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Title: County of New Castle Local Natural Resource Protection Ordinance
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Abstract

This ordinance provides regulatory protection of ecologically significant lands listed on Delaware's natural areas inventory. It aims to accomplish this through establishment of protection standards, as well as specific guidelines for areas of importance including open space, flood plains, steep slopes, and forests.

Resource

CHAPTER 40 ARTICLE 10 ENVIRONMENTAL STANDARDS

DIVISION 40.10.000 PURPOSE

This Article establishes the basic performance standards to protect natural resources. Developments are required to conduct a carrying capacity analysis (Article 5) which regulates the maximum intensity based on actual site conditions. The site carrying capacity analysis ensures that public health, safety, general welfare and quality of life is protected and preserved for future generations. This Article establishes the protection standards used in Article 5 and sets additional standards for activities in areas of natural resources or the mitigation of resource areas that are disturbed.

DIVISION 40.10.100 RESOURCE PROTECTION STANDARDS

SECTION 40.10.110 RESOURCE PROTECTION STANDARDS

A. The protection of natural resources is achieved in three (3) ways. First, specific open space standards are proposed to protect each natural resource by insuring that some portion of the area remains undisturbed. Secondly, site capacity calculation (Article 5) is

provided to regulate development of sites to that which is consistent with the level of protection. Lastly, specific use, protection, and mitigation standards are provided for each resource.

B. Natural resources are protected by requiring the preservation of a minimum amount of the resource as open space. Such open space shall be part of the open space ratio in residential developments and part of the landscape surface ratio in nonresidential developments. Unless otherwise permitted in this Article or Table 40.10.210, the open space shall remain undisturbed. Resource protection levels are specified in Table 40.10.010 and must be met within any development. The development intensity may be modified by the site capacity calculations in Division 40.05.100. Natural resource definitions are described in Division 40.33.300.

Table 40.10.010 RESOURCE PROTECTION LEVELS		
Natural Resource	Resource Protection Levels	
	CN, CR, ON, OR, BP, I, HI Districts	All Other Districts
Floodplain/floodway	1.00	1.00
Wetland (see Section 40.10.320)	1.00	1.00
Riparian buffer	1.00	1.00
Drainageways	0.00	0.40
Cockeysville Formation - WRPA	0.50	0.50
Cockeysville Formation Drainage Area - WRPA	0.50	0.50
Sinkhole	1.00	1.00
Wellhead - WRPA Class A	1.00	1.00
Wellhead - WRPA Class B & C	0.50	0.50
Recharge areas -WRPA	0.50	0.50

Slope or geologic sites - CNA	0.90	1.00
Steep slopes (< 25%)	1.00	1.00
Steep slopes (15-25%)	0.25	0.50
Rare species site - CNA	1.00	1.00
Forests, mature - CNA	0.70	0.85
Forests, mature	0.50	0.70
Forests, young - CNA	0.40	0.60
Forests, young	0.20	0.50
Other CNA	0.20	0.25
Historic	See Article 15	

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

DIVISION 40.10.200 OPEN SPACE REGULATIONS

Table 40.10.010 provides the protection levels for natural resources measured in the site resource capacity calculation in Division 40.05.400. Section 40.10.210 indicates the uses for which open space may be used. This Article also contains additional performance standards and mitigation requirements.

SECTION 40.10.210 USES IN REQUIRED OPEN SPACE

Table 40.10.210 lists uses that may be permitted in open space when required elsewhere in this Chapter. The uses listed are narrower subsets of the use categories listed in Table 40.03.110. In so doing, a closer match of the permitted uses to the resources' tolerance is provided. Any use not listed shall be considered prohibited.

Table 40.10.210 - USES IN REQUIRED OPEN SPACE**
Y = Permitted N = Prohibited L = Limited Use S = Special Use I = Environmental Impact Assessment Report (See Section 40.10.410)

Use	General Open Space *	Flood-way	Flood-plain	Wet-land	Riparian Buffer		Drainage-ways	Cockeys-village Formation	Sink-hole	Wellhead/Recharge Areas	Steep Slopes	Forests	Historic
					Zone 1	Zone 2							
Agricultural													
Apiaries	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Clearing	L	L	N	N	N	N	L	L	N	L	I	N	L
Game farms/fish hatcheries	Y	I	I	I	N	I	I	N	N	N	N	N	N
Field crops	Y	N	Y	N	N	N	Y	Y	N	Y	N	N	Y
Orchards	Y	N	Y	N	N	Y	Y	Y	Y	Y	Y	N	Y
Pasture	Y	Y	Y	N	N	Y	N	Y	N	N	Y	N	Y
Stables	Y	N	N	N	N	N	N	Y	N	N	N	I	Y
Nursery	Y	N	L	N	N	L	Y	Y	N	Y	Y	N	Y
Recreation and Amusement: Outdoor Recreation													
Ball fields	Y	N	Y	N	N	N	Y	Y	N	Y	N	N	N
Day camps	N	N	L	N	N	L	Y	Y	N	L	N	L	L
Fishing areas	Y	Y	Y	Y	Y	Y	Y	L	L	L	L	L	L
Hunting areas	L	L	L	L	L	L	L	L	L	L	L	L	L
Golf course/driving ranges	Y	N	L	L	N	L	Y	Y	L	Y	L	L	Y
Natural area	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Nature center	Y	N	N	N	N	N	Y	Y	N	Y	Y	Y	Y
Picnic area/playground	Y	N	L	N	N	L	Y	Y	N	Y	Y	Y	Y

Pools/courts	Y	N	L	N	N	N	Y	Y	N	Y	N	N	Y
Shooting and archery ranges	L	L	L	N	N	L	L	L	L	L	N	N	N
Trails	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Water dependent use	N	L	L	L	L	L	Y	N	N	N	N	N	N
Industrial Uses: Utilities, Community/Region													
Public/private roads	Y	I	I	N	I	I	Y	Y	N	L	L	L	N
Parking lots	L	N	N	N	N	N	L	L	N	L	N	N	L
Essential access	Y	I	I	I	I	I	L	L	N	S	S	L	N
Sewer/water/utilities	Y	L	L	L	L	L	Y	Y	N	S	S	L	Y
Land application of treated effluent	Y	N	N	I	N	Y	N	N	N	I	N	Y	Y
Sewage & water treatment Plants/pumping stations/dams	N	I	I	N	I	I	N	N	N	N	N	N	N
Detention/retention basins	Y	N	L	N	N	L	Y	L	N	L	N	N	L
Temporary Uses													
Public interest Event	Y	N	N	N	N	N	Y	Y	N	Y	N	N	Y
Special event	Y	N	N	N	N	N	Y	Y	N	Y	N	N	Y
<p>* General open space is that land required by Table 40.04.110 A as Min. OSR/LSR and not containing any specific natural resource.</p> <p>** For resource standards for limited uses, refer to Division 40.10.300 and Division 40.10.400.</p>													

(Amended September 22, 1998 by Ordinance 98-080)

DIVISION 40.10.300 ADDITIONAL RESOURCE STANDARDS

The following Sections set forth additional standards that protect natural resources or permit mitigation.

