

BEFORE THE BOARD OF COUNTY COMMISSIONERS

FOR WASHINGTON COUNTY, OREGON

B-ENGROSSED ORDINANCE NO. 689

An Ordinance Adopting Chapter 14.12
of the Washington County Code
Relating to Grading

The Board of County Commissioners for Washington County, Oregon, ordains:

SECTION 1.

A. The Board of County Commissioners ("Board") recognizes the need to regulate all civil engineering related work including site grading inside the unincorporated areas of Washington County in order to safeguard health, safety, private property protection, and public welfare and to make other housekeeping changes to assure consistency.

B. The purposes of this Ordinance are to establish rules and regulations to control all grading, exempt certain grading activities, establish the administration procedure for issuance of permits, address violations, provide for due process and for approval of grading plans and inspections, and thereafter adopt a new Chapter 14.12 of the Washington County Code.

C. The existing sections 14.04.260(D) and 14.04.340 of the Washington County Code, as related to (1) Excavation and Grading/Erosion Control and (2) State Building Code Standards – Amendments to UBC Chapter 33, Excavating and Grading – Administration and Fees, respectively, is are hereby repealed and replaced with the new Chapter 14.12 of the Washington County Code.

D. Nothing herein is intended, nor shall it be construed, as amending, replacing or otherwise being in conflict with any other ordinances of Washington County, the State

1 Building Code including the Oregon Structural Specialty Code unless expressly so stated.

2 SECTION 2.

3 The Board finds and takes public notice that it is in receipt of all matters and
4 information necessary to consider this Ordinance in an adequate manner, and that this
5 Ordinance complies with the requirements set forth in the Washington County
6 Charter and the Washington County Code.

7 SECTION 3.

8 The following exhibit, which is marked as Exhibit 1 (~~23-24~~ pages), is hereby adopted
9 and incorporated herein as a new Chapter 14.12 of the Washington County Code.

10 SECTION 4.

11 If any section, clause, phrase, or word of this Ordinance, including the exhibit, shall
12 for any reason be held invalid, unconstitutional, or unenforceable by a body of competent
13 jurisdiction, the remainder of this Ordinance or its application and all portions not so
14 stricken shall not be affected thereby and shall remain in full force and effect.

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1 SECTION 5.

2 The Office of County Counsel is authorized to codify this Ordinance and to make any
3 technical changes, not affecting its substance, as are reasonably necessary to accomplish
4 codification.

5 SECTION 6.

6 This Ordinance shall take effect thirty (30) days after adoption.

7 ENACTED this 20 day of May, 2008, being the 6th reading
8 and 4th public hearing before the Board of County Commissioners of Washington
9 County, Oregon.

10 BOARD OF COUNTY COMMISSIONERS
11 FOR WASHINGTON COUNTY, OREGON

12 **ADOPTED**

13 Tom Brun
CHAIRMAN

14 Barbara Hejtmanek
15 RECORDING SECRETARY

16 READING

PUBLIC HEARING

17 First March 18, 2008
18 Second March 25, 2008
19 Third April 1, 2008
Fourth April 15, 2008 (A-Eng.)
Fifth May 6, 2008
Sixth May 20, 2008 (B-Eng.)
20 Seventh _____

April 1, 2008
April 15, 2008
May 6, 2008
May 20, 2008

21 VOTE: Aye: Brian, Schouten,
Strader, Duyck

Nay: _____

22 Recording Secretary: Barbara Hejtmanek Date: May 20, 2008

Chapter 14.12

GRADING

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GENERAL PROVISIONS

14.12.010 Scope.

The purpose of this Chapter is to regulate all civil engineering related work including site grading inside the un-incorporated areas of Washington County in order to safeguard health, safety, private property protection, public welfare, and to minimize erosion caused by said activities within.

14.12.020 Purpose.

This Chapter sets forth rules and regulations to control all grading, including but not limited to excavations, earthwork, private road construction, and fills and embankments; establishes the administration procedure for issuance of permits; and provides for approval of grading plans and inspections.

14.12.030 Definitions.

For the purpose of this Chapter, the following terms shall have the meanings indicated in this section:

1. "Agricultural" means farm uses and accepted farm practices per ORS 30.930 and ORS 455.315.
2. "Approval" means the proposed work or completed work conforms to this Chapter in the opinion of the Building Official as manifested by his signature or that of his/her authorized representative.
3. "As-graded" means the extent of surface conditions on completion of grading.
4. "Bedrock" means the in-place, solid, undisturbed rock either at the ground surface or beneath superficial deposits of gravel, sand or soil.
5. "Bench" means a relatively level step excavated into earth material on which fill is to be placed.
6. "Building Official" means the officer or other designated authority charged with the administration and enforcement of this code, or the building official's duly authorized representative. In any case where authority is granted to the building official, that authority is likewise granted to the building official's duly authorized representative.
7. "Certification" means that the specific inspections or tests required by the Building

Official have been performed, and that the results of such tests are satisfactory and that all work complies with the conditions of the permit and the requirements of this Chapter.

8. "Civil engineer" means a person who is registered in this state and holds a valid certificate to practice civil engineering in this state as provided under ORS 672.002.
9. "Civil engineering" means the application of the knowledge of the forces of nature, principles of mechanics and the properties of materials to the valuation, design and construction of civil works for the beneficial uses of mankind.
10. "Compaction" means the densification of a fill by mechanical means.
11. "Contour line" means a line drawn on grading plan which connects all points of equal elevation above or below a known or assumed reference point, usually mean sea level (MSL).
12. "Contractor" means any person licensed by the Construction Contractors Board in the State of Oregon authorized to do grading.
13. "Disposal Site" as defined under ORS Chapter 459.
14. "Drainage course" means a well defined natural or manmade channel which conveys storm water runoff either year-round or intermittently.
15. "Driveway" means a vehicular access that serves no more than two (2) buildings and any number of accessory buildings.
16. "Earth material" means any rock, natural soil or fill and/or any combination thereof.
17. "Engineered grading" means grading for subdivisions, partitions, sites with known or reported geologic hazard, sites with slope greater than 50%, commercial buildings or any grading involving 2,000 cubic yards (c.y.) and over or a drainage structure (i.e., dam, weir, etc.) over five (5) square feet (sq. ft.).
18. "Engineering geologist" means a person who applies geologic data, principles and interpretation to naturally occurring materials so that geologic factors affecting planning, design, construction and maintenance of civil engineering works are properly recognized and utilized. (ORS 672.505).

19. "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.
20. "Erosion" means the wearing away of the ground surface as a result of the movement of the wind, water, or ice.
21. "Excavation" means the mechanical removal of earth material.
22. "Existing grade" means the grade prior to grading.
23. "Fill" means the deposit of any material by artificial means for any purpose.
24. "Finish grade" means the final grade of the site which conforms to the approved plans.
25. "Geologist" means a person engaged in the practice of geology. "Geology" refers to: (a) That science that treats of the earth in general; (b) Investigation of the earth's crust and the rocks and other materials that compose it; and (c) The applied science of utilizing knowledge of the earth and its constituent rocks, minerals, liquids, gases and other materials for the benefit of humanity. (ORS 672.505)
26. "Geotechnical engineer" means a person who is registered in this state to practice geotechnical engineering as provided under ORS 672.002.
27. "Geotechnical engineering" means the investigation and the evaluation of the physical and engineering properties of earth materials, such as soil and rock, including impacts of ground water and earthquakes, and their application to the design and construction of civil engineering works, such as foundations, earth dams, retaining walls, and similar, using soil and rock mechanics and earthquake engineering principles and related engineering laws, formula, and procedures. Further, the practice involves the application of soil and rock mechanics and related engineering laws and procedures to an evaluation of the performance of constructed civil engineering works as influenced by earth materials, groundwater, and earthquakes and to an evaluation of the performance, including stability, of natural and man-made slopes, including man-made fills and embankments, and for the design of mitigation measures to reduce risk and/or hazards as disclosed by the evaluation.
28. "Grading" means any excavating or filling or combination thereof.
29. "Hammerhead/T" means a roadway that provides a "T" shaped three-point turnaround space for emergency equipment, being no narrower than the road that serves it (see Figure 14).
30. "Key" means a designed, compacted fill placed in a trench excavated in earth material beneath the toe of a proposed fill slope for the purpose of developing a shearing resistance (see Figure 3).
31. "Owner" means the legal owner(s) of record as shown on the tax roles of the County, or where there is a recorded land sales contract in force, the purchaser there under.
32. "Permittee" means an individual, heirs, executors, administrators or assigns, and also includes a firm, partnership or corporation and its or their executors or assigns, or the agent of any aforesaid that signs the application form for a grading permit and including the owner if the owner is a separate person or entity.
33. "Private streets" means any way that provides ingress to, or egress from, property by means of vehicles or other means, or that provides travel between places by means of vehicles, and over which the public has no right of use as a matter of public record.
34. "Professional inspection" is the inspection required by this code to be performed by the civil engineer, geotechnical engineer or engineering geologist. Such inspections include that performed by persons supervised by such engineers or geologists and shall be sufficient to form an opinion relating to the conduct of the work.
35. "Regular grading" means grading involving less than 2,000 cubic yards (c.y.) of material on a given site having no known or reported geologic hazard.
36. "Road gradient (percent)" means vertical rise multiplied by one hundred and then divided by horizontal run (see Figure 1).
37. "Roadway" means any surface designed, improved, or ordinarily used for vehicle travel.
38. "Site" means any lot or parcel of land or contiguous combination thereof, under the same ownership, where grading is performed or permitted.

