Appendix A

Example Code Provisions For Designating and Protecting Critical Areas

Example Code Provisions for Designating and Protection Critical Areas

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Critical Areas

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Chapter X.10
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PURPOSE AND GENERAL PROVISIONS

X.10.010 Purpose

A. The purpose of this Title is to designate and classify ecologically sensitive and hazardous areas and to protect these areas and their functions and values, while also allowing for reasonable use of private property.

B. This Title is to implement the goals, policies, guidelines, and requirements of the [city/county] comprehensive plan and the Growth Management Act.

C. The [city/county] finds that critical areas provide a variety of valuable and beneficial biological and physical functions that benefit the [city/county] and its residents, and/or may pose a threat to human safety or to public and private property. The beneficial functions and values provided by critical areas include, but are not limited to, water quality protection and enhancement, fish and wildlife habitat, food chain support, flood storage, conveyance and attenuation of flood waters, ground water recharge and discharge, erosion control, wave attenuation,

protection from hazards, historical, archaeological, and aesthetic value protection, and recreation. These beneficial functions are not listed in order of priority.

D. **Goals.** By limiting development and alteration of critical areas, this Title seeks to:

1. Protect members of the public and public resources and facilities from injury, loss of life, or property damage due to landslides and steep slope failures, erosion, seismic events, volcanic eruptions, or flooding;

2. Maintain healthy, functioning ecosystems through the protection of unique, fragile, and valuable elements of the environment, including ground and surface waters, wetlands, and fish and wildlife and their habitats, and to conserve the biodiversity of plant and animal species;

3. Direct activities not dependent on critical areas resources to less ecologically sensitive sites and mitigate unavoidable impacts to critical areas by regulating alterations in and adjacent to critical areas; and

4. Prevent cumulative adverse environmental impacts to water quality, wetlands, and fish and wildlife habitat, and the overall net loss of wetlands, frequently flooded areas, and habitat conservation areas.

These goals should be cross-referenced with the jurisdiction's comprehensive plan goals and policies, as well as with applicable county-wide planning policies.

E. The regulations of this Title are intended to protect critical areas in accordance with the Growth Management Act and through the application of the best available science, as determined according to WAC 365-195-900 through 365-195-925, and in consultation with state and federal agencies and other qualified professionals.

F. This Title is to be administered with flexibility and attention to site-specific characteristics. It is not the intent of this Title to make a parcel of property unusable by denying its owner reasonable economic use of the property or to prevent the provision of public facilities and services necessary to support existing development and planned for by the community without decreasing current service levels below minimum standards.[1]

G. The [city/county]'s enactment or enforcement of this Title shall not be construed for the benefit of any individual person or group of persons other than the general public.

Throughout this example ordinance, authority is generally given to the "director" of the planning and community development department. Depending on the organization of the jurisdiction and department, authority may be placed with the administrator, manager, hearing examiner, or other individual or body charged with implementing these regulations.

X.10.020 Authority

A. As provided herein, the [director] is given the authority to interpret and apply, and the responsibility to enforce this Title to accomplish the stated purpose.

B. The [city/county] may withhold, condition, or deny development permits or activity approvals to ensure that the proposed action is consistent with this Title.

[1] See RCW 36.70A.020(12).

Some general provisions may already be in the adopted zoning code and may be referenced here rather than restated.

See Appendix H for information on related state and federal laws for the nearshore habitat.

Jurisdictions may choose to review critical areas concurrent with other permits, such as shoreline development or HPA permits, and require applicants to submit a combined application of environmental information or a Joint Aquatics Review Permit Application (JARPA).

Whether to make review costs the responsibility of the applicant is a local decision. However, the jurisdiction should make clear what costs might be involved, especially if costs of an outside consultant are to be passed on. Jurisdictions may want to include a multistep fee schedule to recognize the difference between large and small sites/projects.

X.10.030 Relationship to Other Regulations

A. These critical areas regulations shall apply as an overlay and in addition to zoning and other regulations adopted by the [city/county].

B. Any individual critical area adjoined by another type of critical area shall have the buffer and meet the requirements that provide the most protection to the critical areas involved. When any provision of this Title or any existing regulation, easement, covenant, or deed restriction conflicts with this Title, that which provides more protection to the critical areas shall apply.

C. These critical areas regulations shall apply concurrently with review conducted under the State Environmental Policy Act (SEPA), as locally adopted. Any conditions required pursuant to this Title shall be included in the SEPA review and threshold determination.

D. Compliance with the provisions of this Title does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required (for example, Shoreline Substantial Development Permits, Hydraulic Permit Act (HPA) permits, Section 106 of the National Historic Preservation Act, U.S. Army Corps of Engineers Section 404 permits, National Pollution Discharge Elimination System permits). The applicant is responsible for complying with these requirements, apart from the process established in this Title.

X.10.040 Administrative Procedures. The administrative procedures followed during the critical area review process shall conform to the standards and requirements of the [city/county development regulations]. This shall include, but not be limited to, timing, appeals, and fees associated with applications covered by this Title.

X.10.050 Fees

A. The [city/county] by resolution shall establish fees for filing of a critical area identification form, critical area review processing, and other services provided by the [city/county] as required by this Title. These fees shall be based on the anticipated sum of direct costs incurred by the [city/county] for any individual development or action and may be established as a sliding scale that will recover all of the [city/county] costs including the enforcement of these code provisions. Basis for these fees shall include, but not be limited to, the cost of engineering and planning review time, cost of inspection time, costs for administration, and any other special costs attributable to the critical area review process.

B. Unless otherwise indicated in this Title, the applicant shall be responsible for the initiation, preparation, submission, and expense of all required reports, assessment(s), studies, plans, reconnaissance(s), peer review(s) by qualified consultants, and other work prepared in support of or necessary to review the application.

X.10.060 Severability. If any clause, sentence, paragraph, section, or part of this Title or the application thereof to any person or circumstances shall be judged by any court of competent jurisdiction to be invalid, such order or judgment shall be confined in its operation to the controversy in which it was rendered. The

decision shall not affect or invalidate the remainder of any part thereof and to this end the provisions of each clause, sentence, paragraph, section, or part of this law are hereby declared to be severable.

X.10.070 Administrative Rules. Applicable departments within the [city/county] are authorized to adopt such administrative rules and regulations as necessary and appropriate to implement this Title and to prepare and require the use of such forms as necessary for its administration.

X.10.080 Interpretation. In the interpretation and application of this ordinance, the provisions of this Title shall be considered to be the minimum requirements necessary, shall be liberally construed to serve the purpose of this ordinance, and shall be deemed to neither limit nor repeal any other provisions under state statute.

X.10.090 Jurisdiction – Critical Areas

A. The [city/county] shall regulate all uses, activities, and developments within, adjacent to, or likely to affect, one or more critical areas, consistent with the best available science and the provisions herein.

B. Critical areas regulated by this Title include:

1. Wetlands as designated in *Wetlands* [Chapter X.20];

2. Critical aquifer recharge areas as designated in C*ritical Aquifer Recharge Areas* [Chapter X.30];

3. Frequently flooded areas as designated in *Frequently Flooded Areas* [Chapter X.40];

4. Geologically hazardous areas as designated in *Geologically Hazardous Areas* [Chapter X.50]; and

5. Fish and wildlife habitat conservation areas as designated in *Fish and Wildlife Habitat Conservation Areas* [Chapter X.60].

C. All areas within the [city/county] meeting the definition of one or more critical areas, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this Title.

D. **Areas Adjacent to Critical Areas Subject to Regulation.** Areas adjacent to critical areas shall be considered to be within the jurisdiction of these requirements and regulations to support the intent of this Title and ensure protection of the functions and values of critical areas. Adjacent shall mean any activity located:

1. On a site immediately adjoining a critical area;

2. A distance equal to or less than the required critical area buffer width and building setback;

"Adjacent" is used as a way to allow for various inclusion distances, rather than rely on a single arbitrary distance for all critical areas. Jurisdictions with several types of critical areas will find that this allows the regulations to be applied to site-specific conditions. The distances included should be the maximums that might be encountered and should be based on the best available science.

Jurisdictions with few critical areas may prefer to use the alternative shown on the next page.

3. A distance equal to or less than one-half mile (2,640 feet) from a bald eagle nest;[2]

4. A distance equal to or less than three hundred (300) feet upland from a stream, wetland, or water body;[3]

5. Within the floodway, floodplain, or channel migration zone; or

6. A distance equal to or less than two hundred (200) feet from a critical aquifer recharge area.[4]

If the alternative option shown here is used, it would replace the specific distances of Subsection X.10.090(A) and Subsection (D) would no longer be needed. The blank would be filled in using the maximum buffer width that might be applied, so that all lesser buffers are included and the same distance is always used. However, consider that the recommended buffer for Great Blue Heron colonies, which are found throughout the state, is 984 feet.

Alternative Option

A. The [city/county] shall regulate all uses within [____ feet] of, or that are likely to affect, one or more critical areas, consistent with the best available science and the provisions herein.[5]

X.10.100 Protection of Critical Areas

Any action taken pursuant to this Title shall result in equivalent or greater functions and values of the critical areas associated with the proposed action, as determined by the best available science. All actions and developments shall be designed and constructed in accordance with *Mitigation Sequencing* [Section X.10.240] to avoid, minimize, and restore all adverse impacts. Applicants must first demonstrate an inability to avoid or reduce impacts, before restoration and compensation of impacts will be allowed. No activity or use shall be allowed that results in a net loss of the functions or values of critical areas.

BEST AVAILABLE SCIENCE

Refer to the Citations of Recommended Sources of Best Available Science for Designating and Protecting Critical Areas *distributed by CTED for a list of applicable science documents.*

X.10.110 Best Available Science

A. **Protect Functions and Values of Critical Areas With Special Consideration to Anadromous Fish.** Critical area reports and decisions to alter critical areas shall rely on the best available science to protect the functions and values of critical areas and must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish, such as salmon and bull trout, and their habitat.[6]

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[2] Distance of 2,640 feet is based on the Washington Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Species, Volume IV: Birds,* 2000.

[3] Distance of three hundred (300) feet is based on maximum recommended riparian habitat area width from Washington Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Habitats: Riparian,* 1997.

[4] Distance of two hundred (200) feet is a suggested distance to ensure that activities within the critical aquifer recharge area are included under the application of this Title, even when the exact boundaries of the critical aquifer recharge area are not known at the time of application.

[5] This distance should be the maximum possible buffer/zone width that might occur within the jurisdiction. Many priority habitat species require regulation of uses within several hundred feet. At a minimum, it is suggested that this distance not be less than three hundred (300) feet to account for buffers/zones that may be required for wetlands and riparian habitat areas.

[6] See RCW 36.70A.172(1).

B. **Best Available Science to be Consistent With Criteria.** The best available science is that scientific information applicable to the critical area prepared by local, state, or federal natural resource agencies, a qualified scientific professional, or team of qualified scientific professionals that is consistent with criteria established in WAC 365-195-900 through WAC 365-195-925.

C. **Characteristics of a Valid Scientific Process.** In the context of critical areas protection, a valid scientific process is one that produces reliable information useful in understanding the consequences of a local government's regulatory decisions, and in developing critical areas policies and development regulations that will be effective in protecting the functions and values of critical areas. To determine whether information received during the permit review process is reliable scientific information, the [director] shall determine whether the source of the information displays the characteristics of a valid scientific process. Such characteristics are as follows:

For further guidance about key characteristics of a valid scientific process, refer to Table 1 of WAC 365-195-905.

1. **Peer Review.** The information has been critically reviewed by other persons who are qualified scientific experts in that scientific discipline. The proponents of the information have addressed the criticism of the peer reviewers. Publication in a refereed scientific journal usually indicates that the information has been appropriately peer-reviewed;

2. **Methods.** The methods used to obtain the information are clearly stated and reproducible. The methods are standardized in the pertinent scientific discipline or, if not, the methods have been appropriately peer-reviewed to ensure their reliability and validity;

3. **Logical Conclusions and Reasonable Inferences.** The conclusions presented are based on reasonable assumptions supported by other studies and consistent with the general theory underlying the assumptions. The conclusions are logically and reasonably derived from the assumptions and supported by the data presented. Any gaps in information and inconsistencies with other pertinent scientific information are adequately explained;

4. **Quantitative Analysis.** The data have been analyzed using appropriate statistical or quantitative methods;

5. **Context.** The information is placed in proper context. The assumptions, analytical techniques, data, and conclusions are appropriately framed with respect to the prevailing body of pertinent scientific knowledge; and

6. **References.** The assumptions, analytical techniques, and conclusions are well referenced with citations to relevant, credible literature and other pertinent existing information.

D. **Nonscientific Information.** Nonscientific information may supplement scientific information, but it is not an adequate substitute for valid and

available scientific information. Common sources of nonscientific information include the following:

1. **Anecdotal Information.** One or more observations that are not part of an organized scientific effort (for example, "I saw a grizzly bear in that area while I was hiking");

2. **Non-Expert Opinion.** Opinion of a person who is not a qualified scientific expert in a pertinent scientific discipline (for example, "I do not believe there are grizzly bears in that area"); and

3. **Hearsay.** Information repeated from communication with others (for example, "At a lecture last week, Dr. Smith said there were no grizzly bears in that area").

E. **Absence of Valid Scientific Information.** Where there is an absence of valid scientific information or incomplete scientific information relating to a critical area leading to uncertainty about the risk to critical area function of permitting an alteration of or impact to the critical area, the [director] shall:

1. Take a "precautionary or a no-risk approach," that strictly limits development and land use activities until the uncertainty is sufficiently resolved; and

2. Require application of an effective adaptive management program that relies on scientific methods to evaluate how well regulatory and nonregulatory actions protect the critical area. An adaptive management program is a formal and deliberate scientific approach to taking action and obtaining information in the face of uncertainty. An adaptive management program shall:

   a. Address funding for the research component of the adaptive management program;

   b. Change course based on the results and interpretation of new information that resolves uncertainties; and

   c. Commit to the appropriate timeframe and scale necessary to reliably evaluate regulatory and nonregulatory actions affecting protection of critical areas and anadromous fisheries.

APPLICABILITY, EXEMPTIONS, AND EXCEPTIONS

X.10.120 Applicability

A. The provisions of this Title shall apply to all lands, all land uses and development activity, and all structures and facilities in the [city/county], whether or not a permit or authorization is required, and shall apply to every person, firm, partnership, corporation, group, governmental agency, or other entity that owns, leases, or administers land within the [city/county]. No person, company, agency,

or applicant shall alter a critical area or buffer except as consistent with the purposes and requirements of this Title.

B. The [city/county] shall not approve any permit or otherwise issue any authorization to alter the condition of any land, water, or vegetation, or to construct or alter any structure or improvement in, over, or on a critical area or associated buffer, without first ensuring compliance with the requirements of this Title, including, but not limited to, the following:

1. Building permit;
2. Clearing and grading permit;
3. Forest practices permit;
4. Conditional use permit;
5. Shoreline conditional use permit;
6. Shoreline substantial development permit;
7. Shoreline exemption;
8. Shoreline variance;
9. Short subdivision;
10. Subdivision;
11. Planned unit development;
12. Binding site plan;
13. Zoning variance;
14. Zoning code amendment; or
15. Any other adopted permit or required approval not expressly exempted by this Title.

C. Approval of a permit or development proposal pursuant to the provisions of this Title does not discharge the obligation of the applicant to comply with the provisions of this Title.

X.10.130 Exemptions

A. **Exemption Request and Review Process.** The proponent of the activity may submit a written request for exemption to the [director] that describes the activity and states the exemption listed in this Section that applies.

The [director] shall review the exemption request to verify that it complies with this Title and approve or deny the exemption. If the exemption is approved, it

shall be placed on file with the [department]. If the exemption is denied, the proponent may continue in the review process and shall be subject to the requirements of this Title.

B. **Exempt Activities and Impacts to Critical Areas.** All exempted activities shall use reasonable methods to avoid potential impacts to critical areas. To be exempt from this Title does not give permission to degrade a critical area or ignore risk from natural hazards. Any incidental damage to, or alteration of, a critical area that is not a necessary outcome of the exempted activity shall be restored, rehabilitated, or replaced at the responsible party's expense.

C. **Exempt Activities.** The following developments, activities, and associated uses shall be exempt from the provisions of this Title, provided that they are otherwise consistent with the provisions of other local, state, and federal laws and requirements:

1. **Emergencies.** Those activities necessary to prevent an immediate threat to public health, safety, or welfare, or that pose an immediate risk of damage to private property and that require remedial or preventative action in a timeframe too short to allow for compliance with the requirements of this Title.

   Emergency actions that create an impact to a critical area or its buffer shall use reasonable methods to address the emergency; in addition, they must have the least possible impact to the critical area or its buffer. The person or agency undertaking such action shall notify the [city/county] within one (1) working day following commencement of the emergency activity. Within thirty (30) days, the [director] shall determine if the action taken was within the scope of the emergency actions allowed in this Subsection. If the [director] determines that the action taken, or any part of the action taken, was beyond the scope of an allowed emergency action, then enforcement provisions of *Unauthorized Alterations and Enforcement* [Section X.10.340] shall apply.

   After the emergency, the person or agency undertaking the action shall fully fund and conduct necessary restoration and/or mitigation for any impacts to the critical area and buffers resulting from the emergency action in accordance with an approved critical area report and mitigation plan. The person or agency undertaking the action shall apply for review, and the alteration, critical area report, and mitigation plan shall be reviewed by the [city/county] in accordance with the review procedures contained herein. Restoration and/or mitigation activities must be initiated within one (1) year of the date of the emergency, and completed in a timely manner;

2. **Operation, Maintenance, or Repair.** Operation, maintenance, or repair of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees, or drainage systems, that do not require construction permits, if the activity does not further alter or increase the impact to, or encroach further within, the critical area or

buffer and there is no increased risk to life or property as a result of the proposed operation, maintenance, or repair. Operation and maintenance includes vegetation management performed in accordance with best management practices that is part of ongoing maintenance of structures, infrastructure, or utilities, provided that such management actions are part of regular and ongoing maintenance, do not expand further into the critical area, are not the result of an expansion of the structure or utility, and do not directly impact an endangered or threatened species;

3. **Passive Outdoor Activities.** Recreation, education, and scientific research activities that do not degrade the critical area, including fishing, hiking, and bird watching. Trails must be constructed pursuant to *Public and Private Pedestrian Trails* [Section X.10.160(C)(5)]; and

4. **Forest Practices.** Forest practices regulated and conducted in accordance with the provisions of Chapter 76.09 RCW and forest practices regulations, Title 222 WAC, and those that are exempt from [city/county]'s jurisdiction, provided that forest practice conversions are not exempt.

X.10.140 Exception – Public Agency and Utility

A. If the application of this Title would prohibit a development proposal by a public agency or public utility, the agency or utility may apply for an exception pursuant to this Section.

B. **Exception Request and Review Process.** An application for a public agency and utility exception shall be made to the [city/county] and shall include a critical area identification form; critical area report, including mitigation plan, if necessary; and any other related project documents, such as permit applications to other agencies, special studies, and environmental documents prepared pursuant to the State Environmental Policy Act (Chapter 43.21C RCW). The [director] shall prepare a recommendation to the [hearing body/examiner] based on review of the submitted information, a site inspection, and the proposal's ability to comply with public agency and utility exception review criteria in Subsection (D).

C. **[Hearing Body/Examiner] Review.** The [hearing body/examiner] shall review the application and [director]'s recommendation, and conduct a public hearing pursuant to the provisions of the [*applicable city/county chapter*]. The [hearing body/examiner] shall approve, approve with conditions, or deny the request based on the proposal's ability to comply with all of the public agency and utility exception criteria in Subsection (D).

D. **Public Agency and Utility Review Criteria.** The criteria for review and approval of public agency and utility exceptions follow:

1. There is no other practical alternative to the proposed development with less impact on the critical areas;

2. The application of this Title would unreasonably restrict the ability to provide utility services to the public;

3. The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site;

4. The proposal attempts to protect and mitigate impacts to the critical area functions and values consistent with the best available science; and

5. The proposal is consistent with other applicable regulations and standards.

E. **Burden of Proof.** The burden of proof shall be on the applicant to bring forth evidence in support of the application and to provide sufficient information on which any decision has to be made on the application.

A reasonable use exception is a measure of last resort for use only in those situations where all economic use of a property would be denied by the critical areas regulations.

X.10.150 Exception – Reasonable Use

A. If the application of this Title would deny all reasonable economic use of the subject property, the [city/county] shall determine if compensation is an appropriate action, or the property owner may apply for an exception pursuant to this Section.

B. **Exception Request and Review Process.** An application for a reasonable use exception shall be made to the [city/county] and shall include a critical area identification form; critical area report, including mitigation plan, if necessary; and any other related project documents, such as permit applications to other agencies, special studies, and environmental documents prepared pursuant to the State Environmental Policy Act (Chapter 43.21C RCW) (SEPA documents). The [director] shall prepare a recommendation to the [hearing body/examiner] based on review of the submitted information, a site inspection, and the proposal's ability to comply with reasonable use exception criteria in Subsection (D).

C. **[Hearing Body/Examiner] Review.** The [hearing body/examiner] shall review the application and conduct a public hearing pursuant to the provisions of the [*applicable city/county chapter*]. The [hearing body/examiner] shall approve, approve with conditions, or deny the request based on the proposal's ability to comply with all of the reasonable use exception review criteria in Subsection (D).

D. **Reasonable Use Review Criteria.** Criteria for review and approval of reasonable use exceptions follow, one or more may apply:

1. The application of this Title would deny all reasonable economic use of the property;

2. No other reasonable economic use of the property has less impact on the critical area;

3. The proposed impact to the critical area is the minimum necessary to allow for reasonable economic use of the property;

4. The inability of the applicant to derive reasonable economic use of the property is not the result of actions by the applicant after the effective date of this Title, or its predecessor;

5. The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site;

6. The proposal will result in no net loss of critical area functions and values consistent with the best available science; or

7. The proposal is consistent with other applicable regulations and standards.

E. **Burden of Proof.** The burden of proof shall be on the applicant to bring forth evidence in support of the application and to provide sufficient information on which any decision has to be made on the application.

ALLOWED ACTIVITIES

X.10.160 Allowed Activities

A. **Critical Area Report.** Activities allowed under this Title shall have been reviewed and permitted or approved by the [city/county] or other agency with jurisdiction, but do not require submittal of a separate critical area identification form or critical area report, unless such submittal was required previously for the underlying permit. The [director] may apply conditions to the underlying permit or approval to ensure that the allowed activity is consistent with the provisions of this Title to protect critical areas.

Allowed activities are similar to exemptions in that they do not require critical area review. However, unlike exemptions, allowed activities must follow the critical areas standards. Conditions may be applied to the underlying permit, such as the building permit, to ensure critical area protection.

B. **Required Use of Best Management Practices.** All allowed activities shall be conducted using the best management practices, adopted pursuant to [*locally adopted best management practices, such as the stormwater management regulations*], that result in the least amount of impact to the critical areas. Best management practices shall be used for tree and vegetation protection, construction management, erosion and sedimentation control, water quality protection, and regulation of chemical applications. The [city/county] shall observe the use of best management practices to ensure that the activity does not result in degradation to the critical area. Any incidental damage to, or alteration of, a critical area shall be restored, rehabilitated, or replaced at the responsible party's expense.

C. **Allowed Activities.** The following activities are allowed:

1. **Permit Requests Subsequent to Previous Critical Area Review.** Development permits and approvals that involve both discretionary land use approvals (such as subdivisions, rezones, or conditional use permits), and construction approvals (such as building permits) if all of the following conditions have been met:

The purpose of Subsection (C)(1), regarding previous reviews, is to recognize that an applicant should not need to complete a new critical area review for a project that has just had a previous review completed. For example, if critical areas were reviewed and addressed during platting,

they should not need to be readdressed during reconstruction of individual homes as long as the construction is consistent with the original approval. If previous codes did not adequately include the best available science, it may be appropriate to limit this. It may be appropriate to reference Subsection (C)(1)(d) to the subdivision regulations to ensure that they are linked; the time limit for expiration should be consistent with that used for preliminary plat approvals.

a. The provisions of this Title have been previously addressed as part of another approval;

b. There have been no material changes in the potential impact to the critical area or buffer since the prior review;

c. There is no new information available that is applicable to any critical area review of the site or particular critical area;

d. The permit or approval has not expired or, if no expiration date, no more than [five years] has elapsed since the issuance of that permit or approval; and

e. Compliance with any standards or conditions placed upon the prior permit or approval has been achieved or secured;

2. **Modification to Existing Structures.** Structural modification of, addition to, or replacement of an existing legally constructed structure that does not further alter or increase the impact to the critical area or buffer and there is no increased risk to life or property as a result of the proposed modification or replacement, provided that restoration of structures substantially damaged by fire, flood, or act of nature must be initiated within one (1) year of the date of such damage, as evidenced by the issuance of a valid building permit, and diligently pursued to completion;

3. **Activities Within the Improved Right-of-Way.** Replacement, modification, installation, or construction of utility facilities, lines, pipes, mains, equipment, or appurtenances, not including substations, when such facilities are located within the improved portion of the public right-of-way or a [city/county] authorized private roadway except those activities that alter a wetland or watercourse, such as culverts or bridges, or result in the transport of sediment or increased stormwater; subject to the following:

   a. Critical area and/or buffer widths shall be increased, where possible, equal to the width of the right-of-way improvement, including disturbed areas; and

   b. Retention and replanting of native vegetation shall occur wherever possible along the right-of-way improvement and resulting disturbance;

4. **Minor Utility Projects.** Utility projects which have minor or short-duration impacts to critical areas, as determined by the [director] in accordance with the criteria below, and which do not significantly impact the function or values of a critical area(s), provided that such projects are constructed with best management practices and additional restoration measures are provided. Minor activities shall not result in

the transport of sediment or increased stormwater. Such allowed minor utility projects shall meet the following criteria:

1. There is no practical alternative to the proposed activity with less impact on critical areas;

2. The activity involves the placement of a utility pole, street signs, anchor, or vault or other small component of a utility facility; and

3. The activity involves disturbance of an area less than 75 square feet;

5. **Public and Private Pedestrian Trails.** Public and private pedestrian trails, except in wetlands, fish and wildlife habitat conservation areas, or their buffers, subject to the following:

   a. The trail surface shall meet all other requirements including water quality standards set forth in the [*locally adopted stormwater management regulations*];

   b. Critical area and/or buffer widths shall be increased, where possible, equal to the width of the trail corridor, including disturbed areas; and

   c. Trails proposed to be located in landslide or erosion hazard areas shall be constructed in a manner that does not increase the risk of landslide or erosion and in accordance with an approved geotechnical report;

6. **Select Vegetation Removal Activities.** The following vegetation removal activities, provided that no vegetation shall be removed from a critical area or its buffer without approval from the [director]:

   a. The removal of the following vegetation with hand labor and light equipment:

      i. Invasive and noxious weeds;[7]
      ii. English Ivy (*Hedera helix*);
      iii. Himalayan blackberry (*Rubus discolor, R. procerus*); and
      iv. Evergreen blackberry (*Rubus laciniatus*);

   b. The removal of trees from critical areas and buffers that are hazardous, posing a threat to public safety, or posing an imminent risk of damage to private property, provided that:

      i. The applicant submits a report from a certified arborist, registered landscape architect, or professional forester that

While removing debris is often disruptive to the ecosystem, leaving the brush can lead to increased pest damage and fire hazards and raise legal issues for communities. In addition, debris disposal is required under the Forest Practices Act, and care must be taken to follow requirements in state forest fire laws (RCW 76.04.660).

[7] Jurisdictions are advised to include a reference to locally adopted lists of invasive and noxious weeds. Sometimes these are adopted at the county level.

documents the hazard and provides a replanting schedule for the replacement trees;

ii. Tree cutting shall be limited to pruning and crown thinning, unless otherwise justified by a qualified professional. Where pruning or crown thinning is not sufficient to address the hazard, trees should be removed or converted to wildlife snags;

iii. All vegetation cut (tree stems, branches, etc.) shall be left within the critical area or buffer unless removal is warranted due to the potential for disease or pest transmittal to other healthy vegetation;

iv. The landowner shall replace any trees that are removed with new trees at a ratio of two replacement trees for each tree removed (2:1) within one (1) year in accordance with an approved restoration plan. Replacement trees may be planted at a different, nearby location if it can be determined that planting in the same location would create a new hazard or potentially damage the critical area. Replacement trees shall be species that are native and indigenous to the site and a minimum of one (1) inch in diameter-at-breast height (dbh) for deciduous trees and a minimum of six (6) feet in height for evergreen trees as measured from the top of the root ball;

v. If a tree to be removed provides critical habitat, such as an eagle perch, a qualified wildlife biologist shall be consulted to determine timing and methods or removal that will minimize impacts; and

vi. Hazard trees determined to pose an imminent threat or danger to public health or safety, to public or private property, or of serious environmental degradation may be removed or pruned by the landowner prior to receiving written approval from [city/county] provided that within fourteen (14) days following such action, the landowner shall submit a restoration plan that demonstrates compliance with the provisions of this Title.

c. Measures to control a fire or halt the spread of disease or damaging insects consistent with the state Forest Practices Act; Chapter 76.09 RCW, [*and local forest practices regulations if adopted*] provided that the removed vegetation shall be replaced in-kind or with similar native species within one (1) year in accordance with an approved restoration plan; and

d. Unless otherwise provided, or as a necessary part of an approved alteration, removal of any vegetation or woody debris from a habitat conservation area or wetland shall be prohibited;

7. **Chemical Applications.** The application of herbicides, pesticides, organic or mineral-derived fertilizers, or other hazardous substances, if necessary, as approved by the [city/county], provided that their use shall be restricted in accordance with state Department of Fish and Wildlife Management Recommendations and the regulations of the state Department of Agriculture and the U.S. Environmental Protection Agency;[8]

The Washington Department of Fish and Wildlife recommends restricting the use of pesticides and herbicides in many types of habitat. Additionally, the Washington State Department of Agriculture and/or the U.S. Environmental Protection Agency have regulations specific to the use of pesticides, fertilizers, and other chemicals that must be adhered to under federal law, and generally appear on the packaging. A jurisdiction should understand and identify which chemicals are acceptable in specific critical areas prior to approving chemical applications.

