

**ARTICLE XVII**  
**SOURCE WATER PROTECTION OVERLAY DISTRICT**

**§ 197-92. Intent.**

- A. The intent of this section is to provide clarification on the environmental constraints and requirements for development in environmentally sensitive areas and to protect public drinking water resources from contamination and pollution. Protection areas include Source Water Resource Protection Areas.
- B. The purpose of this Article is to protect the quality and quantity of ground water supplies. The City herein adopts the overlay maps delineating, as source water protection areas: wellhead protection and excellent ground-water recharge potential areas. To ensure the protection of these drinking water supplies, this Article establishes a zoning overlay to be known as the Source Water Protection Overlay.
- C. The purpose of the Source Water Protection Overlay is to protect public health and safety by minimizing contamination of aquifers, preserving, and protecting existing and potential sources of drinking water supplies. It is the intent to accomplish this purpose through both public education and public cooperation, as well as by creating appropriate land use regulations that may be imposed in addition to those currently imposed by existing zoning districts or other state and county regulations.
- D. The Source Water Protection Overlay is superimposed on current zoning districts. It shall apply to all new construction, redevelopment, or expansion of existing buildings and new or expanded uses. Applicable activities/uses allowed in a portion of one of the underlying zoning districts that fall within the Source Water Protection Overlay must additionally comply with the requirements of this district. Uses prohibited in the underlying zoning districts shall not be permitted in the Source Water Protection Overlay District.

**§ 197-93. Definitions.**

This section defines words, terms, and phrases found in this Article.

**Aboveground Storage Tank (AST).** An AST is a single containment vessel greater than 250 gallons as defined in the *Delaware Regulations Governing Aboveground Storage Tanks*, dated February 11, 2005. ASTs with a storage capacity greater than 12,499 gallons containing petroleum or hazardous substances, and ASTs with a storage capacity greater than 39,999 gallons containing diesel, heating fuel or kerosene are subject to the design, construction, operation, and maintenance requirements of the Delaware AST regulations.

**Applicant.** A person, firm or government agency that executes the necessary forms to obtain approval or a permit for any zoning, subdivision, land development, building, land disturbance, or other activity regulated.

**Aquifer.** A geological formation, group of formations or part of a formation composed of rock, sand, or gravel capable of storing and yielding ground water to wells.

**CERCLA and/or Hazardous Substances.** Those substances specifically designated as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), otherwise known as the Superfund law, or those substances identified under other laws. In all, the Superfund law includes references to four other laws to designate more than 800 substances as hazardous, and identify many more as potentially hazardous due to their characteristics and the circumstances of their release.

**Contamination.** Any physical, chemical, biological, or radiological substance that enters the hydrological cycle through human action and may cause a deleterious effect on ground water resources; it shall include, but is not limited to, hazardous waste, limiting nutrients, and sanitary sewage.

**Drainage.** The process by which surface water (usually from rainfall) moves across the land surface. See Stormwater Management.

**Drainage Areas.** The delineated areas that currently contribute or are proposed to contribute runoff to a specific location or point.

**Engineer.** An individual who is registered in the State of Delaware to practice the profession of engineering.

**Excellent Ground-water Recharge Potential Area.** Those areas with high percentages of sand and gravel that have “excellent” potential for recharge as determined through a Stack Unit Mapping Analysis delineated by the Delaware Geological Survey and presented in the *Report of Investigations No. 66, Ground-water Recharge Potential Mapping in Kent and Sussex Counties, Delaware, Geological Survey, 2004.*

**Geologist.** An individual who is registered in the State of Delaware to practice the profession of geology.

**Groundwater.** A portion of the subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated.

**Hazardous Substance UST System.** An underground storage tank system that contains a hazardous substance defined by §101(4) of CERCLA (but not including any substance regulated as a hazardous waste under RCRA Subtitle (C) or any mixture of such substances and petroleum, and which is not a petroleum UST system.

**Hazardous Waste.** A solid waste, or combination of solid wastes, which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Without limitation, included within this definition are those hazardous wastes described in the *Delaware Regulations Governing Hazardous Wastes*, §§261.31-33.

**Impervious Cover.** Surfaces providing negligible infiltration such as pavement, buildings, recreation facilities (by example but not by limitation: tennis courts, swimming pools) and covered driveways.

