

AS APPROVED BY THE Board of County Commissioners – December 27, 2006

MASON COUNTY RESOURCE ORDINANCE GEOLOGICALLY HAZARDOUS AREAS

17.01.100 LANDSLIDE HAZARD AREAS

The purpose of the Landslide Hazard Section is to identify areas that present potential dangers to public health and safety, to prevent the acceleration of natural geological hazards, to address off site environmental impacts, and to minimize the risk to the property owner or adjacent property owners from development activities.

Except for the exceptions listed below, development in or near landslide hazard areas requires a permit and the professional preparation of a geotechnical report or geological assessment to determine under what conditions the development may proceed at a reasonable risk. All development applications are reviewed to determine if they are likely to be in or near a landslide hazard area.

- Landslide hazard areas in Mason County are defined ~~described~~ in A.
- The designation of landslide hazard areas is done in B.
- Activities exempt from these requirements are described in C.1. and others are listed in section 17.01.130 of the Resource Ordinance.
- Activities requiring permits are described in C.2.
- Standard requirements for certain activities are contained in D.
- When a geotechnical report or geological assessment is required is determined in E 1 and 2.
- The standards for a geotechnical report and geological assessment are contained in E. 3, 4, 5, and 6.
- The general review standard for approval of a permit is in E.7.
- Notice of the risks inherent in development in a landslide hazard area is required for the applicant and future property owners in F.

A. CLASSIFICATION

1. The following shall be classified as Landslide Hazard Areas:

- a. Areas with any indications of earth movement such as debris slides, earthflows, slumps and rock falls (see figure F.100).
- b. Areas with artificial oversteepened or unengineered slopes, i.e. cuts or fills.
- c. Areas with slopes containing soft or potentially liquefiable soils.
- d. Areas oversteepened or otherwise unstable as a result of stream incision, stream bank erosion, and undercutting by wave action.
- e. Slopes greater than 15% (8.5 degrees) and having the following:
 - i. Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock (e.g. sand overlying clay); and
 - ii. Springs or groundwater seepage.
- f. Any area with a slope of forty percent or steeper and with a vertical relief of ten or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten feet of vertical relief.

2. The following information may be used as a guide by the County to indicate areas that have a higher likelihood of meeting the classification criteria above:
 - a. The areas identified on the Mason County Soil Survey Map as having slopes greater than 15%.
 - b. The areas identified on the Coastal Zone Atlas, Volume 9, of Mason County, Washington as:
 - i. Unstable - "U"
 - ii. Unstable Old Slides - "UOS"
 - iii. Unstable Recent Slides - "URS"
 - iv. Intermediate Slopes - "I"
 - v. Modified Slopes - "M"
 - c. The areas identified as Class 2, 3, 4, or 5 of the maps: "Relative Slope Stability of the Southern Hood Canal Area, Washington", by M. Smith and R.J. Carson, Washington State Department of Natural Resources, Division of Earth Resources, 1977; ~~and~~ "The Geological Map of North Central Mason County, Washington", by R.J. Carson, 1976, U.S. Geologic Survey OFR 76-2;
 - d. Areas mapped as landslide deposits (Map Unit QIs) on the: Geologic map of the Longbranch 7.5-minute quadrangle, Thurston, Pierce, and Mason Counties, Washington, by R. L. Logan, T. J. Walsh, and Michael Polenz. 1 sheet, scale 1:24,000, 2003; Geologic map of the Squaxin Island 7.5-minute quadrangle, Mason and Thurston Counties, Washington, by R. L. Logan, Michael Polenz, T. J. Walsh, and H. W. Schasse. 1 sheet, scale 1:24,000, 2003; Geologic map of the Shelton 7.5-minute quadrangle, Mason and Thurston Counties, Washington, by H. W. Schasse, R. L. Logan, Michael Polenz, and T. J. Walsh. 1 sheet, scale 1:24,000, 2003; and Geologic map of the Summit Lake 7.5-minute quadrangle, Thurston and Mason Counties, Washington, by R. L. Logan and T. J. Walsh. 42 x 36 in. color sheet, scale 1:24,000, 2004.

