

Template for DRWA Riders

Draft Model Ordinance for Smaller Municipalities of Kent and Sussex Counties

SOURCE WATER PROTECTION AREA ORDINANCES

(DRAFT Nov 16, 2007)

(Revised April, 14, 2008)

WORKING DRAFT

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Draft Model Ordinance for Smaller Municipalities of Kent and Sussex Counties

SOURCE WATER PROTECTION AREA ORDINANCES

(DRAFT November 16, 2007)

(Revised April, 14, 2008)

Section XXX0 Purpose.

The purpose of the Source Water Protection Area Ordinance is to ensure the protection of the public drinking water supply from contamination. The *Town of _____* 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 ordinance establishes a zoning overlay to be known as the Source Water Protection Overlay. 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 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.

[**Sussex County USE:** The Source Water Protection Overlay is superimposed on current zoning districts.] **OR** [**Kent County USE:** The Source Water Protection Area Maps are 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.

Section XXX1 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 groundwater to wells.

CERCLA Hazardous Substances are defined in terms of either 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. See: <http://www.epa.gov/superfund/programs/er/hazsubs/cercsubs.htm>

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.

Delineation The process of defining and/or mapping a boundary that approximates the areas that contribute water to a particular water source used as a public water supply.

Environmental Impact Assessment Report (EIAR): A report required by this ordinance that assesses the environmental characteristics of a source water protection area and determines what effects or impacts will result if the area is altered or disturbed by a proposed action that would increase impervious cover beyond the recommended 20% threshold.

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.

Good Ground-Water Recharge Potential Area: Those areas with a **significant** percentage of sand and gravel that have a "good" 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.

Ground Water: The water contained in interconnected pores located below the water table in an unconfined aquifer or located in a confined aquifer.

Hazardous Substance UST System means an underground storage tank system that contains a hazardous substance defined in 101(14) of the 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 a hazard to human health or the environment when improperly treated, stored, transported, or dispose of, or otherwise managed, Without limitation, included within this definition are those hazardous wastes described in Sections 261.31, 261.32, and 261.33 of the Delaware Regulations Governing Hazardous Waste.

Impervious Cover Surfaces providing negligible infiltration such as pavement, buildings, recreation facilities (e.g. tennis courts, swimming pools, etc.), and covered driveways.

Non-Conforming Use is an existing use of a lot or a building that was legal at the time of its creation that is not permitted by this chapter in the district in which it is located.

Natural Condition: Open space that is essentially unimproved and set aside, dedicated, designated, or reserved for public or private use.

On-site Wastewater Treatment and Disposal System: conventional or alternative, wastewater treatment and disposal systems installed or proposed to be installed on land of the owner or on other land to which the owner has the legal right to install the system.

Passive Recreation refers to recreation that involves existing natural resources and has a minimal impact because they do not require the alteration of existing topography. Such passive recreation shall include but not be limited to non-motorized vehicles, hiking, bicycling, picnicking, and bird-watching.

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

Public Drinking Water System. A community, non-community, or non-transient non-community water system, which provides piped water to the public for human consumption. The system must have at least 15 service connections or regularly serve at least 25 individuals daily for at least 60 days.

Redevelopment: Any proposed expansion, addition, or major facade change 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 or impervious surfaces.

Sanitary Landfill: A land site at which solid waste is deposited on or into the land as fill for the purpose of permanent disposal, except that it will not include any facility that has been approved for the disposal of hazardous waste under the Delaware Regulations Governing Hazardous Waste.

Site plan approval: is a process for the review and approval of a development plan prior to the issuance of a development.

Source Water: refers to any aquifer from which water is drawn either periodically or continuously by a public water system.

Source Water Assessment Area: The area delineated by DNREC Source Water Assessment and Protection Program that contributes water to a public water supply system.

Source Water Assessment Plan: The October 1999 U.S. EPA approved plan for evaluating the sources of public drinking water in Delaware for their vulnerability and susceptibility to contamination.

Source Water Assessment Report (SWAP): The identification and evaluation of the sources of water within the state used by public water systems in an effort to determine the vulnerability and susceptibility to contamination.

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.

Source Water Protection Area: Wellhead Protection Areas, Good and Excellent Ground-Water Recharge Potential Areas

Vacant Property: Lands or buildings that are not actively used for any purpose as designated in the underlying zoning district/overlay for one year.

