

Chapter 20.64

FLOODWAYS, FLOODPLAINS, DRAINAGE, AND EROSION

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Part I. Floodways and Floodplains20.64.010 Statutory Authorization.

The Legislature of the State of Washington 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 City of Arlington does ordain as follows:

20.64.020 Findings of Fact.

- (a) The flood hazard areas of Arlington are subject to periodic inundation which results in loss of life and property, health, and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- (b) These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards that increase flood heights and velocities, and when inadequately anchored,

damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to the flood loss.

20.64.030 Statement of Purpose.

(a) It is the purpose of this ordinance 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:

(b) To protect human life and health;

~~(b)(c)~~ To manage development in a manner reducing impacts to floodplain processes;

~~(e)(d)~~ To minimize expenditure of public money and costly flood control projects;

~~(e)(e)~~ To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

~~(e)(f)~~ To minimize prolonged business interruptions;

~~(f)(g)~~ 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;

~~(e)(h)~~ 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;

~~(h)(i)~~ To ensure that potential buyers are notified that property is in an area of special flood hazard; and,

~~(i)(j)~~ To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

20.64.040 Methods of Reducing Flood Losses.

In order to accomplish its purposes, this ordinance includes methods and provisions for:

(a) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;

(b) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(c) Controlling the alteration of natural flood plains, stream channels, wetlands and natural protective barriers, which help accommodate or channel flood waters;

(d) Controlling filling, grading, dredging, and other development which may increase flood damage; and

(e) Preventing or regulating the construction of flood barriers that will unnaturally divert floodwaters or may increase flood hazards in other areas.

20.64.050 Definitions.

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

“*Appeal*” means a request for a review of the interpretation of any provision of this ordinance or a request for a variance.

“*Area of Shallow Flooding*” means a designated AO, or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three 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.

“*Area of Special Flood Hazard*” means the land in the floodplain within a community subject to a one-percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

“Base Flood” means the flood having a 1% chance of being equaled or exceeded in any given year (also referred to as the “100-year flood”). Designated on Flood Insurance Rate Maps by the letters A or V.

“Basement” means any area of the building having its floor subgrade (below ground level) on all sides.

“Channel Migration Zone” means the lateral extent of likely movement along a stream reach during the next one hundred years with evidence of active stream channel movement over the past one hundred years.

“Critical Facility” means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, installations that produce, use or store hazardous materials or hazardous waste.

“Development” means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials ~~located within the area of special flood hazard, subdivision of land, removal of substantial amounts of vegetation, or alteration of natural site characteristics.~~

“Elevated Building” means for insurance purposes, a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

“Existing Manufactured Home Park Or Subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

“Expansion To An Existing Manufactured Home Park Or Subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

“Flood” or “Flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (a) The overflow of inland or tidal waters and/or
- (b) The unusual and rapid accumulation of runoff of surface waters from any source.

“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.

“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.

“Floodplain Administrator.” The Director of ~~Development Services~~Community Development is hereby deemed to be the City’s Floodplain Administrator. ~~(Added by Ord. No. 1351, 9/7/04)~~

“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 foot.

“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 found in [§20.64.180\(a\)2 \(Specific Standards for Zones A1-30, AH, and AE\)](#).

“*Manufactured Home*” means 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*” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“*New Construction*” means structures for which the “start of construction” commenced on or after the effective date of this ordinance.

“*New Manufactured Home Park Or Subdivision*” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations.

“*Recreational Vehicle*” means a vehicle that is:

- (a) Built on a single chassis;
- (b) 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.

~~(d)~~-(e) “*Riparian Habitat Zone*” an area identified on the approved map that provides the necessary protection perpendicularly from, 1. The ordinary high water mark 2. The Channel Migration Zone, 3. The mapped Floodway.

“*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 180 days of the permit date. The actual start 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 the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations 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. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

“*Structure*” means a walled and roofed building including a gas or liquid storage tank that is principally above ground.