39. "Slope" means an inclined ground surface the inclination of which is expressed as a ratio of horizontal distance to vertical distance (see Figure 1).
40. "Soil" means naturally occurring, superficial deposits of earth material overlying bedrock.
41. "Terrace" means a relatively level step constructed in the face of a graded slope surface for drainage and maintenance purposes.
42. Turnaround "Dead End Road" means a roadway, unobstructed by parking, which allows for a safe opposite change of direction for emergency equipment. Design of such area may be a hammerhead/T or terminus bulb (see Figure 14).
43. "Turnouts" mean a widening in a roadway to allow a vehicle to pass another vehicle (see Figure 13).

ADMINISTRATION

14.12.040 Permit – Required – Exemptions.

No person shall do, cause, permit, aid, abet, suffer, or furnish equipment or labor for any grading without first obtaining a grading permit from the Building Official. The Building Official may require forms to be completed to help facilitate the determination of whether an activity qualifies for an exemption from a grading permit.

The following activities are exempt from a grading permit:

- A. Agricultural grading. Grading related to farm practices as defined in ORS 30.930 and consistent with ORS 455.315. Documentation in a form of site specific drainage analysis report that substantiates that the proposed grading alteration due to excavation, fill material placement, or both shall not cause or change the site and its vicinity drainage characteristics to have negative potential impact on surrounding adjacent properties. See section 14.12.310(A)(1) for documentation required for compliance.
- B. Excavations. An excavation which is less than three (3) feet in depth, or which does not create a cut slope greater than four (4) feet in height and steeper than two horizontal to one vertical (2H:1V), which does not exceed one hundred - fifty (150) cubic yards on any one site and which does not obstruct or change site drainage course.
- C. Fills. A fill containing earth material only, which is less than one foot in depth, and placed on natural terrain with a slope flatter than five horizontal to one vertical (5H:1V) or less than two (2) feet in depth, not intended to support structures, which does not exceed one hundred fifty (150) cubic yards on any one site and does not obstruct or change site drainage course.
- D. Basements and Footings. An excavation below finished grade for basements and footings of a building, retaining wall or other structure authorized by a valid building permit. This shall not exempt any fill made with the material from such excavation nor exempt any excavation having an unsupported height greater than four (4) feet after the completion of such structure from permit.
- E. Cemeteries. Cemetery graves.
- F. Disposal Site. Grading on a Disposal Site for activities permitted by the Department of Environmental Quality consistent with ORS Chapter 459. Grading on a Disposal Site for activities that are not regulated by an approved DEQ permit are not exempt.
- G. Onsite Wastewater Treatment System. Excavations for individual and community onsite wastewater treatment systems as defined by Chapter 340, Division 71 of the Oregon Administrative Rules and pursuant to a permit approved by the Washington County Department of Health and Human Services or the Department of Environmental Quality.
- H. Well - Utilities. Excavations for wells, tunnels, or utilities.
- I. Mining - Quarrying. Mining, quarrying, excavating, processing, stockpiling of rock, sand, gravel, aggregate or clay materials where conducted pursuant to an Operating Permit issued by the Oregon Department of Geology and Mineral Resources (DOGAMI).
- J. Soil Testing. Exploratory excavations under the direction of an Oregon licensed civil engineer, geotechnical engineer or engineering geologist where such excavation is to be returned to the original condition under the direction of such engineer or geologist. A submittal of a copy of all soil tests and the final report by engineer may be required by the Building Official.

K. Public Works Projects. Within the Public Right-of-Way (ROW). All other public projects outside ROW shall require the issuance of a grading permit.

L. Proposed Driveways or Private Roads whose cumulative length is not greater than 150 feet measured from the furthest diagonal corner of the proposed building to the nearest public right-of-way limits; and where it has been shown that the work will not significantly alter or change the immediate surrounding natural drainage characteristics.

M. Forestry Practices. Propagation or cutting of trees and access roads developed to support forest-related activities as provided under Section 201-2 of the Community Development Code.

14.12.050 Permit – Safety precautions.

During the entire time from the date of issuance of the permit to the date of final approval for all grading operations, the permittee shall take all appropriate and necessary precautions to protect adjacent public and private properties from any damage that may result from the grading operation.

14.12.060 Permit – Denial.

A. A grading permit will not be accepted unless the applicant submits a valid land use approval where one is required.

B. No grading permit shall be issued in any case where the Building Official determines that the grading proposed by the applicant will be hazardous by reason of flood, geological hazard, seismic hazard or unstable soils, or is liable to endanger any other adjacent property or result in the deposition of debris on any public way or property or drainage course or otherwise create a nuisance.

C. A grading permit will not be issued for development of any habitable building site in any area where it has been shown that adequate storm water facilities cannot be provided except for barns and storage buildings.

14.12.070 Permit – Required for private road construction.

Unless otherwise exempted by this Chapter, no person shall do any grading, or make any cuts or fills for private road construction, or furnish equipment or labor for doing any grading, or making any cuts or fills for private road construction without first

obtaining a grading permit from the Building Official.

14.12.080 Permit – Limitations of work authorized.

The issuance of a grading permit shall constitute an authorization to do only that work which is described or illustrated on the application for the permit or on the site plans and specifications approved by the Building Official.

14.12.090 Permit – Not to be construed as approval of violations – Correction of errors.

A. The issuance or granting of a permit or approval of plans and specifications shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this Chapter. No permit presuming to give authority to violate or cancel the provisions of this Chapter shall be valid, except insofar as the work or use which it authorizes is lawful.

B. The issuance of a permit based on plans and specifications shall not prevent the Building Official from thereafter requiring the correction of errors in said plans and specifications or from preventing building operations from being carried on thereof when in violation of this Chapter or of any other law.

14.12.100 Permit – Forms required to be submitted.

To determine compliance with the requirements of this Chapter, the Building Official may require applicant to complete and submit forms to facilitate the plan review process.

14.12.110 Permit – Reports required to be submitted.

A. Application for a grading permit for a subdivision, partition, commercial project, residential driveway over 150-ft in length (to the farthest corner of the house/structure), or as otherwise deemed necessary by the Building Official shall be accompanied by supporting data in a form of geotechnical engineering report. Additional engineering geologist report may be required where geologic hazard conditions exist including but not limited to steep sloping sites of grades 25% or higher.

B. The geotechnical report shall include data regarding the nature, distribution and strength of existing soils, conclusions and recommendations for grading procedures and design criteria for corrective measures when necessary, including buttress fills when necessary and opinions and recommendations

proposed grading, including the stability of slopes. Other parameters necessary to the design of future structures or buildings shall be provided in the report.

C. The Engineering Geology Report shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic, steep slopes, and seismic conditions on the proposed development, and opinions and recommendations covering the adequacy of sites to be developed by the proposed grading.

D. Recommendations included in the report and approved by the Building Official shall be incorporated in the grading plans and specifications.

E. Liquefaction Study - The Building Official may require a geotechnical investigation in accordance with Oregon Structural Specialty Code (OSSC) Section 1802.2.7. The final report shall address the potential for liquefaction where all of the following site conditions are present;

1. Shallow ground water at 50 feet (15.24 meter) or less;
2. Unconsolidated sandy alluvium; and
3. Seismic Design Category D or E or F.

14.12.120 Permit – Plans and specifications required to be submitted.

Three (3) sets of plans will be required with all applications for grading permits. All applications shall be signed by owners of each parcel of property on which grading will be done and any person, corporation, partnership or entity that will be responsible for the work. Plans and specifications shall be prepared, stamped, and signed by a civil engineer when the grading is for subdivisions, partitions, all commercial buildings, or other project sites with slopes greater than 15%, or any grading involving 2,000 cubic yards (c.y.) or more, or a drainage structure over 5 square feet (sq. ft.) of exposed surface. Grading not involving any of the previous listed conditions shall be designated "regular grading" unless the permittee chooses to have the grading performed as engineered grading, or the Building Official determines that special conditions or unusual hazards exist, in which case grading shall conform to the requirements for engineered grading.

14.12.130 Permit – Plan review.

The application, plans and specifications filed by an applicant for a permit shall be reviewed by the Building Official within thirty (30) days after receipt of all information required for issuance of the permit.

Once an application is deemed complete, the Building Official shall review the application for compliance.

14.12.140 Permit – Approved plans.

When the Building Official issues the permit, he or she shall endorse all of the plans and specifications as "APPROVED." Such approved plans and specifications shall not be changed, modified, or altered without written authorization by the Building Official, and all work shall be done in accordance with the approved plans.

14.12.150 Permit – Work time limits.

A. The permittee shall fully perform and complete all of the work required to be done pursuant to the grading permit within the time limit specified. If no time limit is specified, the permittee shall complete the work within two (2) years after the date of the issuance of the grading permit.

B. If the permittee is unable to complete the work within the specified time, he or she shall, prior to the expiration of the permit, present in writing to the Building Official a request for a one time extension of six months, setting forth the reasons for the requested extension. If such an extension is warranted in the opinion of the Building Official, he or she may grant additional time for the completion of the work.

14.12.160 Permit – Expiration.

Every permit issued by the Building Official under the provisions of this Chapter shall expire if the work authorized by such permit is not commenced within one hundred eighty (180) days from the date of such permit. Development has commenced if the land has been physically altered towards completion of the grading and such work demonstrates a good faith effort to complete the grading or such work could not occur for reasons beyond the control of the permittee. If the permit expires, a new grading permit (grading application, fees and updated grading plan submittal requirements) will be required for review and approval.

