Chapter 15.16
GRADING AND EXCAVATION

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15.16.010 Purpose.

A. This chapter is an amendment to Appendix J of the 2006 International Building Code, Clearing, Excavation and Grading.

B. The purpose of this chapter is to promote, protect and preserve the public interest by regulating land alteration, particularly the clearing and grading of land in the city.

C. This chapter is necessary in order to provide minimum development regulations and construction procedures which will preserve, replace or enhance to the maximum extent practicable, consistent with the zoning and subsequent development of the land, evergreens, specimen deciduous trees, understory and groundcover within the city; to minimize water quality degradation and the sedimentation of creeks, streams, ponds, lakes, wetlands and other water bodies; to minimize the impact of increased runoff erosion and sedimentation on nonconsenting persons caused by improper land development and maintenance practices; to maintain and protect groundwater resources; to minimize adverse effects of alteration in ground and surface water quantities, locations, and flow patterns; to promote safety upon city roads and right-of-way; to decrease potential landslide, flood, and erosion damage to public and private property; and to promote site planning and building practices which are consistent with the city's natural topographical, vegetational and hydrological features.

D. This chapter is intended to promote the health, safety and welfare of the public and nothing in this chapter is intended to or shall be deemed to create a duty in the city to protect or promote the interests of any particular person or class of persons. The existence of these regulations or any failure, refusal or omission of the city to enforce any provision in this chapter

shall not prevent, supplant or affect the right of any person affected by the clearing and grading operations of another to invoke such private remedies as may be available against such other person. (Ord. 1173 § 6 (part), 2007; Ord. 602 (title), § 1, 1988)

15.16.020 Definitions.
For the purposes of this chapter, the definitions listed under this section shall be construed as specified in this section:

1. "Approved" means approved by the designated permit authority for clearing and grading permits.

2. "As-graded" means the surface condition after the completion of grading.

3. "Bench" means a relatively level step excavated into earth material on which fill is to be placed.

4. "Borrow" means earth material acquired from an off-site location for use in grading on a site.

5. "Brush" means vegetation one foot to four feet in height.

6. "Civil engineer" means a professional engineer licensed by the state in civil engineering.

7. "Civil engineering" means the application of knowledge of the forces of nature, principles of mechanics and the properties of materials to the evaluation, design and construction of civil works for the beneficial uses of mankind.

8. "Clearing" means the act of destroying vegetation by mechanical or chemical means.

9. "Clearing and grading permit" means the written permission of the permit authority to the permittee to proceed with the act of clearing, grading and land development within the provisions of this chapter.

10. "Compaction" means the densification of a fill by mechanical means.

11. "Development standards" means department of public works development standards as approved by the city council.

12. "Earth material" means any rock, natural soil or any combination thereof.

13. "Engineering geologist" means a geologist experienced and knowledgeable in engineering geology.

14. "Engineering geology" means the application of geologic knowledge and principles in the investigation and evaluation of naturally occurring rock and soil for use in the design of civil works.

15. "Erosion" means the wearing away of the ground surface as a result of action by wind, water and/or ice.

16. "Excavation" means the physical, manmade removal of earth material.

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17. "Existing grade" means the land elevation prior to grading.

18. "Fill" means a solid material which increases the ground surface elevation.

19. "Filling" means any act by which earth, sand, gravel, rock or other solid material is deposited, placed, pushed, pulled or transported to a place other than the place from which it is excavated and the materials so placed.

20. "Finished grade" means the grade of the site after alterations are completed.

21. "Grade" means the vertical elevation of the ground surface.

22. "Grading" means any act which changes the elevation of the ground surface.

23. "Ground cover" means root vegetation normally less than one foot in height.

24. "Grubbing" means the act of root vegetation removal from beneath the surface of the earth.

25. "Hydrologist" means a professional who has experience or specialized training in hydrology.

26. "Impervious" means without significant capacity to transmit water.

27. "Intermittent" means interrupted at intervals, periodic, recurrent, flowing in the same direction (streams), or depressions which fill on a frequent basis (ponds).

28. "Key" means a designed compacted fill placed in a trench excavated in earth material beneath the toe of a proposed fill slope.

29. "Overstory" means vegetation above ten feet in height.

30. "Permit authority" means the director of the storm and water management. (Engineering department). The director may designate subordinate(s) to make approvals, sign permits, and carry out other responsibilities in application to this code.

31. "Permittee" means the person(s) or entity to whom a clearing and grading permit is issued.

32. "Professional finding" means a written professional opinion with the professional's seal, if registered, stating the facts observed or found and comparison of the characteristics of the work with the known minimal required criteria, followed by an opinion of the suitability of such work to perform the intended function.

33. "Registered professional" means a person currently licensed by the state to practice in engineering, architecture, landscape architecture, and/or surveying.

34. "Regulatory agencies" means appropriate departments of a governmental body.

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35. "Rough grade" means the stage of construction at which the ground elevations are near the finished elevations planned.

36. "Sediment" means waterborne particles, graded or undefined, occurring by erosive action.

37. "Sedimentation" means the process of deposition of soil and organic particles displaced, transported, and deposited by water or wind.

38. "Sensitive lands" means lands possessing slopes in excess of twenty-five percent on unstable soil, natural drainage, geological or vegetative characteristics which pose potentially hazardous impacts for occupants of the land or its neighbors.

