

**TITLE III, LAND USE AND DEVELOPMENT
 DIVISION 3, BUILDING REGULATIONS
 SECTION 331-12
 GRADING, EXCAVATION, EROSION, AND SEDIMENTATION CONTROL**

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(See DRAWINGS document)

331-12. GRADING, EXCAVATION, EROSION, AND SEDIMENTATION CONTROL

A. PURPOSE

The purpose of this section is to safeguard life, limb, property and the public welfare, including the protection of water resources and their related habitats by regulating grading and related activities on private and public property, to control and reduce erosion, to reduce sediment delivered to drainages and streams, and to protect fishery habitat and other biological resources by providing best erosion control and sediment management practices.

B. SCOPE

This section sets forth rules and regulations to control excavation, grading and earthwork construction, including fills and embankments *and* erosion and sedimentation controls. This section also establishes the administrative procedure for issuance of permits; and provides for approval of plans and inspection of grading construction.

C. DEFINITIONS

Whenever the words listed below are used in the County Code, they shall have the following meaning:

1. **APPROVAL** shall mean the building official has determined that the proposed work or completed work conforms to this chapter.
2. **AS-GRADED** is the extent of surface conditions on completion of grading.
3. **BEDROCK** is in-place solid rock.
4. **BENCH** is a relatively level step excavated into earth material on which fill is to be placed.
5. **BEST MANAGEMENT PRACTICES (BMPs)** are physical and managerial practices that, when used separately, or in combination, prevent or reduce erosion, sedimentation, or pollution of water. An example of a guide for BMPs is the State Water Resources Control Board Best Management Practices Construction Handbook.
6. **BORROW** is earth material acquired from an off-site location for use in grading on a site.
7. **CIVIL ENGINEER** is a professional engineer registered in the state to practice in the field of civil works and is qualified in accordance with Section 6730 et seq. of the Business and Professions Code, or successor provisions.
8. **CIVIL ENGINEERING** is the application of the knowledge of the forces of nature, principles of mechanics and the properties of materials to the evaluation, design and construction of civil works.

9. **CLEARING** is the destruction or removal of vegetation by manual, mechanical, or chemical methods resulting in exposed soils.
10. **COMPACTION** is the densification of a fill by mechanical means.
11. **COUNTY ENGINEER** means Director of Department of Public Works or duly licensed designee.
12. **CONSTRUCTION ACTIVITIES; EXCAVATION AND EARTH MOVING** means activities that are an integral and necessary part of a construction project that are undertaken to prepare a site for construction of structures, landscaping, or other land improvements, including the related excavation, grading, compaction, or the creation of fills, road cuts, and embankments.
13. **EARTH MATERIAL** is any rock, natural soil or fill or any combination thereof.
14. **ENGINEERING GEOLOGIST** is a registered geologist experienced and knowledgeable in engineering geology and certified by the State of California to practice as a "Certified Engineering Geologist."
15. **ENGINEERING GEOLOGY** is 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.
16. **EROSION** is the wearing away of the ground surface as a result of the movement of wind, water or ice.
17. **EXCAVATION** is the mechanical removal of earth material.
18. **FILL** is a deposit of earth material placed by mechanical means.
19. **GEOTECHNICAL ENGINEER.** See "Registered Geotechnical Engineer."
20. **GRADE** is the vertical location of the ground surface.
 - a. **Existing Grade** is the grade prior to grading.
 - b. **Finish Grade** is the final grade of the site which conforms to the approved plan.
 - c. **Rough Grade** is the stage at which the grade approximately conforms to the approved plan.
21. **GRADING** means all grading, filling, land contouring, clearing and grubbing, drainage activities, site preparation, and road building.

