

## ARTICLE V.

### FLOODPLAIN AND ESCARPMENT ZONE REGULATIONS.

#### Division 51A-5.100. Floodplain Regulations.

##### SEC. 51A-5.101. DEFINITIONS AND INTERPRETATIONS APPLICABLE TO THE FLOODPLAIN REGULATIONS.

(a) Definitions. The following definitions are applicable to the floodplain regulations in this article:

(1) AREA OF SPECIAL FLOOD HAZARD means the land in the floodplain within a community that is subject to a one percent or greater chance of flooding in any given year.

(2) BASEMENT means any area of a building, including any sunken room or sunken portion of a room, having its floor below ground level (subgrade) on all sides.

(3) BASE FLOOD means the flood event having a one percent chance of being equaled or exceeded in any given year.

(4) BASE FLOOD ELEVATION means the water surface elevation from a flood event having a one percent chance of being equaled or exceeded in any given year, which is shown on the flood insurance rate map (FIRM) and in the accompanying flood insurance study (FIS) for Zones A, AE, AH, A1 - A30, AR, V1-V30, or VE, or on the regulatory floodplain maps.

(5) DESIGN FLOOD (City's Design Standard) means the 100-year frequency (one percent chance of being equaled or exceeded in any given year) flood discharge as calculated for fully developed watershed conditions.

(6) DEVELOPMENT means any manmade change in improved and unimproved real estate, including but not limited to the construction of buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations, or storage of equipment or materials unless approved by the city on a temporary basis in connection with authorized construction activities.

(7) ENVIRONMENTALLY SIGNIFICANT AREA means an area in the floodplain:

(A) containing endangered species of either flora or fauna;

(B) which is a geologically similar area, as defined in Division 51A-5.200, "Escarpment Regulations," of this article;

(C) identified as wetlands or waters of the United States; or

(D) determined to be an archaeological or historic site.

(8) EQUAL CONVEYANCE REDUCTION means the ability of the property on the opposite side of the stream to construct a project that alters conveyance by the same amount as the proposed fill permit or floodplain alteration permit project.

(9) EXISTING MANUFACTURED HOME PARK means a manufactured home park or subdivision for which the construction of facilities for servicing the lots was completed before March 16, 1983, the effective FIRM date.

(10) FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) means the federal agency responsible for administering the National Flood Insurance Program (NFIP).

(11) FILL PERMIT means the process of reclaiming a portion of land in the floodplain to create a developable area including but not limited to a habitable structure or parking area, raising any area of land out of a floodplain area on fill, or creating an area that can be developed in the future. The fill permit process removes the floodplain (FP) designation and is applicable in areas with an upstream drainage area greater than 100 acres, even if the land has not been formally designated as an FP area.

(12) FIVE HUNDRED YEAR FREQUENCY FLOOD (500-YEAR FLOOD) or 0.2 PERCENT ANNUAL CHANCE EXCEEDANCE PROBABILITY FLOOD EVENT means the flood event having a 0.2 percent chance of being equaled or exceeded in any given year. The 500-year flood in Dallas is based upon fully developed land uses within the watershed as defined by the current zoning designation.

(13) FLOOD OR FLOODING means a general and temporary condition of partial or complete inundation of normally dry land areas from the unusual and rapid accumulation or runoff of surface waters from any source.

(14) FLOOD INSURANCE RATE MAP (FIRM) means an official map of a community on which the Federal Emergency Management Agency (FEMA) has delineated the areas of special flood hazards and the insurance risk premium zones applicable to the community.

(15) FLOOD INSURANCE STUDY (FIS) means the official report provided by FEMA containing flood profiles, water surface elevation of the base flood, and the Flood Boundary-Floodway Map.

(16) FLOODPLAIN (FP) means any land area susceptible to inundation by the design flood, even if the land has not been formally designated as an FP area on the Regulatory Floodplain Maps.

(17) FLOODPLAIN ALTERATION means the construction of uninhabitable structures, alterations to existing structures within a floodplain area complying with Section 51A-5.104(b), mining, dredging, filling, grading, or excavation in the floodplain that does not remove or alter an FP designation. (Examples include, but are not limited to, the construction of a tennis court, a playground, a gazebo, a swimming pool, a fence, a deck, an erosion control wall, or the installation of significant landscaping.)

(18) FLOODPLAIN OR FP ADMINISTRATOR means the director of water utilities, who is responsible for administering the federal flood insurance program, or the director's designated representative.

(19) FLOODPROOFING means any combination of structural and non-structural additions, changes, or adjustments to structures that reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, or structures and their contents. If floodproofing is utilized, the design must be certified by a licensed professional engineer.

(20) FLOODWAY (OR REGULATORY FLOODWAY) means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the design flood without cumulatively increasing the water surface elevation more than a designated height.

(21) FLOODWAY EASEMENT means a drainage area dedicated to the city as an easement to prevent obstructions of floodway capacity in a floodplain.

(22) FUNCTIONALLY DEPENDENT USE means a use that cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

(23) HABITABLE STRUCTURE means any structure with electric, heat, or plumbing that can be used for living, sleeping, eating, or assembly purposes.

(24) HIGHER STANDARDS means community requirements that exceed the minimum FEMA standards for participating in the National Flood Insurance Program (NFIP).

(25) INTERIOR DRAINAGE AREAS means the geographical areas that act as a watershed for the sumps.

(26) LETTER OF MAP CHANGE (LOMC) means a letter that reflects an official change in an effective Flood Insurance Rate Map (FIRM). LOMCs are issued in response to a request to FEMA to revise or amend its effective flood map to remove a property or reflect changed flooding conditions on the effective map and can include Letter of Map Revisions (LOMRs), Letter of Map Amendments (LOMAs), and Letter of Map Revisions based on Fill (LOMR-F's) as amended by FEMA.

(27) LEVEE means a manmade structure (usually an earthen embankment) designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water for protection from temporary flooding.

(28) LEVEE SYSTEM means a flood protection system consisting of a levee or levees and associated structures accredited by FEMA pursuant to 44 CFR 65, as amended, such as closure and drainage devices constructed and operated in accordance with sound engineering practices.

(29) LICENSED PROFESSIONAL ENGINEER means a person who is duly licensed and registered to engage in the practice of engineering in the State of Texas in accordance with state law.

(30) LOWEST ADJACENT GRADE means the lowest point of the ground level immediately next to a building.

(31) LOWEST FLOOR means the lowest floor of the lowest enclosed area of a building (including its basement). An unfinished or flood resistant enclosure that is useable 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.

(32) MANUFACTURED HOME means a structure, transportable in one or more sections, that is built on a permanent chassis and designed for use with or without a permanent foundation when connected to the required utilities. In this article only, the term "manufactured home" includes park trailers, travel trailers, and similar vehicles placed on a site for more than 90 consecutive days, but does not include recreational vehicles.

(33) 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.

(34) NATIONAL FLOOD INSURANCE PROGRAM (NFIP) means the federal program administered by FEMA that enables property owners to purchase flood insurance against damage to or loss of property resulting from a flood.

(35) ONE HUNDRED YEAR FREQUENCY FLOOD (100-year flood) or ONE-PERCENT ANNUAL CHANCE EXCEEDANCE PROBABILITY FLOOD EVENT means the flood event having a one percent chance of being equaled or exceeded in any given year. The 100-year flood in Dallas is based upon fully developed land uses within the watershed as defined by the current zoning designation.

(36) POOL-RIFFLE SEQUENCES mean the alternating deep and shallow flow conditions caused by a moving, nonuniform channel grade.

(37) REGULATORY FLOODPLAIN MAPS means the most updated floodplain maps available, as accepted by the City of Dallas, regardless of adoption by FEMA. These include, but are not limited to, maps resulting from floodplain update studies, Letter of Map Revisions (LOMRs), and floodplain studies resulting from current and proposed construction projects.