B. DESIGNATION

1. Lands of Mason County classified as Landslide Hazard Areas are hereby designated, under RCW 36.70A.060 and RCW 36.70A.170, as critical areas requiring immediate protection from incompatible land uses.
2. Upon an application for development on either mapped or unmapped lands, the Director shall determine if a potential landslide hazard exists on a particular site based on:
 - a. Information supplied by the applicant in the form of a geotechnical report or geological assessment,
 - b. Actual physical observation of the site,
 - c. Existing County Hazard Area maps identified in subsection A, or
 - d. Other means determined to be appropriate.

~~If the presence of a hazard is determined, the boundaries of the hazard and associated buffers shall then be delineated (top, both sides, and toe) on a geologic map of the site.~~

C. LAND USES

1. Exempt Uses

- a. The growing and harvesting of timber, forest products and associated management activities in accordance with the Washington Forest Practices Act of 1974, as amended, and regulations adopted pursuant thereto; including, but not limited to, road construction and maintenance; aerial operations; applications of fertilizers and pesticides; helispots; and other uses specific to growing and harvesting timber forest products and management activities, except those Forest Practices designated as "Class IV -General Forest Practices" under the authority of the "Washington State Forest Practices Act Rules and Regulations", WAC 222-16-030;
- b. Those activities and uses conducted pursuant to the Washington State Surface Mining Act, RCW 78.44 and its Rules and Regulations, where State law specifically exempts local authority;
- c. Existing and ongoing agriculture, aquaculture, floriculture, horticulture, general farming, dairy operating under best management practices (BMP) of the Washington State Department of Ecology's Storm Water, Water Quality, Hazardous Waste, Wetland, and Solid Waste Program and BMP from the Departments of Health, Agriculture, Transportation, and State Conservation District Office.

2. Permit Required Uses

Permits are required for all new construction, grading, land clearing, and other uses subject to Section 17.01.050, and any Class IV Conversion Permit pursuant to the State Forest Practices Act which involves conversion to a Permit Required Use, and are within a Landslide Hazard Area or its buffer. Permit Required Use in or within 300 feet of a landslide hazard areas ~~may~~ require a ~~Geological-Special~~ Report, see Section 17.01.100.E.

D. DEVELOPMENT STANDARDS

Any land use on Landslide Hazard Areas or their buffers shall conform to the following standards:

1. Grading

- a. No grading shall be performed in landslide hazard areas prior to obtaining a grading permit subject to approval, by the Director, based on recommendations contained in the geotechnical report with slope stability, drainage, erosion control and grading recommendations.
- b. Clearing during grading shall be limited to the area of the approved development.
- c. No fill, dead vegetation (slash/stumps), or other foreign material shall be placed within a Landslide Hazard Area or its associated buffers; with the exception of engineered compacted fill for construction of buttresses for landslide stabilization which shall be in accordance with recommendations specified in a Geotechnical Report.

2. Land Clearing

- a. Within this section, "Land Clearing" is defined as the cutting or harvesting of trees or the removing or cutting of vegetation so as to expose the soil and which is not otherwise exempt from this section.