“*Substantial Damage*” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

“*Substantial Improvement*” means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 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 definition “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.

The term does not, however, include either:

- (c) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code

enforcement official and which are the minimum necessary to assure safe living conditions,
or

- (d) Any alteration of a “historic structure,” provided that the alteration would not preclude the structure’s continued designation as a “historic structure.”

“*Variance*” means a grant of relief from the requirements of this ordinance that permits construction in a manner that would otherwise be prohibited by this ordinance.

“*Water Dependent*” means a structure for commerce or industry that cannot exist in any other location and is dependent on the water because of the intrinsic nature of its operations.

20.64.060 Basis for Establishing the Areas of Special Flood Hazard.

- (a) The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “The Flood Insurance Study for Snohomish County” (in which the City of Arlington is incorporated) dated ~~November 8, 1999~~ September 29, 2006, or as amended, with an accompanying Flood Insurance Rate Map (FIRM), as amended, are hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study and the FIRM are on file at Arlington City Hall, 238 North Olympic, Arlington, Washington. The best available information for flood hazard area identification as outlined in Subsection (b) shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under Subsection (b).
- (b) When base flood elevation data has not been provided (A and V Zones) in accordance with Subsection (a), the administrator shall use any base flood elevation and floodway data available from a Federal, State or other source, in order to comply with [§20.64.180 \(Specific Standards for Zones A1-30, AH, and AE\)](#) and [§20.64.190 \(Specific Standards for Designated Regulatory Floodways\)](#). (Amended by Ord. 1365, 6/13/05)
- (c) If such data are not already available, the administrator may rely on a licensed surveyor to provide such information as necessary to reasonably ascertain said zones.

20.64.070 Abrogation and Greater Restrictions

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

20.64.080 Interpretation

In the interpretation and application of this ordinance, all provisions shall be:

- (a) Considered as minimum requirements;
(b) Liberally construed in favor of the governing body; and,
(c) Deemed neither to limit nor repeal any other powers granted under State statutes.

20.64.090 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 that 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 City of Arlington, 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.

20.64.100 Supplementary Information Required with a Permit Application.

In addition to the standard information required with a permit application ([§20.16.040, Applications To Be Complete](#)), the following information is also required for any permits proposing development within a floodway or floodplain:

- (a) Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
- (b) Elevation in relation to mean sea level to which any structure has been flood-proofed;
- (c) Certification by a registered professional engineer or architect that the flood-proofing methods for any nonresidential structure meet the flood-proofing criteria in Subsection [20.64.180\(b\) \(Specific Standards for Zones A1-30, AH, and AE\)](#); and
- (d) Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.

20.64.110 Conformance with Chapter 20.88 (Environmentally Critical Areas).

Wherever this section allows uses within a floodway or floodplain, that use must also be consistent with [Chapter 20.88](#) (Environmentally Critical Areas) [and Chapter 20.92 \(Shoreline Management\)](#) in terms of both allowable use and location of use. In any case, wherever regulations in these two Chapters conflict, the more restrictive shall prevail. The explicit intent of this section is to not allow development that is inconsistent with [Chapter 20.88 or Chapter 20.92](#) to occur in the restricted areas or buffers required by that Chapter, even though it may seem permissible according to the regulations of this chapter.

20.64.120 Location of Boundaries of Floodplain and Floodway Districts and Riparian Habitat Zone.

(a) As used in this chapter, the terms floodplain and floodway refer in the first instance to certain areas whose boundaries are determined and can be located on the ground by reference to the specific fluvial characteristics set forth in the definitions of these terms. These terms also refer to overlay zoning districts whose boundaries correspond to the actual physical location of floodways and floodplains as shown on FEMA's Flood Insurance Rate Map (FIRM) and should be shown on the map identified in [§20.36.10092 \(Official Zoning Map Shoreline Master Plan\)](#). (These overlay districts thus differ from other zoning districts whose boundaries are established solely according to planning or policy, rather than physical, criteria.) Therefore, the administrator is authorized to make necessary interpretations as to the exact location of the boundaries of floodways or floodplains if there appears to be a conflict between a mapped boundary and actual field conditions. Such interpretations, like other decisions of the administrator, may be appealed pursuant to [§20.20.010 \(Appeals\)](#).