39. "Significant trees" means evergreen trees eight inches or greater in diameter as measured at least four feet above existing grade and deciduous trees twelve inches or greater in diameter as measured at least four feet above existing grade.

40. "Siltation" means deposition of fine textured sediment in streams and surfaced waters.

41. "Site" means that defined portion of any lot(s) or parcel(s) of land or contiguous combination thereof, where clearing and/or grading is performed or permitted.

42. "Slope" means an inclined ground surface the inclination of which is expressed as a ratio of horizontal distance to vertical distance.

43. "Soil" means naturally occurring superficial deposits overlying bedrock.

44. "Soils engineering" means the application of the principles of soils mechanics in the investigation, evaluation and design of civil works involving the use of earth materials and the inspection and/or testing of the construction thereof.

45. "Stage" means a defined increment of work.

46. "Storm return interval" is an expression of the probability with which a storm of a given intensity and duration can be expected to occur; term used by a hydrologist to predict runoff quantities.

47. "Stream" means the surface water route generally consisting of a channel with bed, banks, or sides, in which surface waters flow in draining from higher or lower land, both perennial and intervening; the channel and intervening artificial components, excluding flows which do not persist more than twenty-four hours after cessation of rainfall at some time of the year.

48. "Surface waters" means water bodies exposing a free water surface, with or without movement, such as streams, lakes, bogs, and ponds.

49. "Terrace" means a relatively level step constructed in the face of a graded slope surface for drainage and maintenance purposes.

50. "Tree" means a woody perennial plant with one or more main stem(s) or trunk(s) which develop many branches.

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51. "Understory" means vegetation four feet to ten feet in height.

52. "Vegetation" means all organic plant life growing on the surface of the earth. (Ord. 602 § 2, 1988)

15.16.030 Permit authority.
The director of the engineering department or a designee, hereinafter termed the permit authority, is the designated agent for the issuance of clearing and grading permits. The permit authority shall have the authority to develop administrative procedures to carry out the purposes and intent of this clearing and grading code. Such administrative procedures should be developed in consultation with technical advisors as circumstances require and shall be made available to the public for comment at least seventeen days before adoption. (Ord. 602 § 3, 1988)

15.16.040 Permit required—Application.
No person shall make changes or cause changes to be made in the surface of any land by grading, excavating, or the removal or disturbance of the natural topsoil, trees, or other vegetative covering thereon without first having obtained a valid clearing and grading permit, except as provided in the exemptions following:

A. Agricultural crop management;

B. Cemetery grave;

C. Routine landscape maintenance;

D. Landscape installation where fill is confined to less than one foot of topsoil or landscape berms not exceeding four feet in height and fifty cubic yards in volume with side slopes flatter than three feet horizontal to one foot vertical (thirty-three percent) and not subject to the special conditions of subsection I of this section;

E. Emergency situations involving immediate danger to life or property or substantial fire hazards;

F. In any one year an excavation of less than fifty cubic yards of material which:

1. Is less than one foot in depth, or

2. Which does not create a cut slope greater than five feet in height and steeper than two horizontal to one vertical;

G. During any one year a fill less than one foot in depth and placed on natural terrain with a slope flatter than five horizontal to one vertical (twenty percent) or a fill less than three feet in depth and not intended to support structures, which does not exceed fifty cubic yards on any one lot and does not obstruct a stream or surface water;

H. A clearing less than one thousand square feet where the existing zoning is single-family residential. Only one exempted clearing or grading operation per site per year shall be permitted under the exception provided in this subsection;

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I. Except for subsections A, C and E of this section, not more than one of the exemptions set forth in this section shall apply on one designated site. (Ord. 602 § 4, 1988)

15.16.050 Requirements.
It is the intent of this section to promote practices consistent with the city's natural topographic, vegetational, and hydrologic features, and to control substantial land alterations of a speculative nature. In considering whether to issue a permit, and in considering whether and what type of conditions should be imposed, the permit authority shall apply the following standards and criteria:

A. General. A clearing and grading permit shall be issued only in conjunction with one or more of the following:

1. A valid building permit application; provided no clearing and grading permit will be issued until a decision has been issued by the director of the building department approving any required design review;

2. Utility extension;

3. Property access road;

4. Conditional use permit;

5. Approved street, water, storm and sanitary sewer construction drawings for a preliminary plat;

6. Approved short plat;

7. SEPA approval;

8. Shoreline permit;

9. Special permission of the permit authority for site work under five hundred cubic yards based on a demonstration that extenuating circumstances are present and that the project is consistent with the grading and drainage plan with landscaping, soil stabilization and surface groundcover elements including continuous maintenance;

10. For site work over five hundred cubic yards, the purpose of which is not to achieve approval or development under subsections (A)(1) through (8) of this section.

a. Decision Criteria. The permit authority may approve or approve with modifications an application submitted under this subsection only if:

i. The proposal is in accord with the comprehensive plan, comprehensive drainage plan, zoning code, drainage management code and other city codes and adopted standards,

ii. The approval of the proposal will not pose a threat to or be detrimental to the public health, safety and welfare, and

iii. The applicant has demonstrated that approval of the proposal is necessary for the reasonable development or maintenance of the property.

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b. Time Limits May Be Imposed. For any permit authorized under this subsection the permit authority may impose a time limit within which the proposed site work must be completed, generally not to exceed one year.