22. **KEY** is a designed compacted fill placed in a trench excavated in earth material beneath the toe of proposed fill slope.
23. **LAND DISTURBANCE ACTIVITY** is any activity that results in a change in the soil cover or the soil topography.
24. **OTHER WET AREA** as defined within the Streamside Management Area Ordinance Section 314-61.1 et seq.
25. **PLANS, PRELIMINARY**, are those drawings required which are: drawn to scale, and in sufficient detail to indicate the anticipated areas of impact owing to grading and related activities. The plans are to include the proposed methods of mitigating the impacts to a level of less than significant through the use of best management or equivalent techniques.
26. **PLANS, FINAL**, are those drawings provided in sufficient detail for use in the control of construction or related activities and for use in the issuance of permits or approval of improvement plans. The plans are to be accompanied by supporting calculations.
27. **PROFESSIONAL INSPECTION** is the inspection required by this code to be performed by the civil engineer, soils 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.
28. **REGISTERED GEOTECHNICAL ENGINEER** is an engineer experienced and knowledgeable in the practice of geotechnical (soils) engineering and licensed by the State of California to practice. A Registered Civil Engineer may prepare the required geotechnical engineering (soils) report where the engineer has at least fifteen (15) years of experience in preparing such reports for private or public projects which have been accepted for use by public agencies, and is qualified in accordance with Section 6736.1 of the Business and Professions Code, or successor provisions.
- REGISTERED GEOLOGIST** is a registered geologist experienced and knowledgeable in geology and certified by the State of California to practice in the field of geology.
29. **SEDIMENTATION** is the process of deposition of fragmented rock, soils, or organic particles displaced, transported, and deposited by erosive processes.
30. **SITE** is any lot or parcel of land or contiguous combination thereof, under the same ownership, where grading is performed or permitted.
31. **SLOPE** is an inclined ground surface the inclination of which is expressed as a ratio of horizontal distance to vertical distance.

32. **SLOPE, DETERMINATION OF CROSS SLOPE** means the cross slope of a parcel shall be determined by measurement, at fifty-foot intervals, of the average slope perpendicular to the contour lines.
33. **SOIL** is naturally occurring superficial deposits overlying bedrock.
34. **SOILS ENGINEER (GEOTECHNICAL ENGINEER)** see Registered Geotechnical Engineer.
35. **SOILS ENGINEERING (GEOTECHNICAL ENGINEERING)** is 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 or testing of the construction thereof.
36. **STORM WATER POLLUTION PREVENTION PLAN (SWPPP)** is a plan required for various construction and industrial activities pursuant to the Federal Clean Water Act and related State regulations.
37. **STREAMSIDE MANAGEMENT AREA** as defined in the Streamside Management Area Ordinance, Section 314-61.1.
38. **TERRACE** is a relatively level step constructed in the face of a graded slope surface for drainage and maintenance purposes.
39. **VEGETATION MAINTENANCE** is lawn and yard maintenance, brush and tree pruning, home gardening, compliance with CDF defensible space requirements around structures and along roads and driveways, removal of exotic (non-native) plant species, and other land maintenance activities involving cutting, removal, or planting of non-exotic vegetation by manual, mechanical, or chemical methods.
40. **WINTER OPERATIONS** are activities conducted pursuant to a grading permit during the period of 15 October through 15 April.

D. PERMIT REQUIRED

1. Permit Required. Except as specified in subsection (2) below of this section, no person shall do any grading without first having obtained a grading permit from the building official.
2. Exempted Work. Except as provided herein and in Section 331-12(D)(3) below, a grading permit is not required for the following:
 - a. When approved by the building official, grading in a self-contained area if there is no danger to private or public property nor damage to the environment, to fisheries habitat or other aquatic resources or no runoff concerns or indications of wet areas.
 - b. 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 or exempt any excavation having an unsupported height greater than 5 feet (1.5 m) after the completion of such structure.

- c. Cemetery graves.
- d. Solid waste disposal sites regulated by the State Integrated Waste Management Act.
- e. Excavations for wells, tunnels or utilities.
- f. Surface mining in conformance with County and State Surface Mining and Reclamation Act regulations.
- g. Exploratory excavations under the direction of soil engineers, geologists or engineering geologists.
- h. An excavation which (1) is less than 2 feet (0.6 m) in depth, or (2) which does not create a cut slope greater than 5 feet (1.5 m) in height and steeper than 1 unit vertical in 1½ units horizontal (66.7% slope), and does not exceed 50 cubic yards (38.3 m³) on any one lot and does not obstruct a drainage course nor encroach upon a wetland.
- i. A fill less than 1 foot (0.3 m) in depth and placed on natural terrain with a slope flatter than 1 unit vertical in 5 units horizontal (20% slope), or less than 3 feet (0.9 m) in depth, which is not intended to support structures, ~~which~~ does not exceed 50 cubic yards (38.3 m³) on any one lot and does not obstruct a drainage course nor encroach upon a wetland.
- j. Routine tilling and field preparation activities associated with agricultural operations and those activities involved in the production of crops or livestock for wholesale trade.
- k. Routine vegetation maintenance.
- l. Any grading or related activity conducted as a part of a County of Humboldt Public Works project, such as new road, bridge or trail construction, or landfill activities, or activities related to maintenance or repair of an existing County facility.
- m. Timber harvest and management activities when approved and carried out consistent with the California Forest Practices Act. Activities which are not exempt from the local regulation pursuant to Public Resources Code Section 4516.4 are subject to these regulations. Permits are required for private roads within timber harvest areas where the proposed improvements are in excess of the minimum road standards required by the California Department of Forestry for timber harvesting activities.