- b. Land Clearing in Landslide Hazard Areas or their buffers is permitted when it is consistent with the recommendation and plans contained in the Geotechnical Report and development approval.
 - c. If there is no Geotechnical Report for the site, land clearing is not permitted: however removal of danger trees, selected removal for viewing purposes of trees less than 6 inches dbh (diameter at breast height) and trimming or pruning of existing trees and vegetation is allowed with the qualifications cited herein. Danger trees shall be identified with the recommendation of a member of the Association of Consulting Foresters of America, an arborist certified by the International Society of Arboriculture, or with the recommendation of a person qualified to prepare a geotechnical report if removing trees for slope stabilization purposes. Removal of trees less than 6 inches dbh shall be limited to less than 2 percent of the total number of trees of that size or larger in the hazard area. Removal of multiple trees in a concentrated area, i.e. within a distance of 25 feet of each other, shall be accompanied by replacement by deep rooting native shrubs or other vegetation that serve similar moisture and erosion protective functions to that provided by the removed trees. Trimming and pruning shall be accomplished in accordance with pruning standards of the International Society of Arboriculture, as published in "ANSI A300-95" or subsequent updated versions in order to minimize the potential for long term damage to the trees.
 - d. Removal of selected trees and ground cover is allowed without a permit for the purpose of surveying and geotechnical exploration activities that do not involve grading, provided that re-vegetation of the disturbed areas occurs immediately afterward.
 - e. Land clearing for which a permit has been obtained shall not be allowed during the wet season, i.e. from October 15~~November 1~~ through May 1, unless special provisions for wet season erosion and landslide protection have been addressed in the Geotechnical Report and approved by the Director.
3. Drainage
- a. Surface drainage, including downspouts and runoff from paved or unpaved surfaces up slope, shall not be directed onto or within 50 feet above or onto the face of a Landslide Hazard Area or its associated buffer. If drainage must be discharged from the top of a Landslide Hazard Area to below its toe, it shall be collected above the top and directed to below the toe by tight line drain and provided with an energy dissipating device at the toe.
 - b. Stormwater retention and detention systems, including percolation systems utilizing buried pipe or French drain, are prohibited unless a licensed civil engineer certifies appropriate mitigation measures.
 - c. Erosion shall be controlled as provided in the Mason County Stormwater Management Ordinance and in accordance with the recommendations provided in any geotechnical report or geological assessment prepared for the site.
4. Sewage Collection/Treatment Systems

Sewage collection and treatment systems shall be located outside of the Landslide Hazard Areas and associated buffers, unless an approved geotechnical report specifies appropriate mitigation measures. See Section 17.01.100.E.

5. Subdivision Design and Lot Size

For the purpose of determining lot sizes under Title 16 of the Mason County Code, and other county regulatory requirements, the Director shall review available information and required Geotechnical Reports or Geological Assessments under Section 17.01.100.E, and make a decision on a case-by-case basis based on the reports. To avoid impacts to anadromous fisheries and fish habitat, land divisions, (short plats, subdivisions, and large lot divisions) shall not be approved unless:

- a. No improvements or construction shall be within fish and wildlife habitat conservation areas, wetlands, or their buffers, provided that necessary water or wetland crossings or encroachments approved pursuant to other sections of the Mason County Resource Ordinance or other county regulations may be permitted for roads and utilities.
- b. All lots must have designated building areas on which structures may be safely located without the requirement for bulkheading, bank protection or other structures that encroach on fish and wildlife habitat conservation areas, wetlands, or their buffers. Future buildings are to be limited to such designated areas.

The number, size, or configuration of lots may be changed as a condition of approval to meet this requirement.

6. Buffers

- a. A 50 foot (15.25 meter) buffer of undisturbed, natural vegetation is required around the Landslide Hazard Area or as recommended by the geotechnical engineer.
- b. ~~Upon finding substantial evidence that the proposed development is to be located near or within a hazardous area, the Director may require a Geotechnical Report or Geological Assessment pursuant to Section 17.01.100.E.~~ Based on the results of the Geotechnical Report or Geological Assessment, the Director may increase the buffer.
- c. An application may be made to reduce the buffer for the purpose of constructing a single family residence on a lot existing or vested by December 6, 1996. Notice of application for the reduction of the buffer shall be made as provided in Section 15.07.010 of the Mason County Development Code (which specifies how notice is sent to adjacent property owners and posted on the site). The Director shall approve such a reduction only on finding that the approval is conditioned as necessary to be consistent with the recommendations contained within the Geotechnical Report or Geological Assessment (described in Sections 17.01.100.E.) and on finding that impacts to anadromous fish or their habitat or to fish and wildlife habitat conservation areas shall be avoided or mitigated as detailed in an approved Habitat Management Plan (described in Section 17.01.110.)

7. Bulkheads and Bank Protection

Bulkheads and bank protections, along with related fill, constructed for landslide stabilization measures approved under the Shoreline Master Program or the Fish and Wildlife Habitat Conservation Area regulations, shall be consistent with recommendations specified in a Geotechnical Report.

