

SECTION 3.100. FLOOD HAZARD OVERLAY ZONE, FP

In any zone which is a FH Overlay Zone, the requirements and standards of this section shall apply in addition to those herein specified for such zone previously, provided that if a conflict in regulations or standards occurs, the provisions of this section shall govern.

(1) APPLICATION OF PROVISIONS

The provisions of this section shall apply to all areas of special flood hazards within the jurisdiction of the County. The areas of special flood hazard identified by the Federal Insurance Administration on the "Flood Study" with accompanying "Flood Insurance Rate Maps" is hereby adopted by reference and declared to be a part of this Ordinance, and, thereof, the provisions of this section shall apply to all flood hazard areas identified by said Maps.

(2) 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 Planning Director's 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" or "SPECIAL FLOOD HAZARD AREA (SFHA)" means the land in the flood plain within a community subject to a one-percent or greater chance of flooding in any given year. Designation on maps always includes the letter A.

"BASE FLOOD" means the flood have a one percent chance of being equaled or exceeded in any given year. Also referred to as the "100-year-flood." Designation on maps always includes the letter A.

"BASEMENT" means any area of the building having its floor subgrade (below ground level) on all sides. Not to be confused with "below-grade crawlspace" which differs in function and size. (see below-grade crawlspace definition)

"BEFORE REGULATORY FLOODWAY" means a floodway without an actual "floodway" designation on the FEMA maps. Until FEMA makes an official designation concerning these areas and when the area has been designated within Zones A1 – 30 and AE on the FIRMs, development is limited as outlined in Section 5.3.

"BELOW-GRADE CRAWLSPACE" for this Ordinance means that area of a building which is bounded by foundation walls and is located between the bottom of the lowest floor and the ground. The interior grade of a crawlspace below the base flood elevation must not be more than two feet below the lowest adjacent exterior grade. Below-grade crawl spaces are generally less than four feet in height and provide a means of ventilation, visual inspection and access to pipes, ducts, and electrical wiring.

"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 which 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, or storage of equipment or materials, mining, dredging, filling, grading, paving, excavation or drilling operations located within the area of special flood hazard.

“ELEVATION CERTIFICATE” means the official document, FEMA Form 81-31, in which lowest floor and flood-proofing elevations are recorded. It provides information necessary to ensure compliance with Morrow County’s floodplain management ordinance, to determine flood insurance rates, and to support a request for a Letter of Map Amendment (LOMA) or Letter of Map Revision based on fill (LOMR-F).

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

- (1) The overflow of rivers or streams or
- (2) The unusual and rapid accumulation of or 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” (OR “FLOOD-PRONE AREA”) means any land area susceptible to being inundated by water from any source.

“FLOOD-PROOFING” means protection measures made to a non-residential building that is not elevated above the Base Flood level. It includes ensuring that the walls and floor are water-tight and capable of withstanding hydrostatic pressures and hydrodynamic forces (dry flood-proofing).

“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. Once established, nothing can be placed in the floodway that would cause any rise in Base Flood Elevation (i.e., 0.0 ft.)

“LOWEST FLOOR” means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for the 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 ordinance found at Section 5.2-1(2).

“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 connected to the required utilities. The term “manufactured home” does not include park trailers, or Recreational Vehicles.

“MEAN SEA LEVEL” means, for purposes of the National Flood Insurance Program, the North American Vertical Datum (NAVD) of 1988, which is the horizontal or base line of reference for the FIRM elevations.

“NEW CONSTRUCTION” means structures for which the “start of construction commenced on or after the effective date of this ordinance”.

“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 state 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, footing, 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.

“RECREATIONAL VEHICLE” for floodplain management purposes, means a vehicle which 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.

“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:

- (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 commences, whether or not that alteration affects the external dimensions of the structure. The term does

not, however, include either:

- (1) Any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are 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 Inventory of Historic Places.

“VARIANCE” means a grant of relief from the requirements of this ordinance which permits constructing in a manner that would otherwise be prohibited by this ordinance.

(3) GENERAL PROVISIONS

3.1 LANDS TO WHICH THIS ORDINANCE APPLIES.

This ordinance shall apply to all areas of special flood hazards within the jurisdiction of Morrow County.