**Public Water Supply Well.** A well from which the water is used to serve a community water system by section 22.146 (Public Water Systems) in the *Delaware Regulations Governing Public Drinking Water Systems*.

**Redevelopment.** Any proposed expansion, addition, major façade change or rebuilding to an existing building, structure or parking facility.

**Runoff.** That portion of precipitation or snow melt that has not evaporated or infiltrated into the soil, but flows on land surface.

**Source Water.** Source water refers to any aquifer from which water is drawn either periodically or continuously by the City’s water system or any community water system which provides piped water for human consumption.

**Source Water Protection Area.** Wellhead Protection Areas and Excellent Ground-water Recharge Potential Areas.

**Stormwater.** The runoff of water from the surface of the land resulting from precipitation or snow or ice melts.

**Stormwater Management.**

- A. For water quantity control, a system of vegetative, structural, and other measures that may control the volume and rate of stormwater runoff which may be caused by land disturbing activities or activities upon the land; and
- B. For water quality control, a system of vegetative, structural, and other measures that control adverse effects on water quality that may be caused by land disturbing activities or activities upon the land.

**Underground Storage Tank (UST).** An UST is one or a combination of tanks including underground pipes, the volume of which is 10% or more below ground, as defined in the *Delaware Regulations Governing Underground Storage Tank Systems*, dated March 12, 1995. The following USTs are **not** subject to the design, construction, operation, and maintenance requirements of the Delaware UST Regulations: Residential Heating Fuel, Agricultural, and Residential Motor Fuel USTs less than 1,100 gallons and any UST less than 110 gallons.

**Wellhead.** The upper terminal of a well, including adapters, ports, seals, valves, and other attachments.

**Wellhead Protection Area (WHPA).** Surface and subsurface areas surrounding public water supply wells or well fields where the quantity or quality of ground water moving toward the wells or well fields may be adversely affected by land use activity.

**Wellhead Protection (WHP) Zone 1.** The surface area extending to a minimum one hundred fifty foot (150') radius around the wellhead.

**Wellhead Protection (WHP) Zone 2.** The remaining surface area of the delineated WHPA outside Zone 1.

**§ 197-94. Source Water Protection Areas.**

Source Water Protection Areas are Wellhead Protection Areas and Excellent Water Recharge Potential Areas. All such areas are as depicted on Source Water Protection Area maps located in City Hall as adopted as part of the update and implementation of the 2005 *Comprehensive Land Use Plan*. These maps are also available in GIS overlays from Delaware Department of Natural Resources & Environmental Control, Division of Water Resources, Source Water Assessment and Protection Program. These areas shall be managed as required by this Article to protect public drinking water resources from activities and substances that may harm water quality and subtract from overall water quantity.

**§ 197-95. Wellhead Protection Area standards.** [**\*\*Note\*\*--Although not mentioned by DNREC, the model ordinance by the University of Delaware uses a table of uses permitted and not permitted in the WPA and Ground-water Recharge Potential Area.. This section would then be §197-95 Prohibited Uses followed by a table, sample attached, and the remaining sections renumbered.]\* Table 1. Land Use Restrictions and Uses in Source Water Protection Areas. Activities shall be subject to the land use restrictions contained within this ordinance that will protect the quality and quantity of ground water supplies. All uses not permitted in the underlying zoning district are prohibited.**

**§ 197-95. Wellhead Protection Areas**

**A. WHP Zone 1 Requirements.**

- (1) Parcels of land within a WHP Zone 1 wellhead protection area shall be preserved in a natural condition with the exception of impervious surface limited to building and access associated with the well and distribution and treatment facilities and their maintenance.
- (2) Aboveground storage tanks for materials used in the treatment facility operation are permitted.
- (3) Underground storage tanks are prohibited.

- (4) Stormwater runoff shall be diverted away from the wellhead.
- (5) Stormwater infiltration practices designed to handle runoff are prohibited.
- (6) The minimum lot area for a proposed public water supply well and related facility drawing from a confined aquifer shall be 1 acre and the minimum lot area for a public well drawing from an unconfined aquifer shall be 2 acres.
- (7) Onsite wastewater and disposal systems shall not be permitted.

