



**Editor's Note:** Public Act 93-270, An Act Concerning the Responsibilities of Conservation Commissions, increased the role of conservation commissions by amending Section 7-131a with; "IT MAY INVENTORY NATURAL RESOURCE MANAGEMENT PLANS AND FORMULATE WATERSHED MANAGEMENT AND DROUGHT MANAGEMENT PLANS." Recognition of the importance of, and need for, watershed management planning is increasingly important as land is developed and climate change influences the frequency and intensity of storms. The following article is the first of a two-part series by Erik Mas. It is an excellent primer for conservation commissions that wish to begin the process of watershed management planning.

## Watershed Management Planning: A Critical Step for Protecting and Restoring Water Resources

*by Erik Mas, Kristine Baker, and Philip Moreschi, Fuss & O'Neill, Inc.*

For the past two decades, watershed organizations and federal and state agencies have been moving toward a watershed approach to manage water resources. A watershed approach is a flexible framework for managing water resource quality and quantity within a specific drainage area or watershed. This approach includes stakeholder involvement and management actions supported by sound science.

The watershed planning process consists of a series of cooperative, iterative steps to characterize existing conditions, identify and prioritize problems, define management objectives, develop protection or restoration strategies, and implement and adapt

selected actions as necessary. The outcome of this process is documented in a watershed plan, also referred to as a "watershed management plan" or a "watershed based plan", which is essentially a blueprint of how to best protect and improve the water quality and other natural resources in a watershed.

### What is Watershed Management?

*The Connecticut Department of Environmental Protection defines watershed management as "the process of implementing land use practices and water management practices to protect and improve the quality of the water and other natural resources within a watershed by managing the use of those land and water resources in a comprehensive manner."*

### Why Is Watershed Management Important?

All activities that occur within a watershed, ranging from new land development, to agricultural activities, to everyday lawn care practices, can affect a watershed's natural resources and water quality. Runoff from point and nonpoint sources can contribute significant amounts of pollution into our waterbodies. Watershed management helps protect and restore water resources and other natural resources in the watershed by identifying the types of pollution and pollution sources present in the watershed, the degraded or impaired habitats and recommending ways to reduce or eliminate those pollution sources and habitat impairments.

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**Editor's Note:** The Council on Environmental Quality's 2008 annual report on the condition of Connecticut's environment is **now available as an internet publication only**. In previous years, the Council published a paper version as well as a web version. The web version offers far more to the reader because it links to source material and supplemental information. It can be found at [www.ct.gov/ceq/AnnualReport](http://www.ct.gov/ceq/AnnualReport).

## CONNECTICUT'S ENVIRONMENT IN 2008: MANY CLEAR IMPROVEMENTS; SOME NEW STRATEGIES NEEDED

Connecticut residents are reaping massive dividends from the creation and steady enforcement of state and federal regulatory programs. However, in contrast to many very positive trends, the state is lagging in programs such as land conservation that require public investment, and new approaches are needed. These were the messages in the Council on Environmental Quality's annual environmental status report delivered to Governor M. Jodi Rell.

The annual report, Environmental Quality in Connecticut, is a paperless web publication. The CEQ is required by law to submit this comprehensive summary of the state's progress in protecting and improving the state's air, water, land and wildlife.

The Council uses a set of about 30 environmental indicators to track the State's yearly progress. This year it added one to its stock of leading indicators: the number of Connecticut households that purchase "green" electricity, which has been rising steadily. In general, the leading indicators, which help to predict future environmental conditions, were mixed, but energy efficiency by households and businesses showed significant gains.

The Council also added an indicator showing the rising temperature of Long Island Sound under the heading "Does the Sound Have a Fever?" Rising surface temperatures are believed by scientists to be very much related to the decline of the lobster population and summertime water quality.

For more information, contact Karl Wagener, Executive Director. Telephone: 860-424-4000; Email: [karl.wagener@ct.gov](mailto:karl.wagener@ct.gov).



Most watersheds extend over political boundaries, often involving multiple communities and sometimes even multiple states, which often have different visions and priorities for the use of the resources. Watershed planning is also important because it results in a partnership among the affected parties in the watershed. It provides a framework for protecting and restoring natural resources in a collaborative and efficient way, especially during times when financial resources are limited.