8. **Minor Site Investigative Work.** Work necessary for land use submittals, such as surveys, soil logs, percolation tests, and other related activities, where such activities do not require construction of new roads or significant amounts of excavation. In every case, impacts to the critical area shall be minimized and disturbed areas shall be immediately restored; and

9. **Navigational Aids and Boundary Markers.** Construction or modification of navigational aids and boundary markers.

CRITICAL AREA PROJECT REVIEW PROCESS

X.10.170 General Requirements

A. As part of this review, the [city/county] shall:

1. Verify the information submitted by the applicant;

2. Evaluate the project area and vicinity for critical areas;

3. Determine whether the proposed project is likely to impact the functions or values of critical areas; and

4. Determine if the proposed project adequately addresses the impacts and avoids impacts to the critical area associated with the project.

B. If the proposed project is within, adjacent to, or is likely to impact a critical area, the [city/county] shall:

1. Require a critical area report from the applicant that has been prepared by a qualified professional;

2. Review and evaluate the critical area report;

3. Determine whether the development proposal conforms to the purposes and performance standards of this Title, including the criteria in *Review Criteria* [Section X.10.280];

[8] More information on commercial and residential use of chemicals can be found in the Washington State Department of Ecology's *Guidance Document for Establishment of Critical Aquifer Recharge Areas Ordinances*, Version 3.0, Publication #97-30; and from the Washington State Department of Agriculture, http://agr/wa/gov.

4. Assess the potential impacts to the critical area and determine if they can be avoided or minimized; and

5. Determine if any mitigation proposed by the applicant is sufficient to protect the functions and values of the critical area and public health, safety, and welfare concerns consistent with the goals, purposes, objectives, and requirements of this Title.

Local jurisdictions are encouraged to provide applicants with a pre-application opportunity so that property owners and developers can determine whether critical area regulations might apply before extensive plans and engineering information are prepared.

X.10.180 Critical Area Preapplication Consultation. Any person preparing to submit an application for development or use of land that may be regulated by the provisions of this Title shall conduct a consultation meeting with the [director] prior to submitting an application for development or other approval. At this meeting, the [director] shall discuss the requirements of this Title; provide critical area maps, scientific information, and other source materials; outline the review process; and work with the activity proponent to identify any potential concerns that might arise during the review process, in addition to discussing other permit procedures and requirements.

X.10.190 Critical Area Identification Form

The critical area identification form is a tool to be used by the applicant to assist him or her in identifying areas of potential critical areas near the project area. Similar in some ways to a SEPA checklist, the critical area identification form should be straightforward. It asks questions that individual property owners can answer without the help of a scientist or professional consultant (although the jurisdiction may need to provide information to the applicant, such as critical area maps). The questions on the project checklist should be tailored to the local environment and may be consolidated with the SEPA environmental checklist. An outline of potential project checklist questions is included in Appendix F.

A. **Submittal.** Prior to the [city/county]'s consideration of any proposed activity not found to be exempt under *Exemptions* [Section X.10.130] or allowed pursuant to *Allowed Activities* [Section X.10.160], the applicant shall submit to the department a complete critical area identification form on forms provided by the [city/county].

B. **Site Inspection.** Upon receipt of a project application and a critical area identification form, the [director] shall conduct a site inspection to review critical area conditions on site. The [director] shall notify the property owner of the inspection prior to the site visit. Reasonable access to the site shall be provided by the property owner for the purpose of inspections during any proposal review, restoration, emergency action, or monitoring period.

C. **Critical Area Identification Form Review Process.** The [director or his/her designee] shall review the critical area identification form, conduct a site inspection, and review other information available pertaining to the site and the proposal and make a determination as to whether any critical areas may be affected by the proposal and if a more detailed critical area report shall be submitted.

1. **Decision Indicators.** The [director] may use the following indicators to assist in determining the need for a critical area report:

   a. Indication of a critical area on the [city/county] critical areas maps that may be impacted by the proposed activity;

   b. Information and scientific opinions from appropriate agencies, including but not limited to the departments of Fish and Wildlife, Natural Resources, and Ecology;

   c. Documentation, from a scientific or other reasonable source, of the possible presence of a critical area; or

d. A finding by a qualified professional or a reasonable belief by the [director] that a critical area may exist on or adjacent to the site of the proposed activity.

D. **Decision on Identification Form**

1. **No Critical Areas Present.** If after a site visit the [director]'s analysis indicates that the project area is not within or adjacent to a critical area or buffer and that the proposed activity is unlikely to degrade the functions or values of a critical area, then the [director] shall rule that the critical area review is complete and note on the identification form the reasons that no further review is required. A summary of this information shall be included in any staff report or decision on the underlying permit.

2. **Critical Areas Present, But No Impact – Waiver.** If the [director] determines that there are critical areas within or adjacent to the project area, but that the best available science shows that the proposed activity is unlikely to degrade the functions or values of the critical area, the [director] may waive the requirement for a critical area report. A waiver may be granted if there is substantial evidence that all of the following requirements will be met:

   a. There will be no alteration of the critical area or buffer;

   b. The development proposal will not impact the critical area in a manner contrary to the purpose, intent, and requirements of this Title; and

   c. The proposal is consistent with other applicable regulations and standards.

   A summary of this analysis and the findings shall be included in any staff report or decision on the underlying permit.

3. **Critical Areas May Be Affected by Proposal.** If the [director] determines that a critical area or areas may be affected by the proposal, then the [director] shall notify the applicant that a critical area report must be submitted prior to further review of the project, and indicate each of the critical area types that should be addressed in the report.

During project review, a city/county may determine that some or all of the potential environmental impacts of the project have been addressed by its development regulations, comprehensive plan, or other applicable local, state, or federal laws or rules. (See RCW 43.21C.240 and WAC 197-11-158.)

The city/county may make this consistency determination during the course of environmental review and preparation of a SEPA threshold determination (including initial consistency review), if the impacts have been adequately addressed in the applicable regulations (see WAC 365-197-030, Integrated Project Review).

E. **[Director]'s Determination Subject to Reconsideration.** A determination regarding the apparent absence of one or more critical areas by the [director] is not an expert certification regarding the presence of critical areas and the determination is subject to possible reconsideration and reopening if new information is received.

If the applicant wants greater assurance of the accuracy of the critical area review determination, the applicant may choose to hire a qualified professional to provide such assurances.

The notice of application code section of the jurisdiction's land use code should also be updated to include a requirement that critical area reviews, when required, are listed on the notice of application.

It is recommended that the jurisdiction determine if a report is required, and insist on submittal of the report, if needed, prior to determining an application complete and issuing the notice of application. The public may be a valuable source for verifying the presence or absence of critical areas.

X.10.200 Public Notice of Initial Determination. The [city/county] shall notify the public of proposals in accordance with [*notice of application section of the local land use code*].

A. If the [director] determines that no critical area report is necessary, the [city/county] shall state the reasons for this determination in the notice of application issued by the [city/county] for the proposal.

B. If the [director] determines that there are critical areas on the site that the proposed project is unlikely to impact and the project meets the requirements for and has been granted a waiver from the requirement to complete a critical area report, a summary of the analysis and findings for this decision shall be stated in the notice of application for the proposal.

C. If the [director] determines that critical areas may be affected by the proposal and a critical area report is required, public notice of the application shall include a description of the critical area that might be affected and state that a critical area report(s) is required.

CRITICAL AREA REPORT

A critical area report is required to include the documentation and address the relevant issues required in the applicable critical area chapter in addition to providing the contents listed here, in Section X.10.210(C). For example, a critical area report for a wetland should include all the information listed here and all the information listed in Section X.20.030 "Critical Area Report – Additional Report Requirements for Wetlands."

X.10.210 Critical Area Report – Requirements

A. **Preparation by Qualified Professional.** If required by the [director] in accordance with [Section X.10.190(D)(3)], the applicant shall submit a critical area report prepared by a qualified professional as defined herein.

B. **Incorporating of Best Available Science.** The critical area report shall use scientifically valid methods and studies in the analysis of critical area data and field reconnaissance and reference the source of science used. The critical area report shall evaluate the proposal and all probable impacts to critical areas in accordance with the provisions of this Title.

C. **Minimum Report Contents.** At a minimum, the report shall contain the following:

1. The name and contact information of the applicant, a description of the proposal, and identification of the permit requested;

2. A copy of the site plan for the development proposal including:

   a. A map to scale depicting critical areas, buffers, the development proposal, and any areas to be cleared; and

   b. A description of the proposed stormwater management plan for the development and consideration of impacts to drainage alterations.

3. The dates, names, and qualifications of the persons preparing the report and documentation of any fieldwork performed on the site;

4. Identification and characterization of all critical areas, wetlands, water bodies, and buffers adjacent to the proposed project area;

5. A statement specifying the accuracy of the report, and all assumptions made and relied upon;

6. An assessment of the probable cumulative impacts to critical areas resulting from development of the site and the proposed development;

7. An analysis of site development alternatives including a no development alternative;

8. A description of reasonable efforts made to apply mitigation sequencing pursuant to *Mitigation Sequencing* [Section X.10.240] to avoid, minimize, and mitigate impacts to critical areas;

9. Plans for adequate mitigation, as needed, to offset any impacts, in accordance with *Mitigation Plan Requirements* [Section X.10.250], including, but not limited to:

    a. The impacts of any proposed development within or adjacent to a critical area or buffer on the critical area; and

    b. The impacts of any proposed alteration of a critical area or buffer on the development proposal, other properties and the environment;

10. A discussion of the performance standards applicable to the critical area and proposed activity;

11. Financial guarantees to ensure compliance; and

12. Any additional information required for the critical area as specified in the corresponding chapter.

A financial guarantee, such as a performance bond or deposit, should be required to ensure implementation of any mitigation that might be necessary to offset impacts to critical areas.

D. Unless otherwise provided, a critical area report may be supplemented by or composed, in whole or in part, of any reports or studies required by other laws and regulations or previously prepared for and applicable to the development proposal site, as approved by the [director].

X.10.220 Critical Area Report – Modifications to Requirements

A. **Limitations to Study Area.** The [director] may limit the required geographic area of the critical area report as appropriate if:

1. The applicant, with assistance from the [city/county], cannot obtain permission to access properties adjacent to the project area; or

2. The proposed activity will affect only a limited part of the subject site.

B. **Modifications to Required Contents.** The applicant may consult with the [director] prior to or during preparation of the critical area report to obtain

[city/county] approval of modifications to the required contents of the report where, in the judgment of a qualified professional, more or less information is required to adequately address the potential critical area impacts and required mitigation.

C. **Additional Information Requirements.** The [director] may require additional information to be included in the critical area report when determined to be necessary to the review of the proposed activity in accordance with this Title. Additional information that may be required, includes, but is not limited to:

1. Historical data, including original and subsequent mapping, aerial photographs, data compilations and summaries, and available reports and records relating to the site or past operations at the site;

2. Grading and drainage plans; and

3. Information specific to the type, location, and nature of the critical area.

X.10.230 Mitigation Requirements

A. The applicant shall avoid all impacts that degrade the functions and values of a critical area or areas. Unless otherwise provided in this Title, if alteration to the critical area is unavoidable, all adverse impacts to or from critical areas and buffers resulting from a development proposal or alteration shall be mitigated using the best available science in accordance with an approved critical area report and SEPA documents, so as to result in no net loss of critical area functions and values.

B. Mitigation shall be in-kind and on-site, when possible, and sufficient to maintain the functions and values of the critical area, and to prevent risk from a hazard posed by a critical area.

C. Mitigation shall not be implemented until after [city/county] approval of a critical area report that includes a mitigation plan, and mitigation shall be in accordance with the provisions of the approved critical area report.

X.10.240 Mitigation Sequencing. Applicants shall demonstrate that all reasonable efforts have been examined with the intent to avoid and minimize impacts to critical areas. When an alteration to a critical area is proposed, such alteration shall be avoided, minimized, or compensated for in the following sequential order of preference:

A. Avoiding the impact altogether by not taking a certain action or parts of an action;

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;

C. Rectifying the impact to wetlands, critical aquifer recharge areas, frequently flooded areas, and habitat conservation areas by repairing, rehabilitating,

or restoring the affected environment to the historical conditions or the conditions existing at the time of the initiation of the project;

D. Minimizing or eliminating the hazard by restoring or stabilizing the hazard area through engineered or other methods;

E. Reducing or eliminating the impact or hazard over time by preservation and maintenance operations during the life of the action;

F. Compensating for the impact to wetlands, critical aquifer recharge areas, frequently flooded areas, and habitat conservation areas by replacing, enhancing, or providing substitute resources or environments; and

G. Monitoring the hazard or other required mitigation and taking remedial action when necessary.

Mitigation for individual actions may include a combination of the above measures.

X.10.250 Mitigation Plan Requirements. When mitigation is required, the applicant shall submit for approval by [city/county] a mitigation plan as part of the critical area report. The mitigation plan shall include:

A. **Environmental Goals and Objectives.** The mitigation plan shall include a written report identifying environmental goals and objectives of the compensation proposed and including:

1. A description of the anticipated impacts to the critical areas and the mitigating actions proposed and the purposes of the compensation measures, including the site selection criteria; identification of compensation goals; identification of resource functions; and dates for beginning and completion of site compensation construction activities. The goals and objectives shall be related to the functions and values of the impacted critical area;

2. A review of the best available science supporting the proposed mitigation and a description of the report author's experience to date in restoring or creating the type of critical area proposed; and

3. An analysis of the likelihood of success of the compensation project.

B. **Performance Standards.** The mitigation plan shall include measurable specific criteria for evaluating whether or not the goals and objectives of the mitigation project have been successfully attained and whether or not the requirements of this Title have been met.

C. **Detailed Construction Plans.** The mitigation plan shall include written specifications and descriptions of the mitigation proposed, such as:

1. The proposed construction sequence, timing, and duration;

2. Grading and excavation details;

3. Erosion and sediment control features;

4. A planting plan specifying plant species, quantities, locations, size, spacing, and density; and

5. Measures to protect and maintain plants until established.

These written specifications shall be accompanied by detailed site diagrams, scaled cross-sectional drawings, topographic maps showing slope percentage and final grade elevations, and any other drawings appropriate to show construction techniques or anticipated final outcome.

D. **Monitoring Program.** The mitigation plan shall include a program for monitoring construction of the compensation project and for assessing a completed project. A protocol shall be included outlining the schedule for site monitoring (for example, monitoring shall occur in years 1, 3, 5, and 7 after site construction), and how the monitoring data will be evaluated to determine if the performance standards are being met. A monitoring report shall be submitted as needed to document milestones, successes, problems, and contingency actions of the compensation project. The compensation project shall be monitored for a period necessary to establish that performance standards have been met, but not for a period less than five (5) years.

E. **Contingency Plan.** The mitigation plan shall include identification of potential courses of action, and any corrective measures to be taken if monitoring or evaluation indicates project performance standards are not being met.

F. **Financial Guarantees.** The mitigation plan shall include financial guarantees, if necessary, to ensure that the mitigation plan is fully implemented. Financial guarantees ensuring fulfillment of the compensation project, monitoring program, and any contingency measures shall be posted in accordance with *Bonds to Ensure Mitigation, Maintenance, and Monitoring* [Section X.10.400].

X.10.260 Innovative Mitigation

This innovative mitigation section is one example of including allowances for innovative practices within critical areas regulations.

Also, keep in mind that new concepts for innovative mitigation, such as habitat banking, are being developed and may be appropriate to include at a later date.

A. The [city/county] may encourage, facilitate, and approve innovative mitigation projects that are based on the best available science. Advance mitigation or mitigation banking are examples of alternative mitigation projects allowed under the provisions of this Section wherein one or more applicants, or an organization with demonstrated capability, may undertake a mitigation project together if it is demonstrated that all of the following circumstances exist:

1. Creation or enhancement of a larger system of critical areas and open space is preferable to the preservation of many individual habitat areas;

2. The group demonstrates the organizational and fiscal capability to act cooperatively;

3. The group demonstrates that long-term management of the habitat area will be provided; and

4. There is a clear potential for success of the proposed mitigation at the identified mitigation site.

B. Conducting mitigation as part of a cooperative process does not reduce or eliminate the required replacement ratios.

DETERMINATION PROCESS

When evaluating environmental conditions, jurisdictions use a slightly different review process. Often, environmental regulations are applied concurrent with permit review. Here, a "determination" process instructs the director to issue a "notice of determination" (similar to issuing a SEPA threshold determination). By issuing a notice of determination, the critical area review process and decision is well documented, although the decision could also be adequately documented in the staff report for the permit. Another option, used by some jurisdictions, is to require a critical areas permit that must be obtained for applicable projects.

X.10.270 Determination

The [director] shall make a determination as to whether the proposed activity and mitigation, if any, is consistent with the provisions of this Title. The [director]'s determination shall be based on the criteria of *Review Criteria* [Section X.10.280].

X.10.280 Review Criteria

A. Any alteration to a critical area, unless otherwise provided for in this Title, shall be reviewed and approved, approved with conditions, or denied based on the proposal's ability to comply with all of the following criteria:

1. The proposal minimizes the impact on critical areas in accordance with *Mitigation Sequencing* [Section X.10.240];

2. The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site;

3. The proposal is consistent with the general purposes of this Title and the public interest;

4. Any alterations permitted to the critical area are mitigated in accordance with *Mitigation Requirements* [Section X.10.230];

5. The proposal protects the critical area functions and values consistent with the best available science and results in no net loss of critical area functions and values; and

6. The proposal is consistent with other applicable regulations and standards.

B. The [city/county] may condition the proposed activity as necessary to mitigate impacts to critical areas and to conform to the standards required by this Title.

While the determination section speaks of a "notice of determination" document that could be written for review of each project, in implementation it is likely that the determination would become incorporated into the staff report required for a permit – as environmentally sensitive area issues are commonly addressed in staff reports – or the determination could be completed on a pre-produced form that requires the director to sign and check "favorable" or "unfavorable."

The "determination" should be included in the notice of application, if one is required under RCW 36.70B.110 and local regulations, and in any environmental determinations issued under SEPA (i.e., in the threshold determination and an environmental impact statement, if required).

C. Except as provided for by this Title, any project that cannot adequately mitigate its impacts to critical areas in the sequencing order of preferences in Section X.10.240 shall be denied.

X.10.290 Favorable Determination

If the [director] determines that the proposed activity meets the criteria in *Review Criteria* [Section X.10.280] and complies with the applicable provisions of this Title, the [director] shall prepare a written notice of determination and identify any required conditions of approval. The notice of determination and conditions of approval shall be included in the project file and be considered in the next phase of the [city/county]'s review of the proposed activity in accordance with any other applicable codes or regulations.

Any conditions of approval included in a notice of determination shall be attached to the underlying permit or approval. Any subsequent changes to the conditions of approval shall void the previous determination pending re-review of the proposal and conditions of approval by the [director].

A favorable determination should not be construed as endorsement or approval of any underlying permit or approval.

X.10.300 Unfavorable Determination

If the [director] determines that a proposed activity does not adequately mitigate its impacts on the critical areas and/or does not comply with the criteria in *Review Criteria* [Section X.10.280] and the provisions of this Title, the [director] shall prepare written notice of the determination that includes findings of noncompliance.

No proposed activity or permit shall be approved or issued if it is determined that the proposed activity does not adequately mitigate its impacts on the critical areas and/or does not comply with the provisions of this Title.

Following notice of determination that the proposed activity does not meet the review criteria and/or does not comply with the applicable provisions of this Title, the applicant may request consideration of a revised critical area report. If the revision is found to be substantial and relevant to the critical area review, the [director] may reopen the critical area review and make a new determination based on the revised report.

X.10.310 Completion of the Critical Area Review

Jurisdictions may want to reference the vesting of critical areas review decisions to locally adopted vesting policies.

The [city/county]'s determination regarding critical areas pursuant to this Title shall be final concurrent with the final decision to approve, condition, or deny the development proposal or other activity involved.

X.10.320 Appeals

Any decision to approve, condition, or deny a development proposal or other activity based on the requirements of this Title may be appealed according to, and as part of, the appeal procedure for the permit or approval involved.

VARIANCES

X.10.330 Variances

A. Variances from the standards of this Title may be authorized by the [city/county] in accordance with the procedures set forth in the [*locally adopted zoning variance section*] of the [city/county] code. The [hearing body] shall review the request and make a written finding that the request meets or fails to meet the variance criteria.

Variances from the critical areas regulations should be subject to public review through a public hearing and notice process. If existing land use variance regulations do not require a public hearing, it is recommended that such sections be revised to require a public hearing for variances concerning critical areas.

B. **Variance Criteria.** A variance may be granted only if the applicant demonstrates that the requested action conforms to all of the criteria set forth as follows:

1. Special conditions and circumstances exist that are peculiar to the land, the lot, or something inherent in the land, and that are not applicable to other lands in the same district;

2. The special conditions and circumstances do not result from the actions of the applicant;

3. A literal interpretation of the provisions of this Title would deprive the applicant of all reasonable economic uses and privileges permitted to other properties in the vicinity and zone of the subject property under the terms of this Title, and the variance requested is the minimum necessary to provide the applicant with such rights;

4. Granting the variance requested will not confer on the applicant any special privilege that is denied by this Title to other lands, structures, or buildings under similar circumstances;

5. The granting of the variance is consistent with the general purpose and intent of this Title, and will not further degrade the functions or values of the associated critical areas or otherwise be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity of the subject property;

6. The decision to grant the variance includes the best available science and gives special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish habitat; and

7. The granting of the variance is consistent with the general purpose and intent of the [*locally adopted city/county comprehensive plan*] and adopted development regulations.

Proposals needing variances from critical areas regulations should be subject to notice and public hearing requirements consistent with the requirements and limitations in Chapter 36.70B RCW. Notices and hearings for a project should be consolidated and integrated with the environmental and permit review process.

C. **Conditions May Be Required.** In granting any variance, the [city/county] may prescribe such conditions and safeguards as are necessary to secure adequate protection of critical areas from adverse impacts, and to ensure conformity with this Title.

D. **Time Limit.** The [city/county] shall prescribe a time limit within which the action for which the variance is required shall be begun, completed, or both.

Time limits for variances should generally be consistent with other adopted time limits, such as those for preliminary plats.

Failure to begin or complete such action within the established time limit shall void the variance.

E. **Burden of Proof.** The burden of proof shall be on the applicant to bring forth evidence in support of the application and upon which any decision has to be made on the application.

UNAUTHORIZED ALTERATIONS AND ENFORCEMENT

X.10.340 Unauthorized Critical Area Alterations and Enforcement

A. When a critical area or its buffer has been altered in violation of this Title, all ongoing development work shall stop and the critical area shall be restored. The [city/county] shall have the authority to issue a stop work order to cease all ongoing development work, and order restoration, rehabilitation, or replacement measures at the owner's or other responsible party's expense to compensate for violation of provisions of this Title.

B. **Requirement for Restoration Plan.** All development work shall remain stopped until a restoration plan is prepared and approved by [city/county]. Such a plan shall be prepared by a qualified professional using the best available science and shall describe how the actions proposed meet the minimum requirements described in Subsection (C). The [director] shall, at the violator's expense, seek expert advice in determining the adequacy of the plan. Inadequate plans shall be returned to the applicant or violator for revision and resubmittal.

C. **Minimum Performance Standards for Restoration**

1. For alterations to critical aquifer recharge areas, frequently flooded areas, wetlands, and habitat conservation areas, the following minimum performance standards shall be met for the restoration of a critical area, provided that if the violator can demonstrate that greater functional and habitat values can be obtained, these standards may be modified:

    a. The historic structural and functional values shall be restored, including water quality and habitat functions;

    b. The historic soil types and configuration shall be replicated;

    c. The critical area and buffers shall be replanted with native vegetation that replicates the vegetation historically found on the site in species types, sizes, and densities. The historic functions and values should be replicated at the location of the alteration; and

    d. Information demonstrating compliance with the requirements in Section X.10.250 (*Mitigation Plan Requirements*) shall be submitted to the [director].

2. For alterations to flood and geological hazards, the following minimum performance standards shall be met for the restoration of a

critical area, provided that, if the violator can demonstrate that greater safety can be obtained, these standards may be modified:

a. The hazard shall be reduced to a level equal to, or less than, the pre-development hazard;

b. Any risk of personal injury resulting from the alteration shall be eliminated or minimized; and

c. The hazard area and buffers shall be replanted with native vegetation sufficient to minimize the hazard.

D. **Site Investigations.** The [director] is authorized to make site inspections and take such actions as are necessary to enforce this Title. The [director] shall present proper credentials and make a reasonable effort to contact any property owner before entering onto private property.

E. **Penalties.** Any person, party, firm, corporation, or other legal entity convicted of violating any of the provisions of this Title shall be guilty of a misdemeanor. Each day or portion of a day during which a violation of this Title is committed or continued shall constitute a separate offense. Any development carried out contrary to the provisions of this Title shall constitute a public nuisance and may be enjoined as provided by the statutes of the state of Washington. The [city/county] may levy civil penalties against any person, party, firm, corporation, or other legal entity for violation of any of the provisions of this Title. The civil penalty shall be assessed at a maximum rate of _____ dollars per day per violation.

The amount of the penalty needs to be decided locally and should be consistent with other adopted civil penalties. Commonly, the penalty is $1,000 per day per violation.

GENERAL CRITICAL AREA PROTECTIVE MEASURES

Some jurisdictions may prefer to have critical areas marked with posts rather than signs. Posts are an alternative that retain the function of marking the edge of the critical area or buffer, giving staff and property owners the ability to identify the edge of allowed development activities.

X.10.350 Critical Area Markers and Signs

A. The boundary at the outer edge of critical area tracts and easements shall be delineated with permanent survey stakes, using iron or concrete markers as established by local survey standards.

B. The boundary at the outer edge of the critical area or buffer shall be identified with temporary signs prior to any site alteration. Such temporary signs shall be replaced with permanent signs prior to occupancy or use of the site.

C. These provisions may be modified by the [director] as necessary to ensure protection of sensitive features or wildlife needs.

X.10.360 Notice on Title

A. In order to inform subsequent purchasers of real property of the existence of critical areas, the owner of any property containing a critical area or buffer on which a development proposal is submitted shall file a notice with the county records and elections division according to the direction of the [city/county]. The notice shall state the presence of the critical area or buffer on the property, the application of this Title to the property, and the fact that limitations on actions in or affecting the critical area or buffer may exist. The notice shall "run with the land."

Jurisdictions may want to provide, either in the code section or in a guidance document outside of the code, specific language indicating what should be stated on the title notice.

B. This notice on title shall not be required for a development proposal by a public agency or public or private utility:

1. Within a recorded easement or right-of-way;

2. Where the agency or utility has been adjudicated the right to an easement or right-of-way; or

3. On the site of a permanent public facility.

C. The applicant shall submit proof that the notice has been filed for public record before the [city/county] approves any site development or construction for the property or, in the case of subdivisions, short subdivisions, planned unit developments, and binding site plans, at or before recording.

X.10.370 Native Growth Protection Areas

A. Unless otherwise required in this Title, native growth protection areas shall be used in development proposals for subdivisions, short subdivisions, planned unit developments, and binding site plans to delineate and protect those contiguous critical areas and buffers listed below:

1. All landslide hazard areas and buffers;

2. All wetlands and buffers;

3. All habitat conservation areas; and

4. All other lands to be protected from alterations as conditioned by project approval.

Critical areas may be protected by requiring protection areas, easements, tracts, or other methods of segregating land. Relatively small and isolated critical areas might be best protected in a recorded easement, such as a native growth protection area. It may be appropriate to require larger or more significant critical areas, such as riparian areas, to be set aside in tracts that are dedicated to the jurisdiction. One or both of the sections shown here or another method may be used. Jurisdictions may wish to evaluate their density requirements and consider possible opportunities for density bonuses to make protective easements more attractive to developers.

B. Native growth protection areas shall be recorded on all documents of title of record for all affected lots.

C. Native growth protection areas shall be designated on the face of the plat or recorded drawing in a format approved by the [city/county attorney]. The designation shall include the following restrictions:

1. An assurance that native vegetation will be preserved for the purpose of preventing harm to property and the environment, including, but not limited to, controlling surface water runoff and erosion, maintaining slope stability, buffering, and protecting plants, fish, and animal habitat; and

2. The right of the [city/county] to enforce the terms of the restriction.

X.10.380 Critical Area Tracts

A. Critical area tracts shall be used in development proposals for subdivisions, short subdivisions, planned unit developments, and binding site plans to delineate and protect those contiguous critical areas and buffers listed below that total [five thousand (5,000)] or more square feet:

1. All landslide hazard areas and buffers;

2. All wetlands and buffers;

3. All habitat conservation areas; and

4. All other lands to be protected from alterations as conditioned by project approval.

B. Critical area tracts shall be recorded on all documents of title of record for all affected lots.

C. Critical area tracts shall be designated on the face of the plat or recorded drawing in a format approved by the [city/county attorney]. The designation shall include the following restriction:

1. An assurance that native vegetation will be preserved for the purpose of preventing harm to property and the environment, including, but not limited to, controlling surface water runoff and erosion, maintaining slope stability, buffering, and protecting plants, fish, and animal habitat; and

2. The right of the [city/county] to enforce the terms of the restriction.

D. The [city/county] may require that any required critical area tract be dedicated to the [city/county], held in an undivided interest by each owner of a building lot within the development with the ownership interest passing with the ownership of the lot, or held by an incorporated homeowner's association or other legal entity (such as a land trust, which ensures the ownership, maintenance, and protection of the tract).

X.10.390 Building Setbacks. Unless otherwise provided, buildings and other structures shall be set back a distance of fifteen (15) feet from the edges of all critical area buffers or from the edges of all critical areas, if no buffers are required.[9] The following may be allowed in the building setback area:

Each jurisdiction should establish the relationship between setbacks and critical areas so that it is clear how close one can build adjacent to a critical area or buffer. The setback from the critical area should allow enough space for construction and use of the buildable area without impact to the critical area or buffer.