(b) [As used in this chapter the term Riparian Habitat Zone \(RHZ\) is identified on the approved RHZ map. The RHZ is an overlay zone that encompasses lands as defined above on either side of all stream, and for all other watercourse including off channel areas within the Special Flood Hazard Areas. The RHZ is a no new disturbance zone, other than for activities that will not adversely affect the existing habitat function. Any property or portion thereof that lies within the RHZ is subject to the restrictions of the RHZ, as well as any zoning restriction that apply to the parcel in the underlying zoning. Unless shown otherwise the RHZ on a channel migration zone is 50 feet. Other areas not identified on the RHZ, but are located in the floodplain areas will be subject to the Shoreline Master Plan Critical Areas Appendix B.](#)

(c) [When updating the maps the City must consider future conditions and the cumulative effect from the future land-use changes.](#)

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(d). When updating the maps the City must consider identifying and evaluating the risk of flooding behind 100-year levees within the City jurisdiction based on future conditions and cumulative effects.

(e). When evaluating risk it may be determined that an individual project will conduct an ESA consultation with the services.

20.64.130 Setbacks from Streams Outside Designated Floodplains.

In any area that is located outside a designated floodplain but where a stream is located, no building or fill may be located within the buffer as specified in [Chapter 20.88](#) (Environmentally Critical Areas).

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20.64.140 Artificial Obstructions Within Floodways Prohibited.

- (a) No artificial obstruction may be located within any floodway, except as provided in [§20.64.150 \(Permissible Uses Within Floodways\)](#).
- (b) For purposes of this section, an artificial obstruction is any obstruction, other than a natural obstruction, that is capable of reducing the flood carrying capacity of a stream or may accumulate debris and thereby reduce the flood-carrying capacity of a stream. A natural obstruction includes any rock, tree, gravel, or analogous natural matter that is an obstruction and has been located within the floodway by a non-human cause.

20.64.150 Permissible Uses Within Floodways.

(a). Notwithstanding [Chapter 20.40](#) (Permissible Uses) of this Title, no permit to make use of land within a floodway may be issued unless the proposed use is listed as permissible in **Error! Reference source not found.** ~~Table 20.40-3~~, the Table of Permissible Uses, [Chapter 20.88](#), Environmentally Critical Areas, and in the following list:

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- 1. General habitat restoration, farming, pasture, outdoor plant nurseries, horticulture, forestry, wildlife sanctuary, game farm, and other similar agricultural, wildlife, and related uses.
- 2. Ground-level loading areas, parking areas, boat launch, rotary aircraft ports, and other similar ground-level area uses.
- 3. Lawns, gardens, play areas, and other similar uses.
- ~~4.~~ Golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, parks, hiking or horseback-riding trails, open space, and other similar private and public recreational uses.

~~4.~~ As indicated in [§20.36.060 \(Floodplain\)](#), the floodplain and floodway districts are established as overlay districts.

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- (b) General Development standards to be followed in Special Flood Hazard Area include:
- 1. If a lot has a buildable site out of the Special Flood Hazard Area, all new structures shall be located there, when feasible. If the lot is fully in the floodplain, structures must be located to have the least impact on salmon.
 - 2. Stormwater and drainage features shall incorporate low impact development techniques that mimic pre-development hydrologic conditions, when technically feasible.
 - 3. Creation of new impervious surfaces shall not exceed 10 percent of the surface area of the portion of the lot in the floodplain unless

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mitigation is provided and maintained that functions as "10% effective impervious surface".