SECTION 40.10.310 FLOODPLAINS AND FLOODWAYS

A. Boundary interpretation. Where there appears to be a conflict between a mapped boundary and actual field conditions, a determination of the exact boundary of the area subject to inundation by the base flood shall be made by the Department using the one hundred (100) year flood elevation information provided in the flood insurance study for the flood fringe portions of the floodplain and using the best one hundred (100) year floodplain elevation information available for general floodplain areas. For the floodway portion of the floodplain the exact boundaries shall be determined by scaling the distances shown on the floodway map and by utilizing the data in Table 3 of the flood insurance study for the County. Where the boundary of the floodplain is disputed, the burden of proof shall be on the applicant.

B. There are two (2) areas within the floodplain, the floodway and the floodfringe.

1. No structure shall intrude into the floodway except for piers needed to support bridges, erosion control structures, dams for flood control or water supply, and utility crossings.

2. Only structures essential to the permitted uses (Table 40.03.110) shall be permitted in the floodplain. Roads and other essential crossings shall be located to minimize the impact on natural resources.

3. No structures designed for human habitation are permitted except:

a. Where approved under the beneficial use provisions of Section 40.10.315 and Division 40.31.600.

b. Nonconforming uses that already exist in the floodplain (see 10.311).

4. Structures shall be constructed and placed on the building site so as to cause an increase of less than one-tenth (0.10) foot in flood height off-site and offer no obstruction to the flow of flood waters. All piers in the floodways should have sufficient clearance between flood elevation and any horizontal portions of the bridge to avoid debris jams. The Department shall approve all such crossings.

5. Structures shall be firmly anchored to prevent them from floating away or collapsing. Structures shall be certified by an engineer to withstand velocities and likely debris loadings at that point in the floodplain.

6. Where approved, development shall meet the following standards:

a. Construction materials shall be resistant to flood damage.

b. All electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities shall be designed and located at least one (1) foot above the one hundred

(100) year floodplain so as to prevent water from entering or accumulating within the components during conditions of flooding.

c. New or replacement water supply systems and/or sanitary sewage systems or other utilities shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters. On-site waste disposal systems shall be located so as to avoid impairment or contamination and flooding.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.311 NONCONFORMING STRUCTURES AND USES IN FLOODPLAIN

Nonconforming structures and uses of land within the floodplain district shall be regulated by the following:

A. Existing nonconforming structures or uses located in the floodway shall not be expanded or enlarged except as permitted in subsection C of this section.

B. The reconstruction or substantial repair of a nonconforming structure in a floodplain must be authorized and approved by the Department pursuant to the standards specified in Section 40.10.315 of this Article.

C. Any existing nonconforming building, structure, or use which is proposed to be expanded or enlarged in the flood fringe may be permitted, provided that such expansion or enlargement does not result in an increase to the building or structure footprint (foundation) and has received approval from the Department. The Department's approval shall be conditioned upon the applicant addressing to the satisfaction of the Department all public health, safety or general welfare concerns related to the proposed expansion or enlargement raised by the Department.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.312 NONDELINEATED FLOODPLAIN

The subdivision or development of land within and adjacent to nondelineated floodplain areas shall include the submission of a flood study by the applicant to establish the limits of flooding from the one hundred (100) year storm event using one of the following sources as deemed appropriate by the Department. Nondelineated floodplains are subject to all of the regulations and standards in this Article.

A. One hundred (100) year flood elevations established by the county based on the drainage basin's ultimate development as projected by the Department.

B. U.S. Department of Agriculture, Soil Survey Manual for New Castle County (1970). Soils considered to be flood hazard soils, including tidal flooding, shall be those shown on Table 7 therein. Questions concerning the boundaries of such soils shall be resolved by the

Natural Resources Conservation Service of the U.S. Department of Agriculture. This method shall not be used for delineating a manmade floodplain.

C. Where the specific one hundred (100) year elevation cannot be determined using the sources established in this subsection, the applicant for the proposed development shall submit his or her suggested determination of this elevation in accordance with accepted hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analysis shall be undertaken only by a professional engineer who shall certify to the Department that the technical methods used correctly reflect currently accepted technical concepts. Studies, analyses, computations, etc. shall be submitted in sufficient detail to allow a thorough technical review by the Department.

D. Recorded high water marks from past floods based on historical data, including, but not limited to, photographic documentation and water marks on vegetation or structures.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.313 DEVELOPMENT IN FLOODPLAINS

This Chapter is predicated on minimizing building or filling in the floodplain. However it shall be permitted as follows:

A. Use is permitted in Table 40.10.210. Such uses shall demonstrate they are situated to minimize trapping of debris or any other such condition that reduces flood storage.

B. Replacement or improvement to a nonconforming structure which already exists in the floodplain (Section 40.10.311).

C. It is ordered as a beneficial use, after a beneficial use appeal Section 40.31.600.

D. All uses and development occurring in areas/properties determined to be a Brownfield as demarcated by the Department of Natural Resources and Environmental Control (DNREC), Air and Waste Management Division, are permitted only upon approval of the Department with the consent of County Council by resolution after an applicant has submitted a certification from the DNREC that the property meets Brownfield criteria. All new construction or substantial improvements to nonresidential structures located in a designated Brownfield area shall meet all of the requirements of Section 40.10.316 except C, (G)(5) and P. Brownfield criteria that must be met include:

1. Areas/properties located in targeted census tracts as defined by the Delaware Economic Development Office (DEDO).

2. Areas/properties identified by the DNREC as contaminated by the release or threatened release of a hazardous substance as defined under 7 Del. C., Chapter 91.

3. Properties that are zoned either Commercial or Industrial Use, and which meet the DEDO criteria for underutilized.

E. Substantial improvements to structural buildings associated with a current operational petroleum underground storage tank (UST) facility is permitted, provided the impetus for the owner of said UST facility in upgrading or replacing all or a portion of the UST system is to achieve compliance with the State Regulations Governing Underground Storage Tank Systems as established under 7 Del. C., Chapter 74. All new construction or substantial improvements to nonresidential structures located in a designated Brownfield area must have a floor area elevation equal to or above the base flood elevation or must be flood proofed to the base flood elevation.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.314 FILLING IN THE FLOODPLAIN

Where permitted by Section 40.10.313 filling shall adhere to all of the following conditions:

A. uch fills shall only be permitted in the fringes of the floodplain and are prohibited in the floodway.

B. Filling shall not be used as a means of increasing the development yield of the site capacity calculation (Division 40.05.400). The original floodplain shall be used in the site capacity calculation, not the smaller floodplain.

C. The total area of the floodplain on the site may not be reduced by more than ten (10) percent in conjunction with channel improvements, flood storage, and detention that would have the effect of reducing the floodplain elevation.

