

**421 FLOOD PLAIN AND DRAINAGE HAZARD AREA DEVELOPMENT**

**421-1 Lands Subject to Flood Plain and Drainage Hazard Area Standards**

421-1.1 The maps entitled "Flood Plain Series, Washington County, Oregon" Revision 5/01/74, 1/03/78, 1/81 and 5/25/83 and 12/12/83 based upon data from the U.S. Army Corps of Engineers; U.S.G.S.; U.S.B.; S.C.S.; and Washington County, together with the Flood Insurance Rate Maps and the "Flood Insurance Study for Washington County" maps, as may be amended from time to time, including the Flood Boundary and Floodway Map, as provided for in the regulations of the Federal Emergency Management Agency (FEMA) (44 CFR part 59-60) hereby are adopted by reference as setting forth the flood plain, floodway and drainage hazard areas of Washington County. But where the maps are not available, the Director may use any base flood elevation and floodway data available from a federal or state source, or any other authoritative source, to determine the boundaries of the flood plain, floodway and drainage hazard areas of Washington County.

421-1.2 Recognizing that the scale may be such that the true and accurate flood plain or drainage hazard area cannot be determined from the maps referenced in Section 421-1.1 alone, all persons seeking a Development Permit for lands within said areas and two-hundred-fifty (250) feet of the map boundary of a flood plain or drainage hazard area identified in Section 421-1.1 except as noted below for land divisions and property line adjustments, shall submit with the Development Permit application:

- A. A delineation of the flood plain and the floodway boundaries, established by a registered engineer or a registered surveyor from the surface elevations prepared by the County for the flood plain based upon maps referenced in Section 421-1.1, and upon any other available authoritative flood data approved by the Director, including but not limited to high water marks, photographs of past flooding or historical flood data; and
- B. A delineation of the drainage hazard area and drainageway by a registered surveyor or a registered engineer from surface elevations prepared by a registered engineer. Such delineation shall be based on mean sea level datum and be field located from recognized landmarks.
- C. Land divisions and property line adjustments outside the UGB may provide only generalized flood plain information, such as contour maps and aerial photos, which need not be prepared by an engineer. Notwithstanding this provision, for the purpose of implementing the requirements of Section 421-14.7, applicants may be required to submit detailed delineations as specified in 421-1.2 A. and B.

For each of the above, submitted plans shall be accurately drawn and at an appropriate scale that will enable ready identification and understanding of the submitted information. The plans shall include the locations of any existing or proposed property lines, buildings, structures, parking areas, streets, accessways, or other relevant information on the subject property, and within fifty (50) feet of the delineation.

421-1.3 Persons seeking to develop within a flood plain or drainage hazard area must do so with the understanding that they and their successors assume the risks and that the risks cannot be eliminated, even with strict compliance with the standards adopted

herein. This Section does not imply that lands outside of flood plain or drainage hazard areas, or development permitted within, will be free from flooding or flood damage.

#### **421-2 Definitions**

As used in this section, the words listed below have the following meaning:

- 421-2.1 Flood area A flood plain or drainage hazard area.
- 421-2.2 Structure A walled and roofed building, including a storage tank or silo, that is principally above ground. Structure does not include such things as pipes, culverts, roads, bridges and other transportation facilities.
- 421-2.3 Flood surface elevation Elevation of the surface water of a floodplain or drainage hazard area.

#### **421-3 Submittal Requirements**

In addition to the requirements of Section 203-4 and 410, an application for a flood plain or drainage hazard area alteration shall contain the following information for the area proposed to be disturbed which shall be prepared by a registered civil engineer. This information may be submitted with or be made part of a site plan or grading plan for the proposed development.

- 421-3.1 Existing and proposed topography within the boundaries of the flood area using the following contour intervals:
- A. For slopes of five (5) percent or less, contour intervals not more than one (1) foot;
  - B. For slopes greater than five (5) percent and up to and including ten (10) percent, contour intervals not more than two (2) feet; and
  - C. For slopes greater than ten (10) percent, contour intervals not more than five (5) feet.
- 421-3.2 For applications for Type II and III flood plain or drainage hazard area alterations, documentation which demonstrates compliance with the applicable review standards of Sections 421-7 through 421-14.

#### **421-4 Uses and Activities Permitted Through a Type I Procedure**

Unless specifically prohibited in the applicable Community Plan, the Rural/Natural Resource Plan Element, Section 422, or Clean Water Service's "Design and Construction Standards for Sanitary Sewer and Surface Water Management" or its successor, a development permit may be approved in a flood area through a Type I procedure for the following:

- 421-4.1 Recreation or nature trails and removal of vegetation down to duff or bare soil provided:

- A. The area of disturbance is not designated as a Significant Natural Resource in the applicable Community Plan or the Rural/Natural Resource Plan Element; and
  - B. The applicant obtains a permit for erosion control.
- 421-4.2 Property line adjustments.
- 421-4.3 Wildlife viewing areas, including interpretive signs, and off-street parking which requires no grading, and viewing platforms or structures, provided that all viewing platforms or structures:
- A. Are elevated by pilings;
  - B. Have the lowest floor at least one (1) foot above the flood surface elevation; and
  - C. A building permit is obtained for the proposed platform or structure.
- 421-4.4 Maintenance, preservation and repair of local public streets and private streets except as provided for by Section 421-16.7, including paving and grading of existing road surfaces, and grading and shaping of roadside ditches.
- 421-4.5 Above ground electrical, communication and signal transmission and distribution lines on a single-pole system. For the purposes of this section, a single-pole system is defined as above ground electrical, communication or signal lines and their supporting concrete, wood or metal poles, excluding self-supporting steel lattice-type structures.
- 421-4.6 Restoration and stabilization of the bank of a river or other watercourse or body of water for erosion control provided:
- A. The application includes a registered civil engineer's certification that:
    - (1) The project is in response to a demonstrated bank failure that resulted from a specific flood event or which has occurred within the last two years;
    - (2) The project only restores and stabilizes the bank to its original location before the demonstrated bank failure;
    - (3) The length of the bank involved does not exceed two hundred fifty (250) feet;
    - (4) The project is located outside an urban growth boundary; and
    - (5) If riprap is used, it will be keyed in to the bed and bank of the body of water as specified in OAR 141-089-0005.
  - B. Whether or not riprap is used, the length of bank within the project boundary, from the ordinary high water level to the top of the bank, shall be planted with vegetation that grows roots which will stabilize the bank. Plant species used shall be those in the 1987 or most current list entitled "Shrubs, Trees and Aquatic Plants for Wildlife Plantings" prepared by the Oregon Department of Fish and Wildlife. The plantings shall meet the following requirements, unless different

requirements are established for the project by the Oregon Division of State Lands through their permitting process:

- (1) At least five (5) plants shall be placed per one hundred (100) square feet of bank area; and
- (2) At least twenty (20) percent of the plants placed shall be trees.

C. Upon completion of the project, a registered civil engineer shall submit a statement certifying that the project was completed in compliance with the provisions of this section.

421-4.7 Maintenance, preservation or repair of off-right-of-way drainage facilities.

421-4.8 Vehicular access to a single family residence or for farm or forest uses; including culverting for driveway crossings provided the application includes a registered civil engineer's certification that the project complies with Sections 421-7.1 through 421-7.9.

421-4.9 Authorized airport related activities within the Public Use Airport Overlay District, as identified in section 387-4.

#### **421-5 Uses and Activities Allowed Through a Type II Procedure**

Unless specifically prohibited in the applicable Community Plan, the Rural/Natural Resource Plan Element, Section 422, or the Clean Water Services's "Design and Construction Standards for Sanitary Sewer and Surface Water Management" or its successor, a development permit may be approved in a flood area through a Type II procedure for the following:

421-5.1 One (1) detached dwelling (including a manufactured dwelling) together with no more than two (2) accessory structures and off-street parking on a parcel lawfully created prior to March 26, 1984, when the lot or parcel contains insufficient area outside of the flood area upon which to locate the dwelling, and/or accessory structures.

421-5.2 Substantial improvements to lawfully established structures that have not been abandoned where "substantial improvement" is defined as follows: Any repair, reconstruction or improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure either:

A. Before the improvement or repair is started; or

B. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this Section "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure except as follows:

- (1) Any project for improvement of a structure to comply with existing State or local health, sanitary or safety code specifications which is solely necessary to assure safe living conditions, or

- (2) Any alteration of a structure listed on the National Register of Historic Places or a State or local inventory of historic plans.

- C. Applications for substantial improvements to structures shall comply with all applicable requirements of Section 421-7, Section 421-8, Section 421-9 and Section 421-10.

421-5.3 Improvements to a lawfully established structure when the cost of the improvement is less than fifty (50) percent of the market value of the structure and there is compliance with Section 421-7. For the purpose of this subsection, improvement means any repair, reconstruction, addition or improvement of a structure except as follows:

- A. Any project for improvement of a structure to comply with existing State or local health, sanitary or safety code specifications which is solely necessary to assure safe living conditions, or
- B. Any alteration of a structure listed on the National Register of Historic Places or a State or local inventory of historic plans.

421-5.4 Accessory structure customarily provided in conjunction with the use set forth in the applicable primary District.

421-5.5 Subdivisions and partitions.

421-5.6 Water quality or quantity improvement facilities, or a required wetland mitigation project when:

- A. Mandated by a local, state or federal regulatory agency;
- B. In conjunction with an adopted Drainage Master Plan as defined by Subsection 106-64; or
- C. In conjunction with any other master plan for water or wetlands management improvements approved by Ordinance or Resolution and Order of the Board.

Sites that are designated as a Significant Natural Resource are subject to the requirements of Section 422.

421-5.7 Dams, weirs, ponds and similar water impoundment devices and mitigation and enhancement improvements, not authorized by Subsection 421-5.6 when in conjunction with an enhancement plan approved through Subsection 422-3.4.

421-5.8 Dams, weirs, ponds and similar water impoundment devices, and mitigation and enhancement improvements for farm or forest purposes when in conjunction with farm use as defined in ORS 215 or forest uses as defined by the Forest Practices Act.

421-5.9 Operations for the exploration for and production of geothermal resources, oil and gas.

- 421-5.10 Vehicular access to permitted uses, including driveway crossings, except as permitted by Section 421-4.8.
- 421-5.11 Construction or major improvement or alteration of underground pipes and conduits, including sewer, water and gas lines, transmission and distribution lines for geothermal resources, gas and oil, underground electrical, telephone and television transmission and distribution lines, including necessary accessory structures and drainage systems.
- 421-5.12 Removal of vegetation down to duff or bare soil in an area designated as a Significant Natural Resource in the applicable Community Plan or the Rural/Natural Resource Plan Element.
- 421-5.13 Above ground electrical, communication and signal transmission lines, except as provided by Section 421-4.7.
- 421-5.14 Parks, golf courses and other recreational uses and associated off-street parking which require grading, excluding structures.
- 421-5.15 Recreation or nature trails and associated off-street parking, when grading, piping, culverting or bridges are required.
- 421-5.16 Creation or restoration of wetlands. , including wetland mitigation, creation, enhancement and restoration within public use airport approach surface areas and airport direct impact boundaries, pursuant to section 388-9.
- 421-5.17 Culverting and piping to implement an approved development, other than crossings for public and private streets and other public transportation facilities, in an area that is not designated as a Significant Natural Resource in the applicable Community Plan or the Rural/Natural Resource Plan Element when the pipe or culvert connects to an existing pipe, culvert or drainageway. Culverting and piping in a flood area may be subject to local, state and federal agencies.
- 421-5.18 Construction or major improvement or alteration of public local streets and private streets within the UGB, or approved as part of a land division, including culverting and piping, accessory drainage systems such as catch basins, and necessary accessory structures.
- 421-5.19 Bank maintenance, restoration or stabilization, including riprapping for erosion control, of a river or other watercourse or body of water inside an urban growth boundary or not otherwise permitted by Section 421-4.6.