Underground Storage Tank (UST). An UST is one or a combination of Tanks including underground Pipes, the volume of which is 10% or more belowground, 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.

Wastewater: Water-carried waste from septic tanks, water closets, residences, building, industrial establishments, or other places, together with such groundwater infiltration, subsurface water, and mixtures of industrial wastes or other wastes as may be present.

Water Quality: Those characteristics of stormwater runoff from an impervious surface or a land disturbing activity that relate to the chemical, physical, biological, or radiological integrity of water.

Water Quantity:

- 1) Those characteristics of stormwater runoff that relate to the volume of stormwater runoff to downstream-gradient areas resulting from land disturbing activities.
- 2) Those characteristics of stormwater that relate to the volume of stormwater that infiltrates the land surface and enters the underlying aquifer.

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

Wellhead Protection Areas (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 Plan: The March 1990 U.S. EPA approved plan for protecting the quality of drinking water derived from public water supply wells in Delaware.

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

Wellhead Protection (WHP) Zone 2 is the remaining surface area of the delineated wellhead protection area outside Zone 1.

Wellhead Protection (WHP) Zone 3 exist where a WHP Zone 2 area overlays a Good and / or Excellent ground-water recharge potential area.

Section XXX2 Source Water Protection Areas (SWPA)

Source Water Protection Areas are Wellhead Protection Areas and Excellent Ground Water Recharge Potential Areas. All such areas are as depicted on Source Water Protection Area maps located in Town Hall as adopted as part of the update and implementation of the 200x Comprehensive Land Use Plan. These maps are also available in GIS overlays from Delaware Department of Natural Resources and Environmental Control, Division of Water Resources, Source Water Assessment and Protection Program.

These areas shall be managed as required by the following sections to protect public drinking water resources from activities and substances that may harm water quality and subtract from overall water quantity.

Section XXX3 Prohibited Uses

PROHIBITED USE TABLE or USE LIST

NOTE: Fill table out once all choices are made or delete and use list

Table 1. Land Use Restrictions and Uses Source Water Protections 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 zone district are prohibited.

NO – YES – CONDITIONAL

Land Use	Well Head Protection Area			Ground-Water Recharge Potential Area	
	ZONE 1	ZONE 2	ZONE 3	Excellent	Good
Aboveground Storage Tanks	NO				
Automobile body/repair shop	NO				
Chemical processing/storage facility	NO				
Dry cleaner	NO	NO	NO		
Electrical/electronic manufacturing facility	NO				
Equipment maintenance/fueling areas	NO				
Fleet/trucking/bus terminal	NO				
Gas station	NO				
Hazardous Waste: Treatment, Storage, and Disposal Facilities	NO	NO	NO	NO	NO
# dry wells/sumps	NO				
# Injection wells					
Junk/scrap/salvage yard	NO				
Land divisions resulting in high density (Greater than 1 acre)	NO				
Machine shop	NO				
Manure Storage	NO				
Metal plating/finishing/fabricating facility	NO				
Mines/gravel pit	NO				
On-Site Wastewater Treatment and Disposal Systems	NO				
Sanitary and Industrial Landfills	NO	NO	NO	NO	NO
Underground storage tanks	NO				
Vessel Storage	NO				
Wood preserving/treating facility	NO				

Conditional:

(#) *Dry wells/sumps, except for single-family residences directing gutter downspouts to a drywell;*

(#) *Injection wells other than those used in the remediation of ground water contamination that inject oxygen-releasing compounds.*

Section XXX4 Wellhead Protection Areas (WHPA)

The DNREC Source Water Assessment and Protection Program delineate wellhead protection areas to ensure the integrity of public drinking water. Deep wells drilled into confined aquifers and low volume wells in unconfined aquifers have at minimum, a one-hundred and fifty foot radius wellhead protection area. The wellhead protection area surrounding public supply wells in unconfined aquifers that pump more than 50,000 gallons per day are delineated using a mathematical model. This type of well draws large quantities of water and can have much larger wellhead protection areas. Zone classifications have been created to manage land use within the wellhead protection area. They are defined as:

Wellhead Protection (WHP) Zone 1 is the surface area extending in *one-hundred and fifty (150)* foot radius around the wellhead.

NOTE: Government may choose to extend Zone 1 to a greater radius. In addition to the water a well pumps, land use activities within Zone 1 directly influences the well.