- 4. Any loss of floodplain storage shall be avoided, rectified or compensated for as identified in (20.88.530)
- 5. Uses that are not permitted in the Protected Area unless shown not to adversely affect water quality, habitat, etc., include septic tanks and drain fields, dumping of nay material, hazardous or sanitary waste landfills: receiving area for toxic or hazardous waste or other contaminants.
- 6. The proposed action must be designed and located so that new structural flood protection is not needed.
- 7. New road crossing over ESA listed streams within the special flood hazard area are prohibited unless a concurrence letter from NMFS or a habitat assessment demonstrating "no adverse affect" is received.
- 8. Uses that are allowed in the existing or equivalent zoning and do not require an up-zoning increasing floodplain development densities, or participate in a TDR program that results in an equivalent or greater area of Stillaguamish floodplain to be protected from development in perpetuity.

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20.64.160 Construction Within Floodways and Floodplains Restricted, Habitat Protection Standards.

Any development occurring in the Floodway or Floodplain will require the issuance of a "Flood Hazard permit". A development permit shall be obtained before construction or development begins within any area of special flood hazard area. The permit shall be for all structures including manufactured homes, and for all development including fill and other activities as set forth in this ordinance.

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- (a) No land use or building permit may be issued for any development within a floodplain until the permit-issuing authority has reviewed the plans for any such development to assure that:
 - 1. The proposed development is consistent with the need to minimize flood damage, and
 - 2. All public utilities and facilities such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage, and
 - 3. Adequate drainage is provided to minimize or reduce exposure to flood hazards, and
 - 4. All necessary permits have been received from those agencies from which approval is required by federal or state law, and
 - 5. The application for a permit to develop in the affected area must include the elevations of the 10-, 50-, and 100-year floods, where such data are available, and
 - 6. The applicant must record a notice on the title that the property contains land within the RHZ and/or 100-year floodplain before a permit may be issued, and
 - 7. Any improvements or repairs to existing structures that result in a greater than 10 percent increase of the structure footprint must mitigate for any adverse effects, and
 - 8. Removal of native vegetation must leave 65 percent of the surface area of the portion of the property in the floodplain with native vegetation in an undeveloped state, and
 - 9. Development in the floodway, RHZ, and CMZ will not adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmon, and
 - 10. Development outside the protected area must mitigate for adverse indirect effects on stormwater, riparian vegetation, bank stability, channel migration, hyporheic zone, wetland and large woody debris functions, and

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- (b) No building may be constructed and no substantial improvement of an existing building may take place within any floodway. This includes a prohibition on installing new mobile homes in an existing mobile home park located in a floodway, even if the park is nonconforming. *(Amended by Ord. 1365, 6/13/05)*
- (c) Where elevation data is not available either through the Flood Insurance Study, FIRM, or from another authoritative source the applicant shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source (§20.64.060(b) Basis for Establishing the Areas of Special Flood Hazard), applications for 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 of past flooding, etc., where available. Failure to elevate at least two feet above the highest adjacent grade in these zones may result in higher insurance rates.
- (d) No new residential building may be constructed and no substantial improvement of a residential building may take place within any floodplain unless the lowest floor (including basement) of the building or improvement is elevated to ~~or one foot~~ above the base flood level.
1. Residential accessory structures shall be allowed within floodplains provided they are firmly anchored to prevent flotation.
 2. Anchoring of any accessory buildings may be done by bolting the building to a concrete slab or by over-the-top ties. When bolting to a concrete slab, one-half inch bolts six feet on center with a minimum of two per side shall be required. If over-the-top ties are used, a minimum of two ties with a force adequate to secure the building is required.
- (e) No new non-residential building may be constructed and no substantial improvements of a nonresidential building may take place within any floodplain unless the lowest floor (including basement) of the building or improvement is elevated or flood-proofed to ~~or one-foot~~ above the base flood level. Where flood proofing is used in lieu of elevation, a registered professional engineer or architect shall certify that any new construction or substantial improvement has been designed to withstand the flood depths, pressure, velocities, impact, and uplift forces associated with the base flood at the location of the building and that the walls below the base flood level are substantially impermeable to the passage of water. *(Amended by Ord. 1365, 6/13/05)*
- (f) For purposes of this section, "substantial improvement" means for a building constructed prior to the effective date of this title, any repair, reconstruction, or improvement of a building the cost of which equals or exceeds 50 percent of the market value of the structure either (i) before the improvement or repair is started or (ii) if the structure has been damaged and is being restored, before the damage occurred. "Substantial improvement" occurs when the first alteration on any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the building. The term does not, however, include either (i) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications that are solely necessary to insure safe living conditions, or (ii) any alteration of a building listed on the National Register of Historic Places or a State Inventory of Historic Places.
- (g) No land use or building permit may be issued for any development within a floodplain until the permit-issuing authority has reviewed the plans to assure that any new construction or substantial improvements shall be:
1. Designed (or modified) and adequately anchored to prevent flotation collapse, or lateral movement of the structure.
 2. Constructed with materials and utility equipment resistant to flood damage.
 3. Constructed by methods and practices that minimize flood damage.