D. All filling shall meet the following construction requirements:

1. The fill shall be protected against erosion by riprap, vegetative cover, sheet piling, or bulk-heading sufficient to prevent erosion.

2. The fill shall be clean and compacted to minimize erosion potential.

3. Hydraulic openings shall be designed to convey one hundred year flow unimpeded.

4. As a result of filling on the site, there shall be no net loss of flood storage capacity. Compensation shall be made for the volume of fill so that neither cross-sectional area decreases nor flood level increases.

E. Where filling is proposed the record plan shall not be approved until FEMA certifies a new floodplain limit so that no lots are shown to be in the floodplain.

F. Where homes existing as of the date of adoption of this Chapter can be protected from existing flooding conditions by filling not exceeding twenty (20) cubic yards per lot, such filling may be permitted by the Department provided all the requirements of subsection D above are met.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.315 STANDARDS FOR BENEFICIAL USES IN FLOODPLAINS

All new construction, subdivision proposals, substantial improvements or repairs, prefabricated structures and other developments shall be prohibited except where approved as essential to the beneficial use of property. Approval shall require the issuance of a beneficial use permit. In approving a beneficial use permit, in addition to the standards for beneficial uses in Division 40.31.600, the following standards shall be met:

A. Structures designed for human habitation shall not be permitted in the floodway.

B. Any other occupied residential space shall have its lowest floor, including basement, and lowest opening at least eighteen (18) inches above the flood elevation. All service and utility connections such as water, sewer, gas, and electrical and heating equipment shall be similarly located or buried with adequate cover to prevent erosion.

C. New nonresidential construction or substantial improvement of any commercial, industrial, or other nonresidential structures, shall have the lowest floor, including basement, elevated eighteen (18) inches above the base flood elevation or, together with attendant utility and sanitary facilities, be floodproofed so that below the base flood elevation the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator.

D. All development approved under a beneficial use permit shall meet the standards in Section 40.10.313 or 40.10.314.

E. Storage, Material, and Equipment:

1. The storage or processing of materials within the special flood hazard area that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal, or plant life is prohibited.

2. Storage of other material or equipment may be allowed if not subject to major damage by floods, if firmly anchored to prevent flotation, or if readily removable from the area within the time available after a flood warning.

F. Where such use is permitted, the construction method shall be to build the structure on piles elevated above the floodplain. Filling may be permitted, provided the applicant has proven that elevating the structure is infeasible or cost prohibitive.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.316 CRITERIA FOR BUILDING IN AND NEAR THE FLOODPLAIN

In reviewing an application, the Department shall consider and/or require the following:

A. Any development in the floodway that would cause an increase in flood heights in excess of that allowed in Section 40.10.310 B 4 shall be prohibited.

B. New construction of or substantial improvements to residential structures shall have the lowest floor, including basement, elevated not less than eighteen (18) inches above the one hundred (100) year flood. Additions to residential structures not constituting a substantial improvement shall have the lowest floor, including basement elevated above the one hundred (100) year flood.

C. New construction of or substantial improvements to nonresidential structures shall have the lowest floor, including basement, elevated not less than eighteen (18) inches above the one hundred (100) year flood or, together with attendant utility and sanitary facilities, shall be floodproofed up to not less than eighteen (18) inches above the level of the one hundred (100) year flood. Such floodproofing shall be watertight, with walls substantially impermeable to the passage of water, and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Wet floodproofing that allows the free flow of flood waters through the areas of a structure above its lowest floor shall not be permitted. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice for meeting these provisions.

D. Electrical, heating, ventilation, plumbing and air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating with the components during conditions of flooding.

E. For all new construction and substantial improvements, fully enclosed areas below the lowest floor area that are useable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must be certified by a professional engineer with a background in structural design and must meet or exceed the following minimum criteria:

1. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided.

2. The bottom of all openings shall be no higher than one (1) foot above grade.

3. Openings may be equipped with screens, louvers or other coverings or devices provided they permit the automatic entry and exit of floodwaters.

F. All structures, residential and non-residential, shall be:

1. Designed and adequately anchored to prevent flotation, collapse or lateral movement of the structure.

2. Constructed with materials and utility equipment resistant to flood damage.

3. Constructed by methods and practices that minimize flood damage.

G. If fill is used to raise the finished surface of the lowest floor to the base flood elevation:

1. Fill shall extend beyond a structure for a sufficient distance to provide acceptable access.

2. Fill material shall be compacted to provide the necessary stability and resistance to erosion, scouring and settling.

3. Fill slopes shall be no steeper than one (1) vertical on two (2) horizontal.

4. Fill shall be used only to the extent to which it does not adversely affect adjacent properties.

5. Fill shall not be used for the purpose of enhancing the future development potential of an existing property by creating new lots or land areas for future development that would have been located in the floodplain prior to the placement of the fill material.

H. The danger to life and property due to increased flood heights or velocities caused by encroachments.

I. The danger that materials may be swept on to other lands or downstream to the injury of others.

J. The proposed water supply and sanitation systems and the ability of these systems to avoid causing disease, contamination, and unsanitary conditions.

K. The expected heights, velocities, duration, and sediment transport of the floodwater expected at the site.

L. The proposed activity's undue alteration of natural water flows.

M. No development shall be permitted in floodplain and nondelineated floodplain areas where no floodway has been designated and where one hundred (100) year flood

elevations have been provided, unless the applicant demonstrates that the proposed use, when combined with all other existing and anticipated development, will not increase the water surface elevation of the one hundred (100) year flood more than two-tenths (0.2) of a foot at any point.

N. Any permitted development is subject to all applicable state and federal rules and regulations.

O. Manufactured homes shall be placed on a permanent foundation and shall have the lowest floor elevated not less than eighteen (18) inches above the one hundred (100) year flood level and anchored to resist floatation, collapse or lateral movement.

P. The extent to which the applicant's primary purpose can be achieved by the use of alternatives or without the use of lands in the floodplain, or the extent to which the applicant can employ mitigation measures to offset adverse impacts, or to which the public at large would benefit from the activity or project and the extent to which it would suffer detriment.

Q. The susceptibility of the proposed use to flood damage and the effect of such damage on the owner.

R. The protection of individuals who might choose, despite the flood dangers, to develop or occupy land on the floodplain; or protection of other landowners from damages resulting from the development of a floodplain and the consequent obstruction of the flood flow; or the protection of the entire community from individual choices of land use which requires subsequent public expenditures for public works and disaster relief; or protection of the quality of surface and subsurface water supplies adjacent to and underlying floodplain areas.