- n. Routine road and drainage facility maintenance to include culverts.
3. Exception to Exemption.
- a. The above permit exemptions shall not apply to activities conducted:
 - within a Streamside Management Area or other wet area unless exempted by the provisions of the Streamside Management Area Ordinance (see Zone Regulations Section 314-61.1);
 - nor to areas of moderate to high geologic instability as delineated upon the County Geologic Hazards Maps;
 - nor to activities which require a floodplain development permit.
 - b. Activities conducted by the County of Humboldt Public Works Department within a Streamside Management or other wet area when the activity is an activity allowed in the Streamside Management Area Ordinance Section 314-61.1 et seq., or within areas of moderate to high geologic instability, are not required to obtain grading permits.
 - c. Exemption from the permit requirements of this chapter shall not be deemed to grant authorization for any work to be done in violation of the provisions of this chapter or any other laws or ordinances of this jurisdiction.
 - d. New development in hazard areas shall comply with the applicable hazard regulations of the County found within Chapter 6 of these regulations.
 - e. Whenever the building official 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 said property, upon receipt of notice in writing from the building official, 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.

E. **GRADING PERMIT REQUIREMENTS**

- 1. **Permits Required.** Except as exempted in Section 331-12(D)(2) and 331-12(c)(3) above of this code, no person shall do any grading without first obtaining a grading permit from the building official. A separate permit shall be obtained for each site, and may cover both excavations and fills.
- 2. **Application.** The application standards found in California Building Code Section 106.3.1 are applicable to grading. In addition, the application shall state the estimated quantities of work involved.

3. **Grading Designation.** Grading in excess of 5,000 cubic yards (3825 m³) shall be performed in accordance with the approved grading plan prepared by a civil engineer, and shall be designated as "engineered grading." Grading involving less than 5,000 cubic yards (3825 m³) 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.

4. **Engineered Grading Application Requirements.** Application for a grading permit shall be accompanied by two sets of plans and specifications, and supporting data consisting of a soils engineering report and engineering geology report. The plans and specifications shall be prepared and signed by an individual licensed by the state to prepare such plans or specifications.
 - a. Specifications shall contain information covering construction and material requirements.

 - b. Plans shall be drawn to scale upon substantial paper and shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that they will conform to the provisions of this code and all relevant laws, ordinances, rules and regulations. The first sheet of each set of plans shall give location of the work, the name and address of the owner and the person by whom they were prepared.

 - c. The plans shall include the following information:
 - (1) General vicinity of the proposed site.

 - (2) Property limits and accurate contours of existing ground and details of area drainage.

 - (3) Limiting dimensions, elevations or finish contours to be achieved by the grading, and proposed drainage channels and related construction.

 - (4) 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 together with a map showing the drainage area and the estimated runoff of the area served by any drains. The map shall show or provide by narrative the location of discharge points to the nearest natural area (creeks, ponds, rivers, etc.).

 - (5) Location of any buildings or structures 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 15 feet (4.6 m) of the property or which may be affected by the proposed grading operations.

 - (6) Recommendations included in the soils engineering report and the engineering geology report shall be incorporated in the grading plans or specifications. When approved by the building official, specific

recommendations contained in the soils engineering report and the engineering geology report, which are applicable to grading, may be included by reference.

- (7) The dates of the soils engineering and engineering geology reports together with the names, addresses and phone numbers of the firms or individuals who prepared the reports.

5. **Soils Engineering Report.** When a soils engineering report is required, it shall include data regarding the nature, distribution and strength of existing soils, conclusions and recommendations for grading procedures and design criteria for corrective measures, including buttress fills, when necessary, and opinion on adequacy for the intended use of sites to be developed by the proposed grading as affected by soils engineering factors, including the stability of slopes.
6. **Engineering Geology Report.** When an engineering geology report is required, it 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 opinion on the adequacy for the intended use of sites to be developed by the proposed grading, as affected by geologic factors.
7. **Liquefaction Study.** The building official shall require a geotechnical investigation in accordance with Sections 1804.2 and 1804.5 when, during the course of an investigation, all of the following conditions are discovered. The report shall address the potential for liquefaction:
- a. Shallow groundwater, 50 feet (15.24 m) or less.
 - b. Unconsolidated sandy alluvium.
8. **Regular Grading Requirements.** Each application for a grading permit shall be accompanied by a plan in sufficient clarity to indicate the nature and extent of the work. The plans shall give the location of the work, the name of the owner and the name of the person who prepared the plan. The plan shall include the following information:
- a. General vicinity of the proposed site.
 - b. Dimensions, grade and depth of cut and fill, shown on a plot plan with typical cross-sections.
 - c. Method and standard for compaction.
 - d. Location of structures, utilities, existing and proposed drainageways, and major vegetation on the property. Show these features on adjacent property if they might be affected or are within 30 feet (9.14 m) of the proposed grading. A