B. Hazards. Whenever the permit authority determines that any existing excavation or embankment or fill on private property has become a hazard to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way or drainage channel, the owner of the property upon which the excavation or fill is located, or other person or agent in control of the property, upon receipt of notice in writing from the permit authority, shall within the period specified therein repair or eliminate such excavation or embankment so as to eliminate the hazard and be in conformance with the requirements of this code.

C. Clearing. All clearing of vegetation shall conform to the specifications of this section:

1. Applications for clearing and grading on slopes in excess of thirty-five percent shall be accepted in those cases where tree removal is limited to pruning (provided survival is assured). Provided, however, clearing or grading on slopes in excess of thirty-five percent may be allowed, only upon prior review and approval by the planning commission, to the extent permitted by subsection (C)(2) of this section. Prior to such review, the following information, in addition to any other information that may be required by the applicable codes and ordinances of the city, shall be provided by independent consultants hired by the city at applicant's expense.

a. A slope report prepared by a qualified independent professional retained by the city. The required slope report shall contain the following information, including recommended methods for mitigating identified impacts and a description of how these mitigating measures may impact adjacent property:

i. Soils Report. Investigation and report shall be prepared by or under the supervision of a civil engineer with a soil/geotechnical expertise, licensed by the state of Washington and acceptable to the city. This report shall include data regarding the nature, distribution and strength of existing soils and the characteristics of the underlying geology, infiltration rates, conclusions and recommendations for grading procedures, design criteria for corrective measures and opinions and recommendations covering the carrying capabilities of the site. The applicant shall indicate location of soils that should remain undisturbed or used for stormwater management purposes during the time of construction;

ii. Hydrology Report. The investigation and report shall be prepared by an independent qualified professional hydrologist acceptable to the city. This report shall include an adequate description of the hydrology of the site, conclusions and recommendations regarding the effect of hydrologic conditions on the proposed development and options and recommendations covering the carrying capabilities of the sites to be developed.

b. In addition to all of the information, reports and other material required in Section 15.16.060 and other applicable provisions of the city's codes, a grading plan report shall be provided which shall include a schedule showing when each stage of the project will be completed, including the total area of soil surface which is to be disturbed during each stage and the estimated starting and completion dates; the schedule shall be drawn up to limit to the shortest possible period the time that soil is exposed and unprotected. In no event should the existing vegetative ground cover be destroyed, removed or disturbed more than fifteen days

prior to development. In addition, a revegetation report shall be provided which shall be prepared by or under the supervision of a landscape architect licensed by the state of Washington who is acceptable to the city and shall include the following:

i. Measures to be taken for slope stabilization and erosion control;

ii. Measures to be taken for protection and replacement of the natural vegetative cover;

iii. A schedule showing when each stage of the project will be revegetated with estimated starting and completion dates and such other information as may be required by the city.

2. Applications for clearing or grading on site or slopes of twenty-five percent to thirty-five percent shall be accepted in those cases where there is a disturbance of no more than forty-five percent of natural vegetation and a retention of fifty-five percent of significant trees.

3. Applications for clearing or grading on sites or slopes of fifteen percent to twenty-four percent shall be accepted if clearing does not exceed sixty percent of natural vegetation with retention of forty percent of significant trees on the site.

4. Applications for clearing or grading on sites or slopes less than fifteen percent shall be accepted if the plan retains twenty-five percent of all significant trees and ground cover. (Ord. 1308 § 3, 2012; Ord. 665 § 1, 1990; Ord. 602 § 5, 1988)

5. Clearing shall not affect critical root zone around retained trees. Site design during time of construction shall include fencing and careful stowing and staging of heavy machinery to avoid parking on critical root zones, and minimize compaction of soils and vegetation.

15.16.060 Permit—Application.

A. Application. To obtain a permit, the applicant shall first file an application in writing on a form furnished for that purpose. Every such application shall:

1. Identify the responsible person for the permit and include the address and phone numbers(s) of the same;

2. Identify and describe the work to be covered by the permit for which application is made;

3. Describe the site on which the proposed work is to be done, by legal description, by lot, block, tract, or house and street address, or similar description that will readily identify and definitely locate the proposed building or work;

4. Indicate the use or occupancy for which the proposed work is intended;

5. Estimate the quantities of work involved;

6. Be accompanied by plans and specifications as required in subsection C of this section unless short-form application is made according to subsection B of this section;

7. State the valuation of the proposed work;

8. Be signed by the permittee, or his authorized agent, who may be required to submit evidence to indicate such authority;

9. Give such other information as reasonably may be required by the permit authority.

B. Plans and Specifications. Each application for a permit shall be accompanied by three set plans and specifications. The permit authority may require, as supporting data, one or more reports covering soils engineering, engineering geology and hydrology, and an environmental checklist. The plans and specifications shall be prepared and sealed by a registered professional engineer when required by the permit authority.

C. Information on Plans and in Specifications. Plans shall be drawn to a scale of not more than one inch equals fifty feet upon reproducible media and shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that they conform to the provisions of this chapter. The plans shall include the following information:

1. The first sheet of each set of plans shall give:

a. The correct legal description of the property,

b. The name(s), address(es) and phone number(s) of the owner(s) of the land and the person(s) ordering the work to be performed,

c. The total clearing to be performed in acres,

d. The total impervious surface to be created in acres,

e. The estimated total amount of excavation to be performed in cubic yards,

f. The estimated total amount of fill to be performed in cubic yards,

g. The name(s), address(es), phone number(s) and seal, if registered, of professional(s) preparing the plans,

h. The name(s), address(es) and phone number(s) of professional(s) preparing the soils engineering, engineering geology, and/of hydrology reports, when such reports are required.

i. A general vicinity map to scale showing the site and all streets within three hundred feet, together with the names, addresses and locations of abutting landowners, as shown by Snohomish County assessor's records.