14.12.170 Permit – Suspension or revocation.

The Building Official may, in writing, suspend or revoke a permit issued under provisions of this Chapter whenever the permit is issued in error or on the basis of incorrect information supplied, or revocation is appropriate to address a violation of this Chapter.

14.12.180 Permit – Liability.

Neither the issuance of a permit under the provisions of this Chapter, nor compliance with the provisions of this Chapter, or with any conditions imposed in the permit issued under this Chapter shall relieve any person from responsibility for damage to other persons or property, nor impose any liability upon the County, its officers, agents or employees, for damage to other persons or property. This liability provision is in addition to and not intended to replace any and all liability protections provided under the Oregon State Structural Specialty Code as may be amended from time to time including but not limited to the ORS 30.265.

14.12.190 Elimination of Hazardous Conditions.

Whenever the Building Official determines that any existing excavation or embankment or fill including exempt activities has or will 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 permittee or other person or agent in control of said property, upon receipt of notice in writing from the Building Official, shall within the period specified in the notice, repair or eliminate such excavation or embankment so as to eliminate the hazard and be in conformance with the requirements of this Chapter.

14.12.200 Location of property lines.

Whenever the location of a property line is in question by Washington County as the result of or during a grading operation, a property survey by a licensed surveyor may be required by the Building Official to establish the location of the property line.

14.12.210 Inclement weather.

The Building Official may stop grading work during periods of inclement weather where weather-generated problems are not being controlled adequately.

14.12.220 Responsibility for compliance.

The primary responsibility for compliance with this Chapter rests on the permittee and the contractor. Any inspection of the work or materials shall not relieve the permittee of any of his or her obligations to complete the grading in accordance with the requirements of this Chapter. Work and materials not meeting such requirements may be rejected notwithstanding that such work or materials may have been previously inspected by the Building Official.

14.12.230 Transfer of responsibility for certification.

If the civil engineer, geotechnical engineer, engineering geologist, or the grading contractor of record changes during the course of permitted work, the work shall be stopped until the replacement has agreed to accept the responsibility within the area of their technical competence for certification upon completion of the work.

14.12.240 Grading violations.

A. Whenever the Building Official determines that the work does not comply with the terms of the permit, or this Chapter, or that the soil or other conditions are not as stated on the permit, he or she may post a stop work order consistent with Section 14.04.090 of the Washington County Code. The stop work order will be in writing and shall be given to the permittee or to the person doing the work. All work shall cease immediately upon notice. Work shall not resume until the condition or violation is corrected.

B. If any grading over that necessary for normal surveying or ongoing continued land and vegetation maintenance purposes, is evident on the property as determined by field inspection prior to the grant of the permit, the Building Official may withhold approval of the final plans or other approval for a period of time necessary to allow proper compaction and establishment of the disturbed soil, covered by sufficient appropriate vegetation to prevent erosion.

C. Grading violations shall be enforced consistent with the applicable provisions of Chapter 14.04 of the Washington County Code as may be amended including but not limited to the authority to appoint employees to carry out code enforcement functions and to issue citations.

D. A grading permit may be issued to abate violations of any other sections of this Chapter or as directed by the Building Official regardless of other existing violations on the property and notwithstanding Section 215-5 of the Community Development Code.

14.12.250 Appeals.

Any decision under this Chapter may be appealed as provided by the current Oregon State Structural Specialty Code as may be amended from time to time or as otherwise provided by state law.

MINIMUM SITE DESIGN REQUIREMENTS

14.12.260 Plans – Slope calculation.

Slope may be described in two ways on the grading plans;

1. In degrees of slope;
2. As percentage of slope.

Figure 1 illustrates how these two approaches are related.

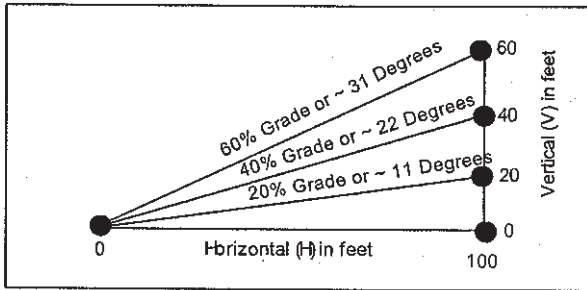


Figure 1 – Slope and Gradient

14.12.270 Plans – Contour maps.

Both proposed and existing contour lines are required to be shown on the grading plans. Contour lines are primarily two-dimensional graphic tools used to express three-dimensional ground forms (see Figure 2). This information is used during plan review to determine elevation of particular spots and relative steepness of an adjacent area. By showing both proposed and existing contours on the same map, it makes it possible to understand the exact location of the work to be performed and the exact amount of proposed grading quantities of cut or fill or a combination thereof.

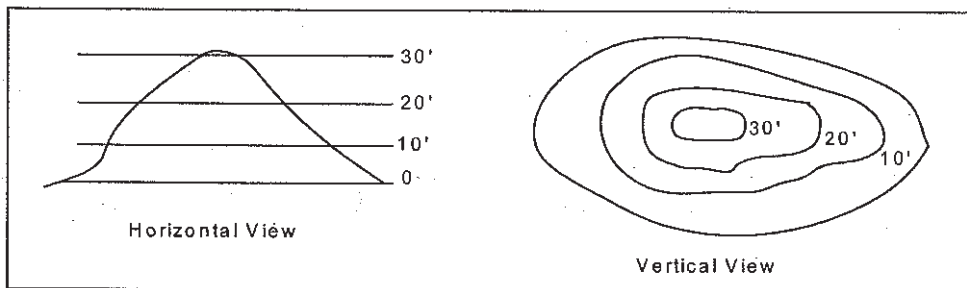


Figure 2 – Sample Contour Map

14.12.280 Design requirements-- Excavations.

Design requirements for excavations shall be as follows:

A. Cuts. Unless otherwise recommended in the approved Geotechnical Engineering and/or Engineering Geologist Report, cuts shall conform to the provisions of this section. In the absence of an approved Geotechnical Engineering Report, these provisions may be waived for minor cuts less than three (3) feet maximum and not intended to support structures.

B. Slope. Cut slopes shall be no steeper than two horizontal to one vertical (2H:1V). Steeper slopes may be allowed if a geotechnical engineer or engineering geologist certifies that the site has been investigated and that the proposed deviation will be and remain structurally stable. The top of cut slopes may be required to be rounded off so as to blend in with the natural terrain.

C. Drainage and Terraces. Drainage and terraces shall be provided as required pursuant to this Chapter, see section 14.12.310.

D. Vegetation Removal.

1. If vegetation removal takes place outside Clean Water Services jurisdiction prior to a grading operation and the actual grading does not begin within thirty (30) days from the date of removal, then that area shall be planted or straw applied to the surface.

2. No vegetation removal or grading will be allowed which will result in siltation of water courses or uncontrollable erosion. Where fill is to be placed over a cut, the bench under the toe of fill shall be at least ten (10) feet wide but the cut must be made before placing fill and approved by the geotechnical engineer and engineering geologist as a suitable foundation for fill. Unsuitable soil is soil which, in the opinion of the Building Official, the civil engineer, the geotechnical engineer, or the engineering geologist, is not competent to support other soil or fill, to support structures or to satisfactorily perform the other functions for which the soil is intended. Fill slopes shall not be constructed on natural slopes steeper than 2H:1V.

E. Fill Material Permitted. No organic material shall be permitted in fills except as topsoil used for surface plant growth only and which does not exceed twelve (12) inches in depth. Rock over twelve (12) inches deep at its maximum dimension may not be used in a fill. Landscape fill of depth up to three (3)

feet maximum may be allowed when the site condition justifies it.

F. Fill Slopes. No compacted fill shall be made which creates an exposed surface steeper in slope than two horizontal to one vertical. The Building Official may require that the fill be constructed with an exposed surface flatter than two horizontal to one vertical (2H:1V) if he or she finds this necessary for stability and safety.

G. Compaction of Fills. All fills shall be compacted to a minimum of 90% of Modified Proctor as determined by the American Standard and Testing Materials (ASTM) D1557. Compaction tests may be required on any fill. As a minimum requirement, field density verification must be submitted for any fill greater than twelve (12) inches in depth where such fill may support the foundation of a structure.

H. Drainage and Terraces. Drainage and terraces shall be provided in the area above fill slopes and the surfaces of terraces shall be graded and the surface protected from erosion.

14.12.290 Design requirements – Fills.

Design requirements for fills shall be as follows:

A. General. Unless otherwise recommended in the approved Geotechnical Engineer and/or Engineering Geologist Report, fills shall conform to the provisions of this section. In the absence of an approved Soils Engineering Report, these provisions may be waived for minor fills less than three (3) feet maximum and not intended to support structures.

B. Slopes - Fill Location. Fill slopes shall not be constructed on natural slopes steeper than 2H:1V unless a geotechnical engineer or engineering geologist devises a method of placement which will assure the fill will remain in place. Fill shall not be placed on any slope where it is likely that it will enter a drainage course. Fill slopes shall toe out no closer than twelve (12) feet horizontally to the top of existing or planned cut slopes.

C. Preparation of Ground for Fill. The ground surface shall be prepared to receive fill by the removal of topsoil and other unsuitable materials as determined by the geotechnical engineer and, where the slopes are 5H:1V or steeper, by keying into sound bedrock or other competent material (see Figure 3).