#### **421-6 Uses Allowed Through A Type III Procedure**

Unless specifically prohibited by the applicable Community Plan, the Rural/ Natural Resource Plan Element, Section 422, or the Clean Water Services's "Design and Construction Standards for Sanitary Sewer and Surface Water Management" or its successor, a development permit for the following may be approved through the Type III procedure:

- 421-6.1 Parking area for adjacent multi-family, institutional, commercial or industrial development;

421-6.2 In any area designated as a Significant Natural Resource by the applicable Community Plan, culverting or piping of a flood area that is designed to improve the overall drainage system to facilitate private development. Such requests shall be processed as a Type III Planned Development. Culverting or piping that is permitted by Section 421-5 is not intended to be addressed by this subsection; and

421-6.3 Low head hydroelectric power generation facilities.

**421-7 Development Standards for all Type II and Type III Flood Plain and Drainage Hazard Area Uses or Activities**

The applicant for a proposed flood plain or drainage hazard area development shall demonstrate compliance with the following applicable standards as required by Section 421-3 above:

421-7.1 Development proposed to encroach into a regulatory floodway adopted and designated pursuant to FEMA regulations shall demonstrate through hydrologic and hydraulic analysis, performed in accordance with standard engineering practice by a registered civil engineer, that the cumulative effect of the proposal, when combined with all other existing and anticipated development within the basin based upon full development of the basin as envisioned in the applicable Community Plan or the Rural/Natural Resource Plan, will not result in any increase in flood levels within the community during the occurrence of the base (regional) flood discharge.

Notwithstanding this provision, development that would result in such an increase may be approved if the County, at the sole expense of the applicant, first obtains FEMA approval in accordance with 44 CFR Ch. 1, Part 65 (October 1, 1990 edition, or its successor). No increase to the flood plain elevation shall be permitted unless the area in which the rise will occur contains no structures and the owner of such property signs a written acceptance of any increase in the flood plain elevation. These properties are not required to be part of the application for the proposed development.

421-7.2 Development proposed on a flood plain site where the development does not encroach into an adopted FEMA regulatory floodway shall demonstrate through hydrologic and hydraulic analysis, performed in accordance with standard engineering practice by a registered civil engineer, that the cumulative effect of the proposal, when combined with all other existing and anticipated development within the basin based upon full development of the basin as envisioned in the applicable Community Plan or the Rural/Natural Resource Plan, will not increase the flood plain elevation more than one (1) foot at any point in the community. Notwithstanding this provision, an increase in excess of one (1) foot may be approved if the County, at the sole expense of the applicant, first obtains FEMA approval in accordance with 44 CFR Ch. 1, Part 65 (October 1, 1990 edition, or its successor). No increase to the flood plain elevation shall be permitted unless the area in which the rise will occur contains no structures and the owner of such property signs a written acceptance of any increase in the flood plain elevation.

421-7.3 Development proposed on a drainage hazard area site shall demonstrate through hydrologic and hydraulic analysis, performed in accordance with standard engineering practice by a registered civil engineer, that the cumulative effect of the proposal, when combined with all other existing and anticipated development within the basin based upon full development of the basin as envisioned in the applicable

- Community Plan or the Rural/Natural Resource Plan, will not result in any increase to the drainage hazard area elevation at any point in the community. Notwithstanding this provision, an increase may be approved if the area in which the rise will occur contains no structures and the owner of such property signs a written acceptance of any increase in the drainage hazard area elevation.
- 421-7.4 Encroachments into a floodway shall be designed so as to minimize the risk that the encroachment will catch substantial debris or otherwise significantly impede floodwater flows. Designs may include, but are not limited to, adequate sizing of openings, secured breakaway bridges, diverters or spacing of supports.
- 421-7.5 The proposal will not increase the existing velocity of flood flows so as to exceed the erosive velocity limits of soils in the flood area. Energy dissipation devices or other measures to control the mean velocity so as not to cause erosion of the flood area may be used to meet this standard. "Open Channel Hydraulics" by V. T. Chow, McGraw-Hill Book Company, Inc., 1988, is presumed to be the best available reference for maximum permissible velocity. "Hydraulic Engineering Circular No. 14," Hydraulic Design of Energy Dissipators for Culverts and Channels, published by the Federal Highway Administration, September 1983, is presumed to be the best available reference for the design of energy dissipators.
- 421-7.6 All cut and fill shall be structurally sound and designed to minimize erosion. All fill below the flood surface elevation shall be accompanied by an equal amount of cut or storage within the boundary of the development site unless:
- A. The proposed cut and fill is found to be in compliance with an adopted Drainage Master Plan; or
  - B. Off-site excavation will be utilized to balance a fill, provided:
    - (1) The off-site excavation area will be part of the application for the development proposing to place the fill;
    - (2) The off-site excavation area will be located in the same drainage basin as the proposed fill area;
    - (3) The off-site excavation area will be located within points of constriction on the drainage system, if any, and as close to the fill site as practicable. The applicant's registered civil engineer shall conduct a storage routing analysis to determine the location of the fill;
    - (4) The off-site excavation area will be constructed as part of the development placing the fill;
    - (5) Any use or future development of the excavated area shall comply with the standards of Section 421 and Section 422 if the area is designated as a Significant Natural Resource; and
    - (6) Ownership of the excavated area shall be by one of the following mechanisms:



- (a) Dedication of the area to an appropriate public agency when a public agency is willing to accept the dedication;
- (b) Ownership of the area by the applicant of the proposed development;
- (c) Dedication of the development rights of the area to an appropriate public agency with ownership remaining with the property owner. Maintenance of the area shall be the responsibility of the applicant or property owner; and
- (d) Deed or easement-restricted private ownership which prevents any use or future development of the area as specified by Section 421-7.6 B. (5). Maintenance of the area shall be the responsibility of the applicant or property owner. A contract for conditions shall be required as specified by Section 207-5.3. The contract for conditions shall be recorded in the Washington County Deed Records.

421-7.7 There is adequate storm drainage behind a dike such as a lift pump or flap gate to drain the flood plain or drainage hazard area behind the dike.

421-7.8 That the environmental impact of the disturbance or alteration of riparian wildlife and vegetation has been minimized to the extent practicable as required by Section 422. Enhancement of riparian habitats through planting or other such improvements may be required to mitigate adverse effects. Significant features such as natural ponds, large trees and endangered vegetation within the flood area shall be protected when practicable.

421-7.9 Drainage systems shall be designed and constructed according to the adopted Drainage Master Plan for the area, if one exists.

421-7.10 Proposed partitions and subdivisions shall minimize flooding by complying with the applicable standards of Sections 410, 421, 426, 605-3.2 and 610-3.1, and Chapter 6 of the Clean Water Services Construction Standards.

421-7.11 Public utilities and facilities in proposed partitions and subdivisions shall be located and constructed in a manner that will minimize flood damage.

421-7.12 Proposed partitions and subdivisions shall provide adequate drainage to reduce exposure to flood damage by complying with the standards of Section 410 and applicable standards of Section 605-3.2 or 610-3.2, whichever is applicable.

#### **421-8 Criteria for Dwellings**

421-8.1 No new dwelling shall be constructed in a flood area if:

- A. The lot or parcel contains sufficient, suitable, existing buildable land area that is located outside the flood area so as to permit construction at least one (1) foot above the flood area; and
- B. The buildable land area shall be deemed suitable if it includes a minimum ten (10) foot perimeter setback around the proposed dwelling that is outside the flood area.

- 421-8.2 Construction standards for new dwellings and substantial improvements to existing dwellings in flood areas:
- A. All new dwellings and substantial improvements to existing dwellings shall have the lowest habitable floor, including any basement, elevated to at least one (1) foot above the flood surface elevation and shall be anchored so as to prevent flotation, collapse or lateral movement;
  - B. New dwellings and substantial improvements to existing dwellings may be placed on pressure treated pilings when:
    - (1) Certified by a registered engineer as sufficient to prevent collapse or movement during a one-hundred (100) year flood.
    - (2) Pilings are placed on stable compacted fill on no greater than ten foot centers; and
    - (3) Pilings greater than six (6) feet high are reinforced;
  - C. New dwellings and substantial improvements to existing dwellings may be placed on approved fill providing the building site, which includes the ground under the structure plus a ten (10) foot setback around all sides of the structure, is above the flood surface elevation.
  - D. All new construction and improvements to existing structures shall be done with approved materials and utility equipment resistant to flood damage, using approved construction methods and practices that minimize such damage. All new construction and improvements to existing structures shall be anchored to prevent flotation, collapse or lateral movement;
  - E. Fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting the above requirement must either be certified by a registered professional engineer, or must meet or exceed the following minimum criteria:
    - (1) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
    - (2) The bottom of all openings shall be no higher than one foot above grade; and
    - (3) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

**421-9 Criteria for Manufactured Dwellings and Manufactured Dwelling Parks and Subdivisions**

In addition to the criteria set forth in Sections 430-75, 430-77 and 430-79, manufactured dwellings and manufactured dwelling parks and subdivisions located in a flood area shall comply with the following standards:

- 421-9.1 Manufactured dwellings shall not be located within the floodway except in a manufactured dwelling park or subdivision existing on March 26, 1984;
- 421-9.2 Manufactured dwellings shall be anchored to resist flotation, collapse or lateral movement, by providing over-the-top and frame ties to ground anchors in accordance with the following:
- A. Require that over-the-top ties be provided at each of the four corners of the manufactured dwelling, with two additional ties per side at intermediate locations. Manufactured dwellings less than fifty (50) feet long require only one additional tie per side;
  - B. Require that frame ties be provided at each corner of the dwelling with five (5) additional ties per side at intermediate points. Manufactured dwellings less than fifty (50) feet long require only four (4) additional ties per side;
  - C. Notwithstanding Section 421-10.2 B. above, allow a manufactured dwelling to utilize only frame ties if:
    - (1) The dwelling was constructed in compliance with the Oregon Mobile Code in effect between 1972 and 1976 and bears a label to that effect;
    - (2) The dwelling was constructed in compliance with the "National Manufactured Housing Construction and Safety Standards Act;"
    - (3) The dwelling is multisectional (double-wide or greater); or
    - (4) The ground upon which the dwelling is located is at an elevation above the regional flood level.
  - D. All components of the anchoring system be capable of carrying a force of four-thousand-eight-hundred (4,800) pounds; and
  - E. Any additions to the manufactured dwelling be similarly anchored.
- 421-9.3 In new manufactured dwelling parks and subdivisions, or in expansions to existing manufactured dwelling parks and subdivisions, or where the repair, reconstruction or improvement of the streets, utilities and pads equals or exceeds fifty (50) percent of value of the streets, utilities and pads before the repair, reconstruction or improvement has commenced; and for manufactured dwellings not placed in a manufactured dwelling park or subdivision, the following shall be required:
- A. Stands or lots shall be elevated on compacted fill or on pilings so that the lowest floor of the manufactured dwelling will be at least one (1) foot above the flood surface elevation;