2. An accurate plan of the entire site as it exists at the time of the application showing the following minimum information:

a. Topography, taken at not more than a five-foot contour interval over the entire site. Ninety percent of the contours shall be plotted within one-half of a contour interval and the remainder within one contour of the true location. Aerial compilation methods are acceptable; however, all areas obscured by vegetation shall be checked and verified by on-site measurements;

b. Five contour intervals that extend a minimum of two hundred feet off-site, when available;

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c. All property lines shown in true location with respect to the plan's topographic information;

d. A copy of a current, generally available aerial photo of the site with property lines;

e. A graphic representation of existing vegetation on the site delineating vegetation boundaries, predominant types (common names) and approximate density of cover according to the following categories:

i. Bare ground: no existing vegetation,

ii. Ground cover: up to one foot in height,

iii. Brush: one foot to four feet in height,

iv. Understory: four feet to ten feet in height,

v. Overstory: greater than ten feet in height,

vi. Impervious: rock, artificial condition.

f. Description of the upper thirty-six inches of soil mantle according to the procedure in the development standards.

g. Location of all existing drainage facilities which transport surface water onto, across, or from the site including: streams and surface waters, artificial channels, drain pipe or culverts;

h. Location and estimated capacity of all natural or artificial basins which impound surface water;

i. Location and estimated capacity of all visible springs in excess of one gallon per minute;

j. Location and elevations of all buildings, structures, utilities or other appurtenances on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners which are within fifteen feet of the property.

3. An accurate plan of the entire site as it will appear after construction showing the following minimum information:

a. Limiting dimensions, elevations or finished contours to be achieved by the grading;

b. Location and capacity of all drainage facilities and related construction;

c. Boundaries of all areas to remain in the existing or natural condition;

d. Location of all vegetation shown on the plan which will remain after completion of the work and at the minimum distance to the nearest excavation and/or filling;

e. Boundaries of all areas that will be paved or otherwise altered in a manner that will increase stormwater runoff;

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f. Boundaries of all areas in which the percolative capacity of the soil will be retained and/or improved;

g. Method of discharging stormwater off-site at the naturally occurring location together with the provisions needed to restrict the velocity and direction of the discharge in order to avoid damage to other properties;

h. Detailed plans of all surface and subsurface drainage devices, walls, cribbing, dams and other protective devices to be constructed with or as a part of the proposed work;

i. Methods of preventing sediment or other pollution from leaving the site during and after construction; i.e. an erosion control plan, and their timing of installation.

D. The permit authority may require additional information when the permit authority finds that the submitted plans, specifications and other data are not sufficiently clear to allow a determination that the proposed work fully conforms to this section, or if there is reasonable cause to believe that the proposed clearing or grading will have a significant effect upon other properties. This information may consist of but is not necessarily limited to any of the following:

1. Calculations of the expected peak runoff of stormwater both reaching and leaving the site for the then existing conditions of the area tributary to the site and ultimate watershed development based upon the current comprehensive land use plan, as now existing or as hereafter amended. If water is to be impounded during construction or as part of the final plan of the site development, inflow-outflow hydrographs shall be plotted for the return period storms showing the impounded volume and maximum discharge.

2. A scaled drawing showing cross-sections of the channel and/or pipe at both upstream and downstream property lines with the elevations of the water surface shown for the specified return period storms thereon for the then existing conditions.

3. A soil engineering report which shall include data regarding the nature, distribution, and strength of existing soils, conclusions and recommendations for clearing and grading procedures, and design criteria for corrective measures when necessary; together with opinions and recommendations covering adequacy of sites to be developed and the extent of significant effects of the site development upon surrounding properties by the proposed clearing and grading. Recommendations included in the report shall be incorporated in the clearing and grading plan, specifications, or support material.

4. An engineering geology report which shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and opinions and recommendations covering the adequacy of sites to be developed and the extent of significant effects of the site development upon surrounding properties by the proposed clearing and grading. Recommendations included in the report shall be incorporated in the plans, specifications or support material.

5. A hydrology report which shall include an adequate hydrology study of the drainage basin in which the development site is located, conclusions setting forth existing and future changes in the hydrology and the extent of significant effects on the surrounding and downstream properties as a result of the proposed clearing, grading and development and design criteria for corrective measures whenever necessary, together with opinions and

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proposed project conditions. Recommendations included in the report shall be incorporated in the plans, specifications, or support material.

6. Additional reports may be required, if, in the judgment of the permit authority, such information is deemed advisable, including but not limited to biological, wildlife, chemical, water quality, bacterial or other factors related to environmental impact. (Ord. 602 § 6, 1988)

15.16.070 Permit—Fees.
Before accepting a set of plans and specifications for checking, the permit authority or his/her designee shall collect a permit fee. Such fee shall be determined according to a standard fee schedule approved by the city council by resolution adopted and reviewed from time to time. (Ord. 602 § 7 (part), 1988)

15.16.080 Permit—Expiration.
The expiration of clearing and grading permits and applications shall follow the same specifications as for building permits and applications therefore as now or hereinafter amended except that the permit authority shall be the official; provided, however, that the permit authority may set specific limits to the permit for project initiation and/or completion if for environmental reasons or for coordination with other permitted site work he/she finds it is advisable to do so. (Ord. 602 § 7 (part), 1988)

15.16.090 Security requirement.
A. The permit authority may require the applicant to establish a security in the form of cash escrow account or an irrevocable letter of credit or other form of credit which may be acceptable to the city at its sole discretion, with his bank in an amount deemed by the permit authority to be sufficient to reimburse the city if it should become necessary for the city to enter the property for the purpose of correcting and/or eliminating hazardous conditions relating to soil stability and/or erosion, or to restore vegetation, and/or for other purposes authorized in this chapter.