A. Landscaping;

B. Uncovered decks;

[9] Primary protection of the critical area should be accomplished through the designation of a sufficiently wide buffer area based on science and site specific conditions, not by adhering to the building setback shown here. The building setback distance is intended to provide adequate room for construction, use, and access without infringing upon the critical area or buffer. Fifteen (15) feet is a commonly required setback distance from critical areas and buffers; a larger setback may be appropriate is some instances. Jurisdictions should consider revisions to their land use codes so that typical setbacks are measured from the critical area or buffer. For example, if a residential zone requires thirty-foot (30) rear yards, that setback should generally be measured from the critical area buffer.

C. Building overhangs, if such overhangs do not extend more than eighteen (18) inches into the setback area; and

D. Impervious ground surfaces, such as driveways and patios, provided that such improvements may be subject to water quality regulations as adopted in the [*locally adopted stormwater management regulations*].

X.10.400 Bonds to Ensure Mitigation, Maintenance, and Monitoring

A. When mitigation required pursuant to a development proposal is not completed prior to the [city/county] final permit approval, such as final plat approval or final building inspection, the [city/county] shall require the applicant to post a performance bond or other security in a form and amount deemed acceptable by the [city/county]. If the development proposal is subject to mitigation, the applicant shall post a mitigation bond or other security in a form and amount deemed acceptable by the [city/county] to ensure mitigation is fully functional.

B. The bond shall be in the amount of one hundred and twenty-five percent (125%) of the estimated cost of the uncompleted actions or the estimated cost of restoring the functions and values of the critical area that are at risk, whichever is greater.

C. The bond shall be in the form of a surety bond, performance bond, assignment of savings account, or an irrevocable letter of credit guaranteed by an acceptable financial institution with terms and conditions acceptable to the [city/county] attorney.

D. Bonds or other security authorized by this Section shall remain in effect until the [city/county] determines, in writing, that the standards bonded for have been met. Bonds or other security shall be held by the [city/county] for a minimum of five (5) years to ensure that the required mitigation has been fully implemented and demonstrated to function, and may be held for longer periods when necessary.

E. Depletion, failure, or collection of bond funds shall not discharge the obligation of an applicant or violator to complete required mitigation, maintenance, monitoring, or restoration.

F. Public development proposals shall be relieved from having to comply with the bonding requirements of this Section if public funds have previously been committed for mitigation, maintenance, monitoring, or restoration.

G. Any failure to satisfy critical area requirements established by law or condition including, but not limited to, the failure to provide a monitoring report within thirty (30) days after it is due or comply with other provisions of an approved mitigation plan shall constitute a default, and the [city/county] may demand payment of any financial guarantees or require other action authorized by the [city/county] code or any other law.

H. Any funds recovered pursuant to this Section shall be used to complete the required mitigation.

X.10.410 Critical Area Inspections. Reasonable access to the site shall be provided to the [city/county], state, and federal agency review staff for the purpose of inspections during any proposal review, restoration, emergency action, or monitoring period.

Wetlands

Chapter X.20
Wetlands

Designation, Rating, and Mapping
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DESIGNATION, RATING and MAPPING

X.20.010 Designation, Rating, and Mapping Wetlands

A. **Designating Wetlands.** Wetlands are those areas, designated in accordance with the *Washington State Wetland Identification and Delineation Manual* (1997), that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. All areas within the [city/county] meeting the wetland designation criteria in the Identification and Delineation Manual, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this Title.

B. **Wetland Ratings.**[10] Wetlands shall be rated according to the Washington State Department of Ecology wetland rating system found in the Washington State Wetland Rating System documents (Western Washington, Ecology Publication #93-74 and Eastern Washington, Ecology Publication #91-58) or as revised by Ecology.[11] These documents contain the definitions and methods for determining if the criteria below are met.

1. **Wetland Rating Categories**
   a. **Category I.** Category I wetlands are those that meet one or more of the following criteria:

      i. Documented habitat for federal or state listed endangered or threatened fish, animal, or plant species;

[10] See WAC 365-190-080(1)(a).
[11] The Wetland Rating System documents are currently being revised by the state Department of Ecology.

ii. High quality native wetland communities, including documented category I or II quality Natural Heritage wetland sites and sites which qualify as a category I or II quality Natural Heritage wetland (defined in the rating system documents);

iii. High quality, regionally rare wetland communities with irreplaceable ecological functions, including sphagnum bogs and fens, estuarine, wetlands, or mature forested swamps (defined in the rating system documents); or wetlands of exceptional local significance.

b. **Category II.** Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Services, and National Marine Fisheries Services documented habitats for state listed sensitive plant, fish, or animal species;

i. Wetlands that contain fish or animal species listed as priority species by the Washington Department of Fish and Wildlife, or plant species listed as rare by the Washington State Department of Natural Resources;[12]

ii. Wetland types with significant ecological functions as determined by an agency approved functional evaluation methodology that may not be adequately replicated through creation or restoration;

iii. Wetlands possessing significant habitat value based on a score of twenty-two (22) or more points in the state Department of Ecology habitat rating system; or

iv. Documented wetlands of local significance.

c. **Category III.** Category III wetlands are those that do not satisfy category I, II, or IV criteria, and with a habitat value rating of twenty-one (21) points or less.

d. **Category IV.** Category IV wetlands are those that meet one or more of the following criteria:

i. Hydrologically isolated wetlands, as determined by the U.S. Army Corps of Engineers Regulatory Branch that are less than or equal to one (1) acre in size, have only one wetland class, and are dominated [greater than eighty percent (80%) area cover] by a single, non-native plant species (monotypic vegetation); or

[12] See Appendix J.

ii. Hydrologically isolated wetlands that are less than or equal to two (2) acres in size, and have only one wetland class and greater than ninety percent (90%) a real cover of non-native plant species

2. **Date of wetland rating.** Wetland rating categories shall be applied as the wetland exists on the date of adoption of the rating system by the local government, as the wetland naturally changes thereafter, or as the wetland changes in accordance with permitted activities. Wetland rating categories shall not change due to illegal modifications.

D. **Mapping.** The approximate location and extent of wetlands are shown on the adopted critical area maps. The following critical area maps, including [*locally adopted maps or the National Wetlands Inventory*] are hereby adopted. Additionally, soil maps produced by U.S. Department of Agriculture National Resources Conservation Service may be useful in helping to identify potential wetland areas.

These maps are to be used as a guide for the [city/county], project applicants, and/or property owners, and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

The exact location of a wetland's boundary shall be determined through the performance of a field investigation by a qualified professional wetland scientist applying the *Washington State Wetlands Identification and Delineation Manual* as required by RCW 36.70A.175 (Ecology Publication #96-94, 1997).

ALLOWED ACTIVITIES – WETLANDS

X.20.020 Activities Allowed in Wetlands. The activities listed below are allowed in wetlands in addition to those activities listed in, and consistent with, the provisions established in *Allowed Activities* [Section X.10.150], and do not require submission of a critical area report, except where such activities result in a loss to the functions and values of a wetland or wetland buffer. These activities include:

A. Conservation or preservation of soil, water, vegetation, fish, shellfish, and other wildlife that does not entail changing the structure or functions of the existing wetland.

B. The harvesting of wild crops in a manner that is not injurious to natural reproduction of such crops and provided the harvesting does not require tilling of soil, planting of crops, chemical applications, or alteration of the wetland by changing existing topography, water conditions, or water sources.

C. Drilling for utilities under a wetland provided that the drilling does not interrupt the ground water connection to the wetland or percolation of surface water down through the soil column. Specific studies by a hydrologist are necessary to determine whether the ground water connection to the wetland or percolation of surface water down through the soil column is disturbed.

D. Enhancement of a wetland through the removal of non-native invasive species. Weeding shall be restricted to hand removal and weed material shall be removed from the site. Bare areas that remain after weed removal shall be re-vegetated with native shrubs and trees at natural densities. Some hand seeding may also be done over the bare areas with native herbs.

ADDITIONAL REPORT REQUIREMENTS – WETLANDS

X.20.030 Critical Area Report – Additional Requirements for Wetlands. In addition to the general critical area report requirements of Section X.10.210, critical area reports for wetlands must meet the requirements of this Section. Critical area reports for two or more types of critical areas must meet the report requirements for each relevant type of critical area.

A. **Preparation by a Qualified Professional.** A critical area report for wetlands shall be prepared by a qualified professional who is a certified professional wetland scientist or a non-certified professional wetland scientist with a minimum of five (5) years experience in the field of wetland science and with experience preparing wetland reports.

B. **Area Addressed in Critical Area Report**. The following areas shall be addressed in a critical area report for wetlands:

1. The project area of the proposed activity;

2. All wetlands and recommended buffers within three hundred (300) feet of the project area;[13] and

3. All shoreline areas, water features, floodplains, and other critical areas, and related buffers within three hundred (300) feet of the project area.

C. **Wetland analysis.** In addition to the minimum required contents of *Critical Area Reports – Requirements* [Section X.10.210], a critical area report for wetlands shall contain an analysis of the wetlands including the following site- and proposal-related information at a minimum:

1. A written assessment and accompanying maps of the wetlands and buffers within three hundred (300) feet of the project area, including the following information at a minimum:

   a. Wetland delineation and required buffers;

   b. Existing wetland acreage;

[13] Critical area reports should consider wetlands and other critical areas within three hundred (300) feet due to the maximum potential buffer size for wetlands. Critical area size and characteristics beyond the project area may be estimated through aerial photographic interpretation and discussions with agency staff if the adjacent property owner denies access.

c. Wetland category;

d. Vegetative, faunal, and hydrologic characteristics;

e. Soil and substrate conditions;

f. Topographic elevations, at two-foot contours, and

g. A discussion of the water sources supplying the wetland and documentation of hydrologic regime (locations of inlet and outlet features, water depths throughout the wetland, evidence of recharge or discharge, evidence of water depths throughout the year – drift lines, algal layers, moss lines, and sediment deposits).

2. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing wetlands and restore any wetlands that were degraded prior to the current proposed land use activity.

3. A habitat and native vegetation conservation strategy that addresses methods to protect and enhance on-site habitat and wetland functions.

4. Functional evaluation for the wetland and adjacent buffer using a local or state agency staff-recognized method and including the reference of the method and all data sheets.

5. Proposed mitigation, if needed, including a written assessment and accompanying maps of the mitigation area, including the following information at a minimum:

    i. Existing and proposed wetland acreage;

    ii. Vegetative and faunal conditions;

    iii. Surface and subsurface hydrologic conditions including an analysis of existing and future hydrologic regime and proposed hydrologic regime for enhanced, created, or restored mitigation areas;

    iv. Relationship within watershed and to existing waterbodies;

    v. Soil and substrate conditions, topographic elevations;

    vi. Existing and proposed adjacent site conditions;

    vii. Required wetland buffers (including any buffer reduction and mitigation proposed to increase the plant densities, remove weedy vegetation, and replant the buffers);

viii. Property ownership; and

ix. Associated wetlands and related wetlands that may be greater than three hundred (300) feet from the subject project.

6. A scale map of the development proposal site and adjacent area. A discussion of ongoing management practices that will protect wetlands after the project site has been developed; including proposed monitoring and maintenance programs.

7. A bond estimate for the installation (including site preparation, plant materials and installation, fertilizers, mulch, stakes) and the proposed monitoring and maintenance work for the required number of years.

8. Title Notification. All activity in critical area protection areas shall be accompanied by a title.

D. **Additional Information.** When appropriate, the [director] may also require the critical area report to include an evaluation by the state Department of Ecology or an independent qualified expert regarding the applicant's analysis and the effectiveness of any proposed mitigating measures or programs, and to include any recommendations as appropriate.

1. If the development proposal site contains or is within a wetland area, the applicant shall submit an affidavit, which declares whether the applicant has knowledge of any illegal alteration to any or all wetlands on the proposed site and whether the applicant previously had been found in violation of this ordinance. If the applicant has been found previously in violation, the applicant shall declare whether such violation has been corrected to the satisfaction of the jurisdiction.

2. The [director] shall determine if the mitigation and monitoring plans and bonding measures proposed by the applicant are sufficient to protect the public health, safety, and welfare, consistent with the goals, purposes, objectives and requirements of this ordinance.

PERFORMANCE STANDARDS

X.20.040 Performance Standards – General Requirements

A. Activities may only be permitted in a wetland or wetland buffer if the applicant can show that the proposed activity will not degrade the functions and functional performance of the wetland and other critical areas.

B. Activities and uses shall be prohibited in wetlands and wetland buffers, except as provided for in this Title.

C. **Category I Wetlands.** Activities and uses shall be prohibited from Category I, except as provided for in the public agency and utility exception, reasonable use exception, and variance sections of this Title.

D. **Category II and III Wetlands.** With respect to activities proposed in Category II and III wetlands, the following standards shall apply:

1. Water-dependent activities may be allowed where there are no practicable alternatives that would have a less adverse impact on the wetland, its buffers and other critical areas.

2. Where nonwater-dependent activities are proposed, it shall be presumed that alternative locations are available, and activities and uses shall be prohibited, unless the applicant demonstrates that:

   a. The basic project purpose cannot reasonably be accomplished and successfully avoid, or result in less adverse impact on, a wetland on another site or sites in the general region; and

   b. All alternative designs of the project as proposed, that would avoid or result in less of an adverse impact on a wetland or its buffer, such as a reduction in the size, scope, configuration, or density of the project, are not feasible.

E. **Category IV Wetlands.** Activities and uses that result in unavoidable and necessary impacts may be permitted in Category IV wetlands and associated buffers in accordance with an approved critical area report and mitigation plan, and only if the proposed activity is the only reasonable alternative that will accomplish the applicant's objectives. Full compensation for the acreage and loss functions will be provided under the terms established under [Section X.20.050(F) and (G)].

F. **Wetland Buffers**

1. **Standard Buffer Widths.** The standard buffer widths presume the existence of a relatively intact native vegetation community in the buffer zone adequate to protect the wetland functions and values at the time of the proposed activity. If the vegetation is inadequate, then the buffer width shall be increased or the buffer should be planted to maintain the standard width. Required standard wetland buffers, based on wetland category and land use intensity, are as follows:[14]

   a. Category I

High intensity	300 feet
Moderate intensity	250 feet
Low intensity	200 feet

Standard buffer widths have been developed by the state Department of Ecology as statewide standards for Category I, II, III, and IV wetlands. These buffer widths are based on the best available science to protect all wetlands in environmental settings that occur throughout the state of Washington. These standard wetland buffer widths may not be appropriate, either scientifically or in a practical sense, in areas where land use settings and buffer functions may be different than those found in rural areas or forestlands. Local governments should consider their specific natural resources and environmental setting in order to tailor these standard buffer widths to best protect and enhance wetlands in their jurisdiction.

[14] Wetland buffer widths from *Vegetated Buffers in the Coastal Zone: A Summary Review and Bibliography*, University of Rhode Island Graduate School of Oceanography, 1994, Technical Report No. 2064; *The Science of Wetland Buffers and its Implications for the Management of Wetlands*, The Evergreen State College, Andy McMillan, 2000; and *Wetland Buffers: Use and Effectiveness*, Washington State Department of Ecology, 1992, Publication #92-10.

b. Category II

High intensity	200 feet
Moderate intensity	150 feet
Low intensity	100 feet

c. Category III

High intensity	100 feet
Moderate intensity	75 feet
Low intensity	50 feet

d. Category IV

High intensity	50 feet
Low and Moderate intensity	35 feet

2. **Measurement of Wetland Buffers.** All buffers shall be measured from the wetland boundary as surveyed in the field. The width of the wetland buffer shall be determined according to the wetland category and the proposed land use. The buffer for a wetland created, restored, or enhanced as compensation for approved wetland alterations shall be the same as the buffer required for the category of the created, restored, or enhanced wetland. Only fully vegetated buffers will be considered. Lawns, walkways, driveways, and other mowed or paved areas will not be considered buffers.

Existing buffer vegetation is considered "inadequate" when: (1) non-native or invasive plant species provide the dominant cover, (2) vegetation is lacking due to disturbance and wetland resources could be adversely affected, or (3) enhancement plantings in the buffer could significantly improve buffer functions.

3. **Increased Wetland Buffer Widths.** The [director] shall require increased buffer widths in accordance with the recommendations of an experienced, qualified professional wetland scientist, and the best available science on a case-by-case basis when a larger buffer is necessary to protect wetland functions and values based on site-specific characteristics. This determination shall be based on one or more of the following criteria:

   a. A larger buffer is needed to protect other critical areas;

   b. The buffer or adjacent uplands has a slope greater than fifteen percent (15%) or is susceptible to erosion and standard erosion-control measures will not prevent adverse impacts to the wetland; or

   c. The buffer area has minimal vegetative cover. In lieu of increasing the buffer width where existing buffer vegetation is inadequate to project the wetland functions and values, implementation of a buffer planting plan may substitute. Where a buffer planting plan is proposed, it shall include densities that are not less than three (3) feet on center for shrubs and eight (8) feet on center for trees and require monitoring and maintenance to ensure success. Existing buffer vegetation is considered "inadequate" and will need to be enhanced through additional native plantings and (if appropriate) removal of non-native plants when: (1) non-native or invasive plant species provide the dominant cover, (2) vegetation is lacking due to disturbance and wetland resources could be adversely

affected, or (3) enhancement plantings in the buffer could significantly improve buffer functions.

4. **Wetland Buffer Width Averaging.** The [director] may allow modification of the standard wetland buffer width in accordance with an approved critical area report and the best available science on a case-by-case basis by averaging buffer widths. Averaging of buffer widths may only be allowed where a qualified professional wetland scientist demonstrates that:

    a. It will not reduce wetland functions or functional performance;

    b. The wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation, and the wetland would benefit from a wider buffer in places and would not be adversely impacted by a narrower buffer in other places;

    c. The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer; and

    d. The buffer width is not reduced to less than 75 percent (75%) of the standard width or thirty-five (35) feet.

5. **Buffer Consistency.** All mitigation sites shall have buffers consistent with the buffer requirements of this Chapter.

6. **Buffer Maintenance.** Except as otherwise specified or allowed in accordance with this Title, wetland buffers shall be retained in an undisturbed or enhanced condition. Removal of invasive non-native weeds is required for the duration of the mitigation bond.

7. **Buffer Uses.** The following uses may be permitted within a wetland buffer in accordance with the review procedures of this Title, provided they are not prohibited by any other applicable law and they are conducted in a manner so as to minimize impacts to the buffer and adjacent wetland:

    a. **Conservation and Restoration Activities.** Conservation or restoration activities aimed at protecting the soil, water, vegetation, or wildlife.

    b. **Passive Recreation.** Passive recreation facilities designed and in accordance with an approved critical area report, including:

        i. Walkways and trails, provided that those pathways that are generally parallel to the perimeter of the wetland shall be located in the outer twenty-five percent (25%) of the buffer area, and constructed with a surface that does not interfere with the permeability. Raised boardwalks utilizing non-treated pilings area may be acceptable.

ii. Wildlife viewing structures; and

iii. Fishing access areas down to the water's edge that shall be no larger than six (6) feet.

c. **Stormwater Management Facilities.** Stormwater management facilities, limited to stormwater dispersion outfalls and bioswales, may be allowed within the outer twenty-five percent (25%) of the buffer of Category III or IV wetlands only, provided that:

i. No other location is feasible; and

ii. The location of such facilities will not degrade the functions or values of the wetland.

Stormwater management facilities are not allowed in buffers of Category I or II wetlands.

G. **Signs and Fencing of Wetlands**

1. **Temporary Markers**. The outer perimeter of the wetland or buffer and the limits of those areas to be disturbed pursuant to an approved permit or authorization shall be marked in the field in such a way as to ensure that no unauthorized intrusion will occur and is subject to inspection by the [director] prior to the commencement of permitted activities. This temporary marking shall be maintained throughout construction and shall not be removed until permanent signs, if required, are in place.

2. **Permanent Signs**. As a condition of any permit or authorization issued pursuant to this Chapter, the [director] may require the applicant to install permanent signs along the boundary of a wetland or buffer.

a. Permanent signs shall be made of an enamel-coated metal face and attached to a metal post, or another non-treated material of equal durability. Signs must be posted at an interval of one (1) per lot or every fifty (50) feet, whichever is less, and must be maintained by the property owner in perpetuity. The sign shall be worded as follows or with alternative language approved by the director:

Protected Wetland Area
Do Not Disturb
Contact [Local Jurisdiction]
Regarding Uses and Restriction

b. The provisions of subsection (a) may be modified as necessary to assure protection of sensitive features or wildlife.

3. **Fencing**

a. The [director] shall determine if fencing is necessary to protect the functions and values of the critical area. If found to be necessary, the [director] shall condition any permit or authorization issued pursuant to this Chapter to require the applicant to install a permanent fence at the edge of the wetland buffer, when fencing will prevent future impacts to the wetland.

b. The applicant shall be required to install a permanent fence around the wetland or buffer when domestic grazing animals are present or may be introduced on site.

c. Fencing installed as part of a proposed activity or as required in this Subsection shall be designed so as to not interfere with species migration, including fish runs, and shall be constructed in a manner that minimizes impacts to the wetland and associated habitat.

Specific fencing may be required to prevent damage to habitat by either livestock or people, and the type of fence may vary depending on the nature of the site conditions and the type of habitat. Care should be taken so that fencing does not interfere with species migration.

X.20.050 Performance Standards – Compensatory Mitigation Requirements

Compensatory mitigation for alterations to wetlands shall achieve equivalent or greater biologic functions. Compensatory mitigation plans shall be consistent with the state Department of Ecology *Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals*, 1994, as revised.

Mitigation sequencing is also provided for in SEPA.

A. **Mitigation Shall Be Required in the Following Order of Preference:**

i. Avoiding the impact altogether by not taking a certain action or parts of an action.

ii. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.

iii. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

iv. Reducing or eliminating the impact over time by preservation and maintenance operations.

v. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments.

B**. Mitigation for Lost or Affected Functions.** Compensatory mitigation actions shall address functions affected by the alteration to achieve functional equivalency or improvement and shall provide similar wetland functions as those lost, except when:

1. The lost wetland provides minimal functions as determined by a site-specific function assessment, and the proposed compensatory mitigation action(s) will provide equal or greater functions or will provide functions shown to be limiting within a watershed through a formal Washington state watershed assessment plan or protocol; or

2. Out-of-kind replacement will best meet formally identified watershed goals, such as replacement of historically diminished wetland types.

As calculating acreage impact is an important consideration in protecting wetlands, the best available science shows that certain wetland functions, such as water quality improvements and habitat for certain species, rely on acreage. We currently lack methods to accurately and rapidly measure many wetland functions. Until such methods are available, we must continue to use acreage as a surrogate.

C. **Preference of Mitigation Actions.** Mitigation actions that require compensation by replacing, enhancing, or substitution shall occur in the following order of preference:

1. Restoring wetlands on upland sites that were formerly wetlands.

2. Creating wetlands on disturbed upland sites such as those with vegetative cover consisting primarily of non-native introduced species. This should only be attempted when there is a consistent source of hydrology and it can be shown that the surface and subsurface hydrologic regime is conducive for the wetland community that is being designed.

3. Enhancing significantly degraded wetlands in combination with restoration or creation. Such enhancement should be part of a mitigation package that includes replacing the impacted area meeting appropriate ratio requirements.

D. **Type and Location of Mitigation.** Unless it is demonstrated that a higher level of ecological functioning would result from an alternate approach, compensatory mitigation for ecological functions shall be either in-kind and on-site, or in-kind and within the same stream reach, sub-basin, or drift cell. Mitigation actions shall be conducted within the same sub-drainage basin and on the site as the alteration except when the all of the following apply:

1. There are no reasonable on-site or in-subdrainage basin opportunities or on-site and in-subdrainage basin opportunities do not have a high likelihood of success, after a determination of the natural capacity of the site to mitigate for the impacts. Consideration should include: anticipated wetland mitigation replacement ratios, buffer conditions and proposed widths, hydrogeomorphic classes of on-site wetlands when restored, proposed flood storage capacity, potential to mitigate riparian fish and wildlife impacts (such as connectivity);

2. Off-site mitigation has a greater likelihood of providing equal or improved wetland functions than the impacted wetland; and

3. Off-site locations shall be in the same sub-drainage basin unless:

   a. Established watershed goals for water quality, flood or conveyance, habitat, or other wetland functions have been established and strongly justify location of mitigation at another site; or

b. Credits from a state certified wetland mitigation bank are used as mitigation and the use of credits is consistent with the terms of the bank's certification.

E. **Mitigation Timing.** Mitigation projects shall be completed with an approved monitoring plan prior to activities that will disturb wetlands. In all other cases, mitigation shall be completed immediately following disturbance and prior to use or occupancy of the activity or development. Construction of mitigation projects shall be timed to reduce impacts to existing fisheries, wildlife, and flora.

The [director] may authorize a one-time temporary delay, up to one-hundred-twenty (120) days, in completing minor construction and landscaping when environmental conditions could produce a high probability of failure or significant construction difficulties. The delay shall not create or perpetuate hazardous conditions or environmental damage or degradation, and the delay shall not be injurious to the health, safety, and general welfare of the public. The request for the temporary delay must include a written justification that documents the environmental constraints that preclude implementation of the mitigation plan. The justification must be verified and approved by the [city/county] and include a financial guarantee.

F. **Mitigation Ratios**

1. **Acreage Replacement Ratios.** The following ratios shall apply to creation or restoration that is in-kind, is on-site, is the same category, is timed prior to or concurrent with alteration, and has a high probability of success. These ratios do not apply to remedial actions resulting from unauthorized alterations; greater ratios shall apply in those cases. These ratios do not apply to the use of credits from a state certified wetland mitigation bank. When credits from a certified bank are used, replacement ratios should be consistent with the requirements of the bank's certification. The first number specifies the acreage of replacement wetlands and the second specifies the acreage of wetlands altered.[15]

Category I	6-to-1
Category II	3-to-1
Category III	2-to-1
Category IV	1.5-to-1

2. **Increased Replacement Ratio.** The [director] may increase the ratios under the following circumstances:

   a. Uncertainty exists as to the probable success of the proposed restoration or creation;

   b. A significant period of time will elapse between impact and replication of wetland functions;

[15] Wetland mitigation ratios are from *Wetland Replacement Ratios: Defining Equivalency*, Washington State Department of Ecology, 1992, Publication #92-08.

c. Proposed mitigation will result in a lower category wetland or reduced functions relative to the wetland being impacted; or

d. The impact was an unauthorized impact.

G. Wetlands Enhancement as Mitigation

1. Impacts to wetland functions may be mitigated by enhancement of existing significantly degraded wetlands, but must be used in conjunction with restoration and/or creation. Applicants proposing to enhance wetlands must produce a critical area report that identifies how enhancement will increase the functions of the degraded wetland and how this increase will adequately mitigate for the loss of wetland area and function at the impact site. An enhancement proposal must also show whether existing wetland functions will be reduced by the enhancement actions.

2. At a minimum, enhancement acreage shall be double the acreage required for creation or restoration under Subsection G. The ratios shall be greater than double the required acreage where the enhancement proposal would result in minimal gain in the performance of wetland functions and/or result in the reduction of other wetland functions currently being provided in the wetland.

3. Mitigation rations for enhancement in combination with other forms of mitigation shall range form 6:1 to 3:1 and be limited to Class III and Class IV wetlands.

H. Wetland Mitigation Banks

1. Credits from a wetland mitigation bank may be approved for use as compensation for unavoidable impacts to wetlands when:

   a. The bank is certified under Chapter 173-700 WAC;

   b. The [director] determines that the wetland mitigation bank provides appropriate compensation for the authorized impacts; and

   c. The proposed use of credits is consistent with the terms and conditions of the bank's certification.

2. Replacement ratios for projects using bank credits shall be consistent with replacement ratios specified in the bank's certification.

3. Credits from a certified wetland mitigation bank may be used to compensate for impacts located within the service area specified in the bank's certification. In some cases, bank service areas may include portions of more than one adjacent drainage basin for specific wetland functions.

X.20.060 Performance Standards – Subdivisions. The subdivision and short subdivision of land in wetlands and associated buffers is subject to the following:

A. Land that is located wholly within a wetland or its buffer may not be subdivided.

B. Land that is located partially within a wetland or its buffer may be subdivided provided that an accessible and contiguous portion of each new lot is:

1. Located outside of the wetland and its buffer; and

2. Meets the minimum lot size requirements of [*locally adopted zoning dimensions*].

C. Access roads and utilities serving the proposed subdivision may be permitted within the wetland and associated buffers only if the [city/county] determines that no other feasible alternative exists and when consistent with this Title.

Critical Aquifer Recharge Areas

Chapter X.30
Critical Aquifer Recharge Areas

Designation, Rating, and Mapping
- **X.30.010 Critical Aquifer Recharge Areas Designation**
- **X.30.020 Aquifer Recharge Area Susceptibility Ratings**
- **X.30.030 Mapping of Critical Aquifer Recharge Areas**

Allowed Activities – Critical Aquifer Recharge Areas
- **X.30.040 Activities Allowed in Critical Aquifer Recharge Areas**

Additional Report Requirements – Critical Aquifer Recharge Areas
- **X.30.050 Critical Area Report – Additional Requirements for Critical Aquifer Recharge Areas**

Performance Standards – Critical Aquifer Recharge Areas
- **X.30.060 Performance Standards – General Requirements**
- **X.30.070 Performance Standards – Specific Uses**

Prohibited Uses
- **X.30.080 Uses Prohibited From Critical Aquifer Recharge Areas**

Protection of ground water quality and quantity cannot be separated. Impact to one will cause impact to the other. Therefore, when local governments develop regulations for critical aquifer recharge areas (CARAs), they should attempt to incorporate water quantity protection concepts from Chapter 90.44 RCW (Regulation of Public Ground Waters), with the water quality protection provisions from Chapter 90.48 RCW (Water Pollution Control Act), Chapter 90.54 RCW (Water Resources Act of 1971), Chapter 173-200 WAC (Ground Water Quality Standards), and Washington state's anti-degradation policy.

DESIGNATION, RATING, and MAPPING

X.30.010 Critical Aquifer Recharge Areas Designation.[16] Critical aquifer recharge areas (CARAs) are those areas with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). CARAs have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of ground water resources or contribute significantly to the replenishment of ground water. These areas include the following:

A. **Wellhead Protection Areas.**[17] Wellhead protection areas may be defined by the boundaries of the ten (10) year time of ground water travel or boundaries established using alternate criteria approved by the Washington State Department of Health in those settings where ground water time of travel is not a reasonable delineation criterion, in accordance with WAC 246-290-135.