B. WHP Zone 2 Requirements.

(1) **Impervious cover.**

Impervious cover shall not exceed 20% per parcel. New development in this Zone 2 may exceed the 20% impervious cover threshold within WPAs, but shall be no more than 50% impervious cover, provided the applicant submits an Environmental Assessment Impact Report (See §197-99)

(2) **Stormwater**

(a) Stormwater shall be treated by an approved stormwater quality management practice in accordance with current requirements of The *Delaware Sediment and Stormwater Regulations dated October 11, 2006*, or as later revised.

(b) For all new construction, all structures shall be required to discharge roof drains onto permeable surfaces.

(3) **Underground Storage Tanks (USTs)**

(a) USTs with a capacity greater than 110 gallons containing petroleum, and Residential and Agricultural USTs with a capacity greater than 1,100 gallons containing heating fuel or motor fuel shall not be permitted in a delineated WHP Zone 2 wellhead protection area.

(b) USTs with a capacity greater than 110 gallons containing a hazardous substance as defined in CERCLA §101(4) shall not be permitted in a designated wellhead area.

[from model ordinance:] if the USTs are designed, constructed, maintained and operated in accordance with the *Delaware Regulations Governing Underground Storage Tank Systems, March 12, 1995*, or as later revised. NOTE: Regulated USTs must be constructed with secondary containment of the tanks and piping and must have continuous monitoring for releases.

C. Hazardous Waste Treatment, Storage, and Disposal Facilities, as defined in 7 *Delaware Administrative Code*, §1302, *Delaware Regulations Governing Hazardous Waste*, shall not be permitted in Wellhead Protection Areas.

D. Sanitary and Industrial Landfills, as defined in 7 *Delaware Administrative Code*, §1301, *Delaware Regulations Governing Solid Waste*, shall not be permitted in Wellhead Protection Areas.

E. Hazardous waste generators, vehicle repair, salvage operations, waste sludge storage or application, tire piles and dredge spoil sites shall not be permitted in Wellhead Protection Areas.

F. **Above ground storage tanks.** Aboveground storage tanks with a capacity greater than 12,499 gallons containing petroleum or hazardous substances, and ASTs with a storage capacity greater than 39,999 gallons containing diesel, heating fuel or kerosene shall be permitted in a delineated wellhead area if the ASTs are designed, constructed, operated and maintained with the applicable requirements in the *Delaware Regulations Governing Aboveground Storage Tanks, dated February 11, 2005*, or as later revised.

**G. Wastewater treatment and disposal systems.** On-site wastewater treatment and disposal systems shall not be permitted.

**§ 197-96. Excellent Ground-water Recharge Potential Areas**

**A. Impervious Cover.** The excellent ground-water recharge potential area shall not exceed 20% impervious cover per parcel. New development in this Area may exceed the 20% impervious cover threshold within the excellent ground-water recharge potential area, but shall be no more than 50% impervious cover, provided the applicant submits an Environmental Assessment Impact Report (See §197-99).

**B. Stormwater.**

(1) Stormwater shall be treated by an approved stormwater quality management practice in accordance with current requirements of the *Delaware Sediment and Stormwater Regulations dated October 11, 2006*, or as later revised.

(2) For all new construction all structures shall be required to discharge roof drains onto permeable surfaces.

**C. Underground Storage Tanks.**

(1) Underground storage tanks with a capacity greater than 110 gallons containing petroleum, and Residential and Agricultural ASTs with a capacity greater than 1,100 gallons containing heating fuel or motor fuel shall be permitted in an excellent ground-water recharge potential area if the USTs are designed, constructed, maintained and operated in accordance with the *Delaware Regulations Governing Underground Storage Tank Systems, dated March 12, 1995*, or as later revised. (NOTE: Regulated USTs must be constructed with secondary containment of the tanks and piping and must have continuous monitoring for releases.)

(2) Underground storage tanks with a capacity greater than 110 gallons containing a hazardous substance as defined in CERCLA§101(14) shall be permitted a delineated excellent ground-water recharge potential area if the USTs are designed, constructed, maintained and operated in accordance with the *Delaware Regulations Governing Underground Storage Tank Systems, dated March 12, 1995*, or as later revised. (NOTE: Regulated USTs must be constructed with secondary containment of the tanks and piping and must have continuous monitoring for releases.)