D. Preparation of Ground. The ground surface shall be prepared to receive fill by removing vegetation, non-complying fill, topsoil and other unsuitable materials, scarifying to provide a bond with the new fill, and, where slopes are steeper than

5H:1V, and the height is greater than five (5) feet, by benching into sound bedrock or other competent material as determined by the geotechnical engineer. The bench under the toe of a fill on a slope steeper than five to one shall be at least ten (10) feet wide as shown in Figure 3. The area beyond the toe of fill shall be sloped for sheet overflow or a paved drain shall be provided.

14.12.300 Cut and fill slope setbacks.

A. The tops and toes of cut and fill slopes shall be set back from property boundaries a minimum of two

feet or as far as necessary for safety of the adjacent properties and to prevent damage resulting from water runoff or erosion of the slopes. The setbacks may need to be increased for any required interceptor drains for cut slopes. The tops and toes of cut and fill slopes shall be set back from structures as far as is necessary for adequate foundation support and to prevent damage to slopes.

Unless otherwise recommended in the approved geotechnical engineering or engineering geology report and shown on the approved grading plan, setbacks shall be no less than shown in Figure 4.

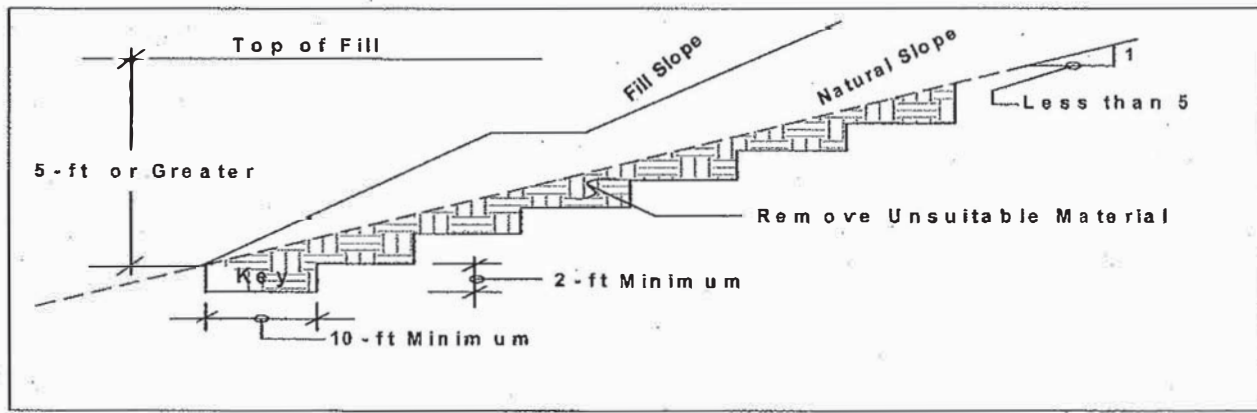


Figure 3 – Benching Details

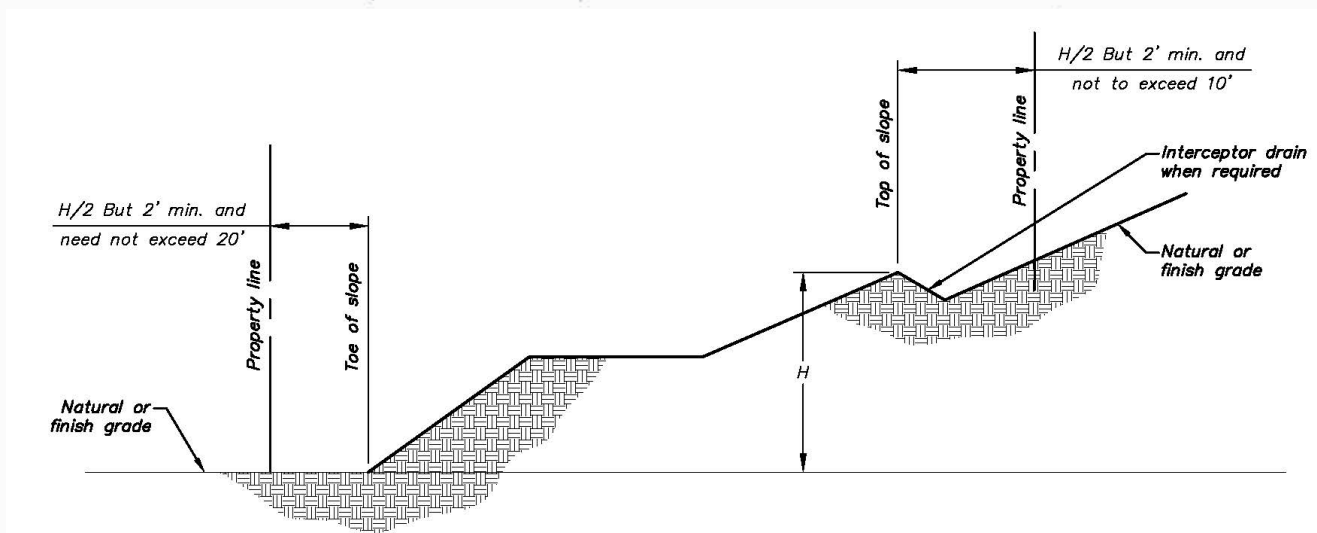


Figure 4 – Setbacks and Drainage Dimensions

B. 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 Building Official 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 walls;

3. Mechanical or chemical treatment of the fill slope surface to minimize erosion;
4. Provision for the control of surface water.

C. Modification of Slope Location. The Building Official may approve alternate setbacks. The Building Official may require an investigation and recommendation by a geotechnical engineer or engineering geologist to demonstrate that the intent of this section has been satisfied.

14.12.310 Drainage facilities and terraces

A. Drainage Analysis Report: Site specific drainage analysis report shall be submitted to substantiate that:

1. The proposed grading work shall preserve the existing site natural drainage channel characteristics (via sheet flow or concentrated flow) and its surrounding adjacent properties in quantity, quality, and flow rate. When changes are made, the design shall preserve the quantity, quality, the flow rate and the pattern of flow that leaves the proposed work site to the adjacent surrounding properties at predevelopment level.

2. Proposed grading will not cause erosion to any greater extent than would occur in the absence of development or result in erosion, stream sedimentation, or other adverse off-site effects or hazards to life or property.

3. The proposed grading will preserve the functioning of off-site drainage courses or bodies of water.

4. The drainage analysis report shall demonstrate to the satisfaction of the Building Official that:

- Collected runoffs are directed safely to adequate outfall points at non-erosive velocities.
- Surface water runoff is quickly conveyed away from buildings to protect them from foundation damage and wet basements (see Figure 5).
- The likelihood of any formation of unintentional wet areas and local ponding within and around the project are limited or borders are minimized.

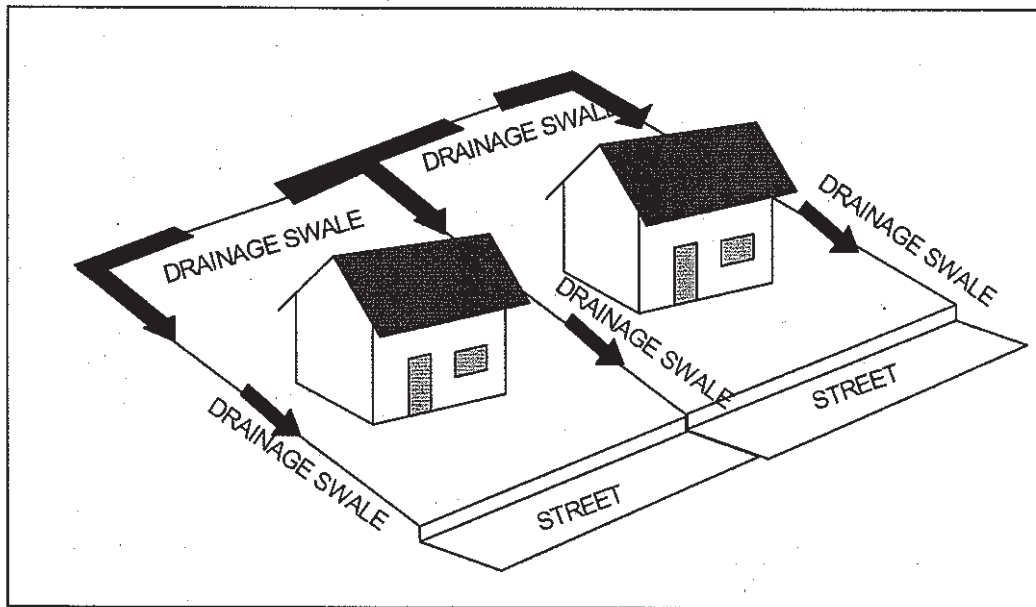


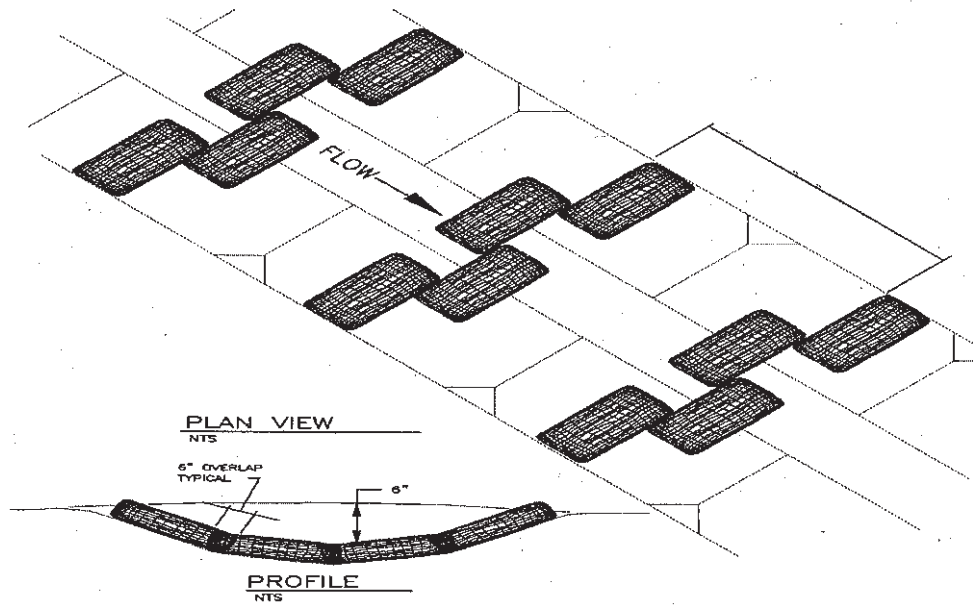
Figure 5 – Preferred Surface Drainage Around Home

