phosphorus. See Chapter 6 for specific facility options and design details.

On some developments or portions thereof that have surface uses that generate the highest concentrations of metals in stormwater runoff, the treatment goal is expanded to include 50% reduction of total zinc. This expanded goal requires use of a treatment facility option that is common to both the Sensitive Lake Protection menu and the Enhanced Basic menu.

Intent

A project discharging runoff via surface flow contributes phosphorus loading to a sensitive lake regardless of distance from the lake. If discharge is via infiltration through coarse soils, it is also possible that phosphorus would be transported through the ground for some distance without attenuation. This groundwater transport distance is considered to be typically no more than one-quarter mile. Therefore, onsite treatment using the **Sensitive Lake Protection menu** is required prior to infiltration within one-quarter mile of a sensitive lake. Infiltration through finer soils is expected to provide significant attenuation of TP, so the general groundwater protection criteria specified on page 1-63 under "Soil Treatment Exemption" are considered sufficient for infiltration through finer soils.

Where the treatment goal is expanded to include 50% reduction of total zinc, the facility options common to both the Sensitive Lake Protection menu and the Enhanced Basic WQ menu should meet

³⁹ Phosphorus concentrations of between 0.10 and 0.50 mg/L are considered typical of Seattle area runoff (Table 1, "Water Quality Thresholds Decision paper," King County Surface Water Management Division, April 1994).

⁴⁰ *In series* means that the entire treatment water volume flows from one facility to the other in turn.

this goal as well as the lake protection goal of 50% removal of annual average total phosphorous. The intent behind the 50% reduction of total zinc goal and why it is applied is described on Page 1-64.

Target Surfaces

Facilities in **Sensitive Lake WQ Treatment Areas** must mitigate (either directly or in effect) the runoff from the following target surfaces within the *threshold discharge area* for which the facility is required:

1. **New PGIS** that is **not fully dispersed** per the criteria on Page 1-41. For individual lots within residential subdivision projects, the extent of **new PGIS** shall be assumed based on expected driveway size as approved by the City of Issaquah.
2. **New PGPS** that is **not fully dispersed** and from which there will be a concentrated surface discharge in a natural channel or man-made conveyance system from the *site*. For individual lots within residential subdivision projects, the extent of **new pervious surface** shall be assumed to be the entire lot area, except the assumed impervious portion as specified in Chapter 3 and any portion in which native conditions are preserved by covenant, tract, or easement. *Note: where the runoff from target PGPS is separated from the runoff from target PGIS, the Basic WQ menu may be used in place of the Sensitive Lake Protection menu for treatment of runoff from the target PGPS (see the area-specific exceptions at the end of this subsection).*
3. **Existing impervious surface** added since January 8, 2001 that is **not fully dispersed** and not yet mitigated with a City-approved water quality facility or flow control BMP. *Note: January 8, 2001 is the effective date of the ESA 4(d) Rule for Puget Sound Chinook salmon.*
4. **Replaced PGIS** that is **not fully dispersed** on a **transportation redevelopment project** in which **new impervious surface** is 5,000 square feet or more and totals 50% or more of the existing impervious surface within the project limits.
5. **Replaced PGIS** that is **not fully dispersed** on a **parcel redevelopment project** in which the total of new plus **replaced impervious surface** is 5,000 square feet or more and whose valuation of proposed improvements (including interior improvements and excluding required mitigation improvements) exceeds 50% of the assessed value of the existing *site* improvements.