### **Why Develop a Watershed- Based Plan?**

Developing a comprehensive watershed based plan is critical to the success of your watershed management efforts, particularly for restoring polluted or otherwise impaired waterbodies. An impaired waterbody is a river, stream, lake, estuary, or bay that does not meet state water quality criteria to support a particular use such as swimming, fishing, or drinking. The Connecticut Department of Environmental Protection (DEP) maintains a list of impaired waters in the State of Connecticut, with the ultimate goal of reducing or removing the impairments. Developing and implementing a

watershed based plan is the preferred approach for restoring impaired waterbodies and protecting threatened waterbodies.

In 2003, the U.S. Environmental Protection Agency (EPA) issued guidelines promoting the use of Section 319 funding for developing and implementing watershed based plans to restore impaired waters and

protect unimpaired waters. The EPA guidelines describe Nine Elements that must be addressed in a watershed based plan to qualify for funding under Section 319 of the Clean Water Act. The Connecticut DEP recommends that all watershed management plans for impaired or threatened basins include all nine elements of a watershed based plan to ensure eligibility for 319 funding. Other federal grant programs that fund watershed implementation projects also require or encourage developing an approved watershed based plan that follows the EPA Nine Elements.

Currently, there are only several approved watershed based plans in Connecticut that follow the EPA Nine Elements.

### **Nine Elements of an EPA-Approved Watershed Based Plan**

1. **Impairment:** Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve load reductions and other goals identified in the watershed plan.
2. **Load Reduction:** An estimate of the load reductions expected from management measures. Several models have been developed for estimating load reductions. Modeling can be simple or complex depending on the application.
3. **Management Measures:** A description of the management measures that will need to be implemented to achieve load reductions, and a description of the critical areas in which those measures will be needed to implement this plan.
4. **Technical and Financial Assistance:** Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement the plan.
5. **Public Information and Education:** An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.
6. **Schedule:** A reasonable expeditious schedule for implementing the nonpoint source management measures identified in the plan.
7. **Milestones:** A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.
8. **Performance:** A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.
9. **Monitoring:** A monitoring component to evaluate the effectiveness of the implementation efforts over time.

Many watershed management plans were developed before EPA and DEP adopted the current guidance for watershed based plans. If the existing plans do not address the Nine Elements, they can still provide a valuable framework for producing an updated, comprehensive plan.

**Steps for Developing a Watershed Based Plan**

Developing a watershed based plan that meets all nine of the EPA’s required elements typically involves the following major tasks:

1. Assessing baseline and potential future watershed conditions,
2. Reviewing land use regulations in the watershed,
3. Field inventories of stream corridors and upland areas in the watershed,
4. Identifying watershed management goals, objectives, and potential management strategies to address watershed issues,
5. Developing watershed-wide, targeted, and site-specific management recommendations.

Fuss & O’Neill and the Friends of the Hockanum River Linear Park, in conjunction with the Town of Vernon, the North Central Conservation District, Rivers Alliance of Connecticut, the Hockanum River Watershed Association, and the Belding Wildlife Management Area, recently completed a comprehensive watershed management plan incorporating the EPA Nine Elements for the Tankerhoosen River watershed located within the Hockanum River watershed in north-central Connecticut.



*The upper Tankerhoosen River is a cold water stream supporting self-sustaining native trout populations that rank among the best of their kind in the state.*

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The Tankerhoosen River has long been recognized as an important natural resource and a key inland watershed critical to the health of Long Island Sound. The high water quality in the upper regions of the Tankerhoosen River sustains a significant natural resource of the State of Connecticut – the Belding Wild Trout Management Area, one of only two Class I wild trout areas east of the Connecticut River. Development pressure in the upper reaches and declining water quality in the lower reaches of the Tankerhoosen River underscored the need for a comprehensive, scientifically-based watershed management plan to address these issues.

*The second part of this two-part series will appear in the Summer 09 issue of The Habitat. It will describe some key steps in developing an EPA-approved watershed based plan, using the Tankerhoosen River Watershed Management Plan as a recent example.*





# Grass Roots Effort Receives Big Response

## *Windham County's Conservation Commission Consortium*

by Kimberly Kelly

October of 2008 marked the first meeting of the Windham County Conservation Commission Consortium at the UCONN Cooperative Extension Center in Brooklyn, CT. The brainchild of Wayne Kilpatrick, Chairman of the Hampton Conservation Commission, this idea has proved to be an exciting new approach to regional conservation concerns.

