

## **9-05 [Flood Hazard Reduction]**

### **9-05.01 [Introductory Provisions]**

#### **9-05.01-10 [Statutory Authorization]**

The Legislature of the State of Oregon has delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the Council of the City of Vernonia, State of Oregon has adopted the following regulations:

#### **9-05.01-20 [Statement of Purpose]**

It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed;

- A. To protect human life and health;
- B. To minimize expenditure of public money and costly flood control projects;
- C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- D. To minimize prolonged business interruptions;
- E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;
- F. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- G. To ensure that potential buyers are notified that property is in an area of special flood hazard; and,
- H. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

#### **9-05.01-30 [Definitions]**

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

- A. "Area of Special Flood Hazard" means the land in the flood plain within a community subject to a one percent (1%) or greater chance of flooding in any given year. Designation on maps always includes the letters A or V
- B. "Base Flood" means the flood having a one percent (1%) of being equaled or exceeded in any given year. Also referred to as the "one hundred (100) year flood." Designation on maps always includes the letters A or V.
- C. "Development" means any man-made change to any improved or unimproved real estate, including but not limited to a building, porch, stairway, deck, fence or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, land clearing, landscaping or permanent storage of materials or equipment located within the Flood Plain Management Area.

- D. “Flood” or “Flooding” means a general and temporary condition or partial or complete inundation of normally dry land areas from:
1. The overflow of inland or tidal waters; and/or,
  2. The unusual and rapid accumulation or runoff of surface waters from any source.
- E. “Flood Insurance Rate Map (FIRM)” means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.
- F. “Flood Insurance Study” means 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.
- G. “Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot.
- H. “Lowest Floor” means the lowest floor of the lowest enclosed area (including 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, 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 non-elevation design requirements of this chapter found at Paragraph 9-05.03-20.A.2.
- I. “Manufactured Home” means a structure, transportable in one (1) or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For flood plain management purposes the term “manufactured home” also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than one hundred and eighty (180) consecutive days. For insurance purposes the term “manufactured home” does not include park trailers, travel trailers, and other similar vehicles.
- J. “New Construction” means structures for which the “start of construction” commenced on or after the effective date of this chapter.
- K. “Start of Construction” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred and eighty (180) days of the permit date. The actual start date means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include erection of temporary forms; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundation or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure.
- L. “Structure” means the walled and roofed building including a gas or liquid storage tank that is principally above ground.

- M. “Substantial Improvement” means 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:
1. Before the improvement or repair is started; or,
  2. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commenced, whether or not that alteration affects the external dimensions of the structure.

**9-05.01-40 [Lands to Which This Chapter Applies]**

This chapter shall apply to all areas of special flood hazards within the jurisdiction of the City of Vernonia.

**9-05.01-50 [Basis for Establishing the Areas of Special Flood Hazard]**

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “The Flood Insurance Study for the City of Vernonia,” dated August 16th, 1988 with accompanying Flood Insurance Maps is hereby adopted by reference and declared to be a part of this chapter. The Flood Insurance Study is on file at Vernonia City Hall, 1001 Bridge Street, Vernonia OR 97064

**9-05.01-60 [Abrogation and Greater Restrictions]**

This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another chapter, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

**9-05.02 [Administrative Provisions]**

**9-05.02-10 [Establishment of Development Permit]**

- A. Flood Plain Development Permit Required. Except for floodway restrictions described in Section 9-05.03-30 a Flood Plain development permit shall be obtained in accordance with the Type I permit provisions before construction or development begins within any area of special flood hazard established in Section 9-05.01-50. Any development or change in land use in the floodplain, including but not limited to new or modified structures; stairways; porches; decks; fences; walls; excavation; filling; paving; drilling or drilling of piles; mining; dredging; land clearing or landscaping; or permanent storage of materials and/or equipment.
- B. Application for Flood Plain Development Permit. An application for a Flood Plain Development Permit shall be made on forms furnished by the City of Vernonia and may include but not be limited to plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:
- 1) Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;

- 2) Elevation in relation to mean sea level to which any structure has been flood proofed;
- 3) Certification by a registered professional engineer or architect that the flood proofing methods for any nonresidential structure meet the flood proofing criteria in Section 5.2.2; and
- 4) Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.
- 5) Location of all proposed fences, walls, stairways and plantings.

**9-05.02-20 [Designation of the Planning Commission or Administrative Staff]**

The Planning Commission or Administrative City Staff are hereby appointed to administer and implement this chapter by granting or denying development permit application in accordance with the provisions herein.