(38) SEEP means a location where natural groundwater makes its way in a non-continuous flow to the surface, creating a wet soil condition.

(39) SPECIAL EXCEPTION means a grant of relief to a property owner permitting reconstruction in a manner otherwise prohibited by this division.

(40) STANDARD PROJECT FLOOD means the flood caused by the most severe combination of meteorological and hydrological

conditions reasonably characteristic of the region. The standard project flood is defined by the U.S. Army Corps of Engineers for use in major flood control projects.

(41) **STRUCTURE** means, for purposes of this division, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

(42) **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.

(43) **SUBSTANTIAL IMPROVEMENT** means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market or tax appraisal value of the structure, whichever is greater, as determined by an independent appraiser or the last official City tax roll, either before the improvement or repair is started, or, if the structure has been damaged and is being restored, before the damage occurred. For the purpose of this definition "substantial improvement" occurs 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 any project for improvement of a structure for the sole purpose of complying with federal, state, or local health, sanitary, or safety code specifications which have been identified in writing by the local code enforcement official as necessary to assure safe living conditions prior to the start of the proposed improvement, or any alteration of a historic structure as defined by FEMA. See Section 51A-5.104(b)(2) for city of Dallas limitations.

(44) **SUMPS** mean drainage features of levee systems that temporarily store storm water runoff before it is conveyed to a river system by pumping over or draining through a levee.

(45) **SWALES** mean low lying areas in the floodplain that convey flood waters when flow exceeds channel capacity.

(46) **VALLEY STORAGE** means the measure of a stream's ability to store water as it moves downstream.

(47) **VARIANCE** means a grant of relief by a community from the terms of a floodplain management regulation.

(48) **WATER SURFACE ELEVATION** means the height, in relation to the North American Vertical Datum (NAVD), of floods of various magnitudes and frequencies in the floodplain.

(b) **Interpretations.** The intent of this division is to equal or exceed the minimum federal criteria for participation in the National Flood Insurance Program, located in 44 Code of Federal Regulations, Chapter I, Part 60.3, as amended; and FEMA 480, as amended. All higher standards and FEMA minimum standards apply. The City of Dallas must also enforce any more restrictive state requirements. The City of Dallas has exceeded the minimum standards by adopting more comprehensive floodplain management regulations. In some instances, community officials may have access to information or knowledge of conditions that require, particularly for human safety, higher standards than the minimum NFIP criteria. Any floodplain management regulations adopted by a state or community that are more restrictive than the criteria set forth in the NFIP regulations take precedence. All FEMA minimum standards in the Code of Federal Regulations also apply. (Ord. Nos. 19455; 19786; 20360; 24085; 27318; 27572; 27697; 27893; [30994](#); [31314](#); [32039](#))

## **SEC. 51A-5.102. DESIGNATION OR REMOVAL OF FP AREAS.**

(a) **In general.**

(1) A floodplain designation is not a zoning classification, but refers to a specific area subject to flooding.

(2) When an FP designation is noted by an "FP" prefix on the official zoning district map, or on the FEMA effective maps, the area designated is referred to in this article as an FP area.

(3) FP areas include those areas:

(A) identified as special flood hazards by FEMA in the:

(i) current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for Dallas County," dated March 21, 2019, with accompanying Flood Insurance Rate Maps and/or Flood Boundary-Floodway Maps (FIRM and/or FBFM) dated March 21, 2019, and any revisions thereto are hereby adopted by reference and declared to be a part of this paragraph,

(ii) current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for Rockwall County," dated September 26, 2008, with accompanying Flood Insurance Rate Maps and/or Flood Boundary-Floodway Maps (FIRM and/or FBFM) dated September 26, 2008, and any revisions thereto are hereby adopted by reference and declared to be a part of this paragraph,

(iii) current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for Collin County," dated June 7, 2017, with accompanying Flood Insurance Rate Maps and/or Flood Boundary-Floodway Maps (FIRM and/or FBFM) dated June 7, 2017, and any revisions thereto are hereby adopted by reference and declared to be a part of this paragraph,

(iv) current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for Denton County," dated April 18, 2011, with accompanying Flood Insurance Rate Maps and/or Flood Boundary-Floodway Maps (FIRM and/or FBFM) dated April 18, 2011, and any revisions thereto are hereby adopted by reference and declared to be a part of this paragraph, or

(v) current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for Kaufman County," dated July 3, 2012, with accompanying Flood Insurance Rate Maps and/or Flood Boundary-Floodway Maps (FIRM and/or FBFM) dated July 3, 2012, and any revisions thereto are hereby adopted by reference and declared to be a part of this paragraph, and

(B) other areas that the director of Dallas Water Utilities has identified as flood risk areas.

(4) The floodplain administrator shall regulate according to both the FEMA effective maps and the regulatory floodplain maps, regardless of adoption by FEMA. The floodplain administrator shall notify the director of development services of all map updates.

(b) Initiation. The addition to or removal from the official zoning district map of an FP prefix may be initiated in the following ways:

(1) An owner of property located within an FP area may apply for the review of an FP designation based upon evidence of a mapping error provided by the owner.

(2) The director of water utilities may, upon his or her own initiative, review the status of an FP designation.

(3) An owner of property located within an FP area may apply for a fill permit and removal of the FP prefix by following the procedure outlined in Section 51A-5.105.

(c) Engineering studies. Hydraulic and hydrologic engineering studies or a field survey must support any changes to an FP designation. The engineering study must be signed and sealed by a licensed professional engineer. The director may require geotechnical core borings as part of his or her investigations under this subsection.

(d) Decision on designation. The director of water utilities shall make a final decision on whether to add or remove an FP prefix on the official zoning district map only after the director determines that engineering studies support the change in the FP designation.

(e) Zoning map revision. The director of water utilities must notify the director of development services in writing that an FP prefix is to be removed from or added to the official zoning district map. The written notification must contain a description of the property affected and the reasons why the FP prefix is being changed.

(f) Letter of Map Change (LOMC). A letter of map change from FEMA is required for removal of an FP prefix from the official zoning map if the area is designated as a flood hazard area on the FIRM. (Ord. Nos. 19455; 19786; 21299; 22920; 24085; 25047; 25716; 27318; 27551; 27697; 27893; 28164; 28671; 29359; [30481](#); [30994](#); [31109](#); [32002](#); [32039](#))

### **SEC. 51A-5.103. COMPLIANCE IN UNDESIGNATED FLOODPLAIN AREAS.**

(a) A person shall comply with the requirements of this article for FP areas before developing land within the design flood line of a creek or stream having a contributing drainage area of 100 acres or more, even if the land has not been formally designated as an FP area.

(b) Except as provided in Subsection (c), alterations of the natural floodplain in areas with less than 100 acres must comply with the Dallas Development Code and city drainage standards but are not subject to the engineering requirements for filling in Section 51A-5.105(g).

(c) If the proposed alteration includes moving, eliminating, or enclosing the natural stream channel, then the engineering requirements for filling in Section 51A-5.105(g) must be met, regardless of the upstream drainage area size. (Ord. Nos. 19455; 19786; 24085; 27697; [30994](#); [32039](#))

### **SEC. 51A-5.103.1. VEGETATION ALTERATION IN FLOODPLAIN PROHIBITED.**

(a) Except as provided in this section, the urban forest conservation requirements in Division 51A-10.130 apply. Protected trees removed in the floodplain are not subject to exceptions to Article X.

(b) A person commits an offense if he removes or injures any vegetation within a floodplain.

