

SECTION 7 FLOODPLAIN MANAGEMENT

7.1 STATEMENT OF INTENT

The purpose of the *floodplain* management section is to provide a unified, comprehensive approach to *floodplain* management which addresses the natural *floodplain* functions and encourages the use of appropriate construction practices that prevent or minimize *flood* damage. In combination with the *floodplain* design standards found in Article V of this Ordinance, these *regulations* address the requirements of the Federal and State programs concerned with *floodplain* management; namely: the National Flood Insurance Program (44 CFR 59-79), the Maryland Waterway Construction Permit Program for Non-tidal Floodplains, the Maryland Tidal and Non-tidal Wetlands Permit Programs, the U.S. Army Corps of Engineers' Section 10 and 404 Permit Programs, and the Maryland Coastal Zone Management Program.

7.2 ESTABLISHMENT OF FLOODPLAIN DISTRICT

1. Identification of *flood* zones. The regulatory *floodplain* shall be those areas of Kent County, Maryland, which are subject to the *1-percent annual chance (100-year) flood* as delineated on the most recent revision of the community's *Flood Insurance Rate Maps (FIRMs)* and *Flood Insurance Study (FIS)* for Kent County, Maryland and incorporated areas dated June 9, 2014 prepared by the Federal Emergency Management Agency (FEMA). Areas along non-tidal streams that do not have FEMA delineations as described above are subject to regulation by this Ordinance and the State.*
2. The *Flood Insurance Rate Maps (FIRMs)* and *Flood Insurance Studies (FIS)*, and all notations, dimensions, references, and symbols thereon, shall be considered a part of this Ordinance and shall be filed as a part of this Ordinance with the Kent County Department of Planning and Zoning. Copies of the *FIRMs* and *FIS* shall be available for inspection in the Department of Planning and Zoning.
3. The *floodplain* shall be comprised of the following subdivisions:
 - a. *Non-tidal floodplains*: These consist of the *floodway* and *floodway fringe*. *Non-tidal floodplains* may have detailed engineering study data, profiles, and water surface elevations or may have approximate delineations only. For development in *Special Flood Hazard Areas* of non-tidal waters of the State with *Base Flood Elevations (BFE)* but no designated floodways, the cumulative effect of all past and projected development will not increase the BFE by more than 1 foot.*
 - b. *Tidal floodplains*: Those areas subject to coastal or tidal flooding by the *1-percent annual chance (100-year) flood*. These areas are flooded due to high tides, hurricanes, tropical storms and steady on-shore winds.*
 - c. *Coastal high hazard areas*: Those areas subject to coastal or tidal flooding with the addition of high velocity water and wind action. These areas are designated as V-Zones on the *Flood Insurance Rate Maps*.
 - d. *Shallow Flood Zones (Zone AO)*: Those areas of shallow flooding, with flood depths of 1 to 3 feet (usually areas of ponding or sheet flow on sloping terrain), with or without BFEs of designated flood depths.*
4. *Floodplain Zone Determination*. The Planning Director or Planning Director's designee will determine the *floodplain* zone in which the *development* activity is proposed using the *FIRMs* and *FIS* if applicable. Without prior approval from FEMA, the community shall use no other data to enforce *floodplain* management *regulations*. Where map boundaries and elevations disagree, elevations prevail, with approval from FEMA through the issuance of a Letter of Map Change or Amendment.

The Planning Director of the Planning Director's designee shall submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including hydrologic and hydraulic engineering analyses prepared by or for Kent County, within six months after such data and information becomes available if the analyses indicate changes in *Base Flood Elevations* or boundaries.*

5. *Approximate Floodplain Determination.* For *development* proposed in the *approximate floodplain* (no water surface elevations or *floodway* data provided), the applicant must use the best available information to determine the elevation of the *1-percent annual chance (100-year) flood* and the extent of the *floodway*, and must delineate these on the *site plan* submitted for approval. For new subdivisions, the applicant must have the *1-percent annual chance (100-year) flood* elevations certified by a registered professional *engineer* based on hydrologic and hydraulic analyses which include a *floodway* analysis.*
6. *Unmapped Streams.* In cases in which *development* is proposed in the vicinity of unmapped streams which have no delineated *1-percent annual chance (100-year) floodplain*, a 100-foot *flood* protection setback from the banks of the stream shall be used. State permits may be required and applicants are advised to seek a determination from the State.*

7.3 DEVELOPMENT REGULATIONS*

1. General

In order to prevent excessive *flood* damage, to determine whether proposed activities will be reasonably safe from flooding, to implement construction methods and practices which minimize flood damage, and to allow for the protection of the natural and beneficial *floodplain* functions, all *development*, *new construction*, and *substantial improvements* to existing *structures* in all *floodplain* zones shall comply with the requirements of Article VI, Section 7 and those found in Article V of this Ordinance. In the event that a *structure* is in more than one (1) zone, the more stringent provision shall apply to the entire *structure*.

2. *Watercourses*

In all *floodplain* zones, any *development* which proposes to alter a *watercourse* shall obtain a *variance*. All conditions for encroachment in the *floodway* shall be met and *adverse impacts* to aquatic resources shall be minimized. Adjacent communities and property owners, the U.S. Army Corps of Engineers, FEMA, and MDE shall be notified by the applicant prior to any modification of a *watercourse*. Any activity falling within the 100-year non-tidal floodplain may require a *waterway* construction permit from the Maryland Department of the Environment.

3. *Non-tidal* and *Tidal Floodplains* (Zones A, AE, and A1-30)

- a. *General development* shall not occur in the *floodplain* where alternative locations exist. Before a permit is issued, the applicant shall demonstrate that new *structures* cannot be located out of the *floodplain* and that encroachments onto the *floodplain* are minimized
- b. *Elevation Requirements, Residential Structures.*
 - i. *Basements* are prohibited. Enclosures below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) shall be constructed with water equalizing vents to meet the specification found in Article VI, Section 7.4 of this Ordinance.

- ii. The elevation of the *lowest floor* of all new or substantially improved *structures*, including *manufactured homes*, shall be elevated to or above the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*). In *non-tidal floodplains*, horizontal expansions which increase the footprint and that are less than substantial shall also have the *lowest floor* elevated to or above the *Flood Protection Elevation*. A registered surveyor or professional *engineer* shall certify elevation of the *lowest floor* on the *Elevation Certificate* after the *lowest floor* is in place.
- iii. Improvements in tidal *floodplains* which are less than substantial shall be constructed to minimize damage during flooding or shall be elevated to the greatest extent possible.
- c. Elevation Requirements, Non-residential *Structures*.
 - i. All new or substantially improved non-residential *structures* shall either be elevated as required for residential *structures* or shall be floodproofed. *Basements* are prohibited. Enclosures below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) shall be constructed with water equalizing vents to meet the specification found in Article VI, Section 7.4 of this Ordinance.
 - ii. Horizontal expansions in the *non-tidal floodplain* which increase the footprint and that are less than substantial shall also have the *lowest floor* elevated to two feet above the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*).
 - iii. In *non-tidal floodplains*, *basements* and *floodproofing* are prohibited.
 - iv. *Floodproofing* designs must insure that areas below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) are watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
 - v. When the *floodproofing* option is chosen, a *Floodproofing Certificate* must be completed by a registered professional *engineer* or *architect*. If a *Floodproofing Certificate* is not provided, then an *Elevation Certificate* must be completed by a registered *surveyor* or professional *engineer*.
- d. *Fill*
 - i. An applicant shall demonstrate that the *fill* will not affect the *flood* storage capacity or increase flooding onto neighboring properties.
 - ii. In the event that *structures* on adjacent properties are known or determined to be subject to flooding under current conditions, the Planning Director or the Planning Director's designee may require submission of hydrologic and hydraulic analysis of the affects of the proposed *fill*. All *fill* shall meet the standards set forth in this Ordinance.
- e. Subdivisions
 - i. *Non-tidal floodplains*. To avoid *flood* damage and to protect the natural and beneficial *floodplain* functions, new floodprone building *sites* shall not be permitted in *non-tidal floodplains*. Each new *lot* shall have a suitable building *site* outside the *floodplain*. Whenever possible, *development* should be located outside the *floodplain*. An access road, constructed above the elevation of the *1-percent annual chance (100-year) floodplain* shall be provided.
 - ii. The applicant shall submit a plan which demonstrates that all building *sites* located outside of the 100- year *floodplain*, and that the *floodplain* areas are protected in their natural state.

- iii. Tidal floodplains. New subdivisions in tidal floodplains shall be designed to develop land outside the *floodplain* whenever possible. An access road constructed above the elevation of the *1-percent annual chance (100-year) flood* shall be provided whenever possible.
- iv. Subdivision proposals and development proposals shall minimize flood damage and have adequate drainage paths provided to reduce exposure to flood hazards and to guide floodwaters around and away from proposed structures.

4. *Floodway*

- a. *Floodways* shall be preserved to carry the discharge of the *1-percent annual chance (100-year) flood*. *Floodways* present increased risks to human life and property because of their relatively faster and deeper flowing waters. In a regulatory floodway, any encroachment is prohibited which would cause any increase in the *base flood* level unless hydrologic and hydraulic analyses prove that the proposed encroachment would not increase flood levels during the *base flood* discharge.
- b. *Fill* shall not be permitted.
- c. New *structures* shall not be permitted.
- d. New *development* shall not be permitted where alternatives exist elsewhere or if any increase in the water surface elevations of the *1-percent annual chance (100-year) flood* will occur.
- e. *Development* in the *floodway* which may result in any increase in water surface elevations or change to the *floodway* shall be submitted to FEMA for a conditional letter of map revision. Hydrologic and hydraulic analysis on existing *floodway* models and performed in accordance with standard engineering practices and certified by a registered professional *engineer* must be submitted. Failure to receive this conditional letter of map revision shall be grounds for denial of a permit.
- f. Alternative analysis requirement. An alternative analysis shall be submitted to the Department of Planning and Zoning before a permit shall be issued. The alternative analysis shall demonstrate that:
 - i. No reasonable alternative exists outside the *floodway*.
 - ii. Encroachment in the *floodway* is the minimum necessary.
 - iii. The *development* will withstand the *1-percent annual chance (100-year) flood* without significant damage.
 - iv. The *development* will not increase downstream or upstream flooding or *erosion*.
- g. Existing *structures*. Existing *structures* in the *floodway* shall be substantially improved only by *variance* and if they can be brought into conformance with this Ordinance without increasing the footprint. Minor additions (less than substantial) must be elevated to the *Flood Protection Elevation* (two feet above the *flood* elevation) on pilings or columns. In the event of *substantial damage* or replacement, the applicant shall submit an alternative analysis to determine if the *structure* can be relocated to a less hazardous *site*. Where replacement *structures* cannot be relocated, they shall be limited to the footprint of the previous *structure* and must comply with the elevation requirements of this Ordinance. Permits for incremental improvements and additions shall be tracked by the Department of Planning and Zoning, and if cumulative improvements constitute *substantial improvement*, no further permits may be issued unless the *structure* conforms to the provisions of this Ordinance.
- h. Maintenance of natural *channel*. The natural *watercourse* shall be maintained for protection of aquatic resources. A *variance* is required for alteration of *watercourses*. Any *variance* issued must assure that the conditions for encroachment in the *floodway* are met, *adverse impacts* to aquatic resources are minimized, and the public good outweighs the

adverse impacts. The provisions of Article VI, Section 7.3.2 of this Ordinance pertaining to altering a *watercourse* must be met.

- i. Obstructions. *Structures* or *fill* which may impede, retard, or change the direction of the flow of floodwaters, or any materials that may be carried downstream to cause damage shall not be placed in the *floodway*. Fences, except two wire fences, shall not be placed in the *floodway*.
 - j. Construction of roads, bridges, culverts, dams and in-stream ponds. Construction of roads, bridges, culverts, dams and in-stream ponds in non-tidal waters of the State shall not be approved unless they comply with this section and the applicant has received a permit from MDE.
5. *Coastal high hazard areas (V-Zones and Coastal A Zones)*
- a. New *development* shall not be permitted in the Coastal High Hazard Area where the action of wind and waves, in addition to tidal flooding, is a factor unless the applicant demonstrates that:
 - i. No reasonable alternative exists outside the Coastal High Hazard Area;
 - ii. The encroachment into the Coastal High Hazard Area is the minimum necessary;
 - iii. The *development* will withstand the 100-year wind and water loads without damage;
 - iv. The *development* will not create an additional hazard to existing *structures*; and
 - v. Any natural dune system will not be disturbed.
 - b. New and substantially improved *structures*.
 - i. All new or substantially improved *structures* shall be elevated on adequately anchored pilings or columns to resist flotation, collapse, and lateral movement due to the effects of the one-hundred-year water loads and wind loads acting simultaneously on all building components. Water loading values shall be those associated with the *base flood*, and wind loading values shall be those required by local building standards. The bottom of the lowest horizontal structural member supporting the *lowest floor* shall be elevated to two feet above the *Base Flood Elevation*. A registered professional *engineer* or *architect* must certify that building designs, elevations and anchoring have been designed to withstand the water and wind loads. The use of slabs or other at grade foundation systems shall be prohibited.
 - ii. The space below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) shall be free of obstruction or may be enclosed with open wood lattice, insert screening or *breakaway walls*.
 - iii. *Breakaway walls* shall be designed to collapse under a wind and water load less than would occur during the *1-percent annual chance (100-year) flood*, and have a design safe loading resistance of not less than ten pounds and no more than twenty pounds (20) per square foot. Glass walls shall not be considered *breakaway walls*. Enclosed areas below the *Flood Protection Elevation* shall be used solely for the parking of vehicles, limited storage, and building access. If such areas are enclosed, a *Declaration of Land Restrictions* shall be signed. Electrical, mechanical, and plumbing system components shall not be mounted on or penetrate through walls that are designed to break away under flood loads.
 - c. *Manufactured homes* and *recreational vehicles*. *Manufactured homes* shall not be permitted in the Coastal High Hazard Area. *Recreational vehicles* shall meet the requirements of Article VI, Section 7.5.6 of this Ordinance.
 - d. *Fill* and *excavation*. *Fill* shall not be used for the structural support of *buildings*. *Excavation* under existing *structures* or *excavation* within any enclosed space shall be prohibited. Minor grading, and the placement of minor quantities of fill, shall be permitted

for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.

- e. Location of *structures*. *New construction* within the reach of mean high tide is prohibited. Alteration of the dune system is prohibited.
- f. Existing *structures*. Existing *structures* shall not be substantially improved or expanded vertically or horizontally unless the entire foundation system is certified by a professional *engineer* or *architect* as capable of supporting the existing *building* and the proposed improvement during the *1-percent annual chance (100-year) flood* as specified in Article VI, Section 7.3.5b of this Ordinance. Permits for incremental improvements shall be tracked, and when cumulative improvements constitute *substantial improvement*, the entire *building* shall comply with Article VI, Section 7.3.5b of this Ordinance.
- g. Decks and patios. In addition to the requirements of the building code or the residential code, decks and patios shall be located, designed, and constructed in compliance with the following:
 - i. A deck that is structurally attached to a building or structure shall have the bottom of the lowest horizontal structural member at or above the *Flood Protection Elevation* and any supporting members that extend below the design flood elevation shall comply with the foundation requirements that apply to the building or structure, which shall be designed to accommodate any increased loads resulting from the attached deck.
 - ii. A deck or patio that is located below the *Flood Protection Elevation* shall be structurally independent from structures and their foundation systems, and shall be designed and constructed either to remain intact and in place during *base flood* conditions or to break apart into small pieces that will not cause structural damage to adjacent elevated structures.
 - iii. A deck or patio that has a vertical thickness of more than 12 inches or that is constructed with more than the minimum amount of fill that is necessary for site drainage shall not be approved unless an analysis demonstrates no harmful diversion of floodwaters or wave run-up and wave reflection that would increase damage to adjacent elevated structures.

A deck or patio that has a vertical thickness of 12 inches or less and that is at natural grade or on fill material that is similar to and compatible with local soils and is the minimum amount necessary for site drainage may be approved without requiring analysis of the impact on diversion of floodwaters or wave run-up and wave reflection.