B. **Sole Source Aquifers.**[18] Sole source aquifers are areas that have been designated by the U.S. Environmental Protection Agency pursuant to the Federal Safe Water Drinking Act.

Guidance Document for the Establishment of Critical Aquifer Recharge Area Ordinances, *published by the state Department of Ecology, provides methodology for determining susceptibility based on soil permeability, geologic matrix, infiltration, and depth to water.*

[16] See WAC 365-190-080(2).
[17] See WAC 365-190-080(2)(d)(iii).
[18] See WAC 365-190-080(2)(d)(i).

C. **Susceptible Ground Water Management Areas.** Susceptible ground water management areas are areas that have been designated as moderately or highly vulnerable or susceptible in an adopted ground water management program developed pursuant to WAC 173-100.

D. **Special Protection Areas.**[19] Special protection areas are those areas defined by WAC 173-200-090.

E. **Moderately or Highly Vulnerable Aquifer Recharge Areas.** Aquifer recharge areas that are moderately or highly vulnerable to degradation or depletion because of hydrogeologic characteristics are those areas delineated by a hydrogeologic study prepared in accordance with the state Department of Ecology guidelines.

F. **Moderately or Highly Susceptible Aquifer Recharge Areas**. Aquifer recharge areas moderately or highly susceptible to degradation or depletion because of hydrogeologic characteristics are those areas meeting the criteria established by the state Department of Ecology.

X.30.020 Aquifer Recharge Area Susceptibility Ratings. Aquifer recharge areas shall be rated as having high, moderate, or low susceptibility based on soil permeability, geologic matrix, infiltration, and depth to water as determined by the criteria established by the state Department of Ecology.

X.30.030 Mapping of Critical Aquifer Recharge Areas

A. The approximate location and extent of critical aquifer recharge areas are shown on the adopted critical areas maps.

Some CARAs may be mapped by the Washington State Department of Health or the local water purveyor. Other CARAs may need to be mapped using soil maps and other information.

B. These maps are to be used as a guide for the [city/county], project applicants, and/or property owners and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

ALLOWED ACTIVITIES – CRITICAL AQUIFER RECHARGE AREAS

X.30.040 Activities Allowed in Critical Aquifer Recharge Areas. The following activities are allowed in critical aquifer recharge areas pursuant to *Allowed Activities* [Section X.10.150] and do not require submission of a critical area report:

A. Construction of structures and improvements, including additions, resulting in less than five percent (5%) or 2,500 square feet (whichever is greater) total site impervious surface area that does not result in a change of use or increase the use of a hazardous substance.[20]

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[19] See WAC 365-190-080(2)(d)(ii).

[20] This section is to recognize that some minor developments may be acceptable within a CARA without mitigation. However, while five percent (5%) and 2,500 square feet may generally be acceptable thresholds, each community should consider thresholds that are appropriate based on local conditions and supported by science.

B. Development and improvement of parks, recreation facilities, open space, or conservation areas resulting in less than five percent (5%) total site impervious surface area that do not increase the use of a hazardous substance.

C. On-site domestic septic systems releasing less than 14,500 gallons of effluent per day and that are limited to a maximum density of one (1) system per one (1) acre.[21]

Jurisdictions may also provide for enhanced septic systems as allowed by the state Department of Ecology, although project review of enhanced septic system may require a higher level of expertise.

ADDITIONAL REPORT REQUIREMENTS – CRITICAL AQUIFER RECHARGE AREAS

X.30.050 Critical Area Report – Additional Requirements for Critical Aquifer Recharge Areas. In addition to the general critical area report requirements of Section X.10.210, critical area reports for critical aquifer recharge areas must meet the requirements of this Section. Critical area reports for two or more types of critical areas must meet the report requirements for each relevant type of critical area.

A. **Preparation by a Qualified Professional.** An aquifer recharge area critical area report shall be prepared by a qualified professional who is a hydrogeologist, geologist, or engineer, who is licensed in the state of Washington and has experience in preparing hydrogeologic assessments.

B. **Hydrogeologic Assessment.** For all proposed activities to be located in a critical aquifer recharge area, a critical area report shall contain a level one (1) hydrogeological assessment. A level two (2) hydrogeologic assessment shall be required for any of the following proposed activities:

1. Activities that result in five percent (5%) or more impervious site area;[22]

2. Activities that divert, alter, or reduce the flow of surface or ground waters, or otherwise reduce the recharging of the aquifer;

3. The use of hazardous substances, other than household chemicals used according to the directions specified on the packaging for domestic applications;

4. The use of injection wells, including on-site septic systems, except those domestic septic systems releasing less than 14,500 gallons of effluent per day and that are limited to a maximum density of one (1) system per one (1) acre; or

[21] Maximum density of septic systems is based on *Guidance Document for the Establishment of Critical Aquifer Recharge Area Ordinances*, by the Washington State Department of Ecology, 2000, Publication #97-30.

[22] Impervious surface areas may limit the infiltration of surface water, and therefore may limit the recharging of aquifers. A threshold of five percent (5%) is suggested but may vary depending on local soil and ground water conditions.

5. Any other activity determined by the [director] likely to have an adverse impact on ground water quality or quantity or on the recharge of the aquifer.

C. **Level One Hydrogeologic Assessment.** A level one hydrogeologic assessment shall include the following site- and proposal-related information at a minimum:

1. Available information regarding geologic and hydrogeologic characteristics of the site including the surface location of all critical aquifer recharge areas located on site or immediately adjacent to the site, and permeability of the unsaturated zone;

2. Ground water depth, flow direction, and gradient based on available information;

3. Currently available data on wells and springs within 1,300 feet of the project area; [23]

4. Location of other critical areas, including surface waters, within 1,300 feet of the project area;

5. Available historic water quality data for the area to be affected by the proposed activity; and

6. Best management practices proposed to be utilized.

D. **Level Two Hydrogeologic Assessment.** A level two hydrogeologic assessment shall include the following site- and proposal-related information at a minimum, in addition to the requirements for a level one hydrogeological assessment:

1. Historic water quality data for the area to be affected by the proposed activity compiled for at least the previous five (5) year period;

2. Ground water monitoring plan provisions;

3. Discussion of the effects of the proposed project on the ground water quality and quantity, including:

   a. Predictive evaluation of ground water withdrawal effects on nearby wells and surface water features; and

   b. Predictive evaluation of contaminant transport based on potential releases to ground water; and

[23] Distance of 1,300 feet is based on *Guidance Document for the Establishment of Critical Aquifer Recharge Area Ordinances*, by the Washington State Department of Ecology, 2000, Publication #97-30.

4. A spill plan that identifies equipment and/or structures that could fail, resulting in an impact. Spill plans shall include provisions for regular inspection, repair, and replacement of structures and equipment that could fail.

PERFORMANCE STANDARDS – CRITICAL AQUIFER RECHARGE AREAS

X.30.060 Performance Standards – General Requirements

A. Activities may only be permitted in a critical aquifer recharge area if the applicant can show that the proposed activity will not cause contaminants to enter the aquifer and that the proposed activity will not adversely effect the recharging of the aquifer.

B. The proposed activity must comply with the water source protection requirements and recommendations of the U.S. Environmental Protection Agency, Washington State Department of Health, and the [local health district].

C. The proposed activity must be designed and constructed in accordance with the [*locally adopted surface water management or water quality regulations*].

Jurisdictions in Western Washington should reference stormwater management standards, such as the state Department of Ecology Stormwater Management Manual for Western Washington *or the* King County Stormwater Management Manual. *Jurisdictions in Eastern Washington may reference the new Ecology manual for the area or federal stormwater standards.*

X.30.070 Performance Standards – Specific Uses

A. **Storage Tanks.** All storage tanks proposed to be located in a critical aquifer recharge area must comply with local building code requirements and must conform to the following requirements:

1. **Underground Tanks.** All new underground storage facilities proposed for use in the storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:

   a. Prevent releases due to corrosion or structural failure for the operational life of the tank;

   b. Be protected against corrosion, constructed of noncorrosive material, steel clad with a noncorrosive material, or designed to include a secondary containment system to prevent the release or threatened release of any stored substances; and

   c. Use material in the construction or lining of the tank that is compatible with the substance to be stored.

2. **Aboveground Tanks.** All new aboveground storage facilities proposed for use in the storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:

   a. Not allow the release of a hazardous substance to the ground, ground waters, or surface waters;

   b. Have a primary containment area enclosing or underlying the tank or part thereof; and

c. A secondary containment system either built into the tank structure or a dike system built outside the tank for all tanks.

B. **Vehicle Repair and Servicing**

1. Vehicle repair and servicing must be conducted over impermeable pads and within a covered structure capable of withstanding normally expected weather conditions. Chemicals used in the process of vehicle repair and servicing must be stored in a manner that protects them from weather and provides containment should leaks occur.

2. No dry wells shall be allowed in critical aquifer recharge areas on sites used for vehicle repair and servicing. Dry wells existing on the site prior to facility establishment must be abandoned using techniques approved by the state Department of Ecology prior to commencement of the proposed activity.

C. **Residential Use of Pesticides and Nutrients.** Application of household pesticides, herbicides, and fertilizers shall not exceed times and rates specified on the packaging.

D. **Use of Reclaimed Water for Surface Percolation or Direct Recharge.** Water reuse projects for reclaimed water must be in accordance with the adopted water or sewer comprehensive plans that have been approved by the state departments of Ecology and Health.

1. Use of reclaimed water for surface percolation must meet the ground water recharge criteria given in Chapter 90.46.080(1) and Chapter 90.46.010(10) RCW. The state Department of Ecology may establish additional discharge limits in accordance with Chapter 90.46.080(2) RCW.

2. Direct injection must be in accordance with the standards developed by authority of Chapter 90.46.042 RCW.

E. **State and Federal Regulations.** The uses listed below shall be conditioned as necessary to protect critical aquifer recharge areas in accordance with the applicable state and federal regulations.

Statutes, Regulations, and Guidance Pertaining to Ground Water Impacting Activities

Activity	Statute – Regulation – Guidance
Above Ground Storage Tanks	Chapter 173-303-640 WAC
Animal Feedlots	Chapter 173-216 WAC, Chapter 173-220 WAC
Automobile Washers	Chapter 173-216 WAC, Best Management Practices for Vehicle and Equipment Discharges (Washington Department of Ecology WQ-R-95-56)
Below Ground Storage Tanks	Chapter 173-360 WAC

Activity	Statute – Regulation – Guidance
Chemical Treatment Storage and Disposal Facilities	Chapter 173-303-182 WAC
Hazardous Waste Generator (*Boat Repair Shops, Biological Research Facility, Dry Cleaners, Furniture Stripping, Motor Vehicle Service Garages, Photographic Processing, Printing and Publishing Shops, etc.)*	Chapter 173-303 WAC
Injection Wells	Federal 40 CFR Parts 144 and 146, Chapter 173-218 WAC
Junk Yards and Salvage Yards	Chapter 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Vehicles Recycler Facilities (Washington State Department of Ecology 94-146)
Oil and Gas Drilling	Chapter 332-12-450 WAC, Chapter 173-218 WAC
On-Site Sewage Systems (Large Scale)	Chapter 173-240 WAC
On-Site Sewage Systems (< 14,500 gal/day)	Chapter 246-272 WAC, Local Health Ordinances
Pesticide Storage and Use	Chapter 15.54 RCW, Chapter 17.21 RCW
Sawmills	Chapter 173-303 WAC, Chapter 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Log Yards (Washington State Department of Ecology, 95-53)
Solid Waste Handling and Recycling Facilities	Chapter 173-304 WAC
Surface Mining	Chapter 332-18-015 WAC
Wastewater Application to Land Surface	Chapter 173-216 WAC, Chapter 173-200 WAC, Washington State Department of Ecology Land Application Guidelines, Best Management Practices for Irrigated Agriculture

PROHIBITED USES

X.30.080 Uses Prohibited From Critical Aquifer Recharge Areas.

The following activities and uses are prohibited in critical aquifer recharge areas:[24]

A. **Landfills.** Landfills, including hazardous or dangerous waste, municipal solid waste, special waste, woodwaste, and inert and demolition waste landfills;

[24] Prohibited uses are based on *Guidance Document for the Establishment of Critical Aquifer Recharge Area Ordinances*, by Washington State Department of Ecology, 2000, Publication #97-30.

B. **Underground Injection Wells.** Class I, III, and IV wells and subclasses 5F01, 5D03, 5F04, 5W09, 5W10, 5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 of Class V wells;

C. **Mining**

1. Metals and hard rock mining; and

2. Sand and gravel mining, prohibited from critical aquifer recharge areas determined to be highly susceptible or vulnerable;

D. **Wood Treatment Facilities.** Wood treatment facilities that allow any portion of the treatment process to occur over permeable surfaces (both natural and manmade);

E. **Storage, Processing, or Disposal of Radioactive Substances.** Facilities that store, process, or dispose of radioactive substances; and

F. **Other Prohibited Uses or Activities**

1. Activities that would significantly reduce the recharge to aquifers currently or potentially used as a potable water source;

2. Activities that would significantly reduce the recharge to aquifers that are a source of significant baseflow to a regulated stream; and

3. Activities that are not connected to an available sanitary sewer system, prohibited from critical aquifer recharge areas associated with sole source aquifers.

Frequently Flooded Areas

In order to help local governments meet the requirements of the Growth Management Act (GMA), that includes protection of critical functions and values using the best available science, and the National Flood Insurance Program (NFIP) that requires protection from flood hazards, these Example Code Provisions attempt to integrate the requirements from the two to avoid the common confusion between local flood hazard ordinances (NFIP) and critical areas ordinances (GMA).

Requirements of the Growth Management Act

Frequently flooded areas, generally known as floodplain and floodprone areas, are the interface between upland and the river channel. They function as riparian habitat because they influence and are influenced by the river. Frequently flooded areas are formed by rivers, which in their natural state are constantly seeking their own stability. These active and dynamic systems seek stability with exceedence of the bankfull width and by lateral migration of the stream. Important values of these systems are aesthetic and recreational, such as bird watching, fishing, hiking, and hunting. Flood attenuation is an important function which affects severity of floods and associated damage. Biofiltration, maintenance of base flows, aquifer recharge, introduction of woody debris to rivers, and food chain support are important functions of the floodplain. These all work together to function as important habitat for fish and wildlife. An important component of habitat function in these systems particularly where they have not been degraded is preservation of connectivity and the associated fluvial dynamics and connectivity gradients in the floodplain, which is essential for diversity and species richness in these critical areas.

This Chapter is not a replacement for the Washington Model of the Flood Damage Prevention Ordinance *prepared by the Federal Emergency Management Agency and the Washington State Department of Ecology and should not be used as a stand-alone flood hazard ordinance. This Chapter is intended to demonstrate how local jurisdictions may attempt to incorporate and integrate flood protection regulations into their critical areas ordinance. This Chapter also promotes a higher regulatory standard that is intended to offer greater protection, reduce insurance rates, and be consistent with other critical areas regulations. Jurisdictions that choose to include flood regulation in their critical areas ordinance should coordinate with the state Department of Ecology to ensure that federal and state requirements for flood protection are met.*

Requirements of the National Flood Insurance Program

The following Chapter on frequently flooded areas contains example language for the protection of frequently flooded areas in accordance with the GMA's requirement to protect critical areas. Unlike other types of critical areas, local flood regulations must meet the requirements of the NFIP if the local jurisdiction and individual property owners are to qualify for flood hazard insurance. If the community's regulations are not compliant with the minimum NFIP standards, which are incorporated into the state's Floodplain Management law, the following kinds of assistance for structures in frequently flooded areas would be denied:

- All federal grant and loan programs involving buildings (for example, programs through the U.S. Department of Housing and Urban Development, U.S. Department of Agriculture, and Small Business Administration).
- Federal mortgage insurance programs, including Farmers Home Administration, Veterans Administration, and Farm Services Agency loans.
- Federal disaster assistance and certain federal mitigation grants.
- Conventional loans from institutions backed by entities such as the Federal Deposit Insurance Corporation, Comptroller of the Currency, Office of Thrift Supervision, and National Credit Union Administration.

If the community has an existing flood hazard ordinance that meets the Federal Emergency Management Agency's (FEMA) and NFIP standards, that community should use care before adopting this Chapter. If the NFIP standards are met, this Chapter could replace an existing flood hazard ordinance and would create a process that is designed to be consistent with and streamlined with other critical areas review procedures. This Chapter should not be adopted *in addition to* an existing and separate flood hazard ordinance.

To ensure that local flood area regulations are consistent with the NFIP, jurisdictions should also refer to the following documents in addition to these Example Code Provisions:

Washington Model of the Flood Damage Prevention Ordinance, from the Washington State Department of Ecology and the Federal Emergency Management Agency, 2000.

Floodplain Management, Higher Regulatory Standards, 2nd ed., from the Federal Emergency Management Agency Region 10, 2002.

If you have any questions concerning participation in the NFIP contact the FEMA Regional Office at (425) 487-4626.

NFIP Requirements and Fish Habitat Protection

Floodplain connectivity with streams is recognized as a specific habitat element that must be maintained, protected, and/or restored in order for wild salmon and other fish and wildlife to continue to exist and evolve. The riparian zone of influence includes the extent of the floodplain because of movement of the stream or river across the floodplain through time. Restoration of natural floodplain functions will benefit habitat for aquatic and riparian species as floodplains resume their natural character. It is clear that good stewardship of floodplains can be an extremely important factor in protecting habitat for fish and wildlife. Yet, the enabling legislation that created the NFIP does not address natural floodplain functions nor elements related to aquatic habitat preservation or enhancement. The NFIP's major goal is to achieve flood loss reduction. All statements of purpose in the National Flood Insurance Act of 1968 relate to achievement of the goal of flood loss reduction. It is recognized by FEMA and others that certain aspects of this goal may not be conducive to maintaining healthy fish habitat. As a result, the FEMA regional office that includes Washington state prepared a model flood ordinance that relates floodplain management practices to fish habitat preservation and enhancement. This document builds on the basic FEMA/Ecology model flood ordinance by describing practices that, if adopted by local governments, would be a strong force in enhancing fish habitat. A sample of restrictions that favor stronger fish habitat from the FEMA model ordinance follows:

- Recognizing in the goals and purpose statements the importance of viewing floodplains as biological, geomorphological units contributing to healthy fish habitat.
- Recommending a riparian buffer zone for protection of fish habitat in all floodplains, consisting of the greater of 150 feet on Type 1 and 2

salmonid-bearing streams, the FEMA floodway, or the channel migration zone plus fifty (50) feet.

- Requiring the remainder of the floodplain to have strict measures that buffer the riparian buffer zone (RBZ), including setbacks from the RBZ, and prohibiting fill or use of fill only when certified that it will not harm fish habitat.
- Placing limitations on creation of impervious surfaces and removal of natural vegetation.
- Prohibiting the creation of new subdivision lots without buildable areas outside the floodplain.
- Requiring that new construction be directed outside the floodplain where existing lots have buildable space both inside and outside the floodplain.
- Requiring that any alteration of a watercourse not degrade fish habitat; use bridges instead of culverts on certain streams; maintain natural meander patterns, channel complexity, and floodplain connectivity; remove or replace culverts that inhibit fish passage as part of the alteration; do not block side channels; remove any existing blockages as part of the alteration; and use bioengineered ("soft") armoring techniques on fish bearing streams.

There are several additional measures in the FEMA "Fish-Flood" ordinance that recognize and value natural floodplain functions as they contribute to protection of habitat. However, while FEMA and the state recognize measures such as those above to be desirable, they are not mandated by laws or regulations specific to the NFIP and, because there are 286 local governments that participate in the NFIP, only the standards of that program can be required as a condition of participation. The state, in Chapter 86.16 RCW, has also adopted the NFIP regulations as its basic requirements, with supplemental state requirements prohibiting new residences in floodways. As a result, throughout the frequently flooded areas Chapter of the Example Code critical areas regulations, reference is made in footnotes and sidebars to measures communities should consider as recommended standards beyond the minimums, to protect the fish habitat resource.

More Restrictive Recommendations in the Frequently Flooded Areas Section

As with the FEMA/Ecology model, these Example Code Provisions recommend that all residential construction and manufactured homes have their lowest floor elevated one (1) foot above the base flood elevation (100-year flood); and that nonresidential construction have the lowest floor elevated one (1) foot above the base flood elevation, or that the area below one (1) foot above the base flood elevation be floodproofed.

The minimum requirement for participation in the NFIP for residential construction and manufactured homes is that the lowest floor be elevated to or above the base flood elevation. Nonresidential construction requires that the lowest floor be elevated to or above the base flood elevation or that the area below the base flood elevation be floodproofed.

Even though the minimum standards only require elevation to the base flood elevation, it is recommended that communities adopt the standard in the example

ordinance because elevation one (1) foot above the base flood elevation will allow citizens to receive a substantial reduction in the cost of their flood insurance. Also, as increased development happens, flood elevations can increase, and the one-foot above standard allows for an additional margin of safety.

The example ordinance includes sections for development in shallow flooding areas (AO Zones) and coastal high hazard areas (V1-V30, VE, and/or V). If your community does not have either of these zones designated on your flood insurance map(s), it is not necessary to adopt these sections of the example ordinance.

Relationship of this Chapter to Wetlands and Fish and Wildlife Habitat Conservation Areas

Areas that require flood hazard protection typically involve riparian habitat and wetlands. Care should be taken that any actions approved according to flood regulations to prevent potential flood hazards are also consistent with other regulations to protect critical areas, especially those that give special consideration to anadromous fish. In addition to the standards contained in the Fish and Wildlife Habitat Conservation Areas Chapter included in this Example Code, consider the following documents as resources for coordinating fish protection with flood hazard protection:

Floodplain and Fisheries Resource Management, Federal Emergency Management Agency Region 10, 2002 (reference above).

Management Recommendations for Washington's Priority Habitats: Riparian, Washington Department of Fish and Wildlife, 1997.

Ecological Issues in Floodplains and Riparian Corridors, University of Washington Center for Streamside Studies, 2001.

Integrating NFIP and GMA

Careful use of mitigation sequencing [Section X.10.240] will lead to compliance with both the GMA and NFIP. Protection of critical areas, as well as human health and safety, will be achieved with proper use of mitigation, beginning with avoidance of impacts. Unavoidable impacts should be mitigated, and it is important to note that under these two different regulations, different mitigation may be required. For example, the NFIP may require raising a structure above the base flood elevation, and if fill is placed within the floodplain to accomplish this, it may be necessary to compensate for loss of floodplain function such as flood attenuation, biofiltration, or habitat.

Chapter X.40
Frequently Flooded Areas

Designation
X.40.010 Designation of Frequently Flooded Areas

Critical Area Report Requirements – Frequently Flooded Areas
X.40.020 Critical Area Report – Additional Requirements

Warning and Disclaimer of Liability
X.40.030 Warning and Disclaimer of Liability

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DESIGNATION

X.40.010 Designation of Frequently Flooded Areas

A. **Frequently Flooded Areas.** Frequently flooded areas shall include:

1. **Areas Identified on the Flood Insurance Map(s).** Those areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled *The Flood Insurance Study for [city/county] dated _____, 20__*, with an accompanying flood insurance map(s) and any revisions thereto.[25] The Flood Insurance Study and accompanying map(s) are hereby adopted by reference, declared part of this Chapter, and are available for public review at the [city/county].

2. **Areas Identified by the Director.** Those areas of special flood hazard identified by the [director] based on review of base flood elevation and floodway data available from federal, state, [county,] or other valid sources when base flood elevation data has not been

In addition to appropriate flood protection standards, jurisdictions should consider the flood damage prevention benefits of stormwater management regulations, stream and wildlife protections, and cluster development provisions. Flood damage and impacts to flood areas can be best prevented through a comprehensive set of tools that help to reduce stormwater events and avoid flood/development conflicts.

[25] Flood insurance maps are commonly known as Flood Insurance Rate Maps or FIRMs, although not all maps are rate maps.

provided from the Federal Insurance Administration [A and V zones of the flood insurance map(s)].

B. **Use of Additional Information**. The [director] may use additional flood information that is more restrictive or detailed than that provided in the Flood Insurance Study conducted by the Federal Emergency Management Agency (FEMA) to designate frequently flooded areas, including data on channel migration, historical data, high water marks, photographs of past flooding, location of restrictive floodways, maps showing future build-out conditions, maps that show riparian habitat areas, or similar information.

C. **Flood Elevation Data.** When base flood elevation data is not available (A and V zones), the [director] shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source, in order to administer this Chapter.

D. **Designation Made by Director**. The flood insurance maps are to be used as a guide for the [city/county], project applicants and/or property owners, and the public and should be considered a minimum designation of frequently flooded areas. As flood insurance maps may be continuously updated as areas are reexamined or new areas are identified, newer and more restrictive information for flood hazard area identification shall be the basis for regulation.

E. **Maintenance of Records.** Where base flood elevation data is provided through the Flood Insurance Study or required through [Section X.40.010(C)] of this Chapter, the [director] shall obtain and record the as-built elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement. The [director] shall also maintain for public inspection all records of floodplain hazards, certificates of flood proofing, and flood elevation data.

CRITICAL AREA REPORT REQUIREMENTS – FREQUENTLY FLOODED AREAS

X.40.020 Critical Area Report – Additional Requirements. In addition to the general critical area report requirements of Section X.10.210, critical area reports for frequently flooded areas must meet the requirements of this Section. Critical area reports for two or more types of critical areas must meet the report requirements for each relevant type of critical area.

A. **Preparation by a Qualified Professional.** A frequently flooded areas report shall be prepared by a qualified professional who is a hydrologist or engineer, licensed in the state of Washington with experience in preparing flood hazard assessments.

B. **Areas to be Addressed**. The following areas shall be addressed in a critical area report for frequently flooded areas:

1. The site area of the proposed activity;

2. All areas of a special flood hazard area, as indicated on the flood insurance map(s) within two hundred (200) feet of the project area; and

3. All other flood areas indicated on the flood insurance map(s) within two hundred (200) feet of the project area.

C. **Flood Hazard Assessment.** A critical area report for a proposed activity within a frequently flooded area shall contain a flood hazard assessment including the following site- and proposal-related information at a minimum:

1. **Site and Construction Plans.** A copy of the site and construction plans for the development proposal showing:

   a. Floodplain (100-year flood elevation), 10- and 50-year flood elevations, floodway, other critical areas, buffers, and shoreline areas;

   b. Proposed development, including the location of existing and proposed structures, fill, storage of materials, and drainage facilities, with dimensions indicating distances to the floodplain;

   c. Clearing limits; and

   d. Elevation of the lowest floor (including basement) of all structures, and the level to which any nonresidential structure has been floodproofed.

2. **Watercourse Alteration.** Alteration of natural watercourses shall be avoided, if feasible. If unavoidable, a critical area report shall include:

   a. **Extent of Watercourse Alteration.** A description of and plan showing the extent to which a watercourse will be altered or relocated as a result of proposal;

   b. **Maintenance Program Required for Watercourse Alterations**. A maintenance program that provides maintenance practices for the altered or relocated portion of the watercourse to ensure that the flood carrying capacity is not diminished; and

   c. **Compliance Documentation.** Information describing and documenting how the proposed watercourse alteration complies with the requirements of *Fish and Wildlife Habitat Conservation Areas*, Chapter X.60, the [*locally adopted shoreline management program*], and other applicable state or federal permit requirements.

With the exception of restoring artificially degraded or impaired stream channels, the Fish and Wildlife Habitat chapter strongly discourages the altering of watercourses, since this practice often reduces instream and riparian habitat quality as evidenced by: increased erosion that results in unnaturally large stream sediment input; decreased slope stability; and reduction of existing riparian vegetation resulting in younger vegetation that lacks many characteristics important to fish and wildlife.

Watercourse alteration should be a last resort measure when no other alternatives are determined to exist. When that is the case, following are guidelines to reduce impacts to fish and wildlife habitat. These guidelines are addressed as conditions in the Critical Areas Report (CAR): require bridges for crossings on all type 1 streams; determine the extent of the channel migration zone in the application prior to any alteration of a watercourse; prohibit hard armoring [soft armoring (bioengineering) should be the preferred method of streambank stabilization]; prohibit blockage of side channels; avoid or minimize the removal of any vegetation or large woody debris (LWD); and mitigate any removal that is unavoidable by replanting with native vegetation that is adapted to site conditions and by augmenting lost LWD (i.e., anchored root wads). See the Washington Department of Fish and Wildlife reference in the Introduction for full text.

The CAR is to be developed with input by a qualified professional in the field of fisheries or wildlife science.

E. **Information Regarding Other Critical Areas.** Potential impacts to wetlands, fish and wildlife habitat, and other critical areas shall be addressed in accordance with the applicable sections of this Title.

WARNING AND DISCLAIMER OF LIABILITY

X.40.030 Warning and Disclaimer of Liability. The degree of flood protection required by this Chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside frequently flooded areas or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of [city/county], any officer or employee thereof, or the Federal Insurance Administration for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

PERFORMANCE STANDARDS – FREQUENTLY FLOODED AREAS

X.40.040 Performance Standards – General Requirements. The following standards shall be adhered to in all frequently flooded areas, except as otherwise provide for in this Chapter.

Early detailed studies that FEMA obtained from other agencies and incorporated into its Flood Insurance Maps did not always include floodways. The floodway routine in the HEC-2 and other early programs was not in widespread use until the early 1970s. This measure was placed into the FEMA regulations as a holding pattern to allow communities to enforce base flood elevations even though there was no designated floodway, anticipating that FEMA would eventually produce the floodway. FEMA now routinely produces floodways where they were technically feasible; thus, there are few places in Washington with elevations but no floodways, so there is very limited application of this requirement.

A. **Development Permit.** A development permit shall be obtained before land is altered or a new use is commenced within a frequently flooded area. For application of this Chapter, development shall include any man-made alteration to land, including but not limited to buildings, structures, mining, dredging, filling, grading, paving, excavation, drilling operations, or storage of equipment or materials within the area of special flood hazard.