S. The safety of access to the property in times of flood for ordinary and emergency vehicles.

T. The likelihood that the proposed use will result in extraordinary public expense, will create nuisances or will conflict with existing County ordinances or regulations.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.320 WETLANDS

The one hundred (100) percent protection level for preservation of wetlands established in Table 40.05.420 and Table 40.10.010 may be reduced when a permit from the Army Corps of Engineers is issued for filling or disturbance. However, under no circumstances shall filling or disturbance of wetlands exceed the Army Corps of Engineers Nationwide Permit standard. Wetland mitigation shall be that for which a permit has been issued by the United States Army Corps of Engineers. In addition, any mitigation approved by the United States

Army Corps of Engineers is also subject to approval by the Department before any mitigation may occur. Permits from the State may also be required.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075; amended October 22, 2002 by Ordinance 02-075)

SECTION 40.10.330 RIPARIAN BUFFER AREAS (RBA)

The waterbody buffers shall meet the following standards which are intended to preserve and enhance existing vegetation and to revegetate disturbed areas.

SECTION 40.10.331 DESIGN STANDARDS

The riparian buffer shall be mapped to delineate the resource for Table 40.10.010. Existing native vegetation shall be preserved to the maximum extent possible. All RBA areas shall be classified as old field, disturbed land, or meadow, and planted in accordance with this section where native vegetation is not present. The mapping of RBA's shall be supplied with the exploratory plan and at subsequent plan submissions to meet the standards of this Chapter.

A. Old fields shall be planted with canopy trees appropriate for the soil conditions in accordance with the plant list in Appendix 3 installed at the rate of four (4) canopy trees having a two (2) inch caliper per one thousand (1,000) square feet of disturbed area.

B. Meadows shall meet the reforestation standards of Section 40.23.240, except that no shrubs need to be provided.

C. Disturbed land shall meet the reforestation standards of Section 40.23.240.

D. All planting shall be done by zone. The zone closest to the stream, Zone 1, shall consist of species native to the riparian zone and selected for their value in stream bank stabilization. A mix of species that provides prolonged stable leaf fall necessary to meet energy and pupation needs of aquatic insects shall be selected. Management shall be limited to stream bank stabilization and removal of invasive vegetation. Logging and other overland equipment shall be prohibited except at permitted stream crossings.

E. In Zone 2, the species shall be matched to the existing habitat. Recommended plant species are found in Appendix 3.

F. Planting plans shall be prepared jointly by a landscape architect in consultation with other professionals having a practical knowledge of riparian ecosystems (including wetlands specialists, wildlife biologists or ecologists from the U. S. Fish and Wildlife Service, DNREC, or the Natural Heritage Program). All planting plans shall include a planting schedule that summarizes the quantity, type, size, and root condition of all plantings. State agencies conducting or supervising wetlands plantings are exempt from submitting plans.

G. The locations, dimensions, and spacing of enhancement plantings shall be adequate for their proper growth and maintenance, considering the sizes of such plantings at maturity, and their present and future environmental requirements, such as soil, moisture, and sunlight. Site preparation should focus on the removal of exotic species such as honeysuckle and multiflora rose, if present. (See Appendix 3 for list of exotics that should be removed when enhancement activities are undertaken). Weed control is essential during establishment of the RBA and for the survival and growth of trees and shrubs.

(Amended September 22, 1998 by Ordinance 98-080; amended March 12, 2002 by Ordinance 01-112)

SECTION 40.10.332 SURFACE WATER BODIES

A. Non-water-supply water bodies.

1. No septic systems shall be allowed within the RBA.
2. All developments shall maximize the drainage amount conducted in natural swales rather than storm sewers. A stormwater system's discharge to streams or watercourses shall be by sheet flow through a grassland or discharged from a stormwater management facility having a wetland or aquatic bench.
3. Stormwater runoff from all parking areas shall be directed to a stormwater management facility before it is discharged into an RBA.

B. Public Water Supply Surface Storage Reservoir.

1. All developments which drain on the surface or underground to existing public water supply reservoirs shall be limited to ten (10) percent impervious coverage. Public water supply reservoirs (or reservoir watersheds) are depicted on the three (3) map series "Water Resource Protection Areas for the City of Newark, City of Wilmington, New Castle County, Delaware", prepared by the Water Resources Agency for New Castle County that is dated 1993, or as may be amended.
2. No septic systems shall be allowed within six hundred (600) feet of the water supply surface storage reservoir.
3. All developments shall maximize the drainage amount conducted in natural swales rather than storm sewers. A stormwater system's discharge to streams or watercourses shall be by sheet flow through a grassland or discharged from a stormwater management facility having a wetland or aquatic bench.
4. No industrial or commercial parking shall be permitted within three hundred (300) feet of the public water supply surface storage reservoir.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.340 STEEP SLOPES

A. Public Purpose. The public purpose of this Section is to protect the public health, safety and welfare. To this end, this Section is intended to protect the environment through the preservation of natural resources and to complement the sections relating to open space. This Section is designed to encourage the sensitive treatment of hillsides and their related soil and vegetation resources in an effort to minimize adverse environmental impacts. The following objectives serve to complement these specific purposes and the overall purposes of this Section, and the objectives shall be to:

1. Conserve and protect steep slopes from inappropriate development, such as excessive grading, land form alteration and extensive vegetation removal.
2. Avoid potential hazards to property and the disruption of ecological balance which may be caused by increased runoff, flooding, soil erosion and sedimentation, blasting and ripping of rock and landslide and soil failure.
3. Encourage the use of steep slopes for open space and other uses which are compatible with the preservation of natural resources and protection of areas of environmental concern.
4. Avoid public expenses of repair and restoration of damage to downhill sites caused by the improper development of steep slopes.

B. Standards and Criteria. The following practices shall be required when developing in a precautionary steep slope area:

1. All grading shall be minimized, and no grading shall be undertaken within any area of the steep slope area except where approved.
2. Disturbance of steep slopes must consider unique characteristics of topographic, soil and vegetation resources and the techniques proposed to mitigate potential adverse environmental impacts.
3. The effect the development of the steep slope would have on adjacent properties.
4. The compatibility of the proposed uses with public purposes.
5. No other alternative location within the subdivision being considered is feasible or practical.
6. Earth-moving activities and vegetation removal will be conducted only to the extent necessary to accommodate proposed uses and structures and in a manner that will not cause excessive surface water runoff, erosion, sedimentation or unstable soil conditions.

7. Mitigation techniques will be utilized, including but not limited to retaining walls, tree wells, the establishment of ground covers and/or low spreading shrubs, the use of erosion control fabric and the like.

8. The proposed buildings or structures shall be of sound engineering design. Footings shall be designed in response to the site's slope, soil and bedrock characteristics.

9. Disturbance to particularly sensitive features of the site shall be minimized; special emphasis in planning for the site should be given to the protection of:

a. Soils with seasonal high water table, as listed in appendix I, Table C of Chapter 12 of this Code pertaining to drainage.

b. Underlying geology which comprises or contributes to a major groundwater resource including the flow of existing springs.

10. Disturbance shall be minimized where the length of area of steep slope, both on the site and on adjacent lands within two hundred (200) feet of the site, is extensive.