3.2 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 Morrow County”, dated December 18, 2007, with accompanying Flood Insurance Maps is hereby adopted by reference and declared to be a part of this ordinance.

3.3 PENALTIES FOR NONCOMPLIANCE.

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations. Violation of the provisions of this ordinance by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall, upon conviction, be punishable by imposition of a fine not to exceed:

- (1) \$500 in the case of a non-continuing offense; or
- (2) \$1000 in the case of a continuing offense.

3.4 ABROGATION AND GREATER RESTRICTIONS.

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

3.5 INTERPRETATION.

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

- (1) Considered as minimum requirements;
- (2) Liberally construed in favor of the governing body; and
- (3) Deemed neither to limit nor repeal any other powers granted under State Statutes.

3.6 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 Morrow County, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

(4) ADMINISTRATION

4.1 ESTABLISHMENT OF DEVELOPMENT PERMIT

4.1-1 Development Permit Required.

A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 3.2. The permit shall be for all structures including manufactured homes, as set forth in the "DEFINITIONS", and for all development including fill and other activities, also as set forth in the "DEFINITIONS".

4.1-2 Application for Development Permit.

Application for a development permit shall be made on forms furnished by the Morrow County Planning Director 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 non-residential 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) All development in the Flood Hazard Overlay Zone may be required to submit an environmental assessment to determine whether the development would comply with the Federal Emergency Management Agency (FEMA) requirements to mitigate adverse impacts to threatened and endangered species.

4.2 DESIGNATION OF THE MORROW COUNTY PLANNING DIRECTOR.

The Morrow County Planning Director is hereby appointed to administer and implement

this ordinance by granting or denying development permit applications in accordance with its provisions.

4.3 DUTIES AND RESPONSIBILITIES OF THE PLANNING DIRECTOR.

Duties of the Morrow County Planning Director shall include, but not be limited to:

4.3-1 Permit Review

- (1) Review all development permits to determine that the permit requirements of this ordinance 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 Section 5.3(1) are met.

4.3-2 Use of Other Base Flood Data.

When base flood elevation data has not been provided in accordance with Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, the Planning Director shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, State or other source, in order to administer Sections 5.2, SPECIFIC STANDARDS, and 5.3 FLOODWAYS.

4.3-3 Information to be Obtained and Maintained

- (1) Where base flood elevation data is provided through the Flood Insurance Study or required as in Section 4.3-2, obtain and record on FEMA Form 81-31 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 flood proofed structures:
 - (i) Verify and record on FEMA Form 81-31 the actual elevation (in relation to mean sea level), and
 - (ii) Maintain the flood proofing certifications required in Section 4.1(3).
- (3) Maintain for public inspection all records pertaining to the provisions of this ordinance.

4.3-4 Alteration of Watercourses

- (1) Notify adjacent communities, the Department of State Lands, and the Department of Land Conservation and Development 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.

4.3-5 Interpretation of FIRM Boundaries. Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (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 as provided in Section 4.4.

4.4 VARIANCE PROCEDURE

4.4-1 Appeal Board

(1) The Morrow County Planning Commission as established by Morrow County shall hear and decide appeals and requests for variances from the requirements of this ordinance.

(2) The Morrow County Planning Commission shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the Planning Director in the enforcement or administration of this ordinance.

(3) Those aggrieved by the decision of the Planning Commission, or any taxpayer, may appeal such decision to the Morrow County Board of Commissioners, as provided in the Morrow County Zoning Ordinance.

(4) In passing upon such applications, the Planning Commission and the Morrow County Board of Commissioners shall consider all technical evaluations, all relevant factors, standards specified in other sections of this ordinance, and:

(i) The danger that materials may be swept onto other lands to the injury of others;

(ii) The danger to life and property due to flooding or erosion damage;

(iii) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(iv) The importance of the services provided by the proposed facility to the community;

(v) The necessity to the facility of a waterfront location, where applicable;

(vi) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;

(vii) The compatibility of the proposed use with existing and

anticipated development;

(viii) The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;

(ix) The safety of access to the property in times of flood or for ordinary and emergency vehicles;

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

(xi) 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.