6. Areas of shallow flooding (Zone AO)

In areas of shallow flooding (Zone AO), have the lowest floor (including basement) elevated at least as high above the *highest adjacent grade* as the depth number specified in feet on the FIRM plus two (2) feet, or at least four (4) feet if a depth number is not specified; and

- a. Have enclosures below the lowest floor, if any, that comply with the requirements of Section 7.4; or
- b. If proposed to be elevated on fill, meet the limitations on fill in Section 7.3.3.d

7. Critical and Essential Facilities

Critical and essential facilities shall:

- a. Not be located in *coastal high hazard areas (V Zones)*, *Coastal A Zones* or *floodways*.
- b. If located in flood hazard areas other than *coastal high hazard areas*, *Coastal A Zones* and *floodways*, be elevated to the higher of the elevation required by these regulations plus one (1) foot, the elevation required by the *building code*, or the elevation of the 0.2 percent chance (500-year) flood.

7.4 DESIGN STANDARDS*

1. Placement of Buildings and Materials – In general, *buildings* and *accessory structures* should be located entirely out of the *floodplain*, out of the *flood* protection setback, or on land that is least susceptible to flooding. All *structures* permitted in the *floodplain* shall be oriented so as to offer the least resistance to the flow of floodwaters. Materials which are buoyant, flammable, explosive, hazardous to health, or which at times of flooding may be injurious to human, animal, or plant life, shall not be stored below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*).
2. Enclosures below Lowest floor – *Buildings* which have been elevated and have fully enclosed areas below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*), as well as garages and *accessory structures* which are not elevated shall be constructed with water equalizing vents which meet or exceed the following standards:
 - a. A minimum of two (2) openings on different walls having a total net area of not less than one square (1) inch for every square foot of enclosed area subject to flooding or an engineered opening certified by a licensed professional;
 - b. The bottom of all openings shall be no higher than two feet above *grade*; and
 - c. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters to equalize hydrostatic forces on the walls.
 - d. Fully enclosed areas below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) shall be used solely for parking of vehicles, access to the *building*, or limited storage. If such areas are enclosed, a *Declaration of Land Restriction* shall be signed by the applicant.
 - e. In *coastal high hazard areas*, enclosures below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) shall comply with the provisions of Article VI, Section 7.3.5 of this Ordinance.
3. Manufactured homes and Manufactured Home Parks – New *manufactured homes* and *manufactured home parks* shall be prohibited in the Coastal High Hazard Area and in the *floodway*. In other *floodplain* zones, all new, replacement, or substantially improved *manufactured homes*, whether in a *manufactured home park* or not, shall comply with Article VI, Section 7.3 of this Ordinance.
 - a. Methods of anchoring shall include the use of over the top and frame ties to ground anchors. Pilings or columns shall be used to maintain the storage capacity of the *floodplain*. Concrete block support pilings shall be reinforced by placing reinforcing bars inside and extending them into the footing, filling the hollows with cement, and using mortar to cement the blocks together. FEMA Publication 85, “Protecting Manufactured Homes from Floods and Other Hazards,” should be consulted for specific recommendations.
 - b. *Manufactured homes* repaired or replaced due to substantial flooding or other causes shall be considered new *structures* and shall fully comply with Article VI, Section 7.3 of this Ordinance.
 - c. Owners of *manufactured home parks* or subdivisions that are partially or fully within the *floodplain* shall file an evacuation plan with the Director of Emergency Management. New *manufactured home parks* shall provide an access road elevated to the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*).

4. Anchoring – All *structures* shall be firmly anchored in accordance with acceptable engineering practices to prevent flotation, collapse, and lateral movement during flooding. All air ducts, large pipes and storage tanks located below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) shall be firmly anchored to resist flotation.

5. Utilities
 - a. Electric. Distribution panel boxes shall be installed at least two (2) feet above the *Flood Protection Elevation*. All outlets and electrical installations, such as heat pumps, air conditioners, water heaters, furnaces, generators, and distribution systems shall be installed at or above the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*).
 - b. Plumbing. Toilets, sinks, showers, water heaters, pressure tanks, furnaces, and other permanent plumbing installations shall be installed at or above the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*).
 - c. Gas and liquid storage. Meters and appliances shall be installed at or above the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*).
 - i. Underground tanks in flood hazard areas shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the *base flood*.
 - ii. Above-ground tanks in flood hazard areas shall be anchored to a supporting structure and elevated to or above the *Base Flood Elevation*, or shall be anchored or otherwise designed and constructed to prevent flotation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the *base flood*.
 - iii. In flood hazard areas, tank inlets, fill openings, outlets and vents shall be:
 - a) At or above the *Base Flood Elevation* or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tanks during conditions of the base flood; and
 - b) Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the *base flood*.
 - d. Water supply and sanitary facilities. Water supply distribution and sanitary disposal collection systems shall be designed to minimize or eliminate the *infiltration* and to avoid impairment or contamination of floodwaters into the systems or discharges from the systems into floodwaters and shall be located and constructed so as to minimize or eliminate *flood* damage. *On-site* sewage disposal systems shall meet these same standards.
 - e. Other service facilities. In addition to utilities noted in this section, all other service facilities must be designed and/or located to prevent water entry or accumulation.

7.5 ACCESSORY STRUCTURES*

1. Where feasible, *accessory structures* and garages shall be located out of the *floodplain* or elevated to or above the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*). When these measures are not feasible the following shall apply:
 - a. The floor of the *structure* shall be at or above *grade*;

- b. The *structures* shall be located, oriented, and constructed so as to minimize *flood* damage;
 - c. The *structure* shall be firmly anchored to prevent flotation; and
 - d. Be constructed with flood damage-resistant materials below the *Base Flood Elevation*.
2. *Accessory structures* or detached garages, that do not exceed six hundred (600) square feet in size, and used solely for the parking of vehicles and limited storage may be constructed below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) under the conditions of Article VI, Section 7.8 of this Ordinance. No machinery, electric devices, or appliances shall be located below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*). All interior walls, ceilings and floors located below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) shall remain unfinished. A *Declaration of Land Restriction* shall be signed by the property owner and recorded with the Kent County Clerk of Court. A copy of the recorded document shall be attached to the building permit.
3. An *accessory structure* or garage larger than six hundred (600) square feet in size shall be elevated to the proper *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) floodplain*).
4. Attached Garages.
- a. Attached garages, used solely for the parking of vehicles, storage or building access and no more than six hundred (600) square feet in size, are exempt from the elevation requirement but shall be elevated to the greatest extent possible. Attached garages shall meet the venting requirements found in Article VI, Section 7.4.2 of this Ordinance. All interior walls, ceilings, and floors below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*) shall be unfinished.
 - b. No machinery, electrical devices, or appliances shall be located below the *Flood Protection Elevation* (two feet above the elevation of the *1-percent annual chance (100-year) flood*). A *Declaration of Land Restriction* shall be signed by the property owner and recorded with the Kent County Clerk of Court. A copy of the recorded document shall be attached to the building permit.
5. *Recreational vehicles*
- a. *Recreational vehicles* located within the *floodplain* may be exempt from the elevation and anchoring requirements provided they are:
 - i. Located on the *site* less than one-hundred eighty (180) consecutive days per year;
 - ii. Fully licensed and ready for highway use; and
 - iii. Properly permitted.
 - b. A *recreational vehicle* is ready for highway use if it is on its wheels and jacking system, is attached to the *site* only by quick disconnect type utilities and securing devices, and has no permanently attached additions. If it cannot meet all of these criteria, the *recreational vehicle* shall be considered a *manufactured home* and is subject to the elevation and construction standards of this Ordinance.
6. *Fill*
- a. *Fill* shall not be placed in the *floodway*. *Fill* shall not be used for structural support in the Coastal High Hazard Area.
 - b. *Fill* shall consist of *soil* and rock materials only. Dredge material shall be used as *fill* only upon *certification* of suitability by a registered professional geo-technical *engineer*. Landfills, rubble fills, dumps, and sanitary fills shall not be permitted in the *floodplain*.

- c. *Fill* used to support *structures* shall be compacted to 95% of the maximum density obtainable by the Standard Proctor Test (ASTM Standard D-698), and its suitability to support *structures* certified by a registered professional *engineer*. *Fill slopes* shall be no greater than two horizontal to one vertical. *Flatter slopes* may be required where velocities may result in *erosion*.
- d. The use of *fill* shall not increase flooding onto or interfere with drainage from neighboring properties.
- e. In the event that *structures* on adjacent properties are known or determined to be subject to flooding under current conditions, the Planning Director or the Planning Director's designee may require submission of hydrologic and hydraulic analysis of the affects of the proposed *fill*. All *fill* shall meet the standards set forth in this Ordinance.

7.6 PERMITS

1. No *development* shall occur without first obtaining a permit form the Department of Planning and Zoning. This permit shall not be valid until all applicable federal or state permits are obtained.
2. Application for a permit shall contain, at a minimum, the following information.
 - a. Name, address, and phone number of the applicant
 - b. Name, address, and phone number of the property owner, if different from that of the applicant
 - c. Name, address, and phone number of the contractor
 - d. Legal description of the *site*
 - e. Proposed use of the *site*
 - f. Type, dimensions, and estimated cost of the improvement
 - g. *Site* characteristics and improvements
 - h. *Site plan* drawn to scale which shows:
 - i. Dimensions of the *site*
 - ii. Size and location of existing and proposed *structures* or *alterations*
 - iii. Setbacks
 - iv. Elevation contours in mean sea level (NAVD)*
 - v. Delineation of the *1-percent annual chance (100-year) flood* boundary.*
 - vi. Proposed elevation of the *lowest floor* and method of elevation, if applicable.
 - i. A signed agreement stating that the applicant will supply an *Elevation Certificate*.
 - j. For additions or improvements, market value or assessed value of *structures* before improvement.
 - k. *Declaration of Land Restriction* where applicable.*
3. General permits shall be granted only after determining that the proposed *development* will be in compliance with this Ordinance.
4. After approval of a permit, no changes of any kind shall be made to the application, permit, plans, specifications, or other documents submitted with the application without the written approval of the applicable county official. A copy of the permit shall be displayed at the construction *site*.
5. During construction, the building inspector will inspect the *site* to determine that work is in compliance with the permit. Any work not in compliance with the permit shall be corrected before any additional work is undertaken.
6. A record of all *floodplain* permits shall be maintained and be available upon request by the Federal Emergency Management Agency or its authorized agent during periodic assessments of the

County's participation in the National Flood Insurance Program. All documents needed to support permit action, such as *Elevation Certificates*, map amendments or revisions, or *variance* actions shall be available for review during these assessments.

7.7 DAM SAFETY

The condition design criteria, hazard class and danger reach of the dam shall be considered when reviewing *development* downstream of existing or proposed dams. *Development* within the dam break *flood* wave shall be denied unless the dam meets the standards for a high hazard dam.

7.8 CONDITIONAL PERMITS

A conditional permit may be issued for garages and *accessory structures* less than six hundred (600) square feet in size, provided:

- a. The *structure* is incidental to the primary *structure*.
- b. It is used solely for limited storage and parking of vehicles.
- c. The floor of the *structure* is constructed at or above *grade*.
- d. The *structure* is located, oriented, and constructed so as to minimize *flood* damage.
- e. The *structure* is firmly anchored to prevent flotation.
- f. The *structure* meets the requirements of Article VI, Section 7.4 of this Ordinance.
- g. A *Declaration of Land Restriction* is recorded with the Kent County Clerk of Court. A copy of the recorded document shall be attached to the building permit.*

7.9 ENFORCEMENT

1. It shall be the duty of the Planning Director of the Planning Director's designee to perform the function of the Floodplain Administrator and to enforce the provisions of this Ordinance and to refuse to issue any permit or approve any *development* that would violate the provisions of this Ordinance. It shall be the duty of all officers and employees of Kent County to assist in the enforcement of this Ordinance by reporting seeming *violations*.*
2. The Planning Director of the Planning Director's designee is authorized and directed to institute any appropriate action to correct *violations* of this Ordinance.*
3. Any *violation* of Article VI, Section 7 of this Ordinance shall be subject to the fines and penalties established in Article XII of this Ordinance.
4. The Federal Insurance Administrator and the State of Maryland shall be notified immediately in writing of any *structure* or property in *violation* of Article VI, Section 7 of this Ordinance.

7.10 LIABILITY

The degree of *flood* protection provided by this chapter is considered reasonable for regulatory purposes and is based on engineering experience and scientific methods of study. Floods of greater magnitude may occur or *flood* heights may be increased by man-made or natural causes. This section does not imply that flooding will not occur outside of delineated *floodplain* zones, nor that the permitted *development* and land uses within the *floodplain* will be free of flooding and associated *flood* damage. This section does not create liability on the part of the County, any officer, or employee thereof for any damage which may result from reliance on this Section.

The degree of the flood protection required by these regulations is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur, and flood heights may be increased by man-made or natural causes. These regulations do not imply that land outside of the *Special Flood Hazard Areas* or uses that are permitted within such areas will be free from flooding or flood damage.*

SECTION 8 FOREST CONSERVATION

8.1 STATEMENT OF INTENT

The purpose of this Section is to conserve the forests of Kent County. Forests and individual trees greatly contribute to the quality of life in Kent County, the health of the natural *ecosystem*, and the health and welfare of the citizens of Kent County. The County's economic health depends heavily on its natural resources of which forests are a major component. It is not the intent of the law to place unreasonable restrictions on *development*. Rather it aims to maximize the benefits of *forest* in a cooperative effort with *development*, thereby limiting the loss of forested land in Kent County and improving the environment of both developed and undeveloped areas.

8.2 APPLICABILITY

This Section applies to *minor* and *major site plans*, subdivisions, *public utilities* not exempt under this section and all *grading* permits for a disturbed area over 40,000 square feet excluding those areas governed by the Chesapeake Bay *Critical Area* Protection Law (Natural Resources Article, §§8-1801–1817*, Annotated Code of Maryland). This Section also does not apply to the following:

1. Highway construction activities under Natural Resources Article, Section 5-103, Annotated Code of Maryland.
2. *Commercial logging* and *timber harvesting operations*, including harvesting conducted subject to the *Forest Conservation* and Management Program under Tax Property Article, Section 8-211, Annotated Code of Maryland, that are completed after July 1, 1991 on property which:
 - a. Has not been the subject of application for a *grading* permit for *development* within five years after the logging or harvesting operation; and
 - b. Is the subject of a *Declaration of Intent* as provided for in Section 8.3 of this Ordinance.
3. Agricultural activities, not resulting in a change in land use category, including agricultural support *buildings* and other related activities constructed using *best management practices* provided that no more than 40,000 square feet of *forest* is cleared within a one year period. A *person* clearing 40,000 square feet or greater of *forest* within a one year period may not receive an exemption unless the *person* files a *Declaration of Intent* which includes:
 - a. A statement that the landowner or the landowner's agent will practice *agriculture* on that portion of the property for five years from the date of the declaration; and
 - b. A sketch of the property which shows the area to be cleared.
4. The cutting or *clearing* of a public utility *right of way* licensed under Public Utility Companies, §§7-207 and 7-208 or 7-205,* Annotated Code of Maryland, or land for electric generating stations licensed under Public Utility Companies, §§7-207 and 7-208 or 7-205,* Annotated Code of Maryland, provided:
 - a. Certificates of public conveniences and necessity have been issued in accordance with Natural Resources Article §5-1603(f), Annotated Code of Maryland; and
 - b. Cutting or *clearing* of the *forest* is conducted to minimize the loss of *forest*.
5. Routine maintenance or emergency repairs of the public utility *right of way* licensed under Public Utility Companies, §§7-207 and 7-208 or 7-205,* Annotated Code of Maryland.

