

410 GRADING AND DRAINAGE

410-1 General Provisions

410-1.1 All grading and drainage activities are to occur pursuant to the provisions of Chapter 14.12 of the Washington County Code and the applicable State of Oregon Plumbing Code or its successor and this Code. All grading and drainage activities on lands located within the Clean Water Services boundary shall also occur pursuant to the provisions of the "Design and Construction Standards for Sanitary Sewer and Surface Water Management" or its successor. In the event of any conflict between the provisions of this Code, the Community Plan, the Rural/Natural Resource Plan, and Chapter 14.12, the more restrictive standard shall prevail.

Grading applications may be processed through a two-step procedure consisting of a preliminary review (grading plan) and a final review (grading permit), unless the Director consolidates the applications into one review.

No grading and drainage activities that are subject to Section 410 shall be undertaken without a grading permit.

For Type I development, preliminary grading plans may be submitted as a stand alone application. For development reviewed through the Type II and III procedure, preliminary grading plans are to be submitted with the development application.

The purpose of a preliminary grading plan (conceptual) is to determine whether or not it is feasible to comply with the grading permit review standards of Section 410-3. Full engineering drawings are not required at the preliminary review stage. However, preliminary grading plans shall be accurate enough to provide a basis for determining whether or not the proposed activity, as designed and to be implemented, will meet the applicable Code requirements for a grading permit.

All grading permit applications (the second step) shall include detailed plans, per Section 410-2, rather than preliminary grading plans.

410-1.2 Grading Plan

The grading plan shall include:

A. A vicinity map.

B. A site plan which includes the following:

- (1) 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;
- (2) Except as required by Section 421, applications for land inside the UGB shall show existing and proposed topography using the following contour intervals:

- (a) For slopes of five (5) percent or less, contour intervals not more than one (1) foot; or
 - (b) For slopes greater than five (5) percent and up to and including ten (10) percent, contour intervals not more than two (2) feet; or
 - (c) For slopes greater than ten (10) percent, contour intervals not more than five (5) feet.
- (3) Except as required by Section 421, applications for land outside the UGB shall show existing and proposed topography using the following contour intervals:
- (a) 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; or
 - (b) For slopes greater than ten (10) percent, contour intervals not more than five (5) feet.
- (4) Proposed elevations after grading is completed, including any modifications to drainage channels;
- (5) Any required retaining walls or other means of retaining cuts or fills including typical cross sections;
- (6) 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;
- (7) 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;
- (8) Flow lines of surface waters onto and off the site;
- (9) Proposed building pad, areas with an impervious surface and existing and proposed finished floor and street elevations if building or parking construction is proposed;
- (10) Existing and proposed water quality sensitive areas, vegetated corridors, and drainage channels including drainage swales, wetlands, ditches and berms;
- (11) 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;
- (12) Location of any buildings or structures, parking areas or accessways existing or proposed on the site within fifty (50) feet of the area that may be affected by the proposed grading operations;

- (13) Location of any proposed streets; and
 - (14) Location of any proposed stockpile areas, either on site or off.
- C. Written narrative and/or supplemental information including all of the following:
- (1) Explanation of the reason for the proposed grading, which must be an allowed use in the district;
 - (2) Estimates of surface area disturbed by proposed grading and total parcel size;
 - (3) Estimates of cut/fill volume in cubic yards; and
 - (4) Estimates of existing and increased runoff resulting from the proposed improvements.
 - (5) 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. Soil limiting features must address depth to bedrock from pages 120-123 from the report, and other features which may be restrictive to construction, drainage and revegetation of property;
 - (6) Provision for saving the site topsoil (surface 12") for later revegetation and landscaping, including the locations of any temporary stockpile areas;
 - (7) Provisions for the disposal of excavated material, including the location of disposal;
 - (8) Written statement demonstrating the feasibility of complying with Section 410-3. Demonstrating feasibility does not require detailed solutions, but there must be enough information for the review authority to find that solutions to problems are possible and likely.
- D. Erosion Control Plan:
- (1) For areas inside the Tualatin River and Oswego Lake sub-basins, an erosion control plan as required by Section 426 shall be submitted.
 - (2) For areas outside the Tualatin River and Oswego Lake sub-basins, an erosion control plan that complies with the requirements of the "Washington County Erosion Control Plans Technical Guidance Book," January 1991, or its successor, is required when:
 - (a) Grading requiring a permit is proposed to be conducted or left in an unfinished state during the period from October 1 through May 1; or
 - (b) Land disturbance activities are conducted in geologically unstable areas, on slopes in excess of twenty (20) percent, or there is disturbance of more than six-thousand (6,000) square feet of

development area, or within fifty (50) feet of any drainage hazard area or flood plain area.

- E. A request for an imported fill material more than 5,000 CY in an EFU or AF-20 District shall be accompanied by a written recommendation from the Soil and Water Conservation District.
- F. A request for a Clean Fill Site shall include a reclamation schedule.

410-1.3 Exemptions from Grading Plan and Permit Requirements:

In addition to those activities listed in Section 201-2.12, the following are exempt from Section 410 except as necessary to address Section 410-3.8:

- A. 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;
- B. Excavations or fills for public roads and transportation facilities substantially in the public right of way or as shown on a Transportation Plan or adopted Public Facility Plan, together with piping and culverting, accessory drainage systems such as catch basins, and necessary accessory structures and easements or other public projects conducted or approved by the County or public facilities and service projects such as sewer and water lines;
- C. Surface mining operations approved in accordance with this Code;

410-1.4 Private Street Ditch Standards

- A. 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 2:1;
 - (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. "Open Channel Hydraulics" by V. T. Chow, McGraw Hill Book Company, Inc., 1988, is presumed to be the best available reference for maximum permissible velocity.
- B. Except as provided under E. below, any proposed roadside ditch improvement that does not meet the requirements in Section 410-1.4 A. shall be piped.