B. In no case shall the security be less than the permit authority's estimate of the cost of correcting or eliminating hazardous conditions that reasonably may occur, and/or of insuring compliance with the stipulations of the permit and the approved plans and specifications. In addition, security may be required to protect the city from potential damage claims and/or other damage to city streets, utilities or property in the same manner and extent as may be required prior to issuance of a building permit pursuant to other sections of this code.

C. Should the city, during the course of construction, find it necessary to expend the security to correct any work not in accordance with the approved plans and specifications, a stopwork order shall be issued to the permittee on any additional work until the security is reestablished by the permittee. (Ord. 602 § 8, 1988)

15.16.100 Contractor requirements.
Every contractor or other person performing or directing the performance of any work requiring a permit under this chapter shall have in his/her possession prior to commencement of and during all phases of the work an original or copy of a valid permit therefor, and shall further have a duty to be familiar with the terms and conditions of the permit and approved plans and specifications. (Ord. 602 § 9, 1988)

15.16.110 Project inspection.
A. General. All projects which include clearing and grading shall be subject to inspection by the permit authority or his designee. The permit authority or his designee shall be granted

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unlimited right of entry to the work site by the application for the purposes of making inspections to determine that the requirements of the plans and permits are being complied with, and for the purposes of taking corrective measures of an emergency nature. The cost of such corrective measures shall be borne by the applicant. The permit authority may require inspection and testing by an approved testing agency at any stage of the application or project.

B. It shall be the permittee's responsibility to notify the permit authority or his designee at least twenty-four hours prior to the time required for inspection. If the permit authority fails to inspect the project within eight working hours after the scheduled inspection time, the permittee may proceed with the project but shall not be relieved from compliance with the requirements of the plans, specifications, and permit as approved. All inspections and testing required shall be determined prior to issuance of the permit, except those that may be required when conditions exist that were not covered in the documents submitted when requesting a permit. The permit authority may require additional inspection or testing if conditions are found to be different than those presented in the plans or supporting documents; however, if and when conditions change, it shall be the responsibility of the applicant or the professional consultants who submitted the plans or documents to provide the permit authority with recommended changes to procedures, for its review and approval.

C. Suspension of Permits. Whenever the permit authority determines that the act or intended act of clearing, grading, excavation or fill has become or will constitute a hazard to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way, drainage channel, stream or surface water, including siltation and sedimentation therein, the permit authority shall immediately suspend the clearing and grading permit. The permittee or other person or agent in control of the property, upon receipt of notice in writing from the permit authority shall, within the period specified therein, terminate such clearing, grading, excavation, embankment or fill, or eliminate the same from the development plans. (Ord. 602 § 10, 1988)

15.16.120 Cuts.

A. General.

1. Unless otherwise recommended in the approved soils engineering and/or engineering geology report, cuts shall conform to the provisions of this section.

2. In the absence of an approved soils engineering report, these provisions may be waived for minor cuts not intended to support structures.

B. Slope. The slope of cut surfaces shall be no steeper than is safe for the intended use and shall be no steeper than two horizontal to one vertical unless the owner furnishes a soils engineering or an engineering geology report, or both, stating that the site has been investigated and giving an opinion that a cut at a steeper slope will be stable and not create a hazard to public or private property. The report shall be reviewed and approved by the city engineer prior to earth work.

C. Drainage and Terracing. Drainage and terracing shall be provided as required. (Ord. 602 § 11, 1988)

15.16.130 Fills.

A. General.

1. Unless otherwise recommended in the approved soils engineering report, fills shall conform to the provisions of this section.

2. In the absence of an approved soils engineering report, these provisions may be waived for minor fills not intended to support structures.

B. Fill Location. Fill slopes shall not be constructed on natural slopes steeper than two to one.

C. Preparation of Ground. The ground surface shall be prepared to receive fill by removing vegetation, noncomplying fill, topsoil and other unsuitable materials, scarifying to provide a bond with the new fill and, where slopes are steeper than five to one and the height is greater than five feet, by benching into sound bedrock or other competent material as determined by the soils engineer. The bench under the toe of a fill on a slope steeper than five to one shall be at least ten feet wide. The area beyond the toe of fill shall be sloped for sheet overflow or a paved drain shall be provided. When fill is to be placed over a cut, the bench under the toe of fill shall be at least ten feet wide but the cut shall be made before placing the fill and acceptance by the soils engineer or engineering geologist or both as a suitable foundation for fill.

D. Fill Material.

1. Organic material shall not be permitted in fills. Except as permitted by the building official, no rock or similar irreducible material with a maximum dimension greater than twelve inches shall be buried or placed in fills.