- (h) Notwithstanding any other provision of this title, no mobile home may be located or relocated within that portion of the floodplain outside of the floodway, unless the following criteria are met:
1. Ground anchors for tie downs are provided.
 2. The following tie-down requirements are met:
 - i. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
 - ii. 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). (*Amended by Ord. 1365, 6/13/05*)
 3. Lots or pads are elevated on compacted fill or by any other method approved by the administrator so that the lowest habitable floor of the mobile home is at or above the base flood level.
 4. Adequate surface drainage and easy access for mobile home hauler is provided.
 5. Load-bearing foundation supports such as piers or pilings must be engineered.
- (i) Whenever any portion of a floodplain is filled in with fill dirt, slopes shall be adequately stabilized to withstand the erosive force of the base flood.

20.64.170 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) AH Zone Drainage—Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.
- (c) 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 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.

20.64.180 Specific Standards for Zones A1-30, AH, and AE

In all areas of special flood hazards where base flood elevation data has been provided (Zones A1-30, AH, and AE on the community's FIRM) as set forth in [§20.64.060 \(Basis for Establishing the Areas of Special Flood Hazard\)](#), the following provisions are required:

- (a) Residential Construction
1. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation.

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 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.
 - b. The bottom of all openings shall be no higher than one 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.
- (b) Nonresidential Construction—New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot or more above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:
 1. Be flood-proofed so that below one foot or more above the base flood level 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 Floodplain Administrator or Building Official.
 4. Nonresidential structures that are elevated, not flood-proofed, must meet the same standards for space below the lowest floor as described in 20.64.180(a)(2) (Specific Standards for Zones A1-30, AH, and AE—Residential Construction);
 5. Applicants flood-proofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the flood-proofed level (e.g. a building flood-proofed to the base flood level will be rated as one foot below).
- (c) Manufactured Homes
 1. All manufactured homes to be placed or substantially improved on sites:
 - a. Outside of a manufactured home park or subdivision,
 - b. In a new manufactured home park or subdivision,
 - c. In an expansion to an existing manufactured home park or subdivision, or
 - d. In an existing manufactured home park or subdivision on which a manufactured home has incurred “substantial damage” as the result of a flood;
 - e. Shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.
 2. Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions be elevated so that either:
 - a. The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation, or
 - b. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.
- (d) Recreational Vehicles—Recreational vehicles placed on sites are required to either:
 1. Be on the site for fewer than 180 consecutive days,

2. 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
3. Meet the requirements of Subsection [20.64.180\(c\) Specific Standards for Zones A1-30, AH, and AE](#)—Manufactured Homes) above and the elevation and anchoring requirements for manufactured homes.