(c) It is a defense to prosecution under Subsection (b) if the act is:

(1) authorized in advance in writing by the director of water utilities;

(2) in conformance with a landscape plan approved by the director of water utilities;

(3) routine maintenance of vegetation such as trimming or cutting designed to maintain the healthy or attractive growth of the vegetation; or

(4) routine maintenance performed, required, or authorized by the city in order to maintain the floodwater conveyance capacity of the floodplain. (Ord. Nos. 19455; 19786; 24085; 27697; [30994](#); [32039](#))

### **SEC. 51A-5.104. USES AND IMPROVEMENTS PERMITTED.**

(a) Uses permitted. To allow for the appropriate development of land that is subject to flooding without unduly endangering life and property, the following uses are permitted in an FP area provided they are permitted in the underlying zoning district and comply with the requirements of Section 51A-5.105 (g) and all applicable elevation requirements of the Federal Emergency Management Agency:

(1) Farm or ranch (excluding habitable structures).

(2) Utility services, electrical substation, detention basin, water reservoir or pumping station, and water treatment plant.

(3) Sanitary landfill and refuse transfer station.

(4) Public park or playground and golf course (excluding habitable structures).

(5) Commercial amusement (outside) approved by specific use permit.

(6) Helistop approved by specific use permit.

(7) Radio, television, or microwave tower, amateur communications tower, and tower/antenna for cellular communication.

(b) Improvements permitted.

(1) Structures. An uninhabitable structure customarily associated with a use listed in Subsection (a) may be constructed within an FP area only if the director of water utilities determines that the proposed structure meets the same engineering requirements applicable to filling in Section 51A-5.105 (g) and issues a floodplain alteration permit.

(2) Improvements. The owner of a structure in an FP area shall not make any improvements to the structure without first obtaining approval from the director of water utilities. The director of water utilities may approve proposed improvements if the cumulative value of all improvements for the previous five years is less than 50 percent of the market or tax appraisal value of existing improvements on the property, whichever is greater. No substantial improvements are permitted. Improvement values are calculated per guidelines outlined in FEMA P-758 as revised. All improvements must comply with the requirements of Section 51A-5.105 (g), including additions. Substantially damaged structures are considered substantial improvements.

(3) Completion of vested structures. The building official shall not withhold a final inspection or certificate of occupancy for a structure in an FP area if building permits for the structure were issued by the building official before FEMA's FIRM becomes effective designating such areas as A or AE, and the structure otherwise complies with all applicable requirements.

(4) Board of adjustment. The board of adjustment may only grant a special exception to allow the reconstruction of a structure in an FP area if the structure is a historical structure as defined by FEMA, or the property is zoned for a functionally dependent use. The board may grant a special exception upon a showing of good and sufficient cause and a determination that the reconstruction 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 other local, state, or federal laws. The reconstructed structure must be protected by methods that minimize flood damage. The board may not grant a special exception to authorize reconstruction within any designated floodway if any increase in flood levels during the base flood discharge would result. Any special exception granted must be the minimum necessary, considering the flood hazard, to afford relief. The reconstruction of a structure in an FP area may not increase the lot coverage of the structure.

(A) The director of water utilities shall notify in writing the owner of a structure in an FP area that:

(i) the granting of a special exception to reconstruct the structure below the base flood level will result in increased premium rates for flood insurance that will be commensurate with the increased risk; and

(ii) the construction below the base flood level increases risks to life and property. The notification letter must be maintained with the record of the board's action.

(B) The FP administrator shall maintain a record of all actions involving applications for special exceptions and shall report special exceptions to FEMA upon request.

(5) Parking.

(A) Surface parking. All surface parking spaces must be constructed at a minimum elevation of two feet above the design flood elevation.

(B) Underground parking garages. The entrance elevation and any openings on underground parking garages constructed within or adjacent to a flood prone area may not be lower than two feet above the design flood elevation.

(C) Parking on piers. Parking lots elevated on piers such that the low chord is two feet above the design flood elevation are permitted if all engineering requirements for filling in Section 51A-5.105 (g) are met, and do not violate any other part of the Dallas Development Code. A habitable structure may not be placed on piers.

(D) Parking in interior drainage (sump) areas. All surface parking spaces within an interior drainage area must be constructed at a minimum elevation of one foot above the design flood elevation.

(6) Storage in the floodplain is prohibited.

(A) A person shall not place, store, or maintain a shipping container, trailer, boat, inoperable vehicle, recreational vehicle, construction materials, waste materials, hazardous materials, or construction equipment in the floodplain. For purposes of this paragraph, the term "vehicle" includes but is not limited to automobiles, buses, and recreational vehicles. It is a defense to prosecution that the placement, storage, or maintenance of shipping containers, trailers, boats, inoperable vehicles, recreational vehicles, construction materials, waste materials, hazardous materials, or construction equipment is otherwise permitted by or in connection with a valid federal, state, county, or city permit, or is otherwise authorized by those entities.

(B) The director of water utilities shall give written notice and allow persons in violation of Subparagraph (A) a period of 90 days to come into compliance.

(7) Manufactured homes. Manufactured homes may not be placed within a floodplain area. Recreational vehicle camping and parking locations are not permitted within a floodplain area.

(8) Fences. Fences must comply with all applicable construction codes at the time of construction.

(A) Fences are not permitted within floodway easement areas without engineering analysis addressing Section 51A-5.105(g), regardless of fence type.

(B) Except as provided in this paragraph, fences in a floodplain area not designated as a floodway easement must be:

(i) constructed of wrought iron;

(ii) constructed with a one-foot gap along the bottom if located in areas where flooding is less than three feet of depth; or

(iii) constructed using flood vents, as outlined in the NFIP Technical Bulletin 1, as amended, if located in areas where flooding is greater than one foot and less than four feet of depth.

(C) Fences in a floodplain area not designated as a floodway easement that do not comply with Subparagraph (B) must be analyzed as an obstruction for compliance with Section 51A-5.105(g).

(c) Construction standards. All improvements and construction permitted in an FP area must comply with the following requirements:

(1) Structures must be:

- (A) securely anchored to the foundation and otherwise designed to prevent flotation and collapse during inundation; and
- (B) designed to prevent damage to nonstructural elements during inundation.

(2) Thermal insulation used below the first floor level must be of a type that does not absorb water.

(3) Adhesives must have a bonding strength that is unaffected by inundation.

(4) Doors and all wood trim must be sealed with a water-proof paint or similar product.

(5) Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other mechanical service facilities must be designed and located at least three feet above the design flood elevation to prevent water from entering or accumulating in the components during flooding.

(6) Transportation systems such as elevators and escalators must be protected from flooding, and enclosures must be safe from flooding and protect life safety. See Code of Federal Regulations Title 44, Part 60.3 and the NFIP Technical Bulletin 4 as amended for more information.

(7) Basements.

(A) Basements are permitted only in nonresidential construction and only if they are designed to preclude inundation by the design flood level, either by:

- (i) locating any exterior opening at least three feet above the level of the design flood elevation; or
- (ii) using water-tight closures, such as bulkheads and flood shields.

(B) All basements must be constructed so that any enclosure area, including utilities and sanitary facilities below the flood-proofed design level, is watertight with impermeable walls.

(C) Basement walls must be built with the capacity to resist hydrostatic and hydrodynamic loads and the effects of buoyancy resulting from flooding to the flood-proofed design level so that minimal damage will occur from floods that exceed the flood-proofed design level.

(D) The area surrounding the structure must be filled to or above the elevation of the design flood. The fill must be compacted, and slopes must be protected by vegetative cover.

(E) Basements must be designed by a licensed professional engineer.

(F) Basement ceilings must consist of a sufficient wet strength and be installed to survive inundation.

(8) Plywood used at or below the first floor level must be of an "exterior" or "marine" grade and of a water-resistant or waterproof variety.