Exceptions

The following exceptions apply only in **Sensitive Lake WQ Treatment Areas**:

1. The **Basic WQ menu** may be used in place of the **Sensitive Lake Protection menu** for treatment of any runoff that is **infiltrated** according to the standards in Section 5.4, provided the infiltration facility is not located in soils having *high infiltration rates*⁴¹ within one-quarter-mile of the lake's mean-high-water level. If the infiltration facility is located beyond the one-quarter-mile limit, the **Basic WQ menu** (or pre-treatment per Ecology criteria) may be used regardless of the infiltration rate.
2. The **Basic WQ menu** or the **Enhanced Basic WQ menu** (if applicable to site) may be used in place of the **Sensitive Lake Protection menu** if sufficient water quality credits for phosphorus control are obtained for the site according to the method in Section 6.1.3.
3. The **Basic WQ menu** may be used in place of the **Sensitive Lake Protection menu** for redevelopment projects involving less than 1.0 acres of total land disturbance (See Table 1.1.1.A).
4. Application of the **Enhanced Basic WQ menu** as specified above for certain land uses may be waived for treatment of any runoff that is infiltrated according to the standards in Section 5.4.
5. Application of the **Enhanced Basic WQ menu** as specified above for certain land uses may be waived for treatment of any runoff that is discharged, via a non-fish-bearing conveyance system, all the way to the ordinary high water mark of Lake Sammamish.

⁴¹ *High Infiltration rates* are those in excess of 9 inches per hour as measured by the EPA method or the Double Ring Infiltrometer method (ASTM D3385). These will typically be medium to coarse sand or gravel soil with low silt content. See Section 5.4.1 for information on measuring infiltration rates.

6. The **Enhanced Basic WQ menu** as specified above for commercial land uses may be waived if leachable metals (e.g., galvanized metals) are not used in areas exposed to the weather and a covenant is recorded that prohibits future such use of leachable metals on the *site*.
7. The **Basic WQ menu** may be used for treatment of any runoff from **target PGPS** that is treated separately from the runoff from **target PGIS**.

1.2.8.2 WATER QUALITY IMPLEMENTATION REQUIREMENTS

Water quality treatment facilities shall be designed and implemented in accordance with the following requirements, allowances, and flexible compliance provisions. (**Note: unless specifically allowed for a particular project, sand filters will not be approved in facilities to be dedicated to the City of Issaquah**).

A. METHODS OF ANALYSIS AND DESIGN

Water quality treatment facilities shall be analyzed and designed as detailed in Chapter 6.

B. SITING OF TREATMENT FACILITIES

Required treatment facilities shall be located so as to treat the runoff from all target surfaces, except as allowed below under "Treatment Trades" and "Untreated Discharges."

Any other onsite or offsite runoff draining to a proposed treatment facility must be treated whether it is from a **target pollution-generating surface** or not and regardless of whether the runoff has already been treated by another facility. The facility must be sized for all flows/volumes entering the facility. This is because treatment effectiveness is determined in part by the total volume of runoff entering the facility.

C. TREATMENT TRADES

The runoff from **target pollution-generating surfaces** may be released untreated if an existing non-targeted pollution-generating surface of equivalent size and pollutant characteristics lying within the same watershed or stream reach tributary area is treated on the *project site*. Such substitution is subject to the following restrictions:

1. The existing non-targeted pollution-generating surface is not currently being treated, is not required to be treated by any phase of the proposed project, is not subject to NPDES or other permit requirements, and is not under a compliance order or other regulatory action, AND
2. The proposal is reviewed and approved by the City of Issaquah.

D. UNTREATED DISCHARGES

If *site* topographic constraints are such that runoff from a **target pollution-generating surface** must be pumped to be treated by the required water quality facility, then the City of Issaquah may allow the area's runoff to be released untreated provided that all of the following conditions are met:

1. Treatment of the constrained area by filter strip, biofiltration, or a linear sand filter is not feasible, and a **treatment trade** as described above is not possible.
2. The untreated target surface is less than 5,000 square feet of *new PGIS* and is less than 5,000 square feet of new plus *replaced PGIS* on a *redevelopment project*.
3. Any **target PGPS** within the area to be released untreated shall be addressed with a *landscape management plan* (see Section 2.3.1.5).