- B. Adequate surface drainage and access for a hauler are provided; and
- C. In the instance of elevation on pilings, that:
  - (1) Lots are large enough to permit steps;
  - (2) Piling foundations are placed in stable soil not more than ten (10) feet apart; and
  - (3) Reinforcement is provided for pilings more than six (6) feet above the ground level.

421-9.4 Placement of, or substantial improvements to, manufactured dwellings on sites outside of a manufactured dwelling park or subdivision, or in a new or existing manufactured dwelling park or subdivision, or in an expansion to an existing manufactured dwelling park or subdivision, shall be elevated on compacted fill or on pilings so that the lowest floor of the manufactured dwelling will be at least one (1) foot above the flood surface elevation; elevation on pilings shall meet the requirements of Section 421-9.3 C.

#### **421-10 Criteria for Non-Dwelling Structures**

421-10.1 New construction or substantial improvement of non-dwelling structures shall either have the lowest floor, including any basement, elevated to or above the flood surface elevation; or, the structure together with attendant utility and sanitary facilities shall:

- A. Be floodproofed so that below the flood surface elevation the structure is watertight with walls substantially impermeable to the passage of water;
- B. Be constructed with approved materials and utility equipment resistant to flood damage, using approved construction methods and practices that minimize such damage;
- C. Be anchored to prevent flotation, collapse or lateral movement;
- D. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
- E. A registered professional engineer or architect shall certify that the proposed design and methods of construction comply with the above described criteria.

421-10.2 In accordance with FEMA regulations, the flood insurance premiums for floodproofed non-dwelling structures will be based on the rates that are one (1) foot below the floodproofed level (e.g., a building floodproofed to the base flood level will be rated as one (1) foot below) or as otherwise amended by FEMA.

#### **421-11 Criteria for Utilities**

421-11.1 New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system. The applicant shall obtain all applicable local, state or federal permits.

- 421-11.2 New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into, or discharge from, the system. The applicant shall obtain all applicable local, state and federal permits.
- 421-11.3 On-site disposal systems shall be permitted only if located and designed to avoid impairment and eliminate contamination of flood waters. The applicant shall obtain all applicable local, state and federal permits.
- 421-11.4 Above ground electrical, communication and signal transmission and distribution lines and related accessory structures other than poles or towers shall be constructed at or above the flood surface elevation. Poles and towers shall be constructed and placed to minimize risk of damage.
- 421-11.5 Electrical, heating, ventilation, plumbing, and 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.
- 421-11.6 Construction of utilities shall be done in a way which minimizes the impact on the flood area. The site shall be restored, as far as practicable, to its original state.

**421-12 Criteria for Piping, Culverting and Man-Made Creek Beds, Except as Permitted in Section 421-5**

Piping or the use of culverts or man-made creek beds to drain or alter the water flow of a flood area shall be approved in conjunction with a Planned Development processed as a Type III action. The proposed development shall meet the following:

- 421-12.1 Include provisions for open space as required by Section 404-4;
- 421-12.2 Improve the drainage system or flood protection of all or a substantial portion of the land within the boundaries of the Planned Development application; and
- 421-12.3 The application, if located within the Tualatin Hills Park and Recreation District boundary, shall demonstrate that the applicant has worked with the Park District or other appropriate service provider to coordinate any plans for parks, open space or other use of the flood area. For applications outside of the boundary of the Tualatin Hills Park and Recreation District, the application shall demonstrate that the applicant has worked with the appropriate recreation service provider or other appropriate service provider to coordinate any plans for parks, open space or other use of the flood area.
- 421-12.4 These standards do not apply to piping or the use of culverting or man-made creek beds for:
  - A. Uses and activities permitted by Section 421-5;
  - B. Improvements necessary to provide access to an approved commercial, industrial, institutional or multi-family parking area; or
  - C. Improvements which are in compliance with an adopted Drainage Master Plan.

**421-13 Criteria for Parking for Multi-Family, Institutional, Commercial and Industrial Developments**

- 421-13.1 Land within the flood area may be used for parking by Multi-Family, Institutional, Industrial or Commercial Developments, regardless of whether located on the same lot or parcel, if an approval for parking is obtained through the Type III procedure. The parking shall be approved only upon findings that:
- A. The parcel or lot could not develop at the planned density, including any density transfers or bonuses, due to lack of land area to provide ground level parking areas on the same lot or parcel outside the flood plain or drainage hazard area;
  - B. Adequate drainage can be provided to minimize the off-site impact of changes in water flow, direction or velocity caused by creation of the parking area;
  - C. The applicant will minimize to the extent practicable or as outlined in the appropriate Community Plan or Rural/ Natural Resource Plan, any adverse impacts on the natural integrity of the flood area, including wildlife and riparian vegetation. Significant features such as natural ponds, large trees and endangered vegetation shall be preserved to the extent possible. The application for the Development, if located in the THPRD boundary, shall demonstrate that the applicant has worked with the Tualatin Hills Park and Recreation District to coordinate any plans for parks, open space or other use of the flood area;
  - D. The parking area shall be posted to warn users that the area is within the flood area and shall not be used during periods of flood warning; and,
  - E. Vehicular access will be provided on a roadway no portion of which is below the flood surface elevation. The parking area shall be located and oriented to minimize to the extent practicable the need to fill to provide such access. All fill shall be structurally sound and designed to avoid erosion.