map shall show or provide by narrative the location of discharge points to the nearest natural area (creeks, ponds, rivers, etc.).

- e. Description of erosion control methods.
 - f. If applicable, excess soil stockpile locations or disposal plans.
9. **Issuance.** The issuance provisions of Section 106.4 are applicable to grading permits. The building official may require that grading operations and project designs be modified if delays occur which incur weather-generated problems not considered at the time the permit was issued.

The building official may require professional inspection and testing by a soils engineer. When the building official has cause to believe that adverse geologic factors may be involved, the grading will be required to conform to engineered grading.

F. **GRADING FEES**

- 1. **General.** Fees shall be assessed in accordance with the provisions of the fee schedule adopted by the County.

G. **BONDS**

- 1. The building official may require bonds in such form and amounts as may be deemed necessary to assure that the work, if not completed in accordance with the approved plans and specifications, will be corrected to eliminate hazardous conditions.
- 2. In lieu of a surety bond the applicant may file a cash bond or instrument of credit with the building official in an amount equal to that which would be required in the surety bond.

H. GRADING STANDARDS

1. **General.** Unless otherwise recommended in the approved soils engineering or engineering geology report, grading activities shall conform to the provisions of this section.
 - a. **Cut Slope.** The slope of cut surfaces shall be no steeper than is safe for the intended use and shall be no steeper than 1 unit vertical in 2 units horizontal (50% slope) unless the permittee 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 property or the environment.
 - b. **Fill Slope and Preparation**
 - (1) **Preparation of Ground.** Fill slopes shall not be constructed on natural slopes steeper than 1 unit vertical in 2 units horizontal (50% slope). 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 1 unit vertical in 5 units horizontal (20% slope) and the height is greater than 5 feet (1.52 m), by benching, into sound bedrock or other competent material as determined by the Geotechnical Engineer or a Certified Engineering Geologist. The bench under the toe of a fill on a slope steeper than 1 unit vertical in 5 units horizontal (20% slope) shall be at least 10 feet (3.05 m) 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 10 feet (3.05 m) 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.
 - (2) **Fill Material.** Amounts of organic material detrimental to structural integrity 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 12 inches (0.31 m) shall be buried or placed in fills.
 - (3) **Exception.** The building official may permit placement of larger rock when the soils engineer properly devises a method of placement, and 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 12 inches (0.31 m) in maximum dimension shall be 10 feet (3.05 m) or more below grade, measured vertically.
- (c) Rocks shall be placed so as to assure filling of all voids with well-graded soil.
- (4) **Compaction.** All fills shall be compacted to a minimum of 90 percent of maximum dry density with sufficient testing for documentation of compliance with this standard.
- (5) **Slope.** The slope of fill surfaces shall be no steeper than is safe for the intended use. Fill slopes shall be no steeper than 1 unit vertical in 2 units horizontal (50% slope).

2. **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 as shown in Figure 1.
- b. **Top of Cut Slope.** The top of cut slopes shall not be made nearer to a site boundary line than one fifth of the vertical height of cut with a minimum of 2 feet (0.61 m) and a maximum of 10 feet (3.05 m). 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 2 feet (0.6 m) and a maximum of 20 feet (6.1 m). Where a fill slope is to be located near the site boundary and the adjacent offsite 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, 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 Setbacks.** The building official may approve alternate setbacks. The building official may require an investigation and recommendation by a qualified engineer or engineering geologist to demonstrate that the intent of this section has been satisfied.

3. **Drainage and Terracing for Slopes Steeper Than 33%**

- a. **General.** Unless otherwise indicated on the approved grading plan, drainage facilities and terracing shall conform to the provisions of this section for cut or fill slopes steeper than 1 unit vertical in 3 units horizontal (33.3% slope).
- b. **Hill Terrace.** Terraces at least 6 feet (1.83 m) in width shall be established at not more than 30-foot (9.14 m) 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 mid-height. For cut or fill slopes greater than 60 feet (18.29 m) and up to 120 feet (36.58 m) in vertical height, one terrace at approximately mid-height shall be 12 feet (3.66 m) in width. Terrace widths and spacing for cut and fill slopes greater than 120 feet (36.58 m) 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.