B. **All Other Necessary Permits.** The [director] shall verify that all necessary permits have been obtained from those governmental agencies from which prior approval is required by federal, state, or local law including Section 404 of the Federal Water Pollution Control Act Amendment of 1972 and the Endangered Species Act of 1973.

C. **Before Regulatory Floodway.** In areas where the base flood elevation is provided, but where a regulatory floodway has not been designated, new construction, substantial improvements, or other development, including fill, shall not be permitted within zones A1-30 and AE, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one (1) foot at any point within the community.

D. **Areas Without Base Flood Elevation Data.** Where base flood elevation data is not available (A and V zones) and there is insufficient data available from federal, state, or other sources, the [director] shall determine the base flood elevation using approved engineering methods and historical data, such as high water marks, photographs of past flooding, and other available

information.[26] If there is insufficient data available for the [director] to make a determination of the base flood elevation and standards requiring a base flood elevation cannot be implemented, the [director] shall require measures that ensure the proposed structures will be reasonably safe from flooding. At a minimum, the base flood elevation should be set at least two (2) feet above the highest adjacent grade to avoid higher flood insurance rates.

E. **Construction Materials and Methods**

1. **Structures Shall Be Located Outside the Floodplain**. All structures, utilities, and other improvements shall be located on the buildable portion of the site out of the floodplain unless there is no buildable site area out of the floodplain. For sites with no buildable area out of the floodplain, structures, utilities, and other improvements shall be placed on the highest land on the site, oriented parallel to flow rather than perpendicular, and sited as far from the watercourse and other critical areas as possible. If the [director] detects any evidence of active hyporheic exchange on a site, the development shall be located to minimize disruption of such exchange.[27]

2. **Methods That Minimize Flood Damage**. All new construction and substantial improvements shall be constructed using flood resistant materials and using methods and practices that minimize flood damage.[28]

3. **Utility Protection**. Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

F. **Elevation Certificate Following Construction.** Following construction of a structure within the floodplain where the base flood elevation is provided, the applicant shall obtain an elevation certificate that records the elevation of the lowest floor. The elevation certificate shall be completed by a surveyor or engineer licensed in the state of Washington and shall be submitted to the [city/county] for recording.

G. **Anchoring**

1. **Anchoring Requirement**. All new construction and substantial improvements within the floodplain shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

2. **Manufactured Homes**. All manufactured homes placed within the floodplain must be anchored to prevent flotation, collapse, or lateral movement and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors.

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[26] FEMA offers the Quick 2 program to assist in the determination of elevations.
[27] This subsection is advisory and not required by NFIP.
[28] See definitions.

H. **Fill and Grading.** Fill and grading within the floodplain shall only occur on a determination from a qualified professional that the fill or grading will not block side channels, inhibit channel migration, increase flood hazards to others, or be placed within a channel migration zone, whether or not the [city, county] has delineated such zones as of the time of the application.[29]

X.40.050 Performance Standards – Specific Uses. Specific uses shall adhere to the following relevant standards, in addition to the general standards of *Performance Standards – General Requirements* [Section X.40.040]. Subsections (A) through (D) apply where base flood elevation data is provided through the Flood Insurance Study or required through [Section X.40.010(C)] of this Chapter; Subsections (E) through (G) apply to all frequently flooded areas.

Requiring residential construction to be one (1) foot or more above the base flood elevation may reduce insurance rates by as much as 40 percent and increase the level of safety afforded.

This Example Code recommends requiring that all manufactured homes meet the same requirements for residential construction and have the lowest floor one (1) foot or more above the base flood elevation. Note that the NFIP requirements may allow manufactured homes to be elevated to a lesser standard in some circumstances. In existing manufactured home parks and subdivisions, the FEMA regulations provide an option for newly placed units to be elevated either: (1) to the base flood elevation or (2) so that the chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are at least thirty-six (36) inches in height above grade and is anchored. This provision, however, does not apply on a site in an existing park or subdivision that has incurred substantial damage from a flood.

A. **Residential Construction**

1. **Must be Above Base Flood Elevation**. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one (1) foot or more above the base flood elevation.[30]

2. **Areas Below the Lowest Floor**. Fully enclosed areas below the lowest floor that are subject to flooding shall only be allowed when designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

   a. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided;

   b. The bottom of all openings shall be no higher than one (1) foot above grade; and

   c. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

B. **Manufactured Homes Must be Elevated.** All manufactured homes to be placed or substantially improved shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one (1) foot or

[29] This subsection preventing fill and grading within the floodplain is advisory and not required by the NFIP. However, it is important to restrict fill and grading to protect habitat functions. Any approval to fill or grade within a floodplain must also be consistent with the regulations pertaining to wetlands, habitat conservation areas, and shoreline management.

[30] The NFIP requirement is to be elevated to the base flood elevation. To reduce insurance rates and to account for uncertainties inherent in flood hazard modeling and mapping, many jurisdictions use a standard of one (1) foot or more above the base flood elevation, as suggested here.

more above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

Floodproofing standards are discussed in the U.S. Army Corps of Engineers document Floodproofing Regulations.

C. **Recreational Vehicles.** Recreational vehicles are required to either:

1. Be on the site for fewer than one hundred eighty (180) consecutive days;

2. Be fully licensed and ready for highway use on its wheels or jacking system, be attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or

3. Obtain a development permit and meet the requirements, including elevation and anchoring, for manufactured homes.

D. **Nonresidential Construction**

1. **Above Base Flood Elevation.** New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot (1) or more above the base flood elevation, or, together with attendant utility and sanitary facilities, shall:

   a. Be floodproofed so that below one (1) foot or more above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;

   b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

   c. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this Subsection based on their development and/or review of the structural design, specifications, and plans. Such certification shall be provided to the [director] in accordance with [Section X.40.010(E)]. Following construction of the structure, certifications shall be submitted to the [city/county] that record the actual (as-built) elevation to which the structure was floodproofed.

   Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one (1) foot below the floodproofed level [for example, a building floodproofed to the base flood level will be rated as one (1) foot below].

2. **Areas Below the Lowest Floor**. Fully enclosed areas below the lowest floor that are not floodproofed shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional

engineer or architect, or must meet or exceed the following minimum criteria:

a. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided;

b. The bottom of all openings shall be no higher than one (1) foot above grade; and

c. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

The jurisdiction may consider encouraging use of locally adopted provisions for cluster development, density transfer credits and bonuses, planned unit developments, and transfer of development rights wherever possible to reduce development pressure on frequently flooded areas.

E. **Utilities**

1. **Infiltration of Flood Waters.** All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems.

2. **Sanitary Sewage Systems.** New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.

3. **On-Site Waste Disposal Systems.** On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding. New on-site sewage disposal systems are prohibited pursuant to *Uses and Activities Prohibited From Frequently Flooded Areas* [Section X.40.080(C)].

FEMA's subdivision standards relate exclusively to minimizing flood losses to buildings and infrastructure in new subdivisions that may be platted in the floodplain. However, FEMA's Fish-Flood ordinance strongly suggests that new subdivisions be consistent with the need to maximize riparian ecosystems, allow for channel migration, and preserve existing beneficial natural functions by either not allowing new subdivisions in floodplains, or designing new subdivisions to not allow buildable lots in the floodplain. This is supported by a document prepared by the American Planning Association, entitled Subdivision Design in Flood Hazard Areas*, which was funded by FEMA.*

F. **Subdivision Proposals**

1. **Adequate Space Outside Flood Areas.** All lots created through subdivision or short subdivision shall have adequate building space outside the 100-year floodplain, the floodway, and the channel migration zone.[31]

2. All subdivisions and short subdivisions shall:

a. **Minimize Flood Damage.** Subdivisions and short subdivisions shall be designed to minimize or eliminate flood damage and impacts to floodplain functions and values. Public utilities and facilities that are installed as part of such subdivisions, such as sewer, gas, electrical, and water systems, shall be located and constructed to also minimize flood damage and impacts to floodplain functions and values. Subdivisions should be designed using natural features of the landscape and should not incorporate flood protection changes.

[31] Advisory and not mandated by NFIP.

b. **Have Adequate Drainage.** Subdivisions and short subdivisions shall have adequate natural surface water drainage in accordance with [*locally adopted surface water management requirements*] to reduce exposure to flood hazards; and

c. **Show Flood Areas on Plat Maps.** Subdivisions and short subdivisions shall show the 100-year floodplain, floodway, and channel migration zone on the preliminary and final plat and short plat maps and designate such areas as "no build," when applicable.[32]

3. **Detailed Base Flood Elevation Data.** Where detailed base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least fifty (50) lots or five (5) acres, whichever is less.

G. **Alteration of Watercourses.** Alteration of natural watercourses shall be avoided, if feasible. If unavoidable, the following provisions shall apply to the alteration:

Alteration of a natural watercourse is strongly discouraged and the applicant must demonstrate that all alternatives have been considered. All permits from applicable federal and state permitting agencies should be obtained before the jurisdiction issues permit approval.

1. **Habitat Regulations.** Watercourse alterations shall only be allowed in accordance with the *Fish and Wildlife Habitat Conservation Areas* [Chapter X.60].

2. **Blockage.** Watercourse alteration projects shall not result in blockage of side channels.[32]

3. **Notification.** The [city/county] shall notify adjacent communities, the state departments of Ecology and Fish and Wildlife, and the Federal Insurance Administration about the proposed watercourse alteration at least thirty (30) days prior to permit issuance.

4. **Maintenance of Alterations.** The applicant shall maintain the altered or relocated portion of the watercourse to ensure that the flood carrying capacity is not diminished. Maintenance shall be bonded for a period of five years, and be in accordance with an approved maintenance program.[33]

X.40.060 Performance Standards – Areas of Shallow Flooding.

Uses in areas of shallow flooding shall adhere to the following standards, in addition to the general standards of *Performance Standards – General Requirements* [Section X.40.040] and relevant specific standards of *Performance Standards – Specific Uses* [Section X.40.050].

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[32] Advisory for the protection of fish channels, but is not mandated by the NFIP.

[33] Maintenance should be continued indefinitely. To ensure that maintenance is carried out during the most critical period following the alteration, it is recommended that the developer be required to bond for a period of two to five years although FEMA guidance does not specify a time period. This time period could be the life of the use or structure.

Most AO zones depict shallow overflow areas on flat land adjacent to streams or overflow with indeterminate flow paths from perched channels. Another area where FEMA uses the shallow flooding AO Zone is in its depiction of alluvial fan flooding. FEMA recommends that fill not be used as a construction technique in alluvial fan flooding areas where excessive velocities are evident, in view of the fact that the fills are subject to erosive forces.

A. **Residential Structures.** New construction and substantial improvements of residential structures and manufactured homes within AO zones shall have the lowest floor (including basement) elevated above the highest grade adjacent to the building, one (1) foot or more above the depth number specified in feet on the flood insurance map or at least two (2) feet if no depth number is specified.

B. **Nonresidential Structures.** New construction and substantial improvements of nonresidential structures within AO zones shall either:

1. Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site one (1) foot or more above the depth number specified on the flood insurance map or at least two (2) feet if no depth number is specified; or

2. Together with attendant utility and sanitary facilities, be completely floodproofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this Subsection based on their development and/or review of the structural design, specifications, and plans. Following construction of the structure, certifications shall be submitted to the [city/county] that record the actual (as-built) elevation to which the structure was floodproofed.

C. **Drainage Paths.** All development shall include adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

D. **Recreational Vehicles.** Recreational vehicles placed on sites within AO Zones on the flood insurance map(s) shall meet the requirements of this Chapter.

X.40.070 Performance Standards – Coastal High Hazard Areas. Uses in all coastal high hazard areas shall adhere to the following standards, in addition to the general standards of *Performance Standards – General Requirements* [Section X.40.040] and relevant specific standards of *Performance Standards – Specific Uses* [Section X.40.050].

A. All new construction shall be located landward of the reach of mean high tide.

B. All new construction and substantial improvements shall be elevated on pilings and columns so that:

1. The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated one (1) foot or more above the base flood level; and

2. The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent (1%) chance of being equaled or exceeded in any given year (100-year mean recurrence interval).

C. **Design Certification.** The structural design, specifications, and plans for a proposed activity within a coastal high hazard area shall be developed or reviewed, and certified by a registered professional engineer or architect that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the standards of this Section.

D. **Elevation Certification.** The [director] shall obtain the elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V1-30 and VE, and whether or not such structures contain a basement. The [director] shall maintain a record of all such flood elevation information.

E. **Space Below Lowest Floor and Obstruction.** The space below the lowest floor of all new construction and substantial improvements shall be either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purposes of this Section, a breakaway wall shall have a design safe loading resistance of not less than ten (10) and no more than twenty (20) pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of twenty (20) pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

1. Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and

2. The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Maximum wind and water loading values to be used in this determination shall each have a one percent (1%) chance of being equaled or exceeded in any given year (100-year mean recurrence interval).

F. **Use of Breakaway Walls.** If breakaway walls are utilized, such enclosed space shall be used solely for parking of vehicles, building access, or storage, and shall not be used for human habitation.

G. **Manufactured Homes.** Manufactured homes to be placed or substantially improved in coastal high hazard areas shall meet the requirements of this Chapter.

H. **Recreational Vehicles.** Recreational vehicles placed on sites within coastal high hazard areas shall meet the requirements of this Chapter.

PROHIBITED USES AND ACTIVITIES

X.40.080 Uses and Activities Prohibited From Frequently Flooded Areas

A. **Critical Facilities.** Critical facilities are prohibited from frequently flooded areas to prevent damage to such facilities, to avoid costs that will be incurred by the public, and to maintain functionality of such facilities during flood events. If such a prohibition is unreasonable, an allowance for critical facilities in frequently flooded areas with the following specific conditions:

1. Construction of new critical facilities shall be permissible within frequently flooded areas if no feasible alternative site is available.

2. Critical facilities constructed within frequently flooded areas shall have the lowest floor elevated three (3) feet or more above the level of the base flood elevation (100-year flood).

3. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into flood waters.

4. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.

B. **Wells Used for Potable Water.** Water wells shall be located on high ground and are prohibited from the floodway.[34]

C. **On-Site Sewage Disposal Systems.** On-site sewage disposal systems are prohibited from the floodway, the channel migration zone, and the ten-year floodplain elevation.[35]

D. **Construction in Floodways**

1. **New Construction Certification.** Encroachments, including new construction, substantial improvements, fill, and other development, are prohibited within designated floodways unless certified by a registered professional engineer. Such certification shall demonstrate through hydrologic and hydraulic analyses, performed in accordance with standard engineering practice, that the proposed encroachment

[34] See WAC 173-160-171.
[35] Advisory and not a NFIP requirement.

will not result in any increase in flood levels during the occurrence of the base flood discharge.

Small projects that are solely to protect or create fish habitat and designed by a qualified professional may be allowed without certification, if the [director] determines that the project will not obstruct flood flows. Fish protection projects shall be reviewed on behalf of the [city/county] by a qualified professional in the field of hydraulics.[36]

2. **Residential Construction and Reconstruction.** Construction and reconstruction of residential structures is prohibited within designated floodways, except for:

   a. Repairs, reconstruction, or improvements to a structure that do not increase the ground floor area; and

   b. Repairs, reconstruction, or improvements to a structure, for which the cost does not exceed fifty percent (50%) of the market value of the structure either:

      i. Before the repair or reconstruction is started, or

      ii. If the structure has been damaged and is being restored, before the damage occurred.

      Improvement to a structure to correct existing violations of state or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and that are the minimum necessary to ensure safe living conditions or to structures identified as historic places may be excluded from the fifty percent (50%).

3. If Subsections (1) and (2) above are satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions.

E. **Construction in Coastal High Hazard Areas**

1. Fill for structural support of buildings shall be prohibited in coastal high hazard areas.

2. Man-made alteration of sand dunes that would result in increasing the potential flood damage shall be prohibited in coastal high hazard areas.

[36] This allowance for small projects is based upon FEMA Region 10 *Floodplain Management, Higher Regulatory Standards*, 2 ed., 2001, and is advisory and not required by NFIP.

VARIANCES

X.40.090 Variances – Additional Considerations for Frequently Flooded Areas

A. **Additional Variance Considerations.** In review of variance requests for activities within frequently flooded areas, the [hearing body/examiner] shall consider all technical evaluations, relevant factors, standards specified in this Chapter, and:

1. The danger to life and property due to flooding, erosion damage, or materials swept onto other lands during flood events;

2. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the proposed use;

3. The importance of the services provided by the proposed use to the community;

4. The necessity to the proposed use of a waterfront location, where applicable, and the availability of alternative locations for the proposed use that are not subject to flooding or erosion damage;

5. The safety of access to the property in times of flood for ordinary and emergency vehicles;

6. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and

7. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems and streets and bridges.

B. Variances shall only be issued upon a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, nuisances, fraud on or victimization of the public, or conflict with existing laws or ordinances. Unavoidable impacts to floodplain functions and values shall be mitigated in accordance with *Mitigation Sequencing* [Section X.10.240]

C. Variances shall not be issued within a designated floodway, if any increase in flood levels during the base flood discharge would result.

Geologically Hazardous Areas

Chapter X.50
Geologically Hazardous Areas

Designation, Classification, and Mapping
- **X.50.010 Designation of Geologically Hazardous Areas**
- **X.50.020 Designation of Specific Hazard Areas**
- **X.50.030 Classification of Geologically Hazardous Areas**
- **X.50.040 Mapping of Geologically Hazardous Areas**

Allowed Activities – Geologically Hazardous Areas
- **X.50.050 Activities Allowed in Geologically Hazardous Areas**

Critical Areas Report Requirements – Geologically Hazardous Areas
- **X.50.060 Critical Area Report – Additional Requirements for Geologically Hazardous Areas**
- **X.50.070 Critical Area Report – Additional Requirements for Specific Hazards**

Performance Standards – Geologically Hazardous Areas
- **X.50.080 Performance Standards – General Requirements**
- **X.50.090 Performance Standards – Specific Hazards**

DESIGNATION, CLASSIFICATION, AND MAPPING – GEOLOGICALLY HAZARDOUS AREAS

X.50.010 Designation of Geologically Hazardous Areas.

Geologically hazardous areas include areas susceptible to erosion, sliding, earthquake, or other geological events. They pose a threat to the health and safety of citizens when incompatible development is sited in areas of significant hazard. Such incompatible development may not only place itself at risk, but also may increase the hazard to surrounding development and use. Areas susceptible to one or more of the following types of hazards shall be designated as a geologically hazardous area:[37]

A. Erosion hazard;

B. Landslide hazard;

C. Seismic hazard;

D. Mine hazard;

E. Volcanic hazard; and

[37] See WAC 365-190-080(4)(a).

F. Other geological events including tsunamis, mass wasting, debris flows, rock falls, and differential settlement.

X.50.020 Designation of Specific Hazard Areas

A. **Erosion Hazard Areas.** Erosion hazard areas are at least those areas identified by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a "moderate to severe," "severe," or "very severe" rill and inter-rill erosion hazard.[38] Erosion hazard areas are also those areas impacted by shore land and/or stream bank erosion and those areas within a river's channel migration zone.

B. **Landslide Hazard Areas.** Landslide hazard areas are areas potentially subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include areas susceptible because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors. Example of these may include, but are not limited to the following:

1. Areas of historic failures, such as:[39]

    a. Those areas delineated by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a "severe" limitation for building site development;

    b. Those areas mapped by the Washington State Department of Ecology (*Coastal Zone Atlas*) or the Washington State Department of Natural Resources (slope stability mapping) as unstable (U or class 3), unstable old slides (UOS or class 4), or unstable recent slides (URS or class 5); or

    c. Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published by the U.S. Geological Survey or Washington State Department of Natural Resources;

2. Areas with all three of the following characteristics:[40]

    a. Slopes steeper than fifteen percent (15%);

    b. Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and

    c. Springs or ground water seepage.

3. Areas that have shown movement during the Holocene epoch (from ten thousand years ago to the present) or that are underlain or covered by mass wastage debris of that epoch;[41]

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[38] See WAC 365-190-080(4)(c).
[39] See WAC 365-190-080(4)(d)(i).
[40] See WAC 365-190-080(4)(d)(ii).
[41] See WAC 365-190-080(4)(d)(iii).

4. Slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;[42]

5. Slopes having gradients steeper than eighty percent (80%) subject to rock fall during seismic shaking;[43]

6. Areas potentially unstable because of rapid stream incision, stream bank erosion, and undercutting by wave action;[44]

7. Areas that show evidence of, or are at risk from snow avalanches;[45]

8. Areas located in a canyon or on an active alluvial fan, presently or potentially subject to inundation by debris flows or catastrophic flooding;[46] and

9. Any area with a slope of forty percent (40%) or steeper and with a vertical relief of ten (10) or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and is measured by averaging the inclination over at least ten (10) feet of vertical relief.[47]

C. **Seismic Hazard Areas.** Seismic hazard areas are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, lateral spreading, or surface faulting. One indicator of potential for future earthquake damage is a record of earthquake damage in the past. Ground shaking is the primary cause of earthquake damage in Washington. The strength of ground shaking is primarily affected by:[48]

1. The magnitude of an earthquake;

2. The distance from the source of an earthquake;

3. The type of thickness of geologic materials at the surface; and

4. The type of subsurface geologic structure.

Settlement and soil liquefaction conditions occur in areas underlain by cohesionless, loose, or soft-saturated soils of low density, typically in association with a shallow ground water table.

D. **Mine Hazard Areas.** Mine hazard areas are those areas underlain by or affected by mine workings such as adits, gangways, tunnels, drifts, or airshafts, and those areas of probable sink holes, gas releases, or subsidence due to mine

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[42] See WAC 365-190-080(4)(d)(iv).
[43] See WAC 365-190-080(4)(d)(v).
[44] See WAC 365-190-080(4)(d)(vi).
[45] See WAC 365-190-080(4)(d)(vii).
[46] See WAC 365-190-080(4)(d)(viii).
[47] See WAC 365-190-080(4)(d)(ix).
[48] See WAC 365-190-080(4)(e).

workings. Factors that should be considered include: proximity to development, depth from ground surface to the mine working, and geologic material.[49]

E. **Volcanic Hazard Areas.** Volcanic hazard areas are areas subject to pyroclastic flows, lava flows, debris avalanche, and inundation by debris flows, lahars, mudflows, or related flooding resulting from volcanic activity.[50]

F. **Tsunami Hazard Areas.** Tsunami hazard areas are coastal areas and large lake shoreline areas susceptible to flooding and inundation as the result of excessive wave action derived from seismic or other geologic events.[51]

G. **Other Hazard Areas.** Geologically hazardous areas shall also include areas determined by the [director] to be susceptible to other geological events including mass wasting, debris flows, rock falls, and differential settlement.

WAC 365-190-080 encourages jurisdictions to classify geologically hazardous areas.

X.50.030 Classification of Geologically Hazardous Areas. All geologic hazard areas should be classified according to the following categories for each geologic hazard type.

Classification	Documentation and Data Sources
Known or Suspected Risk	Documentation or projection of the hazard by a qualified professional exists.
Risk Unknown	Documentation or projection of the lack of hazard by a qualified professional exists, or data are not available to determine the presence or absence of a geologic hazard.

X.50.040 Mapping of Geologically Hazardous Areas.

A. The approximate location and extent of geologically hazardous areas are shown on the adopted critical area maps. The adopted critical areas maps include:

1. *Coastal Zone Atlas* (for marine bluff hazards);
2. U.S. Geological Survey landslide hazard, seismic hazard, and volcano hazard maps;
3. Washington State Department of Natural Resources seismic hazard maps for Western Washington;
4. Washington State Department of Natural Resources slope stability maps;
5. National Oceanic and Atmospheric Administration tsunami hazard maps;

[49] See WAC 365-190-080(4)(f)(ii).
[50] See WAC 365-190-080(4)(f)(i).
[51] See WAC 365-190-080(3)(d).

6. Federal Emergency Management Administration flood insurance maps; and

7. Locally adopted maps.

B. These maps are to be used as a guide for the [city/county], project applicants and/or property owners and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

ALLOWED ACTIVITIES – GEOLOGICALLY HAZARDOUS AREAS

Allowing construction and additions of some buildings of a certain size should be considered for each hazard area. It may be scientifically acceptable to allow limited development in some hazard areas, as shown here, but not in others. Whether to allow limited construction, and to what extent, needs to be evaluated based on the severity of the hazard. Thresholds of 2,500 square feet and 250 square feet have been adopted by some jurisdictions for some hazards, but these should be scientifically evaluated in relation to the applicable environment before being adopted locally.

X.50.050 Activities Allowed in Geologically Hazardous Areas. The following activities are allowed in geologically hazardous areas pursuant to *Allowed Activities* [Section X.10.160] and do not require submission of a critical area report:

A. **Erosion and Landslide Hazard Areas.** Except as otherwise provided for in this Title, only those activities approved and permitted consistent with an approved critical area report in accordance with this Title shall be allowed in erosion or landslide hazard areas.

B. **Seismic Hazard Areas.** The following activities are allowed within seismic hazard areas:

1. Construction of new buildings with less than 2,500 square feet of floor area or roof area, whichever is greater, and which are not residential structures or used as places of employment or public assembly;[52]

2. Additions to existing single-story residences that are two hundred fifty (250) square feet or less;[53] and

3. Installation of fences.

C. **Mine Hazard Areas.** The following activities are allowed within mine hazard areas:

1. Construction of new buildings with less than 2,500 square feet of floor area or roof area, whichever is greater, and which are not residential structures or used as places of employment or public assembly;

2. Additions to existing residences that are two hundred fifty (250) square feet or less; and

3. Installation of fences.

D. **Volcanic Hazard Areas.** The following activities are allowed within volcanic hazard areas:

[52] See sidebar.
[53] See sidebar.

1. Construction of new buildings with less than 2,500 square feet of floor area or roof area, whichever is greater, and which are not residential structures or used as places of employment or public assembly;

2. Additions to existing residences that are two hundred fifty (250) square feet or less; and

3. Installation of fences.

E. **Tsunami Hazard Areas.** The following activities are allowed within tsunami hazard areas:

1. Construction of new buildings with less than 2,500 square feet of floor area or roof area, whichever is greater, and which are not residential structures or used as places of employment or public assembly;

2. Additions to existing residences that are two hundred fifty (250) square feet or less; and

3. Installation of fences.

F. **Other Hazard Areas.** The [director] may allow the following activities within other geologically hazardous areas, if the activity will not increase the risk of the hazard:

1. Construction of new buildings with less than 2,500 square feet of floor area or roof area, whichever is greater, and which are not residential structures or used as places of employment or public assembly;

2. Additions to existing residences that are two hundred fifty (250) square feet or less; and

3. Installation of fences.

CRITICAL AREA REPORT REQUIREMENTS – GEOLOGICALLY HAZARDOUS AREAS

X.50.060 Critical Area Report – Additional Requirements for Geologically Hazardous Areas

A. **Preparation by a Qualified Professional.** A critical areas report for a geologically hazardous area shall be prepared by an engineer or geologist, licensed in the state of Washington, with experience analyzing geologic, hydrologic, and ground water flow systems, and who has experience preparing reports for the relevant type of hazard.

B. **Area Addressed in Critical Area Report**. The following areas shall be addressed in a critical area report for geologically hazardous areas:

1. The project area of the proposed activity; and

2. All geologically hazardous areas within two hundred (200) feet of the project area or that have potential to be affected by the proposal;

C. **Geological Hazards Assessment.** A critical area report for a geologically hazardous area shall contain an assessment of geological hazards including the following site- and proposal-related information at a minimum:

See Appendix I for a Sample Geological Hazards Assessment Review Checklist.

1. **Site and Construction Plans.** The report shall include a copy of the site plans for the proposal showing:

   a. The type and extent of geologic hazard areas, any other critical areas, and buffers on, adjacent to, within two hundred (200) feet of, or that are likely to impact the proposal;

   b. Proposed development, including the location of existing and proposed structures, fill, storage of materials, and drainage facilities, with dimensions indicating distances to the floodplain, if available;

   c. The topography, in two-foot contours, of the project area and all hazard areas addressed in the report; and

   d. Clearing limits; and

2. **Assessment of Geological Characteristics.** The report shall include an assessment of the geologic characteristics of the soils, sediments, and/or rock of the project area and potentially affected adjacent properties, and a review of the site history regarding landslides, erosion, and prior grading. Soils analysis shall be accomplished in accordance with accepted classification systems in use in the region. The assessment shall include, but not be limited to:

   a. A description of the surface and subsurface geology, hydrology, soils, and vegetation found in the project area and in all hazard areas addressed in the report;

   b. A detailed overview of the field investigations, published data, and references; data and conclusions from past assessments of the site; and site specific measurements, test, investigations, or studies that support the identification of geologically hazardous areas; and

   c. A description of the vulnerability of the site to seismic and other geologic events;

3. **Analysis of Proposal.** The report shall contain a hazards analysis including a detailed description of the project, its relationship to the geologic hazard(s), and its potential impact upon the hazard area, the subject property, and affected adjacent properties; and

4. **Minimum Buffer and Building Setback.** The report shall make a recommendation for the minimum no-disturbance buffer and minimum building setback from any geologic hazard based upon the geotechnical analysis.

D. **Incorporation of Previous Study.** Where a valid critical areas report has been prepared within the last five (5) years for a specific site, and where the proposed land use activity and surrounding site conditions are unchanged, said report may be incorporated into the required critical area report. The applicant shall submit a hazards assessment detailing any changed environmental conditions associated with the site.

E. **Mitigation of Long-Term Impacts.** When hazard mitigation is required, the mitigation plan shall specifically address how the activity maintains or reduces the pre-existing level of risk to the site and adjacent properties on a long-term basis (equal to or exceeding the projected lifespan of the activity or occupation). Proposed mitigation techniques shall be considered to provide long-term hazard reduction only if they do not require regular maintenance or other actions to maintain their function. Mitigation may also be required to avoid any increase in risk above the pre-existing conditions following abandonment of the activity.

X.50.070 Critical Area Report – Additional Technical Information Requirements for Specific Hazards. In addition to the general critical area report requirements of [sections X.10.210 and X.50.060], critical area reports for geologically hazardous areas must meet the requirements of this Section. Critical area reports for two or more types of critical areas must meet the report requirements for each relevant type of critical area.