**D. Aboveground Storage Tanks.** Aboveground storage tanks with a capacity greater than 12,499 gallons containing petroleum or hazardous substances, and ASTs with a storage capacity greater than 39,999 gallons containing diesel, heating fuel or kerosene shall be permitted in a delineated excellent ground-water recharge potential area if the ASTs are designed, constructed, operated and maintained with the applicable requirements in the *Delaware Regulations Governing Aboveground Storage Tanks, dated February 11, 2005*, or as later revised.

**E. Wastewater Treatment and Disposal Systems.** Such systems shall not be permitted in an excellent ground-water recharge potential area.

**§197-97. Boundary Interpretation and Adjustment**

A. All subdivision and land development plans depicting development or land disturbance submitted for City review shall be evaluated for the existence of source water protection areas. All such areas are as depicted on Source Water Protection Area maps located in City Hall, including but not limited to Stormwater Map, Recharge Area Map and Wellhead Protection Map, and as adopted as part of the update and implementation of the *2005 Comprehensive Land Use Plan*. These maps are also available in GIS overlays. Maps/overlays are available from Delaware Department of Natural Resources & Environmental Control (DNREC), Source Water Assessment and Protection Program (SWAPP). If a SWPA exists within a proposed development site, the boundaries of these areas shall be delineated on the plan by the applicant's Engineer or Geologist.

B. DNREC SWAPP may, when based on sound science and information, revise and update the overlay maps of wellhead protection areas.

- C. The Delaware Geological Survey (DGS) may, when based on sound science and information, revise and update the overlay maps of excellent ground-water recharge potential areas.
- D. When there appears to be a conflict between the mapped boundary and actual site conditions, the applicant may engage the services of a Geologist to prepare a report intended to determine more accurately the precise boundary of the Source Water Protection Area. The Report shall include:
  - (1) A detailed topographic layout of the subdivision and/or area to be developed and prepared by a State-registered professional land surveyor or Geologist.
  - (2) Evidence derived from a site-specific investigation that may include aquifer testing, test borings, test pits, observation wells, groundwater elevations, and topography surveys as appropriate for the type of source water protection area that clearly demonstrate that the area in question does not meet the definition of a source water protection area as defined.
  - (3) Any challenges to the delineations of the excellent ground-water recharge potential areas must follow the methods used in the Delaware Geological Survey publication: *Report of Investigations No. 66, Ground-Water Recharge Potential Mapping in Kent and Sussex Counties, Delaware*. The challenge must be approved by DGS and DNREC SWAPP.
  - (4) Notwithstanding any other section of this Article, 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 complete report contemplated by this section. Following submission of the report and all supporting documents, the DGS and DNREC SWAPP shall have ninety (90) days to approve finally or disapprove the exploratory sketch plan submission or such further time as deemed necessary by the DGS and DNREC SWAPP, but not to exceed an additional ninety (90) days.

**§197-98. Identification on Development Plans.**

- A. Development plans shall delineate the locations of water resources protection areas. A statement by an experienced, qualified Engineer or Geologist shall be provided, verifying the accuracy of the delineation.
- B. If a tract proposed for development contains no wellhead protection areas, the plan shall include statement affirming this from an experienced, qualified professional Engineer or Geologist.
- C. When a property proposed for development contains water resources protection areas, an environmental impact assessment report shall be submitted with the preliminary plan.
- D. The following standards and criteria shall be applicable to any limited use, special use or other use requiring an environmental impact assessment 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.*

**§197-99. Environmental Impact Assessment Report.**

- A. If a proposed use requires an Environmental Impact Assessment Report, the applicant shall submit an environmental assessment report. Such report shall include a climatic water budget and systems to augment recharge that assure water quality as well as water quantity. The environment impact assessment must document that post-development recharge will be no less than predevelopment recharge when computed on an annual basis. It is acknowledged that, commonly, the applicant offsets the loss of recharge due to impervious cover by constructing recharge basins that convey pretreated rooftop runoff for infiltration to ground water. Refer to Supplement 1, *Ground-Water Recharge Design Methodology, dated May 2005, or as later revised, for the details of how to design recharge facilities in Delaware source water protection areas.*