(9) Wood flooring used at or below the first floor level must be installed to accommodate a lateral expansion of the flooring, perpendicular to the flooring grain, without incurring structural damage to the building.

(10) Paints or other finishes used at or below the first floor level must be capable of surviving inundation.

(11) All air ducts, large pipes, and storage tanks located at or below the first floor level must be firmly anchored to prevent flotation.

(12) Tanks must be vented at a location above the 100-year flood level.

(d) 500-year frequency flood. All new construction located in a 500-year frequency flood zone must comply with the following:

(1) Building pad site must be filled to an elevation of at least two feet above the 100-year flood elevation.

(2) The lowest floor of any structure must be constructed at least three feet above the 100-year flood elevation. (Ord. Nos. 19455; 19786; 20360; 24085; 24543; 27697; 27893; [30994](#); [31314](#); [31707](#); [32039](#))

#### **SEC. 51A-5.105. FILLING IN THE FLOODPLAIN.**

(a) Permit required.

(1) A person shall not deposit or store fill, place a structure, excavate, or engage in any other development activities in an FP area without first obtaining:

- (A) a fill permit or a floodplain alteration permit from the director of water utilities; and
- (B) all other permits required by county, state, and federal agencies.

- (2) A fill permit allows the property to be developed at a specified elevation in compliance with this section.
- (3) The director of water utilities shall maintain a record of all fill permits and floodplain alteration permits.

(b) Floodplain alteration permit process.

(1) The director of water utilities may issue a floodplain alteration permit if he or she determines that:

- (A) the alteration does not remove an FP designation; and
- (B) the alteration complies with all applicable engineering requirements in Subsection (g).

(2) The floodplain alteration permit may require hydrologic or hydraulic modeling as determined by the director of water utilities. Examples of situations that may require hydrologic or hydraulic modeling include, but are not limited to:

(A) A pool, tennis court, patio, cook area, deck, or other outdoor amenity above existing grade, but not above the base flood elevation.

(B) A fence that will block the flow of flood water during the 100-year flood event.

(C) A retaining wall projecting into the channel as compared to the existing grade.

(D) Elevated utilities that block the flow of flood water during the 100-year flood event.

(E) Additions to existing structures.

(c) Initiation of the fill permit process. An applicant for a fill permit shall submit an application to the director of water utilities on a form approved by the director and signed by all owners of the property.

(d) Preapplication conference.

(1) An applicant for a fill permit or a floodplain alteration permit that will require hydrologic or hydraulic modeling shall request a preapplication conference with representatives from the department of water utilities.

(2) At the preapplication conference, the director of water utilities shall determine what information is necessary for a complete evaluation of the proposed fill project. The applicant may be required to submit all necessary information, including, but not limited to the following:

(A) A vicinity map.

(B) The acreage figures for the entire tract, the area located in the floodplain, and the area proposed to be filled.

(C) A description of existing and proposed hydrologic and hydraulic analysis conducted.

(D) Plans that comply with the Landscape and Urban Forest Conservation Regulations in Article X of the Dallas Development Code, as amended.

(E) A table of values for analysis of the engineering criteria listed in Subsections (h)(1), (h)(2), and (h)(5).

(F) A water surface profile.

(G) A plan view showing existing and proposed contours and grading.

(H) Plotted cross-sections.

(I) An overall map of the project area.

(J) Drainage area map.

(e) Filling to remove an FP designation.

(1) In general. This subsection applies to applications to remove an FP designation from any regulatory floodplain.

(2) Review of application by departments.

(A) If the application is to remove an FP designation, the director of water utilities shall forward copies of the application to the director of development services, the chief planning officer, and the director of park and recreation for review.

(B) The director of development services, the chief planning officer, and the director of park and recreation shall review the application and advise the director of water utilities of the environmental impacts of the project, zoning concerns, or other concerns. If concerns are raised by one of these departments, the concerns must be addressed by the property owner prior to issuance of the fill permit. These departments shall also determine whether the applicant's property should be considered for public acquisition due to its ecological, scenic, historic, or recreational value.

(3) Neighborhood meeting. The water utilities department shall schedule and conduct a virtual or in-person neighborhood meeting on each application. The applicant or the applicant's representative must attend the neighborhood meeting. The director shall send written notice of the meeting to the applicant, to all owners of real property within 500 feet from the boundary of the subject property, and to persons and organizations on the early notification list on file with the department of development services. Measurements include the streets and alleys. The notice must be given not less than 10 days before the date set for the neighborhood meeting by depositing the notice properly addressed and postage paid in the United States mail to the property owners as evidenced by the last approved city tax

roll. This notice must be written in English and Spanish if the area of request is located wholly or partly within a census tract in which 50 percent or more of the inhabitants are persons of Spanish origin or descent according to the most recent federal decennial census.

(4) Notice of public hearing and city council approval. If the city council is required to approve a fill permit in accordance with this paragraph, after the neighborhood meeting, the director of water utilities shall schedule a public hearing on the application. The city secretary shall give notice of the public hearing in the official newspaper of the city at least 15 days before the date of the public hearing. The director shall also send written notice of the public hearing to the applicant, to all owners of real property within 500 feet from the boundary of the subject property, and to persons and organizations on the early notification list on file with the department of development services. Except as provided in this paragraph, the city council may only deny an application if the application does not meet the requirements of Sections 51A-5.105(f) or (g) or required state or federal permits have been denied.

(A) Variance requested. If a variance to one of the engineering criteria outlined in Subsection (g) is requested, the fill permit will require city council approval. The city council may grant a variance to the requirements of Subsection (g) if the variance will not violate any provision of federal or state law or endanger life or property.

(B) Property acquisition. If the department of development services or park and recreation recommend public acquisition of property due to its ecological, scenic, historic, or recreational value, they must make a written recommendation to city council, and the director of water utilities shall provide a report to the city council on the application regarding environmental impacts and public acquisition issues. Once the recommendation is made, the city council may vote to approve a resolution authorizing the acquisition of the property under the laws of eminent domain and deny the fill permit to preserve the status quo until the property is acquired.

(5) Director approval.

(A) After the applicant has satisfied all requirements of Subsections (f) and (g), and it is determined that city council approval is not necessary under Paragraph (4), the director of water utilities shall approve or deny the application for a fill permit. The director may only deny an application if:

- (i) the application does not meet the requirements of Sections 51A-5.105(f) or (g); or
- (ii) required state or federal permits have been denied.

(B) The director of water utilities may postpone the approval of a fill permit if:

- (i) required state and federal permits have not been addressed or obtained; or
- (ii) concerns from the department of development services or the park and recreation department have not been addressed.

(6) Zoning map revision. A letter of map revision must be obtained from FEMA, if applicable, before an FP prefix may be removed from the official zoning district map. A building permit may be issued for construction of underground utilities; however, no building permit for construction of a structure may be issued until a final letter of map revision (LOMR) is obtained. Upon approval and receipt of a letter of map revision, the director of water utilities shall notify the director of development services, who shall remove the FP designation for the subject area from the official zoning district map.

(f) Filling operations. If a fill permit or floodplain alteration permit is approved, the filling operations must comply with the following requirements:

(1) Any excavation required by the specifications of the approved application must be conducted before or at the same time as placing fill. Excavated areas are required to maintain a minimum depth of one foot at the deepest point.

(2) For fill permits, the entirety of the building pad site must be filled to an elevation of at least two feet above the design flood elevation. Habitable structures elevated on piers in floodplain areas are prohibited.

(3) For fill permits, the lowest floor of any structure must be constructed at least three feet above the design flood elevation.

(4) For fill permits within interior drainage (sump) areas, the building pad site must be filled to a minimum elevation of one foot above the design flood elevation. Habitable structures elevated on piers in floodplain areas are prohibited.