A. **Erosion and Landslide Hazard Areas.** In addition to the basic critical area report requirements, the technical information for an erosion hazard or landslide hazard area shall include the following information at a minimum:

1. **Site Plan.** The critical area report shall include a copy of the site plan for the proposal showing:

   A. The height of slope, slope gradient, and cross-section of the project area;

   b. The location of springs, seeps, or other surface expressions of ground water on or within two hundred (200) feet of the project area or that have potential to be affected by the proposal;[54] and

   c. The location and description of surface water runoff features;

[54] A distance of two hundred (200) feet is a suggested so that geological features that might affect the proposal are included in the critical area report. It may be necessary to include features further than two hundred (200) feet from the project area in some instances, such as a series of related geological features that extend more than two hundred (200) feet.

2. **Hazards Analysis.** The hazards analysis component of the critical areas report shall specifically include:

   a. A description of the extent and type of vegetative cover;

   b. A description of subsurface conditions based on data from site-specific explorations;

   c. Descriptions of surface and ground water conditions, public and private sewage disposal systems, fills and excavations, and all structural improvements;

   d. An estimate of slope stability and the effect construction and placement of structures will have on the slope over the estimated life of the structure;

   e. An estimate of the bluff retreat rate that recognizes and reflects potential catastrophic events such as seismic activity or a one hundred-year storm event;

   f. Consideration of the run-out hazard of landslide debris and/or the impacts of landslide run-out on down slope properties.

   g. A study of slope stability including an analysis of proposed cuts, fills, and other site grading;

   h. Recommendations for building siting limitations; and

   i. An analysis of proposed surface and subsurface drainage, and the vulnerability of the site to erosion;

3. **Geotechnical Engineering Report**. The technical information for a project within a landslide hazard area shall include a geotechnical engineering report prepared by a licensed engineer that presents engineering recommendations for the following:

   a. Parameters for design of site improvements including appropriate foundations and retaining structures. These should include allowable load and resistance capacities for bearing and lateral loads, installation considerations, and estimates of settlement performance;

   b. Recommendations for drainage and subdrainage improvements;

   c. Earthwork recommendations including clearing and site preparation criteria, fill placement and compaction criteria, temporary and permanent slope inclinations and protection, and temporary excavation support, if necessary; and

   d. Mitigation of adverse site conditions including slope stabilization measures and seismically unstable soils, if appropriate;

4. **Erosion and Sediment Control Plan.** For any development proposal on a site containing an erosion hazard area, an erosion and sediment control plan shall be required. The erosion and sediment control plan shall be prepared in compliance with requirements set forth in the [*locally adopted stormwater management regulations*];

5. **Drainage Plan.** The technical information shall include a drainage plan for the collection, transport, treatment, discharge, and/or recycle of water prepared in accordance with the [*locally adopted surface water management plan*]. The drainage plan should consider on-site septic system disposal volumes where the additional volume will affect the erosion or landslide hazard area;

6. **Mitigation Plans.** Hazard and environmental mitigation plans for erosion and landslide hazard areas shall include the location and methods of drainage, surface water management, locations and methods of erosion control, a vegetation management and/or replanting plan, and/or other means for maintaining long-term soil stability; and

7. **Monitoring Surface Waters.** If the [director] determines that there is a significant risk of damage to downstream receiving waters due to potential erosion from the site, based on the size of the project, the proximity to the receiving waters, or the sensitivity of the receiving waters, the technical information shall include a plan to monitor the surface water discharge from the site. The monitoring plan shall include a recommended schedule for submitting monitoring reports to the [city/county].

B. **Seismic Hazard Areas.** In addition to the basic report requirements, a critical area report for a seismic hazard area shall also meet the following requirements:

1. The site map shall show all known and mapped faults within two hundred (200) feet of the project area or that have potential to be affected by the proposal.

2. The hazards analysis shall include a complete discussion of the potential impacts of seismic activity on the site (for example, forces generated and fault displacement).

3. A geotechnical engineering report shall evaluate the physical properties of the subsurface soils, especially the thickness of unconsolidated deposits and their liquefaction potential. If it is determined that the site is subject to liquefaction, mitigation measures appropriate to the scale of the development shall be recommended and implemented.

C. **Mine Hazard Areas.** In addition to the basic report requirements, a critical area report for a mine hazard critical area shall also meet the following requirements:

1. **Site Plan.** The site plan shall delineate the following found within two hundred (200) feet of or directly underlying the project area, or that have potential to be affected by the proposal:

    a. The existence of mines, including all significant mine features, such as mine entries, portals, adits, mine shafts, air shafts, and timber shafts;

    b. The location of any nearby mines that may impact or be affected by the proposed activities;

    c. The location of any known sinkholes, significant surface depressions, trough subsidence features, coal mine spoil piles, and other mine-related surface features; and

    d. The location of any prior site improvements that have been carried out to mitigate abandoned coal mine features; and

2. **Hazards Analysis.** The hazards analysis shall include a discussion of the potential for subsidence on the site and classify all mine hazards areas within two hundred (200) feet of the project area, or that have potential to be affected by the proposal, as either low, moderate, or severe. The hazards analysis shall include a mitigation plan containing recommendations for mitigation of the potential for future trough subsidence, as appropriate, for the specific proposed alteration and recommendations for additional study, reports, and development standards if warranted.

D. **Volcanic Hazard Areas.** In addition to the basic report requirements, a critical area report for a volcanic hazard area shall also meet the following requirements:

1. **Site Plan.** The site plan shall show all areas within two hundred (200) feet of the project area that have potential to be affected by pyroclastic flows, lahars, or mud and debris flows derived from volcanic events;

2. **Hazards Analysis.** The hazards analysis shall include a complete discussion of the potential impacts of volcanic activity on the site (for example, inundation by mud flows resulting from volcanic activity); and

3. **Emergency Management Plan.** The emergency management plan shall include plans for emergency building exit routes, site evacuation routes, emergency training, notification of local emergency management officials, and an emergency warning system.

E. **Tsunami Hazard Areas.** In addition to the basic report requirements, a critical area report for a tsunami hazard area shall also meet the following requirements:

1. **Site Plan.** The site plan shall show all areas within two hundred (200) feet of the project area that have potential to be inundated by wave action derived from a seismic event;

2. **Hazards Analysis.** The hazards analysis shall include a complete discussion of the potential impacts of the tsunami hazard on the site; and

3. **Emergency Management Plan.** The emergency management plan shall include plans for emergency building exit routes, site evacuation routes, emergency training, notification of local emergency management officials, and an emergency warning system.

F. **Other Geologically Hazardous Areas.** In addition to the basic requirements, the [director] may require additional technical information to be submitted when determined to be necessary to the review the proposed activity and the subject hazard. Additional technical information that may be required, includes, but is not limited to:

1. **Site Plan.** The site plan shall show all hazard areas located within two hundred (200) feet of the project area or that have potential to be affected by the proposal; and

2. **Hazards Analysis.** The hazards analysis shall include a complete discussion of the potential impacts of the hazard on the project area and of the proposal on the hazard.

PERFORMANCE STANDARDS – GEOLOGICALLY HAZARDOUS AREAS

X.50.080 Performance Standards – General Requirements

A. Alterations of geologically hazardous areas or associated buffers may only occur for activities that:

1. Will not increase the threat of the geological hazard to adjacent properties beyond pre-development conditions;

2. Will not adversely impact other critical areas;

3. Are designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than pre-development conditions; and

4. Are certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington.

B. **Critical Facilities Prohibited.** Critical facilities shall not be sited within geologically hazardous areas unless there is no other practical alternative.

Each jurisdiction may want to customize the restrictions it places on the siting of critical facilities. For example, if a city is entirely within a hazard area, such as volcano hazard, it may not be practical to locate the critical facility outside of the hazard. However, if options exist, it is advisable to restrict critical facilities from locating within hazard areas.

X.50.090 Performance Standards – Specific Hazards

A. **Erosion and Landslide Hazard Areas.** Activities on sites containing erosion or landslide hazards shall meet the standards of *Performance Standards – General Requirements* [Section X.50.080] and the specific following requirements:

1. **Buffer Requirement.** A buffer shall be established from all edges of landslide hazard areas. The size of the buffer shall be determined by the [director] to eliminate or minimize the risk of property damage, death, or injury resulting from landslides caused in whole or part by the development, based upon review of and concurrence with a critical area report prepared by a qualified professional.[55]

    a. **Minimum Buffer.** The minimum buffer shall be equal to the height of the slope or fifty (50) feet, whichever is greater.

    b. **Buffer Reduction.** The buffer may be reduced to a minimum of ten (10) feet when a qualified professional demonstrates to the [director]'s satisfaction that the reduction will adequately protect the proposed development, adjacent developments, and uses and the subject critical area.

    c. **Increased Buffer.** The buffer may be increased where the [director] determines a larger buffer is necessary to prevent risk of damage to proposed and existing development;

2. **Alterations.** Alterations of an erosion or landslide hazard area and/or buffer may only occur for activities for which a hazards analysis is submitted and certifies that:

    a. The development will not increase surface water discharge or sedimentation to adjacent properties beyond pre-development conditions;

    b. The development will not decrease slope stability on adjacent properties; and

    c. Such alterations will not adversely impact other critical areas;

3. **Design Standards.** Development within an erosion or landslide hazard area and/or buffer shall be designed to meet the following basic requirements unless it can be demonstrated that an alternative design that deviates from one or more of these standards provides greater long-term slope stability while meeting all other provisions of this Title. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function. The basic development design standards are:

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[55] Buffer distances of fifty (50) feet, height of slope, or potentially ten (10) feet are commonly used by jurisdictions to protect against erosion and landslide hazards. However, such distances may not be appropriate in all jurisdictions, and they should be scientifically evaluated in relation to local hazards before being adopted.

a. The proposed development shall not decrease the factor of safety for landslide occurrences below the limits of 1.5 for static conditions and 1.2 for dynamic conditions. Analysis of dynamic conditions shall be based on a minimum horizontal acceleration as established by the current version of the Uniform Building Code;

Adoption of cluster, planned unit development, and density averaging regulations may make it more feasible for developers to meet the design standards listed here.

b. Structures and improvements shall be clustered to avoid geologically hazardous areas and other critical areas;

c. Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

d. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

e. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

f. The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes; and

g. Development shall be designed to minimize impervious lot coverage;

4. **Vegetation Retention.** Unless otherwise provided or as part of an approved alteration, removal of vegetation from an erosion or landslide hazard area or related buffer shall be prohibited;

5. **Seasonal Restriction.** Clearing shall be allowed only from May 1 to October 1 of each year provided that the [city/county] may extend or shorten the dry season on a case-by-case basis depending on actual weather conditions, except that timber harvest, not including brush clearing or stump removal, may be allowed pursuant to an approved forest practice permit issued by the [city/county] or the Washington State Department of Natural Resources; [56]

6. **Utility Lines and Pipes.** Utility lines and pipes shall be permitted in erosion and landslide hazard areas only when the applicant demonstrates that no other practical alternative is available. The line or pipe shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide. Stormwater conveyance shall be allowed only through a high-density polyethylene pipe with fuse-welded joints, or similar product that is technically equal or superior;

7. **Point Discharges.** Point discharges from surface water facilities and roof drains onto or upstream from an erosion or landslide hazard area shall be prohibited except as follows:

[56] Rainy-season restrictions are applicable to communities in Western Washington.

a. Conveyed via continuous storm pipe downslope to a point where there are no erosion hazards areas downstream from the discharge;

b. Discharged at flow durations matching predeveloped conditions, with adequate energy dissipation, into existing channels that previously conveyed stormwater runoff in the predeveloped state; or

c. Dispersed discharge upslope of the steep slope onto a low-gradient undisturbed buffer demonstrated to be adequate to infiltrate all surface and stormwater runoff, and where it can be demonstrated that such discharge will not increase the saturation of the slope;

8. **Subdivisions.** The division of land in landslide hazard areas and associated buffers is subject to the following:

a. Land that is located wholly within a landslide hazard area or its buffer may not be subdivided. Land that is located partially within a landslide hazard area or its buffer may be divided provided that each resulting lot has sufficient buildable area outside of, and will not affect, the landslide hazard or its buffer.

b. Access roads and utilities may be permitted within the landslide hazard area and associated buffers if the [city/county] determines that no other feasible alternative exists; and

9. **Prohibited Development.** On-site sewage disposal systems, including drain fields, shall be prohibited within erosion and landslide hazard areas and related buffers.

B. **Seismic Hazard Areas.** Activities proposed to be located in seismic hazard areas shall meet the standards of *Performance Standards – General Requirements* [Section X.50.080].

C. **Mine Hazard Areas.** Activities proposed to be located in mine hazard area shall meet the standards of *Performance Standards – General Requirements* [Section X.50.080] and the specific following requirements:

It is likely that local jurisdictions that have mine hazard areas understand the issues associated with the hazards very well and may already have well developed regulations in place to manage mine hazards. The standards here are representative of general guidelines and are not meant to replace well developed standards created for specific, known hazard areas.

1. **Alterations.** Alterations of a mine hazard area and/or buffer are allowed, as follows:

a. All alterations are permitted within a mine hazard area with a low potential for subsidence;

b. Within a mine hazard area with a moderate potential for subsidence and at coal mine by-product stockpiles, all alterations are permitted subject to a mitigation plan to minimize risk of structural damage using appropriate criteria to evaluate the proposed use, as recommended in the hazard analysis; and

c. Within a mine hazard area with a severe potential for subsidence only those activities allowed in accordance with Section X.50.050 will be allowed.

2. **Subdivisions.** The division of land in mine hazard areas and associated buffers is subject to the following:

a. Land that is located within two hundred (200) feet of a mine hazard area with a severe potential for subsidence may not be subdivided. Land that is located partially within a mine hazard area may be divided provided that each resulting lot has sufficient buildable area that is two hundred (200) feet away from the mine hazard area with a severe potential for subsidence. Land that is located within a mine hazard area with a low or moderate potential for subsidence may be subdivided.

b. Access roads and utilities may be permitted within two hundred (200) feet of a mine hazard area with a moderate or severe potential for subsidence if the [city/county] determines that no other feasible alternative exists.

3. **Reclamation Activities.** For all reclamation activities, including grading, filling, and stockpile removal, as-built drawings shall be submitted to the [city/county] in a format specified by the [director].

Primary damage from tsunamis is caused by lateral forces. Structures should be designed to comply with code criteria for seismic resistance, including anchoring and robust sill plates. Such measures will protect structures from moderate tsunami events. To date, there are no criteria that can reliably protect structures from the massive forces of a large tsunami or volcanic event.

D. **Volcanic and Tsunami Hazard Areas.** Activities on sites containing areas susceptible to inundation due to volcanic or tsunamis hazards shall require an evacuation and emergency management plan. The [city/county] may use the performance standards for coastal high hazard areas (see Chapter X.40, *Frequently Flooded Areas*) as guidance in reviewing new structures proposed in volcanic and tsunami hazard areas.

E. **Other Hazard Areas.** Activities on sites containing or adjacent to volcanic, tsunamis, or other geologically hazardous areas, shall meet the standards of *Performance Standards – General Requirements* [Section X.50.080].

Fish and Wildlife Habitat Conservation Areas

The types of fish, wildlife, and plant species that need protection vary from community to community throughout the state, and the standards necessary for protection vary with each species. Information about priority habitats and species, including their status and geographic range, is contained in the Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species List. Additionally, the department has published management recommendations that include recommended protection standards for many priority species and habitats. Information on rare plant species and high quality ecosystems, including their status, location, and distribution, is maintained by the Washington State Department of Natural Resources Natural Heritage Program.[57] This Example Code Chapter is organized to be applicable in a generalized manner. Additional protection standards may need to be included depending on the species that might be found in each community.

Standards included here for riparian habitat areas are intended to be applicable to all natural resource lands, rural areas, and lands within urban growth areas. Degraded riparian areas should be individually evaluated to determine opportunities to improve and restore stream and terrestrial habitat functions. Functional improvements, such as those addressing breeding locations, migration routes, rearing areas, feeding grounds, roosting locations, and water temperature and quality may be required as permit conditions of approval.

[57] See Appendix J.

Chapter X.60
Fish and Wildlife Habitat Conservation Areas

Designation and Mapping
X.60.010 Designation of Fish and Wildlife Habitat Conservation Areas

Additional Report Requirements – Habitat Conservation Areas
X.60.020 Critical Area Report – Additional Requirements for Habitat Conservation Areas

Performance Standards
X.60.030 Performance Standards – General Requirements
X.60.040 Performance Standards – Specific Habitats

The nature of fish and wildlife habitat areas varies considerably throughout the state and while some habitats, such as shorelines, streams and wetlands, are often easily recognizable, other important habitat areas, such as snags, prairies, caves, or urban open space, may go unnoticed. It is advisable for each local jurisdiction to contact the Washington Department of Fish and Wildlife for assistance with identifying and mapping fish and wildlife habitat conservation areas.

DESIGNATION AND MAPPING

X.60.010 Designation of Fish And Wildlife Habitat Conservation Areas

A. Fish and wildlife habitat conservation areas include:

1. **Areas With Which State or Federally Designated Endangered, Threatened, and Sensitive Species Have a Primary Association.**[58]

   a. Federally designated endangered and threatened species are those fish and wildlife species identified by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service that are in danger of extinction or threatened to become endangered. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service should be consulted for current listing status.

   b. State designated endangered, threatened, and sensitive species are those fish and wildlife species native to the state of Washington identified by the Washington Department of Fish and Wildlife, that are in danger of extinction, threatened to become endangered, vulnerable, or declining and are likely to become endangered or threatened in a significant portion of their range within the state without cooperative management or removal of threats. State designated endangered, threatened, and sensitive species are periodically recorded in WAC 232-12-014 (state endangered species) and WAC 232-12-011 (state threatened and sensitive species). The state Department of Fish and Wildlife maintains the most current listing and should be consulted for current listing status.

   A combined list of federally and state identified species is included in Appendix D.

RCW 36.70A.172(1) requires that local governments give special consideration to conservation and protection measures necessary to preserve or enhance anadromous fish.

[58] See WAC 365-190-080(5)(a)(i).

This Subsection shall not apply to hair seals and sea lions that are threatening to damage or are damaging commercial fishing gear being utilized in a lawful manner or when said mammals are damaging or threatening to damage commercial fish being lawfully taken with commercial gear.[59]

2. **State Priority Habitats and Areas Associated With State Priority Species.**[60] Priority habitats and species are considered to be priorities for conservation and management. Priority species require protective measures for their perpetuation due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element. Priority habitats and species are identified by the state Department of Fish and Wildlife.

   A state list of priority habitats is included in Appendix E.

3. **Habitats and Species of Local Importance**.[61] Habitats and species of local importance are those identified by the [city/county], including but not limited to those habitats and species that, due to their population status or sensitivity to habitat manipulation, warrant protection. Habitats may include a seasonal range or habitat element with which a species has a primary association, and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term.

   a. **Designation Process.** The [city/county] shall accept and consider nominations for habitat areas and species to be designated as locally important on an annual basis.

      i. Habitats and species to be designated shall exhibit the following characteristics:

         (a) Local populations of native species are in danger of extirpation based on existing trends:

            1. Local populations of native species that are likely to become endangered; or
            2. Local populations of native species that are vulnerable or declining;[62]

[59] See WAC 232-12-011(3). Hair seals and sea lions are protected under the federal Marine Mammal Protection Act.
[60] See WAC 365-190-080(5)(c)(ii).
[61] See WAC 365-190-030(19).
[62] See WAC 232-12-297.

(b) The species or habitat has recreation, commercial, game, tribal, or other special value;

(c) Long-term persistence of a species is dependent on the protection, maintenance, and/or restoration of the nominated habitat;

(d) Protection by other county, state, or federal policies, laws, regulations, or nonregulatory tools is not adequate to prevent degradation of the species or habitat in [city/county]; and

(e) Without protection, there is a likelihood that the species or habitat will be diminished over the long term.

ii. Areas nominated to protect a particular habitat or species must represent either high-quality native habitat or habitat that has a high potential to recover to a suitable condition and which is of limited availability, highly vulnerable to alteration, or provides landscape connectivity which contributes to the integrity of the surrounding landscape.

iii. Habitats and species may be nominated for designation by any person.

iv. The nomination should indicate whether specific habitat features are to be protected (for example, nest sites, breeding areas, and nurseries), or whether the habitat or ecosystem is being nominated in its entirety.

v. The nomination may include management strategies for the species or habitats. Management strategies must be supported by the best available science, and where restoration of habitat is proposed, a specific plan for restoration must be provided prior to nomination.

vi. The [director] shall determine whether the nomination proposal is complete, and if complete, shall evaluate it according to the characteristics enumerated in subsection (i) and make a recommendation to the [planning commission] based on those findings.

vii. The [planning commission] shall hold a public hearing for proposals found to be complete in accordance with [locally adopted hearing procedures] and make a recommendation to the [city council or county commissioners] based on the characteristics enumerated in subsection (i).

viii. Following the recommendation of the [planning commission], the [city council or county commissioners] shall designate a Habitat or Species of Local Importance.

Designating commercial and recreational shellfish growing areas as critical areas enables jurisdictions to regulate adjacent uses and areas to protect water quality. Another tool for protection of commercial shellfish areas is designation as agricultural lands of long-term commercial significance to protect the resource use of the land and to allow for adjacent shellfish processing operations as accessory uses. Jurisdictions should evaluate these options and decide which works best given local conditions. More information on these tools is discussed under Stronger Safeguards for Shellfish Beds*, available on the Puget Sound Water Quality Action Team Web site at: http://www.psat.wa.gov/.*

ix. Approved nominations will be subject to the provisions of this Title.

4. **Commercial and Recreational Shellfish Areas.**[63] These areas include all public and private tidelands or bedlands suitable for shellfish harvest, including shellfish protection districts established pursuant to Chapter 90.72 RCW. [64]

Kelp and eelgrass beds have been identified and mapped by the Washington State Department of Natural Resources in some areas. Herring and smelt spawning times and locations are outlined in WAC 220-110-240 through 220-110-260. Locations for both may be found by referring to Critical Spawning Habitat for Herring, Surf Smelt, Sand Lance and Rock Sole in Puget Sound, Washington: A Guide for Local Governments and Interested Citizens, *2002, and the* Puget Sound Environmental Atlas.

5. **Kelp and Eelgrass Beds and Herring and Smelt Spawning Areas**.[65]

6. **Naturally Occurring Ponds Under Twenty Acres.**[66] Naturally occurring ponds are those ponds under twenty (20) acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds. Naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds, and landscape amenities, unless such artificial ponds were intentionally created for mitigation.[67]

7. **Waters of the State.**[68] Waters of the state include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington, as classified in WAC 222-16-031 *(or WAC 222-16-030 depending on classification used)*.

8. **Lakes, Ponds, Streams, and Rivers Planted With Game Fish by a Governmental or Tribal Entity.**[69]

Jurisdictions should give preference to preserving connections between high quality habitat and areas of high diversity when considering designating lands essential for preserving habitat connections. Priority should also be given to areas that would provide connections between otherwise isolated, but valuable, habitat areas.

9. **State Natural Area Preserves and Natural Resource Conservation Areas.**[70] Natural area preserves and natural resource conservation areas are defined, established, and managed by the Washington State Department of Natural Resources.

10. **Areas of Rare Plant Species and High Quality Ecosystems.**[71] Areas of rare plant species and high quality ecosystems are identified by the Washington State Department of Natural Resources through the Natural Heritage Program.

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[63] See WAC 365-190-080(5)(a)(iii).
[64] See WAC 365-190-080(5)(c)(iii).
[65] See WAC 365-190-080(5)(a)(iv).
[66] See WAC 365-190-080(5)(a)(v).
[67] See WAC 365-190-080(5)(c)(v).
[68] See WAC 365-190-080(5)(a)(vi).
[69] See WAC 365-190-080(5)(a)(vii).
[70] See WAC 365-190-080(5)(a)(viii).
[71] Chapter 79.70 RCW provides for the classification and inventory of natural heritage resources.

11. **Land Useful or Essential for Preserving Connections Between Habitat Blocks and Open Spaces**.[72]

B. All areas within the [city/county] meeting one or more of these criteria, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this Title and shall be managed consistent with the best available science, such as theWashington Department of Fish and Wildlife's Management Recommendations for Priority Habitat and Species.

C. **Mapping**. The approximate location and extent of habitat conservation areas are shown on the critical area maps adopted by the [city/county], as most recently updated. The following critical area maps are hereby adopted:

Jurisdictions are encouraged to overlay the information from available maps to better understand how landscape features and critical areas are integrated, rather than consider each map individually.

1. Washington Department of Fish and Wildlife Priority Habitat and Species maps;

2. Washington State Department of Natural Resources, Official Water Type Reference maps, as amended;

3. Washington State Department of Natural Resources Puget Sound Intertidal Habitat Inventory maps;

4. Washington State Department of Natural Resources Shorezone Inventory;

5. Washington State Department of Natural Resources Natural Heritage Program mapping data;

6. Washington State Department of Health Annual Inventory of Shellfish Harvest Areas;

7. Anadromous and resident salmonid distribution maps contained in the Habitat Limiting Factors reports published by the Washington Conservation Commission;

8. Washington State Department of Natural Resources State Natural Area Preserves and Natural Resource Conservation Area maps; and

9. [City/county] official habitat maps.

These maps are to be used as a guide for the [city/county], project applicants, and/or property owners and should be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

[72] See WAC 365-190-080(5)(b)(i).

ADDITIONAL REPORT REQUIREMENTS – HABITAT CONSERVATION AREAS

X.60.020 Critical Area Report – Additional Requirements for Habitat Conservation Areas. In addition to the general critical area report requirements of [Section X.10.210], critical area reports for habitat conservation areas must meet the requirements of this Section. Critical area reports for two or more types of critical areas must meet the report requirements for each relevant type of critical area.

A. **Preparation by a Qualified Professional.** A critical areas report for a habitat conservation area shall be prepared by a qualified professional who is a biologist with experience preparing reports for the relevant type of habitat.

B. **Areas Addressed in Critical Area Report**. The following areas shall be addressed in a critical area report for habitat conservation areas:[73]

1. The project area of the proposed activity;

2. All habitat conservation areas and recommended buffers within three hundred (300) feet of the project area; and

3. All shoreline areas, floodplains, other critical areas, and related buffers within three hundred (300) feet of the project area.

The Washington Department of Fish and Wildlife habitat management recommendations for priority habitats and species are located on the Web site at: http://www.wa.gov/wdfw/hab/phsrecs.htm.

C. **Habitat Assessment.** A habitat assessment is an investigation of the project area to evaluate the potential presence or absence of designated critical fish or wildlife species or habitat. A critical area report for a habitat conservation area shall contain an assessment of habitats including the following site- and proposal-related information at a minimum:

1. Detailed description of vegetation on and adjacent to the project area and its associated buffer;

2. Identification of any species of local importance, priority species, or endangered, threatened, sensitive, or candidate species that have a primary association with habitat on or adjacent to the project area, and assessment of potential project impacts to the use of the site by the species;

3. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the project area;

[73] Critical area reports for habitat areas should consider protected habitats and species and their buffers located within three hundred (300) feet. Three hundred feet (300) is a suggested distance so that habitat areas that might be affected by the proposal are included in the critical area report. Three hundred (300) feet allows for the potential riparian habitat area widths and for buffers/zones that may not be accurately mapped at the time of application.

4. A detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts to water quality;

5. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed land use activity and to be conducted in accordance with *Mitigation Sequencing* [Section X.10.240]; and

6. A discussion of ongoing management practices that will protect habitat after the project site has been developed, including proposed monitoring and maintenance programs.

D. **Additional Information May Be Required.** When appropriate due to the type of habitat or species present or the project area conditions, the [director] may also require the habitat management plan to include:

1. An evaluation by an independent qualified professional regarding the applicant's analysis and the effectiveness of any proposed mitigating measures or programs, to include any recommendations as appropriate;

2. A request for consultation with the Washington Department of Fish and Wildlife or the local Native American Indian Tribe or other appropriate agency; and

3. Detailed surface and subsurface hydrologic features both on and adjacent to the site.

PERFORMANCE STANDARDS

X.60.030 Performance Standards – General Requirements.

The performance standards of Section X.60.030 apply to all habitat conservation areas. Additional performance standards for specific habitat types are listed in Section X.60.040. Projects related to specific habitat areas need to meet the requirements of the general section and the section specific to that habitat, if applicable.

A. **Alterations.** A habitat conservation area may be altered only if the proposed alteration of the habitat or the mitigation proposed does not degrade the quantitative and qualitative functions and values of the habitat. All new structures and land alterations shall be prohibited from habitat conservation areas, except in accordance with this Title.

B. **Non-indigenous Species.** No plant, wildlife, or fish species not indigenous to the region shall be introduced into a habitat conservation area unless authorized by a state or federal permit or approval.

C. **Mitigation and Contiguous Corridors.**[74] Mitigation sites shall be located to preserve or achieve contiguous wildlife habitat corridors in accordance with a mitigation plan that is part of an approved critical area report to minimize the isolating effects of development on habitat areas, so long as mitigation of aquatic habitat is located within the same aquatic ecosystem as the area disturbed.

[74] See WAC 365-190-080(5)(b)(i).

D. **Approvals of Activities.** The [director] shall condition approvals of activities allowed within or adjacent to a habitat conservation area or its buffers, as necessary to minimize or mitigate any potential adverse impacts. Conditions shall be based on the best available science and may include, but are not limited to, the following:

1. Establishment of buffer zones;

2. Preservation of critically important vegetation and/or habitat features such as snags and downed wood;

3. Limitation of access to the habitat area, including fencing to deter unauthorized access;

4. Seasonal restriction of construction activities;

5. Establishment of a duration and timetable for periodic review of mitigation activities; and

6. Requirement of a performance bond, when necessary, to ensure completion and success of proposed mitigation.

E. **Mitigation and Equivalent or Greater Biological Functions.** Mitigation of alterations to habitat conservation areas shall achieve equivalent or greater biologic and hydrologic functions and shall include mitigation for adverse impacts upstream or downstream of the development proposal site. Mitigation shall address each function affected by the alteration to achieve functional equivalency or improvement on a per function basis.