- C. 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.
- D. No pipes, culverts or other structures shall be permitted to protrude into a ditch.
- E. In lieu of retaining existing ditches or constructing new ditches, vegetated stormwater facilities may be constructed when site conditions are determined appropriate by Clean Water Services. All such facilities shall comply with any applicable Clean Water Services Design and Construction Standards.

410-2 Grading Permit - Application Content

410-2.1 The grading permit plans shall be detailed (final drawings) rather than preliminary drawings (conceptual). The grading permit is to be prepared and certified by a registered civil engineer, and is to include specifications covering soils engineering or engineering geology construction and material requirements in addition to the information required in Section 410-1.2 where:

- A. The grading will move more than five thousand (5,000) cubic yards or more; or
- B. Is located on slopes of twenty (20) percent or greater; or
- C. Grading for public improvements such as public roads, tracks, ponds and drainage facilities; or
- D. Is within an identified hazard area, or is located within a Flood Plain or Drainage Hazard area; or
- E. The Building Official determines that special conditions or unusual hazards exist.

If none of these conditions apply, then the plans need not be prepared by a registered civil engineer. Outside the UGB, the Building Official may determine that an engineer's certification is not required for Section 410-2.1 A.

410-2.2 In addition to the grading plan requirements of Section 410-1.2, and application for a grading permit shall include:

- A. If required by the Building Official, a compaction report where a site is proposed to be filled to be used for a building pad;
- B. If required by the Building Official, a soil engineering report, including data regarding the nature, distribution and strength of existing soils, conclusions and recommendations for grading procedures and criteria for corrective measures when necessary, and opinions and recommendations covering adequacy of sites to be developed by the proposed grading;
- C. If required by the Building Official, an engineering geology report, including a description of site geology, conclusion and recommendations regarding the effect of geologic conditions on the proposed development, and opinions and

recommendations covering the adequacy of sites to be developed by the proposed grading; and

- D. Intended means of revegetation, pursuant to Section 410-3.4, including the location, species, container size and quantity of plant materials proposed, and the proposed time of planting.

410-3 Criteria for Approval

A grading permit, which shall apply only to the area of the site where construction, grading, cut or fill is proposed, may be issued only after the Review Authority finds:

- 410-3.1 The extent and nature of proposed grading is appropriate to the use proposed, and will not create site disturbance to an extent greater than that required for the use;
- 410-3.2 Proposed grading will not cause erosion to any greater extent than would occur in the absence of the proposed development or result in erosion, stream sedimentation, or other adverse off-site effects or hazards to life or property; and
- 410-3.3 Appropriate siting and design safeguards shall ensure structural stability and proper drainage of foundation and crawl space areas for development with any of the following soil conditions:
- A. Seasonal, perched, high or apparent water table;
 - B. High shrink-swell capability;
 - C. Low bearing strength such as compressible organic; or
 - D. Shallow depth-to-bedrock.

410-3.4 Revegetation:

Where previously undisturbed vegetation has been removed through grading in areas not affected by the landscaping requirements and that are not to be occupied by structures, such areas are to be replanted as set forth in this subsection to prevent erosion after construction activities are completed.

A. Preparation for Revegetation:

In preparation for grading and construction, top soil removed from the first twelve (12) inches shall be stored on or near the sites and protected from erosion while grading operations are underway. Such storage may not be located where it would cause suffocation of root systems of trees intended to be preserved. After completion of such grading, topsoil is to be restored to exposed cut and fill embankments or building pads to provide a suitable base for seeding and planting. This does not require that the property have sufficient topsoil to revegetate the site after grading, only that the topsoil that is removed be reused for revegetation.

B. Methods of Revegetation:

Acceptable permanent or temporary vegetation measures appropriate for the site and soil drainage conditions shall be seeded and fertilized by September 1st of each year. Establishment or green growth should take place by October 1st of each year, but is dependent upon suitable fall moisture. Where lawn or turf grass is to be established, lawn grass seed or other appropriate landscape cover is to be sown at not less than four (4) pounds to each one thousand (1,000) square feet of land area. Other revegetation methods offering equivalent protection may be approved by the Review Authority. Plant materials are to be watered at intervals sufficient to assure survival and growth. Native plant materials are encouraged to be used to reduce irrigation demands.

410-3.5 Final Contours:

Contours, elevations and shapes of finished surfaces are to be blended with adjacent terrain consistent with land use and surface water management requirements to achieve a consistent grade and transition to the adjacent properties. Tops of cut slopes and bottoms of fills are to be rounded off to a minimum radius of five (5) feet to blend with the natural terrain. This section is not applicable to retaining walls.

410-3.6 Except for permitted piping and culverting, the proposed grading protects and preserves existing natural drainage channels. For the purposes of Section 410-3.6, an existing natural drainage channel is a natural drainage channel that carries more than a de minimis amount of runoff;

410-3.7 The proposed grading will preserve the functioning of off-site drainage courses or bodies of water. When examining off-site drainage courses or bodies of water, a natural resource assessment is not required;

410-3.8 Comply with the applicable standards for permanent storm water quality control facilities adopted by the Oregon State Department of Environmental Quality, as set forth in OAR 340-41-345(4)(a-e). This standard is satisfied by submittal of a service provider letter from the Clean Water Services indicating the proposed development is in compliance with DEQ requirements or will be in compliance when the requirements set forth in the service provider letter are met.

410-3.9 Clean Fill Sites:

- A. Sites approved for more than 5,000 CY shall have direct access to a collector or arterial road;
- B. Each phase of the operation shall be reclaimed within one (1) year after fill activities cease on any segment of the project area.

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