Swales or ditches on terraces shall have a minimum gradient of 5 percent and must be paved with reinforced concrete not less than 3 inches (76 mm) in thickness or an approved equal paving as approved by the building official. They shall have a minimum depth at the deepest point of 12 inches (305 mm) and a minimum paved width of 5 feet (1.52 m).

A single run of swale or ditch shall not collect runoff from a tributary area exceeding 13,500 square feet (1254.2 m²) (projected) without discharging into a down drain.

- c. **Subsurface Drainage.** Cut and fill slopes shall be provided with subsurface drainage as necessary for stability.
- d. **Surface Drainage Disposal.** All drainage facilities shall be designed to carry waters to the nearest practicable drainageway approved by the building official or other appropriate jurisdiction as a safe place to deposit such waters. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive downdrains or other devices.

Building pads shall have a drainage gradient of 2 percent toward approved drainage facilities, unless waived by the building official. The gradient from the building pad may be 1 percent if all of the following conditions exist throughout the permit area:

- (1) No proposed fills are greater than 10 feet (3.05 m) in maximum depth.
- (2) No proposed finish cut or fill slope faces have a vertical height in excess of 10 feet (3.05 m).

- (3) No existing slope faces, which have a slope face steeper than 1 unit vertical in 10 units horizontal (10% slope), have a vertical height in excess of 10 feet (3.05 m).
- e. **Interceptor Drains.** Paved interceptor drains shall be installed along the top of all cut slopes where the tributary drainage area above slopes toward the cut and has a drainage path greater than 40 feet (12.19 m) measured horizontally. Interceptor drains shall be paved with a minimum of 3 inches (76 mm) of concrete or gunite and reinforced. They shall have a minimum depth of 12 inches (305 mm) and a minimum paved width of 30 inches (762 mm) measured horizontally across the drain. The slope of drain shall be approved by the building official.
4. **Maintenance Required.** The property owner shall be responsible for adequately maintaining all drainage facilities installed pursuant to this section.
5. **Grading Inspection**
- a. **General.** Grading operations for which a permit is required shall be subject to inspection by the building official. Professional inspection of grading operations shall be provided by the civil engineer, soils engineer, or the engineering geologist, as applicable, retained to provide such services 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. **Soils Engineer.** The soils 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 soils 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 soils engineering and engineering geology reports shall be submitted to the permittee, the building official and the civil engineer.
- d. **Engineering Geologist.** The engineering geologist shall provide professional inspection within such professional's area of technical specialty, which shall include professional inspection of the 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 soils engineer.

- 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 code, and the permittee shall engage consultants, if required, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the consultants, the contractor and the building official. 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.
 - f. **Building Official.** The building official shall inspect the project at the various stages of work requiring approval to determine that adequate control is being exercised by the professional consultants.
 - g. **Notification of Noncompliance.** If, in the course of fulfilling their respective duties under this chapter, the civil engineer, the soils engineer or the engineering geologist 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 permittee and to the building official.
 - h. **Transfer of Responsibility.** If the civil engineer, the soils engineer. or the engineering geologist of record is changed during grading, the work shall be stopped until the replacement has agreed in writing to accept their responsibility within the area of technical competence for approval upon completion of the work. It shall be the duty of the permittee to notify the building official in writing of such change prior to the re-commencement of such grading.
6. **Erosion and Sedimentation Control**
- a. **Administration**
 - (1) The erosion and sediment control provisions of this section shall be applicable to all facilities and activities under the supervision of the Director of the Department of Public Works.
 - (2) The administration of this section, as it affects County facilities and activities, is the responsibility of the Director of the Department of Public Works.
 - (3) The administration of this section as it affects other building, grading, and related activities is the responsibility of the Chief Building Official.

b. **Relationship to Other Regulations**

- (1) The County's Subdivision Regulations (Title III, Land Use and Development, Division 2, Subdivision Regulations, Section 323-6(a)(6), require the submission of a grading permit as a part of a tentative subdivision map application. The Director of the Department of Public Works shall be responsible for the administration of these regulations where a grading permit application is submitted as a part of a tentative subdivision map application.
- (2) For any County project over 50 cubic yards in size which involves the use of private property outside of existing public easements or rights-of-way, the Department of Public Works shall provide copies of all preliminary or final project plans or information which affects the private property to the Building Division of the Community Development Services Department.
- (3) Any soils or geologic reports prepared for any project where a grading permit is submitted as a part of a tentative subdivision map application, or related environmental document, shall be placed in the records of the Chief Building Official.