(5) Fill material must consist of natural material including but not limited to soil, rock, gravel, or broken concrete. Decomposable matter, including but not limited to lumber, sheetrock, trees, tires, refuse, or hazardous, toxic material, is prohibited as fill material. Fill must be compacted to 95 percent standard proctor density.

(6) Before construction, erosion and sediment control devices such as straw hay bales, silt fences, or similar items must be installed to eliminate any transportation of sediment downstream. The property owner is responsible for removal of any sediment deposited by runoff as a result of filling.

(7) If compliance with a Texas Pollutant Discharge Elimination System (TPDES) permit is required for construction activities, a copy of the Notice of Intent (NOI) or the individual TPDES permit must be submitted to the director of water utilities and the director of the office of environmental quality and sustainability before beginning fill operations. The Stormwater Pollution Prevention Plan required by TPDES must be implemented no later than two days prior to commencement of construction activities.

(8) Fill shall be placed no more than five feet above the design flood elevation, except where necessary to match the existing elevation of the adjacent property as determined by the director of water utilities. In determining when it is necessary to match the existing elevation, the director shall consider the effects on local drainage and storm water management, the access needs of the property, and other public health and safety concerns.

(9) A copy of the approved fill permit must be posted and maintained at the fill site for inspection purposes until fill operations



have been completed.

(10) After filling operations have been completed, the applicant shall submit a certification to the director of water utilities that proper fill elevations in the form of signed and sealed as-built topographic survey, compaction requirements, and all other specifications of the approved application have been followed. In addition, a letter of map revision (LOMR) submittal to FEMA and approval by FEMA is required.

(11) Encroachment into the floodway is prohibited unless FEMA issues a conditional letter of map revision (CLOMR).

(g) Engineering requirements for filling.

(1) Except for detention basins and ponds, alterations of the FP area may not increase the water surface elevation of the design flood of the creek upstream, downstream, or through the project area. Detention basins and ponds may increase the water surface elevation of the design flood provided the increase is within the detention basin's or pond's boundaries as approved by the director of water utilities.

(2) Alterations of the FP area may not create or increase an erosive water velocity on or off-site. The mean velocity of stream flow at the downstream end of the site after fill may not exceed the mean velocity of the stream flow under existing conditions.

(3) The effects of the existing and proposed public and private improvements will be used in determining water surface elevations and velocities. Any alteration of the FP area necessary to obtain a removal of an FP prefix may not cause any additional expense in any current or projected public improvements.

(4) The FP area may be altered only to the extent permitted by equal conveyance reduction on both sides of the natural channel.

(5) FP areas governed by a city council-adopted management plan that contains valley storage regulations must comply with the valley storage regulations contained in the plan. For all other FP areas, a valley storage maintenance agreement on a form provided by the city and approved as to form by the city attorney's office is required, and the following requirements apply:

(A) no loss of valley storage is permitted along a stream in which the upstream drainage area is three square miles or more;

(B) valley storage losses along streams in which the upstream drainage area is between 100 acres and three square miles may not exceed 15 percent, as calculated on a site by site basis; and

(C) valley storage losses along streams in which the upstream drainage area is less than 100 acres are not limited.

(6) An environmental impact study and a complete stream rehabilitation program must be approved before relocation or alteration of the natural channel or alteration of an environmentally significant area, or area deemed to house threatened or endangered species. The net environmental impacts of the proposal may not be negative. The environmental impact study must contain the following items:

(A) A description of the existing conditions of the site, adjacent properties, upstream and downstream creek sections for approximately 1,000 feet (unless conditions require additional information in the opinion of the director of water utilities), and creek and overbank areas. The description of these conditions must include:

(i) the characterization of creek features such as bed quality and material, pool-riffle sequences, natural ground water, springs, seeps, magnitude and continuity of flow, water quality, bank quality and material, vegetative cover and patterns, bank erosion, topographic relief, disturbances to the natural character of the creek, animal and aquatic life, and the extent and character of wetland areas; and

(ii) soil types and land uses of the site and surrounding area.

(B) A description of the proposed project. This description must include:

(i) the intended ultimate use of the site, or if that is not known, a description of the interim site plan, including construction access;

(ii) reasons why the creek or floodplain alteration is necessary; and

(iii) a site plan showing the floodplain and construction access necessary to perform the work.

(C) A description of at least three possible ways of handling the creek and floodplain, including:

(i) an alternative that assumes the creek and floodplain are not changed;

(ii) the applicant's proposed action; and

(iii) alternatives proposed by the director of water utilities.

(D) An identification of the impacts created by each alternative, describing in detail all of the positive and negative impacts upon the existing conditions described in Subparagraph (A), that would be created by each alternative.

(E) A recommended course of action based upon evaluation of the alternatives.

(F) Proposed strategies to mitigate adverse impacts. Examples of strategies include tree wells, temporary construction and permanent erosion and sedimentation controls, vegetative buffers, and replacement planting.

(7) The toe of any fill slope must parallel the natural channel to prevent an unbalanced stream flow in the altered FP area.

(8) To insure maximum accessibility to the FP area for maintenance and other purposes and to lessen the probability of slope

erosion during periods of high water, maximum slopes of the filled area may not exceed four to one for 50 percent of the length of the fill and six to one for the remaining length of the fill. The slope of any excavated area may not exceed four to one unless the excavation is in rock. Vertical walls, terracing, and other slope treatments may be used provided no unbalancing of stream flow results and the slope treatment is approved as a part of a landscaping plan for the property.

(9) The elevation of excavated areas in the FP area may not be lower than one-third of the depth of the natural channel, as measured from the adjacent bank, except for excavation of lakes. Excavation must be at least 50 feet from the bank of the natural channel, except as necessary to provide proper drainage.

(10) A landscape and erosion control plan must be submitted and approved. Landscaping must incorporate natural materials (such as earth and stone) on cut and filled slopes when possible. The definitions of Section 51A-10.101 apply to this subsection. Except as otherwise provided, the installation, removal, and maintenance requirements contained in the urban forest conservation regulations, Division 51A-10.130 of the Dallas Development Code, apply. Each soil resource and erosion control plan must comply with the following criteria:

(A) The size, type, and location of all proposed replacement trees to mitigate the loss of existing trees must be shown. The tree types must be selected in accordance with the provisions of Section 51A-10.134 and must be approved by the city arborist as suitable for use under local climate and soil conditions.

(B) The specific plant materials proposed to protect fill and excavated slopes must be indicated. Plant materials must be suitable for use under local climate and soil conditions. In general, hydroseeding or sodding native grasses is acceptable during the summer months (May 1st to August 30th). Winter rye or fescue grass may be planted during times other than the summer months as a temporary measure until such time as the permanent planting can be accomplished.

(C) The proposed methods of erosion and sedimentation control, such as hay bales and sedimentation basins, to be used during construction must be shown in detail.

(D) The fill case applicant, current owners, and subsequent owners must maintain and assure the survival of all planted material until the property is developed and a permanent maintenance plan of record is established. Maintenance responsibility must be reflected in the submitted plans or supporting documents.

(h) Term of permit validity and extension procedures.

(A) A fill permit or floodway alteration permit is valid for a five-year time period from the date of issuance. The fill permit or floodway alteration permit automatically terminates if the filling operations have not been completed within the five-year time period.

(B) New permit required upon expiration. When a fill permit terminates, the applicant must apply for a new permit before filling the property. The new application must comply with the floodplain regulations that are in effect at the time that the request is considered by the director.

(C) New permit required with site plan change. If the applicant wishes to make changes to a site plan that will change the hydraulic model or acreage of fill placed on the fill permit application after a fill permit has been approved, a new permit must be obtained.