EXHIBIT 3



October 2, 2012

Mr. Greg Krabbe
KKBL Ventures 575 LTD
335 Park Place Center, Suite G111
Kirkland, WA 98033

Subject: Effects of Development Proximity to Lake Sammamish on Phosphorus Loadings

Dear Greg:

I prepared this letter to explain my statement that stormwater total phosphorus (TP) inputs to Lake Sammamish are not necessarily higher from residential developments located adjacent to the lake relative to those from developments located up on the plateau that discharge to tributaries of the lake. TP inputs from developments to tributary streams primarily occur during storm events, and primarily consist of particulate fractions but also include dissolved fractions of phosphorus. Dissolved phosphorus concentrations in streams are affected by the abiotic processes of sorption and desorption with sediments that are generally in equilibrium over time and space, and result in no net gain or loss in inorganic dissolved phosphorus (Haggard and Sharpley 2007). Dissolved phosphorus concentrations in streams are also affected by biotic factors of uptake and release (mineralization) by microbes, and can result in a net loss of inorganic dissolved phosphorus during active growth under non-storm (base flow) conditions (Reddy et al. 1999), but generally result in no net accumulation or loss on an annual basis due to washout of microbial biofilms in small streams.

Particulate phosphorus loadings in streams are primarily affected by sediment transport mechanisms of settling and suspension. Residential development in stream basins generally increases erosion of stream sediments due to increases in impervious surfaces and resulting increases in stream flow. Increased stream flow can further increase particulate phosphorus loadings from increased stream bank erosion. Increased sediment transport to lakes from residential development in stream basins has been well documented, which is why stormwater regulations require flow control and retention of stormwater to not increase peak stream flows.

As noted in my letter to you on July 23, 2012, Dr. Welch commented on the observed impact of increased stormwater discharge on stream erosion and phosphorus loading by development in the Timberline area. The study he references (Booth and Henshaw 2000) compared erosion measurements in two stream channels draining to the east shore of Lake Sammamish from the Timberline area. One stream channel (0143G at 48 percent slope) exhibited significant erosion (over 1 meter) due to stormwater input from upland development. The other stream



Mr. Greg Krabbe
October 2, 2012
Page 2

channel (0143F at 14 percent slope) did not erode because the Timberline Ridge development discharged stormwater directly to an outfall in the lake to prevent erosion of this stream channel.

Lessons learned from this and other studies were recently used to propose a new outfall in Lake Sammamish to convey stormwater from the 78-acre redevelopment project at Hyla Crossing and Rowley Center in Issaquah, rather than discharging stormwater directly to Tibbetts Creek located adjacent to the development. Discharge of stormwater directly to the lake from the developed area would decrease peak flows in Tibbetts Creek, and reduce phosphorus loading to Lake Sammamish from decreased bank erosion and stream sediment transport during high flows. This example supports my statement that stormwater TP inputs are not necessarily higher for developments located closer to the lake where stream bank and sediment erosion can be prevented.

In conclusion, phosphorus loadings to Lake Sammamish from development of residential communities in undeveloped areas primarily depend on the amount of TP exported from the development, regardless of whether stormwater TP is discharged directly to the lake or to a tributary stream. Stormwater regulations are designed to reduce TP loadings in runoff from developments during and after construction, and are designed to not increase peak flows in streams to prevent increased phosphorus loadings from bank erosion and stream sediment transport.

Please do not hesitate to contact me if you believe this topic warrants further discussion.

Sincerely,

Herrera Environmental Consultants, Inc.



Rob Zisette
Water Quality Principal

References:

Booth, D.B. and P.C. Henshaw. 2000. Rates of Channel Erosion in Small Urban Streams. *In* Land Use and Watersheds: Human Influence on Hydrology and Geomorphology in Urban and Forest Areas, Water Science and Application 2. Edited by M.S. Wigmosta and S.J. Burges, American Geophysical Union, Washington, D.C.

Haggard, B.E. and A.N. Sharpley. 2007. Phosphorus Transport in Streams: Processes and Modeling Considerations. *In* Modeling Phosphorus in the Environment. Edited by D.E. Radcliffe and M.L. Cabrera, CRC Press, New York, New York.

Reddy, K.R., R.H. Kadlec, E. Flaig, and P.M. Gale. 1999. Phosphorus Retention in Streams and Wetlands: A Review. *Critical Reviews in Environmental Science and Technology* 29(1):83-146.