* Amended 2/16/21

6. Routine maintenance or emergency repairs of public utility *right of way* not subject to Section 8.2 (4) of this Ordinance, provided:
 - a. The *right of way* existed prior to January 5, 1993; or
 - b. The *right of way's* initial construction was approved after January 5, 1993.
7. Non-coal surfacing mining regulated under Environment Article, Title 15, Subtitle 8,* Annotated Code of Maryland.
8. An activity required for the purpose of constructing a dwelling intended for the use of the owner or a child of the owner, if the activity:
 - a. Does not result in the cutting, *clearing*, or *grading* of more than 20,000 square feet of *forest*; and
 - b. Is the subject of a *Declaration of Intent* filed in the Department of Planning and Zoning which states that a transfer in ownership may result in the loss of the exemption.
9. A real estate transfer to provide a security, leasehold, or other legal or equitable interest, including a transfer of title, of a portion of a *lot* or parcel if:
 - a. The transfer does not involve a change in land use, or new *development* or *redevelopment* with associated land disturbing activities.
 - b. Both the grantor and grantee file a *Declaration of Intent*.
10. An activity on a property that has more than 50% of its acreage within the Chesapeake Bay *Critical Area*.
11. A residential construction activity conducted on an existing single lot of any size of record at the time of application, or a *linear project* not otherwise exempted under this section, if the activity:*
 - a. Does not result in the cumulative cutting, *clearing*, or *grading* of more than 20,000 square feet of *forest*; and
 - b. Does not result in the cutting, clearing, or grading of a forest that is subject to the requirements of a previous forest conservation plan approved under this ordinance; and
 - c. Is the subject of a *Declaration of Intent* filed in the Department of Planning and Zoning which states that a transfer in ownership may result in the loss of the exemption.
12. An activity on a previously developed area covered by impervious surface and located in a *Priority Funding Area*.*
13. Maintenance or retrofitting of a stormwater management structure that may include clearing of vegetation or removal and trimming of trees, if the maintenance or retrofitting is within the original limits of disturbance for construction of the existing structure, or within any maintenance easement for access to the structure.*
14. A *stream restoration project* for which the applicant for a grading or sediment control permit has executed a binding maintenance agreement of at least five years with the affected property owner or owners.*

8.3 GENERAL REQUIREMENTS

A. Declaration of Intent

1. A *person* seeking an exemption under Section 8.2 of this Ordinance shall file a *Declaration of Intent* with the Kent County Department of Planning and Zoning.

* Amended 2/16/21

2. A *Declaration of Intent* is effective for five years.
3. The existence of a *Declaration of Intent* does not preclude:
 - a. An exempted activity on a property subject to a *Declaration of Intent* if the activity:
 - i. Does not conflict with the purpose of any existing *Declaration of Intent*, and
 - ii. Complies with the applicable requirements for an exempted activity.
 - b. A *regulated activity* on the area covered by the *Declaration of Intent*. However, if the activity occurs within five years of the effective date of the *Declaration of Intent*:
 - i. There shall be an immediate loss of exemption, or
 - ii. There may be a non-compliance action take by the Department of Planning and Zoning, as appropriate, under this Ordinance, or
 - c. A *regulated activity* on that area of the property not covered under the *Declaration of Intent* if the requirements of this Ordinance are satisfied.

B. *Forest Stand Delineation*

1. Simplified *Forest Stand Delineation*
 - a. A simplified *Forest Stand Delineation* (SFSD) may be submitted when *forest cover* is not disturbed during a construction activity and the area is under a long-term protective agreement.
 - b. A simplified *Forest Stand Delineation* shall be submitted at the time of concept *site plan* and concept *subdivision* review. A SFSD shall be used to determine the most suitable and practical areas for conservation.
 - c. The delineation shall be prepared by a registered surveyor, licensed forester, licensed landscape architect, or other qualified professional who meets the requirements of COMAR 08.19.06.01B. A simplified *Forest Stand Delineation* shall meet the requirements found in Article VI, Section 8.4 of this Ordinance. The Planning Director may permit the *Forest Stand Delineation* to be combined with the *site* or *subdivision plan*.
2. *Forest Stand Delineation*
 - a. A *Forest Stand Delineation* (FSD) shall be submitted at preliminary *site plan* or *subdivision* review, and before application for a *grading* or *sediment control permit* unless Section 8.3.B.1 applies. A FSD shall be submitted with the application for *minor site plan* or *minor subdivision* approval unless Article VI, Section 8.3.B.1 of this Ordinance applies.
 - b. The delineation shall be prepared by a licensed forester, licensed landscape architect or other qualified professional who meets the requirements of COMAR 08.19.06.01B and shall meet the requirements of Article VI, Section 8.4 of this Ordinance.
 - c. The delineation shall be used to determine the most suitable and practical areas for *forest conservation*.
 - d. An approved *Forest Stand Delineation* may remain in effect for a period not longer than 5 years.*

C. *Forest Conservation Plans*

1. At the time of application for preliminary *subdivision* and *site plan* review, the applicant shall submit a preliminary *Forest Conservation Plan*. The review of the *Forest Conservation Plan* shall be concurrent with the review of the preliminary *subdivision* or *site plan*.
2. A final conservation plan shall be submitted with:
 - a. Minor and final *subdivision plan*

* Amended 2/16/21

- b. *Minor and final site plan*
 - c. Application for a *grading and sediment control permit*
3. Both preliminary and final *Forest Conservation Plans* shall be prepared by a licensed forester, licensed landscape architect or other qualified professional who meets the requirements of COMAR 08.19.06.01B. If *forest* is not going to be disturbed, a registered surveyor may prepare preliminary and final *Forest Conservation Plans*. Preliminary and final *Forest Conservation Plans* shall meet the requirements of Article VI, Section 8.4 of this Ordinance.
 4. The preliminary *Forest Conservation Plan* may be modified during the review process.
 5. Where deemed appropriate by the Planning Director, the preliminary and final conservation plans may be incorporated into other plans and plats required by this Ordinance.
 6. If existing *forest* on the *site* subject to a *Forest Conservation Plan* can not be retained, the applicant shall demonstrate to the satisfaction of the Department of Planning and Zoning:*
 - a. How techniques for *forest retention* have been exhausted;
 - b. Why the priority forests and priority areas specified in the design standards of the zoning districts cannot be left in an undisturbed condition.
 - i. If priority *forests* and priority areas cannot be left undisturbed, how the sequence for *afforestation* or *reforestation* will be followed in compliance with Natural Resources Article, §5-1607, Annotated Code of Maryland;
 - ii. Where on the site in priority areas, *afforestation* or *reforestation* will occur in compliance with Natural Resources Article, §5-1607, Annotated Code of Maryland; and
 - iii. How the disturbance to the priority *forests* and priority areas specified in the design standards of the zoning districts qualifies for a waiver.
 7. If the applicant proposes to make a payment into the local *forest conservation* fund instead of *afforestation* or *reforestation*, the applicant shall demonstrate to the satisfaction of the Department of Planning and Zoning that the requirements for *afforestation* or *reforestation on-site* or *off-site* cannot be reasonably accomplished

8.4 PLAN REQUIREMENTS

A. Simplified Forest Stand Delineation

A simplified *Forest Stand Delineation* shall include:

1. Topographic map delineating *intermittent* and *perennial streams* and *steep slopes* over twenty-five percent (25%).
2. *Soils* map delineating *soils* with structural limitations, such as, *hydric soils*, or *soils* with a *soil K Value* greater than 0.35 on *slopes* of fifteen percent (15%), or more.
3. Location of 100-year *non-tidal floodplains*.
4. Property boundaries
5. Map showing existing *forest cover* verified by field inspection.

* Amended 2/16/21

6. Other information that the Department of Planning and Zoning determines is necessary to implement *forest conservation*.

B. *Forest Stand Delineation*

A *Forest Stand Delineation* shall include the following:

1. Stand summary sheets that include a summary of the data collected at individual sampling *sites* including the following:
 - a. Dominant species and *forest* association
 - b. *Site* class of dominant *tree*
 - c. Total number of *tree* species
 - d. Number of trees per acre
 - e. Common understory species
 - f. *Forest structure* rating
2. A *Forest Stand Delineation* Map
 - a. North arrow
 - b. Property boundaries
 - c. *Perennial* and *intermittent streams* and their required *stream protection corridors*
 - d. *Topography*
 - e. *Soils*, highlighting hydric and *soils* with a *K Value* over 0.35 on *slopes* of fifteen percent (15%) or more.
 - f. Current *forest* and unforested areas, including species, location, size of trees and showing dominant and co-dominant *forest* types
 - g. *Forest* stand locations
 - h. *Tree* lines extending *off-site*
 - i. *Steep slopes*
 - j. Field sampling points
 - k. Prime agricultural *soils*
 - l. Critical habitats
 - m. Adjacent land uses
 - n. Cultural features
 - o. Historic *sites*
 - p. *Non-tidal 100-year floodplain*
 - q. *Non-tidal wetlands*
 - r. Vicinity Map at a scale of 1:2000 which indicates major *roads*, land uses, and *forest cover* within one square mile of the *site*.
3. A written summary of *forest* stand conditions
 - a. Stand Condition
 - i. Stand *structure* (dominant species and understory species)
 - ii. *Forest structure*
 - iii. *Retention* potential
 - iv. Comments on evidence of past management
 - b. Environmental Features
 - i. *Non-tidal floodplains*
 - ii. *Hydric soils*
 - iii. *Non-tidal wetlands*
 - iv. *Stream protection corridors*
 - v. Critical habitats

- vi. *Steep slopes and soils* with a *K Value* which exceeds 0.35 on *slopes* of fifteen percent (15%) or more
 - vii. Cultural features
 - viii. Historic *sites*
 - ix. Adjacent land uses
 - x. Specimen trees and *champion trees*
4. Other information may be required if the Department of Planning and Zoning determines it is necessary to implement this Ordinance.

C. Preliminary Forest Conservation Plan

A preliminary *Forest Conservation Plan* shall include the following:

- 1. The approved *Forest Stand Delineation*
- 2. A table listing:
 - a. *Net tract area*
 - b. Area of *forest conservation* required
 - c. Area of *forest conservation*, both on- and *off-site* provided by the *developer*
 - d. *Afforestation* and *reforestation* plan
 - e. Plat, drawn at the same scale as the preliminary plan which indicates:
 - i. Areas designated for *forest retention*
 - ii. Areas designated for *reforestation*
 - iii. Areas designated for *afforestation*
 - iv. Limits of disturbance
 - v. Stockpile areas
 - f. Construction schedule, showing the sequence of *forest conservation*
 - g. Two-year *maintenance agreement*
 - h. A narrative on how the requirements for *forest conservation* have been addressed
 - i. *Forest Conservation Worksheet*
 - j. Other information the Department of Planning and Zoning determines is necessary to implement *forest conservation*.

D. Final Forest Conservation Plan

A final *Forest Conservation Plan* shall include the following:

- 1. The approved *Forest Stand Delineation*
- 2. A *Forest Conservation Worksheet*. A worksheet and instructions for its completion may be found in the *Forest Conservation Technical Manual*.
- 3. A *Forest Conservation Map* which clearly indicates the following:
 - a. *Forest retention* areas (with priority rating)
 - b. *Reforestation* areas
 - c. *Afforestation* areas
 - d. Protective devices, including specifications
 - e. Limits of disturbance
 - f. Stockpile areas

4. Construction Schedule, including the sequence of *reforestation* areas, *afforestation* areas, maintenance and protective measures to be employed at the *site*.
 5. *Forest Protection Plan* that addresses:
 - a. Pre-construction activities including stress reduction and temporary and permanent protective devices.
 - b. Future protection measures
 6. *Reforestation and Afforestation Plans*, which include:
 - a. Narrative evaluation of sequential analysis of *reforestation* and *afforestation* methods.
 - b. Planting plan which includes:
 - i. Summary of *site* assessment and preparation
 - ii. Target species for *reforestation*
 - iii. Plant materials table including plant material source, species, number of plants, size of plants. Methods found in the *Forest Conservation Technical Manual* shall be used to determine species selection and *site* stocking.
 7. A 2-year *maintenance agreement* which includes:
 - a. Watering plans
 - b. Fertilizing plans
 - c. Control of competing vegetation
 - d. Protection from disease, pest, and mechanical injury
 - e. Replanting provisions when survival goal falls below acceptable levels
 - f. Name of company or individual responsible for *tree* care
 8. Long term binding protective agreement, that:
 - a. Provides protection for areas of *forest conservation*, including areas of *afforestation*, *reforestation*, and *retention*, and
 - b. Limits uses in areas of *forest conservation* to those uses designated and consistent with *forest conservation* including recreational activities and *forest management* practices used to preserve *forest*.
 - c. A narrative on how the general provisions of *forest conservation* found in this Ordinance have been addressed.
 9. Table listing:
 - a. *Net tract area*
 - b. Area of *forest conservation* required
 - c. Area of *forest conservation* provided both on and *off-site*
 10. Other information that the Department of Planning and Zoning determines is necessary to implement *forest conservation*.
- E. Forest Conservation Fund
1. A *forest conservation* fund is established that meets the requirements of Natural Resources Article, §5-1610(h-1), Annotated Code of Maryland.*
 2. When the Kent County Department of Planning and Zoning determines that the requirements for *reforestation* or *afforestation on-site* or *off-site* cannot be reasonably accomplished and credits generated by a *forest mitigation bank* in the same county or watershed are not available, the applicant shall contribute money into the *forest conservation* fund.*

- a. For a project inside a *Priority Funding Area*, at a rate of 30.5 cents per square foot of the area of required planting with the amount adjusted by the Department of Natural Resources based on the previous year's inflation rate; and
 - b. For a project outside a *Priority Funding Area*, at a rate of 36.6 centers per square foot of the area of required planting with the amount adjusted to be 20% higher than the rate set under item 2.a of this subsection
3. The money shall be paid prior to final approval.
 4. Money deposited in the local *forest conservation* fund:
 - a. May be spent on the costs directly related to *reforestation* and *afforestation*, including *site* identification, acquisition, preparation, and maintenance of existing forests and achieving urban canopy goals.*
 - b. Shall be deposited in a separate *forest conservation* fund; and
 - c. May not revert to the general fund
 5. The County shall accomplish the *reforestation* or *afforestation* for the equivalent number of acres, or *forest* land acquisition for which the money is deposited within two years or three *growing seasons*, whichever is the greater time period after receipt of the money.*
 6. *Reforestation*, *afforestation*, *forest easement* purchase, or *forest* land acquisition paid for by this fund shall occur in Kent County or its municipalities and in the same *watershed* in which the project is located.
 7. If the *reforestation*, *afforestation*, *forest easement* purchase, or *forest* land acquisition cannot be reasonably accomplished in the same *watershed* in which the project is located, the *reforestation*, *afforestation*, *forest easement* purchase, or *forest* land acquisition shall occur within the same county or *watershed* in the state in which the project is located.
- F. Forest Protective Devices
1. Before cutting, *clearing*, *grading*, or construction begins on a *site*, the applicant shall demonstrate to the Department of Planning and Zoning that protective devices have been established.
 2. Protective device standards are found in the *Forest Conservation Technical Manual*.
- G. Bonds
1. A *person* required to conduct *afforestation* or *reforestation* shall furnish financial security in the form of a bond, an irrevocable letter of credit, or other security approved by the County Commissioners of Kent County. The surety shall:
 - a. Assure that the *afforestation*, *reforestation*, and the associated *maintenance agreement* are conducted and maintained in accordance with the approved *Forest Conservation Plan*.
 - b. Be in an amount that is 125% of the estimated cost of *reforestation* or *afforestation* as determined by the Department of Planning and Zoning.
 - c. Be in a form and content approved by the Department of Planning and Zoning.
 2. After one *growing season*, an applicant may request reduction of the amount of the bond or other financial security by submitting a written request to the Department of Planning and Zoning with a justification for reducing the bond or other financial surety amount, including estimated or actual costs to ensure *afforestation* or *reforestation* requirements are met.

3. The Department of Planning and Zoning shall determine whether a lesser amount is sufficient to cover the cost of *afforestation* or *reforestation*, taking into account such factors as the number of acres, proposed method of *afforestation* or *reforestation*, cost of planting materials, and maintenance costs.
4. If after two *growing seasons* the plantings associated with the *afforestation* or *reforestation* meet or exceed the standards of the Kent County *Forest Conservation Technical Manual*, the amount of the bond, letter of credit, surety bond, or other security shall be returned or released.