[If Zone 1 is increased change in Definition Section]

Wellhead Protection (WHP) Zone 2 is the remaining surface area of the wellhead protection area outside Zone 1. Land use restrictions within Zone 2 are required to insure adequate protection of public drinking water supply.

Wellhead Protection (WHP) Zone 3 exist where a WHP Zone 2 area overlays a good or excellent ground-water recharge potential area. Land use restrictions within Zone 3 are required to insure adequate protection of public drinking water supply.

A) WHP Zone 1 Requirements:

- 1) Parcels of land within a WHP Zone 1 wellhead protection area will 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 will 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) On-site Wastewater and Disposal Systems shall not be permitted.

NOTE: Government may choose to include additional Requirements

B) Zone 2 Requirements :

**NOTE: Governments may choose one of the following
OPTIONS--- Either 1a, 1b, 1c, OR 1d as 1**

IMPERVIOUS COVER

1a) Impervious Cover: Wellhead Protection Areas within WHP Zone 2 shall be preserved in a natural condition. Impervious cover shall not be permitted.

OR:

1b) Impervious Cover: Wellhead Protection Areas within Zone 2 shall not exceed 20% impervious cover per parcel and limited to residential development.

OR

1c) Impervious Cover: Wellhead Protection Areas within Zone 2 shall not exceed 20% impervious cover per parcel.

OR

1d) Impervious cover: Wellhead Protection Areas with Zone 2 should not exceed 20% impervious cover. New development in this Zone may exceed the 20% impervious cover threshold within Wellhead protection Areas , but shall be no more than 50% impervious cover, provided the applicant submits an Environmental Assessment Impact Report (See Environmental Assessment Impact Report Section XXX9).

STORMWATER

**NOTE: Governments may choose one of the following
OPTIONS--- Either 2a OR 2b as 2**

2a) Stormwater runoff from parking areas shall be pre-treated to remove contaminants before it is discharged into a stormwater management pond. Pretreatment facilities shall be designed in accordance with *The Delaware Ground-Water Recharge Design Manual, Supplement 1 to the Source Water Protection Guidance Manual for the Local Governments of Delaware*, dated May 2005 or as later revised.

NOTE: 2a is more restrictive than DNREC current requirements

**NOTE: Stormwater management systems that are designed to promote water quality include one or a combination of the following
BMP: forebays, vegetative filter strips, water quality inlets, stormwater wetlands, wet extended detention ponds, bioretention swales, and sand filters.**

OR

2b) 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.

**NOTE: Governments may choose one of the following
OPTIONS--- Either 3a OR 3b as 3**

3a) For all new construction, all structures shall be required to discharge roof drains into recharge systems. Recharge systems shall be in accordance with Section 10.0 of the *Delaware Sediment and Stormwater Regulations* dated October 11, 2006 or as later revised.

OR

3b) For all new construction, all structures shall be required to discharge roof drains onto permeable surfaces.

UNDERGROUND STORAGE TANKS

**NOTE: Governments may choose one of the following
OPTIONS--- Either 4a, 4b, or 4c as 4**

4a) Underground storage tanks 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 within a 1500 (fifteen hundred) foot radius of a delineated wellhead protection area.

OR

4b) Underground storage tanks 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 wellhead protection area.

NOTE: 4a and 4b are more restrictive than DNREC requirements.

OR

4c) Underground storage tanks 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 be permitted in a designated wellhead 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.)

NOTE: 4c is compliant with current DNREC requirements.

**NOTE: Governments may choose one of the following
OPTIONS--- Either 5a or 5b as 5**

5a) Underground storage tanks with a capacity greater than **110** gallons containing a hazardous substance as defined in CERCLA §101(14) shall not be permitted in a designated wellhead area.

NOTE: 5a is more restrictive than DNREC requirements.

This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside contractor at the expense of the owner/applicant.

OR

5b) Underground storage tanks with a capacity greater than **110** gallons containing a hazardous substance as defined in CERCLA §101(14) shall be permitted in a designated wellhead area 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.)

NOTE: 5b is compliant with current DNREC requirements.

ABOVEGROUND STORAGE TANKS

**NOTE: Governments may choose one of the following
OPTIONS --- Either 6a, 6b or 6c as 6**

6a) Aboveground storage tanks (ASTs) shall not be permitted in a delineated wellhead area.