**9-05.02-30 [Duties and Responsibilities of the Planning Commission]**

Duties of the Planning Commission or City Staff shall include, but not be limited to:

- A. Permit Review.
  1. Review all development permits to determine that the permit requirements of this chapter have been satisfied;
  2. Review all development permits to determine that all necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required;
  3. Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Subsection 9-05.03-30.A are met;
- B. Use of Other Base Flood Data. When base flood elevation data has not been provided in accordance with Section 9-05.01-50. Basis for Establishing the Areas of Special Flood Hazard, the Planning Commission 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 Sections 9-05.03-20 [Specific Standards] and 9-05.03-30 [Floodways];
- C. Substantial Damage Determination Process. The cost of improvements or repair shall be determined in accordance with the following guidelines:
  1. Except as indicated in subsections (4) and (5) below, all costs associated with the repair of “substantial damage,” including emergency repairs, must be included.
  2. The costs associated with the correction of pre-existing violations of state or local health, sanitary, or safety code specifications that have been identified in writing prior to the improvement of repair by the building official, the director of environmental health, or any other local code enforcement official and that are the minimum necessary to assure safe living conditions, should not be included.
  3. Except as indicated in subsections (4) and (5) below, the costs of complying with any county, state, or federal regulation other than those costs described in subsection (2) must be included.

4. Costs associated with the following items are not to be included:
    - a. The preparation and approval of all required plans, calculations, certifications, and specifications;
    - b. The performance of surveys or other geotechnical or engineering studies and the resulting reports;
    - c. Permit and review fees assessed by the city or others;
    - d. The construction, demolition, repair, or modification of outside improvements, including landscaping, fences, swimming pools, detached garages, etc.
  5. Proposed alteration of a designated historic building or structure is not to be considered a substantial improvement, unless the alteration causes a loss of the said designation. The building official or city's designee shall make the final determination of whether the proposed building's or structure's improvement constitutes a "substantial improvement" or "substantial damage" to the subject building or structure.
- D. Information to be Obtained and Maintained.
1. Where base flood elevation data is provided through the Flood Insurance Study or required as in Subsection 9-05.02-30B, obtain and record the actual 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;
  2. For all new or substantially improved floodproofed structures:
    - a. Verify and record the actual elevation (in relation to mean sea level); and,
    - b. Maintain the floodproofing certifications required by this chapter;
  3. Maintain for public inspection all records pertaining to the provisions of this chapter;
- E. Alteration of Water Course.
1. Notify adjacent communities and any required state agency prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration;
  2. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished;
- F. Interpretation of Flood Plain Management Boundaries. Make interpretations where needed, as to exact location of the Flood Plain Management Area (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation to the Planning Commission or the City's designee. Such appeals shall be granted consistent with the standards of Section 60.6 of the Rules and Regulations of the National Flood Insurance Program (44 CFR 59-76).

## **9-05.03 [Flood Hazard Reduction Provisions]**

### **9-05.03-10 [General Standards]**

In all areas of special flood hazards, the following standards are required:

- A. Anchoring.
  1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure;
  2. All manufactured homes must likewise 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 (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques);
- B. Construction Materials and Methods.
  1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;
  2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage;
  3. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and 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;
  4. Consideration will be given to new technologies only after being reviewed and adopted by FEMA.
- C. Utilities.
  1. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
  2. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters; and,
  3. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding;
- D. Subdivision Proposals.
  1. All subdivision proposals shall be consistent with the need to minimize flood damage;
  2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage;
  3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and
  4. Where Design 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);

- E. Review of Building Permits. Where elevation data is not available either through flood insurance studies or from another authoritative source (Subsection 9-05.02-30.B), applications for floodplain development and building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs or past flooding, etc., where available. Failure to elevate at least three (3) feet above the highest adjacent grade in these zones may result in higher insurance rates and/or refusal of the city to grant a permit.
- F. Crawlspace Construction. Below-grade crawlspaces are allowed subject to the following standards as found in FEMA Technical Bulletin 11-01, Crawlspace Construction for Buildings Located in Special Flood Hazard Areas:
1. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings stated in Section B below. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas.
  2. The crawlspace is an enclosed area below Design Flood Elevation and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one (1) foot above the lowest adjacent exterior grade.
  3. Portions of the building below the Design Flood Elevation must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the Design Flood Elevation. The recommended construction practice is to elevate the bottom of joists and all insulation above Design Flood Elevation.
  4. Any building utility systems within the crawlspace must be elevated above Design Flood Elevation or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the Design Flood Elevation or sealed from floodwaters.
  5. The interior grade of a crawlspace below the Design Flood Elevation must not be more than two (2) feet below the lowest adjacent exterior grade.
  6. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the

crawlspace foundation wall must not exceed four (4) feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.

7. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. Possible options include natural drainage through porous, well-drained soils and drainage systems such as perforated pipes, drainage tiles or gravel or crushed stone drainage by gravity or mechanical means.
8. The velocity of floodwaters at the site should not exceed five (5) feet per second for any crawlspace. For velocities in excess of five (5) feet per second, other foundation types should be used.

For more detailed information refer to FEMA Technical Bulletin 11-01.