**421-14 General Requirements and Prohibitions**

- 421-14.1 Property owners shall maintain the flood area in such a manner as to prevent reduction of the natural carrying capacity. Maintenance outside of the public right-of-way shall be done by means of hand implements unless a Development Permit for an alteration is first obtained (lawn mowers are considered hand implements).
- 421-14.2 Storage of petroleum products, explosives, herbicides, pesticides, insecticides, poisons, defoliant, fungicides, desiccants, nematocides and rodenticide is prohibited.
- 421-14.3 Dumping of solid waste in the flood area is prohibited.
- 421-14.4 Section 421 is in addition to any and all Federal, State or special district laws and regulations in force at the time of approval of the Development Permit. Any permits required from a local, state or federal agency shall be obtained prior to any development within the flood area.

- 421-14.5 The standards and criteria of this Section are cumulative and in addition to any other requirements of this Code. Any more stringent provisions of an applicable Community Plan or the Rural/Natural Resource Plan Element shall control.
- 421-14.6 The Review Authority may condition any Type II or III development permit to the extent necessary to avoid any specifically identified deleterious impacts on the natural integrity of the flood area or to wildlife and vegetation within the flood area.
- 421-14.7 In the case of the partitioning or subdivision of land for the location of structures for human occupancy, such site shall provide a building site, which includes the ground under the structure plus a ten (10) foot setback around all sides of the structure, with a ground elevation at least one (1) foot above the flood surface elevation. No partition or subdivision shall create a lot whose dimensions do not meet this standard.
- 421-14.8 There shall be no dumping of fill in a flood area without a flood plain or drainage hazard area alteration permit.

**421-15 Duties of the County**

- 421-15.1 The County shall obtain and record the actual elevation (in relation to mean sea level) of the lowest habitable floor (including basement) of all new or substantially improved structures located within the flood area and whether or not such structures contain a basement and, shall obtain and maintain for any floodproofed structure, the elevation to which the structure was floodproofed. Such information shall be public record.
- 421-15.2 The Director shall notify adjacent communities, Oregon Department of Land Conservation and Development, and other relevant State agencies of any approval prior to alteration of a watercourse. The Director shall submit evidence of said notification to the Federal Insurance Administration.

**421-16 Exemptions**

Unless specifically prohibited in the applicable Community Plan, Rural/ Natural Resource Plan, or the Clean Water Services's "Design and Construction Standards for Sanitary Sewer and Surface Water Management" or its successor, the following are exempt from the requirement of obtaining a Development Permit for a flood plain or drainage hazard area alteration:

- 421-16.1 Farming or raising of livestock not utilizing a structure;
- 421-16.2 Propagation or harvesting of timber for personal consumption, provided that the use of a caterpillar tractor, yarder, backhoe, grader or similar heavy mechanized equipment is prohibited, except that such equipment may be used where local laws are superseded by the Forest Practice Act and Oregon Administrative Rules.
- 421-16.3 A wire boundary fence designed to impede as little as practicable the movement of water or water borne materials;
- 421-16.4 Accessory residential or institutional uses such as lawns, gardens and play areas, provided that no structure is permitted;

- 421-16.5 Recreational and accessory recreational uses such as parks or game fields, provided that no grading or structures are permitted;
- 421-16.6 Commercial forestry activities when in compliance with the Oregon Forest Practices Act and Oregon Administrative Rules.
- 421-16.7 Maintenance, preservation or repair of public or private streets and other public transportation facilities, including culverting and piping, accessory drainage structures and necessary accessory structures that does not constitute "development" as defined by the Federal Emergency Management Agency. Work shall comply with local, state and federal regulatory requirements.
- 421-16.8 A recreational vehicle which meets one of the following criteria:
- A. Has been on site for fewer than one hundred and eighty (180) days; or
  - B. Is fully licensed and "ready for highway use." "Ready for highway use" means that the recreational vehicle is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.
- 421-16.9 A nonconforming recreational vehicle which does not meet the criteria of Section 421-15.8:
- A nonconforming recreational vehicle which does not meet the criteria of Section 421-15.8 may be replaced, provided there is compliance with the standards of Section 421.
- 421-16.10 An emergency measure necessary for immediate safety of persons or protection of property, such as riprapping for erosion control, provided however, that an application for a Development Permit shall be promptly filed if the measure otherwise would require such a permit but for the emergency.
- 421-16.11 Line borings for installation of utilities when certified by a registered civil engineer: that the line is located at least 36 inches below ground surface in floodways, flood plains, and drainage hazard areas; that the land disturbance will not alter flood storage capacity or water velocities; that all construction will take place outside the delineated flood plain or drainage hazard area; and that all spoils will be removed from the flood area and placed in an appropriate disposal site.



## **422 SIGNIFICANT NATURAL RESOURCES**

### **422-1 Intent and Purpose**

The intent and purpose of these standards is to permit limited and safe development in areas with significant natural resources, while providing for the identification, protection, enhancement and perpetuation of natural sites, features, objects and organisms within the County, here identified as important for their uniqueness, psychological or scientific value, fish and wildlife habitat, educational opportunities or ecological role.

Development within riparian areas, Water Areas and Wetlands, or Water Areas and Wetlands and Fish and Wildlife Habitat shall comply with applicable state and federal regulatory guidelines.