2. Exceptions. The permit authority may permit placement of larger rock when the soils engineer properly devises a method of placement, continuously inspects its placement and approves the fill stability. The following conditions shall also apply:

a. Prior to issuance of the grading permit, potential rock disposal areas shall be delineated on the grading plan.

b. Rock sizes greater than twelve inches in maximum dimension shall be ten feet or more below grade, measured vertically.

c. Rocks shall be placed so as to assure filling of all voids.

E. Compaction. All fills shall be compacted to a minimum of ninety percent of maximum density as determined by the IBC. In-place density shall be determined in accordance with the IBC.

F. Slope. The slope of fill surfaces shall be no steeper than is safe for the intended use. Fill slopes shall be no steeper than two horizontal to one vertical.

G. Drainage and Terracing. Drainage and terracing shall be provided and the area above fill slopes and the surfaces to terraces shall be graded and paved as required. (Ord. 602 § 12, 1988)

15.16.140 Setbacks.

A. General. Cut and fill slopes shall be set back from site boundaries in accordance with this section. Setback dimensions shall be horizontal distances measured perpendicular to the

site boundary. Setback dimensions shall be shown in accordance with Appendix J of the 2006 International Building Code.

B. Top of Cut Slope. The top of cut slopes shall be made not nearer to a site boundary line than one fifth of the vertical height of cut with a minimum of two feet and a maximum of ten feet. The setback may need to be increased for any required interceptor drains.

C. Toe of Fill Slope. The toe of fill slope shall be made not nearer to the site boundary line than one-half the height of the slope with a minimum of two feet and a maximum of twenty feet. Where a fill slope is to be located near the site boundary and the adjacent off-site property is developed, special precautions shall be incorporated in the work as the permit authority deems necessary to protect the adjoining property from damage as a result of such grading. These precautions may include but are not limited to:

1. Additional setbacks;

2. Provision for retaining or slough walls;

3. Mechanical or chemical treatment of the fill slope surface to minimize erosion;

4. Provisions for the control of surface waters.

D. Modification of Slope Location. The permit authority may approve alternate setbacks. The permit authority may require an investigation and recommendation by a qualified engineer or engineering geologist to demonstrate that the intent of this section has been satisfied. (Ord. 1173 § 6 (part), 2007; Ord. 602 § 13, 1988)

15.16.150 Drainage and terracing.

A. General. Unless otherwise indicated on the approved clearing and grading plan, drainage facilities and terracing shall conform to the provisions of this section for cut or fill slopes steeper than three horizontal to one vertical.

B. Terrace.

1. Terraces at least six feet in width shall be established at not more than thirty-foot vertical intervals on all cut or fill slopes to control surface drainage and debris except that where only one terrace is required, it shall be at midheight. For cut or fill slopes greater than sixty feet and up to one hundred twenty feet in vertical height, one terrace at approximately midheight shall be twelve feet in width. Terrace widths and spacing for cut and fill slopes greater than one hundred twenty feet in height shall be designed by the civil engineer and approved by the permit authority. Suitable access shall be provided to permit property cleaning and maintenance.

2. Swales or ditches on terraces shall have a minimum gradient of five percent and must be paved with reinforced concrete not less than three inches in thickness or an approved equal paving. They shall have a minimum depth at the deepest point of one foot and a minimum paved width of five feet.

3. A single runoff swale or ditch shall not collect runoff from a tributary area exceeding thirteen thousand five hundred square feet (projected) without discharging into a down drain.

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C. Subsurface Drainage. Cut and fill slopes shall be provided with subsurface drainage as necessary for stability.

D. Disposal.

1. All drainage facilities shall be designed to carry water to the nearest practicable drainage way approved by the permit authority. Erosion of ground in the area of discharge shall be prevented by installation of nonerosive down drains or other devices.

2. Building pads shall have a drainage gradient of two percent toward approved drainage facilities, unless waived by permit authority.

3. Exception. The gradient from the building pad may be one percent if all of the following conditions exist throughout the permit area:

a. No proposed fills are greater than ten feet in maximum depth.

b. No proposed finish cut or fill slope faces have a vertical height in excess of ten feet.

c. No existing slope faces, which have a slope face steeper than ten horizontally to one vertically, have a vertical height in excess of ten feet.

E. Interceptor Drains. Paved interceptor drains shall be installed along the top of all cut slopes where the tributary drainage area above slopes towards the cut and has a drainage path greater than forty feet measured horizontally. Interceptor drains shall be paved with a minimum of three inches of concrete or gunite and reinforced. They shall have a minimum depth of twelve inches and a minimum paved width of thirty inches measured horizontally across the drain. The slope of drain shall be approved by the building official. (Ord. 602 § 14, 1988)

15.16.160 Erosion control.

A. Slopes. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

B. Other Devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

C. Sequencing. A sequencing schedule shall be provided for any construction project to address timing of land-disturbing activities during periods when soils are most exposed to erosion from wind, rain, runoff, and vehicle tracking. If a summer project is extended into winter months (October 1st to April 30th), a Winter Weather Erosion Control Plan shall be provided.

~~C~~D. Winter Weather Erosion Control Plan. Clearing and grading in the wet winter months (October 1st to April 30th) shall only be allowed with the approval of a winter weather construction plan implementing the 2001 (or most current version) Department of Ecology Best Management Practices Manual. The winter weather construction plan shall be completely and fully implemented by the developer. Requirements of the winter weather construction plan shall include but are not limited to the following best management practices:

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1. The area of exposed soils shall be kept to a maximum of five acres at a time to minimize erosion.

