

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

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TITLE: Water Management for Agricultural High Tunnels

EFFECTIVE DATE: April 21, 2018

AUTHORITY: Pennsylvania Clean Streams Law (35 P.S. §§ 691.1-691.1001); Pennsylvania Dam Safety and Encroachment Act (32 P.S. §§ 693.1-693.17); Pennsylvania Storm Water Management Act (32 P.S. §§ 680.1-680.17); Federal Clean Water Act (33 U.S.C.A. § 1342), 40 CFR Part 122 and 25 Pa. Code Chapters 92a, 93, 102 and 105.

POLICY: Legislative revisions to Pennsylvania's Storm Water Management Act approved in April 2018 authorized a specific segment of agricultural high tunnel systems constructed and sited according to specific criteria, to be regulated differently than other structures.

PURPOSE: The purpose of this guidance is to provide DEP's interpretation regarding the applicability of the Pennsylvania Clean Streams Law, Dam Safety and Encroachment Act, and Storm Water Management Act requirements to high tunnel structures used to carry out agricultural activities.

APPLICABILITY: This policy applies to certain agricultural high tunnel systems used to support agricultural production.

DISCLAIMER: The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies or procedures will affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give these rules that weight or deference. This document establishes the framework, within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this guidance document if circumstances warrant.

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High Tunnel Farming Systems and How They are Addressed Under Pennsylvania's Water Management Laws

Hoop or high tunnel facilities used on agricultural operations either as an enhancement to a cropping system or as an alternative for conventional storage and animal housing facilities are being used throughout the state as a cost-effective means of addressing various protection and storage needs. The purpose of this document is to describe the water management regulatory requirements relating to these structures and what exemptions may be considered for certain high tunnel structures.

There are primarily three environmental statutes that address water management related to the construction and location of high tunnel structures in Pennsylvania: the Clean Streams Law (CSL), the Dam Safety and Encroachment Act (DSEA) and the Storm Water Management Act (Storm Water Act).

The Pennsylvania Chapter 102 Erosion and Sedimentation Control regulations implement certain provisions of the CSL. Under these regulations, any person proposing an earth disturbance activity disturbing one (1) acre or more, either as one activity or as a staged activity affecting one (1) acre or more in total, is required to obtain a National Pollutant Discharge Elimination System (NPDES) permit which includes an erosion and sedimentation control (E&S) plan, as well as a post construction stormwater management (PCSM) plan. The PCSM plan outlines stormwater control practices which must be constructed and continually maintained, to limit the impacts of stormwater runoff to local and regional water courses. High tunnel systems triggering these requirements are required to follow the provisions of this regulation and the permit obligations. It is important to note that if a high tunnel structure causes accelerated erosion and sedimentation or other pollution, whether the structure triggers a Chapter 102 permit or not or is exempt from the Storm Water Act requirements, it may still be subject to enforcement under the CSL.

In addition, **the Pennsylvania Chapter 105 Dam Safety and Waterway Management regulations** implement provisions of the DSEA. Under these regulations, any person planning to construct or operate a structure in, along or across, or projecting into a watercourse, floodway or body of water, whether temporary or permanent, must obtain a Chapter 105 permit from the Department in order to prevent unreasonable interference with water flow and to protect navigation. High tunnel systems triggering these requirements must obtain and follow the appropriate permit from the Department in order to construct or operate the facility.

Lastly, the **Storm Water Act** requires counties to prepare and adopt watershed or county based stormwater management plans for the management of stormwater when land uses are modified. It also requires municipalities to adopt and implement ordinances to regulate development consistent with these county plans. Anyone engaged in construction activities in the watershed is required to implement stormwater management measures consistent with the approved county stormwater management plan and any associated local ordinances. This law affects all structures constructed within the Commonwealth, including high tunnel systems on agricultural lands.

The General Assembly, through an April 2018 amendment to the Storm Water Act, authorized the exemption of certain high tunnel systems from the provisions of the Storm Water Act, if they are constructed and sited in accordance with the provisions of the amendment.