11. The proposed development, any impervious ground cover and the resultant disturbance to the land and existing vegetative cover will not cause runoff and/or related environmental problems off the site.

12. Removal of or disturbance to existing vegetation on the site shall be minimized. The proposed impacts on existing vegetation shall be evaluated in terms of the potentially detrimental effects on slope stability, recharge of stormwater and existing drainage patterns.

13. Road construction shall follow the natural topography, with cuts and grading minimized; the location of any proposed point of access to an activity or use on the lot shall reflect the need to avoid steep slope disturbances.

C. In a prohibitive steep slope area, roads and driveways shall only be permitted if no viable alternative alignment or location is feasible provided that such roads and driveways are aligned predominately parallel to the contours as demonstrated by an environmental impact assessment report.

D. Permits shall require all earth work to be conducted so as to be concluded one (1) month prior to the end of the planting seasons (i.e., April 30 and September 30). This practice will enable a ground cover to be established after work completion.

E. A ground cover shall be placed on all exposed surfaces prior to the end of the planting season, or as the work is completed prior to that date. The Department is authorized to permit temporary cover in limited situations where unusual weather or the type of project requires earth work beyond a planting season. Surety may be required for remedial work if temporary cover is to be used.

F. All slopes exceeding fifteen (15) percent or where water flows can be anticipated shall have a protective cover to hold the seed or plants in place. All protective covers shall be approved by the Department.

G. All plant materials should be approved by the Department as suitable for the area's soils and exposure, growth, and coverage rate.

SECTION 40.10.350 FORESTS

Trees may be cut over a greater area than permitted in Table 40.05.420 only if mitigation is provided and the following standards are met:

A. A tree survey of the site's forest shall be conducted by a landscape architect, arborist or forester and submitted to the Department for review and approval. The best forests, in terms of percentage of climax vegetation, tree size, tree health, and habitat value, shall be given the highest priority for preservation.

B. Where landscaping can occur, the protection level given forests after mitigation shall not be less than in Table 40.10.350B. The acres of mitigation required is expressed as a ratio (acres planted to acres disturbed). In no case shall the increased cutting lead to a revision of the density permitted by the site resource capacity calculation in Division 40.05.400.

C. Except for CNA forest types, an applicant may be permitted to reduce the protection level with mitigation set forth in Table 40.10.350 B, provided the mitigation ratio is maintained and the area to be reforested is either on the same parcel or on an adjoining parcel. Any reduction of this standard shall require the approval of the Department and County Council.

Table 40.10.350B FOREST MITIGATION PROTECTION AND RATIOS			
Forest Type (Zone)	Protection Level	Protection with mitigation	Mitigation Ratio
Mature CNA, CN, CR, ON, OR, BP, I, HI districts	0.70	0.60	1.75:1
Mature CNA, all other districts	0.85	0.80	2.75:1
Mature, CN, CR, ON, OR, BP, I, HI districts	0.50	0.40	1.5:1

Mature, all other districts	0.70	0.65	2:1
Young CNA, CN, CR, ON, OR, BP, I, HI districts	0.40	0.30	1.25:1
Young CNA, all other districts	0.60	0.50	1.75:1
Young, CN, CR, ON, OR, BP, I, HI districts	0.20	0.10	1.25:1
Young, all other districts	0.50	0.40	1.5:1

(Amended September 22, 1998 by Ordinance 98-080; December 14, 1999 by Ordinance 99-075)

SECTION 40.10.351 STANDARDS FOR MITIGATION OF FORESTS

In low quality forests (where the majority of canopy trees are listed as "invasive exotics" in Appendix 3), mitigation shall be required. The developer shall submit a mitigation plan by a qualified forester or landscape architect. At a minimum, the plan shall provide for the following:

- A. Elimination of invasive nonnative species (see Appendix 3).
- B. Under planting with fifty (50) whips per acre of canopy trees (see Appendix 3).
- C. Long-term management program including, initial action, followup in first three (3) years, and long-term maintenances. This should focus on the ultimate loss of exotic species that interrupt growth of planted stock.
- D. Planting of an indigenous herbaceous forest or meadow groundcover. Plant list in Appendix 3.
- E. The plant material in the mitigation area shall be determined based on a tree survey of the disturbed area (Table 40.10.351E.)
- F. The plant types (tree, shrubs, etc.) used in mitigation shall be similar to those destroyed except those undesirable species shall be replaced by other species as approved by the Department.

Table 40.10.351E

STANDARDS FOR FOREST MITIGATION		
DBH of Canopy Trees Removed	Replacement Canopy Trees	
	Amount	Caliper
36" or larger	5	3"
24" -35"	3	3"
16" - 23"	3	2.5"
8" - 15"	2	2.5"
4" - 8"	1	2"
Undesirable species	2	6 ft. whips
Area requirement per acre	40	4 ft. whips

SECTION 40.10.360 DRAINAGEWAYS

In addition to the open space protection, the drainageway area protected shall be kept open to provide continuous drainage corridors. Positive surface drainage in these areas shall be preserved. The protected area may be regraded and reshaped to provide for stormwater management and drainage. The following standards shall apply:

- A. The drainageways shall be used as a natural positive surface drainage system. Enclosed storm drainage to connect areas of drainageways shall be prohibited, except that culverts shall be installed at all road crossings.
- B. The areas shall be restored to a natural state using seed mixes approved and specified on the Department's lists.
- C. Where the protected area is to be used for a permitted open space use (Table 40.10.210), the use shall not interrupt the positive surface drainage flows.

D. The following standards shall govern the design of stormwater management or surface drainage systems in drainageways in conjunction with the Delaware Department of Natural Resources and Environmental Control (DNREC):

1. The drainage shall be designed to slow the time of concentration on the site and retain maximum ground infiltration.
2. Where flows permit, the channels shall be designed as grassed swales, wetlands, or mesic grasslands encouraging sheet flow, except in forests.
3. All permanent pool stormwater management ponds shall be designed to have aquatic benches planted with approved plant materials (Section 40.23.280).

(Amended March 12, 2002 by Ordinance 01-112)

SECTION 40.10.370 CRITICAL NATURAL AREAS (CNA)

Where a development is in a critical natural area, the developer shall be notified at the preapplication conference. The application for an exploratory plan shall include a report indicating how the plan meets the standards of this Chapter and concerns and comments on the plan from the DNREC. Where the developer can preserve greater areas of open space in the plan without losing density this may be required on the advise of DNREC.

SECTION 40.10.375 SINKHOLES

A. The natural runoff rate reaching sinkholes shall be reduced or maintained in order to stabilize the feature. All new stormwater runoff shall be diverted around the sinkhole in lined channels or stormwater pipes that eliminate infiltration to the groundwater.

B. If water is permitted to drain to the sinkhole, all swales shall be protected with triple siltation fence barriers and a vegetated siltation basin to protect the sinkhole from sediments.