Wayne Kilpatrick developed this idea and communicated with some key conservation figures in Eastern CT, including Holly Drinkuth of The Nature Conservancy and the Green Valley Institute. His concerns over some of the recent developments such as the proposed ash landfill in Franklin and the new CL&P transmission lines directed him to look to a regional collaborative approach. He thought that this approach would provide for a more unified response. Recognizing that the small towns of Windham County sometimes lack the political clout needed to adequately respond to these types of issues, he proposed the idea of a consortium composed of all 15

towns and any surrounding towns that would like to participate in Eastern CT.


A preliminary survey was sent out to all the Conservation Commissions in the County to identify some common or unique issues, and their thoughts of what the collaborative effort should or could accomplish. The original idea was to hold an informal annual meeting and then meet whenever or as often as needed. Initial potential benefits were identified as:

- Increased political clout in responding to environmental issues in Windham County
- Shared information relative to specific environmental issues and experiences
- Inventory of high value environmental resources & other related conservation information to be developed.

The response was impressive, with 14 of the 15 towns represented at the first meeting in October. There was a brief agenda and 2 presentations: The Green Valley Institute and CACIWC. Collectively the attendees had many years of experience and the discussion was more constructive and informative than we had hoped for. As a result of the meeting, region-wide goals were identified and prioritized. These include:

- Regional co-occurring resource inventory map, identifying contiguous parcels across town boundaries
- Regional Large Landowner options workshop
- Annual meeting with land trusts
- Region-wide subdivision review checklist

One of the surprises of the evening was the request to hold more frequent meetings and to maintain the informal structure of the group. To this date there have been three meetings and all 15 towns have participated as well as three additional towns in Eastern CT. Presentations, such as The Borderlands Project, all uniquely related to the regions challenges and experiences have been very well received.

The most exciting result of this effort is to see the willingness and desire of the towns to work together as a regional group and identify regional priorities. As we face the many challenges of town planning and conservation this type of regional collaborative effort is a model that may be a successful approach to both town and regional issues. 

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## Consideration of Wildlife by Wetlands Agencies — Five Years Later —

In the October, 2003 the Connecticut Supreme Court issued its decision in AvalonBay Communities, Inc. v. Inland Wetlands Commission, 266 Conn. 150 (2003), in which it concluded that the inland wetlands and watercourses act “protects the physical characteristics of wetlands and watercourses and not the wildlife, including wetlands obligate species, or biodiversity.”<sup>1</sup> In a footnote the Court provided for consideration of wildlife in exceptional cases: “There may be an extreme case where a loss of or negative impact on a wildlife species might have a negative consequential effect on the physical characteristics of a wetland or watercourse . . .”<sup>2</sup> Hot off the press, this decision was subject of a workshop at the November 2003 CACIWC annual meeting. The reactions of wetlands agency members in attendance ranged from shock to frustration to anger – until that decision wildlife was

a common topic included in reports from applicants submitted to agencies around the state.

The legislature responded promptly in the 2004 legislative session to the discontent in the environmental and regulatory community with a bill reflecting a compromise between the Connecticut Homebuilders Association and a consortium of environmental organizations, including CACIWC. I’ve heard some folks debate that the new law codifies (affirms) the Supreme Court’s decision while others say, the law restores wildlife to an agency’s jurisdiction. Who’s right? Well, they both are. Five years after the passage of the law it’s time to reflect on those legislative changes. Have you incorporated those changes into your standard operating procedure?

*Wildlife, continued on page 7*

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*Wildlife, continued from page 6*

To begin, the legislature added two provisions to General Statutes § 22a-41. Section 22a-41 gives direction to the DEP and agencies on how to carry out their duties under the wetlands law including “regulating, licensing and enforcing” the wetlands act. In other words, it applies to all of the duties. The legislature established that: “(1) ‘wetlands or watercourses’ includes aquatic, plant or animal life and habitats in wetlands or watercourses, and (2) ‘habitats’ means areas or environments in which an organism or biological population normally lives or occurs.” General Statutes § 22a-41 (c). This subsection clearly reverses the holding in first AvalonBay quotation above. The legislature restored the jurisdiction of the DEP and wetlands commissions to consider wildlife and habitats, in carrying out their duties.