8. Residential Densities and Floor Area Ratios

The landslide hazard area and its buffer shall be counted in calculating the number of dwelling units (determined by the size of the site and residential density allowed) or the area of non-residential building (determined by the size of the site and the floor area ratio allowed) that may be built on the site; provided that:

- a. the development is outside of the landslide hazard area or its buffer, and
- b. the development is able to comply with all county regulations without encroaching on the landslide hazard area or its buffer.

Clustering of residential development away from landslide hazard area and its buffer may receive a density bonus if performed meeting the design requirements contained in Chapter 16.22, Mason County Code.

E. GEOTECHNICAL SPECIAL REPORTS

1. Applicability

Every application for development within a Landslide Hazard Area or its buffer or within 250 feet of the buffer (that is – within 300 feet of the landslide hazard area) shall meet the standards of Section 17.01.100.D and shall require a professionally prepared special report: either a Geological Assessment or a Geotechnical Report, or both. The intent of the Geological Assessment is to confirm that the proposed development is outside of the landslide hazard area and its associated buffers and setbacks. The intent of the Geotechnical Report is to specify how the hazards are to be mitigated when development is proposed within the landslide hazard area itself or its buffers or setbacks. The type of report that is required is specified below: – in accordance with the following guidance:

- Category a. Development proposed within 300 feet of areas ~~Areas~~ with slopes greater than 40 percent (21.8 degrees) will require a Geotechnical Report.
- Category b. Development proposed within 200 feet of areas ~~Areas~~ with any visible signs of earth movement such as debris slides, earthflows, slumps and rockfalls, or areas within 200 feet of previously mapped or recorded landslides will require a Geotechnical Report. If the proposed development is 200 feet or more from these areas, but not more than 300 feet from them, then a Geological Assessment is required and a Geotechnical Report may be required based on findings of the assessment.
- Category c. Development proposed within 100 feet of areas ~~Areas within 100 feet~~ of oversteepened or otherwise potentially unstable slopes as a result of stream incision, stream bank erosion, and undercutting by wave action will require a Geotechnical Report. If the proposed development is 100 feet or more from these areas, but not more than 300 feet from them,

- Category d. then a Geological Assessment is required and a Geotechnical Report may be required based on findings of the assessment.
Development proposed within 300 feet of areas ~~Areas~~ with slopes between 15 percent (8.5 degrees) and 40 percent (21.8 degrees) will require a Geological Assessment, and may further require a Geotechnical Report upon analysis of the following factors by the Director:
- (1) Lot size and use;
 - (2) Overall height of slope and maximum any planned cut or fill (requires a grading plan from the applicant);
 - (3) Soil types and history of sliding in the vicinity (~~from the Geological Assessment~~);
 - (4) Groundwater conditions, including depth to water and quantity of surface seepage (~~from the Geological Assessment~~);
 - (5) Approximate depth to hard or dense competent soil, e.g. glacial till or outwash sand (~~from the Geological Assessment~~);
 - (6) Impervious surfaces and drainage schemes (requires development/grading plan from the applicant);
 - (7) Wastewater treatment (requires on-site sewage disposal system approval from Mason County Department of Health);
 - (8) Potential off-site impacts, including adjacent properties, roadways, etc. (requires environmental statement from the applicant, dependant on scope of project).

2. Waiver of Geotechnical Report

The Director may waive the requirement for the Geotechnical Report for Category c and d sites upon a written finding in the Geological Assessment that the potential for landslide activity is low and that the proposed development would not cause significant adverse impacts, or that there is adequate geological information available on the area proposed for development to determine the impacts of the proposed development and appropriate mitigating measures.

3. Qualifications of Preparer

The Geologic Assessment shall be prepared at the discretion of the Director by either a licensed civil engineer with specialized knowledge of geotechnical/geological engineering or a licensed geologist or engineering geologist with special knowledge of the local conditions. The Geotechnical Report shall be prepared at the discretion of the Director by a licensed civil engineer with specialized knowledge of geotechnical/geological engineering or a licensed engineering geologist. The preparer shall be licensed in the State of Washington.