(D) Presumption of completion. Filling operations are deemed completed when the applicant:

(i) submits a certification in the form of a signed and sealed topographic survey to the director of water utilities that proper fill elevations have been achieved and the specifications of the approved application have been followed;

(ii) submits compaction test results indicating the site was compacted to 95 percent standard proctor density; and

(iii) obtains a letter of map revision (LOMR) from FEMA, if applicable. (Ord. Nos. 19455; 19786; 21299; 22920; 24085; 25047; 27697; 27893; 28424; 29478; [30994](#); [31314](#); [32002](#); [32039](#))

#### **SEC. 51A-5.106. SETBACK FROM NATURAL CHANNEL REQUIRED.**

(a) For purposes of this section:

(1) NATURAL CHANNEL SETBACK LINE means that setback line described below located the farther beyond the crest:

(A) That line formed by the intersection of the surface of the land and the vertical plane located a horizontal distance of 20 feet beyond the crest.

(B) That line formed by the intersection of the surface of the land beyond the crest and a plane passing through the toe and extending upward and outward from the channel at the designated slope. For purposes of this paragraph, the designated slope is:

(i) four to one if the channel contains clay or shale soil; and

(ii) three to one in all other cases.

(2) CREST means that line at the top of the bank where the slope becomes less than four to one.

(3) TOE means that line at the bottom of the bank where the slope becomes less than four to one.

(b) Except as otherwise provided in Subsection (c), all development must be located behind the natural channel setback line.

(c) A structurally engineered retention system approved by the director may be substituted for the setback required in Subsection (b). (Ord. Nos. 19786; 24085; 25047; 28073; [32039](#))

## **SEC. 51A-5.107. TRINITY RIVER CORRIDOR DEVELOPMENT CERTIFICATE PROCESS.**

(a) Definitions. In this section:

(1) CORRIDOR DEVELOPMENT CERTIFICATE (CDC) MANUAL means the manual by that title dated January 31, 1992, or its latest revision.

(2) FLOODPLAIN ALTERATION means any construction of buildings or other structures, mining, dredging, filling, grading, or excavation in the floodplain.

(3) TRINITY RIVER CORRIDOR means the portion of the floodplain of the West Fork, Elm Fork, and mainstem segments of the Trinity River floodplain within the Dallas city limits, as delineated on the latest CDC Regulatory Map.

(b) Certificate required. A person commits an offense if he makes any floodplain alteration within the Trinity River Corridor without first obtaining a corridor development certificate (CDC) from the director of water utilities. It is a defense to prosecution that an exemption or variance has been obtained in accordance with CDC criteria.

(c) Application. An application for a corridor development certificate must be filed with the director of water utilities on a form furnished by the department of water utilities.

(d) Review. The director of water utilities shall deny an application for a certificate unless it complies with the standards contained in the CDC Manual or unless an exemption from or a variance to those standards is obtained in accordance with Subsection (e).

(e) Exemptions and variances.

(1) Exemptions.

(A) An exemption from the requirements of this section may be obtained if the floodplain alteration involves the following activities:

(i) Ordinary maintenance of and repair to flood control structures.

(ii) The construction of outfall structures and associated intake structures if the outfall has been permitted under state or federal law.

(iii) Discharge of material for backfill or bedding for utility lines, provided there is no significant change in pre-existing bottom contours and excess materials are removed to an upland disposal area.

(iv) Bank stabilization.

(v) Any project listed in the U.S. Army Corps of Engineers March 1990 Reconnaissance Report, which is attached as Appendix A to the CDC Manual, or any project approved under the provisions of this division, provided the approval, permit, or authorization has not expired and no significant changes have occurred since the approval, permit, or authorization was issued.

(B) Application for an exemption must be made to the director of water utilities on a form provided by the department of water utilities.

(C) If the director of water utilities determines that an application for an exemption falls within one of the categories listed in Paragraph (1), the director shall issue a written exemption from the requirements of this section.

(2) Variances. If the director of water utilities determines that the application for a corridor development certificate does not comply with all of the standards contained in the CDC Manual, the applicant may apply for a variance to any standard contained in the manual. An application for a variance must be made to the director of water utilities, who shall schedule the application for consideration by the city council. (Ord. Nos. 21636; 24085; 27697; [30994](#); [32039](#).)

## **Division 51A-5.200. Escarpment Regulations.**

### **SEC. 51A-5.201. DEFINITIONS.**

In this division, unless the context clearly indicates otherwise:

(1) BEST MANAGEMENT PRACTICES means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. Best management practices also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

(2) CHALK ZONE means the lower chalk member of the Austin chalk formation overlying the Eagle Ford shale formation. The chalk zone consists primarily of a chalk limestone with minor seams of shale and bentonite clays.

(3) CREST means that line above the escarpment line where the slope becomes less than 4:1.

(4) ESCARPMENT AREA REVIEW COMMITTEE means the committee described in Section 51A-5.209 of this chapter.

(5) ESCARPMENT FACE means that portion of the escarpment zone between the crest and the toe.

(6) ESCARPMENT LINE means that line formed by the intersection of the plane of the stratigraphic contact between the Austin chalk and the Eagle Ford shale formations and the surface of the land.

(7) ESCARPMENT ZONE means that corridor of real property south of Interstate Highway 30 between the following described

vertical planes:

(A) On the crest side of the escarpment line and measuring horizontally from that line, the vertical plane that is 125 feet from that line, or 35 feet beyond the crest, whichever is farther from that line.

(B) On the toe side of the escarpment line and measuring horizontally from that line, the vertical plane that is 85 feet from that line, or 10 feet beyond the toe, whichever is farther from that line.

(8) FACTOR OF SAFETY means a combination of factors which, when considered together, indicates whether the slope is stable at a slip surface location. The factor of safety (Fs) is determined using the equation:

$$Fs = \frac{\text{Shearing strength available along sliding surface}}{\text{Shearing stresses tending to produce failure along surface}}$$

Shearing stresses tending to produce failure along surface

(9) GEOLOGICALLY SIMILAR AREAS means:

(A) areas adjacent to and similar to the escarpment zone by virtue of their slopes, soils, and geology; and

(B) the drainage basins containing the escarpment zone, excluding those portions of the basins which are:

(i) downstream from the areas described in Subparagraph (A) above; or

(ii) north of Interstate Highway 30.

(10) GRADING means excavation or filling or any combination thereof.

(11) REGISTERED PROFESSIONAL ENGINEER means a person who is duly licensed and registered to engage in the practice of engineering in the State of Texas in accordance with state law.

(12) SHALE ZONE means the Arcadia Park/Kamp Ranch members of the Eagle Ford shale formation which lie below the Austin chalk formation. The shale zone consists primarily of clays and shale with minor layers of limestone or sand.

(13) SLOPE means the slope of the terrain. For example, a 5:1 slope means a slope with an angle described by five feet horizontal to one foot vertical.

(14) STORM WATER POLLUTION PREVENTION PLAN means a plan required by either a construction general permit or an industrial general permit, which plan describes and ensures the implementation of practices to reduce pollutants in storm water discharges associated with construction or industrial activity at a site or facility.

(15) TOE means that line below the escarpment line where the slope becomes flatter than 5:1. (Ord. Nos. 19455; 25047; 26000)

#### **SEC. 51A-5.202. DEVELOPMENT IN ESCARPMENT ZONE PROHIBITED.**

(a) A person commits an offense if, within the escarpment zone, he:

(1) removes or injures any tree or vegetation; or

(2) alters the physical condition of the land in any way. Examples of alterations to the physical condition of the land include, but are not limited to dumping, excavation, storage, and filling.