However, the legislature placed significant restrictions *on wetlands agencies but not on DEP*, when reviewing applications for regulated activities occurring outside of wetlands and watercourses. “A municipal inland wetlands agency **shall not deny or condition an application** for a regulated activity in an area outside wetlands or watercourses **on the basis of an impact or effect on aquatic, plant, or animal life unless such activity will likely impact or affect the physical characteristics of such wetlands or watercourses.**” General Statutes § 22a-41 (d). This subsection codifies the Supreme Court’s decision for activities occurring in the upland review area or outside the upland review area.

To implement this provision of the law:

- Check where the regulated activity will occur.
- If it is in a wetland or watercourse, you may consider the impact on wildlife and deny or place conditions on the application solely based on the adverse impact to “aquatic, plant or animal life.”
- If the regulated activity is in the upland review area or beyond, and the proposed activities will likely impact or affect the physical characteristics of wetlands or watercourses, you may deny or place conditions on the application based on the impact on “aquatic, plant or animal life.”
- If the regulated activity is in the upland review area or beyond, and the proposed activities will NOT likely impact or affect the physical

*Wildlife, continued on page 8*



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Wildlife, continued from page 7

characteristics of wetlands or watercourses, you may NOT deny or place conditions on the application based on the impact on “aquatic, plant or animal life.”

Do your agency regulations include these changes in law? I was appearing before a wetlands agency this spring that was inquiring about impact on vernal pools when no activity was proposed for the vernal pool. In looking at the agency regulations, I discovered that they had not been amended since 2001. This change in law is not intuitive – you will need to amend your regulations in order to have the correct wording before you. The 2006 DEP Model Regulations include these changes at § 10.5 [General Statutes § 22a-41 (c)] and § 10.6 [General Statutes § 22a-41 (d)].

The debate now focuses on what a physical characteristic is. Surely, sediment that finds its way into a wetland affects the physical characteristic of that wetland. Activity in the upland review area that changes the temperature of the watercourse, such as removal of a vegetated canopy which allows the sun to heat up the watercourse is a physical characteristic. (Reminder: do you have expert evidence to “connect

the dots” between the removal of the canopy and the change in water temperature?).

Your authority to consider the impacts on wildlife from a regulated activity has not changed when the proposed regulated activity occurs in the wetlands or watercourse. Outside of wetlands or watercourses, you have had to consider a series of questions, before you could deny an application based on impact to wildlife or even impose a condition in a permit. If you are reading this article, reflecting on your agency’s standard operating procedure which already incorporates all of these changes, and wondering why other agencies are having trouble, congratulations! For any other agencies, check to make sure your regulations are current, and develop a checklist of when you can consider impacts to wildlife.

*Attorney Janet P. Brooks practices law in Middletown at D’Aquila & Brooks, LLC.*

(Endnotes)

1 AvalonBay Communities, Inc. v. Inland Wetlands Commission, 266 Conn. 150, 163 (2003).

2 AvalonBay Communities, Inc. v. Inland Wetlands Commission, 266 Conn. 150, 163 n.19 (2003).



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# Read Between the Lines: Not All Maps Are Created Equal

By Jeffrey J. Stefanik, L.S.  
Director of Land Surveying, CME

## OK, So You Have a Map...

Many commissions review maps and plans as part of their function for a variety of purposes. Everyone charged with this task must bear in mind that these documents are not necessarily created equal and are often subject to varying degrees of accuracy dependant upon the source of the information and the manner in which it is executed.

There are essentially two types of property maps used in the State of Connecticut, and

in very simple and broad terms they are:  
1) **A2** maps in which the boundaries and physical features depicted are certified to a high degree of accuracy based on the mathematical precision required; and  
2) **Class D** maps which can be based on compiled data from many sources.

All maps indicating precise boundary lines must be certified by a licensed Land Surveyor adhering to A2 standards. Maps depicting existing contours should be certified by a Land Surveyor and proposed contours by a Professional Engineer.

Any maps depicting set back buffer dimensions to a property line or physical feature that lacks the signature, endorsement and embossed seal of a Land Surveyor must be considered of dubious quality. Documents of this nature should be deemed insufficient for compliance with Town regulations.

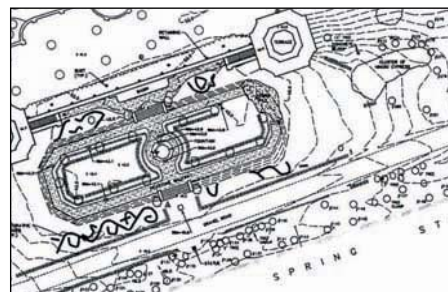
The Department of Consumer Protection and the Connecticut Association of Land Surveyors (CALS) published the Minimum Standards for Surveys and Maps in 1996 and they can be reviewed by visiting Sec.20-300B-1 of the

State of Connecticut General Statutes and also by visiting the CALS web site at [www.ctsurveyor.com](http://www.ctsurveyor.com).