F. **Approvals and the Best Available Science.** Any approval of alterations or impacts to a habitat conservation area shall be supported by the best available science.

G. **Buffers**

1. **Establishment of Buffers.**[75] The [director] shall require the establishment of buffer areas for activities adjacent to habitat conservation areas when needed to protect habitat conservation areas. Buffers shall consist of an undisturbed area of native vegetation or areas identified for restoration established to protect the integrity, functions, and values of the affected habitat. Required buffer widths shall reflect the sensitivity of the habitat and the type and intensity of human activity proposed to be conducted nearby and shall be consistent with the management recommendations issued by the Washington Department of Fish and Wildlife. Habitat conservation areas and their buffers shall be preserved in perpetuity through the use of native growth protection areas and critical area tracts in accordance with Section X.10.370 through Section X.10.380.

[75] See WAC 365-190-080(5)(b)(v).

2. **Seasonal Restrictions.** When a species is more susceptible to adverse impacts during specific periods of the year, seasonal restrictions may apply. Larger buffers may be required and activities may be further restricted during the specified season.

Habitat management recommendations for some species specify larger buffers for time periods when the species is more susceptible to impacts. Jurisdictions should only allow activities within the larger buffer (and outside of the standard buffer) if they can be sure that the activity will cease or be relocated during the seasonal period. If the activity cannot be effectively monitored, it is recommended that the seasonal buffer be used as the standard buffer.

3. **Habitat Buffer Averaging.** The [director] may allow the recommended habitat area buffer width to be reduced in accordance with a critical area report, the best available science, and the management recommendations issued by the Washington Department of Fish and Wildlife, only if:

   a. It will not reduce stream or habitat functions;

   b. It will not adversely affect salmonid habitat;

   c. It will provide additional natural resource protection, such as buffer enhancement;

   d. The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer; and

   e. The buffer area width is not reduced by more than twenty-five percent (25%) in any location.[76]

H. **Signs and Fencing of Habitat Conservation Areas**

The sample sign language shown on the following page is a recommended minimum. Jurisdictions may wish to consider sign language that not only designates the habitat area, but also provides educational information about the need to protect habitat.

1. **Temporary Markers**. The outer perimeter of the habitat conservation area or buffer and the limits of those areas to be disturbed pursuant to an approved permit or authorization shall be marked in the field in such a way as to ensure that no unauthorized intrusion will occur and verified by the [director] prior to the commencement of permitted activities. This temporary marking shall be maintained throughout construction and shall not be removed until permanent signs, if required, are in place.

2. **Permanent Signs**. As a condition of any permit or authorization issued pursuant to this Chapter, the [director] may require that applicant to install permanent signs along the boundary of a habitat conservation area or buffer.

   a. Permanent signs shall be made of a metal face and attached to a metal post or another material of equal durability. Signs must be posted at an interval of one per lot or every fifty (50) feet, whichever is less and must be maintained by the property owner in perpetuity. The sign shall be worded as follows or with alternative language approved by the director:

[76] The Washington Department of Fish and Wildlife recommends not allowing habitat buffers to be reduced by more than twenty-five percent (25%).

Habitat Conservation Area
Do Not Disturb
Contact [Local Jurisdiction]
Regarding Uses and Restriction

b. The provisions of subsection (a) may be modified by the [director] as necessary to assure protection of sensitive features or wildlife.

Specific fencing may be required to prevent damage to habitat by either livestock or people, and the type of fence may vary depending on the nature of the site conditions and the type of habitat. Care should be taken so that fencing does not interfere with species migration. A determination should be made by the director whether fencing is necessary to protect the functions and values of a critical area.

3. **Fencing**
   a. The [director] shall determine if fencing is necessary to protect the functions and values of the critical area. If found to be necessary, the [director] shall condition any permit or authorization issued pursuant to this Chapter to require the applicant to install a permanent fence at the edge of the habitat conservation area or buffer, when fencing will prevent future impacts to the habitat conservation area.

   b. The applicant shall be required to install a permanent fence around the habitat conservation area or buffer when domestic grazing animals are present or may be introduced on site.

   c. Fencing installed as part of a proposed activity or as required in this Subsection shall be design so as to not interfere with species migration, including fish runs, and shall be constructed in a manner that minimizes habitat impacts.

I. **Subdivisions.** The subdivision and short subdivision of land in fish and wildlife habitat conservation areas and associated buffers is subject to the following:

A table of allowable work windows, or "fish windows," is provided by WDFW for guidance regarding the best time of year for projects to occur. A final draft of the freshwater fish timing is currently being forwarded to the U.S. Fish and Wildlife Service, National Marine Fisheries Service and U.S. Army Corps of Engineers for their review and comment and will be followed by a draft for marine fish.

1. Land that is located wholly within a habitat conservation area or its buffer may not be subdivided.

2. Land that is located partially within a habitat conservation area or its buffer may be divided provided that the developable portion of each new lot and its access is located outside of the habitat conservation area or its buffer and meets the minimum lot size requirements of [*locally adopted zoning dimensions*].

3. Access roads and utilities serving the proposed may be permitted within the habitat conservation area and associated buffers only if the [city/county] determines that no other feasible alternative exists and when consistent with this Title.

X.60.040 Performance Standards – Specific Habitats

A. **Endangered, Threatened, and Sensitive Species**

1. No development shall be allowed within a habitat conservation area or buffer with which state or federally endangered, threatened, or sensitive species have a primary association, except that which is provided for by a management plan established by the Washington Department of Fish and Wildlife or applicable state or federal agency.

2. Whenever activities are proposed adjacent to a habitat conservation area with which state or federally endangered, threatened, or sensitive species have a primary association, such area shall be protected through the application of protection measures in accordance with a critical area report prepared by a qualified professional and approved by the [city/county]. Approval for alteration of land adjacent to the habitat conservation area or its buffer shall not occur prior to consultation with the Washington Department of Fish and Wildlife for animal species, the Washington State Department of Natural Resources for plant species, and other appropriate federal or state agencies.

3. Bald eagle habitat shall be protected pursuant to the Washington State Bald Eagle Protection Rules (WAC 232-12-292). Whenever activities are proposed adjacent to a verified nest territory or communal roost, a habitat management plan shall be developed by a qualified professional. Activities are adjacent to bald eagle sites when they are within eight hundred (800) feet or within one half mile (2,640 feet) and in a shoreline foraging area. The [city/county] shall verify the location of eagle management areas for each proposed activity. Approval of the activity shall not occur prior to approval of the habitat management plan by the Washington Department of Fish and Wildlife.

B. **Anadromous Fish**

1. All activities, uses, and alterations proposed to be located in water bodies used by anadromous fish or in areas that affect such water bodies shall give special consideration to the preservation and enhancement of anadromous fish habitat, including, but not limited to, adhering to the following standards:

   a. Activities shall be timed to occur only during the allowable work window as designated by the Washington Department of Fish and Wildlife for the applicable species;

   b. An alternative alignment or location for the activity is not feasible;

   c. The activity is designed so that it will not degrade the functions or values of the fish habitat or other critical areas;

   d. Shoreline erosion control measures shall be designed to use bioengineering methods or soft armoring techniques, according to an approved critical area report, and

   e. Any impacts to the functions or values of the habitat conservation area are mitigated in accordance with an approved critical area report.

2. Structures that prevent the migration of salmonids shall not be allowed in the portion of water bodies currently or historically used by anadromous fish. Fish bypass facilities shall be provided that allow

the upstream migration of adult fish and shall prevent fry and juveniles migrating downstream from being trapped or harmed.

3. Fills, when authorized by the [*locally adopted shoreline management program*], shall not adversely impact anadromous fish or their habitat or shall mitigate any unavoidable impacts and shall only be allowed for a water-dependent use.

C. **Wetland Habitats.** All proposed activities within or adjacent to habitat conservation areas containing wetlands shall conform to the wetland development performance standards set forth in *Wetlands* [Chapter X.20]. If non-wetlands habitat and wetlands are present at the same location, the provisions of this Chapter or the Wetlands Chapter, whichever provides greater protection to the habitat, apply.

D. **Riparian Habitat Areas.** Unless otherwise allowed in this Title, all structures and activities shall be located outside of the riparian habitat area.

1. **Establishment of Riparian Habitat Areas**. Riparian habitat areas shall be established for habitats that include aquatic and terrestrial ecosystems that mutually benefit each other and that are located adjacent to rivers, perennial or intermittent streams, seeps, and springs.[77]

2. **Riparian Habitat Area Widths.** Recommended riparian habitat area widths are shown in the table below. A riparian habitat area shall have the width recommended, unless a greater width is required pursuant to Subsection (3), or a lesser width is allowed pursuant to Subsection (4). Widths shall be measured outward in each direction, on the horizontal plane, from the ordinary high water mark, or from the top of bank, if the ordinary high water mark cannot be identified. Riparian areas should be sufficiently wide to achieve the full range of riparian and aquatic ecosystem functions, which include but are not limited to protection of instream fish habitat through control of temperature and sedimentation in streams; preservation of fish and wildlife habitat; and connection of riparian wildlife habitat to other habitats.[78]

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[77] See Washington Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Habitats: Riparian*, 1997, page xi.

[78] Recommended riparian habitat widths are from the Washington Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Habitats: Riparian*, 1997, page xii.

Riparian Habitat Areas[79]	
Stream type	**Recommended RHA widths**
Type 1 and 2; or shorelines of the state, or shorelines of statewide significance	250 feet
Type 3; or other perennial or fish bearing streams, 5-20 feet wide	200 feet
Type 3; or other perennial or fish bearing streams, < 5 feet wide	150 feet
Type 4 and 5; or intermittent streams and washes with low mass wasting potential[80]	150 feet
Type 4 and 5; or intermittent streams and washes with high mass wasting potential[81]	225 feet

3. **Increased Riparian Habitat Area Widths**. The recommended riparian habitat area widths shall be increased, as follows:

   a. When the [director] determines that the recommended width is insufficient to prevent habitat degradation and to protect the structure and functions of the habitat area;

   b. When the frequently flooded area exceeds the recommended riparian habitat area width, the riparian habitat area shall extend to the outer edge of the frequently flooded area;

   c. When a channel migration zone is present, the riparian habitat area width shall be measured from the outer edge of the channel migration zone;

   d. When the habitat area is in an area of high blowdown potential, the riparian habitat area width shall be expanded an additional fifty (50) feet on the windward side;[82] or

   e. When the habitat area is within an erosion or landslide hazard area, or buffer, the riparian habitat area width shall be the recommended

[79] While water typing is used here to classify riparian habitat areas, regulations regarding riparian habitat areas listed here are applicable to areas containing aquatic systems containing perennial or intermittent flowing water. See the definition for riparian habitat. Habitats associated with marine and standing water are by the general and other performance standards in this Chapter.

[80] Mass wasting is a general term for a variety of processes by which large masses of rock or earth material are moved down slope by gravity, either slowly or quickly.

[81] See previous footnote.

[82] See *Management Recommendations for Washington's Priority Habitats: Riparian*, from Washington Department of Fish and Wildlife, 1997.

The Washington State Department of Natural Resources has developed a new stream typing system organized by S, F, Np, and Ns, which is defined under WAC 222-16-030. The Type 1-5 system is defined under WAC 222-16-031, which includes an explanation of converting to the newer system. The Washington Department of Fish and Wildlife is working to prepare a table of recommended riparian habitat widths based on the new state Department of Natural Resources typing.

Recommended riparian habitat area widths are generalized for predictable applications across the Washington landscape and are intended to meet the goal of maintaining structural and functional integrity of riparian habitat and associated aquatic systems needed to perpetually support fish and wildlife populations. In areas where the habitat is already largely degraded, restoration may be more beneficial than preservation of degraded areas. Jurisdictions may refer to the Tri-County's ESA Response documents for information about protecting and enhancing stream functions in urban areas, available at http://www.salmoninfo.org.

distance, or the erosion or landslide hazard area or buffer, whichever is greater.

4. **Riparian Habitat Area Width Averaging**. The [director] may allow the recommended riparian habitat area width to be reduced in accordance with a critical area report only if:

   a. The width reduction will not reduce stream or habitat functions, including those of nonfish habitat;

   b. The width reduction will not degrade the habitat, including habitat for anadromous fish;

   c. The proposal will provide additional habitat protection;

   d. The total area contained in the riparian habitat area of each stream on the development proposal site is not decreased;

   e. The recommended riparian habitat area width is not reduced by more than twenty-five percent (25%) in any one location; [83]

   f. The width reduction will not be located within another critical area or associated buffer; and

   g. The reduced riparian habitat area width is supported by the best available science.

5. **Riparian Habitat Mitigation.** Mitigation of adverse impacts to riparian habitat areas shall result in equivalent functions and values on a per function basis, be located as near the alteration as feasible, and be located in the same sub-drainage basin as the habitat impacted.

6. **Alternative Mitigation for Riparian Habitat Areas.** The performance standards set forth in this Subsection may be modified at the [city/county]'s discretion if the applicant demonstrates that greater habitat functions, on a per function basis, can be obtained in the affected sub-drainage basin as a result of alternative mitigation measures.

E. **Aquatic Habitat.**[84] The following specific activities may be permitted within a riparian habitat area, pond, lake, water of the state, and marine habitat or associated buffer when the activity complies with the provisions set forth in the [*locally adopted shoreline management program*] and subject to the standards of this Subsection. The standards that provide the most protection to protected habitat and species shall apply.

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[83] The Washington Department of Fish and Wildlife recommends not allowing riparian habitat area widths to be reduced by more than twenty-five percent (25%).

[84] The performance standards for riparian habitat areas, ponds, lakes, waters of the state, and marine habitat are partially derived from the *Pierce County Draft Critical Areas Development Regulations*, 2002.

1. **Clearing and Grading.** When clearing and grading is permitted as part of an authorized activity or as otherwise allowed in these standards, the following shall apply:

    a. Grading is allowed only during the dry season, which is typically regarded as beginning on May 1 and ending on October 1 of each year, provided that the [city/county] may extend or shorten the dry season on a case-by-case basis, determined on actual weather conditions.[85]

    b. Filling or modification of a wetland or wetland buffer is permitted only if it is conducted as part of an approved wetland alteration.

    c. The soil duff layer shall remain undisturbed to the maximum extent possible. Where feasible, any soil disturbed shall be redistributed to other areas of the project area.

    d. The moisture-holding capacity of the topsoil layer shall be maintained by minimizing soil compaction or reestablishing natural soil structure and infiltrative capacity on all areas of the project area not covered by impervious surfaces.

    e. Erosion and sediment control that meets or exceeds the standards set forth in the [*locally adopted stormwater management regulations*] shall be provided.

2. **Shoreline Erosion Control Measures.** New, replacement, or substantially improved shoreline erosion control measures may be permitted in accordance with an approved critical area report that demonstrates the following:

    a. Natural shoreline processes will be maintained. The project will not result in increased beach erosion or alterations to, or loss of, shoreline substrate within one-quarter (1/4) mile of the project area.

    b. The shoreline erosion control measures will not degrade fish or wildlife habitat conservation areas or associated wetlands.

    c. Adequate mitigation measures ensure that there is no net loss of the functions or values of intertidal habitat or riparian habitat as a result of the proposed shoreline erosion control measures.

    d. The proposed shoreline erosion control measures do not result in alteration of intertidal migration corridors.

Each jurisdiction should review their adopted Shoreline Management Program to ensure consistency between the shoreline and critical area regulations. Some of these standards may already be addressed in the adopted shoreline regulations.

3. **Streambank Stabilization.** Streambank stabilization to protect new structures from future channel migration is not permitted except when such stabilization is achieved through bioengineering or soft

[85] Applicable in Western Washington.

armoring techniques in accordance with an approved critical area report.

4. **Launching Ramps – Public or Private.** Launching ramps may be permitted in accordance with an approved critical area report that has demonstrated the following:

   a. The project will not result in increased beach erosion or alterations to, or loss of, shoreline substrate within one-quarter (1/4) mile of the site;

   b. The ramp will not adversely impact critical fish or wildlife habitat areas or associated wetlands;

   c. Adequate mitigation measures ensure that there is no net loss of the functions or values of intertidal habitat or riparian habitat as a result of the ramp; and

   d. No alteration of intertidal migration corridors will occur as a result of the ramp.

5. **Docks.** Repair and maintenance of an existing dock or pier may be permitted in accordance with an approved critical area report subject to the following:

   a. There is no increase in the use of materials creating shade for predator species or eelgrass;

   b. There is no expansion in overwater coverage;

   c. There is no new spanning of waters between three (3) and thirteen (13) feet deep;

   d. There is no increase in the size and number of pilings; and

   e. There is no use of toxic materials (such as creosote) that come in contact with the water.

6. **Roads, Trails, Bridges, and Rights-of-Way.** Construction of trails, roadways, and minor road bridging, less than or equal to thirty (30) feet wide, may be permitted in accordance with an approved critical area report subject to the following standards:

   a. There is no other feasible alternative route with less impact on the environment;

   b. The crossing minimizes interruption of downstream movement of wood and gravel;

   c. Roads in riparian habitat areas or their buffers shall not run parallel to the water body;

d. Trails shall be located on the outer edge of the riparian area or buffer, except for limited viewing platforms and crossings;

e. Crossings, where necessary, shall only occur as near to perpendicular with the water body as possible;

f. Mitigation for impacts is provided pursuant to a mitigation plan of an approved critical area report;

g. Road bridges are designed according to the Washington Department of Fish and Wildlife *Fish Passage Design at Road Culverts*, 1999, and the National Marine Fisheries Service *Guidelines for Salmonid Passage at Stream Crossings*, 2000; and

h. Trails and associated viewing platforms shall not be made of continuous impervious materials.

7. **Utility Facilities.** New utility lines and facilities may be permitted to cross watercourses in accordance with an approved critical area report, if they comply with the following standards:

   a. Fish and wildlife habitat areas shall be avoided to the maximum extent possible;

   b. Installation shall be accomplished by boring beneath the scour depth and hyporheic zone of the water body and channel migration zone, where feasible;

   c. The utilities shall cross at an angle greater than sixty (60) degrees to the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible;

   d. Crossings shall be contained within the footprint of an existing road or utility crossing where possible;

   e. The utility route shall avoid paralleling the stream or following a down-valley course near the channel; and

   f. The utility installation shall not increase or decrease the natural rate of shore migration or channel migration.

8. **Public Flood Protection Measures.** New public flood protection measures and expansion of existing ones may be permitted, subject to the [city/county]'s review and approval of a critical area report and the approval of a Federal Biological Assessment by the federal agency responsible for reviewing actions related to a federally listed species.

9. **Instream Structures.** Instream structures, such as, but not limited to, high flow bypasses, sediment ponds, instream ponds, retention and

detention facilities, tide gates, dams, and weirs, shall be allowed only as part of an approved watershed basin restoration project approved by the [city/county] and upon acquisition of any required state or federal permits. The structure shall be designed to avoid modifying flows and water quality in ways that may adversely affect habitat conservation areas.

10. **Stormwater Conveyance Facilities.** Conveyance structures may be permitted in accordance with an approved critical area report subject to the following standards:

    a. No other feasible alternatives with less impact exist;

    b. Mitigation for impacts is provided;

    c. Stormwater conveyance facilities shall incorporate fish habitat features; and

    d. Vegetation shall be maintained and, if necessary, added adjacent to all open channels and ponds in order to retard erosion, filter out sediments, and shade the water.

11. **On-Site Sewage Systems and Wells**

    a. New on-site sewage systems and individual wells may be permitted in accordance with an approved critical area report only if accessory to an approved residential structure, for which it is not feasible to connect to a public sanitary sewer system.

    b. Repairs to failing on-site sewage systems associated with an existing structure shall be accomplished by utilizing one of the following methods that result in the least impact:

        i. Connection to an available public sanitary sewer system;

        ii. Replacement with a new on-site sewage system located in a portion of the site that has already been disturbed by development and is located landward as far as possible, provided the proposed sewage system is in compliance with the [*local health district*]; or

        iii. Repair to the existing on-site septic system.

Definitions

Words not defined in this Title shall be as defined in the [city/county] code, the Washington Administrative Code, or the Revised Code of Washington. Words not found in either code shall be as defined in the Webster's Third New International Dictionary, latest edition.

A

Active Fault – A fault that is considered likely to undergo renewed movement within a period of concern to humans. Faults are commonly considered to be active if the fault has moved one or more times in the last 10,000 years, but faults may also be considered active in some cases if movement has occurred in the last 500,000 years.

Adaptive Management – Adaptive management relies on scientific methods to evaluate how well regulatory and nonregulatory actions protect the critical area. An adaptive management program is a formal and deliberate scientific approach to taking action and obtaining information in the face of uncertainty.

Adjacent – Immediately adjoining (in contact with the boundary of the influence area) or within a distance that is less than that needed to separate activities from critical areas to ensure protection of the functions and values of the critical areas. Adjacent shall mean any activity or development located:

A. On a site immediately adjoining a critical area;

B. A distance equal to or less than the required critical area buffer width and building setback;

C. A distance equal to or less than one-half mile (2,640 feet) from a bald eagle nest; [86]

D. A distance equal to or less than three hundred (300) feet upland from a stream, wetland, or water body; [87]

E. Bordering or within the floodway, floodplain, or channel migration zone; or

F. A distance equal to or less than two hundred (200) feet from a critical aquifer recharge area. [88]

Advance Mitigation – Mitigation of an anticipated critical area impact or hazard completed according to an approved critical area report and prior to site development.

Agricultural Land – Land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, or animal products or of

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[86] Distance of 2,640 feet is based on the Washington Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Species, Volume IV: Birds,* 2000.

[87] Distance of 300 feet is based on maximum recommended riparian habitat area width from the Washington Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Habitats: Riparian,* 1997.

[88] Distance of 200 feet is a suggested distance to ensure that activities within the critical aquifer recharge area are included under this Title, even when the exact boundaries of the critical aquifer recharge area are not known at the time of application.

berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, or livestock, and or that has been designated as long-term commercial significance for agricultural production.

Alluvial Fan Flooding – Flooding occurring on the surface of an alluvial fan or similar landform which originates at the apex and is characterized by high-velocity flows; active processes of erosion, sediment transport, and deposition; and unpredictable flow paths.

Alteration – Any human induced change in an existing condition of a critical area or its buffer. Alterations include, but are not limited to grading, filling, channelizing, dredging, clearing (vegetation), construction, compaction, excavation, or any other activity that changes the character of the critical area.

Anadromous Fish – Fish that spawn and rear in freshwater and mature in the marine environment. While Pacific salmon die after their first spawning, adult char (bull trout) can live for many years, moving in and out of saltwater and spawning each year. The life history of Pacific salmon and char contains critical periods of time when these fish are more susceptible to environmental and physical damage than at other times. The life history of salmon, for example, contains the following stages: upstream migration of adults, spawning, inter-gravel incubation, rearing, smoltification (the time period needed for juveniles to adjust their body functions to live in the marine environment), downstream migration, and ocean rearing to adults.

Applicant – A person who files an application for permit under this Title and who is either the owner of the land on which that proposed activity would be located, a contract purchaser, or the authorized agent of such a person.

Aquifer – A geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

Aquifer, Confined – An aquifer bounded above and below by beds of distinctly lower permeability than that of the aquifer itself and that contains ground water under sufficient pressure for the water to rise above the top of the aquifer.

Aquifer Recharge Areas – Areas that, due to the presence of certain soils, geology, and surface water, act to recharge ground water by percolation.

Aquifer, Sole Source – An area designated by the U.S. Environmental Protection Agency under the Safe Drinking Water Act of 1974, Section 1424(e). The aquifer(s) must supply fifty percent (50%) or more of the drinking water for an area without a sufficient replacement available.

Aquifer Susceptibility – The ease with which contaminants can move from the land surface to the aquifer based solely on the types of surface and subsurface materials in the area. Susceptibility usually defines the rate at which a contaminant will reach an aquifer unimpeded by chemical interactions with the vadose zone media.

Aquifer, Unconfined **–** An aquifer not bounded above by a bed of distinctly lower permeability than that of the aquifer itself and containing ground water under pressure approximately equal to that of the atmosphere. This term is synonymous with the term "water table aquifer."

Area of Shallow Flooding **–** An area designated AO or AH Zone on the flood insurance map(s). The base flood depths range from one (1) to three (3) feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

Avalanche Hazard **–** An area susceptible to a large mass of snow or ice, sometimes accompanied by other material, moving rapidly down a mountain slope.

B

Base Flood **–** A flood event having a one percent (1%) chance of being equaled or exceeded in any given year, also referred to as the 100-year flood. Designations of base flood areas on flood insurance map(s) always include the letters A or V.

Basement **–** Any area of the building having its floor below ground level on all sides.

Best Available Science **–** Current scientific information used in the process to designate, protect, or restore critical areas, that is derived from a valid scientific process as defined by WAC 365-195-900 through 925. Sources of the best available science are included in *Citations of Recommended Sources of Best Available Science for Designating and Protecting Critical Areas* published by the Washington State Department of Community, Trade and Economic Development.

Best Management Practices (BMPs) **–** Conservation practices or systems of practices and management measures that:

A. Control soil loss and reduce water quality degradation caused by high concentrations of nutrients, animal waste, toxics, and sediment;

B. Minimize adverse impacts to surface water and ground water flow and circulation patterns and to the chemical, physical, and biological characteristics of wetlands;

C. Protect trees and vegetation designated to be retained during and following site construction and use native plant species appropriate to the site for re-vegetation of disturbed areas; and

D. Provide standards for proper use of chemical herbicides within critical areas.

When adopting best management practices, each jurisdiction should ensure that the adopted best management practices are consistent with the best available science.

The [city/county] shall monitor the application of best management practices to ensure that the standards and policies of this Title are adhered to.

Biodiversity – The variety of animal and plant life and its ecological processes and interconnections – represented by the richness of ecological systems and the life that depends on them, including human life and economies.

Breakaway Wall – A wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

Buffer or Buffer Zone – An area that is contiguous to and protects a critical area which is required for the continued maintenance, functioning, and/or structural stability of a critical area.

C

Channel Migration Zone (CMZ) – The lateral extent of likely movement along a stream or river during the next one-hundred (100) years as determined by evidence of active stream channel movement over the past one-hundred (100) years. Evidence of active movement over the one-hundred (100) year time frame can be inferred from aerial photos or from specific channel and valley bottom characteristics. The time span typically represents the time it takes to grow mature trees that can provide functional large woody debris to streams. A CMZ is not typically present if the valley width is generally less than two (2) bankfull widths, if the stream or river is confined by terraces, no current or historical aerial photographic evidence exists of significant channel movement, and there is no field evidence of secondary channels with recent scour from stream flow or progressive bank erosion at meander bends. Areas separated from the active channel by legally existing artificial channel constraints that limit bank erosion and channel avulsion without hydraulic connections shall not be considered within the CMZ.

Coastal High Hazard Area – An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the flood insurance map(s) as Zone V1-30, VE, or V.

Compensation Project – Actions necessary to replace project-induced critical area and buffer losses, including land acquisition, planning, construction plans, monitoring, and contingency actions.

Compensatory Mitigation – Replacing project-induced losses or impacts to a critical area, and includes, but is not limited to, the following:

Restoration – Actions performed to reestablish wetland functional characteristics and processes that have been lost by alterations, activities, or catastrophic events within an area that no longer meets the definition of a wetland.

Creation – Actions performed to intentionally establish a wetland at a site where it did not formerly exist.

Enhancement – Actions performed to improve the condition of existing degraded wetlands so that the functions they provide are of a higher quality.

Preservation – Actions taken to ensure the permanent protection of existing, high-quality wetlands.

Conservation Easement – A legal agreement that the property owner enters into to restrict uses of the land. Such restrictions can include, but are not limited to, passive recreation uses such as trails or scientific uses and fences or other barriers to protect habitat. The easement is recorded on a property deed, runs with

the land, and is legally binding on all present and future owners of the property, therefore, providing permanent or long-term protection.

Critical Aquifer Recharge Area – Areas designated by WAC 365-190-080(2) that are determined to have a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2).

Critical Areas – Critical areas include any of the following areas or ecosystems: aquifer recharge areas, fish and wildlife habitat conservation areas, frequently flooded areas, geologically hazardous areas, and wetlands, as defined in RCW 36.70A and this Title.

Critical Area Tract – Land held in private ownership and retained in an open condition in perpetuity for the protection of critical areas. Lands within this type of dedication may include but are not limited to, portions and combinations of forest habitats, grasslands, shrub steppe, on-site watersheds, 100-year floodplains, shorelines or shorelines of statewide significance, riparian areas, and wetlands.

Critical Facility – A facility for which even a slight chance of flooding, inundation, or impact from a hazard event might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, and installations that produce, use, or store hazardous materials or hazardous waste.

Critical Species – All animal and plant species listed by the state or federal government as threatened or endangered.

Cumulative Impacts or Effects – The combined, incremental effects of human activity on ecological or critical areas functions and values. Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis and changes to policies and permitting decisions.

D

Developable Area – A site or portion of a site that may be utilized as the location of development, in accordance with the rules of this Title.

Development – Any activity upon the land consisting of construction or alteration of structures, earth movement, dredging, dumping, grading, filling, mining, removal of any sand, gravel, or minerals, driving of piles, drilling operations, bulkheading, clearing of vegetation, or other land disturbance. Development includes the storage or use of equipment or materials inconsistent with the existing use. Development also includes approvals issued by the [city/county] that binds land to specific patterns of use, including but not limited to, subdivisions, short subdivisions, zone changes, conditional use permits, and binding site plans. Development activity does not include the following activities:

A. Interior building improvements.
B. Exterior structure maintenance activities, including painting and roofing.

C. Routine landscape maintenance of established, ornamental landscaping, such as lawn mowing, pruning, and weeding.

D. Maintenance of the following *existing* facilities that does not expand the affected area: septic tanks (routine cleaning); wells; individual utility service connections; and individual cemetery plots in established and approved cemeteries.

Development Permit – Any permit issued by the [city/county], or other authorized agency, for construction, land use, or the alteration of land.

Director – The [director] of the [city/county] planning department or other responsible official, or other city staff granted the authority to act on behalf of the director.