H. *Non-tidal wetlands*

A *regulated activity* is subject to the following requirements:

1. For the purposes of delineation, permitting, and mitigation, areas determined to be *non-tidal wetlands* under COMAR 08.05.04 shall be regulated under COMAR 08.05.04 or this ordinance, whichever is more stringent.
2. For the purposes of calculating *reforestation* mitigation under this Ordinance, a forested *non-tidal wetland* permitted to be cut or cleared and required to be mitigated under COMAR 08.05.04 shall be shown on the *Forest Conservation Plan* and subtracted on an acre for acre basis from the total amount of *forest* to be cut or cleared as part of a *regulated activity*.
3. *Non-tidal wetlands* shall be considered priority areas for *retention* and replacement.
4. Forested *non-tidal wetland* identification and delineation should be included at the earliest stage of planning to assist the applicant in avoidance and reduction of impacts to the *non-tidal wetlands* and to avoid delay in the approval process.

I. State Funds

1. A local agency or *persons* using state funds making application to conduct a *regulated activity* shall submit the *subdivision*, construction, *grading*, or sediment control plan to the Department of Planning and Zoning who shall notify the Department of Natural Resources within fifteen (15) days of receipt of the plan or project.
2. Within fifteen (15) days of receipt of notice from the Department of Planning and Zoning, the Department of Natural Resources shall:
 - a. Determine whether the project has impact on significant *forest* resources; and
 - b. Notify the Department of Planning and Zoning whether the project is subject to the State Program.
3. If the Department of Natural Resources determines that the project is subject to the State program:
 - a. The time limit for approval of the *Forest Stand Delineation* and preliminary and final *Forest Conservation Plan* shall begin when the Department of Natural Resources receives the necessary documents from the Department of Planning and Zoning;
 - b. The Department of Planning and Zoning may not approve a *subdivision* or *site plan* or issue the *grading* or *sediment control permit* until the Maryland Department of Natural Resources notifies the county that the standards and requirements of the State program have been satisfied.

4. If the Department of Natural Resources determines the project need not be reviewed under the state program, the time limit for approval of the *Forest Stand Delineation* and *Forest Conservation Plan* under the Kent County Plan begins when the Department of Planning and Zoning receives notice from the Department of Natural Resources.
- J. Payment by credits from a forest mitigation bank*
1. When the Kent County Department of Planning and Zoning determines that the requirements for *reforestation* or *afforestation on-site* or *off-site* cannot be reasonably accomplished, the applicant may contribute credits from a *forest mitigation bank*. A credit is required for each tenth of an acre of an area of required planting.
 2. The credits shall be debited from an approved *forest mitigation bank* prior to final approval.
- K. Establishing forest mitigation banks*
1. A person may create a *forest mitigation bank* from which applicants may purchase credits to meet the *afforestation* and *reforestation* requirements of this ordinance.
 2. The *forest mitigation bank* shall:
 - a. *Afforest* or *reforest* an area of land in accordance with a *Forest Mitigation Bank Agreement*;
 - b. Be protected by an easement, deed restrictions, or covenants which require the land in the bank to remain forested in perpetuity and are enforceable by the Department of Planning and Zoning and the Department of Natural Resources;
 - c. Limit the use of the land in the bank to those activities which are not inconsistent with forest conservation such as recreational activities, forest management under a forest conservation and management program under Tax Property Article, §8-211, Annotated Code of Maryland, or activities specified in a forest management plan prepared by a licensed forester and approved by the Department;
 - d. Use native plant materials for *afforestation* or *reforestation* unless inappropriate; and
 - e. Cause trees to be planted which:
 - i. Establish or enhance forested buffers adjacent to *intermittent* and *perennial streams* and coastal bays to widths of at least 50 feet;
 - ii. Establish or increase existing forested corridors, which, where practical, should be a minimum of 300 feet in width to facilitate wildlife movement, to connect existing *forests* within or adjacent to the site;
 - iii. Establish or enhance forest buffers adjacent to *critical habitats* where appropriate;
 - iv. Establish or enhance forested areas in 100-year floodplains;
 - v. Stabilize slopes of 25 percent or greater;
 - vi. Stabilize slopes of 15 percent or greater with a soil k value greater than 0.35 including the slopes of ravines or other natural depressions;
 - vii. Establish buffers adjacent to areas of differing land use where appropriate, or adjacent to highways or utility rights-of-way; or
 - viii. Establish forest areas adjacent to existing forests to increase the overall area of contiguous forest cover, when appropriate.
 3. A person proposing to create a *forest mitigation bank* shall submit to the Department of Planning and Zoning a:
 - a. Completed application on a form approved by the Department which has been signed by an authorized individual;

- b. *Forest mitigation bank plan* which contains a:
 - i. Vicinity map of the proposed mitigation bank site;
 - ii. Simplified *forest stand delineation* which meets under section 8.3.b.1;
 - iii. Detailed *afforestation* or *reforestation* plan, which shall include a timetable and description of the site and soil preparation needed, species, size, and spacing to be utilized, prepared by a licensed Maryland forester, a licensed landscape architect, or a qualified professional who meets the requirements stated in COMAR 08.19.06.01a; and
 - iv. Proposed 2-year maintenance agreement that includes:
 - a) Watering plans
 - b) Fertilizing plans
 - c) Control of competing vegetation
 - d) Protection from disease pest, and mechanical injury
 - e) Replanting provisions when survival fall below acceptable levels
 - f) Name of company or individual responsible for tree care
 - c. Copy of the deed to the property;
 - d. Survey or other legally sufficient description of the bank site for inclusion in the deeds of easement, deed restrictions, or covenants;
 - e. Title report or other assurance that:
 - i. The property is not encumbered by any covenants or other types of restrictions which would impair the property's use as a *forest mitigation bank*; and
 - ii. There is legally sufficient access to the *forest mitigation bank* site which can be used by the Department and its assignees to inspect the *forest mitigation bank*; and
 - f. Description of the system to be used by the person owning and operating the *forest mitigation bank* to identify and keep track of which portions of the bank have been debited to meet an applicant's offsite *afforestation* or *reforestation* requirements.
4. The owner of an approved *forest mitigation bank* shall enter into an agreement with the Department which contains:
- 1. The approved *reforestation* or *afforestation* plan;
 - 2. The approved system for marking and tracking which portions of the bank have been debited; and
 - 3. An acknowledgment that the bank may not debit any portion of the afforested or reforested land until 2 years of successful growth has been achieved unless the banker has posted a bond or alternate form of security.

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 9 EROSION AND SEDIMENT CONTROL

9.1 STATEMENT OF INTENT*

The purpose of this Ordinance is to protect, maintain, and enhance the public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with land disturbances. The goal is to minimize soil erosion and prevent off-site sedimentation by using soil erosion and sediment control practices designed in accordance with the Code of Maryland Regulations (COMAR) 26.17.01, the 2011 Maryland Standards and Specifications and the Stormwater Management Act of 2007. Implementing this Ordinance will help reduce the negative impacts of land development on water resources, maintain the chemical, physical, and biological integrity of streams, and minimize damage to public and private property.

The provisions of this Ordinance pursuant to Title 4, Environment Article, Subtitle 1, Annotated Code of Maryland are adopted under the authority of the Code of Public Local Laws of Kent County and shall apply to all land grading occurring within Kent County. The application of this Ordinance and the provisions expressed herein shall be the minimum erosion and sediment control requirements and shall not be deemed a limitation or repeal of any other powers granted by State Statute.

No person shall disturb land without implementing soil erosion and sediment controls in accordance with the requirements of this Ordinance and the Standards and Specifications except as provided within this section.

9.2 APPLICABILITY

1. A permit shall be obtained for any *grading, clearing, stripping*, excavating, filling of land, or *forest* harvesting. A permit shall also be obtained for the creation of borrow pits, spoil areas, quarries, material processing facilities, or any other facilities.
2. A permit shall not be required for the following, subject to compliance with the requirements of the Department of the Environment, relating to sediment control plans approved by the Kent Soil and Water Conservation District:
 - a. Outside the Chesapeake Bay *Critical Area, agricultural land management* operating according to *best management practices* in Maryland.
 - b. In the Chesapeake Bay *Critical Area, agricultural land management* operating according to an approved *soil* and water conservation plan approved by the Kent Soil and Water Conservation District. Landowners who have signed up as conservation district cooperators but do not have a conservation plan developed for them by the District shall be exempt from the requirements of this Section if *best management practices* are used.
 - c. *Clearing* or *grading* of land, provided that:
 - i. The aggregate of area(s) affected or bared at any one time does not exceed five thousand (5,000) square feet; and
 - ii. The *grading* does not involve a quantity of materials in excess of one hundred (100) cubic yards.
 - d. State and federal projects that are reviewed and enforced by the Maryland Department of the Environment.

9.3 PROCEDURES

A *person* making an application for a *Sediment Control Permit* shall submit to the Department of Planning and Zoning the following:

1. Application
2. One original and five copies of the erosion and sediment control plan, including specifications and timing schedules.*
3. Fee
4. A bond if required under Article VI, Section 9.10 of this Ordinance.

9.4 GENERAL REQUIREMENTS

1. Permits issued under this Section do not relieve the owner of responsibility for securing required permits for work to be done which is regulated by any other applicable code, act, or County ordinance. This Section shall not preclude the inclusion in other permits of more stringent *regulations* or requirements concerning sediment control.
2. Standard sediment control plans and provisions may be approved for *single family dwellings* and other minor projects. A plan shall be approved prior to the issuance of a *grading* or building permit.
3. The Kent County Soil and Water Conservation District may prepare sediment control plans for agricultural projects such as barns, chicken houses, dairy operations or other agricultural *buildings*.
4. A copy of the current approved plan shall be kept at the construction *site*.
5. Prior to the issuance of a *grading* permit, copies of the plan shall be referred by the Department of Planning and Zoning to the Kent Soil and Water Conservation District for approval. Where applicable, the Maryland Department of the Environment may also review any plans that may require a water resources permit. Where deemed necessary, the Maryland Department of the Environment may also serve Kent County and the Kent Soil and Water Conservation District as a technical authority in *erosion* and sediment control. The Soil and Water Conservation District shall notify the Department of Planning and Zoning of its recommendations and/or approval.
6. Major modifications of the approved *grading* plans shall be submitted to the Department of Planning and Zoning and reprocessed in the same manner as the original plan. Field modifications of a minor nature may be authorized by the Department of Planning and Zoning provided that written authorization is given to the applicant performing work pursuant to this Section, with copies forwarded in a timely manner to the Kent Soil and Water Conservation District.
7. The permit and inspection fee shall be paid to the Department of Planning and Zoning and shall be determined by the *Sediment Control Officer* after consultation with the Kent Soil and Water Conservation District. The fee for a permit authorizing additional work shall be the difference between the fee paid for the original permit and the fee required for the entire sediment control project.
8. If the land area for which the *grading* is proposed lies within the *floodway* of any stream or *watercourse*, the Kent County Department of Planning and Zoning shall deny a *sediment control permit*, unless such *grading* is authorized or permitted by the Maryland Department of the Environment in accordance with its rules and *regulations*.

9. In granting any permit pursuant to this Section, the Kent County Department of Planning and Zoning may impose conditions that may be reasonably necessary to prevent the creation of a nuisance or unreasonable hazard to *persons* or to public or private property. Such conditions include but are not limited to:
 - a. Improvement of any existing *grading* to meet the standards required under this Section for new *grading* and for sediment control.
 - b. Designation of *easements* for drainage facilities and for the maintenance of *slopes*, *erosion* control facilities, and storm water management *structures* or devices.
 - c. Adequate control of dust by watering or other control methods acceptable to the Kent County Department of Planning and Zoning and in conformance with applicable air pollution ordinances.
10. The Department of Planning and Zoning shall have the right to deny issuance of a *grading* permit when the proposed *grading* would cause hazards adverse to the public safety and welfare.
11. For steep banks along the shorelines that are actively eroding and ten feet in height or more, the Kent County Department of Planning and Zoning may elect not to issue a permit for the construction of a dwelling or any other substantial *building*.
12. *Sediment control permits* expire after one year unless construction of the project has begun.
13. Sediment control plans expire after two years.
14. Following initial disturbance or redisturbance, permanent or temporary *stabilization* on areas not under active grading shall be completed within:
 - a. Three calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter *slopes*, and all *slopes* greater than three horizontal to one vertical (3:1).*
 - b. Seven days as to other disturbed or graded areas on the project *site*.*
15. The *permittee* shall fully perform and complete all of the work required to be done pursuant to the *grading* within the time limit specified in the *grading* permit. If an applicant is unable to complete the work in the specified time, the applicant shall submit a written request for an extension to the Department of Planning and Zoning that explains the need for the requested extension.
16. All permits issued for sand, gravel, or clay pits and rock quarries or any other mining or material processing operations involving *excavation* and/or stockpiling of *soil*, rock, or other materials shall lapse one year after termination of active, productive (i.e. actually removing material whether at a profit or not and whether stockpiled or sold) and continuous operations as determined by the Department of Planning and Zoning. Said permits shall be reviewed annually by the Department of Planning and Zoning for compliance in accordance with the approved *grading* plan.
17. Neither the issuance of a permit under the provisions of this Section nor the compliance with the provisions hereto or with any condition imposed by the Department of Planning and Zoning shall relieve any *person* from any responsibility for damage to *persons* and/or property.
18. During *grading* control operations the *permittee* shall be responsible for the prevention of damage to any *public utilities* or services within the limits of *grading* and along any routes of travel of equipment. No *person* shall grade on land so close to property lines as to endanger any adjoining public *street*, sidewalk, *alley*, or any other public or private property without supporting and

protecting such property from settling, cracking, or other damage. *Grading* can occur on adjacent property if *grading* rights are secured from the property owner. Storm drains must terminate in an *acceptable outfall*. Kent County, Maryland shall not be responsible for any drainage damage to downstream properties for failure of any work to be done pursuant to this Section.

19. No *soil*, miscellaneous debris, or other spilled or dumped material is to be deposited in floodplains, *watercourses*, public *streets*, highways, sidewalks, or other public thoroughfares during transit or operation.
20. The owner of any property on which *grading* or other work has been done under the provisions of this Section shall maintain and/or promptly repair or restore all graded surfaces, *erosion* control measures, vegetative covers and/or other protective measures if disturbed or destroyed during the course of operations. Repair and restoration shall be in conformance with the approved plans until permanent measures are accepted by the Department of Planning and Zoning.

9.5 STEEP SLOPE REQUIREMENTS

1. *Development* may occur within steep slope areas provided that a minimum of 30% of the *lot* or parcel upon which the principal *structure* is to be situated is less than 10% grade and is contiguous to a road meeting Kent County design standards. The extent of cutting and filling that will be permitted on any *lot* will be based on the *soil* conditions at the *site* and as determined by the Department of Planning and Zoning upon recommendation of the Kent Soil and Water Conservation District. Construction on piling and/or supports shall be permitted.
2. All *roads* and *streets* shall be placed as close to the contour as possible, to minimize cutting and filling.
3. The construction of all *structures* shall be preceded by the installation of storm drainage system(s) and *stabilization* measures.
4. In the case of a single *lot development* within such areas where no central storm drainage system exists, runoff from driveways, roofs, and other improved surfaces shall be diverted and carried to an acceptable outlet by one or a combination of the following methods: filtration beds, subsurface dry wells, storm drainage systems and/or underground conduit systems or other adequate or protected outlets.