B. Drainage Facilities. Whenever a grading operation obstructs or impairs the flow of surface water run-off through a drainage course, a suitable drainage device designed according to approved County design criteria, shall be constructed to convey the flow past the point of impairment or obstruction. The minimum size culvert to be used for such conveyance shall be twelve (12) inches in diameter unless designed by the project civil engineer. Only material meeting industry standards shall be used. Unless otherwise indicated on the approved grading plan, drainage facilities and terracing shall conform to the provisions of section 14.12.310 for cut or fill slopes steeper than 3 horizontal to 1 vertical (3H:1V).

C. Terrace. Terraces at least six (6) feet in width shall be established at not more than thirty (30) foot vertical intervals on all cut or fill slopes to control surface drainage and debris except where only one terrace is required, it shall be at mid-height. For cut or fill slopes greater than sixty (60) feet and up to 120 feet in vertical height, one terrace approximately mid-height shall be twelve (12) feet in width. Terrace widths and spacing for cut and fill slopes greater than 120 feet in height shall be designed by the civil engineer and approved by the Building Official. Suitable access shall be provided to permit proper cleaning and maintenance.

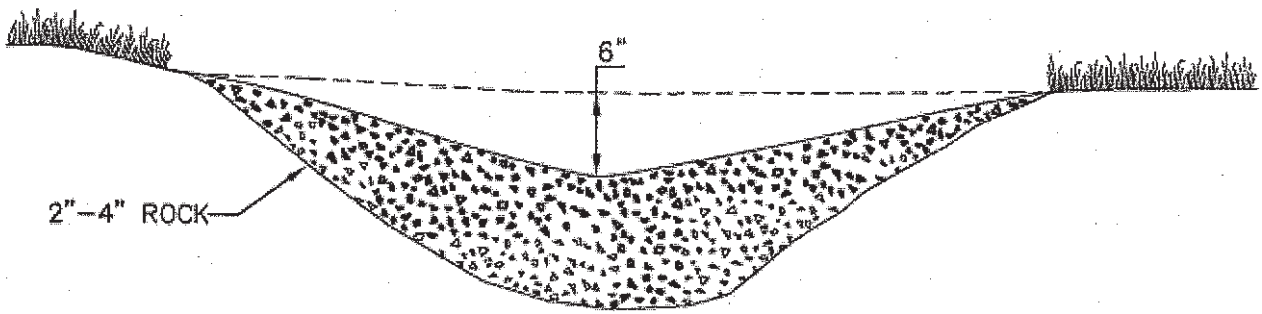
D. Swales and Ditches. Shall have a minimum gradient of five percent (5%) and shall be protected from erosion. They shall have a minimum depth at the deepest point of one foot. The system shall have check dam device in place such as shown in Figure 6, or an approved alternative.

E. For rural areas subdivision work where water quality related facility is proposed, maintenance agreement that list one common entity responsible for the facility maintenance information shall be put on the grading plans and also recorded with the plat.

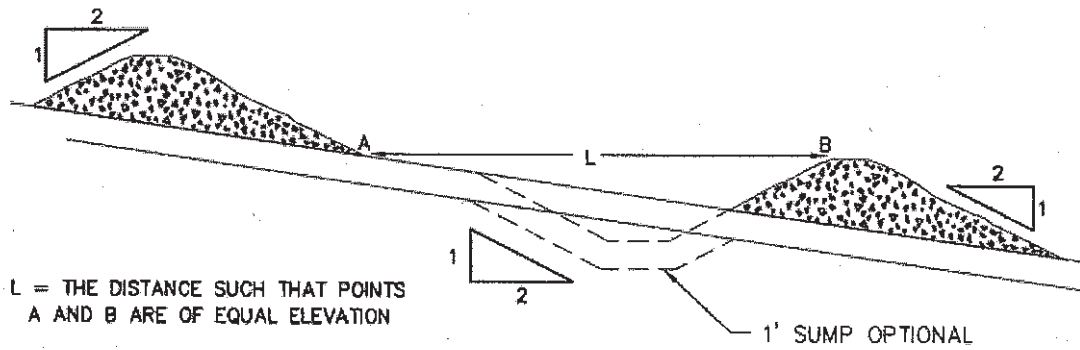


- Notes: 1. Staking of bags required using (2) 1"x2" wood stakes or approved equal per bag.
2. Surface must be smooth before application.

"BIO FILTER BAG" CONTROL CHECK DAM



ROCK CHECK DAM



L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

SPACING BETWEEN CHECK DAMS

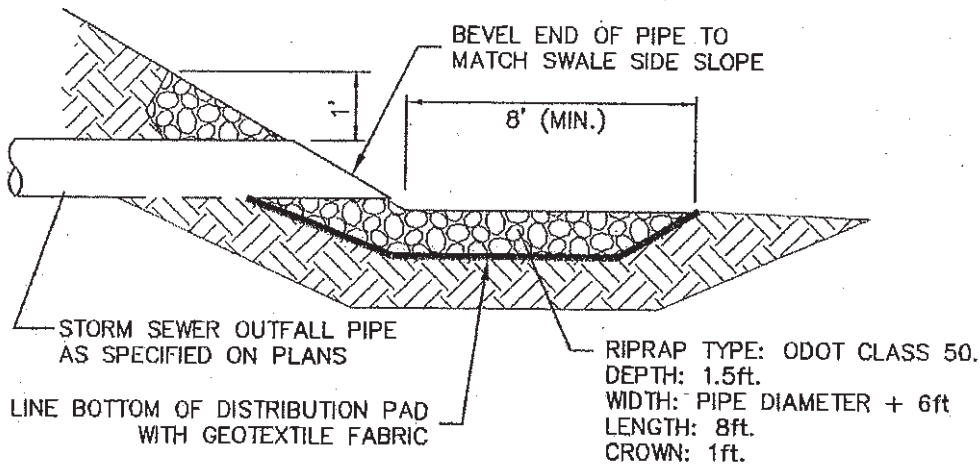
Figure 6 – Erosion Control Check Dam Bio Filter Bag

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

G. Disposal. All drainage facilities shall be designed to carry waters to the nearest practicable drainage way approved by the Building Official and/or other appropriate agency as an approved place to deposit such waters. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive devices. See section 14.12.310 for additional requirements.

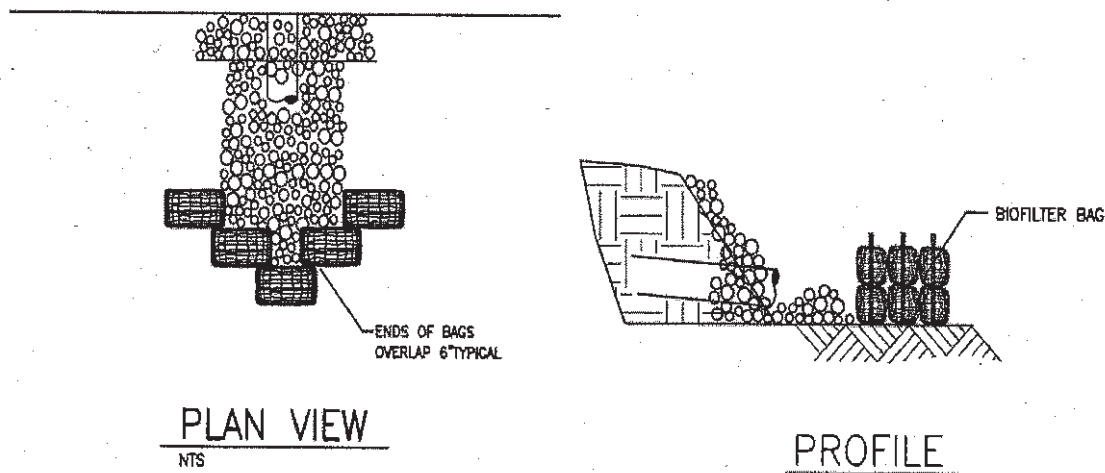
H. Unless an alternative proposed by project civil engineer of record and approved by the Building Official, all collected storm water disposal including roof drains outside Clean Water Services area shall be provided with energy dissipation devices as follows;

1. Rip-rap such as shown in Figure 7.
2. For sediment laden water, Figure 8 shall be used.
3. When catch basins are used within the project, erosion control protection such as shown in Figure 9 is used.