### **422-2 Lands Subject to this Section**

Those areas identified in the applicable Community plan or the Rural/Natural Resource Plan Element as Significant Natural Resources and areas identified as Regionally Significant Fish & Wildlife Habitat on Metro's current Regionally Significant Fish & Wildlife Habitat Inventory Map.

Significant Natural Resources have been classified in the Community Plans or the Rural/Natural Resource Plan Element by the following categories:

- 422-2.1 Water Areas and Wetlands - 100 year flood plain, drainage hazard areas and ponds, except those already developed.
- 422-2.2 Water Areas and Wetlands and Fish and Wildlife Habitat - Water areas and wetlands that are also fish and wildlife habitat.
- 422-2.3 Wildlife Habitat - Sensitive habitats identified by the Oregon Department of Fish and Wildlife, the Audubon Society Urban Wildlife Habitat Map, and forested areas coincidental with water areas and wetlands.
- 422-2.4 Significant Natural Areas - Sites of special importance, in their natural condition, for their ecological, scientific, and educational value.

### **422-3 Criteria for Development**

- 422-3.1 The required master plan and site analysis for a site which includes an identified natural resource shall:
  - A. Identify the location of the natural resource(s), except in areas where a Goal 5 analysis has been completed and a program decision adopted pursuant to OAR 660, Division 23 (effective September 1, 1996);
  - B. Describe the treatment or proposed alteration, if any. Any alteration proposed pursuant to Section 422-3.1 B. shall be consistent with the program decision for the subject natural resource; and

- C. Apply the design elements of the applicable Community Plan; or the applicable implementing strategies of the Rural/Natural Resource Plan Element, Policy 10, Implementing Strategy E which states:

“Implement the recommendations of the Oregon Department of Fish and Wildlife Habitat Protection Plan for Washington County and to mitigate the effects of development in the Big Game Range within the EFU, EFC and AF-20 land use designations.”

422-3.2 Open Space Inside the UGB:

- A. Shall be identified as provided in Section 404-1, Master Planning - Site Analysis;
- B. When located in a park deficient area as identified on the significant natural resource map, the applicant shall notify the appropriate park provider of the proposed development.

422-3.3 Development within a Riparian Corridor, Water Areas and Wetlands, and Water Areas and Wetlands and Fish and Wildlife Habitat:

- A. No new or expanded alteration of the vegetation or terrain of the Riparian Corridor (as defined in Section 106) or a significant water area or wetland (as identified in the applicable Community Plan or the Rural/Natural Resource Plan Element) shall be allowed except for the following:
- (1) Crossings for streets, roads or other public transportation facilities.
  - (2) Construction or reconstruction of streets, roads or other public transportation facilities.
  - (3) Installation or construction of the following utilities: sewer and water lines, electric, communication and signal lines; and gas distribution and transmission lines.
  - (4) Wildlife viewing areas and recreation or nature trails.
  - (5) Bank maintenance, restoration or stabilization, including riprapping for erosion control, of a river or other watercourse or body of water provided there is compliance with the requirements of Section 421-4.6. This use is not subject to Section 422-3.5 or Section 422-3.6.
  - (6) Detached dwellings and accessory structures on a lot of record, provided there is insufficient suitable, existing buildable land area to permit construction outside the riparian corridor (as defined in Section 106) or a significant water area or wetland (as identified in the applicable Community Plan or the Rural/Natural Resource Plan) and all required local, state or federal permits are obtained.
  - (7) Where it can be demonstrated, with concurrence of the Clackamas District biologist or other applicable district biologist of the Oregon Department of Fish and Wildlife, that a riparian corridor, Water Areas and Wetlands, or Water Areas and Wetlands and Fish and Wildlife Habitat has been

degraded, an enhancement of these areas which conforms to the definition and criteria listed in Section 422-3.4 may be permitted through a Type II procedure.

Enhancement or alteration of a nondegraded portion of these areas is permitted when it is in conjunction with and it is needed to support the enhancement of the degraded area. Where development is proposed that would have negative impacts on these areas it is the County's policy to follow state and federal regulatory guidelines for mitigation proposals.

- (8) All activities and uses associated with an expansion of Barney Reservoir; including but not limited to impoundment structures, water diversion and transmission facilities, road construction and related land alterations. Such activities and uses may be permitted through a Type III procedure.
  - (9) In addition in the Rural/Natural Resource Area:
    - (a) Propagation or harvesting of timber for personal consumption, provided that the use of a caterpillar tractor, yarder, backhoe, grader or similar heavy mechanized equipment is prohibited;
    - (b) Commercial forestry activities when in compliance with the Oregon Forest Practices Act and Administrative Rules; and
    - (c) Farming or raising of livestock not utilizing a structure.
    - (d) Operations for the exploration for and production of geothermal resources, oil and gas.
  - (10) All public use airport related uses and activities allowed pursuant to Section 387-4.
  - (11) Wetland mitigation, creation, enhancement and restoration within public use airport approach surface areas and airport direct impact boundaries shall be allowed upon demonstration of compliance with the requirements of Section 388-9.
- B. Where development or alteration of the riparian corridor is permitted under the above exceptions, the flood plain and drainage hazard area development criteria shall be followed.
- C. Fencing adjacent to stream buffers or other wildlife habitat areas shall be designed to allow the passage of wildlife. Designs must incorporate openings appropriately sized and spaced to accommodate passage of wildlife common to urban Washington County (common mammals needing access to streams in urban Washington County include but are not limited to: deer, beaver, coyote, muskrat, rabbit, raccoon and skunk).