9.6 VEGETATIVE REQUIREMENTS

Vegetative *erosion* and sediment control measures shall include, but not be limited to, the following:

1. Following initial *soil* disturbance or redisturbance, permanent or temporary *stabilization* on areas not under active grading shall be completed within:
 - a. Three calendar days as to the surface of all perimeter dykes, swales, ditches, perimeter *slopes*, and all *slopes* greater than three to one (3:1).*
 - b. Seven days as to all other disturbed or graded areas on the project *site*.*
2. Temporary *Vegetative Stabilization*. Areas where *grading* or cutting and filling operations are carried out in several stages that expose *soil* to *erosion* for six months shall be temporarily stabilized by seeding.* The necessary steps to be followed to attain adequate *erosion* control coverage with temporary seeding shall be as follows:
 - a. Necessary *erosion* control practices

- b. Seedbed preparation
 - c. Lime and fertilizer as required
 - d. Seeding
 - e. Mulching and mulch anchoring as required
3. Temporary Mulch *Stabilization*. The necessary steps to attain effective *erosion* control with mulch for short periods of time (less than six months) shall be as follows:
- a. Necessary *erosion* control practices
 - b. Mulching placed on a friable *soil*
 - c. Mulch anchoring as required
4. Mulching Final Grade. The necessary steps to protect *soil* from *erosion* after final *grading* where permanent seeding is delayed until the next season shall be as follows:
- a. Installation of *erosion* control practices as previously provided or required.
 - b. Application of required lime or fertilizer.
 - c. Preparation of final seedbed.
 - d. Mulching as required.
 - e. Mulch anchoring as required.
 - f. Secondary seeding shall be established during the first season following mulching.
5. Permanent Vegetative *Stabilization*. Adapted grasses, legumes, and other plants are available for stabilizing exposed areas. The final choice of species should be determined by considering such factors as adaptability to climate, *soils* and terrain and degree of maintenance. Steps necessary to establish permanent vegetative *stabilization* are as follows:
- a. Install required *erosion* control practices.
 - b. Apply required lime and fertilizer
 - c. Prepare adequate seedbed.
 - d. Seed or sod.
 - e. Apply mulch and anchor for seed and sod.

9.7 STRUCTURAL REQUIREMENTS

Structural *erosion* and sediment control measures shall include, but not be limited to, those described and depicted in the “Standards and Specifications for Soil Erosion and Sediment Control” booklet as approved, adopted, and as may be amended by the Maryland Department of the Environment.

1. Fills and Classifications. The *grading* plans and specifications shall specify and delineate the use and extent of fills in accordance with the following classifications:
- a. Type I *Fill*. *Load-bearing fills* proposed for support of *buildings*, walls, and other *structures*, the function thereof which would not be especially impaired by moderate settlement.
 - b. Type II *Fill*. *Load-bearing fills* proposed for support of *roadways*, pavements, utility lines and *structures* that would not be especially impaired by moderate settlement.
 - c. Type III *Fill*. Common fills proposed for landscaping or for other non-load bearing usage.
2. Materials. All *load-bearing fills* shall meet the following requirements:
- a. No inclusions of organic or other deleterious materials which may be subject to decay shall be permitted. All fills shall also be free of inclusions of ice or snow.
 - b. No rock or similar irreducible material with a maximum dimension greater than eight inches shall be buried or placed in any *load-bearing fill* within two feet of *finished grade* or within two feet of foundation base elevation. When such material is placed in fills, it shall be done under the direction and supervision of an *engineer*.

3. Preparation of Ground. The natural ground surface shall be prepared to receive *fill* by removing all organic surface materials, non-complying *fill* and unsuitable *soils* in accordance with the following provisions, except as otherwise approved by the Department of Planning and Zoning:
 - a. Prior to placing Type I and Type II fills, the ground surface, if within five feet of *finished grade* or foundation base, elevations shall be compacted so as to achieve a density of not less than 90% of maximum density as defined under Article VI, Section 9.6.4 of this Ordinance within the top six inches.
 - b. No Type I and Type II *fill* shall be placed on frozen ground.
4. *Compaction*. All fills will be compacted in accordance with the following provisions:
 - a. All Type I and Type II fills shall be compacted to a minimum of 95% and 90%, respectively, and maximum density as determined in the laboratory of ASTM Test Method D1557-66T, also known as the proctor test. Type III *fill* shall be compacted sufficiently so as to be stable and to prevent an *erosion* hazard.
 - b. In place (field) density shall be determined by ASTM Test of American Society of Highway Officials Equivalent Test Method D1556-64 or by an equivalent test approved by the Kent County Department of Planning and Zoning.
 - c. Fills shall be placed in approximately horizontal layers, each layer having a loose thickness of not more than eight inches.
5. Structural Rock. Fills constructed predominately of large rock (such as sandstone and iron concretions) will be permitted only if the specifications for such *fill* are prepared by and construction done under the direction and supervision of an *engineer*.
6. Maximum *Slope* for Fills.
 - a. No *fill* shall be made which creates an exposed surface steeper in *slope* than two horizontal to one vertical (2 to 1), unless special approval is granted by the Kent County Soil and Water Conservation District.
 - b. The Department of Planning and Zoning may require that the *fill* be constructed with an exposed surface with a grade flatter than 2 to 1 or may require such other measures it deems necessary for stability, vegetative establishment and maintenance, and safety.
 - c. Fills toeing out on natural *slopes* at a grade steeper than three horizontal to one vertical (3 to 1) shall not be made unless approved by the Department of Planning and Zoning.
7. Maximum *Slope* for Cuts.
 - a. Cuts shall not be made with a *slope* steeper than 2 to 1.
 - b. The Department of Planning and Zoning shall require at any time that the *excavation* be made with a *cut* face with a grade flatter than 2 to 1 or may require other such measures for stability, vegetative establishments, and safety.
8. *Cut and Fill Slopes - Bench terraces*.
 - a. *Cut and fill slopes* in excess of 30 feet but not more than 40 feet in vertical height shall be terraced at approximate mid-height. Terraces in *slopes* with a vertical height greater than 40 feet shall be made at equal vertical intervals not more than 20 feet apart. Depending upon *soil* conditions, terraces may be required of closer intervals by the Department of Planning and Zoning as it deems necessary for stability, vegetative establishment and maintenance, and safety. *Bench terraces* shall be a minimum of 6 feet wide with an absolute minimum invert gradient between 2 and 3%, with a six to one, or flatter, lateral *slope* towards the toe of the upper bank, and must convey water with minimum six inch free-board to an acceptable outlet.

- b. Cuts and fills shall be set back from property lines and *buildings* shall be set back from *cut* or *fill slopes* in accordance with the diagrams entitled “*Slope Setback From Property Line*” and a certified copy of which shall permanently be kept on file with the Department of Planning and Zoning.
 - c. *Fill* placed above the top of an existing or proposed surface with a *slope* steeper than three horizontal to one vertical shall be set back from the top of the *slope* a minimum distance of six feet.
 - d. The setbacks established by Article VI, Section 9.7.8 of this Ordinance are minimum and, depending on *soil* conditions, may be increased by the Department of Planning and Zoning if deemed necessary for safety or stability or to prevent damage from water, *soil*, or debris.
 - e. Notwithstanding anything to the contrary, the Department of Planning and Zoning may reduce the required setback where the necessity for the setback may be eliminated or reduced by the construction of retaining walls or if the owner has a letter of authorization to extend *slopes* onto the adjacent property.
9. Existing natural and man-made features, such as *streets*, *watercourses*, falls, beaches, vistas, historic or architecturally significant *buildings*, and similar irreplaceable assets, should be preserved through harmonious and careful *development*, insofar as possible.
10. Drainage. The following provisions apply to the conveyance and disposal of surface water runoff:
- a. Disposal - all drainage facilities shall be designed to convey surface water in such a manner as to prevent *erosion*, overflow or ponding. Said water shall be conveyed to an acceptable outlet in accordance with such applicable design, criteria standards and procedures as required by the Department of Planning and Zoning. The ponding of water shall not be permitted above the *cut* and *fill slopes* or on drainage terraces. Adequate drainage facilities shall be provided to prevent such ponding.
 - b. *Erosion* Prevention - The *permittee* and the owner shall make adequate provisions to prevent any surface and/or groundwater from materially damaging the face of any *cut* or *fill*. All *slopes* shall be protected from surface runoff from above by *berms*, swales, or brow ditches.
 - c. *Grading Around Buildings* - All areas shall be graded to provide for positive drainage away from the *building* toward the approved disposal area.
 - d. Retention and *Infiltration* - Subject to the requirements and recommendations of the Kent County Soil and Water Conservation District and the Department of the Environment, measures such as *infiltration* beds, dry walls, and retention ponds may be used to allow storm water runoff to percolate into the *soil*.

9.8 REVIEW AND APPROVAL OF EROSION AND SEDIMENT CONTROL PLANS*

- 1. A person may not grade land without an erosion and sediment control plan approved by the *approving agency*.
- 2. The *approving agency* shall review erosion and sediment control plans to determine compliance with this Ordinance and the Standards and Specifications prior to approval. In approving the plan, the *approving agency* may impose such conditions that may be deemed necessary to ensure compliance with the provisions of this Ordinance, COMAR 26.17.01, the Standards and Specifications, and the preservation of public health and safety.

3. At a minimum, a concept plan must include the mapping of natural resources and sensitive areas including highly erodible soils and slopes greater than 15% as well as information required under Stormwater Management. These areas are to remain undisturbed or an explanation must be included with either the concept or site development plan describing enhanced protection strategies for these areas during construction.
4. A site development plan submittal must include all concept plan information and indicate how proposed erosion and sediment control practices will be integrated with proposed stormwater management practices. The latter is to be done through a narrative and an overlay plan showing both Environmental Site Design (ESD) and erosion and sediment control practices. An initial sequence of construction and proposed project phasing to achieve the grading unit restriction should be submitted at this time.
5. An applicant shall submit a final erosion and sediment control plan to the *approving agency* for review and approval. The plan must include all of the information required by the concept and site development plans as well as any information in Section 9.9 not already submitted.
6. A final erosion and sediment control plan shall not be considered approved without the inclusion of the signature and date of signature of the *approving agency* on the plan.
7. Approved plans remain valid for three (3) years from the date of approval unless extended or renewed by the *approving agency*. **
8. Grandfathering of Approved Plans:
 - a. Any plans that receive final approval after January 9, 2013, must be in compliance with the requirements of this Section and the Standards and Specifications.
 - b. A plan that receives final approval by January 9, 2013, may be reapproved under its existing conditions if grading activities have begun on the site by January 9, 2015, with the exception of stabilization requirements.
 - c. Stabilization practices on all sites must be in compliance with the requirements of this Section and the Standards and Specifications by January 9, 2013, regardless of when an approved erosion and sediment control plan was approved.

9.9 CONTENTS OF EROSION AND SEDIMENT CONTROL PLANS*

1. An applicant is responsible for submitting erosion and sediment control plans that meet the requirements of the *approving agency*, this Section, Stormwater Management, and the Standards and Specifications. The plans shall include sufficient information to evaluate the environmental characteristics of the affected areas, the potential impacts of the proposed grading on water resources, and the effectiveness and acceptability of measures proposed to minimize soil erosion and off-site sedimentation.
2. At a minimum, applicants shall submit the following information:
 - a. A letter of transmittal and/or application;
 - b. Name, address, and telephone number of:
 - i. The owner of the property where the grading is proposed;
 - ii. The developer; and
 - iii. The applicant;
 - c. A vicinity map indicating north arrow, scale, site location, and other information necessary to easily locate the property;

- d. Drainage area map(s) at a 1" = 200' minimum scale showing existing, interim, and proposed topography, proposed improvements, standard symbols for proposed sediment control features, and pertinent drainage information including provisions to protect downstream areas from erosion for a minimum of 200 feet downstream or to the next conveyance system;
- e. The location of natural resources, wetlands, floodplains, highly erodible soils, slopes 15% and steeper, and any other sensitive areas;
- f. A general description of the predominant soil types on the site, as described by the appropriate soil survey information available through the local soil conservation district or the USDA Natural Resources Soil Conservation Service;
- g. Proposed stormwater management practices;
- h. Erosion and sediment control plans including:
 - i. The existing topography and improvements as well as proposed topography and improvements at a scale between 1" = 10' and 1" = 50' with 2 foot contours or other approved contour interval. For projects with more than minor grading, interim contours may also be required;
 - ii. Scale, project and sheet title, and north arrow on each plan sheet;
 - iii. The limit of disturbance (LOD) including:
 - a) Limit of grading (grading units, if applicable); and
 - b) Initial, interim, and final phases;
 - iv. The proposed grading and earth disturbance including:
 - a) Total disturbed area;
 - b) Volume of cut and fill quantities; and
 - c) Volume of borrow and spoil quantities;
 - v. Storm drainage features, including:
 - a) Existing and proposed bridges, storm drains, culverts, outfalls, etc.;
 - b) Velocities and peak flow rates at outfalls for the two-year and ten-year frequency storm events; and
 - c) Site conditions around points of all surface water discharge from the site;
 - vi. Erosion and sediment control practices to minimize on-site erosion and prevent off-site sedimentation including:
 - a) The salvage and reuse of topsoil;
 - b) Phased construction and implementation of grading unit(s) to minimize disturbances, both in extent and duration;
 - c) Location and type of all proposed sediment control practices;
 - d) Design details and data for all erosion and sediment control practices; and
 - e) Specifications for temporary and permanent stabilization measures including, at a minimum:
 - (i) The "Standard Stabilization Note" on the plan stating:
 - "Following initial soil disturbance or re-disturbance, permanent or temporary stabilization must be completed within:
 - (a) Three calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and
 - (b) Seven calendar days as to all other disturbed or graded areas on the project site not under active grading."
 - (ii) Details for areas requiring accelerated stabilization; and
 - (iii) Maintenance requirements as defined in the Standards and Specifications;

- vii. A sequence of construction describing the relationship between the implementation and maintenance of controls, including permanent and temporary stabilization, and the various stages or phases of earth disturbance and construction. Any changes or revisions to the sequence of construction must be approved by the *approving agency* prior to proceeding with construction. The sequence of construction, at a minimum, must include the following:
 - a) Request for a pre-construction meeting with the appropriate enforcement authority;
 - b) Clearing and grubbing as necessary for the installation of perimeter controls;
 - c) Construction and stabilization of perimeter controls;
 - d) Remaining clearing and grubbing within installed perimeter controls;
 - e) Road grading;
 - f) Grading for the remainder of the site;
 - g) Utility installation and connections to existing structures;
 - h) Construction of buildings, roads, and other construction;
 - i) Final grading, landscaping, and stabilization;
 - j) Installation of stormwater management measures;
 - k) Approval of the appropriate enforcement authority prior to removal of sediment controls; and
 - l) Removal of controls and stabilization of areas that are disturbed by removal of sediment controls.
- viii. A statement requiring the owner/developer or representative to contact the inspection agency or its agent at the following stages of the project or in accordance with the approved erosion and sediment control plan, grading permit, or building permit:
 - a) Prior to the start of earth disturbance;
 - b) Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading;
 - c) Prior to the start of another phase of construction or opening of another grading unit; and
 - d) Prior to the removal of sediment control practices;
- ix. Certification by the owner/developer that any clearing, grading, construction, or *development* will be done pursuant to the approved erosion and sediment control plan. The certification must also require that the responsible personnel involved in the construction project have a Certificate of Training at an MDE approved training program for the control of erosion and sediment prior to beginning the project. The Certificate of Training for Responsible Personnel may be waived by the *approving agency* on any project involving four or fewer residential lots. Additionally, the owner/developer shall allow right of entry for periodic on-site evaluation by the *approving agency*, Department of Planning and Zoning, the inspection agency, and/or MDE; and
- x. Certification by a professional engineer, land surveyor, landscape architect, architect, or forester (for forest harvest operations only) registered in the State that the plans have been designed in accordance with erosion and sediment control laws, regulations, and standards, if required by the *approving agency* or the Maryland Water Management Administration.
 - i. Any additional information or data deemed appropriate by the *approving agency*.

3. All plans shall conform to the following terms and conditions:
 - a. The *development* shall be fitted to the *topography* and *soils* so as to create the least *erosion* potential.
 - b. *Natural vegetation* shall be retained and protected wherever possible.
 - c. Only the smallest practical area shall be exposed for the shortest practical period of time.
 - d. *Erosion* control practices (such as interceptor ditches, *berms*, terraces, contour ripping, *soil erosion* checks and sediment basins) shall be installed to minimize *soil* and water losses.
 - e. Temporary vegetation and/or mulching shall be used to protect critical areas exposed during the time of *development*.
 - f. During and after *development*, provisions shall be made to effectively accommodate the increased runoff caused by changeable *soil* and surface conditions and not cause siltation, destruction, or deterioration of the receiving stream.
 - g. Permanent vegetation and *structures* shall be installed in the *development* as soon as the season permits.