20.64.190 Specific Standards for Designated Regulatory Floodways.

Located within areas of special flood hazard established in [§20.64.060 \(Basis for Establishing the Areas of Special Flood Hazard\)](#) are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters that carry debris, potential projectiles, and erosion potential, the following provisions apply:

1. Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge.
2. Construction or reconstruction of residential structures is prohibited within designated floodways, except for (i) repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and (ii) repairs, reconstruction or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either, (A) before the repair, or reconstruction is started, or (B) if the structure has been damaged, and is being restored, before the damage occurred. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or to structures identified as historic places shall not be included in the 50 percent.
3. If Subsection 1 is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of [§20.64.180](#) through §240.

20.64.200 Specific Standards For Shallow Flooding Areas (AO Zones)

Shallow flooding areas appear on FIRMs as AO zones with depth designations. The base flood depths in these zones range from 1 to 3 feet above ground where a clearly defined channel does not exist, or where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is usually characterized as sheet flow. In these areas, the following provisions apply:

1. 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 adjacent grade to the structure, one foot or more above the depth number specified in feet on the community's FIRM (at least two feet above the highest adjacent grade to the structure if no depth number is specified).
2. New construction and substantial improvements of nonresidential structures within AO zones shall either:
 - a. Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified); or
 - b. Together with attendant utility and sanitary facilities, be completely flood proofed 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, a registered professional engineer or architect as in Subsection [20.64.180\(b\)3 Specific Standards for Zones A1-30, AH, and AE](#)) shall certify compliance.

3. Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.
4. Recreational vehicles placed on sites within AO Zones on the community's FIRM 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 of Subsections 1 and 3 above and the anchoring requirements for manufactured homes (Subsection [20.64.170\(a\)2, General Standards](#)).

20.64.210 Encroachments

In areas where a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, 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.

20.64.220 Special Provisions for Subdivisions.

- (a) All subdivision proposals shall be consistent with the need to minimize flood damage.
- (b) All subdivision proposals shall have public utilities and facilities, such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.
- (c) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.
- (d) Where 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 that contain at least 50 lots or 5 acres (whichever is less).
- (e) All subdivisions are subject to use and construction restrictions contained in [§20.64.140 \(Artificial Obstructions Within Floodways Prohibited\)](#), [§20.64.150 \(Permissible Uses Within Floodways\)](#), [§20.64.160 \(Construction Within Floodways and Floodplains Restricted\)](#), and [§20.64.230 \(Utility Systems in Floodways and Floodplains\)](#) if any portion of the land to be subdivided lies within a floodway or floodplain.
- (f) Final plat approval for any subdivision containing land that lies within a floodway or floodplain may not be given unless the plat shows the boundary of the floodway or floodplain and contains in clearly discernible print the following statement: "Use of land within a floodway or floodplain is substantially restricted by Title 20, [Chapter 20.64](#) of the Arlington Municipal Code."
- (g) Subject to the following sentence, a conditional use permit or final plat approval for any subdivision may not be given if:
 1. The land to be subdivided lies within a zone where residential uses are permissible and it reasonably appears that the subdivision is designed to create residential building lots, and
 2. Any portion of one or more of the proposed lots lies within a floodway or floodplain, and
 3. It reasonably appears that one or more lots described in Subdivisions (1) and (2) of this subsection could not practicably be used as a residential building site because of the

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restrictions set forth in [§20.64.160 \(Construction Within Floodways and Floodplains Restricted\)](#), [§20.64.170 \(General Standards\)](#), and [§20.64.180 \(Specific Standards for Zones A1-30, AH, and AE\)](#).

20.64.230 Utility Systems in Floodways and Floodplains.

Whenever any portion of a proposed development is located within a floodway or floodplain, the agency or agencies responsible for certifying to the city the adequacy of the utility systems for the development (as set forth in [Chapter 20.60](#)) shall be informed by the developer that a specified area within the development lies within a floodway or floodplain. Thereafter, said agency shall certify, prior to approval of the proposed system, that:

1. All new and replacement water supply systems are designed to minimize or eliminate infiltration of flood waters into the systems;
2. Any proposed water wells are located on high ground that is not in the floodway (WAC 173-160-171);
3. New and replacement sanitary sewage systems are designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; and,
4. On-site waste disposal systems are located to avoid impairment to them or contamination from them during flooding;and,
- 4.5. All new utilities would be located outside of the Channel Migration Zone.-

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20.64.240 Critical Facility.