4. Content of the Geological Assessment

A Geological Assessment shall include but not be limited to the following:

- (1) A discussion of geologic conditions in the general vicinity of the proposed development, with geologic unit designation consistent with terminology used in the Coastal Zone Atlas (Washington Department of Natural Resources, 1980) or in applicable U.S. Geologic Survey maps (e.g. Geological Map of North Central Mason County, by R.J. Carson, 1976, U.S. Geologic Survey OFR 76-2). Also to be used as applicable are: Geologic map of the Longbranch 7.5-minute quadrangle, Thurston, Pierce, and Mason Counties, Washington, by R. L. Logan, T. J.

Walsh, and Michael Polenz. 1 sheet, scale 1:24,000, 2003; Geologic map of the Squaxin Island 7.5-minute quadrangle, Mason and Thurston Counties, Washington, by R. L. Logan, Michael Polenz, T. J. Walsh, and H. W. Schasse. 1 sheet, scale 1:24,000, 2003; Geologic map of the Shelton 7.5-minute quadrangle, Mason and Thurston Counties, Washington, by H. W. Schasse, R. L. Logan, Michael Polenz, and T. J. Walsh. 1 sheet, scale 1:24,000, 2003; and the Geologic map of the Summit Lake 7.5-minute quadrangle, Thurston and Mason Counties, Washington, by R. L. Logan and T. J. Walsh. 42 x 36 in. color sheet, scale 1:24,000, 2004. Use of Soil Conservation Service soil layer terminology is considered inappropriate for this assessment.

- (2) A discussion of the ground water conditions at the site, including the estimated depth to water and the quantity of surface seepage and the upslope geomorphology and location of upland waterbodies and wetlands.
- (3) The approximate depth to hard or dense competent soil, e.g. glacial till or outwash sand.
- (4) A discussion of any geomorphic expression of past slope instability (presence of hummocky ground or ground cracks, terraced topography indicative of landslide block movement, bowed or arched trees indicating downslope movement, etc.).
- (5) A discussion of the history of landslide activity in the vicinity, as available in the Coastal Zone Atlas, the map of "Relative Slope Stability of the Southern Hood Canal Area, Washington" by M. Smith and R.J. Carson, 1977; Geologic map of the Longbranch 7.5-minute quadrangle, Thurston, Pierce, and Mason Counties, Washington, by R. L. Logan, T. J. Walsh, and Michael Polenz. 1 sheet, scale 1:24,000, 2003; Geologic map of the Squaxin Island 7.5-minute quadrangle, Mason and Thurston Counties, Washington, by R. L. Logan, Michael Polenz, T. J. Walsh, and H. W. Schasse. 1 sheet, scale 1:24,000, 2003; Geologic map of the Shelton 7.5-minute quadrangle, Mason and Thurston Counties, Washington, by H. W. Schasse, R. L. Logan, Michael Polenz, and T. J. Walsh. 1 sheet, scale 1:24,000, 2003; and the Geologic map of the Summit Lake 7.5-minute quadrangle, Thurston and Mason Counties, Washington, by R. L. Logan and T. J. Walsh. 42 x 36 in. color sheet, scale 1:24,000, 2004; and the landslide records on file with the Mason County Department of Community Development.
- (6) An opinion on whether the proposed development is within the landslide hazard area or its associated buffer or setback the potential for landslide activity at the site in light of the proposed development.
- (7) A recommendation by the preparer whether a Geotechnical Report should be required to further evaluate site conditions and the proposed development of the subject property.
- (8) If the presence of a hazard is determined within 300 feet of the proposed development, then the area of the proposed development, the boundaries of the hazard, and associated buffers and setbacks shall be delineated (top, both sides, and toe) on a geologic map/ site map.
- (9) A site map drawn to scale showing the property boundaries, scale, north arrow, and the location and nature of existing and proposed development on the site.