9.10 SECURITIES

1. Bonds.
 - a. A *grading* permit shall not be issued for *grading* involving the movement of more than 1,000 cubic yards of *soils* unless the *permittee* shall post with the Department of Planning and Zoning a performance bond, letter of credit or other surety. The bond, irrevocable letter of credit or other surety shall be in a form approved by the County Attorney and in an amount not less than the total estimated cost of the *erosion* control and *stabilization* of the *site*. Said estimated cost shall be that which is approved by the Department of Planning and Zoning or in consultation with the Kent Soil and Water Conservation District after reviewing the cost estimates proposed by the applicant's acceptable *engineer, land surveyor, or architect* and submitted with the *grading* permit application.
 - b. The bond, irrevocable letter of credit or other surety shall include the following provisions:
 - i. The applicant shall comply with all of the provisions of this Ordinance and all other applicable laws and ordinances.
 - ii. The applicant shall comply with all of the terms and conditions of the *grading* permit.
 - iii. Any extension of completion time under Article VI, Section 9.4.15 of this Ordinance shall not release the applicant or surety on the bond, irrevocable letter of credit, or other surety.
 - iv. Upon default, the applicant and surety shall continue to be firmly bound under a continuing obligation for payment of one of the following at the election of the surety:
 - a) All costs and expenses necessary to complete the work in accordance with the approved plans and specifications (or any approved modification thereof).
 - b) All necessary costs and expenses or liabilities which may be incurred to stabilize in accordance with a *stabilization* plan for *erosion* control presented by the surety and approved by Kent County.
 - c) Payment of the full amount of the bond to Kent County to perform the work necessary. If the cost for restoration of the *site* to meet the minimum requirements of this Section (with particular emphases on stability, safety, drainage, and *erosion* control) exceeds the amount of the bond, the *permittee* shall continue to be firmly bound under a continuing obligation for payment of all excess cost and expenses incurred by the county.

- c. The bond, irrevocable letter of credit or other surety shall remain in full force and effect until the completion of the work to the specifications required. If all work of the permit is not completed within the time specified therein, or as otherwise provided for in Article VI, Section 9.4.15 of this Ordinance or violates any other term or condition, payment in full to Kent County may be ordered. The funds so received shall be used by the County for defraying the cost of restoration of the *site*. Upon approval of a certificate of completion, the bond, irrevocable letter of credit or other surety shall be released.

9.11 HAZARDOUS CONDITIONS

1. If the Department of Planning and Zoning determines that an *excavation, embankment, or a fill* endangers or adversely affects the safety or stability of any public or private property, as determined from the guidelines of this Ordinance, the Planning Director, or the Planning Director's designee, shall promptly notify in writing the owner (or other *persons* in control) of the property upon which the condition exists.
2. If the correction is not commenced in accordance with the provisions of the Ordinance within the period of time specified in the notice, the owners (or other *persons* in control) shall be subject to the penalties set forth in Article XII of this Ordinance.

9.12 INSPECTIONS

1. All work shall be inspected by the Department of Planning and Zoning according to the following schedule.
 - a. *Clearing* and grubbing for those areas necessary for installation of perimeter controls.
 - b. Completion of perimeter controls.
 - c. Remaining *clearing* and grubbing.
 - d. Road *grading*
 - e. *Grading* for remainder of the *site*.
 - f. Utility and storm drain installation.
 - g. Final *grading, landscaping, or stabilization*.
 - h. Removal of controls and maintenance.
 - i. At other times determined by the Department of Planning and Zoning.
 - j. Every two weeks, for compliance with approved sediment control plans.
2. It shall be a condition of every *grading* or building permit that the inspection agency has the right to enter the property periodically to inspect for compliance with the approved erosion and sediment control plan and this Ordinance.
3. Inspection Procedure. Work approved shall not proceed until the Department of Planning and Zoning inspects the *site* and approves the work previously completed or notifies the *permittee* otherwise. Upon notification from the *permittee*, the Department of Planning and Zoning shall inspect the *site* and notify the *permittee* of its approval or rejection within forty-eight (48) hours (exclusive of Saturdays, Sundays, and Holidays). If the inspector does not make an inspection within the specified time period, work may proceed without presumption of approval at the risk of the *permittee*. The Department of Planning and Zoning shall have the right to waive inspections except final inspection as necessary.

4. Inspection Reports.
 - a. Written reports: Structural *erosion* and sediment control measures shall include, but not be limited to, those described and depicted in the booklet entitled “Standards and Specifications for Soil Erosion Control” as approved by the Maryland Department of the Environment. This booklet, as currently amended, is readily available at offices of the Kent County Department of Planning and Zoning, 400 High Street, Chestertown, Maryland; Kent County Soil and Water Conservation District, Chestertown, Maryland; Natural Resources Conservation Service, Chestertown, Maryland; and the Maryland Department of the Environment.
 - b. Written inspection reports shall be completed by the inspector for all inspections. The reports shall include, at minimum:
 - i. Date and location of *site* inspection
 - ii. Degree of plan implementation
 - iii. Deficiencies of plan or practice
 - iv. Enforcement action taken, if any
 - v. A time frame for corrective measures
5. When required by the Kent County Department of Planning and Zoning, inspections and testing shall be performed under the direction of an *engineer*, *land surveyor* or *architect* who shall certify all inspection reports and tests results. Such reports shall include *certification* by an *engineer* for the adequacy of:
 - a. Cleared areas and benched or keyed surfaces prepared to receive fills.
 - b. Removal of unsuitable materials.
 - c. Construction of *erosion* control or drainage devices, buttress fills, under-drains, retaining walls, and other *grading* appurtenances.
 - d. The degree of *compaction* where tests are performed.
6. All certified inspection reports and certified test results shall be periodically submitted to the Department of Planning and Zoning, during the performance of the work.
7. Final Reports. The Department of Planning and Zoning shall maintain permanent files on their respective inspections. Upon completion of permitted work, the Department of Planning and Zoning shall require the following for these files and shall also require copies for the Kent County Soil and Water Conservation District.
 - a. An as-built original plan by a *land surveyor* or *engineer* and showing all improvements and final grades with red line alterations allowed.
 - b. *Certification* by the owner that all *grading*, drainage, *erosion* control measures, and facilities and vegetative measures have been completed in conformance with the approved plans and specifications.
 - c. A report summarizing the inspection reports, field and laboratory tests and locations of tests.
8. Final Inspection Request
The *permittee* or the *permittee's* agent shall notify the Department of Planning and Zoning when the *grading* operation is ready for final inspection. Final approval shall be given in a timely manner when all work (including installation of all drainage *structures* and *erosion* protective devices) has been completed as well as the required vegetative *stabilization* and the required reports have been submitted.

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 STORMWATER MANAGEMENT *

10.1 INTENT

The purpose of this ordinance is to protect, maintain and enhance the public health, safety and general welfare by establishing minimum requirements and procedures to control the *adverse impacts* associated with increased *stormwater* runoff. The goal is to manage *stormwater* by using *environmental site design (ESD)* to the *maximum extent practicable (MEP)* to maintain after *development* as nearly as possible, the predevelopment runoff characteristics, and to reduce stream channel erosion, pollution, siltation, and sedimentation, and local flooding, and use appropriate structural *best management practices (BMP)* only when necessary. This will restore, enhance, and maintain the chemical, physical, and biological integrity of streams, minimize damage to public and private property and reduce the impacts of land development.

10.2 AUTHORITY; EXPLANATION OF PROVISIONS

The provisions of this ordinance pursuant to the Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland, 2009-replacement volume, are adopted under the Code of Public Local Laws of Kent County and shall apply to all *development* or *redevelopment* occurring within the unincorporated area of Kent County. The application of this ordinance and the provisions expressed herein shall be the minimum *stormwater* management requirements and shall not be deemed a limitation or repeal of any other powers granted by state statute. The County shall be responsible for the coordination and enforcement of the provisions of this Ordinance. Any *development* that has not received final approval for erosion and sediment control and *stormwater* management plans by May 4, 2010 shall comply with the 2010 revised Ordinance, unless the *development* or *redevelopment* is granted an administrative *waiver* under Article VI, Section 10.4 of this Ordinance.

10.3 INCORPORATION BY REFERENCE

The 2000 Maryland *Stormwater* Design Manual, Volumes I & II (Maryland Department of the Environment, April 2000 and as may be amended), shall be incorporated by reference and shall serve as the official guide for *stormwater* management principles, methods, and practices.

The USDA Natural Resources Conservation Service Maryland Conservation Practice Standard Pond Code 378 (January 2000 and as may be amended) shall be incorporated by reference.

10.4 GRANDFATHERING

A. DEFINITIONS APPLICABLE TO THE GRANDFATHERING

For the purpose of determining the grandfathering of development *stormwater* management plans as set forth in Article VI, Section 10.4B of this Ordinance certain words are hereby defined.

1. *Administrative Waiver*: A decision by Kent County pursuant to this Ordinance to allow the construction of a *development* to be governed by the *stormwater* management ordinance in effect as of May 4, 2009. An administrative *waiver* is distinct from a *waiver* granted pursuant to Article IX, Section 3.2 of this Ordinance.
2. *Approval*: A documented action by Kent County following a review to determine and acknowledge the sufficiency of submitted material to meet the requirements of a specified stage in a local development review process. Approval does not mean acknowledgment by Kent County that material has been received for review.

3. Final Project Approval: Approval of the *final stormwater management plan* and erosion and sediment control plan required to construct a project's *stormwater* management facilities. Final approval also includes securing the bonding or financing for final development plans if required as a prerequisite for approval.
4. Preliminary Project Approval: Approval of the preliminary development plan that includes at a minimum:
 - a. The number of planned dwelling units or lots
 - b. The proposed project density
 - c. The proposed size and location of all land uses for the project
 - d. A plan that identifies:
 - i. The proposed drainage patterns;
 - ii. The location of all points of discharge from the *site*; and
 - iii. The type, location, and size of all *stormwater* management measures based on *site-specific stormwater* management requirement computations.
 - e. Any other information required by Kent County including but not limited to:
 - i. The proposed alignment, location and construction type and standard for all roads, access ways, and areas of vehicular traffic;
 - ii. A demonstration that the methods by which the *development* will be supplied with water and wastewater services are adequate; and
 - iii. The size, type, and general location of all proposed wastewater and water system infrastructure.

B. ADMINISTRATIVE WAIVERS

Kent County may grant an administrative *waiver* to a *development* that received a preliminary project approval prior to May 4, 2010. Administrative *waivers* expire according to Article VI, Section 10.4C of this Ordinance and may be extended according to Article VI, Section 10.4D of this Ordinance. Kent County may impose such conditions upon the approval of an administrative *waiver* deemed necessary to secure compliance with the spirit and intent of this Ordinance.

C. EXPIRATION OF ADMINISTRATIVE WAIVERS

Except as provide for in Article VI, Section 10.4D of this Ordinance, an administrative *waiver* shall expire on May 4, 2013 if the *development* does not receive final project approval prior to May 4, 2013 or May 4, 2017 if the *development* receives final approval prior to May 4, 2013. All construction authorized pursuant to an administrative *waiver* must be completed by May 4, 2017 unless otherwise extended according to Article VI, Section 10.5D of this Ordinance. Administrative *waivers* which receive an extension shall expire according to the requirements of Article VI, Section 10.4D of this Ordinance.

D. EXTENSION OF ADMINISTRATIVE WAIVERS

1. In order to grant an extension to an administrative *waiver*, Kent County shall find the following:
 - a. The project received preliminary project approval prior to May 4, 2010; and
 - b. The project was subject to a Development Rights and Responsibilities Agreement, a Tax Increment Financing Approval, or an annexation agreement.
2. Administrative *waivers* which receive an extension shall expire with the expiration of the Developers Rights and Responsibilities Agreement, the Tax Increment Financing approval or the Annexation agreement.

10.5 SCOPE

No person shall develop any land for residential, commercial, industrial, or institutional uses or redevelop land without having provided for appropriate *stormwater* management measures that control or manage runoff from such developments, except as provided in this section. *Stormwater* management measures must be designed consistent with the Design Manual and constructed according to an approved plan for new *development* or polices stated in Article VI, Section 10.7 of this Ordinance for *redevelopment*.

10.6 EXEMPTIONS

The following *development* activities are exempt from the provisions of this Section and the requirements of providing *stormwater* management:

1. Normally accepted agricultural land management activities and *BMPs*, (i.e. waterways, ponds, etc.)
2. Additions or modifications to existing single family detached residential *structures* provided that these additions or modifications do not disturb over 5,000 square feet of land.
3. Developments that do not disturb over 5,000 square feet of land.
4. Land development activities that the Maryland Department of the Environment determines will be regulated under specific state laws, which provide for managing *stormwater* runoff.

10.7 REDEVELOPMENT

This section applies to any construction, alteration, or improvement performed on sites where existing land use is commercial, industrial, institutional, or multi-family residential and existing *site* impervious area exceeds forty (40) percent.

1. *Stormwater* management plans are required by Kent County for all *redevelopment*, unless otherwise specified by *watershed* management plans developed according to this Ordinance. *Stormwater* management measures shall be consistent with the Design Manual.
2. All *redevelopment* designs shall:
 - a. Reduce *impervious surface* area within the limit of disturbance (LOD) by at least 50% according to the Design Manual;
 - b. Implement *ESD* to *MEP* to provide water quality treatment for at least 50% of the existing *impervious surface* area within the limit of disturbance; or
 - c. Use a combination of 10.7 2a and 2b of this Ordinance for at least 50% of the existing *site* impervious area.
3. Alternative *stormwater* management measures may be used to meet the requirements of Article VI, Section 10.7.2 of this Ordinance if the *applicant* satisfactorily demonstrates to the County that impervious area reduction has been maximized and *ESD* has been implemented to the *MEP*. Alternative *stormwater* management measures include, but are not limited to:
 - a. An on-site structural *BMP*;
 - b. An off-site *BMP* to provide water quality treatment for an area equal to or greater than 50% of the existing impervious area; or

- c. A combination of impervious area reduction, *environmental site design* implementation, and an on-site or off-site structural Best Management Practice for an area equal to or greater than 50% of the existing *site impervious surface* area within the limit of disturbance.
4. Kent County may develop separate policies for providing water quality treatment for *redevelopment* projects if the requirements of Article VI, Section 10.7.1 and 10.7.2 of this Ordinance cannot be met. Any separate *redevelopment* policy shall be reviewed and approved by the Maryland Department of the Environment and may include but not be limited to:
 - a. A combination of *ESD* and an on-site or offsite structural *BMP*;
 - b. *Retrofitting* including existing *BMP* upgrades, filtering practices and offsite *ESD* implementation;
 - c. Stream restoration in the same 12-digit *watershed* as the proposed *development* and an area restored equivalent to the area required for treatment.
 - d. Pollution trading with another entity.
 - e. Payment of a fee in lieu; or
 - f. A partial *waiver* of the treatment requirements if *ESD* is not practicable.
 5. The determination of alternatives available may be made by Kent County at the appropriate stage in the development review process. Kent County shall consider the prioritization of alternatives in Article VI, Section 10.7.4 of this Ordinance after it has been determined that it is not practicable to meet the 2009 regulatory requirements using *ESD*. In deciding the alternatives that may be required, Kent County may consider factors including but not limited to the following:
 - a. Whether the project is in an area targeted for development incentives such as a Priority Funding Area;
 - b. Whether the project is necessary to accommodate growth consistent with the Comprehensive Plan; or
 - c. Whether bonding or other financing mechanisms have been secured based on an approved development plan.
 6. *Stormwater* management shall be addressed according to the new *development* requirements in the Design Manual for any net increase in impervious areas.