Storm Water Act applicability to various types of high tunnel structures:

While all high tunnel systems fall under the permitting obligations of the CSL and DSEA, there are certain high tunnel structures that may be considered for exclusion from the provisions of the Storm Water Act. In accordance with Act 15 of 2018, those high tunnel structures that may be considered by the municipalities or counties for exemption status under the Storm Water Act include those that meet the following three factors:

Factor 1, Usage: High tunnel structures must be used for one of the following purposes to be considered for exemption from the provisions of the Storm Water Act:

High tunnel systems that are used for the production, processing, keeping, storing, sale or shelter of an agricultural commodity can be considered for an exclusion from the provisions of the Storm Water Act.

The definition of an agricultural commodity includes the production of plants used for human or animal feed, forestry, and horticultural purposes. The agricultural commodity definition also includes the production and raising of livestock and poultry and the products that they generate.

High tunnel facilities used for the storage of farm equipment and farm supplies can also be considered for this exemption of the Storm Water Act.

Factor 2, Construction: High tunnel structures must be constructed following all of the below criteria in order to be considered for exemption from the provisions of the Storm Water Act:

1. Constructed using a metal, wood or plastic frame;
2. The materials used for covering the frames of the high tunnels include plastic, woven textile or other flexible covering; and
3. The floor of the high tunnel needs to be composed of either soil, crushed stone, matting, pavers, a floating concrete slab or a combination of these materials.

Factor 3, Siting: High tunnel structures must be sited following the below criteria to be considered for exemption from the provisions of the Storm Water Act:

1. High tunnel structures that result in an impervious area less than or equal to 25% of all structures located on the owner's total contiguous land area; and
2. The high tunnel facility must meet at least one of the following criteria:
 - a. Must be located at least 100 feet from any perennial stream or other watercourse, public road or neighboring property line; or
 - b. Must be located at least 35 feet from any perennial stream or other watercourse, public road or neighboring property line where the slope of the area where the facility is placed is not greater than 7 percent; or
 - c. There is a diversion system or buffer built and managed consistent with the Storm Water Act that ensures that runoff from the high tunnel does not directly drain into a stream or other watercourse.

The following are some additional recommended construction and operational criteria used for agriculture high tunnel systems to ensure protection of waters of the Commonwealth in Pennsylvania:

- Vegetative filter areas, diversions, buffers, water catchment basins or tanks, or other conservation measures installed around the structures allow for the management or infiltration of the runoff coming from the coverings on these structures.
- The end walls of these structures used for crop production are generally designed with doors to allow human access and some machinery access to support the planting, management, and harvesting of the crops growing within these structures.
- High tunnels used for the raising of poultry or livestock vary in size and are designed to meet the needs of the animals, the land where they will be used, and may provide for the mobility of these facilities. Frequent movement of these structures allows for maximum plant intake by the animals, minimum denuding of the vegetative areas where the animals have access, and the proper distribution of the manure generated by the animals. To provide for frequent relocation, DEP recommends that these structures be limited in size.
- Where plants are grown within these facilities, watering of the plants will be critical to ensure vigorous plant growth. This can be accomplished through the rolling up or down of the plastic or fabric covering on these facilities to allow for controlled amounts of precipitation to enter the planted area; otherwise irrigation will be necessary. Capturing of runoff from these facilities in a basin or tank can help supplement the water needed to irrigate the plants within the structure, and may also enhance stormwater management.
- When more than one structure is located on a given or adjacent property, maintaining a vegetated area of at least 20 feet between adjacent high tunnels helps to minimize the effect of runoff coming from multiple structures in the same area.
- The walls of the high tunnels are designed to allow for them to be raised or lowered to allow for humidity and temperature adjustment within the structure. Also, seeing that these structures are not typically designed to handle snow load, the sides are often raised, lowered or removed during the winter season to protect the integrity of the supporting frame of the structure.

What assistance is available to municipalities or others in further understanding high tunnel systems excluded from the Storm Water Act?

DEP's Bureau of Clean Water or the Bureau of Waterways Engineering and Wetlands staff can provide further direction on the implementation of these laws and the possible exclusion of certain types of high tunnel structures from the provisions of the Storm Water Act. The USDA Natural Resources Conservation Service can provide additional direction on the criteria involved in developing, managing, and financing high tunnel systems used for the production of crops.