Debbie Beadle

From: jatbuehler@comcast.net
Sent: Thursday, October 04, 2012 4:53 PM
To: ECA; Evan Maxim
Subject: ECA COMMENTS
Attachments: 2012-10-3 SLS - ECA Comments.doc

Follow Up Flag: Follow up
Flag Status: Flagged

Please accept my attached comments on the proposed revisions to the ECA. Thank you.

Joanna Buehler
Save Lake Sammamish - And we all win!
www.scn.org/savelake/ T: 425-641-3008

EXHIBIT NO. 223

SAVE LAKE SAMMAMISH

1420 N.W. Gilman Blvd., # 2565
Issaquah, Washington 98027

October 3, 2012

Planning Commissioners & Mr. Kamuron Gurol,
Community Development Director
City of Sammamish
486 228th Ave. NE
Sammamish, WA 98074

Re: Environmentally Critical Areas Ordinance

Dear Commissioners and City Staff:

Save Lake Sammamish is an all-volunteer, non-profit Washington corporation founded in 1989 to protect the water quality of Lake Sammamish and the environmental benefits of its watershed. On behalf of SLS, I offer comments on the Critical Areas Ordinance (CAO) under review.

Thank you for your conscientious work to protect the lakes, streams, wetlands and open spaces within the City. Water quality in Lake Sammamish is dependent upon basin land use. Survival of the struggling salmonids in Lake Sammamish and its tributary streams requires even greater protection of wetlands and shorelines than they have received previously. Therefore, we urge you to provide stream and lake buffers and setbacks based on best available science and resource protection. Specifically, the provisions of the Special Overlay Zones, SO-180 and SO-190, should be maintained within the CAO.

Since SLS was involved in the development of these Special Overlay Zones, it might be helpful to you to know the history of how these areas were designated for special protection and why it was imperative for them to be protected. In the early 1990s, new subdivisions were being developed on the western edge of the East Lake Sammamish Plateau after the area was included within the King County Urban Growth Area under the Growth Management Act. These new projects in turn created significant stormwater runoff that flows down steep and sensitive ravines into Lake Sammamish. Because of the steepness of these ravines and the erodible soils, significant erosion and damage to the lake began to occur. There were instances of considerable damage to the lake.

At that time, Burnstead Homes proposed the development of Timberline Ridge, a residential plat of 103 acres of undeveloped property with 232 lots. In light of the erosion problems described above, King County asked Timberline to develop a tightline stormwater discharge system to directly discharge water into Lake Sammamish and avoid putting runoff from newly developed residential subdivision into the steep, erodible ravines on the edge of the plateau. Because of concerns that such systems would result in the deterioration of water quality in Lake Sammamish, SLS challenged the tightline proposal for Timberline Ridge under the Shorelines Act and under state and federal water pollution laws. See *Save Lake Sammamish et.al v. King County, Burnstead Construction and Washington State Dept. of Ecology*, PCHB No. 93-240 and SHB 98-40. In fact, at the time, the preferred method of dealing with erosion problems from development on the plateau was to construct a total of seven pipelines to convey stormwater directly into the Lake, bypassing the vulnerable ravines, as called for in the East Lake Sammamish Basin and Nonpoint Action Plan of November 1993,

The Shorelines Hearings Board and the Pollution Control Hearings Board eventually reached decisions on SLS's challenge in decisions entered on August 30, 1994 and November 7, 1994. (These decisions are available at the Board's web site.) In its findings, the Board confirmed the conditions described above.

Continued...

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October 3, 2012

City of Sammamish

Although the Board approved the Timberline Ridge tightline proposal, it concluded that King County's plans for control of stormwater impacts and pollution into Lake Sammamish were insufficient and required additional review and consideration of other methods to prevent impacts to the Lake. The Board specifically noted that ongoing planning did not consider the cumulative impacts of multiple developments that would use the then-proposed stormwater pipelines.