(5) Upon consideration of the factors of Section 4.4-1(4) and the purposes of this ordinance, the Planning Commission or the Morrow County Board of Commissioners may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

(6) The Planning Director shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

4.4-2 Conditions for Variances

(1) 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 (i-xi) in Section 4.4-1(4) have been fully considered. As the lot size increases the technical justification required for issuing the variance increases.

(2) 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.

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

(4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(5) Variances shall only be issued upon:

(i) A showing of good and sufficient cause;

(ii) A determination that failure to grant the variance would result in

exceptional hardship to the applicant;

(iii) 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 as identified in Section 4.1-4(4), or conflict with existing local laws or ordinances.

(6) 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.

(7) Variances may be issued for non-residential 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 Section 4.1-2(1), and otherwise complies with Sections 5.1-1 and 5.1-2 of the GENERAL STANDARDS.

(8) Any applicant to whom a variance is granted shall be given written notice 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.

(5) PROVISIONS FOR FLOOD HAZARD REDUCTION

5.1 General Standards. In all areas of special flood hazards, the following standards are required:

5.1-1 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).

5.1-2 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.

5.1-3 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 system 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.

5.1-4 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 base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less).

5.1-5 Review of Building Permits.

Where elevation data is not available either through the Flood Insurance Study or from another authoritative source (Section 4.3-2), 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.

5.2 SPECIFIC STANDARDS.

In all areas of special flood hazards where base flood elevation data has been provided as set forth in Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD or Section 4.3-2, Use of Other Base Flood Data, the following provisions are required:

5.2-1 Residential Construction

(1) New Construction and substantial improvement of any **residential structure** shall have the lowest flood, including basement, elevated one-

foot (1.0 ft.) 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:

- (i) 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;
- (ii) The bottom of all openings shall be no higher than one foot above grade.
- (iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

5.2-2 Non-residential Construction.

New construction and substantial improvement of any commercial, industrial or other non-residential structure shall either have the lowest floor, including basement, elevated to the level of the base flood elevation; or together with attendant utility and sanitary facilities, shall:

- (1) Be flood proofed so that below 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 official as set forth in Section 4.3-3(2).
- (4) Non-residential structures that are elevated, not flood proofed, must meet the same standards for space below the lowest floor as described in 5.2-1(2).
- (5) Applicants flood proofing non-residential 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 constructed for the base flood level will be rated as one foot below that level).

5.2-3 Below-Grade Crawl Spaces.

Morrow County will allow below-grade crawlspace construction provided that the interior grade of the crawlspace below the base flood elevation must not be more

than two feet below the lowest adjacent exterior grade and 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 feet at any point. Additionally there must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. (Reference: Crawlspace Construction for Buildings Located in Special Flood Hazard Areas, Federal Insurance Administration Technical Bulletin 11-01).

Below grade-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 the base flood elevation (BFE) 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 BFE 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 BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.
- (4) Any building utility systems within the crawlspace must be elevated above BFE 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 BFE or sealed from floodwaters.
- (5) The interior grade of a crawlspace below the BFE 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.

5.2-4 Manufactured Homes.

All manufactured homes to be placed or substantially improved within Zones A1-30, AH and AE on the community's FIRM shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is a minimum of one foot (1.0 ft.) above the base flood elevation, and shall be securely anchored to an adequately anchored foundation system in accordance with the provisions of subsection 5.1-1(2).

5.2-5 Recreational Vehicles.

Recreational vehicles placed on sites are required to either:

- (i) Be on the site for fewer than 180 consecutive days,
- (ii) 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
- (iii) Meet the requirements of 5.2-4 (Manufactured Homes) above and the elevation and anchoring requirements for manufactured homes.

5.3 BEFORE REGULATORY FLOODWAY

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 county's FIRMs, 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 (1.0 ft.) at any point within the county.

5.4 FLOODWAYS

Located within areas of special flood hazard established in Section 3.2 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which 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 or architect is provided demonstrating that encroachments **shall not result in any increase** in flood levels during the occurrence of the base flood discharge.

(2) If Section 5.4(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 5.0, PROVISIONS FOR FLOOD HAZARD REDUCTION.