(b) It is a defense to prosecution under Subsection (a) that the act was:

(1) the construction of a public improvement authorized by the city and performed in accordance with the requirements of this division; or

(2) the modification of a single family or duplex structure existing on the date of passage of this ordinance, and the modification did not:

(A) change the use of the structure;

(B) cause the size of the structure to exceed by 50 percent or more the size of the structure as it existed on the date of passage of this ordinance; or

(C) cause the market value of the structure to exceed by 50 percent or more the market value of the structure as it existed on the date of passage of this ordinance.

(c) The construction of public improvements in the escarpment zone requires an escarpment permit. The performance standards for development in a geologically similar area apply to the construction of public improvements in the escarpment zone. (Ord. Nos. 19455; 26000)

#### **SEC. 51A-5.203. PERMIT REQUIRED FOR DEVELOPMENT IN GEOLOGICALLY SIMILAR AREAS.**

(a) A person commits an offense if, in a geologically similar area and without first obtaining an escarpment permit from the city expressly authorizing the act, he:

(1) removes or injures any trees or vegetation; or

(2) alters the physical condition of the land in any way. Examples of alterations to the physical condition of the land include, but are not limited to dumping, excavation, storage, and filling.

(b) It is a defense to prosecution under Subsection (a) that the act was the modification of a single family or duplex structure existing on the date of passage of this ordinance, and the modification did not:

- (1) change the use of the structure;
- (2) cause the size of the structure to exceed by 50 percent or more the size of the structure as it existed on the date of passage of this ordinance; or
- (3) cause the market value of the structure to exceed by 50 percent or more the market value of the structure as it existed on the date of passage of this ordinance. (Ord. Nos. 19455; 26000)

#### **SEC. 51A-5.204. ESCARPMENT PERMIT APPLICATION AND REVIEW.**

(a) An applicant for an escarpment permit shall request a preapplication conference with the escarpment area review committee. The purpose of the conference is to determine what information must be submitted with the permit application to allow a complete evaluation of the proposed project. After the conference, the committee shall advise the director of its findings and recommendations.

(b) After the preapplication conference, the applicant shall submit an application for an escarpment permit to the director. The application must be on a form approved by the director and be signed by the owner of the property. Except as otherwise provided in this division, the following items must be provided as part of the application:

- (1) The name and address of:
  - (A) the owner(s) of the property; and
  - (B) the person(s) who prepared the plans and drawings submitted.
- (2) A general vicinity map of the proposed development site.
- (3) A one inch = 100 feet scale site plan showing details of the terrain and area drainage. This site plan must be a contour map with two-foot contour intervals.
- (4) A one inch = 50 feet scale cross section and plan review of any proposed structures.
- (5) Results of the slope stability analysis required under Section 51A-5.205.
- (6) The soil erosion control plan required under Section 51A-5.206.
- (7) The grading plan required under Section 51A-5.207.
- (8) The vegetation plan required under Section 51A-5.208.
- (9) Financial assurance in the form of a letter of credit, a performance bond, or other instrument payable to the city of Dallas for all improvements related to the required soil erosion control, grading, and vegetation plans to insure that funds are available to the city to implement those plans if the developer fails to implement them.
- (10) A performance and maintenance bond for each private development contract for the construction of public infrastructure improvements.
- (11) One inch = 100 feet scale transparent overlay drawings of the required soil erosion control, grading, and vegetation plans such that a composite map can be created by combining the overlay drawings and the site plan required under Subsection (b)(3).
- (12) Cost estimates and timetables for implementation and completion of work specified in the required soil erosion control, grading, and vegetation plans.
- (13) Any other information that the director determines to be necessary to allow for a complete evaluation of the proposed project.

(c) If the director determines that one or more of the items listed in Subsection (b) is not necessary to allow for a complete review of the proposed project, he shall waive the requirement that the item or items be provided.

(d) All plans, drawings, and specifications submitted as part of an application for an escarpment permit must comply with the requirements of this chapter and all applicable ordinances, rules, and regulations of the city of Dallas.

(e) Upon submission by the applicant of a complete application for an escarpment permit, the director shall forward copies of all materials submitted to the escarpment area review committee for consideration. Upon review of all materials submitted, the committee shall furnish the director a written report containing its recommendations and comments concerning the proposed project. The director shall consider the committee's report before making a decision to grant or deny the escarpment permit.

(f) If the application and other materials submitted show that the proposed project complies with the requirements of this chapter and all applicable ordinances, rules, and regulations of the city of Dallas, the director shall issue an escarpment permit and forward the application to the building official for further action. Otherwise, the director shall deny the escarpment permit.

(g) The building official shall not issue a building permit for any project for which an escarpment permit is required unless the director has first issued an escarpment permit authorizing the work.

(h) The director may not authorize any disturbance of the land for development purposes until both the required soil erosion control and grading plans have been submitted and approved. After the approval of both of these plans, the director may issue a limited permit to authorize clearing and grubbing.

(i) A decision made by the director to grant or deny an escarpment permit may be appealed to the board of adjustment in the same manner that appeals are made from decisions of the building official.

(j) An inspector from the department shall monitor all development for which an escarpment permit is required to ensure compliance with the approved plans, the requirements of this chapter, and all applicable ordinances, rules, and regulations of the city of Dallas. (Ord. Nos. 19455; 25047; 26000; 28073)

#### **SEC. 51A-5.205. SLOPE STABILITY ANALYSIS.**

(a) For all proposed development within a geologically similar area, field and laboratory tests must be performed on samples taken from representative locations within the development site to ascertain the existing geotechnical conditions.

(b) A slope stability analysis must be performed for each new structure to be erected within a geologically similar area. No structure may be erected where the slope stability factor of safety is less than 1.5.

(c) Except for items that are expressly waived by the director, the slope stability analysis data submitted must include the following:

- (1) A description of the boring location(s).
- (2) Drillers logs of borings delineating the stratigraphy of the soil and bedrock.
- (3) The locations and methods used to determine groundwater conditions and elevations.

(4) A table of field and laboratory engineering tests including, but not limited to shear strength tests, atterberg limits, and shrink/swell tests.

(5) Calculations for the slope stability analysis, including the criteria and parameters used, indicating the slope and location of slip surfaces and corresponding factors of safety.

(d) All analyses, designs, tests, and calculations for new development within a geologically similar area must be certified by a registered professional engineer. A registered professional engineer must also certify that structural foundations for all new development are designed to meet the requirements of the building code and all other applicable codes. (Ord. Nos. 19455; 26000)

#### **SEC. 51A-5.206. SOIL EROSION CONTROL PLAN.**

(a) A soil erosion control plan must be submitted for all proposed development within a geologically similar area. Except for items that are expressly waived by the director, the plan must:

- (1) show the type of soil cover as mapped by the Soil Conservation Service and confirmed by representative field tests and samples;
- (2) indicate the susceptibility to erosion of the mapped soils as confirmed by representative field tests and samples;
- (3) show the location of existing and proposed development;

(4) include a timing schedule indicating starting and completion dates of the development activities sequence and the time of exposure of each area prior to completion of control measures;

(5) contain a complete description of all measures to be taken to prevent or control erosion and sedimentation of soils during and after construction;

- (6) comply with best management practices standards for storm water pollution prevention plans; and
- (7) be certified by a registered professional engineer.

(b) Development within a geologically similar area must conform to the following performance standards:

- (1) Development must be fitted to the topography and soils to minimize cut and fill sections.
- (2) Grading is not permitted within the one-percent annual chance flood plain boundaries of watercourses unless it is:
  - (A) in conjunction with the construction of approved drainage facilities; or
  - (B) authorized by a city council approved fill permit. All grading must comply with Section 51A-5.207 of this division.

(3) Indigenous vegetation must be retained and protected except in immediate areas of development so that a minimal amount of vegetation is removed or replaced. If vegetation is removed, it must be replaced with new vegetation of the same variety unless the building official approves an alternative variety as being less susceptible to disease or better suited for urban development.