King County's review eventually resulted in the abandonment of the pipeline concept for control of runoff. Eventually, in 1997, the King County Council adopted a special overlay district for the East Lake Sammamish Plateau which was codified into law in the King County Zoning Code as KCC 21A.38.200 which became known as the SO-190 Overlay. Its purpose was to assure **both** the protection of the steep and erodible ravines leading from the edge of the plateau to the Lake **and** to protect water quality in the Lake. The SO-190 Overlay described regulations which included the "no disturbance" rule preventing development in these fragile ravines and a "no discharge" standard that required under most instances that all water from new developments be infiltrated on site.

The SO-190 Overlay and its regulations were the progeny of SLS's political and judicial efforts to protect the Lake, a concern recognized by the Shorelines Board in its 1994 decisions. The SO-190 Overlay is based on careful and accepted best available science and the need to protect the Lake by imposing reasonable restrictions on a limited number of properties that stand to generate the most damage to the Lake.

Therefore, we urge you to keep exactly the same intent and resource protections that are found in the SO-180, Wetland Management Overlay, and SO-190, Erosion Hazard Overlay, provisions. Specifically, the code should include the following:

- 1) The property-specific overlay map, as it was in the King County Code and Surface Water Design Manual, identifying by parcel number all properties subject to these provisions.
- 2) No exemptions or variances from these overlay zones should be permitted for any buildings or impervious surfaces, whether public or private. (The intent is to protect sensitive resources and an insult is an insult regardless of who delivers it.)
- 3) Tree retention is essential to avoid erosion and water quality degradation. Tree canopy intercepts rain before it strikes the ground. Roots hold soils in place and stabilize stream banks and shorelines. Trees act as reservoirs and allow gradual infiltration to recharge of streams and aquifers.
- 4) Provide additional protection to Wetland Management Areas by retaining forest and open space, avoiding compaction of soils, and limiting impervious surfaces in areas draining directly to wetlands. (A beautiful "protected" two acre forested wetland in the Timberline Ridge development was destroyed by being overwhelmed by runoff from surrounding houses and roads.)

In the WRIA 8 Salmon Recovery Plan, Lake Sammamish has been recognized as a Tier-1 salmon migration route. Loss of shoreline spawning areas, nearshore habitat and littoral vegetation have been identified as limiting factors in the decline of salmonids in this system. Water quality in the Lake is degraded when trees and other vegetation are removed from the shoreline and replaced with fill, rock and concrete bulkheads. This filling and armoring displaces water onto properties that previous did not flood, causing additional damage and resource degradation. Therefore, SLS urges you to adopt a 50 foot buffer from the Ordinary High Water Mark (OHWM) for the shoreline of Lake Sammamish within the City's jurisdiction.

Continued...

October 3, 2012

City of Sammamish

Finally a cautionary tale: during the past five years development of Chestnut Lane has been permitted adjacent to the headwaters of Ebright Creek. In spite of the City's monitoring efforts and developer assurances that their development would not harm the Creek, considerable sloughing within the Ebright canyon has occurred downstream of the Chestnut Lane's storm water outflow. The Sammamish Plateau sits on highly erodible glacial till. When these soils on steep slopes are cleared, rainfall and runoff easily erode them. Monitoring will merely document the damage after the fact. Remediation is virtually impossible. Erosion will continue until the creek reaches equilibrium with its changed hydrologic burden.

Consistently, SLS has supported the common sense provisions of special protections afforded by the downzoning of the Special Overlays 180 and 190. These protections are particularly important for Ebright Creek and its associated and even isolated wetlands (they are the sponges that soak up rainfall). The wild, native, genetically-unique, winter-run Lake Sammamish Kokanee clings to survival in only a handful of Creeks draining to the Lake. Ebright supports one of only two runs remaining that occasionally have returns in the triple-digits. The summer-run Kokanee were declared officially extinct in 2003. Without extraordinary effort and protection of its last vestiges of habitat, the winter-run is likely to follow into oblivion.

Thank you for your consideration of our comments. We appreciate the work of Council, City staff and citizen panels and reviewers to craft an ordinance that will protect the natural resources which make Sammamish a desirable place to live.

Very truly yours,

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