c. **Erosion and Sedimentation Control.** These minimum erosion and sedimentation control standards shall apply to all projects requiring building, grading, and development permits, and County of Humboldt Public Works activities, to prevent sedimentation or damage to onsite and offsite property. These standards shall be incorporated into the project design and shall be adhered to during project construction:

- (1) General Guidelines
 - (a) Minimize soil exposure during the rainy season by proper timing of grading and construction.
 - (b) Retain trees and natural vegetation to stabilize hillsides, retain moisture, reduce erosion, minimize siltation and nutrient runoff and preserve scenic qualities.
 - (c) Vegetate and mulch denuded areas to protect them from winter rains.
 - (d) Divert runoff away from steep, denuded slopes or other critical areas with barriers, berms, ditches or other facilities.
 - (e) Design grading to be compatible with adjacent areas and result in minimal disturbance of the terrain and natural land features.

- (f) Limit construction, clearing of vegetation and disturbance of the soil to areas of proven stability. Mitigate geologic hazards and adverse soil conditions when they are encountered.
- (g) Reduce sediment transport off the site to the maximum extent feasible through the use of Best Management Practices (BMPs).
- (h) Propose a new or modified erosion and sediment control technique if the technique is preferred and meets the intent of these regulations. Obtain approval from the County prior to implementation.
- (i) Conduct frequent site inspections to ensure that control measures are working properly and to correct problems as needed.
- (j) Employ other means of erosion and sediment control as required by the Chief Building Official or Director of the Department of Public Works as applicable.

(2) Sediment Control

- (a) Use sediment basins, silt traps, or similar measure to retain sediment transported by runoff water onsite.
- (b) Collect and direct surface runoff at non-erosive velocities to the common natural watercourse of the drainage area.
- (c) Avoid concentrating surface water anywhere except swales or watercourses.
- (d) Prevent mud from being tracked onto the public roadway by traveling over a temporary gravel construction entrance or washing off vehicle tires before entering a public or private driveway.

(3) Slope Construction

- (a) Minimize length and steepness of slopes by benching, terracing or constructing diversion structures.
- (b) Preserve, match, or blend cuts and fills with the natural contours and undulations of the land.
- (c) Round sharp angles at the top and sides of cut and fill slopes.

- (d) Maintain cut and fill slopes at less than two-to-one (2:1, run:rise) slope unless a geological and engineering analysis indicates that steeper slopes are safe and erosion and sediment control measures can successfully prevent erosion.
- (e) Where a cut or fill slope occurs between two lots, make the slope a part of the downhill lot if possible.

(4) Protection of Watercourses and Drainage Inlets

- (a) Prepare drainageways to handle concentrated or increased runoff from disturbed areas by using appropriate lining materials or energy absorbing devices to reduce the velocity of runoff water.
- (b) Trap sediment-laden runoff in basins to allow soil particles to settle out before flows are released to receiving waters, storm drains, streets or adjacent property. This standard is not mandatory for grading conducted between April 15 and October 15 and when the site is fully winterized and stabilized prior to October 15. Remove trapped sediment to a suitable location on-site or at a disposal site approved by the County.
- (c) Do not grade or drive equipment in a Streamside Management or Other Wet Areas except as allowed through the County Streamside Management Area Ordinance.
- (d) Deposit or store excavated materials away from watercourses.
- (e) Protect all existing or newly installed storm drainage structures from sediment clogging.
- (f) Use straw bales, filter fabric wraps and drainage inlet protections in a manner that does not cause additional erosion or flooding of a roadway.

(5) Disposal of Excavated Materials

- (a) Stockpile topsoil on the site for use on areas to be revegetated.
- (b) Place stockpiled soil in locations, so that if erosion occurs, it will not contribute to offsite sediment discharge.
- (c) Protect stockpiled soil promptly through the use of appropriate BMPs to reduce the risk of erosion and sediment transport. Apply mulch or other protective coverings on stockpiled material that will be exposed through the winter season.

(d) Dispose of excavated material not used at the site at a location approved by the County.

(6) Dust Control

(a) All construction areas, including disposal sites, shall be treated and maintained as necessary to minimize the emission of dust. Maintenance shall be conducted as necessary to prevent a nuisance to offsite properties.