10.8 STORMWATER MINIMUM CONTROL STANDARDS

Stormwater management shall be accomplished for all new *development* according to the minimum requirements established in this section and the Design Manual as follows:

1. All *planning techniques*, nonstructural practices, and design methods specified in the Design Manual shall be used to implement *ESD* to the *MEP*. The use of *environmental site design planning techniques* and treatment practices shall be exhausted before any structural *BMP* is implemented. *Stormwater* management plans for *development* projects subject to this Ordinance shall be designed using *ESD* sizing criteria, *recharge volume*, *water quality volume*, and *channel protection storage volume* criteria according to the Design Manual. The *MEP* standard is met when channel stability is maintained, predevelopment groundwater recharge is replicated, nonpoint source pollution is minimized, and structural *stormwater* management practices are used only if determined to be absolutely necessary.
2. Control of the 10-year frequency storm event is required according to the Design Manual if the County determines that additional *stormwater* management is necessary because historical flooding problems exist and downstream floodplain development and conveyance system design cannot be controlled.

3. Kent County may require more than the minimum control requirements specified in this Ordinance if hydrologic or topographic conditions warrant or if flooding, stream channel erosion, or water quality problems exist downstream from a proposed project.
4. Alternate minimum control requirements may be adopted subject to approval by the Maryland Department of the Environment. The Maryland Department of the Environment shall require a demonstration that alternative requirements will implement *ESD* to the *MEP* and control flood damages, accelerated stream erosion, water quality and sedimentation. Comprehensive *watershed* studies may also be required.
5. *Stormwater* management and development plans where applicable, shall be consistent with adopted and approved *watershed* management plans or flood management plans as approved by the Maryland Department of the Environment in accordance with the Flood Hazard Management Act of 1976.

10.9 STORMWATER MANAGEMENT MEASURES

The *ESD planning techniques* and practices and structural *stormwater* management measures established in this Ordinance and the Design Manual shall be used, either alone or in combination in a *stormwater* management plan. The *applicant* shall demonstrate that *ESD* has been implemented to the *MEP* before the use of a structural Best Management Plan is considered in developing the *stormwater* management plan.

A. ENVIRONMENTAL SITE DESIGN TECHNIQUES AND PRACTICES

1. The following *planning techniques* shall be applied according to the Design Manual to satisfy the applicable minimum control requirements established in Article VI, Section 10.8 of this Ordinance:
 - a. Preserving and protecting natural resources
 - b. Conserving natural drainage patterns
 - c. Minimizing impervious areas
 - d. Reducing runoff volume
 - e. Using *ESD* practices to maintain 100% of the annual predevelopment groundwater *recharge volume*.
2. The following *ESD* practices shall be designed according to the Design Manual to satisfy the applicable minimum control requirements established in Article VI, Section 10.8 of this Ordinance.
 - a. Disconnection of rooftop runoff
 - b. Disconnection of non-rooftop runoff
 - c. Sheet flow to conservation areas
 - d. Rainwater harvesting, including rain barrels, rainwater tanks, and cisterns.
 - e. Submerged gravel wetlands
 - f. Landscape infiltration
 - g. Infiltration berms
 - h. Dry wells
 - i. Micro-bioretenion
 - j. Rain gardens

- k. Swales
 - l. Enhanced Filters
 - m. Any practice approved by the Maryland Department of Environment
3. The use of *ESD planning techniques* and treatment practices specified in this section shall not conflict with existing State law or local ordinances, regulations, or policies. The County shall modify ordinances and codes to eliminate any impediments to implementing *ESD* to the *MEP* according to the Design Manual.

B. STRUCTURAL *STORMWATER* MANAGEMENT MEASURES

1. The following structural *stormwater* management practices shall be designed according to the Design Manual to satisfy the applicable minimum control requirements established Article VI, Section 10.8 in this Ordinance:
- a. *Stormwater* management ponds
 - b. *Stormwater* management wetlands
 - c. *Stormwater* management infiltration
 - d. *Stormwater* management filtering systems
 - e. *Stormwater* management open channel systems
2. When selecting structural *stormwater* management practices, the *applicant* shall consider the performance criteria specified in the Design Manual with regard to general feasibility, conveyance, pretreatment, treatment and geometry, environment and landscaping, and maintenance.
3. Structural *stormwater* management practices shall be selected to accommodate the unique hydrologic or geologic regions of the State.

C. ALTERNATIVE PRACTICES AND MEASURES

Alternative *ESD planning techniques* and treatment practices and structural *stormwater* measures may be used for new development runoff control if the practices and measures meet the performance criteria in the Design Manual and all subsequent revisions and are approved by the Maryland Department of Environment. Practices used for *redevelopment* projects shall be approved by the County.

D. RECORDATION OF PRACTICES AND MEASURES

ESD techniques and treatment practices and structural *stormwater* management measures used to satisfy the minimum requirements in Article VI, Section 10.8 of this Ordinance must be recorded in the land records of Kent County and remain unaltered by subsequent property owners. Prior approval from the County shall be obtained before any *stormwater* management practice is altered.

E. MODIFICATION

For purposes of modifying the minimum control requirements or design criteria, the *applicant* shall submit an analysis to the County of the impacts of *stormwater* flows downstream in the *watershed*. The analysis shall include hydrologic and hydraulic calculations necessary to determine the impact of hydrographic timing modifications of the proposed *development* upon a dam, highway, *structure*, or natural point of restricted stream flow. The point of investigation shall be established with the concurrence of the County downstream of the first downstream tributary whose *drainage area* equals or exceeds the contributing area to the project or *stormwater* management facility.

10.10 SPECIFIC DESIGN CRITERIA

The basic design criteria, methodologies, and construction specifications, subject to the approval of Kent County and the Maryland Department of Environment shall be those of the Design Manual.

10.11 STORMWATER MANAGEMENT PLANS - REVIEW AND APPROVAL

1. For any proposed *development* a phased *stormwater* management plan shall be submitted to the County for review and approval. Unless otherwise determined by the County, plans shall be submitted for the concept, site design, and final *stormwater* management construction. When deemed appropriate by the County due to minor cumulative impacts of the *development* and when the *applicant* has demonstrated that *ESD* standards have been met to the *MEP*, the site design and final *stormwater* management construction may be combined. Site plans, subdivisions, and building permits with a total proposed lot coverage of 15% and total land disturbance less than 20,000 square feet may combine all review phases when the *applicant* has demonstrated that *ESD* standards have been met to the *MEP* using the Standard Plan. Sites Plans and building permits that meet the criteria outlined on the Standard *Stormwater* Plan may utilize the Standard *Stormwater* Management Plan.
2. Conceptual *stormwater* management plans should be submitted with conceptual site or subdivision plans and shall include sufficient information for an initial assessment of the proposed project and proposed *stormwater*. The concept review process will review at a conceptual level, the feasibility, design and environmental characteristics of the proposal with a goal to ensure that significant natural areas are protected and to determine if *stormwater* management can be provided according the *Stormwater* Management Measures identified in Article VI, Section 10.9 of this Ordinance.
3. Following conceptual approval and where applicable in conjunction with the preliminary site or subdivision plan, the *applicant* shall submit a *site development plan*. The *site development plan* shall include detailed designs for *stormwater* management and erosion and sediment control. The *site development plan* process will review the plan to ensure that all options for implementing *ESD* have been exhausted and comments received during conceptual review have been incorporated into the *site development plan*.
4. Following *site development plan* approval and where applicable in conjunction with the final site or subdivision plan and the sediment and erosion control plan, the *applicant* shall submit a *final stormwater management plan*. The *final stormwater management plan* shall include *stormwater* construction drawings accompanied by a report that includes sufficient information to evaluate the effectiveness of the proposed runoff control design. The final *stormwater* plan process will review the plan and supporting documents for compliance with all applicable regulations and to ensure that when structural practices are used, all reasonable options for implementing *ESD* have been exhausted.
5. The County shall perform a comprehensive review of the *stormwater* management plans for each phase of the site design. Coordinated comments will be provided for each plan phase that reflects input from all appropriate agencies including but not limited to the Kent Soil and Water Conservation District, the Department of Planning, Housing, and Zoning, and the Department of Public Works. All comments shall be addressed and reflected in the next phase of project design.

6. The *stormwater* management plan shall not be considered approved without the inclusion of the signature and date of the signature of the Kent County designee for approval of *stormwater* management plans.

10.12 CONTENTS OF *STORMWATER* MANAGEMENT PLANS

A. *CONCEPT PLAN*

A concept *stormwater* management plan shall include:

1. Scale of 1 inch = 100 feet or greater detail
2. Vicinity map with *site* location clearly marked
3. North arrow
4. Existing natural features, water and other sensitive resources
5. *Topography*
6. Natural drainage patterns
7. Anticipated location of all proposed impervious areas, buildings, roadways, parking, sidewalks, utilities, and other *site* improvements
8. Location of the proposed limit of disturbance, erodible soils, steep slopes, and areas to be protected during construction
9. Preliminary estimates of *stormwater* management requirements, the selection and location of *ESD* practices to be used, and the location of all points of discharge from the *site*
10. A narrative that supports the concept design and describes how *ESD* will be implemented to the *MEP*
11. Any other information required by the County

B. *SITE DEVELOPMENT PLAN*

A *site development plan* shall include:

1. Scale of 1 inch = 100 feet or greater detail
2. Vicinity map with *site* location clearly marked
3. North arrow
4. All the information provided in the concept *stormwater* management plan
5. Final layout
6. Exact impervious area locations and acreages

7. Proposed *topography*
8. Delineated *drainage areas* at all points of discharge from the *site*
9. *Stormwater* volume computations for *ESD* and quantity control
10. Preliminary erosion and sediment control plan that contains the construction sequence, any phasing necessary to limit earth disturbances and impacts to natural resources and an overlay showing the types and locations of *ESD* and erosion and sediment control practices to be used
11. A narrative that supports the *site* development design, describes how *ESD* will be used to meet the minimum control requirements, and justifies any proposed structural *stormwater* management measures
12. Any other information required by the County

C. FINAL *STORMWATER* PLAN

A final *stormwater* plan shall be of sufficient detail to permit all *stormwater* management approvals and permits to be issued and shall include:

1. Final erosion and sediment control plans submitted according to COMAR 26.17.01.05
2. Include construction drawings
3. A report that includes sufficient information to evaluate the effectiveness of the proposed runoff and control design. The report shall include but is not limited to the following:
 - a. Geotechnical investigations including soil maps, borings, *site* specific recommendations, and any additional information necessary for the final *stormwater* management design
 - b. *Drainage area* maps depicting predevelopment and post development runoff flow path segmentation and land use
 - c. Hydrologic computations of the applicable *ESD* and unified sizing criteria according to the Design Manual for all points of discharge from the *site*
 - d. Hydraulic and structural computations for all *ESD* practices and structural *stormwater* management measures to be used
 - e. Narrative that supports the final *stormwater* management design
 - f. Any other information required by the County
4. Construction drawings that include but are not limited to the following:
 - a. Vicinity Map
 - b. North arrow
 - c. Existing and proposed *topography*
 - d. Proposed *drainage areas* including areas necessary to determine downstream analysis for proposed *stormwater* management facilities
 - e. Proposed improvements including the location of buildings and other *structures*, *impervious surfaces*, storm drainage facilities, and all grading
 - f. Location of existing and proposed *structures* and utilities
 - g. Existing and proposed *easements* and rights-of-ways
 - h. Delineation of 100 year floodplains and onsite *tidal* and *non tidal wetlands*, where applicable

- i. Structural and construction details including representative cross sections for all components of the proposed drainage system or systems and *stormwater* management facilities
 - j. All necessary construction specifications
 - k. h) Sequence of construction
 - l. Data for total *site* area, disturbed area, new impervious areas, and total impervious areas
 - m. Table showing the *ESD* and unified sizing criteria volumes required in the Design Manual
 - n. Table of materials to be used for *stormwater* management facility planting
 - o. All soil boring logs and locations
 - p. Inspection and maintenance schedule
 - q. Owner's certification that all *stormwater* management construction will be done according to the approved *stormwater* management plan.
 - r. As-built certification signature block to be executed after project completion
 - s. Any other information required by the County
5. When the *stormwater* management plan involves direction of some or all runoff off the *site*, it is the responsibility of the *applicant* to obtain from the adjacent property owners any *easements* or other necessary property interests concerning flowage of water. Approval of a *stormwater* management plan does not create or affect any right to direct runoff onto adjacent property without the property owner's permission.

10.13 PREPARATION OF *STORMWATER* MANAGEMENT PLANS

- 1. *Stormwater* management plans shall be prepared by a professional engineer, professional land surveyor, or landscape architect licensed in the State of Maryland.
- 2. If a *stormwater BMP* requires either a dam safety permit from the Maryland Department of the Environment or small pond approval by the Kent Soil and Water Conservation District, the *stormwater* management plan shall be prepared by a professional engineer licensed in Maryland.

10.14 PERMITS

A grading or building permit may not be issued for any parcel or lot unless final erosion and sediment control and *stormwater* management plan has been approved County as meeting all the requirements of this Ordinance and the Design Manual. Where appropriate, a building permit may not be issued without:

- 1. Recorded *easements* for the *stormwater* management facility and *easements* to provide adequate access for inspection and maintenance from a public right of way.
- 2. A recorded *stormwater* management *maintenance agreement* as described in Article VI, Section 10.22.B of this Ordinance.
- 3. A performance bond, an irrevocable letter of credit or other surety; as described in this Ordinance.
- 4. Permission from adjacent property owners, as may be required.

10.15 PERMIT AND REVIEW FEES

1. The County Commissioners shall establish a schedule of fees and collection procedure for *stormwater* management review and permits. Permits fees will be based on the relative complexity of the project and may cover the cost of plan review, administration and management of the permit process, and inspection of all projects subject to this Ordinance.
2. No permits shall be issued nor action taken on amendments or other matters pertaining to this Ordinance until the fee has been paid in full.

10.16 SUSPENSION AND REVOCATION

Any grading or building permit issued by Kent County may be suspended or revoked after written notice is given to the permittee for any of the following reasons:

1. Any violation(s) of the conditions of the *stormwater* management plan approval.
2. Changes in *site* runoff characteristics upon which an approval or *waiver* was granted.
3. Construction is not in accordance with the approved plans.
4. Non-compliance with correction notice(s) or stop-work order(s) issued for the construction of the *stormwater* management practice.
5. An immediate danger exists in a downstream area in the opinion of the County.

10.17 CONDITIONS FOR APPROVAL

In granting the plan approval, the County may impose such conditions thereto as may be deemed necessary to ensure compliance with the provisions of this Ordinance and the preservation of the public health and safety.

10.18 PERFORMANCE BONDS

The developer is required to obtain a surety, irrevocable letter of credit, or other means of security acceptable to Kent County and payable to the County Commissioners of Kent County, prior to the issuance of any building and/or grading permit for construction of a *development* requiring *stormwater* management. The amount of the security shall not be less than 125% of the total estimated construction cost of all *stormwater* management facilities and practices. The security so required in this Section shall include provisions relative to forfeiture for failure to complete work specified in the approved *stormwater* management plan, compliance with all the provisions of this Section and other applicable laws and regulations, and any time limitations. The security shall not be fully released without a final inspection of the completed work by Kent County, submission of “as-built” plans, and certification of completion by the County, that all *stormwater* management facilities and practices as being in compliance with the approved plan and the provisions of this Section. A provision may be made for partial release of the amount of the bond pro-rata upon completion and acceptance of the various stages of *development* as specifically delineated, described, and scheduled on the required plans and specifications. The provision for partial release of the surety shall be specified by Kent County in writing prior to *stormwater* management plan approval. The developer shall notify the County upon completion of each stage that is ready for inspection.

10.19 INSPECTIONS

A. INSPECTION SCHEDULE AND REPORTS

1. The owner/developer shall notify the County at least 48 hours before beginning any work in conjunction with *site* development, the *stormwater* management plan and completion of construction.
2. Regular inspections shall be made and documented for each *ESD* planning technique and practice at the stages of construction specified in the Design Manual by Kent County, its authorized representative, or a certified engineer license in the State of Maryland. At a minimum, all *ESD* and other nonstructural practices shall be inspected upon completion of final grading, the establishment of permanent *stabilization*, and before issuance of use and occupancy approval.
3. Written reports shall be prepared for every inspection and shall include:
 - a. The date and location of the inspection
 - b. Whether construction was in compliance with the approved *stormwater* management plan
 - c. Any variations from the approved construction specifications
 - d. Any violations that exist
4. The owner/developer and on-*site* personnel shall be notified in writing when violations are observed. Written notification shall describe the nature of the violation and the required corrective action.
5. Work shall not proceed until the work previously complete is approved by the appropriate inspector and the inspector furnishes the developer with the results of the inspection reports. The inspector should provide copies of the inspection report to the developer as soon as possible after completion of each required inspection.