2. No more than three hundred feet of trench shall be opened at one time.

3. Excavation material shall be placed to prevent material or eroded material from leaving the project site.

4. Limits of clearing shall be clearly delineated in the field.

5. Temporary seeding shall be provided immediately after grading activities to stabilize disturbed areas, along with straw bale, mulch, matting, or other approved sediment control devices.

6. Stock piles shall be protected.

7. Stormwater runoff shall pass through suitable sediment traps which may include filter fabric fences, check dams, clean gravel sack barriers, pre-settling basin, and/or infiltration ponds prior to leaving the site or entering receiving bodies of water.

8. No soils shall remain unprotected from more than two days.

9. Water shall be used to encourage vegetation growth in those areas seeded for temporary and permanent plant establishment.

10. If sediment is transported onto a road surface, the road shall be cleaned at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and be transported to a controlled disposal area. The road shall not be washed with water so that sediment enters the storm drain system unless provisions are made to treat the turbid stormwater.

11. Catch basins shall be lined with filters to catch any sediment entering the storm drains. (Ord. 1124 § 1, 2005; Ord. 602 § 15, 1988)

~~15.16.165 Low impact development techniques.~~

~~A. The city encourages the use of low impact development practices in lieu of the standard storm drainage detention methodologies to: maintain the natural hydrology of watersheds; maintain stream and wetland water levels; reduce impacts to wetlands, streams, and geologically sensitive areas by reducing stormwater discharges; protect water quality by reducing sediment and other pollutants; and preserving trees and other native vegetation.~~

~~B. Low impact development designs shall provide for adequate conveyance of stormwater and provide protection of the city's critical areas by replicating or mimicking the site's natural hydrologic functions and characteristics. Developments shall include design elements to maintain the volume and rate of stormwater runoff from the site and to maintain the natural flow patterns of streams and wetlands. Small scale design controls shall be placed strategically throughout the site and be incorporated into the landscape, open space, roads, parking, sidewalks, and buildings to store, evaporate and infiltrate rainwater.~~

~~C. Based on the underlying soil characteristics analyzed in a geotechnical report prepared by a licensed professional, the public works director may allow the following low impact~~

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~~development design features to be used in conjunction with standard stormwater detention methodologies:~~

~~1. Stormwater runoff from impervious areas such as roofs, internal access lanes, private roads, or parking areas shall be directed onto landscaped and vegetated areas to reduce the volume of runoff, to encourage groundwater recharge, and reduce the temperature of the stormwater runoff. The use of curb cuts is encouraged to allow water to pass through to landscaped or naturals areas.~~

~~2. Specialized landscaped areas may be used to filter and store runoff to promote groundwater recharge through infiltration. These areas shall be constructed with specialized soil and plant mixes that meet the Type III and IV landscape requirements contained in Chapter 17.58, Landscaping, and have low maintenance requirements. Sand and organic materials such as mulch shall be added to the soil to increase the infiltration characteristics of soil and filter pollutants.~~

~~3. Pavement blocks, porous concrete, or porous asphalt may be used that lets water flow to an underground gravel area where it can be slowly released to the stormwater drainage system.~~

~~4. Container bio-retention areas are encouraged that use soil and crushed stone to store and slow down runoff and filter out pollutants.~~

~~5. Vegetated open swales may be used at the edges of parking lots that receive runoff and that promote infiltration and treat pollutants.~~

~~6. The use of vegetated roundabouts are encouraged in residential developments to reduce impervious area of the streetscape. A homeowners association or other form of agreement must be in place for maintaining the landscaping in the roundabout.~~

~~7. Where additions up to two thousand square feet are proposed to existing residential developments rain barrels or rainwater dispersion separators may be used in lieu of formal detention facilities.~~

~~D. Stormwater detention requirements will be based on the total impervious area created. The stormwater detention volumes required for those portions of the project applying pavement blocks, porous concrete, or porous asphalt may be reduced by the equivalent reduction in impervious area. (Ord. 1124 § 2, 2005)~~

15.16.170 Clearing and grading inspection.

A. General. All grading operations for which a permit is required shall be subject to inspection by the permit authority. When required by the permit authority, special inspection of grading operations and special testing shall be performed in accordance with the provisions of Appendix J of the 2006 International Building Code.

B. Grading Designation. All grading in excess of five thousand cubic yards shall be performed in accordance with the approved grading plan prepared by the civil engineer, and shall be designated as "engineered grading." Grading involving less than five thousand cubic yards shall be designated "regular grading" unless the permittee, with the approval of the permit authority, chooses to have the grading performed as "engineered grading."

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C. Engineered Grading Requirements.

1. For engineered grading, it shall be the responsibility of the civil engineer who prepares the approved grading plan to incorporate all recommendations from the soils engineer and engineering geology reports into the grading plan. He also shall be responsible for the professional inspection and approval of the grading within his area of technical specialty. This responsibility shall include, but need not be limited to, inspection and approval as to the establishment of line, grade and drainage of the development area. The civil engineer shall act as the coordinating agent in the event the need arises for liaison between the other professionals, the contractor and the building official. The civil engineer also shall be responsible for the preparation of revised plans and the submission of as-graded grading plans upon completion of the work. The grading contractor shall submit in a form prescribed by the building official a statement of compliance to the as-built plan.