5. Content of a Geotechnical Report

A Geotechnical Report shall include but not be limited to the following:

- (1) A discussion of general geologic conditions, specific soil types, ground water conditions, the upslope geomorphology and location of upland waterbodies and wetlands, and history of landslide activity in the vicinity ~~as required for the Geologic Assessment described above.~~
- (2) A site plan which identifies the important development and geologic features.
- (3) Locations and logs of exploratory holes or probes.
- (4) The area of the proposed development, the boundaries of the hazard, and associated buffers and setbacks shall be delineated (top, both sides, and toe) on a geologic map of the site.
- (5) A minimum of one cross section at a scale which adequately depicts the subsurface profile, and which incorporates the details of proposed grade changes.
- (6) A description and results of slope stability analyses performed for both static and seismic loading conditions. Analysis should examine worst case failures. The analysis should

include the Simplified Bishop's Method of Circles. The minimum static safety factor is 1.5, the minimum seismic safety factor is 1.1. and the quasi-static analysis coefficients should be a value of 0.15.

- (7) Appropriate restrictions on placement of drainage features, septic drain fields and compacted fills and footings, including recommended buffers and setbacks from the landslide hazard areas shoreline bluffs and the tops of other slopes on the property.
- (8) Recommendations for the preparation of a A-detailed clearing and grading plan which specifically identifies vegetation to be removed, a schedule for vegetation removal and replanting, and the method of vegetation removal.
- (9) Recommendations for the preparation of a A-detailed temporary erosion control plan which identifies the specific mitigating measures to be implemented during construction to protect the slope from erosion, landslides and harmful construction methods.
- (10) An analysis of both on-site and off-site impacts of the proposed development.
- (11) Specifications of final development conditions such as, vegetative management, drainage, erosion control, and buffer widths.
- (12) Recommendations for the preparation of structural mitigation or details of other proposed mitigation.
- (13) A site map drawn to scale showing the property boundaries, scale, north arrow, and the location and nature of existing and proposed development on the site.

6. Applicable Standards

Geological Assessments and Geotechnical Reports shall be prepared using terminology, descriptions, evaluation methods and mitigation approaches that reflect the current standard of care for practitioners in the field of geologic hazards. Professionals performing geological assessments and geotechnical reports should consider information in, but not limited to the following publications and sources: ~~The standard of care shall be considered to be represented by, but not limited to,~~ Turner, A.K. and Schuster, R.L. (1996; "Landslides, Investigation and Mitigation", Transportation Research Board Special Report 247, National Academy Press, Washington DC.) for classification, analysis and conceptual mitigation of landslides; Washington Department of Ecology (1993; "Slope Stabilization and Erosion Control Using Vegetation, A Manual of Practice For Coastal Property Owners", Publication No. 93-30, Olympia, WA; and "Vegetation Management: A Guide For Puget Sound Bluff Property Owners", Publication No. 93-31, Olympia, WA) for vegetation management and its use in slope stabilization and erosion protection; and Washington Department of Ecology (1995; "Surface Water and Groundwater on Coastal Bluffs", Publication No. 95-107, Olympia, WA) for water and drainage management and its use in slope stabilization and erosion protection.

7. Administrative Determination

Any area in which the Geotechnical report or geological assessment indicates the presence of landslide hazards shall not be subjected to development unless the report demonstrates conclusively that the risks posed by the landslide hazards can be mitigated through geotechnical design recommendations, overcome, and that the development meets all standards in Section 17.01.100.D. Hazards must be mitigated overcome in such a manner as to prevent harm to property and public health and safety, and to assure no significant adverse environmental impact. Impacts to anadromous fish or their habitat or to fish and wildlife habitat conservation areas shall be avoided or mitigated as detailed in an approved Habitat Management Plan, as described in Section 17.01.110. The Director may submit either the Geologic Assessment or the Geotechnical Report to an outside agency with geotechnical expertise or to a geotechnical consultant for third party peer review prior to issuing a ruling on the project.

F. APPLICANT HOLD HARMLESS STATEMENT

The property owner shall be required to acknowledge in writing the risks inherent in developing in a geologic hazard area, to accept the responsibility of any adverse affects which may occur to the subject

property or other properties as a result of the development, and to agree to convey the knowledge of this risk to persons purchasing the site by filing the notice on the property title.