- B. An Engineer or Geologist prepares an environmental assessment report, including but not limited to the following elements of planning, design, construction, and maintenance of ground-water recharge facilities:
- (1) Site description of proposed development within the water resource protection area;
  - (2) Climatic water balance comparing predevelopment and post-development recharge potential;
  - (3) Subsurface exploration including borings, test pits, and infiltration tests;
  - (4) Design of ground-water recharge facilities that assure water quality as well as quantity;
  - (5) Construction and maintenance considerations; and
  - (6) Recommended ground-water monitoring plan.
- C. Enter into a water management agreement between the applicant, the City, the Board of Public Works of the City of Lewes and Sussex County Conservation District providing for review, monitoring, and maintenance of the recharge system.
- D. The applicant shall abide by the Ground-Water Management Agreement as written in *DNREC Supplement 1 to the source Water Protection Guidance Manual for the Local Governments of Delaware: Ground-Water Recharge Design Methodology, dated May 2005*, or as later revised.

**[New—from model ordinance--§§197-100, 101 and 102]:**

**§197-100. Redevelopment in Wellhead Protection Areas and Ground-water Recharge Protection Areas.**

**A. Impervious Cover.**

- (1) Site modifications that require site plan approval must create a 15% reduction in the amount of impervious cover on the site when compared to pre-redevelopment conditions.
- (2) If the 15% reduction would require a site to go below the 20% maximum impervious cover provisions of Source Water Protection Areas, then the maximum impervious surface cover for the site is 20%.

**B. Stormwater**

- (1) Sites that do not meet the 20% impervious cover threshold must employ rooftop infiltration practices. Stormwater shall be treated by an approved stormwater quality management practice in accordance with current requirements of the *Delaware Sediment and Stormwater Regulations, dated October 11, 2006*, or as later revised.
- (2) If the 15% reduction does not meet the 20% impervious cover threshold, the site must employ rooftop infiltration practices. Stormwater shall be treated by an approved stormwater quality management practice in accordance with current requirements of the *Delaware Sediment and Stormwater Regulations, dated October 11, 2006*, or as later revised.

- C. Abandoned or Vacant Property.** This §197-100 does not apply to vacant or abandoned property. These properties shall comply with the Source Water Protection Area regulations.

**§197-101. Uniform Standards and Criteria.**

- A. Hazardous waste treatment, storage, and disposal facilities, as defined in regulations established pursuant to 7 *Del. C.*, §6302, *Delaware Regulations Governing Hazardous Waste*, shall not be permitted in source water protection areas.

- B. Sanitary and industrial landfills, as defined in regulations established pursuant to *7 Delaware Administrative Code, §1301, Delaware Regulations Governing Solid Waste*, shall not be permitted in source water protection areas.

**§197-102. Nonconforming uses.**

- A. Nonconforming uses may continue in wellhead protection area and excellent ground-water recharge potential in the form in which they existed at the time of the posting of this proposed ordinance, unless they pose a direct hazard to the City's water supply, as determined by the Board of Public Works, upon advice from the Delaware Division of Public Health, or are causing some foreign substances (by example but not by limitation: oil, salts, chemicals, or other substances) to be introduced into the City's water supply as determined by the Board of Public Works upon advice from DNREC's Division of Air and Waste Management and/or Division of Water Resources. In the latter case, the Building Official or Board of Public Works shall issue a mandatory cease and desist order to stop the offending activity within the area.
- B. Nonconforming existing underground or above-ground storage of oil, petroleum, and petroleum products shall require secondary containment pursuant to the regulations of the State of Delaware governing underground storage tanks
- C. Nonconforming, existing above-ground storage of petroleum products shall require containment facilities capable of capturing the material stored on the site, for existing facilities that are proposed either to be upgrade or replaced.

**§197-103. Replacement and new wells. [If the City desires to address wells, this may not cover all concerns of the Board of Public Works.]**

- A. 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.
- B. All public water supply wells within a housing development, subdivision or strip development recorded on or after the implementation of the *Delaware Regulations Governing the Construction and Use of Wells, dated April 6, 1997*, or as later revised, shall be located at least one hundred fifty feet (150') within the subdivision's or development's outermost property lines.