Collected Storm Water Disposal Detail

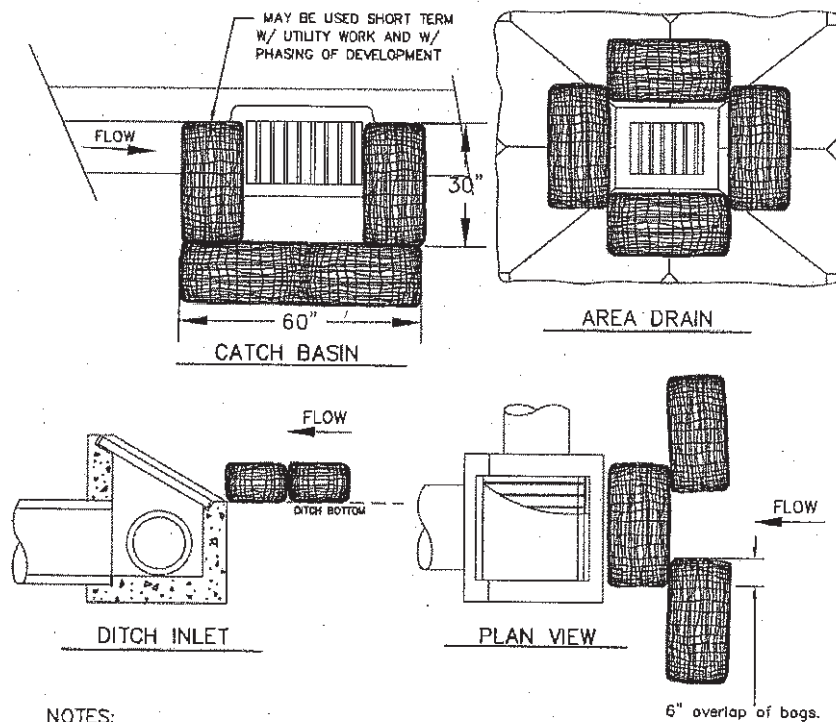
Figure 7 – Storm Outfall Detail



Notes:

1. Bio bags only required when discharging sediment laden water.
2. Staking of bags required with either method using (2) 1"x2" wood stakes or approved equal per bag.

Figure 8 – Outlet Protection Rip



NOTES:

1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO-FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2" WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. WHEN USING 30" BIO-BAGS TO PROTECT A CATCH BASIN YOU MUST HAVE 4 BAGS AND THEY SHALL BE OVERLAPPED BY 6".

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

Figure 9 – Catch Basin Sediment Control

I. On-Site Storm Water Disposal. Where there is not a public storm water conveyance system in place, all new impervious areas created shall dispose of excess storm water through on-site disposal system. All stormwater runoff from new roof and driveway impervious shall not increase the concentration of discharge at the place of entry into the drainage basin in a manner that prevents its natural diffusion onto the existing condition. To meet these requirements some form of on-site disposal system is required and shall follow the format of Building Services On-Site Storm-water Disposal System (OSDS) Design and Construction Minimum Guidelines and Requirements.

14.12.320 Agricultural Related Grading Work.

Site specific drainage analysis report that considers the subject site and its immediate surrounding drainage basins, prepared and stamped by a civil

engineer, shall be submitted. As a minimum, the report shall address the items given below:

1. How the proposed grading work preserves the existing site natural drainage channel characteristics (via sheet flow or concentrated flow) and its surrounding adjacent properties in both quantity and flow rate. When changes are made, the design shall preserve the quantity, quality, the flow rate and the pattern of flow that leaves the proposed work site to the adjacent surrounding properties at pre-grading level.
2. The proposed grading will not cause erosion to any greater extent than would occur in the absence of work or result in erosion, stream sedimentation, or other adverse off-site effects or hazards to life or property.
3. The proposed grading will preserve the functioning of off-site drainage courses or bodies of water.

4. The drainage analysis report shall demonstrate to the satisfaction of the Building Official that:

a. Collected runoffs are directed safely to adequate outfall points at non-erosive velocities.

b. Surface water runoff is quickly conveyed away from the graded area to approved location as shown on the plans.

c. The likelihood of any formation of unintentional wet areas and local ponding within and around the project area limits or borders are minimized.

14.12.330 Erosion control, dust control, construction access

A. Erosion control. All disturbed surfaces resulting from grading operations shall have erosion control measures installed and be maintained per Clean Water Services standards. For grading work done outside Clean Water Services jurisdiction, sediment fence, check dams, cribbing, riprap or other devices or other erosion control best management practices (BMP) such as shown in Figures 8, 10 shall be employed to control erosion and shall be shown on the grading plans.

B. Dust Control. Dust from grading operation shall be controlled. The permittee or contractor may be required to keep adequate equipment on the grading site to prevent dust problems.

C. Construction Access. Where private street connects to existing road, construction access details per Figure 11 shall be provided on the plans to minimize sediment transport away from the grading site.

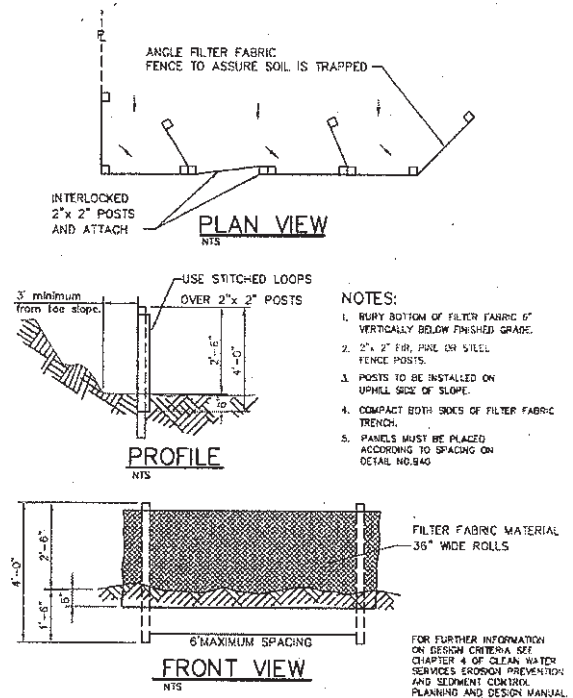


Figure 10 - Sediment Fence

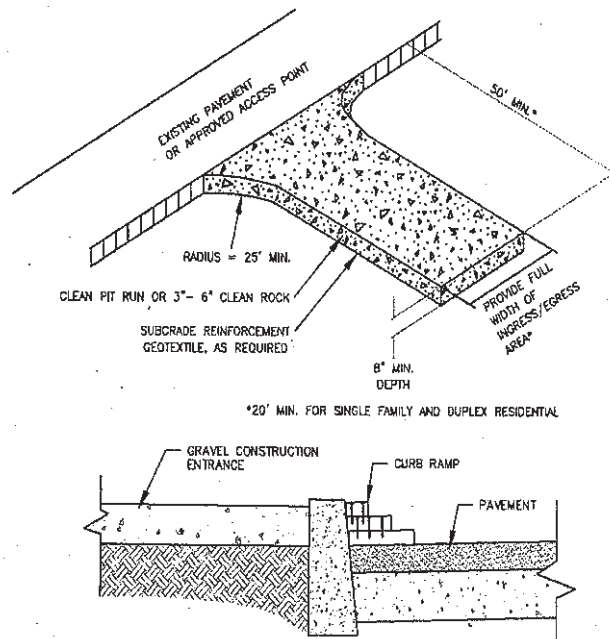


Figure 11 - Construction Access

PRIVATE ROAD/DRIVEWAY STANDARDS

14.12.340 Private road standards.

A. All grading shall be done under permit pursuant to the provisions of this Chapter or other approved standards such as the standards for roads and driveways that can be found in the Fire Code Application Guide written by the Oregon Fire Code Metro Code Committee, or Community Development Code. For roads and driveways outside the urban growth boundary (UGB) serving not more than two single family dwellings the standards can be found in "Washington County Fire Defense Board Fire Department Access Road Standards for Private Streets Serving Not More Than Two Single Family Dwellings." Building Services and the designated Fire District having jurisdiction retain final authority to determine compliance.

B. Private street design and construction shall meet one of the options given in Figure 12. Case-3 is required for all private roads serving more than two single family dwellings or when the total road length exceeds 200 feet. See section 14.12.040(L) for additional information.

C. Where required by the project district Fire Marshall, turnout and hammerhead construction details shall show the minimum road geometric information found in Figures 13 and 14. Any

deviation from this requirement shall be approved by the district Fire Marshall.

D. Private Street Ditch: Existing roadside ditches alongside new development or the construction of new roadside ditches shall:

1. Be constructed to pass all required flows;
2. Have a maximum depth of no more than two (2) feet as measured from the shoulder of the road;
3. Have side slopes no steeper than 2H:1V;
4. Have sufficient grade to provide for water conveyance; and
5. Have a maximum flow velocity when flowing full that does not exceed the erosive velocity limits of soils in the ditch.

E. Except as provided under D above, any proposed roadside ditch improvement that does not meet the requirements in CDC Section 410-1.4 A. shall be piped.

F. All proposed or modified ditches shall have adequate erosion control provisions to prevent potential damage to the shoulder of the adjacent road as well as the ditch.