C. No drainage from nonresidential uses shall be permitted to enter the drainage to the sinkhole.

(Amended December 14, 1999, by Ordinance 99-075)

SECTION 40.10.380 WATER RESOURCES PROTECTION AREA (WRPA)

A. Water resource protection areas are the Cockeysville Formation, Cockeysville Formation Drainage Area, wellheads, and recharge areas. All such areas are as depicted on the three (3) map series "Water Resource Protections Areas for the City of Newark, City of Wilmington, New Castle County, Delaware," prepared by the Water Resources Agency for New Castle County that is dated 1993, or as amended. These areas shall be protected as

required by the following sections to protect the County's water resources from contamination and pollution and to insure adequate water quantity for future needs.

B. No development shall be permitted to have more than twenty (20) percent impervious surface ratio unless an environmental impact assessment report certified by a State-registered professional geologist or professional engineer with a background in hydrogeology indicates that additional development would not endanger the public or the environment. All environmental impact assessment reports performed pursuant to this Section shall be reviewed in accordance with Section 40.10.385 and the procedures set forth in Article 30 and Article 31 for environmental impact assessment reports. The impervious surface ratio and open space ratio operate independently and are based on the base site area.

C. The Department may permit the redevelopment of existing nonconforming sites within Water Resource Protection Areas, which exceed the twenty (20) percent impervious cover standard, provided the proposed redevelopment of the site will reduce the existing impervious cover by a minimum of five (5) percent for sites of two (2) acres or less, a minimum of ten (10) percent for sites greater than two (2) acres and less than five (5) acres, and a minimum of twenty (20) percent for sites greater than five (5) acres and larger.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.381 COCKEYSVILLE FORMATION

Special on-site investigation as required by Section 40.22.110 .

A. The County shall require a subsurface investigation report on the stability of the rock formation and likely contamination risks.

B. In addition, surface drainage shall be designed to prevent infiltration that could lead to increased erosion of supporting rock. The County may require lined channels or stormwater pipes that decrease the level of infiltration to the groundwater.

C. In determining whether development may be permitted beyond the twenty (20) percent impervious surface ratio limitation of this Division, the contribution of like land by the applicant to be preserved in the Cockeysville Formation shall be considered as a factor in the environmental study and report.

SECTION 40.10.382 RESERVED.

(Amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.383 WELLHEAD PROTECTION AREAS (PUBLIC WATER SUPPLY WELLS)

A. Wellhead protection areas.

1. Type A wellhead areas shall be one hundred (100) percent open space within three hundred (300) feet of the wellhead. Within that area, impervious surface shall be limited to building and access associated with the well and distribution and treatment facilities and their maintenance. In the case where the three hundred (300) foot required open space cannot be attained on the same lot as the wellhead, a conservation easement on one or more adjacent lots shall be necessary.

2. Type B and C wellhead areas shall be limited to twenty (20) percent impervious surface ratio within three hundred (300) feet of the wellhead.

B. The resource protection area around a public water supply well which draws from a confined aquifer as interpreted by the Delaware Geological Survey (DGS), DNREC, or a State-registered professional geologist with approval by DGS and DNREC shall be one hundred and fifty (150) feet. The protection area around a well not interpreted as drawing from a confined aquifer may be reduced below three hundred (300) feet where an environmental impact assessment report is approved demonstrating that a minimum sixty (60) day time of travel from a potential contaminant to the public water supply well is maintained. In no case shall the protection area for unconfined aquifers be less than one hundred fifty (150) feet. The assessment reports shall be based on an on-site hydrogeologic study.

Notwithstanding any other provisions in Article 13 of the New Castle County Code, the minimum lot area required for a public water supply well and related facility drawing from a confined aquifer shall be one (1) acre; and, the minimum lot area required for a public water supply well and related facility drawing from an unconfined aquifer shall be two (2) acres. In the case where the minimum lot area cannot be met, because the public water supply well and related facility is proposed on an existing lot less than the minimum required, and where the total wellhead protection area required is not wholly owned by the public water utility, a conservation easement on one or more adjacent properties shall be necessary to satisfy the appropriate public water supply well minimum wellhead protection areas. The terms of the conservation easement shall prohibit any activity detrimental to the public water supply well. The owner of the public water supply well shall be responsible for monitoring the property pursuant to the terms of the easement.

C. The natural runoff flowing into wellhead areas shall be allowed and all new stormwater runoff shall be diverted around the wellhead protection areas wherever practical.

D. A stormwater system's discharge to wellhead WRPA's shall be by sheet flow through a grassland or discharged from a stormwater management facility having a wetland or aquatic bench. Stormwater runoff from all parking areas shall be directed to a stormwater management facility before it is discharged into a wellhead WRPA.

E. The replacement of any existing public water supply well that was not required to meet this wellhead protection requirement at the date of its original installation and that has failed, shall be exempt from meeting this wellhead protection requirement.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.384 RECHARGE AREAS AND COCKEYSVILLE FORMATION DRAINAGE AREAS

A. When impervious cover is proposed by the applicant at a rate greater than twenty (20) percent of the site, the applicant shall be required to demonstrate that the quality of storm water runoff is equal to or greater than predevelopment conditions and the quantity of stormwater runoff is equal to or less than predevelopment conditions.

B. Those areas of open space not currently forested, shall have a minimum of twenty-five (25) percent of their area reforested pursuant to Section 40.10.351. The Department may reduce this requirement where the applicant prepares an Environmental Impact Assessment Report demonstrating to the satisfaction of the Department that reforestation will result in more than a twenty (20) percent loss in groundwater recharge due to the soils and hydrogeologic conditions of the site. The report shall include an annual water budget compiled on a month by month basis comparing existing and post-development mature forest conditions. Applicants shall submit information regarding the types of trees evaluated, soil conditions (including percolation rates), pH types, assumptions regarding rainfall events, and topography. The report shall also include a water quality analysis comparing the water quality benefits of mature forest cover to the proposed alternative ground cover.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.385 UNIFORM STANDARDS AND CRITERIA

A. The following standards and criteria shall be applicable to any limited use, special use or other use requiring an environmental impact assessment report permitted pursuant to this division:

1. Stormwater management facilities shall be designed and constructed in accordance with DNREC "Delaware Sediment and Stormwater Regulations," dated January 23, 1991 or as later revised.

2. With the exception of floodplain and erosion-prone slope water resource protection areas, stormwater management and recharge facilities shall be designed with the goal of maintaining the quantity and quality of groundwater recharge at predevelopment levels. To facilitate the design of recharge facilities, a manual of best management practices for the

design, construction and maintenance of recharge structures shall be developed. The manual shall be approved by the Resource Protection Area Technical Advisory Committee (RPATAC) and may be revised as necessary to reflect advances in recharge technology.

3. In order to establish the predevelopment standards required by subsection (A) (2) of this Section, a study shall be prepared under the supervision of a State-registered professional geologist or professional engineer with a background in hydrogeology. The report of the study shall be submitted to the Department, the Delaware Geological Survey and the Water Resources Agency and shall be reviewed in accordance with the procedures set forth in Article 30 for environmental impact reports.