422-3.4 Enhancement of a degraded riparian corridor, Water Areas and Wetlands or Water Areas and Wetlands and Fish and Wildlife Habitat permitted by Section 422-3.3 A. (7) shall meet the following:

A. For the purposes of Section 422-3.3 A. (7) an enhancement is a modification, as a result of which no later than five (5) years after completion of the project, the quality and/or quantity of the natural habitats is measurably improved in terms of animal and plant species numbers, number of habitat types, and/or amount of area devoted to natural habitat.

B. Proposal Preparation

In order to determine whether a proposed modification will result in an enhancement, preparation of the proposal, as well as construction and planning work, shall be guided by a professional wildlife biologist or ecologist with experience and credentials in water areas/wetlands and riparian areas enhancement and who has reviewed the sources and their relevant references listed in Section 422-3.4.

C. Submittal Requirements

- (1) The proposal shall include detailed information and mapping of the site, including all of the following subjects:
  - (a) Hydrology, including 100 year flood and 25 year flow events/surface water flow patterns, and groundwater information, if available;
  - (b) Substrate(s) and existing rates of sedimentation;
  - (c) Existing vegetation, including species list and community types, with approximate percent coverage, and all trees six inches in diameter or larger;
  - (d) Animal life census (macrofauna species list), preferably based on mid-April to mid-May field observations, but at least conducted during spring, summer and/or early fall.
- (2) The proposal shall include a color photographic record (taken sometime between mid-spring and mid-fall) showing the major portion of the site at sufficient detail to compare with the later transformation.
- (3) The proposal shall include a map showing the expected outcome of the proposed enhancement, with detailed description of how this is to be accomplished.
  - (a) To the maximum feasible extent, the overall design of the site shall minimize parking and human activity directly adjacent to the Significant Natural Resource, and where avoidable shall incorporate special design techniques (e.g., thick or thorny vegetation or fencing) to reduce adverse impacts such as littering and harassment of wildlife and damage to vegetation.
  - (b) A surrounding vegetation buffer of closely spaced (six feet to eight feet) trees and shrubs shall be included within the outer twenty-five feet of the Significant Natural Resource area unless there are special circumstances or design measures.

- (c) All plant materials shall be indicated in terms of number and size. Except for the outer perimeter of the buffer area, all plants shall be of a native species unless agreed to by the Clackamas District biologist or other applicable district biologist of the Oregon Department of Fish and Wildlife.
  - (d) As many existing trees over six inches in diameter as possible shall be preserved.
  - (e) Vegetation plantings (e.g., trees and shrubs) which overhang standing water are encouraged. (Native vegetation is preferred.)
  - (f) Measures for the prevention of undesirable monotypic plant dominance, especially reed canary grass and blackberries, shall be included, such as periodic removal or application of herbicides agreed to by the Clackamas District biologist or other applicable district biologist of the Oregon Department of Fish and Wildlife.
  - (g) Ponds shall have varying open water depth up to a least three feet, unless required otherwise by the Oregon Department of Fish and Wildlife, Oregon Division of State Lands or the U.S. Corps of Engineers, and where the natural grade permits shall have gently sloped shores on at least two sides.
  - (h) Islands are encouraged to be two feet above normal water level, flat-topped, spaced every  $\frac{1}{4}$  acre of open water, and no smaller than 450 sq. ft. where possible.
  - (i) Rocks and large tree trunks are encouraged to be placed in water areas.
- (4) The proposal shall be submitted by Washington County to the biologist for the Clackamas District or other applicable district biologist of the Oregon Department of Fish and Wildlife for review and comment, as well as to other regulating agencies with jurisdiction to review the proposed enhancement, including the Division of State Lands and the Army Corps of Engineers.
  - (5) The proposal shall include arrangement to ensure frequent and regular litter or trash clean-up unless dedicated to Tualatin Hills Park and Recreation District or any other jurisdiction.

D. Follow-up Requirements

- (1) The County shall require as a condition of approval that a detailed report by a wildlife biologist or ecologist, with map and color photographs, shall be submitted to the County by the current property owner two (2) years after completion of the modification and again after five (5) years. The reports shall document the current condition of the resource. These two follow-up reports shall be submitted by the County to the biologist for the Clackamas District or other applicable district for review and comment. If the approved enhancement plan has not been completed in five (5) years, the current

property owner shall submit plans to the County Department of Land Use and Transportation for rectifying any significant deficiencies. Once approved, the amended plan shall be implemented.

- (2) The County may modify or revoke the Development Permit for the enhancement, or take other necessary enforcement measures to ensure compliance with these standards.

#### 422-3.5 Significant Natural Areas

Any development requiring a permit from Washington County which is proposed in a Significant Natural Area, as identified by the applicable Community Plan or the Rural/Natural Resource Area Plan Element, shall reduce its impact, to the maximum extent feasible, on the unique or fragile character or features of the Significant Natural Area. Appropriate impact reducing measures shall include:

- A. Provision of additional landscaping or open space; and
- B. Relocation of the proposed site of a building, structure or use on the lot.

- 422-3.6 For any proposed use in a Significant Natural Resource Area, there shall be a finding that the proposed use will not seriously interfere with the preservation of fish and wildlife areas and habitat identified in the Washington County Comprehensive Plan, or how the interference can be mitigated. This section shall not apply in areas where a Goal 5 analysis has been completed and a program decision has been adopted that allows a "conflicting use" to occur pursuant to OAR 660-23-040(5)(c) (effective September 1, 1996).

#### 422-4 Density Transfer

Areas designated as a Significant Natural Resource may be eligible for density transfer as specified in Section 300-3.

#### 422-5 State and Federal Regulatory Guidelines

Development within a riparian corridor, Water Areas and Wetlands, or Water Areas and Wetlands and Fish and Wildlife Habitat, shall obtain all required local, state and federal permits.