NOTE: 6a is more restrictive than current DNREC requirements.

OR

6b) Aboveground storage tanks shall be permitted in a delineated wellhead area if the ASTs, regardless of storage capacity are designed, constructed, operated, and maintained with the applicable requirements in of the Delaware *Regulations Governing Aboveground Storage Tanks*, dated February 11, 2005 or as later revised. The storage capacity exemptions in Part A, Section 1.2 of the Delaware AST Regulations shall not apply.

NOTE: 6b is more restrictive than DNREC requirements. This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside contractor at the expense of the owner/applicant.

OR

6c) 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 of the Delaware *Regulations Governing Aboveground Storage Tanks*, dated February 11, 2005 or as later revised.

NOTE: 6c is compliant with the current DNREC requirements.

NOTE: Governments may choose one of the following OPTIONS --- Either 7a or 7b as 7

WASTEWATER TREATMENT AND DISPOSAL SYSTEMS

7a) On-site Wastewater Treatment and Disposal Systems shall not be permitted

OR

7b) On-site Wastewater Treatment and Disposal Systems may be permitted in Zone 2 provided:

1. The minimum residential lot density is **2** acres per dwelling.
2. The system complies with all other State Regulations as defined in the *Delaware Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems*, April 11, 2005.

C) Wellhead Protection (WHP) Zone 3 Requirements:

- 1. Impervious Cover:** Wellhead Protection Areas within Zone 3 shall be preserved in a natural condition. Impervious cover shall not be permitted.
- 2. Permitted Uses:**
 - a. Passive recreation

Section XXX5 Ground-Water Recharge Potential Areas.

**NOTE: Governments may choose one of the following
OPTIONS --- Either 1a, 1b, 1c, OR 1d, as 1**

A) Excellent Ground-Water Recharge Potential Areas

IMPERVIOUS COVER

1a) Impervious Cover: The excellent ground-water recharge potential area shall be preserved in a natural condition. Impervious cover shall not be permitted.

OR

1b) Impervious Cover: The excellent ground-water recharge potential area shall not exceed 20% impervious cover per parcel.

OR:

1c) Impervious Cover: The excellent ground-water recharge potential area shall not exceed 20% impervious cover per parcel and limited to residential development.

OR

1d) Impervious Cover: The excellent ground-water recharge potential area should not exceed 20% impervious cover. 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 Environmental Assessment Impact Report Section XXX9).

STORMWATER

**NOTE: Governments may choose one of the following
OPTIONS--- Either 2a OR 2b as 2**

2a) Stormwater runoff from parking areas shall be pre-treated to remove contaminants before it is discharged into a stormwater management pond. Pretreatment facilities shall be designed in accordance with *The Delaware Ground-Water Recharge Design Manual, Supplement 1 to the Source Water Protection Guidance Manual for the Local Governments of Delaware*, dated May 2005 or as later revised.

NOTE: 2a is more restrictive than DNREC current requirements

NOTE: Stormwater management systems that are designed to promote water quality include one or a combination of the following BMP: forebays, vegetative filter strips, water quality inlets, stormwater wetlands, wet extended detention ponds, bioretention swales, and sand filters.

OR

2b) 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.

**NOTE: Governments may choose one of the following
OPTIONS--- Either 3a OR 3b as 3**

3a) For all new construction, all structures shall be required to discharge roof drains into recharge systems. Recharge systems shall be in accordance with Section 10.0 of the *Delaware Sediment and Stormwater Regulations* dated October 11, 2006 or as later revised.

OR

3b) For all new construction, all structures shall be required to discharge roof drains onto permeable surfaces.

UNDERGROUND STORAGE TANKS

**NOTE: Governments may choose one of the following
OPTIONS --- Either 4a, 4b, OR 4c as 4**

4a) Underground storage tanks 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 within a 1500 (fifteen hundred) foot radius of a delineated wellhead protection area.

OR

4b) Underground storage tanks 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 an excellent ground-water recharge potential area.

NOTE: 4a and 4b are more restrictive than DNREC requirements.

This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside contractor at the expense of the owner/applicant.

OR

4c) Underground storage tanks 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 be permitted in a 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.)

Note: 4c is compliant with current DNREC requirements.