4. In wellhead water resource protection areas all development shall be maintained at a minimum sixty (60) day horizontal time of travel from any public water supply well as established by the on-site hydrogeologic study required by subsection (A) (3) of this Section or three hundred (300) feet from the public water supply well, whichever is less.

5. When facilities are proposed to augment groundwater recharge, to ensure that the quality of groundwater recharge shall be maintained, a groundwater quality monitoring program shall be established as part of the report prepared pursuant to subsection (A) (3) of this Section. The program shall establish the number of wells to be installed, as well as the duration and frequency regarding the monitoring of the wells to be installed. The wells shall be installed and secured in accordance with DNREC "State of Delaware Regulations Governing the Construction of Water Wells." All laboratory test results shall be submitted to the Water Resources Agency to ensure the County that satisfactory water quality is maintained.

6. Provisions for the maintenance of groundwater recharge facilities and the frequency of groundwater quality testing and monitoring shall be established by a water management agreement between the property owner and the county. The agreement shall not be amended without the approval of the County.

7. In water resource protection areas, sanitary sewer systems which utilize land application of treated effluent shall be required to use extended aeration and disinfection. Treated wastewater shall not be applied to the ground at a rate that saturates soils. Crops or vegetation to which treated wastewater is applied shall be harvested periodically to prevent a build-up of metals or other constituents in the soil or groundwater.

(Amended September 22, 1998 by Ordinance 98-080; amended March 12, 2002 by Ordinance 01-112)

SECTION 40.10.386 BOUNDARY DETERMINATION

A. All subdivision and land development plans depicting development or land disturbance submitted for County review shall be evaluated for the existence of water resource protection areas by scaling the distances shown on the water

resource protection area map. If existing, the boundaries of the areas shall be delineated on the plan.

B. When there appears to be a conflict between the mapped boundary and actual site conditions, the applicant may engage the services of professional practitioners set forth in this Section to prepare a report intended to determine more accurately the precise boundary of the water resource protection area, which report shall be submitted to the Department with the detailed findings necessary to indicate the location of the boundary in conformance with the definitions given in Article 33, including:

1. A detailed topographic layout of the subdivision and/or area to be developed and prepared by a State-registered professional land surveyor or professional engineer;
2. For floodplain and erosion-prone slopes boundary determinations, a revised surface soils map of the subdivision and/or area prepared by a DNREC-licensed soil scientist including a written report of the on-site field inspection and test boring data;
3. For reservoir watershed, Cockeysville Formation, wellhead and recharge boundary determinations, a site-specific geological and hydrogeological analysis shall be performed by a State-registered professional geologist or professional engineer with a background in hydrogeology and shall be based upon thorough site investigation, subsurface testing and other testing as may be determined appropriate by the Department; and
4. Evidence derived from a site-specific investigation which may include aquifer testing, test borings, test pits, observation wells, groundwater elevations and topography surveys as appropriate for the type of water resource protection area to clearly demonstrate that the area in question does not meet the definition of a water resource protection area as defined in this Division.

C. Reserved.

D. The Department, with the advice of the Delaware Geological Survey and the Water Resources Agency, may adjust the boundary or area designation based thereon. Such adjustments shall have the effect of exempting the subject parcel from the use regulations of this Chapter and shall have the effect of amending the limits of the water resource protection area. However, when the water resource protection area map is updated or amended, the Department shall review each of the exemptions approved since the last map revision to determine if a district boundary should be amended to reflect the findings of the geologic analysis performed at the time of the exemption.

E Notwithstanding any other section of this Chapter, if an owner initiates a precise boundary delineation pursuant to this section, any and all time review limitations shall be stayed pending the submission of the report contemplated by this section. Following submission of the report, the Department shall have twenty (20) days to finally approve or disapprove the exploratory sketch plan submission or such further time as deemed necessary by the Department, but not to exceed an additional twenty (20) days.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.387 RESOURCE PROTECTION AREA TECHNICAL ADVISORY COMMITTEE (RPATAC)

A. The purposes and duties of the RPATAC are to:

1. Provide technical support and recommendations to the Department concerning the technical definition and criteria of any resource protection area as depicted on the three (3) map series designated in this Chapter.
2. Advise the Department when it is determined that performance standards should be amended.
3. Provide technical support and recommendations to the Board of Adjustment and Planning Board concerning any application.
4. Advise the Department when it is determined that this Chapter should be amended.
5. Assist the Department as requested.

(Amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.385 RPATAC REVIEW

Neither the Board of Adjustment, nor the Planning Board shall consider any application for a variance from this Division until the RPATAC has had an opportunity to review the application and make a written recommendation to the respective board. Any application for a variance from this Division shall be transmitted to the RPATAC, which shall have forty-five (45) days from the filing of the application to review and issue its recommendation.

(Amended December 14, 1999 by Ordinance 99-075)

DIVISION 40.10.400 STANDARDS FOR OPEN SPACE USES

Table 40.10.210 permits limited and special uses to occur in open space areas. The uses may present potential threats to the natural resource involved. This Division sets forth the standards required for approval.

SECTION 40.10.410 ENVIRONMENTAL IMPACT ASSESSMENT REPORT

If a proposed use requires an environmental impact assessment report, the applicant shall have such a report certified by a professional engineer, geologist or other certified professional in the applicable environmental discipline. Mitigation cannot be used where

the conflict can be avoided or minimized. The report shall contain the following criteria, given in order of preference:

A. Site Character. The report shall identify all potential on-site sensitive environmental concerns.

B. Avoidance. Alternative sites or routes shall be identified that would not damage the resource or result in less resource damage. Reasons shall be provided explaining why using these sites is impossible or infeasible versus that proposed.

C. Minimization. The applicant shall demonstrate that the plan minimizes the impact of the activity, route, or use on the resource. The applicant shall also demonstrate that the areas impacted shall be the lowest quality and result in the least damage to the resource.

D. Mitigation. A mitigation plan shall be submitted indicating mitigation activities. On-site replacement is the most acceptable form of mitigation. However, mitigation can include restoration and enhancement after the use is abandoned. Mitigation by replacement on another site shall be at a ratio of two to one (2:1). Mitigation may also include enhancement; this ratio shall be four to one (4:1). See Table 40.10.350B.

(Amended September 22, 1998 by Ordinance 98-080; amended March 12, 2002 by Ordinance 01-112)

SECTION 40.10.421 CLEARING

All natural resources. Clearing shall be permitted only under the following conditions:

1. To prepare land for a use permitted by this Chapter; or,
2. As a reforestation measure, or to enhance or improve the quality of existing vegetation or as a means to eliminate dead, diseased, or hazardous tree stands.

Where a clearcutting operation is deemed permissible for one (1) of the reasons stated in this subsection, it shall be consistent with the terms of a forest management plan approved by the Department, following review and comment by the State Department of Agriculture Division of Forest Services.