2. Soils engineering and engineering geology reports shall be required as specified. During grading all necessary reports, compaction date and soil engineering and engineering geology recommendations shall be submitted to the civil engineer and the permit authority by the soils engineer and the engineering geologist.

3. The soils engineer's area of responsibility shall include, but not be limited to, the professional inspection and approval concerning the preparation of ground to receive fills, testing for required compaction, stability of all finish slopes and the design of buttress fills, where required, incorporating data supplied by the engineering geologist.

4. The engineering geologist's area of responsibility shall include, but need not be limited to, professional inspection and approval of the adequacy of natural ground for receiving fills and the stability of cut slopes with respect to geological matters and the need for subdrains or their groundwater drainage devices. He shall report his findings to the soils engineer and the civil engineer for engineering analysis.

5. The permit authority shall inspect the project at the various stages of the work requiring approval to determine that adequate control is being exercised by the professional consultants.

D. Regular Grading Requirements.

1. The permit authority may require inspection and testing by an approved testing agency.

2. The testing agency's responsibility shall include, but need not be limited to, approval concerning the inspection of cleared areas and benches to receive fill, and the compaction of fills.

3. When the permit authority has cause to believe that geologic factors may be involved, the grading operation will be required to conform to "engineered grading" requirements.

E. Notification of Noncompliance. If, in the course of fulfilling his responsibility under this chapter, the civil engineer, the soils engineer, the engineering geologist or the testing agency finds that the work is not being done in conformance with this chapter or the approved grading plans, the discrepancies shall be reported immediately in writing to the person in charge of the grading work and to the building official. Recommendations for corrective measures, if necessary, shall be submitted.

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F. Transfer of Responsibility for Approval. If the civil engineer, the soils engineer, the engineering geologist or the testing agency of record is changed during the course of the work, the work shall be stopped until the replacement has agreed to accept the responsibility within the area of his technical competence for approval upon completion of the work. (Ord. 1173 § 6 (part), 2007; Ord. 602 § 16, 1988)

15.16.180 Work completion.

A. Final Reports. Upon completion of the rough grading work and at the final completion of the work the permit authority may require the following reports and drawings and supplements thereof:

1. An as-graded grading plan prepared by the civil engineer including original ground surface elevations, as-graded ground surface elevations, lot drainage patterns and locations and elevations of all surface and subsurface drainage facilities. He shall state that to the best of his knowledge the work was done in accordance with the final approved grading plan.

2. A soils-grading report prepared by the soils engineer, including locations and elevations of field density tests, summaries of field and laboratory tests and other substantiating data and comments on any changes made during grading and their effect on the recommendations made in the soil engineering investigation report. He shall render a finding as to the adequacy of the site for the intended use.

3. A geologic grading report prepared by the engineering geologist, including a final description of the geology of the site and any information disclosed during the grading and the effect of same on recommendations incorporated in the approved grading plan. He shall render a finding as to the adequacy of the site for the intended use as affected by geologic factors.

B. Notification of Completion. The permittee or his agent shall notify the permit authority when the clearing and grading operation is ready for final inspection. Final approval shall not be given until all work and all erosion-control measures have been completed in accordance with the final approved grading plan and the required reports have been submitted. (Ord. 602 § 17, 1988)

15.16.190 Enforcement.

A. In the event deficiencies are found, the property owner shall make such corrections as are necessary within fifteen days of the date of written notice by registered mail, return receipt requested, to the owner of record and the occupant of the property.

B. In the event the person or persons violating this chapter shall fail to make corrections within fifteen days of the date of written notice by the city, the city may:

1. Prosecute violations of this chapter as a civil infraction as outlined in Mukilteo Municipal Code Chapter 1.32, General Penalties. The first violation shall constitute a Class III civil infraction, the second offense shall constitute a Class II civil infraction, and the third and each violation thereafter within a one-year period shall be classified as a Class I civil infraction.

2. By council resolution, determine any conditions which constitute or will constitute a violation of any of the provisions of this chapter, or rules or regulations adopted under this chapter, a public nuisance for which the city may seek legal or equitable relief to enjoin any acts or practices or abate any such conditions.

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3. Revoke the right to occupancy of the subject property and/or enter on the property as may be required to correct deficiencies as required by the approved grading plan. All costs for corrective measures and enforcement actions shall be borne by the property owner.

C. Notwithstanding any other provision of this chapter, whenever the city engineer finds that a violation of this chapter of rules or regulations adopted under this chapter has created or is creating an unsanitary, dangerous, or other condition which, in his judgment, constitutes an immediate hazard, he may suspend or revoke any permit for which the approval of clearing and grading plan is required on the project or development where the violation exists and suspend or terminate operations under the permit immediately.

D. Any person discharging material which will block, damage or contaminate the drainage system of the city shall be liable for all costs incurred by the city or others in cleaning up or correcting the action and may be charged with a misdemeanor punishable by fines.

E. Penalty or enforcement provisions provided in this chapter shall not be exclusive, and the city may pursue any remedy or relief deemed appropriate in response to a violation of this chapter or the rules and regulations adopted under this chapter. The city council may institute a suit for a mandatory injunction directing a person to remove a structure or make the same comply with its terms. If the city council is successful in its suit, the respondent shall bear the costs of the action.

F. The failure or refusal of the city to enforce any provision of this chapter, and as amended, shall not constitute a waiver or bar to prevent enforcement thereof against any person for any other violation by any other person. (Ord. 1083 § 19, 2003: Ord. 602 § 18, 1988)

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