**NOTE: Governments may choose one of the following
OPTIONS --- Either 5a, 5b, OR 5c as 5**

5a) Underground storage tanks with a capacity greater than 110 gallons containing a hazardous substance as defined in CERCLA §101(14) shall not be permitted within 1500 (fifteen hundred) feet of a delineated excellent ground-water recharge potential area.

OR

5b) Underground storage tanks with a capacity greater than 110 gallons containing a hazardous substance as defined in CERCLA §101(14) shall not be permitted in a delineated excellent ground-water recharge potential area.

**Note: 5a and 5b are more restrictive than DNREC requirements.
This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside contractor at the expense of the owner/applicant.**

OR

5c) Underground storage tanks with a capacity greater than 110 gallons containing a hazardous substance as defined in CERCLA §101(14) shall be permitted in 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.)

Note: 5c is compliant with current DNREC requirements.

ABOVEGROUND STORAGE TANKS

NOTE: Governments may choose one of the following OPTIONS --- Either 6a, 6b or 6c as 6

6a) Aboveground storage tanks (ASTs) shall not be permitted in a delineated excellent ground-water recharge potential area.

NOTE: 6a is more restrictive than DNREC requirements.

OR

6b) Aboveground storage tanks shall be permitted in a delineated excellent ground-water recharge potential area if the ASTs, regardless of storage capacity are designed, constructed, operated, and maintained with the applicable requirements in of the Delaware *Regulations Governing Aboveground Storage Tanks*, dated February 11, 2005 or as later revised. The storage capacity exemptions in Part A, Section 1.2 of the Delaware AST Regulations shall not apply.

NOTE: 6b is more restrictive than DNREC requirements. This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside contractor at the expense of the owner/applicant.

OR

6c) 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 of the Delaware *Regulations Governing Aboveground Storage Tanks*, dated February 11, 2005 or as later revised.

NOTE: 6c is compliant with the current DNREC requirements.

WASTEWATER TREATMENT AND DISPOSAL SYSTEMS

NOTE: Governments may choose one of the following OPTIONS --- Either 7a or 7b as 7

7a) On-site Wastewater Treatment and Disposal Systems shall not be permitted in an excellent ground-water recharge potential area.

OR

7b) On-site Wastewater Treatment and Disposal Systems may be permitted in an excellent ground-water recharge potential area provided:

1. The minimum residential lot density is 2 acres per dwelling.
2. The system is in compliance with all other State Regulations as defined in the Delaware Regulations Governing the Design, Installation and *Operation of On-Site Wastewater Treatment and Disposal Systems*, April 11, 2005

B) Good Ground-Water Recharge Potential Areas

NOTE: DNREC does not require that delineated Good Ground-Water Recharge Potential Areas be protected under the Source Water Protection Plan. The Town of Millsboro has chosen to include the category “Good” to their ordinances because of MTBE contamination to their Public Water Supply

NOTE: Government is to choose 1a, 1b, 1c, OR 1d, as 1

IMPERVIOUS COVER

1a) Impervious Cover: The good ground-water recharge potential area shall be preserved in a natural condition. Impervious cover shall not be permitted.

OR

1b) Impervious Cover: The good ground-water recharge potential area shall not exceed 20% impervious cover per parcel and limited to residential development

OR:

1c) Impervious Cover: The good ground-water recharge potential area shall not exceed 20% impervious cover per parcel.

OR

1d) Impervious Cover: The good ground-water recharge potential area should not exceed 20% impervious cover. New development in this Zone may exceed the 20% impervious cover threshold within the good ground-water recharge potential area, but shall be no more than 50% impervious cover, provided the applicant submits an Environmental Assessment Impact Report (See Environmental Assessment Impact Report Section XXX9).

STORMWATER

**NOTE: Governments may choose one of the following
OPTIONS--- Either 2a OR 2b as 2**

2a) Stormwater runoff from parking areas shall be pre-treated to remove contaminants before it is discharged into a stormwater management pond. Pretreatment facilities shall be designed in accordance with *The Delaware Ground-Water Recharge Design Manual, Supplement 1 to the Source Water Protection Guidance Manual for the Local Governments of Delaware*, dated May 2005 or as later revised.

NOTE: 2a is more restrictive than DNREC current requirements

NOTE: Stormwater management systems that are designed to promote water quality include one or a combination of the following BMP: forebays, vegetative filter strips, water quality inlets, stormwater wetlands, wet extended detention ponds, bioretention swales, and sand filters.

OR

2b) 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.