G. No pipes, culverts or other structures shall be permitted to protrude into a ditch.

H. Construction access detail per Figure 11 shall be shown on the grading plans.

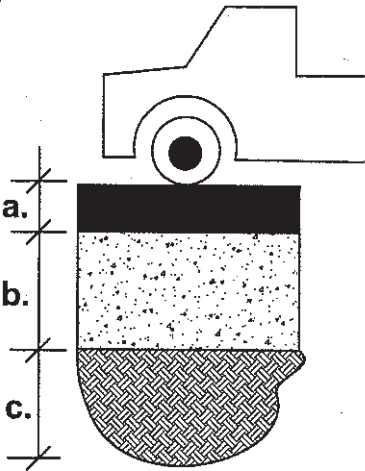
Material Layer	Minimum Thickness (Inches)	Compaction Standard	Comments
<p>Case-1:</p> <p>a) Optional Asphaltic Concrete (AC)</p> <p>b) Crushed Aggregate Base 1 1/2" -0</p> <p>c) Subgrade Strength</p>	<p>3</p> <p>8</p> <p>Suitable base</p>	<p>AASHTO T-209</p> <p>90% of Modified Proctor (ASTM D1557)</p> <p>90% of Modified Proctor (ASTM D1557)</p>	<p>Proof-Rolling: We recommend that the subgrade or granular base be proof-rolled with a loaded 10 to 12 cubic yards dump truck or other suitable equipment. Any area(s) of subgrade that pump, weave, or appear soft and muddy should be scarified, dried, and compacted.</p> <p>Compaction Standard: All compaction should meet at least 90 percent of the material's maximum dry density. Per ASTM D 1557 (Modified Proctor Test).</p>
<p>Case-2:</p> <p>a) Optional Asphaltic Concrete (AC)</p> <p>b) Crushed Aggregate Base 1 1/2" -0</p> <p>c) Subgrade Strength</p>	<p>3</p> <p>12</p> <p>Suitable base</p>	<p>AASHTO T-209</p> <p>90% of Modified Proctor (ASTM D1557)</p> <p>Proof-rolling of subgrade with a loaded dump truck.</p>	
<p>Case-3:</p> <p>a) Optional Asphaltic Concrete (AC)</p> <p>b) Crushed Aggregate Base 1 1/2" -0</p> <p>c) Subgrade Strength</p>	<p>Construction plans that specify the adequate driveway components and vertical layers thickness. Supporting design calculations that substantiate the adequacy of the road to support 75,000 lbs. vehicular load is required.</p> <p>The information shall be prepared and stamped by a registered civil engineer.</p>		<p>Verification of road proof-rolling: Prior to the placement of crushed aggregate for case 2, the grading contractor shall call Building Services to schedule sub-grade proof-rolling inspection. In absence of Building Services inspection, a testing agency report shall be required.</p>
<p>Limitations:</p>	<p>1) The use of Cases 1 and 2 are limited to a driveway less than 200-ft long with maximum excavation of 12-inches to suitable sub grade level. Compaction test proof-rolling results are required.</p> <p>2) All other conditions including the placement of fill material, culverts with diameter greater than 12-inches, or bridges shall comply with Case-3 requirements.</p>		

Figure 12 – Fire Access Roadways, Design Options Outside UGB Areas

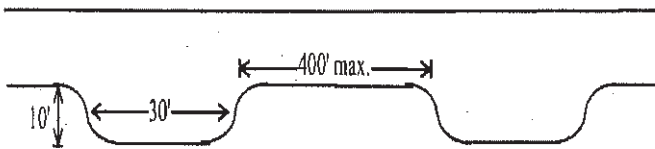
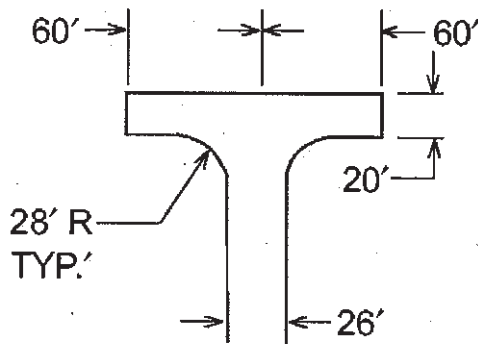


Figure 13 - Turnout



120' HAMMERHEAD

Figure 14 - Turnaround "Dead End Road"

14.12.350 Flag lot driveways.

Flag lot driveways within the UGB may use provisions of Figure 12 where the following site conditions apply:

- A. The proposed driveway is not supported by a retaining wall; and
- B. The proposed driveway has a minimum setback of two (2) feet from the property line; and
- C. The proposed driveway does not alter the site and its immediate vicinity by raising or lowering the driveway in such a way that it negatively impacts the local area stormwater drainage; and
- D. The proposed driveway does not serve more than two (2) single family dwellings.

14.12.360 Permit - Plans and specifications - Information required.

A. Plans shall be drawn to scale on at least 11" X 17" paper. The location of the work, the name and address of the owner, and the parcel number of the

property on which the grading is to be done shall be clearly shown on each set of plans.

B. As a minimum the following information shall be submitted for grading plan review:

1. Written description / narrative and/or supplemental information of the grading work including all of the following:

- a) Explanation of the reason for the proposed grading, which must be an allowed use in the district;
- b) Estimates of surface area disturbed by proposed grading and total parcel size;
- c) Estimates of cut/fill volume in cubic yards. The quantity of material involved in cubic yards and a description of how this figure was computed, including supporting calculations;
- d) Estimates of existing and increased runoff resulting from the proposed improvements;
- e) Soil Map, including a soil survey legend, range of percent slopes (e.g., three (3) to seven (7) percent slopes), and soil description if no limitations exist from the USDA, Soil Conservation Service, Soil Survey Report, Washington County, July 1982, as may be amended. Soil limiting features must address depth to bedrock from the report, and other features which may be restrictive to construction, drainage and revegetation of property;
- f) Provision for saving the site topsoil (surface 12") for later revegetation and landscaping, including the locations of any temporary stockpile areas;
- g) Provisions for the disposal of excavated material, including the location of disposal or stockpile.

2. Vicinity map that clearly shows at least three (3) major roads to or around the site .

3. Site Plan views that show basic information i.e. property lines, easement lines, existing and proposed contour lines for the area to be graded plus a minimum of fifty (50) feet surrounding the area and including the following:

- a) A graphic representation drawn to a scale which is noted on the drawing. In all cases

- the scale used shall be standard, being ten (10), twenty (20), thirty (30), forty (40), fifty (50), or sixty (60) feet to the inch or multiples of ten (10) of any one of these scales, (e.g., 1" = 20');
- b) North Arrow;
 - c) Location of septic tank(s), leach or drain fields, wells, underground tanks;
 - d) Date of plan, date of latest revision;
 - e) Topographic features; streams, wetlands, cliff, etc.;
 - f) All easements: drainage, access, utility, etc.;
 - g) Property lines (show entire property and dimensions);
 - h) For slopes of ten (10) percent or less, generalized existing contours and drainage channels, including areas of the subject site and adjoining properties that will be affected by the disturbance either directly or through drainage alterations;
 - i) Contour lines spacing and site slope conditions shall comply with one of the following, as determined by the site sloping conditions:
 - i. For slopes of five (5) percent or less, contour intervals not more than one (1) foot; or
 - ii. For slopes greater than five (5) percent and up to and including ten (10) percent, contour intervals not more than two (2) feet; or
 - iii. For slopes greater than ten (10) percent, contour intervals not more than five (5) feet;
 - j) Proposed elevations after grading is completed, including any modifications to drainage channels;
 - k) Any required retaining walls or other means of retaining cuts or fills including typical cross sections. The plans shall show all site retaining wall types and construction details. Separate design calculations shall be submitted to substantiate the adequacy of all the retaining walls per current Oregon Structural Specialty Code provisions;
 - l) Typical cross sections showing existing and proposed elevations. Cross sections are to be taken through the areas that will show the most detail of the grading project. At least two (2) orthogonal cross-sections shall be provided;
 - m) The site plan shall show the area of the site where construction, grading, cut or fill is proposed, plus a minimum of fifty (50) feet surrounding the area;
 - n) Proposed building pad, areas with an impervious surface and existing and proposed finished floor and street elevations if building or parking construction is proposed;
 - o) Existing and proposed water quality sensitive areas, vegetated corridors, and drainage channels including drainage swales, wetlands, ditches and berms;
 - p) Location and design of any proposed facilities for storage or for conveyance of runoff into indicated drainage channels, including sumps, basins, channels, culverts, ponds, storm drains and drop inlets;
 - q) Location of any buildings or structures, parking areas or access ways existing or proposed on the site within fifty (50) feet of the area that may be affected by the proposed grading operations;
 - r) Location of any proposed streets including their identification as public or private streets; and
 - s) Location of any proposed stockpile areas, either on site or off.
4. Site Slope(s): The following slope stability analysis report shall be submitted for the site slope conditions listed below:
 - a) Site slopes between ten (10) percent and fifteen (15) percent; qualitative slope stability evaluation report is required.
 - b) Site slopes greater than fifteen (15) percent; complete slope stability analysis comprising of both qualitative and quantitative information in a form of report is required to demonstrate that 1.50 factor of slope stability can be satisfied under static load condition and 1.10 factor of slope stability under seismic condition can be satisfied. The analysis model shall consider site loading boundary conditions under both present and future homes and other applicable surcharge loads.
 5. Private Road Profile Views based on a reference line (i.e. baseline, centerline of sanitary line or storm sewer line, etc) is required to be shown on the plans.
 6. Setback figure – Both site specific setbacks and Figure 4 included in this Chapter shall be shown on the plans.
 7. All structures, including bridges (vehicular, pedestrian, etc.) both within the public right-of-way (ROW) and outside the ROW shall be shown on the plans.