INSERT FIGURE: F 100

17.01.102 SEISMIC HAZARD AREAS

The purpose of the Seismic Hazard Section is to identify areas that present potential dangers to public health and safety, and to prevent the acceleration of manmade and natural geological hazards, and to neutralize the risk to the property owner or adjacent properties from development activities. Types of Seismic Hazards include: Surface Faulting; Ground Shaking; Earthquake-related ground failure and landslides; Lateral Spreading; Liquefaction; Lurch Cracks; Rockfalls; Differential Settlement; Regional Uplift; Seiches; and/or Tsunamis. These are defined under Seismic Hazard Areas in Section 17.01.240.

A. CLASSIFICATION

The following shall be classified as Seismic Hazard Areas:

1. Areas susceptible to ground failure including the following:
 - a. ~~Areas with Mapped~~ geologic faults ~~until proven inactive~~;
 - b. Deep road fills and areas of poorly compacted artificial fill;
 - c. Areas with artificially steepened slopes (i.e. old gravel pits);
 - d. Postglacial stream, lake or beach sediments;
 - e. River deltas;
 - f. Areas designated as potential Landslide Hazard Areas;
 - g. Bluff areas; and
 - h. Areas underlain by potentially liquefiable soils
2. The following criteria may be used as a guide by the County to indicate areas that have a higher likelihood of meeting the classification criteria above:
 - a. Areas identified on the Coastal Zone Atlas of Washington, Volume 9, Mason County as Af, Qa1, Qa2, Qvc, Qls, Qos and Qp.
 - b. Areas identified on the Mason County Soil Survey Map as having slopes greater than 15 percent.
 - c. Faults identified on "Map Showing Known or Suspected Faults With Quaternary Displacement in the Pacific Northwest", A.M. Rogers, T.J. Walsh, W.J. Kockelman and G.R. Priest, US Geologic Survey, 1996; or described in "Active Faulting Investigations on the Canyon River Fault, Southern Olympic Range, Washington", T.J. Walsh and K.G. Neal, U.S. Geologic Survey, 1997.
 - d. Areas underlain by potentially liquefiable soils as shown "Liquefaction Susceptibility Map of Mason County, Washington" by Stephen P. Palmer, Sammantha L. Magsino, James L. Poelstra, Eric L. Bilderback, Derek S. Folger, and Rebecca A. Niggemann, September 2004

B. DESIGNATION

Lands of Mason County meeting the criteria for Seismic Hazard Areas are hereby designated, under RCW 36.70A.060 and RCW 36.70A.170, as critical areas.

C. LAND USES

All uses and activities within Seismic Hazard Areas are subject to the development standards of this Section.

D. DEVELOPMENT STANDARDS

1. Development in Seismic Hazard Areas must be in compliance with Section 17.01.050.
2. Development within Landslide Hazard Areas must be in compliance with Section 17.01.100.
3. Location of Buildings and Facilities

Upon application for a Building Permit, if the Director finds that the proposed development is within a Seismic Hazard Area, the County shall notify the applicant and indicate that the potential effects of seismic activity shall be considered and that Geologic Assessment or Geotechnical Report which addresses the seismic hazard shall be required. Requirements of the Geologic Assessment and Geotechnical Report and the preparer shall be as detailed in Section 17.01.100 E.