(b) All construction sites, including driveways, shall be maintained as necessary to minimize the emission of dust and prevent the creation of a nuisance to adjacent properties.

(7) Revegetation

(a) Apply temporary seeding and mulching to denuded areas prior to October 15 unless the project is conditioned otherwise.

(b) Establish a permanent vegetative cover on denuded areas not otherwise stabilized. Permanent vegetation ground cover must control soil erosion satisfactorily and survive severe weather conditions.

(c) Retain a vegetative barrier whenever possible around property boundaries.

(d) Use self-sustaining, non-invasive plants that require little or no maintenance and do not create an extreme fire hazard.

(e) Use native plant species whenever feasible.

d. **Erosion and Sediment Control Plan Requirements**

(1) Preparation

A site-specific erosion and sediment control plan shall be prepared and submitted with any development application which involves grading or related activities which has any one of the following characteristics:

(a) The total area of grading and related activities is one (1) acre or more.

(b) The slope is 15% or steeper (of the area to be developed).

- (c) The grading is located within an area of moderate or high geologic instability.
- (d) The grading is within a Streamside Management or Other Wet Area.
- (e) The grading is within a floodplain.
- (f) The grading is for a driveway or road which exceeds 300 feet in length.
- (g) The grading is proposed to occur during winter land disturbing operations (15 October - 15 April).

In addition, the Chief Building Official may require, at any time during design or construction of any project, an erosion and sediment control plan prepared by a qualified professional at the owner's expense.

The plan shall be prepared by a person or firm qualified by training and experience to have expert knowledge of erosion and sediment control methods. The professionally qualified person or firm may be a duly licensed or registered architect, civil engineer, engineering geologist, landscape architect, professional forester, professional soil erosion and sediment control specialist, or a soil conservation service employee working under the responsible charge of a qualified professional. When approved by the Chief Building Official, such plan shall be implemented by the owner. Costs incurred by the County for the checking of plans or calculations or for inspection as a result of preparation of an erosion and sediment control plan shall be borne by the owner or permittee per the adopted County fee schedule.

(2) Implementation Measures

The proposed measures shall be based on recommendations contained in the latest edition of *the State of California Erosion and Sediment Control Handbook* or *State Water Resources Control Board Best Management Practice Construction Handbook* or equivalent Best Management Practice erosion and sediment control guides.

(3) Contents. The plan shall conform to the requirements found in this section.

(a) General

- (1) Identify the owner, plan preparers, project location and activity.

- (2) Include a declaration that the plan was prepared by a person or firm qualified by training and experience to have expert knowledge of erosion and sediment control methods. If the plan is not prepared by a licensed or registered professional, state the justification for the declaration.
- (3) Identify BMP guide(s) used for plan preparation.
- (4) Outline the construction schedule and provide specific deadlines for implementation of erosion control features, specific grading and erosion control activities that will occur subsequent to Final Map recordation.
- (5) Include a schedule for inspection and maintenance of erosion control features by date, project milestone or rainfall event. Specify the individuals responsible for the inspection and their reporting requirements.

For winter land disturbing operations (15 October - 15 April)

include:

- (6) Necessity for working during the winter and efforts to minimize land disturbance.

(b) Sediment Control, Slope Construction and Protection of Watercourses

- (1) Identify existing and proposed drainage patterns, channels and facilities.
- (2) Calculate changes in flow quantities or velocities and specify necessary slope protection or drainage channel and facility improvements.

For winter land disturbing operations (15 October - 15 April)

identify:

- (3) Temporary slope stabilization measures such as mulching with protective coverings. Specify timing of application.
- (4) Temporary channels, interceptors and diversions necessary to control surface water flow over cut and fill slopes.
- (5) Measures to reduce drainage flow velocities such as, benches, vegetation filter strips and earth dams.

- (6) Identify temporary sediment detention basins necessary to retain sediment transported by surface water onsite, including:
 - (i) Location, dimensions and design.
 - (ii) Design criteria and hydraulic sizing calculations.
 - (iii) Construction method.
 - (iv) Maintenance requirements and schedule.
- (7) Methods to prevent vehicle tracking of mud onto public roadways.
- (c) Disposal of Excavated Materials
 - (1) Type and quantity of material.
 - (2) Location of disposal area.
 - (3) Methods to prevent erosion.