B. INSPECTION REQUIREMENTS DURING CONSTRUCTION

At a minimum, regular inspections shall be made and documented at the following specific stages of construction:

1. Ponds:
 - a. Upon completion of excavation to sub-foundation and when required, installation of structural supports or reinforcement for *structures* including but not limited to:
 - i. Core trenches for structural embankments
 - ii. Inlet and outlet *structures*, anti-seep collars or diaphragms, and watertight connectors
 - iii. Trenches for enclosed storm drainage facilities
 - b. During placement of structural fill, concrete, and installation of piping and catch basins
 - c. During backfill of foundations and trenches
 - d. During embankment construction
 - e. Upon completion of final grading, establishment of permanent *stabilization*
2. *Wetlands* - At all stages specified for pond construction, during and after wetlands reservoir planting, and during the second growing season to verify a vegetation survival rate of at least 50%.

3. Infiltration trenches:
 - a. During excavation to subgrade
 - b. During placement and backfill of under drain systems and observation wells
 - c. During placement of geotextiles and all filter media
 - d. During construction of appurtenant conveyance systems such as diversion *structures*, pre-filters and filters, inlets, outlets, and flow distribution *structures*
 - e. Upon completion of final grading and establishment of permanent *stabilization*
4. Infiltration basins - At all stages specified for pond construction, during placement of and backfill of under drainage system.
5. Filtering Systems:
 - a. During excavation to subgrade
 - b. During placement and backfill of under drain systems
 - c. During placement of geotextiles and all filter media
 - d. During construction of appurtenant conveyance systems such as diversion *structures*, pre-filters, and filters, inlets, outlets, and flow distribution *structures*
 - e. Upon completion of final grading and establishment of permanent *stabilization*
6. Open Channel Systems:
 - a. During excavation to subgrade
 - b. During placement and backfill of under drain systems for dry swales
 - c. During installation of diaphragms, check dams, or weirs
 - d. Upon completion of final grading and establishment of permanent *stabilization*
7. *Environmental Site Design* Practices – At the stage of construction specified in the Design Manual for each *ESD* planning technique and practice and at a minimum upon completion of final grading, the establishment of permanent *stabilization* and before issuance of use and occupancy approval.

10.20 AS-BUILT PLANS

Once construction is complete, “as-built” plan certification shall be submitted by a professional engineer or professional land surveyor licensed in the State of Maryland to ensure that *ESD* techniques, treatment practices, and structural *stormwater* management practices and conveyance systems comply with the specifications contained in the approved plan. At a minimum, “as-built” certification shall include a set of drawings comparing the approved plan with what was constructed. Other information shall be submitted as required by the County.

10.21. NOTICE TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

Within 45 days of construction, the County shall submit a notice of construction completion to the Maryland Department of the Environment on a form supplied by the Maryland Department of the Environment for each structural *stormwater* management practice. The type, number, total *drainage area*, and total impervious area treated by all *ESD* techniques and practices shall be reported to the Maryland Department of the Environment. A notice of construction completion shall be sent to the Kent Soil and Water Conservation District when *BMPs* requiring District approval are constructed.

10.22 MAINTENANCE

A. MAINTENANCE INSPECTION

1. The County shall ensure that preventive maintenance is performed by inspecting all *ESD* treatment systems and structural *stormwater* management measures. Inspections shall occur during the first year of operation and then at least once every three years thereafter. A *maintenance agreement* between the property owner and Kent County shall be executed for privately owned *ESD* treatment practices and structural *stormwater* management measures as described Article VI, Section 10.22B of this Ordinance.
2. Inspection reports shall be maintained by the County for all *ESD* treatment systems and structural *stormwater* management measures. Inspection reports shall include the following:
 - a. Date of inspections
 - b. Name of inspector
 - c. An assessment of the quality of the *stormwater management system* related to *ESD* treatment practice efficiency and the control of runoff to the *MEP*
 - d. The condition of:
 - i. Vegetation or filter media
 - ii. Fences or other safety devices;
 - iii. Spillways, valves, or other control *structures*
 - iv. Embankments, slopes, and safety benches
 - v. Reservoir or treatment areas
 - vi. Inlet and outlet channels or *structures*
 - vii. Underground drainage
 - viii. Sediment and debris accumulation in storage or forebay areas
 - ix. Any nonstructural practice to the extent possible
 - x. Any other item that could affect the proper function of the *stormwater management system*
 - e. Description of needed maintenance
3. After notification is provided to the owner of the inspection results, the owner shall have 30 days, or other time frame to which the County, and the owner mutually agree to correct the deficiencies. The County shall then conduct an inspection to ensue completion of the repairs.
4. Failure to complete the repairs or repairs found to be improperly completed shall be considered violations and subject to the provisions of Article XII, Section 4 of this Ordinance.
5. If, after an inspection by the County, the condition of a *stormwater* management facility presents an immediate danger to the public health or safety, because of an unsafe condition or improper construction, or poor maintenance, the County, shall take such action as may be necessary to protect the public and make the facility safe. Any cost incurred by the County shall be assessed against the owner(s).

B. MAINTENANCE AGREEMENT

1. Prior to the issuance of any building permit for which *stormwater* management is required, the County shall require the *applicant* or owner to execute an inspection and *maintenance agreement* binding on all subsequent owners of land served by the private *stormwater* management facility. Such agreement shall provide for access to the facility at reasonable times for regular inspection by

the County, and for regular or special assessments of property owners to ensure that the facility is maintained in proper working condition to meet design standards and any provisions established.

2. The agreement shall be recorded by the *applicant* and/or owner with the Kent County Clerk of Court. A copy of the recorded agreement shall be returned to the Department of Planning and Zoning.
3. The agreement shall also provide that if, after notice by the County, to correct a violation requiring maintenance work, satisfactory corrections are not made by the owner(s) within a reasonable period of time (thirty (30) days maximum), the County, may perform all necessary work to place the facility in proper working condition. The owner(s) of the facility shall be assessed the cost of the work and any penalties, and there shall be a lien on the property, which may be placed on the tax bill and collected as ordinary taxes by Kent County.

C. MAINTENANCE RESPONSIBILITY

1. The owner of the property on which work has been done pursuant to this Ordinance for private *stormwater* management facilities, or any other person or agent in control of such property, shall maintain in good condition and promptly repair and restore all *ESD* practices, state grade surfaces, walls, drains, dams and *structures*, vegetation, erosion and sediment control measures, and other protective devices in perpetuity. Such repairs or restoration and maintenance shall be in accordance with previously approved or newly submitted plans.
2. A maintenance schedule shall be developed for the life of any *stormwater* management facility or system of *ESD* practices and shall state the maintenance to be completed, the time period for completion and who shall perform the maintenance. This maintenance schedule shall be on the *stormwater* management plan.

10.23 APPEALS

Any person aggrieved by the action of any official charged with the enforcement of this Ordinance as the result of the disapproval of a properly filed application for a permit, issuance of a written notice of violation or an alleged failure to properly enforce the Ordinance in regard to a specific application shall have the right to appeal the action to the Kent County Board of Appeals. The appeal shall be filed, in writing, within thirty (30) days of the date of official transmittal of the final decision or determination to the *applicant* and shall state clearly the grounds on which the appeal is based.

SECTION 11. COUNTYWIDE STANDARDS FOR UTILITY-SCALE SOLAR ENERGY SYSTEMS*

- A. Setbacks to accommodate required landscape buffer
1. 200 feet from any lot line
 2. 200 feet from any road/and or right-of way
 3. 200 feet from any road/right-of-way within ½ mile of a town or village boundary that is the gateway into a town or village
 4. 200 feet from any residential use or zoning district
 5. Setbacks may be reduced to 100 feet for non-residential development with written consent from the property owners whose property is adjacent to the area in which the setback reduction is sought. The Planning Commission shall be the review agency to determine the application of this provision.
 6. Setbacks shall be measured from the outermost edge of the nearest solar panel structure within the solar array including substations.
- B. Installation and maintenance standards
- Solar arrays shall be constructed and maintained according to the following:
1. If solvents are required for cleaning of the solar modules, they must be biodegradable. Any unused solvents must be removed from the subject parcel.
 2. All broken or waste solar modules shall be removed from the site subject parcel within 30 days of being taken out of service, including any leaching panels, and the subject parcel shall be maintained in good order.
 3. All wiring not on the solar arrays shall be underground except when necessary to connect to the public utility.
 4. Transmission wires to connect the project to the utility infrastructure shall not cross a roadway overhead.
 5. Any required utility right of way shall be secured through an easement, lease, service agreement or other legally binding document.
 6. The solar array shall be enclosed by a fence or other appropriate barrier at the interior edge of the required landscape buffer or immediately adjacent to the solar array. The fence or barrier shall:
 - a. Secure the facility at all times to prevent unauthorized persons or vehicles from gaining access.
 - b. All access gates will provide a sign that identifies the responsible parties or owners with current contact information.
 7. Noise generated by the facility shall be limited by the project design to 45 dBAs measured at the property line, to be indicated on the site plan by the engineer, except when a back-up generator is needed for maintenance. Construction on the site is exempt from this standard.
 8. Solar arrays, including the electrical and mechanical components, shall conform to relevant and applicable local, State, and national codes.
 9. To protect adjacent properties, and not interfere with roadways or create a safety hazard, evidence shall be provided that the solar panels are designed to avoid glare and/or reflection with anti-reflective coating or non-glare technology and, if necessary, have been evaluated with a solar glare hazard and analysis tool.
 10. Non-array uses such as power storage are not permitted.
- C. Landscape buffer for utility-scale solar energy systems
1. Any utility scale solar facility shall comply with the requirements of the Forest Conservation Act. Reforestation planting may be incorporated as landscaping.

* Amended 2/16/21;

2. The gross usable area for panels will exclude wetland areas that are regulated by the Maryland Department of the Environment or the U.S. Department of the Interior. Impacts associated with access or interior roads and utility crossings shall provide the necessary authorization for any disturbances.
 3. Existing topsoil shall not be removed from the site.
 4. A vegetated buffer that is a minimum of 60 feet wide around the perimeter of the site area fronting on road or rights of way that are considered gateways to towns or villages and a minimum of 50 feet for all other applications. This buffer may be located within the setback and shall extend around the entire project with the exception of any boundaries contiguous to preserved, forested lands that are recorded on a plat.
 5. Healthy existing vegetation within the designated buffer area may be used to satisfy the specific buffer standards.
 6. Non-native plant material shall not total more than 10% of all plantings.
 7. Where a phased construction plan is proposed, the landscape plan shall identify the phasing of the plantings applicable to each construction phase.
 8. Not more than 25% of any single plant species should be included in the buffer to promote the growth of a natural landscape and avoid monotony and uniformity of the buffer. The vegetation shall be thickly planted and of such species that it will provide an opaque visual barrier that obscures the utility scale solar array from sight once the vegetation reaches maturity or within five years, whichever comes first. A mix of evergreen and deciduous trees, shrubs and beneficial habitat shall be included:
 - a. A minimum of two staggered rows of evergreen trees that at installation shall be at least 6 feet in height, each planted no more than 10 feet apart. Evergreen tree species shall be a varied mixture of compatible types and achieve a height of eight feet in a minimum of 2 years.
 - b. In addition to the evergreen trees, native deciduous or shade trees with a minimum size at installation of 2-inch caliper shall be interspersed to enhance the evergreen screening along with understory trees with a minimum size of installation of 1-inch caliper or 6 feet in overall height or greater if required by the Planning Commission to address gateway areas.
 - c. Shrubs with a minimum size at installation of 24 inches in height or 30 inches in spread.
 - d. The buffer shall include a flowering ground cover for pollinators, warm season grasses and other beneficial habitat. The ground cover seed mixture shall include a minimum of 10 plant species with a minimum of 2 flowering seasons. Lawns outside the required buffer are discouraged; plantings for pollinators are encouraged in all planted areas.
 - e. The height of proposed planting may require alternatives based upon the site elevation and visibility from adjacent properties and roads and/or rights of ways. If necessary, an elevation or perspective illustration exhibit shall be provided with viewpoints from relevant locations around the site for the Planning Commission to consider.
- D. A landscape berm shall be provided at a minimum of three (3) feet high to assist in screening. The design of the berm shall be such that the natural drainage patterns of the site will not be altered. The berm requirement may be waived in part or total subject to the following conditions:
1. A minimum of two staggered rows of evergreen trees that at installation are at least 8 feet in height and planted no more than 10 feet apart
 2. Interspersed shade trees have a minimum size at installation of 2.5-inch caliper

3. Understory story trees with a minimum size at installation of 1.5-inch caliper or 6 feet in overall height
 4. Shrubs with a minimum size at installation of 30 inches in height.
 5. The landscaping plan is deemed to screen elevations of the site adequately within 2 years.
- E. Irrigation shall be provided to assist in maintaining plant materials in a healthy condition for all newly created landscape buffer areas. Plants shall be watered in a manner adequate to ensure establishment and survival. The landscape plan shall include a watering schedule appropriate for the proposed plantings, which may include service by on-site irrigation or water truck, until the plant material is sufficiently established to survive on natural soil moisture. An irrigation system is subject to the following:
1. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto nontargeted areas such as adjacent properties, roadways, or structures.
 2. All automatic irrigation systems shall be designed to minimize water usage and shall be manually shut off during water emergencies or water rationing periods.
 3. An alternative form of irrigation for a particular site may be approved through the applicable review process upon determining that underground irrigation is not necessary or available for the type of plant material being proposed.
- F. A maintenance agreement for the landscape plan shall be provided with a surety or other financial assurance to cover replacement of the plantings and irrigation systems. All plantings shall be maintained in a live, healthy condition for the duration of the solar array life and shall be replaced by the solar array operator as necessary with appropriately sized plant material as necessary to maintain all required buffering standards.
- G. The surety may be provided on a phased basis per the landscape phasing plan and shall be held by the County for a period of three years following planting, after which the County, upon satisfactory inspection of the landscape buffer may release 50% of the surety, and the remaining 50% may be released after an additional two years. The County then reserves the right to inspect and require replacement for the duration of the solar array.
- H. Entrances to the project should be designed to ensure that neighboring properties, public rights-of ways and roads are not exposed to an unscreened view through the entranceway. The use of a wire mesh or chain-link gate or fence with vinyl interwoven strips is not acceptable.
- I. The project shall comply with all applicable federal and state regulations, including by not limited to obtaining a Certificate of Public Convenience and Necessity from the Public Service Commission if required, and in the removal and disposal of the utility scale solar array and all of its components.
- J. The project shall comply with all other applicable regulations, as contained in the Public Laws of Kent County.
- K. The Project shall comply with the bond-related requirements below:
1. A bond, surety letter, or other financial instrument for removal of all solar-related structures and non-vegetative improvements on the site and for the restoration of the site to its pre-project condition shall be submitted, to be based on bona fide written estimates prepared by third-party consultants;

2. The cost estimate shall address provisions for the safe removal and proper disposal of all components of the project, including any components containing hazardous or toxic materials including leachates;
3. An estimate for review by County shall be submitted;
4. Bond shall be maintained for the life of the project;
5. Bonding may be in coordination with other required bonding by the State of Maryland, PSC, PULJ, PPRP, etc.;
6. In the event that no other bonding is required, then a bond in favor of the County shall be required;
7. Said bonding shall include an escalator provision based on changes to the cost of restoration, which shall be evaluated and updated every five years;
8. Said bond shall be for 110% of the above estimate(s) and/or updated estimate(s) from five-year reviews;
9. Said bond shall be redeemable by the County upon a finding that the project has been abandoned, with or without notice from project operators, if project has, in fact, been abandoned by its operators; and
10. The Project will be considered to be abandoned, if there is no electric generation provided to the grid for a period of twelve (12) consecutive months.