NOTE: Governments may choose one of the following OPTIONS--- Either 3a OR 3b as 3

3a) For all new construction, all structures shall be required to discharge roof drains into recharge systems. Recharge systems shall be in accordance with Section 10.0 of the *Delaware Sediment and Stormwater Regulations* dated October 11, 2006 or as later revised.

OR

3b) For all new construction, all structures shall be required to discharge roof drains onto permeable surfaces.

UNDERGROUND STORAGE TANKS

NOTE: Governments may choose one of the following OPTIONS --- Either 4a, 4b, OR 4c as 4

4a) Underground storage tanks 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 within 1500 (fifteen-hundred) feet of a delineated good ground-water recharge potential area.

OR

4b) Underground storage tanks 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 good ground-water recharge potential area.

NOTE: 4a AND 4b are more restrictive than DNREC requirements.

This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside contractor at the expense of the owner/applicant.

OR

4c) Underground storage tanks 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 be permitted in a delineated good 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.)

NOTE: 4b is compliant with current DNREC requirements.

**NOTE: Governments may choose one of the following
OPTIONS --- Either 5a, 5b, OR 5c as 5**

5a) Underground storage tanks with a capacity greater than 110 gallons containing a hazardous substance as defined in CERCLA §101(14) shall not be permitted within 1500 (fifteen hundred) feet of a delineated good ground-water recharge potential area.

OR

5b) Underground storage tanks with a capacity greater than 110 gallons containing a hazardous substance as defined in CERCLA §101(14) shall not be permitted in a delineated good ground-water recharge potential area.

Note: 5a and 5b are more restrictive than current DNREC requirements. This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside contractor at the expense of the owner/applicant.

OR

5c) Underground storage tanks with a capacity greater than 110 gallons containing a hazardous substance as defined in CERCLA §101(14) shall be permitted in a delineated good 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.)

NOTE: 5c is compliant with current DNREC requirements.

ABOVEGROUND STORAGE TANKS

**NOTE: Governments may choose one of the following OPTIONS
--- Either 6a, 6b, OR 6c AS 6**

6a) Aboveground storage tanks (ASTs) shall not be permitted in a delineated good ground-water recharge potential area.

**NOTE: 6a is more restrictive than DNREC requirements.

This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside**

contractor at the expense of the owner/applicant.

OR

6b) Aboveground storage tanks shall be permitted in a delineated good ground-water recharge potential area if the ASTs, regardless of storage capacity are designed, constructed, operated, and maintained with the applicable requirements in of the Delaware *Regulations Governing Aboveground Storage Tanks*, dated February 11, 2005 or as later revised . The storage capacity exemptions in Part A, Section 1.2 of the Delaware AST Regulations shall not apply.

NOTE: 6b is more restrictive than DNREC requirements. This choice will require local regulation, oversight, and authority. The technical expertise may fall on an outside contractor at the expense of the owner/applicant.

OR

6c) 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 good ground-water recharge potential area if the ASTs are designed, constructed, operated and maintained with the applicable requirements in of the Delaware *Regulations Governing Aboveground Storage Tanks*, dated February 11, 2005 or as later revised .

NOTE: 6c is compliant with the current DNREC requirements.

WASTEWATER TREATMENT AND DISPOSAL SYSTEMS

**NOTE: Governments may choose one of the following OPTIONS
--- Either 7a or 7b as 7**

7a) On-site Wastewater Treatment and Disposal Systems shall not be permitted in a delineated good ground-water recharge potential area

OR

7b) On-site Wastewater Treatment and Disposal Systems may be permitted in a delineated good ground-water recharge potential area provided:

1. The minimum residential lot density is 2 acres per dwelling.
2. The system is in compliance with all other State Regulations as defined in the *Delaware Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems*, April 11, 2005.

Section XXX6 Boundary Determination for SWPA

A) All subdivision and land development plans depicting development or land disturbance submitted for Town 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 Town Hall as adopted as part of the update and implementation of the 200x Comprehensive Land Use Plan. These maps are also available in GIS overlays. Maps/overlays are available from Delaware Department of Natural Resources and Environmental Control (DNREC), Division of Water Resources, 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 State of Delaware Professional Engineer or Professional 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 good or 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 Professional 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 Professional 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 good or 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 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 complete report contemplated by this section. Following submission of the report and all supporting documents, the Department shall have **ninety (90) 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 **ninety (90) days**.