8. Specification of the area of disturbance, in acreage/square footage shall be shown on the plans. *Note: If area of grading disturbance is more than one acre or as determined by Department of Environment Quality (DEQ) and the project is located outside the urban growth boundary, a 1200-C permit is required from DEQ, prior to the issuance of the grading permit.*
9. Submit a copy of permit(s) required from outside agencies (i.e. Division of State Lands,-Army Corps, Clean Water Services (CWS), DEQ, etc.). These approvals must be submitted prior to grading permit issuance.
10. The plans shall include all proposed methods of erosion control measures.
11. Site Drainage: The following information shall be provided on the plans:
 - a) Flow lines of surface waters onto and off the site; showing existing and proposed drainage channels including drainage swales, wetlands, ditches, and berms.
 - b) Show locations for all proposed facilities for storage or conveyance of storm water runoff into indicated drainage channels, including sumps, basins, channels, culverts, ponds, storm drains and drop inlets.
12. The plans shall include a dedicated final grading sheet that demonstrates future building finished floor elevations for each lot necessary to achieve gravity flow from building pad to public storm water system. Provisions shall also be made for full and daylight basement foundation drainage. Where gravity flow drainage cannot be achieved, an alternative method must be submitted by the project civil engineer to the Building Official for approval.

Required Reports to be Submitted

A. Three (3) copies of Geotechnical Engineering (Soil Engineering) Reports; one must have a wet-linked signature from the geotechnical engineer. The report should state the distribution and strength of existing soils, conclusions and recommendations for grading and criteria for corrective measure when necessary. Site plan showing test pits or boring locations and also both in-site and laboratory test data shall be submitted with the report. See section 14.12.110(B).

B. For sloping sites with slope greater than 25% or known geologic hazard sites, three (3) copies of Engineering Geologist Report shall be submitted in

addition to geotechnical engineering report. The report shall include geologic data and other factors necessary to development of the site from a geological perspective, see section 14.12.110(C).

C. Submit one copy of the drainage analysis report in accordance with the provisions of section 14.12.310.

PERMIT AND CONDITIONS OF APPROVAL

14.12.370 Permit – Conditions of approval.

Except as otherwise approved by the Building Official, all permits shall be subject to the following general conditions of approval. Additional project specific conditions of approval may be required (by the Building Official) prior to permit issuance.

1. Code Compliance. All grading activities shall comply with this Chapter and Washington County Code. Construction Specifications. Comply with the project specifications and details shown on the approved drawings. Any modifications including deviations and revisions to the Building Services approved grading plans shall be submitted in three (3) copies to Building Services for review and approval prior to incorporating them into construction.
2. If excavated material is intended to stay on-site or spread around the constructed building in such a way that potentially impacts the site storm or surface water runoff, a grading permit and plan review may be required.
3. Notification to Capital Project Management. Inform Washington County Capital Project Management & Operations at least two (2) workdays prior to starting any work on the existing right-of-way or on future public roads.
4. Scarify and Benching. Please comply with Figure 3 of this Chapter or the geotechnical engineer's report requirements pertaining to preparing the ground for fill on building sites.
5. Soils on Streets. The permittee shall keep all private and public streets free from any deposits of mud, dirt, sediments or other materials exceeding one half cubic foot in volume.
6. Dust Control. Minimize dust to the extent practicable, by utilizing all measures necessary (OAR 340-208-0210(2)). Action by Building Services for violation may include issuing a stop work order.

7. **Work Hours.** Comply with the hours of operations established by the Washington County Code, Chapter 8.24 Noise Control. Noise producing work is restricted to the time between 7 AM and 7 PM from Monday through Saturday. No noise producing work, vehicle horns and signaling devices, is allowed on Sundays or legal holidays without a variance.
8. **Good Neighbor Activity.** Protect adjoining property from excavation and fill activities, sedimentation due to runoff, and site drainage related issues that adversely impact an adjacent property.
9. **Off-site Disposal.** The permittee shall document where surplus material shall be disposed including a valid grading permit or is otherwise exempt from a grading permit as determined by the county. Failure to comply may result in a code violation citation.
10. **Importing Soil.** The permittee shall document that soil imported onto the property is from a permitted source or is otherwise exempt from a grading permit as determined by the county.
11. **Progress Report of Fill Material Deliveries.** To verify the quantity of fill stated on the Grading Application Permit Form, Building Services may request an up to date haul material progress report. The format is open, but a tabulated style is preferred and should include date, name, equipment number, equipment type, excavation loads, bank measure, daily measure and up-to-date measure.

Approval for a grading permit does not relieve the applicant from the responsibility for compliance with the Endangered Species Act (ESA).

14.12.380 As-graded or as-built plans and final reports.

A. **As-Graded or As-Built Drawings and Reports.** Upon completion of the grading work, as-graded or as-built drawings and supplementary reports shall be prepared by the civil engineer of record and submitted to the Building Official for all grading permits. The drawings shall:

1. Show the original ground surface elevations, as-graded elevations, drainage patterns, and the location and elevations of surface drainage facilities and of the outlets of subsurface drains. As-constructed locations, elevations and details of subsurface drains shall also be shown.
2. Include recommendations that will ensure the seamless flow of project drainage

analysis design recommendations are carried out into the building construction phase. Particularly, how the future house's rear and side yards bordering existing surrounding property lines finished or fine grading work should be done in order to avoid any local ponding to existing surrounding properties, see Figure 5.

B. **Accuracy of as-graded plans.** The as-graded drawing will be used in the final inspection and hence shall reflect in detail the actual grading work done or exists at the time of final inspection including all approved changes made to the original Building Services approved grading plans, stamped and signed by the civil engineer of record.

C. **Final Geotechnical Engineering Report.** A soils grading report, prepared by the geotechnical engineer, including locations and elevations of field density tests, summaries of field and laboratory tests and other substantiating data and comments on the recommendations made in the geotechnical engineering investigation report shall be submitted. The report shall state approval of the site and any special conditions as to the adequacy of the site for the intended use. Geotechnical engineer review of all buildings' foundations excavation shall be required unless lot by lot specific recommendations are provided.

D. **Engineering Geologist Report.** A geologic grading report, prepared by the engineering geologist, including a final description of the geology of the site and any new information disclosed during the grading work and its effect on recommendations incorporated in the approved grading plan shall be submitted. The report shall state approval as to the adequacy of the site for the intended use as affected by geologic factors.

E. The grading contractor shall submit, in a form prescribed by the Building Official, a statement of conformance to the as-built plan and specifications.

14.12.390 Notification of completion and final inspection.

The permittee or his agent shall notify the Building Official when the grading operation is ready for final inspection. Final approval shall not be given until all work, including installation of all drainage facilities and their protective devices and all erosion control measures, have been completed in accordance with the final approved grading plan (as-graded or built) as follows:

- a) All the final forms, reports and the as-built plans should be submitted in one complete package.

- b) Five-(5) working days minimum shall be allowed for review and approval of all items given above prior to scheduling the final as-built site inspection.
- c) The project civil engineer of record and the grading contractor are to be present during Building Service final inspection.

14.12.400 Notification of noncompliance.

If the civil engineer, the geotechnical engineer, or the engineering geologist in the course of fulfilling their responsibility under this Chapter finds that the work is not being done in conformance with this Chapter or the approved grading plans, including changes to the principal project team members consisting of the civil engineer, geotechnical engineer, the engineering geologist when applicable, and the grading contractor, 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.

CONSTRUCTION INSPECTIONS REQUIREMENTS

14.12.410 Pre-construction meeting.

To bridge the gap between plan review approval process and actual site disturbances, the contractor shall contact Building Services and the civil and geotechnical engineer and other professionals whose services are required to perform the work to schedule a pre-grading meeting before commencement of work. A minimum of three (3) working days notice shall be given for each permitted site.

14.12.420 Professional consultants grading inspection requirements.

A. Professional inspection of grading operations shall be provided by the civil engineer, geotechnical engineer and the engineering geologist retained to provide such services in accordance with this Chapter for engineered grading and as required by the Building Official for regular grading.

B. Civil Engineer. The civil engineer shall provide professional inspection within such engineer's area of technical specialty, which shall consist of observation and review as to the establishment of line, grade, and surface drainage of the development area. If revised plans are required during the course of the work they shall be prepared by the civil engineer.

C. Geotechnical Engineer. The geotechnical engineer shall provide professional inspection within such engineer's area of technical specialty, which shall include observation during grading and testing

for required compaction. The geotechnical engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of this Chapter. Revised recommendations relating to conditions differing from the approved geotechnical engineering and engineering geology reports shall be submitted to the owner, the Building Official, and the civil engineer.

D. Engineering Geologist. The engineering geologist shall provide professional inspection within such professional area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. Revised recommendations relating to conditions differing from the approved engineering geology report shall be submitted to the geotechnical engineer and the Building Official.

E. Permittee. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this chapter, and the permittee shall engage consultants, if required, to provide professional inspections on a timely basis. In the event of changed conditions, the permittee shall be responsible for informing the Building Official of such change and shall provide revised plans for approval.

14.12.430 Building services grading inspection.

A. General. Grading operations for which a permit is required shall be subject to inspection by the Building Official.

B. Building Official. The Building Official may inspect the project at the various stages of work requiring approval to determine that adequate observation is being exercised by the professional consultants.

C. Prior to the completion of any grading project, the Building Official shall inspect the site to determine that the grading work done appears to reasonably comply with the approved plans and specifications.

D. The permittee shall notify the Building Official for the purpose of inspection once final reports have been received with as-built plans, the utilities are installed and the trenches backfilled and the street paved with at least the first lift of asphalt.

E. If any grading over that necessary for normal surveying or ongoing continued land and vegetation maintenance purposes, is evident on the property as determined by field inspection prior to the grant of the permit, the Building Official may withhold approval of the final plans or other approval for a

period of time necessary to allow proper compaction and establishment of the disturbed soil, covered by sufficient appropriate vegetation to prevent erosion.