- a. The Geologic Assessment or Geotechnical Report shall include a description of the geology of the site, conclusions and recommendations regarding the effect of geological conditions on the proposed development, and opinions and recommendations for compensating for the seismic hazards present.
 - b. The County shall take the potential seismic effects into consideration when reviewing the proposal under SEPA and may include an alternative site analysis and recommendations.
4. Approval of development in Seismic Hazard Areas shall not be issued unless a Geological Assessment or Geotechnical Report demonstrates conclusively that the hazards can be overcome. Hazards must be mitigated ~~overcome~~ in such a manner as to prevent harm to public health, safety, and property and to minimize environmental impact. Impacts to anadromous fish or their habitat or to fish and wildlife habitat conservation areas must be avoided or mitigated as detailed in an approved Habitat Management Plan, as described in Section 17.01.110. The Director may submit the Report to an outside agency with geotechnical expertise or to a geotechnical consultant for third party peer review prior to issuing a ruling on the project at the applicant's expense.
 5. New developments within Seismic Hazard Areas shall be designed in accordance with applicable provisions of the 2003 International Building Code (IBC) ~~1997 Uniform Building Code (UBC)~~ including consideration of the ground motions associated with a 475 year return period seismic event for Seismic Zone 3 and the liquefaction and soil strength loss that may occur during that event. Components of the new development that are critical to health and safety, such as roadways and bridges, that may not be directly addressed by the IBC ~~UBC~~ shall be designed taking into consideration the same ground motions and their possible effects as identified in the IBC ~~UBC~~ for structures.

17.01.104 EROSION HAZARD AREAS

The purpose of the Erosion Hazard Section is to identify areas that present potential dangers to public health and safety, and to prevent the acceleration of natural geological hazards, and to neutralize the risk to the property owner from development activities.

A. CLASSIFICATION

The following shall be classified as Erosion Hazard Areas:

Areas in Mason County underlain by soils which are subject to severe erosion when disturbed. Such soils include, but are not limited to, those for which potential for erosion is identified in the Soil Survey of Mason County, USDA Soil Conservation Service, 1960, or any subsequent revisions or addition to this source. These soils include, but are not limited to, any occurrence of River Wash ("Ra") or Coastal Beaches ("Cg") and the following when they occur on slopes 15% or steeper:

- a. Alderwood gravelly sandy loam ("Ac" and "Ad")
- b. Cloquallum silt loam ("Cd")
- c. Harstine gravelly sandy loam ("Hb")
- d. Kitsap silt loam ("Kc")

B. DESIGNATION

The lands of Mason County meeting the criteria for Erosion Hazard Areas and are classified as such are hereby designated, under RCW 36.70A.060 and RCW 36.70A.170, as critical areas.

C. LAND USES

All uses and activities within Erosion Hazard Areas are subject to the development standards of this Section.

D. DEVELOPMENT STANDARDS

Any land use on Erosion Hazard Areas shall conform to the following standards:

1. Development in Erosion Hazard Areas must be in compliance with Section 17.01.050, and standards and requirements in Section 17.01.100 of this Chapter.
2. No land clearing or grading activities shall be performed in an Erosion Hazard Area prior to obtaining a grading permit, subject to approval by the Director, based on the recommendations contained in the Geotechnical Report.
3. Upon application for a Building Permit, if the Director finds that the proposed development is within an Erosion Hazard Area, the County shall require the applicant to submit a Soil Erosion and Sediment Control Plan prepared by a professional engineer licensed in the State of Washington. The Plan may be included as an attachment in the Geotechnical Report. ~~The Plan may be included as an attachment in the Geotechnical Report and should be or separately prepared by a Professional Engineer licensed in the State of Washington.~~ The Soil Erosion and Sediment Control Plan shall specifically and realistically identify temporary and permanent measures of erosion control.

4. Wet Season Operations: Clearing on an erosion hazard area shall be limited to the period between May 1 – ~~October 15~~November 4. If wet season operations are sought, the applicant shall provide erosion and sedimentation control plan prepared by a professional engineer licensed in the State of Washington that specifically and realistically identifies methods of erosion control for wet weather conditions.
5. The Soil Erosion and Sediment Control Plan shall provide for protection of the development area and disturbed surfaces not involved in the immediate development operation using Best Management Practices (BMP) such as sediment traps, check dams, stabilized construction entrances, storm inlet protection, silt fencing, mulching or other effective means of soil protection.
6. Runoff from activities subject to a development permit shall be properly controlled to prevent erosion.
7. Continued Responsibility: It shall be the responsibility of the property owner and the permittee to ensure that accelerated erosion does not occur during and after the project construction . Additional measures, beyond those specified in an approved Soil Erosion and Sediment Control Plan, may be required by the Director as deemed necessary to control erosion after project completion.