E

Elevated Building – A building that has no basement and its lowest elevated floor is raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

Emergent Wetland – A wetland with at least thirty percent (30%) of the surface area covered by erect, rooted, herbaceous vegetation extending above the water surface as the uppermost vegetative strata.

Erosion – The process whereby wind, rain, water, and other natural agents mobilize and transport particles.

Erosion Hazard Areas – At least those areas identified by the U.S. Department of Agriculture National Resources Conservation Service as having a "severe" rill and inter-rill erosion hazard.

Exotic – Any species of plants or animals, which are foreign to the planning area.

F

Fish and Wildlife Habitat Conservation Areas – Areas necessary for maintaining species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created as designated by WAC 365-190-080(5). These areas include:

A. Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association;

B. Habitats of local importance, including but not limited to areas designated as priority habitat by the Washington Department of Fish and Wildlife;

C. Commercial and recreational shellfish areas;

D. Kelp and eelgrass beds;

E. Herring and smelt spawning areas;

F. Naturally occurring ponds under twenty (20) acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds;

G. Waters of the state, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington;

H. Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity;

I. State natural area preserves and natural resource conservation areas; and

J. Land essential for preserving connections between habitat blocks and open spaces.

Fish Habitat – Habitat that is used by fish at any life stage at any time of the year, including potential habitat likely to be used by fish that could be recovered by restoration or management and includes off-channel habitat.[89]

Flood or Flooding – A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland waters and/or the unusual and rapid accumulation of runoff of surface waters from any source.

Flood Insurance Map – The official map on which the Federal Insurance Administration has delineated the areas of special flood hazards and include the risk premium zones applicable to the community. Also known as "flood insurance rate map" or "FIRM."

Flood Insurance Study – The official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

Floodplain – The total land area adjoining a river, stream, watercourse, or lake subject to inundation by the base flood.

Flood Protection Elevation – The elevation that is one (1) foot above the base flood elevation.

Flood Resistant Material – Materials designed to be resistant to the impacts associated with flooding and defined and described in detail in the Federal Emergency Management Agency's Technical Bulletin #2-93, 1993 and FEMA publication FEMA-348, *Protecting Building Utilities from Flood Damage*.

Floodway – The channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the base flood without cumulatively increasing the surface water elevation more that one (1) foot. Also known as the "zero rise floodway."

Forested Wetland – A wetland with at least thirty percent (30%) of the surface area covered by woody vegetation greater than twenty (20) feet in height that is at least partially rooted within the wetland.

Formation – An assemblage of earth materials grouped together into a unit that is convenient for description or mapping.

Formation, Confining – The relatively impermeable formation immediately overlying a confined aquifer.

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[89] See WAC 222-16-030(5)(h).

Frequently Flooded Areas – Lands in the floodplain subject to a one percent (1%) or greater chance of flooding in any given year and those lands that provide important flood storage, conveyance, and attenuation functions, as determined by the [director] in accordance with WAC 365-190-080(3). Frequently flooded areas perform important hydrologic functions and may present a risk to persons and property. Classifications of frequently flooded areas include, at a minimum, the 100-year floodplain designations of the Federal Emergency Management Agency and the National Flood Insurance Program.

Functions and Values – The beneficial roles served by critical areas including, but are not limited to, water quality protection and enhancement; fish and wildlife habitat; food chain support; flood storage, conveyance and attenuation; ground water recharge and discharge; erosion control; wave attenuation; protection from hazards; historical, archaeological, and aesthetic value protection; educational opportunities; and recreation. These beneficial roles are not listed in order of priority. Critical area functions can be used to help set targets (species composition, structure, etc.) for managed areas, including mitigation sites.

G

Geologically Hazardous Areas – Areas that may not be suited to development consistent with public health, safety, or environmental standards, because of their susceptibility to erosion, sliding, earthquake, or other geological events as designated by WAC 365-190-080(4). Types of geologically hazardous areas include: erosion, landslide, seismic, mine, and volcanic hazards.

Ground Water – Water in a saturated zone or stratum beneath the surface of land or a surface water body.

Ground Water Management Area – A specific geographic area or subarea designated pursuant to Chapter 173-100 WAC for which a ground water management program is required.

Ground Water Management Program – A comprehensive program designed to protect ground water quality, to ensure ground water quantity, and to provide for efficient management of water resources while recognizing existing ground water rights and meeting future needs consistent with local and state objectives, policies, and authorities within a designated ground water management area or subarea and developed pursuant to Chapter 173-100 WAC.

Ground Water, Perched – Ground water in a saturated zone is separated from the underlying main body of ground water by an unsaturated rock zone.

Growth Management Act – RCW 36.70A and 36.70B, as amended.

H

Habitat Conservation Areas – Areas designated as fish and wildlife habitat conservation areas.

Habitats of Local Importance – These areas include a seasonal range or habitat element with which a given species has a primary association, and which, if

altered may reduce the likelihood that the species will maintain and reproduce over the long-term. These might include areas of high relative density or species richness, breeding habitat, winter range, and movement corridors. These might also include habitats that are of limited availability or high vulnerability to alterations such as cliffs, talus, and wetlands. (WAC 365-190-030)

Hazard Areas – Areas designated as frequently flooded areas or geologically hazardous areas due to potential for erosion, landslide, seismic activity, mine collapse, or other geological condition.

Hazardous Substances – Any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical, or biological properties described in WAC 173-303-090 or 173-303-100.

High Intensity Land Use – Land uses which are associated with high levels of human disturbance or substantial habitat impacts including, but not limited to, medium- and high-density residential (more than one home per five acres), multifamily residential, some agricultural practices, and commercial and industrial land uses.

High Quality Wetlands – Those wetlands that meet the following criteria:

A. No, or isolated, human alteration of the wetland topography;

B. No human-caused alteration of the hydrology or the wetland appears to have recovered from the alteration;

C. Low cover and frequency of exotic plant species;

D. Relatively little human-related disturbance of the native vegetation, or recovery from past disturbance;

E. If the wetland system is degraded, it still contains a viable and high quality example of a native wetland community; and

F. No known major water quality problems.

Historic Condition – Condition of the land, including flora, fauna, soil, topography, and hydrology that existed before the area and vicinity were developed or altered by human activity.

Hydraulic Project Approval (HPA) – A permit issued by the Washington Department of Fish and Wildlife for modifications to waters of the state in accordance with Chapter 75.20 RCW.

Hydric Soil – A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. The presence of hydric soil shall be determined following the methods described in the *Washington State Wetland Identification and Delineation Manual*.

Hydrologic Soil Groups – Soils grouped according to their runoff-producing characteristics under similar storm and cover conditions. Properties that influence runoff potential are depth to seasonally high water table, intake rate and permeability after prolonged wetting, and depth to a low permeable layer. Hydrologic soil groups are normally used in equations that estimate runoff from

rainfall, but can be used to estimate a rate of water transmission in soil. There are four hydrologic soil groups:

Low Runoff potential and a high rate of infiltration potential;

Moderate Infiltration potential and a moderate rate of runoff potential;

Slow Infiltration potential and a moderate to high rate of runoff potential; and

High Runoff potential and very slow infiltration and water transmission rates.

***Hydrophytic Vegetation* –** Macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. The presence of hydrophytic vegetation shall be determined following the methods described in the *Washington State Wetland Identification and Delineation Manual*.

***Hyporheic Zone* –** The saturated zone located beneath and adjacent to streams that contains some portion of surface waters, serves as a filter for nutrients, and maintains water quality.

I

***Impervious Surface* –** A hard surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development or that causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, rooftops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled macadam or other surfaces which similarly impede the natural infiltration of stormwater.

***In-Kind Compensation* –** To replace critical areas with substitute areas whose characteristics and functions closely approximate those destroyed or degraded by a regulated activity. It does not mean replacement "in-category."

***Isolated Wetlands* –** Those wetlands that are outside of and not contiguous to any 100-year floodplain of a lake, river, or stream and have no contiguous hydric soil or hydrophytic vegetation between the wetland and any surface water.

***Infiltration* –** The downward entry of water into the immediate surface of soil.

Injection Well(s)

A. **Class I –** A well used to inject industrial, commercial, or municipal waste fluids beneath the lowermost formation containing, within one quarter (1/4) mile of the well bore, an underground source of drinking water.

B. **Class II –** A well used to inject fluids:
   1. Brought to the surface in connection with conventional oil or natural gas exploration or production and may be commingled with wastewaters from gas plants that are an integral part of production operations, unless those waters are classified as dangerous wastes at the time of injection;
   2. For enhanced recovery of oil or natural gas; or

3. For storage of hydrocarbons that are liquid at standard temperature and pressure.

C. **Class III** – A well used for extraction of minerals, including but not limited to the injection of fluids for:

1. In-situ production of uranium or other metals that have not been conventionally mined;
2. Mining of sulfur by Frasch process; or
3. Solution mining of salts or potash.

D. **Class IV** – A well used to inject dangerous or radioactive waste fluids.

E. **Class V** – All injection wells not included in Classes I, II, III, or IV.

Inter-Rill – Areas subject to sheet wash.

J

Joint Aquatic Resource Permits Application – A single application form that may be used to apply for hydraulic project approvals, shoreline management permits, approvals of exceedance of water quality standards, water quality certifications, coast guard bridge permits, Washington State Department of Natural Resources use authorization, and U.S. Army Corps of Engineers permits.

L

Lahars – Mudflows and debris flows originating from the slopes of a volcano.

Land Use, High Intensity – See "High Intensity Land Use."

Land Use, Low Intensity – See "Low Intensity Land Use."

Land Use, Moderate Intensity – See "Moderate Intensity Land Use."

Landslide Hazard Areas – Areas that are potentially subject to risk of mass movement due to a combination of geologic landslide resulting from a combination of geologic, topographic, and hydrologic factors. These areas are typically susceptible to landslides because of a combination of factors including: bedrock, soil, slope gradient, slope aspect, geologic structure, ground water, or other factors.

Low Intensity Land Use – Land uses which are associated with low levels of human disturbance or low habitat impacts, including, but not limited to, passive recreation, open space, or forest management land uses.

Lowest Floor – The lowest floor of the lowest enclosed area, including the basement. An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area, which is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable requirements of this Title.

M

Manufactured Home – A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

Manufactured Home Park or Subdivision – A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Mine Hazard Areas – Areas that are underlain by, adjacent to, or affected by mine workings such as adits, gangways, tunnels, drifts, or airshafts, and those areas of probable sink holes, gas releases, or subsidence due to mine workings. Factors that should be considered include: proximity to development, depth from ground surface to the mine working, and geologic material.

Mitigation – Avoiding, minimizing, or compensating for adverse critical areas impacts. Mitigation, in the following sequential order of preference, is:

A. Avoiding the impact altogether by not taking a certain action or parts of an action;

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;

C. Rectifying the impact to wetlands, critical aquifer recharge areas, and habitat conservation areas by repairing, rehabilitating, or restoring the affected environment to the conditions existing at the time of the initiation of the project;

D. Minimizing or eliminating the hazard by restoring or stabilizing the hazard area through engineered or other methods;

E. Reducing or eliminating the impact or hazard over time by preservation and maintenance operations during the life of the action;

F. Compensating for the impact to wetlands, critical aquifer recharge areas, and habitat conservation areas by replacing, enhancing, or providing substitute resources or environments; and

G. Monitoring the hazard or other required mitigation and taking remedial action when necessary.

Mitigation for individual actions may include a combination of the above measures.

Moderate Intensity Land Use – Land uses which are associated with moderate levels of human disturbance or substantial habitat impacts including, but not limited to, low-density residential (no more than one home per five acres), active recreation, and moderate agricultural land uses.

Monitoring – Evaluating the impacts of development proposals on the biological, hydrological, and geological elements of such systems, and assessing the performance of required mitigation measures throughout the collection and analysis of data by various methods for the purpose of understanding and documenting changes in natural ecosystems and features, including gathering baseline data.

N

Native Vegetation **–** Plant species that are indigenous to the area in question.

Native Growth Protection Area (NGPA) **–** An area where native vegetation is preserved for the purpose of preventing harm to property and the environment, including, but not limited to, controlling surface water runoff and erosion, maintaining slope stability, buffering, and protecting plants and animal habitat;

Natural Waters **–** Waters, excluding water conveyance systems that are artificially constructed and actively maintained for irrigation.[90]

Non-conformity **–** A legally established existing use or legally constructed structure that is not in compliance with current regulations.

Non-indigenous **–** See "Exotic."

O

Off-Site Compensation **–** To replace critical areas away from the site on which a critical area has been impacted.

On-site Compensation **–** To replace critical areas at or adjacent to the site on which a critical areas has been impacted.

Ordinary High Water Mark (OHM) **–** That mark which is found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, that the soil has a character distinct from that of the abutting upland in respect to vegetation.

Out-of-Kind Compensation **–** To replace critical areas with substitute critical areas whose characteristics do not closely approximate those destroyed or degraded. It does not refer to replacement "out-of-category."

P

Perched Ground Water **–** See "Ground Water, Perched."

Permeability **–** The capacity of an aquifer or confining bed to transmit water. It is a property of the aquifer or confining bed and is independent of the force causing movement.

Porous Soil Types **–** Soils, as identified by the National Resources Conservation Service, U.S. Department of Agriculture, that contain voids, pores, interstices, or other openings which allow the passing of water.

Potable Water **–** Water that is safe and palatable for human use.

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[90] See WAC 222-16-030(5)(d) and WAC 222-16-031(6)(d).

Practical Alternative – An alternative that is available and capable of being carried out after taking into consideration cost, existing technology, and logistics in light of overall project purposes, and has less impacts to critical areas.

Primary Association Area – The area used on a regular basis by, is in close association with, or is necessary for the proper functioning of the habitat of a critical species. Regular basis means that the habitat area is normally, or usually known to contain a critical species, or based on known habitat requirements of the species, the area is likely to contain the critical species. Regular basis is species and population dependent. Species that exist in low numbers may be present infrequently yet rely on certain habitat types.

Priority Habitat – Habitat type or elements with unique or significant value to one or more species as classified by the state Department of Fish and Wildlife. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element.[91]

Project Area – All areas within fifty (50) feet of the area proposed to be disturbed, altered, or used by the proposed activity or the construction of any proposed structures. When the action binds the land, such as a subdivision, short subdivision, binding site plan, planned unit development, or rezone, the project area shall include the entire parcel, at a minimum.

Q

Qualified Professional – A person with experience and training in the pertinent scientific discipline, and who is a qualified scientific expert with expertise appropriate for the relevant critical area subject in accordance with WAC 365-195-905(4). A qualified professional must have obtained a B.S. or B.A. or equivalent degree in biology, engineering, environmental studies, fisheries, geomorphology, or related field, and two years of related work experience.

A. A qualified professional for habitats or wetlands must have a degree in biology and professional experience related to the subject species.

B. A qualified professional for a geological hazard must be a professional engineer or geologist, licensed in the state of Washington.

C. A qualified professional for critical aquifer recharge areas means a hydrogeologist, geologist, engineer, or other scientist with experience in preparing hydrogeologic assessments.

R

Recharge – The process involved in the absorption and addition of water to ground water.

Reclaimed Water – Municipal wastewater effluent that has been adequately and reliability treated so that it is suitable for beneficial use. Following treatment it is no longer considered wastewater (treatment levels and water quality requirements are given in the water reclamation and reuse standards adopted by the state departments of Ecology and Health).

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[91] See WAC 173-26-020(34).

Recreation Vehicle – A vehicle that is:

A. Built on a single chassis;

B. Four hundred (400) square feet or less when measured at the largest horizontal projection;

C. Designed to be self-propelled or permanently towable by a light duty truck; and

D. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Repair or Maintenance – An activity that restores the character, scope, size, and design of a serviceable area, structure, or land use to its previously authorized and undamaged condition. Activities that change the character, size, or scope of a project beyond the original design and drain, dredge, fill, flood, or otherwise alter critical areas are not included in this definition.

Restoration – Measures taken to restore an altered or damaged natural feature including:

A. Active steps taken to restore damaged wetlands, streams, protected habitat, or their buffers to the functioning condition that existed prior to an unauthorized alteration; and

B. Actions performed to reestablish structural and functional characteristics of the critical area that have been lost by alteration, past management activities, or catastrophic events.

Rills – Steep-sided channels resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery. Rill erosion tends to occur on slopes, particularly steep slopes with poor vegetative cover.

Riparian Habitat – Areas adjacent to aquatic systems with flowing water that contain elements of both aquatic and terrestrial ecosystems that mutually influence each other. The width of these areas extends to that portion of the terrestrial landscape that directly influences the aquatic ecosystem by providing shade, fine or large woody material, nutrients, organic and inorganic debris, terrestrial insects, or habitat for riparian-associated wildlife. Widths shall be measured from the ordinary high water mark or from the top of bank if the ordinary high water mark cannot be identified. It includes the entire extent of the floodplain and the extent of vegetation adapted to wet conditions as well as adjacent upland plant communities that directly influence the stream system. Riparian habitat areas include those riparian areas severely altered or damaged due to human development activities.[92]

River – See "Watercourse."

S

Scientific Process – A valid scientific process is one that produces reliable information useful in understanding the consequences of a decision. The characteristics of a valid scientific process are as follows:

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[92] See Washington Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Habitats – Riparian*, 1997, page 4.

A. **Peer Review.** The information has been critically reviewed by other qualified scientific experts in that scientific discipline.

B. **Methods.** The methods that were used are standardized in the pertinent scientific discipline or the methods have been appropriately peer-reviewed to ensure their reliability and validity.

C. **Logical Conclusions and Reasonable Inferences.** The conclusions presented are based on reasonable assumptions supported by other studies and are logically and reasonably derived from the assumptions and supported by the data presented.

D. **Quantitative Analysis.** The data have been analyzed using appropriate statistical or quantitative methods.

E. **Context.** The assumptions, analytical techniques, data, and conclusions are appropriately framed with respect to the prevailing body of pertinent scientific knowledge.

F. **References.** The assumptions, techniques, and conclusions are well referenced with citations to pertinent existing information.

Scrub-Shrub Wetland – A wetland with at least thirty percent (30%) of its surface area covered by woody vegetation less than twenty (20) feet in height as the uppermost strata.

Section 404 Permit – A permit issued by the U.S. Army Corps of Engineers for the placement of dredge or fill material or clearing in waters of the United States, including wetlands, in accordance with 33 USC § 1344. Section 404 permits may also be for endangered species consultation. They require a consultation under Section 7 of the Federal Endangered Species Act.

Seeps – A spot where water oozes from the earth, often forming the source of a small stream.

Seismic Hazard Areas – Areas that are subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, or soil liquefaction.

Serviceable – Presently usable.

SEPA – Washington State Environmental Policy Act, Chapter 43.21C RCW.

Shorelines – All of the water areas of the state as defined in RCW 90.58.030, including reservoirs and their associated shorelands, together with the lands underlying them except:

A. Shorelines of statewide significance;

B. Shorelines on segments of streams upstream of a point where the mean annual flow is twenty cubic feet per second (20 cfps) or less and the wetlands associated with such upstream segments; and

C. Shorelines on lakes less than twenty (20) acres in size and wetlands associated with such small lakes.

Shorelines of the State – The total of all "shorelines," as defined in RCW 90.58.030(2)(d), and "shorelines of statewide significance" within the state, as defined in RCW 90.58.030(2)(c).

Shorelines of Statewide Significance – Those areas defined in RCW 90.58.030(2)(e).

Shorelands or Shoreland Areas – Those lands extending landward for two hundred (200) feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward two hundred (200) feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of Chapter 90.58 RCW.

Significant Portion of its Range – That portion of a species range likely to be essential to the long-term survival of the population in Washington.

Soil Survey – The most recent soil survey for the local area or county by the National Resources Conservation Service, U.S. Department of Agriculture.

Special Flood Hazard Areas – The land in the floodplain within an area subject to a one percent (1%) or greater chance of flooding in any given year. Designations of special flood hazard areas on flood insurance map(s) always include the letters A or V.

Special Protection Areas – Aquifer recharge areas defined by WAC 173-200-090 that require special consideration or increased protection because of unique characteristics, including, but not limited to:

A. Ground waters that support an ecological system requiring more stringent criteria than drinking water standards;

B. Ground water recharge areas and wellhead protection areas that are vulnerable to pollution because of hydrogeologic characteristics; and

C. Sole source aquifer status.

Sole Source Aquifer – See "Aquifer, Sole Source."

Species – Any group of animals classified as a species or subspecies as commonly accepted by the scientific community.

Species, Endangered – Any fish or wildlife species that is threatened with extinction throughout all or a significant portion of its range and is listed by the state or federal government as an endangered species.

Species of Local Importance – Those species of local concern due to their population status or their sensitivity to habitat manipulation, or that are game species.

Species, Priority – Any fish or wildlife species requiring protective measures and/or management guidelines to ensure their persistence as genetically viable population levels as classified by the Washington Department of Fish and Wildlife, including endangered, threatened, sensitive, candidate and monitor species, and those of recreational, commercial, or tribal importance.

Species, Threatened – Any fish or wildlife species that is likely to become an endangered species within the foreseeable future throughout a significant portion of its range without cooperative management or removal of threats, and is listed by the state or federal government as a threatened species.

Stream – See "Watercourse."

Sub-drainage Basin or Subbasin – The drainage area of the highest order stream containing the subject property impact area. Stream order is the term used to define the position of a stream in the hierarchy of tributaries in the watershed. The smallest streams are the highest order (first order) tributaries. These are the upper watershed streams and have no tributaries of their own. When two first order streams meet, they form a second order stream, and when two second order streams meet they become a third order stream, and so on.

Substantial Damage – Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty percent (50%) of the market value of the structure before the damage occurred.

Substantial Improvement – Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure either: before the improvement or repair is started; or if the structure has been damaged and is being restored, before the damage occurred.

U

Unavoidable – Adverse impacts that remain after all appropriate and practicable avoidance and minimization have been achieved.[93]

V

Volcanic Hazard Areas – Areas that are subject to pyroclastic flows, lava flows, debris avalanche, or inundation by debris flows, mudflows, or related flooding resulting from volcanic activity.

Vulnerability – The combined effect of susceptibility to contamination and the presence of potential contaminants.

W

Water Dependent – A use or portion of a use that cannot exist in a location that is not adjacent to the water, but is dependent on the water by reason of the intrinsic nature of its operations. A use that can be carried out only on, in, or adjacent to water. Examples of water dependent uses include: ship cargo terminal loading areas; fishing; ferry and passenger terminals; barge loading, ship building, and dry docking facilities; marinas, moorage, and boat launching facilities; aquaculture; float plane operations; surface water intake; and sanitary sewer and storm drain outfalls.

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[93] See RCW 90.84.010(9).

Water Resource Inventory Area (WRIA) – One of sixty-two (62) watersheds in the state of Washington, each composed of the drainage areas of a stream or streams, as established in Chapter 173-500 WAC as it existed on January 1, 1997.

Water Table – That surface in an unconfined aquifer at which the pressure is atmospheric. It is defined by the levels at which water stands in wells that penetrate the aquifer just far enough to hold standing water.

Water Table Aquifer – See "Aquifer, Unconfined."

Water Typing System – Waters classified according to WAC 222-16-031 as follows:

A. **Type 1 Water** – All waters, within their ordinary high-water mark, as inventoried as "shorelines of the state" under Chapter 90.58 RCW and the rules promulgated pursuant to Chapter 90.58 RCW, but not including those waters' associated wetlands as defined in Chapter 90.58 RCW.

B. **Type 2 Water** – Segments of natural waters that are not classified as Type 1 Water and have a high fish, wildlife, or human use. These are segments of natural waters and periodically inundated areas of their associated wetlands, which:

1. Are diverted for domestic use by more than one hundred (100) residential or camping units or by a public accommodation facility licensed to serve more than ten (10) persons, where such diversion is determined by the Washington State Department of Natural Resources to be a valid appropriation of water and only considered Type 2 Water upstream from the point of such diversion for 1,500 feet or until the drainage area is reduced by fifty percent (50%), or whichever is less;

2. Are diverted for use by federal, state, tribal, or private fish hatcheries. Such waters shall be considered Type 2 Water upstream from the point of diversion for 1,500 feet, including tributaries if highly significant for protection of downstream water quality;

3. Are within a federal, state, local, or private campground having more than thirty (30) camping units: Provided, that the water shall not be considered to enter a campground until it reaches the boundary of the park lands available for public use and comes within one hundred (100) feet of a camping unit;

4. Are used by fish for spawning, rearing or migration. Waters having the following characteristics are presumed to have highly significant fish populations:
   a. Stream segments having a defined channel twenty (20) feet or greater within the bankfull width and having a gradient of less than four percent (4%).

   b. Lakes, ponds, or impoundments having a surface area of one (1) acre or greater at seasonal low water; or

5. Are used by fish for off-channel habitat. These areas are critical to the maintenance of optimum survival of fish. This habitat shall be identified based on the following criteria:

WAC 222-16-030 has been converted to the Washington State Department of Natural Resources' new water typing system – S, F, Np, Ns – and the previous water typing system, shown here. It is now documented under WAC 222-16-031. Jurisdictions are encouraged to convert to the new water typing system when critical areas maps and information for the local area using the new system is available.

a. The site must be connected to a fish bearing stream and be accessible during some period of the year; and

b. The off-channel water must be accessible to fish through a drainage with less than a five percent (5%) gradient.

C. **Type 3 Water –** Segments of natural waters that are not classified as Type 1 or 2 Waters and have a moderate to slight fish, wildlife, and human use. These are segments of natural waters and periodically inundated areas of their associated wetlands which:

1. Are diverted for domestic use by more than ten (10) residential or camping units or by a public accommodation facility licensed to serve more than ten (10) persons, where such diversion is determined by the Washington State Department of Natural Resources to be a valid appropriation of water and the only practical water source for such users. Such waters shall be considered to be Type 3 Water upstream from the point of such diversion for 1,500 feet or until the drainage area is reduced by fifty percent (50%), whichever is less; or

2. Are used by fish for spawning, rearing, or migration. The requirements for determining fish use are described in the State Forest Practices Board Manual, Section 13. If fish use has not been determined:
   a. Waters having the following characteristics are presumed to have fish use:
      i. Stream segments having a defined channel of two (2) feet or greater within the bankfull width in Western Washington; or three (3) feet or greater in width in Eastern Washington; and having a gradient of sixteen percent (16%) or less;

      ii. Stream segments having a defined channel or two (2) feet or greater within the bankfull width in Western Washington; or three (3) feet or greater within the bankfull width in Eastern Washington; and having a gradient greater than sixteen percent (16%) and less than or equal to twenty percent (20%), and having greater than fifty (50) acres in contributing basin size in Western Washington or greater than 175 acres contributing basin size in Eastern Washington, based on hydrographic boundaries;

      iii. Ponds or impoundments having a surface area of less than one (1) acre at seasonal low water and having an outlet to a fish stream; and

      iv. Ponds of impoundments having a surface area greater than one half (0.5) acre at seasonal low water.

   b. The Washington State Department of Natural Resources shall waive or modify the characteristics in (a) of this Subsection where:
      i. Waters have confirmed, long-term, naturally occurring water quality parameters incapable of supporting fish;

ii. Snowmelt streams have short flow cycles that do not support successful life history phases of fish. These streams typically have no flow in the winter months and discontinue flow by June 1; or

iii. Sufficient information about a geomorphic region is available to support a departure from the characteristics in (a) of this Subsection, as determined in consultation with the Washington Department of Fish and Wildlife, Washington State Department of Ecology, affected tribes, and interested parties.

D. **Type 4 Water –** All segments of natural waters within the bankfull width of defined channels that are perennial nonfish habitat streams. Perennial streams are waters that do not go dry any time of a year of normal rainfall. However, for the purpose of water typing, Type 4 Waters include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow. If the uppermost point of perennial flow cannot be identified with simple, nontechnical observations (see *State Forest Practices Board Manual*, Section 23), then Type 4 Waters begin at a point along the channel where the contributing basin area is:

1. At least thirteen (13) acres in the Western Washington coastal zone (which corresponds to the Sitka spruce zone defined in Franklin and Dyrness, 1973);

2. At least fifty two (52) acres in other locations in Western Washington; or

3. At least three hundred (300) acres in Eastern Washington.

E. **Type 5 Waters –** All segments of natural waters within the bankfull width of the defined channels that are not Type 1, 2, 3, or 4 Waters. These are seasonal, nonfish habitat streams in which surface flow is not present for at least some portion of the year and are not located downstream from any stream reach that is a Type 4 Water. Type 5 Waters must be physically connected by an above-ground channel system to Type 1, 2, 3, or 4 Waters.

Watercourse – Any portion of a channel, bed, bank, or bottom waterward of the ordinary high water line of waters of the state including areas in which fish may spawn, reside, or through which they may pass, and tributary waters with defined beds or banks, which influence the quality of fish habitat downstream. This definition includes watercourses that flow on an intermittent basis or which fluctuate in level during the year and applies to the entire bed of such watercourse whether or not the water is at peak level. This definition does not include irrigation ditches, canals, stormwater run-off devices, or other entirely artificial watercourses, except where they exist in a natural watercourse that has been altered by humans.

Well – A bored, drilled, or driven shaft, or a dug hole whose depth is greater that the largest surface dimension for the purpose of withdrawing or injecting water or other liquids.

Wellhead Protection Area (WHPA) – The portion of a zone of contribution for a well, wellfield, or spring, as defined using criteria established by the Washington State Department of Ecology.

Wetlands – Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands. For identifying and delineating a wetland, local government shall use the *Washington State Wetland Identification and Delineation Manual*.

Wetland Classes, Classes of Wetlands, or Wetland Types – The descriptive classes of the wetlands taxonomic classification system of the U.S. Fish and Wildlife Service (Cowardin, et al. 1979).

Wetland Edge – The boundary of a wetland as delineated based on the definitions contained in this Title.

Wetlands Mitigation Bank – A site where wetlands are restored, created, enhanced, or in exceptional circumstances, preserved expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources.[94]

Z

Zone of Contribution – The area surrounding a well or spring that encompasses all areas or features that supply ground water recharge to the well or spring.

[94] See RCW 90.84.010(5).