SECTION 40.10.422 NURSERIES

Floodplains and riparian buffers. Nurseries shall be permitted only for raising wetland species. The area shall be disconnected from adjoining wetland areas. The disturbance level requires the area be diked off from the adjoining wetlands to control the water flow or sediment movement from the nursery to the surrounding wetlands. The following shall be required:

- A. A water control structure shall permit backflow into the nursery area.

B. Water shall be discharged through a channel, grassed channel, or new wetland.

SECTION 40.10.423 HUNTING AND FISHING AREAS

Hunting and fishing shall be permitted pursuant to State regulations.

SECTION 40.10.424 GOLF COURSES

Golf courses shall be permitted on floodplains, wetlands, steep slopes, forested areas, or riparian buffer areas provided that the following standards are met:

A. **Floodplains.** Golf courses shall be permitted provided that there is no change in the flood elevation due to the construction. Tees and greens shall be above flood elevation.

B. **Steep slopes.** Areas of protected steep slope may be used as part of the golf course provided this does not involve the cutting of forest cover. If natural grass cover is to be disturbed, the earth work should be finished in less than sixty (60) days and a new vegetative cover installed immediately. Erosion control matting shall be used to reduce erosion and prevent the seed from washing out.

C. **Forests.** No area of protected forest shall be used for golf courses if the tree cover is to be disturbed.

D. **Riparian buffer areas.** Golf courses shall be permitted within a riparian buffer area provided that it meets the requirements of A - C above, and provided that the requirements of C apply to areas planted with new vegetation.

(Amended December 14, 1999 by Ordinance 99-075; amended March 12, 2002 by Ordinance 01-112)

SECTION 40.10.425 PLAYING COURTS AND POOLS

Only playing courts shall be permitted in the floodplain; pools shall be prohibited. Swimming in natural or artificial ponds shall be permitted. The playing courts shall be designed and located so as not to trap debris resulting in floodwater backups. No fill shall be permitted.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.426 RESERVED

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.427 ROADS, PARKING LOTS AND UTILITIES

A. All resource areas. Protected resources shall not be disturbed with roadways, parking lots or utility lines. The applicant must demonstrate no possible alternative to crossing the resource exists and the route selected must be the least disruptive.

B. Riparian buffer areas. Stormwater outfall shall be permitted, provided that the discharge velocity from the terminal end of the pipe or the associated energy dissipation practice does not exceed two (2) feet per second (fps) for the two (2) year frequency storm event. In addition, best management practices methods shall be used to convert concentrated flow to uniform, shallow sheet flow, filter sediments, and control erosion.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.428 ESSENTIAL ACCESS

Essential access shall be permitted only upon finding (in the Environmental Impact Assessment Report) that the access cannot avoid crossing a protected resource area. If several properties in the area suffer the same problem, then the essential access shall be designed to serve all properties, and access easements shall be provided. The Department shall make every effort to gain the cooperation of all property owners, including financial sharing of costs. If adjoining property owners do not cooperate, the landowner making the improvements may submit a certified billing on the cost of the access. Subsequent essential access requests in the area shall be denied. The landowners shall be required to use the initial access and pay for their share of the documented expenses based on the number of dwellings or lots served. In the review of developments the County shall seek to identify areas of adjoining properties that might qualify and provide stub streets so as to eliminate the need for this type of mitigation.

(Amended March 12, 2002 by Ordinance 01-112)

DIVISION 40.10.500 AIR QUALITY

In conjunction with standards contained in this Article regarding forest preservation, reforestation, landscape buffering and screening, and open space protection, all which contribute in some manner to a reduction in particulate matter, dust, auto-emissions and other toxic pollutants, the following performance standards are designed to maintain, restore, and enhance air quality in New Castle County.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.510 AIR POLLUTION

No site disturbance or construction activity, as regulated herein, may cause the emission of any air contaminants which violate the provisions of this Chapter. The following provisions apply:

A. Grading, excavation, land clearing and demolition. Land clearing, land grading (including grading for roads), excavation or demolition shall not be permitted unless methods are employed to control dust emissions. Emissions shall not be permitted beyond the lot line of the source of the emission. Methods for controlling dust may include the application of water or the use of other techniques approved by the Department.

B. Material movement. Visible particulate emissions from any material being transported by a motor vehicle are prohibited.

SECTION 40.10.520 TRANSPORTATION

It is strongly encouraged that all businesses located in New Castle County consider participating in or establishing ride share programs in an effort to reduce auto-emissions and fossil fuel use. It is also strongly encouraged that businesses located in New Castle County promote the use of mass transit where accessible and convenient to employees, as well as other alternative modes of transportation.

SECTION 40.10.530 STATE AND FEDERAL REGULATIONS

Specific uses and emissions thereof which have the potential to negatively impact air quality shall be regulated per applicable State and federal clean air requirements, as adopted and/or amended. Such requirements include, but are not limited to, State of Delaware regulations governing the control of air pollution (pursuant to Title 7, Delaware Code, Chapter 60, as amended) and the Federal Clean Air Act. No equipment having the potential to discharge contaminants into the air shall be permitted to operate unless furnished with approved pollution control equipment; where applicable under State or federal law, specific uses shall be required to utilize best available control technology (BACT). No requirements contained herein shall relieve the applicant of the need to obtain State or federal permits or adhere to the regulations pursuant to State or federal law.

DIVISION 40.10.600 STORAGE OF HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

The storage, maintenance, use, or sale of substances listed in 40 CFR 116 in an aggregate quantity equal to or greater than a reportable quantity as defined in 40 CFR 117 shall be governed by the following provisions. Petroleum products shall also meet the requirements of this section.

A. All such activities are prohibited in floodplains, floodways, wellhead class A, B or C, the Cockeysville Formation, drainageways, recharge areas, steep slopes, critical natural areas, wetlands, riparian buffers and sinkholes, unless such substances are used in the process of public water supply and treatment and sewer treatment facilities.

B. The replacement of existing underground petroleum storage tanks in any area other than a Water Resource Protection Area (WRPA) shall be permitted provided all State and Federal regulations are met. The replacement of existing underground petroleum storage

tanks in a Water Resource Protection Area (WRPA) where an upgrade is required by DNREC shall be permitted provided all State and Federal regulations are met and secondary containment is provided.

C. In all other areas where permitted, above ground storage shall be permitted provided such facilities are designed so that all spills are fully contained in a secondary containment facility that is designed such that there is no spill into soils, surface waters, sewers. The replacement of existing above ground storage facilities in any area shall be permitted provided the State Fire Marshall's Office provides the Department with written approval and all other applicable State and Federal regulations are met and secondary containment is provided. Secondary containment shall not be required for above ground storage used exclusively for private residential purposes when located on the residential lot within the setback lines.

D. In all other areas where permitted, underground storage shall be permitted only for petroleum products, provided all State and federal regulations are met.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)