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (100-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Flood-proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.

20.64.250 Additional Duties of Administrator Related to Flood Insurance and Flood Control, including information to be obtained and maintained:

The administrator shall:

- (a) For the purpose of the determination of applicable flood insurance risk premium rates within Zone A on the city's Flood Insurance Rate Map provided by the U.S. Federal Emergency Management Agency:
 1. Obtain and record the elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures including to which level it was flood-proofed; and (*Amended by Ord. 1365, 6/13/05*)
 2. Obtain, for all structures that have been flood-proofed (whether or not such structures contain a basement) the elevation (in relation to mean sea level in the FEMA datum) to which the structure was flood-proofed; and
 3. Maintain the floodproofing certifications found in others sections of this ordinance; and
 - 2.4. For development that occurs outside of the protected area the city will track projects which have been issued floodplain development permits, including effects to flood storage and fish habitat and mitigation provided.
 - 3.5. Maintain a record of all such information for public inspection.

- (b) Notify, in riverine situations, adjacent communities, the U.S. Army Corps of Engineers, the Washington State Department of Fish and Wildlife, and any effected diking or drainage districts prior to any alteration or relocation of a watercourse, and submit copies of such notification to the Federal Insurance Administrator.
- (c) Ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained and within the same sub-basin so carrying capacity is not diminished.
- (d) Maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

20.64.260 Variances from Requirements.

- (a) Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (1-11) in Subsection (i) have been fully considered. As the lot size increases, the technical justification required for issuing the variance increases.
- (b) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in this section.
- (c) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result, or the development may eventually require additional structural flood protection.
- (d) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (e) Variances shall only be issued upon:
 - 1. A showing of good and sufficient cause;
 - ~~4-2.~~ The submittal, review and approval of a Biological Assessment;
 - ~~2-3.~~ A determination that failure to grant the variance would result in exceptional hardship to the applicant;
 - ~~3-4.~~ A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
- (f) Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.
- (g) Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of flood-proofing than watertight or dry-flood-proofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except Subsection (i)1, and otherwise complies with [§20.64.170\(a\) General Standards](#), [20.64.170\(c\)](#), and [§20.64.230 \(Utility Systems in Floodways and Floodplains\)](#).
- (h) Any applicant to whom a variance is granted is hereby notified that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.
- (i) In granting a variance, in addition to the findings of [§20.20.030 \(Variances\)](#), the decision-maker shall consider and make findings concerning all technical evaluations, all relevant

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factors, standards specified in other sections of this chapter, and (including the degree to which the applicant proposes to mitigated impacts to) the following:

1. The danger that materials may be swept onto other lands to the injury of others;
 - ~~2.~~ 2. The danger to life and property due to flooding or erosion damage;
 - ~~2-3.~~ 3. The impact to ESA listed species;
 - ~~3-4.~~ 4. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - ~~4-5.~~ 5. The importance of the services provided by the proposed facility to the community;
 - ~~5-6.~~ 6. The necessity to the facility of a waterfront location, where applicable;
 - ~~6-7.~~ 7. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - ~~7-8.~~ 8. The compatibility of the proposed use with existing and anticipated development;
 - ~~8-9.~~ 9. The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;
 - ~~9-10.~~ 10. The safety of access to the property in times of flood for ordinary and emergency vehicles;
 - ~~10-11.~~ 11. The expected heights, velocity, duration, rate of rise, debris and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and,
 - ~~11-12.~~ 12. 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.
- (j) Upon consideration of the factors of Subsection (b) and the purposes of this ordinance, the decision-maker may attach such conditions to the granting of a waiver, as it deems necessary to further the purposes of this chapter.