For winter land disturbing operations (15 October - 15 April) include:

- (4) Methods to direct drainage away from stockpile.
- (5) Methods to prevent erosion of stockpile during construction.
- (d) Dust Control
 - (1) Measures to keep dust to a minimum during the construction period.
 - (2) Measures to prevent wind erosion of exposed soil.
- (e) Removal of Vegetation and Revegetation
 - (1) Identify the area and type of vegetation to be removed and the necessity for removal.
 - (2) Identify methods for protecting existing vegetation.
 - (3) Specify area to be revegetated.
 - (4) Name the type, quantity and method of application of mulch, seed or plants.

- (5) Describe plans for fertilization and irrigation.
- (6) Comment on the ability of cut or fill surfaces to support permanent vegetation.

For winter land disturbing operations (15 October - 15 April) include:

- (7) Identify temporary revegetation measures such as stage seeding and/or planting of fast germinating seeds. Describe seed protection and vegetation maintenance requirements.
- (f) For winter land disturbing operations, the conditions identified above may be modified or deleted by the Director of Community Development Services based upon weather reports, the proposed construction period, the type and size of the activity and site attributes such as location, slope and soil stability.

(4) Storm Water Pollution Prevention Plans (SWPPP)

For projects subject to the requirement to prepare a SWPPP, a preliminary SWPPP may be submitted in lieu of the erosion and sediment control plan required by these regulations, so long as the SWPPP addresses all the standards and conditions contained within these regulations.

e. **Samples of Best Management Practices**

Found within Attachment 1 to these regulations are schematic drawings which show various Best Management Practices. Specific drawings may be cited for projects where they are proposed for use. Where included within a erosion and sediment control plan, the drawings are to be drawn to scale, with placement shown upon a site plan of the project area. Narrative may be included upon the grading and drainage plan sheet or may be contained in a separate report.

I. **COMPLETION OF WORK**

- 1. **Final Reports.** Upon completion of the permitted rough grading work and at the final completion of the work, the following reports and drawings and supplements thereto are required for engineered grading, or when professional inspection is performed for regular grading, as applicable.
 - a. A set of record drawings prepared by the civil engineer retained to provide such services shall show the original ground surface elevations, as-graded ground surface elevations, lot drainage patterns, and the locations and elevations of surface drainage facilities and of the outlets of subsurface drains. As-

constructed locations, elevations and details of subsurface drains shall be shown as reported by the soils engineer.

- b. Civil engineers shall submit a written statement that to the best of their knowledge the work within their area of responsibility was done in accordance with the final approved grading plan.
 - c. A report prepared by the soils engineer retained to provide such services shall include the locations and elevations of field density tests, summaries of field and laboratory tests, other substantiating data, and comments on any changes made during grading and their effect on the recommendations made in the approved soils engineering investigation report. Soils engineers shall submit a statement that, to the best of their knowledge, the work within their area of responsibilities is in accordance with the approved soils engineering report and applicable provisions of this chapter.
 - d. A report prepared by the engineering geologist retained to provide such services shall include a final description of the geology of the site and any new information disclosed during the grading and the effect of same on recommendations incorporated in the approved grading plan. Engineering geologists shall submit a statement that, to the best of their knowledge, the work within their area of responsibility is in accordance with the approved engineering geologist report and applicable provisions of this chapter.
 - e. The grading contractor shall submit in a form prescribed by the building official a statement of conformance to said as-built plan and the specifications.
2. **Notification of Completion.** The permittee 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, and the required reports have been submitted.

ATTACHMENT 1
TO SECTION 331-12
GRADING, EXCAVATION, EROSION AND SEDIMENTATION
CONTROL

STANDARD DRAWINGS

- 1 TYPICAL INTERCEPTOR SWALE / OUTFALL DETAIL**
- 2 SOIL STABILIZATION**
- 3 SILT FENCE**
- 4 STRAW BALE BARRIER**
- 5 DIKES AND SWALES**
- 6 EROSION CONTROL BLANKETS**
- 7 BRUSH BARRIER**
- 8 SANDBAG BERM**
- 9 SEDIMENTATION POND BAFFLES**
- 10 ROCK CHECK DAMS**
- 11 SEDIMENT TRAP OUTLET**
- 12 SHALLOW WATER SETTLING POND**
- 13 DEEP WATER SETTLING POND**
- 14 STEPPING SLOPES**
- 15 URBAN CONSTRUCTION ROUTE**
- 16 RURAL CONSTRUCTION ACCESS ROUTE**
- 17 PIPE SLOPE DRAINS**
- 18 ENERGY DISSIPATOR**

Refer to DRAWINGS document.