Section XXX7 Redevelopment.

Impervious Cover Restrictions

A) 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.

B) 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%.

STORMWATER

C) 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.

D) 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.

Abandoned or Vacant Property

A) Redevelopment Section XXX6; Impervious Cover Restriction A, B, C, and D, does not apply to vacant or abandoned property. These properties must comply with the source water protection area zoning district regulations.

Section XXX8 Uniform Standards and Criteria.

A) Hazardous Waste Treatment, Storage, and Disposal Facilities, as defined in 7 DE Admin. Code 1302, *Delaware Regulations Governing Hazardous Waste*, shall not

be permitted in source water protection areas.

- B) Sanitary and Industrial Landfills, as defined in 7 DE Admin. Code 1301, Delaware Regulations Governing Solid Waste, shall not be permitted in source water protection areas.

NOTE: some choices in WHPA and Recharge are the same and can be grouped as one in this section.

Section XXX9 Environmental Impact Assessment Report.

New development in _____ may exceed the 20% impervious cover threshold within Good and/or Excellent Ground Water Recharge Potential Areas and WHP Zone 2, but be no more than 50% impervious, provided the applicant submits an environmental assessment report including a climatic water budget and systems to augment recharge that assure water quality as well as quantity. The environmental impact assessment must document that post-development recharge will be no less than predevelopment recharge when computed on an annual basis.

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 entitled *Ground-Water Recharge Design Methodology*, dated May 2005 or later as revised for the details of how to design recharge facilities in Delaware source water protection areas.

A) Delaware Registered Professional Engineer and/or Professional Geologist prepares an environmental assessment report, usually containing 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
- 6) Recommended ground-water monitoring plan

7) Water management agreement between the applicant and the town, city, or county providing for monitoring and maintenance of the recharge system. The applicant will abide by the Ground Water Management Agreement as written in DNREC *Supplement I 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.

Section XX10 Nonconforming uses.

A) Nonconforming uses may continue in *wellhead protection area, good ground-water recharge potential, and excellent ground-water recharge potential* areas in the form in which they existed at the time of the adoption of this ordinance, unless they pose a direct hazard to the city's water supply, as determined by the water and waste water department upon advice from the Delaware Division of Public Health, or are causing some foreign substances (oil, salts, chemicals, or other substances) to be introduced into the city's water supply, as determined by the water and waste water department upon advice from DNREC's Division of Air and Waste Management and/or Division of Water Resources. In the latter case, the building department shall issue a mandatory cease and desist to stop the offending activity within the area. Nonconforming existing underground or above-ground storage of oil, petroleum, and petroleum products shall require secondary containment pursuant to the State of Delaware regulations governing underground storage tanks or for above-ground storage of petroleum products secondary containment facilities capable of capturing the material stored on the site, for existing facilities that are proposed either to be upgraded or replaced.

Section XX11 Replacement and New Wells

- 1) 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.
- 2) 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 (150) feet within the subdivision's or development's outermost property lines.

List of Prohibited Uses [NOTE: Use this list or the table on page]

NOTE: The following list contains activities that are prohibited:

Prohibited Uses

- A) Hazardous Waste Treatment, Storage, and Disposal Facilities, as defined in 7 DE Admin. Code 1302, Delaware Regulations Governing Hazardous Waste, shall not be permitted in wellhead areas.
- B) Sanitary and Industrial Landfills, as defined in 7 DE Admin. Code 1301, Delaware Regulations Governing Solid Waste, shall not be permitted in wellhead areas.
- C) Storage and maintenance of vehicles, vessels, and landscape maintenance equipment is prohibited.
- D) *Gas stations
- E) Fleet / trucking / bus terminals
- F) Dry cleaners
- G) Electrical / Electronic manufacturing facility
- H) Machine shop
- I) Metal plating / finishing / fabricating facility
- J) Chemical processing / storage facility
- K) Wood preserving / treating facility
- L) Junkyard / scrap yard / salvage yard
- M) Mines / gravel pit
- N) Equipment maintenance / fueling area
- O) **Injection wells / dry wells / except for single family residences directing gutter downspouts to a dry well and oxygenating remediation projects. [ask Bill]**
- P) All uses not permitted in the underlying zone district.
- Q) * UST
- R) *AST
- S) *On-site wastewater treatment and disposal

*Dependant on choices made in each section