#### **9-05.03-20 [Specific Standards]**

In all areas of special flood hazards where the Design Flood Elevation data has been provided as set forth in 9-05.01-50 [Basis for Establishing the Areas of Special Flood Hazard] or Subsection 9-05.02-30.B Use of Other Base Flood Data, the following provisions are required:

A. Residential Construction.

1. Except for floodway restrictions described in Section 9-05.03-30, new construction and substantial improvement, as defined in 9-05.01-30, of any residential structure shall have the lowest floor, including basement, elevated a minimum of three (3) feet above the Design Flood Elevation or one (1) foot above the Flood of Record.
2. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or 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 less than one (1) square inch for every “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;
  - c. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters;

- d. Flood vents are required in a garage if the garage is below the Design Flood Elevation.

B. Nonresidential Construction. Except for floodway restrictions described in Section 9-05.03-30, new construction and substantial improvement, as defined in 9-05.01-30, of any commercial, industrial or other nonresidential structure which has been damaged by flooding shall have the lowest floor, including basement, elevated to a minimum of three (3) feet above Design Flood Elevation, but no less than one (1) foot above the Flood of Record.

Alternatively, any new construction or substantial improvement of any commercial, industrial, or other nonresidential structure, together with attendant utility and sanitary facilities, shall:

1. Be flood proofed so that below the Design Flood Elevation the structure is watertight with walls substantially impermeable to the passage of water;
2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
3. 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 certifications shall be provided to the official as set forth in Paragraph 9-05.02-30.C.2;
4. Nonresidential structures that are elevated but not flood proofed, must meet the same standards for space below the lowest floor as described in 9-05.03-20.A.2;
5. Applicants flood proofing nonresidential buildings shall be notified that flood insurance premiums will be based upon rates that are one (1) foot below the flood proofed level (e.g., a building constructed to the Design Flood Elevation will be rated as one (1) foot below that level);

C. Manufactured Homes. Except for floodway restrictions described in Section 9-05.03-30, all manufactured homes to be placed or substantially improved, as defined in 9-05.01-30, due to flood damage, and located within Zones A1-30, AH, and AE shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is a minimum of three (3) feet above the Design Flood Elevation, but no less than one (1) foot above the Flood of Record. The manufactured home shall be anchored to an adequately anchored foundation system in accordance with the provisions of Subsection 9-05.03-10.A.2.

1. Recreational Vehicles. Recreational vehicles placed on sites are required to either:
  - a. Be on the site for fewer than 180 consecutive days;
  - b. Be fully licensed and ready for highway use, 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; or
  - c. Meet the requirements Section C. above.

- D. Base Flood Elevations with no Floodways. In areas where a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within a special flood hazard area, 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 foot at any point within the community.

#### **9-05.03-30 [Floodways]**

Located within the Flood Plain Management Area are areas designated as floodways. Since the floodway is an entirely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potentials, the following provisions apply:

- A. Special flood hazard areas with designated floodways. In addition to those NFIP requirements for designated floodways, Vernonia shall restrict land uses within such areas to include the prohibition of construction or reconstruction of residential structures except for: (a) Repairs, reconstruction, or improvements to a structure which do not alter the original footprint, or proof of a “No –Rise Certification” in accordance with FEMA Region X. A residential dwelling located partially within a designated floodway will be considered as totally within a designated floodway and must comply with this section.
- B. Special flood hazard areas without designated floodways. When a regulatory floodway for a creek or stream (i.e. Bear Creek) has not been designated, the City may require that applicants for new construction and substantial improvements reasonably utilize the best available information from a federal, state, or other source to consider the cumulative effect of existing, proposed, and anticipated future development and determine that there will be no increase in the water surface elevation of the base flood. Building and development near streams without a designated floodway shall comply with the requirements of Section 44 CFR 60.3 (b) (3) and (4), and (c) (10) of the NFIP regulations revised as of October 1, 2008.

#### **9-05.04 [Additional Provisions]**

##### **9-05.04-10 [Penalty]**

- A. A violation of any provision of this chapter shall, upon conviction, be punishable by a fine of not more than five hundred dollars (\$500.00). A violation of this chapter shall be considered a separate offense for each day the violation continues.
- B. In case a building or other structure is or is proposed to be located, constructed, maintained, repaired, altered or used, or land is or is proposed to be used, in violation of this ordinance, the building or land thus in violation shall constitute a nuisance and the City may, as an alternative to other remedies that are legally available for enforcing this ordinance, institute injunction, mandamus, abatement or other appropriate proceedings to prevent, enjoin temporarily or permanently, abate or remove the unlawful location, construction, maintenance, repair, alteration or use.

- C. Subject to removal. A building, sited upon property in violation of this ordinance, shall be subject to removal from such property. However, the building owner must be given a reasonable opportunity to bring the property into compliance before action for removal can be taken. If action finally is taken by the appropriate authority to bring compliance, the expenses involved may be made a lien against the property.
- D. Warning and Disclaimer of Liability. The degree of flood protection required by this ordinance 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 land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the City of Vernonia or by any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made there under.