(4) Development must be accomplished in a manner which assures that as small an area as possible is exposed to erosion at any one time. When land is exposed during development, the exposure must be kept to the shortest practical period of time not to exceed six months. In extraordinary cases, an extension of the six month time period may be granted in writing by the director. In such cases the director shall seek and consider the recommendation of the escarpment area review committee before making his decision.

(5) Areas where construction activities have ceased for more than 21 days must be stabilized by the developer to minimize erosion through the use of temporary or permanent vegetation, mulching, sod, geotextiles, or similar measures. In cases where permanent measures are not installed, the developer must maintain the temporary measures until the site is either fully developed or permanent vegetation with a density of at least 70 percent of the native background vegetative cover for the area has been installed.

- (6) Sediment basins or other installations approved by the director must be installed and maintained to remove sediment from runoff

waters accumulating on land undergoing development. These installations should be returned to natural conditions upon the substantial completion of improvements or when the director determines that the installations are no longer needed. In any event, the owner shall cause these installations to be returned to natural conditions within 90 days after written notice to do so is given by the director.

(7) Runoff caused by changed soil and surface conditions during and after development, both above and below the escarpment zone, must be controlled on each development site within approved drainage facilities so that the runoff velocity leaving the site is maintained at or below predevelopment rates. Site-specific erosion control is required below the escarpment zone where the erosion control plan shows detrimental erosion caused by runoff velocities.

(8) When additional storm water runoff is being discharged onto the face of the escarpment, the property owner's engineer shall provide an analysis of whether the additional storm water runoff has a negative effect on the escarpment. If the additional storm water runoff has a negative effect, then detention is required.

(9) Stormwater drainage may not be discharged over the escarpment face at eroding velocities as those velocities are defined in the soil evaluation reports. In no event may the discharge exceed a velocity greater than three feet per second. Stormwater drainage discharge must comply with Section 51A-5.207 of this division.

(10) Temporary vegetation and mulching must be used to protect areas exposed during development. Permanent vegetation must be established on disturbed areas following development in accordance with the vegetation plan required under Section 51A-5.208 of this division.

(11) Channel velocities may not exceed five feet per second, except that velocities higher than five feet per second may be maintained at up to predevelopment rates in the escarpment and chalk zones if the developer establishes to the satisfaction of the director that these velocities do not produce detrimental erosion. If damaging erosion is occurring, site-specific erosion control measures are required. Energy dissipators, if required, must be approved by the director to maintain channel velocities at acceptable levels. (Ord. Nos. 19455; 26000; [30893](#); [31314](#))

#### **SEC. 51A-5.207. GRADING PLAN.**

(a) A grading plan must be submitted for all proposed development within a geologically similar area. Except for items that are expressly waived by the director, the following items must be included as part of the plan:

(1) A soil engineering report. This report must include data regarding the nature, distribution and strength of existing soils, conclusions and recommendations for grading procedures, design criteria for corrective measures when necessary, and opinions and recommendations covering adequacy of the site to be developed. The report must be signed by a registered professional engineer.

(2) An engineering geology report. This report must include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and opinions and recommendations covering the adequacy of the site to be developed. The report must be signed by a registered professional engineer.

(3) Limiting dimensions, elevations or finish contours to be achieved by grading, and proposed drainage channels and related construction.

(4) Detailed plans for all surface and subsurface drainage devices, walls, cribbing, dams, and other protective devices to be constructed with or as a part of the proposed work, together with a map showing the drainage area and the estimated runoff of the area.

(b) Development within a geologically similar area must conform to the following performance standards:

(1) Grading must be planned so as to have the least disturbance on the area's natural topography, watercourses, vegetation, and wildlife. This may preclude all development in certain areas. No cleared, graded, or otherwise disturbed land may be left without temporary protective stabilizing cover. (See Section 51A-5.206.)

(2) The maximum slopes permitted in geologically similar areas shall be determined by the director based on the results of the geotechnical investigations of the site materials and other factors analyzed in this division.

(3) Topsoil must be stockpiled and redistributed on areas where vegetation will be grown after the grading is completed. Methods to insure maintenance of these areas until vegetation is established must be detailed. (Ord. Nos. 19455; 26000)

#### **SEC. 51A-5.208. VEGETATION PLAN.**

(a) A vegetation plan must be submitted for all proposed development in a geologically similar area. Except for items that are expressly waived by the director, the plan must:

(1) show the location and type of landscape features and plant materials in the areas of proposed development; and

(2) specify all proposed vegetation removal and replacement.

(b) Development in a geologically similar area must conform to the following performance standards:

(1) Indigenous vegetation must be retained and protected except in immediate areas of development so that a minimal amount of vegetation is removed or replaced. If vegetation is removed, it must be replaced with new vegetation of the same variety unless the building official approves an alternative variety as being less susceptible to disease or better suited for urban development.

(2) Shrub borders must be maintained around woodlands where practicable.

(3) Landscaping must consist of ecologically suitable plant species. (Ord. Nos. 19455; 26000; [30893](#))

#### **SEC. 51A-5.209. ESCARPMENT AREA REVIEW COMMITTEE.**

(a) In order to assist the director and the board of adjustment in the administration and interpretation of these escarpment regulations, and to establish an efficient forum for city input and review of proposed developments in geologically similar areas, an escarpment area review committee ("the committee") shall be established. The committee shall be advisory in nature and be comprised of at least one representative from the departments of development services, parks and recreation, planning and urban design, and public works. Members of the committee shall be appointed by the heads of the departments they represent. At least two representatives must be present to constitute a quorum.

(b) The committee shall have the following powers and duties:

(1) To thoroughly familiarize itself with the structures, land, areas, geology, hydrology, and indigenous plant life in the escarpment zone and in geologically similar areas.

(2) To thoroughly familiarize itself with the escarpment regulations.

(3) To identify criteria to be used in evaluating proposed development in the escarpment zone and in geologically similar areas.

(4) To identify guidelines to be used in determining whether a proposed development complies with the spirit and intent of the escarpment regulations.

(5) To meet with each prospective developer of a project for which an escarpment permit is required and make recommendations to the director as to what information may be waived or what additional information is required to allow a complete evaluation of the proposed project.

(6) To review applications for escarpment permits for compliance with the escarpment regulations, and to make recommendations to the director as to whether the applications should be approved or denied.

(7) To give advice and provide staff assistance to the board of adjustment and the city plan commission in the exercise of their responsibilities.

(8) To initiate amendments to the escarpment regulations when, in the opinion of the committee, the amendments are necessary to further the spirit and intent of the escarpment regulations.

(c) The committee shall meet at least once each month, with additional meetings to be held upon the call of the director, or upon petition of a simple majority of the members of the committee.

(d) The provisions of Chapter 8, "Boards and Commissions," of the Dallas City Code, as amended, do not apply to the committee.

(e) Actions taken or recommendations made by the committee are not binding upon the director, the board of adjustment, the city plan commission, and the city council, and these persons and public bodies may decide a matter contrary to the recommendations of the committee. (Ord. Nos. 19455; 25047; 26000; 28073; 28424; 29478; [29882](#); [30239](#); [30654](#); [32002](#))

#### **SEC. 51A-5.210. PLATTING IN THE ESCARPMENT ZONE AND IN THE GEOLOGICALLY SIMILAR AREA.**

When property in the escarpment zone or in the geologically similar area is platted:

(1) the escarpment zone or the geologically similar area must be shown on the plat;

(2) the plat must provide any dedications necessary for maintenance, drainage, or compliance with this division; and

(3) the property owner is encouraged, but not required, to dedicate the escarpment zone or geologically similar area to the city as park. (Ord. 26000)