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# A Stormwater Runoff Solution

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by Jim Langlois, Executive Director of the Connecticut Concrete Promotion Council

Protecting the environment by controlling runoff and pollutants is one of the biggest challenges we face. According to the EPA (US Environmental Protection Agency) runoff can deposit as much as 90% pollutants into our waterways and rivers. To address this, the EPA established stringent guidelines requiring state and local governments to reduce and implement stormwater runoff measures to improve water quality.

Pervious concrete was found to be an effective solution for meeting the EPA requirement and in 1999 the EPA recommended pervious concrete among the Best Management Practices (BMPs) for the management of stormwater runoff. (<http://www.epa.gov>). Moreover, the Green Building Council's Leadership in Energy & Environmental Design (LEED®) offers project credit for the effective use of pervious concrete in building. LEED® is a highly regarded national standard rating system established by the United States Green Building Council (USGBC) for projects meeting a specific sustainability goal.

Concrete is not new to the world scene. It has been used for building and road construction for centuries. Although pervious concrete has been around since 1852 and used in Europe since WWII, only in the last twenty years did it gain awareness in the United States and most recently prominence for its unique ability to reduce stormwater runoff, mitigate pollutants, protect rivers and streams, and replenish water tables and aquifers. Today, a growing number of professionals are embracing pervious concrete as a natural, durable, economical, and LID (Low impact development), environmental friendly pavement option for building roadways, parking lots, sidewalks, walkways, driveways, patios, decks, greenhouses, plazas, nature trails and a variety of applications.

## The Success is in the Mix and the Mixer

Pervious concrete's effectiveness lies in its open-cell structure which allows rainwater or melted snow to drain and filter through to the underlying soil. It is comprised of a carefully controlled mix of stone aggregate, cement, water, little to no sand, and admixtures. The end result is a concrete based mixture that coats the coarse aggregate particles and resembles Rice Krispies® after placement. Often referred to as porous, permeable, or no fines concrete; pervious contains little or no fine materials. Instead it has voids that encourage filtration. Pervious is specified by unit weight and voids which are predetermined to meet load bearing needs.

Pervious typically can run between 2500 and 3500 PSI with a 15-25% voids structure. A density test is presently being used and ASTM (American Society of Testing Methods) is in the process of packaging pervious testing practices. Density is dependent upon properties and proportions of materials used and compaction procedures.

As with any construction or building project and as noted by industry experts, proper installation and appropriate maintenance are essential to ensuring long term effectiveness. Therefore, it is important to work with a reputable, qualified installer backed by a company that has an understanding of the material and can advise you on the proper maintenance for long lasting results. A skilled designer and qualified installer will take into consideration conditions such as adjacent landscaping, slope of land if surface is not level, rainfall specific to the location, storage capacity, permeability requirements, and infiltration rate. Guidance for selecting appropriate rate for infiltration can be found in texts and Soil Surveys published by the Natural Resources Conservation Service (<http://soils.usda.gov/>).

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***Pervious concrete was found to be an effective solution for meeting the EPA requirement and in 1999 the EPA recommend pervious concrete among the Best Management Practices (BMPs) for the management of stormwater runoff.***

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*Pervious, continued on page 10*

Pervious, continued from page 9

Overall, pervious concrete pavements function well with little or no maintenance. Possible clogging of void structures from accumulation of leaves, rocks, and other debris from surrounding landscape should be addressed during design and site preparation stage. Periodic vacuum sweeping, power blowing and pressure washing of pavement are recommended maintenance measures for any debris removal on surface.

### Advantages Over Other Materials



One of the phrases often used to describe the benefits of pervious concrete is "When it Rains, it Drains." This phrase underscores pervious concrete's value over other building materials. It's success in reducing stormwater runoff and subsidiary containment costs have been highly acclaimed. Moreover when rain or snow converge on a pervious pavement, they pass directly through the

system into the ground where pollutants are further

mitigated by natural microbial growth. Additional benefits cited include ability to:

- Replenish water tables and aquifers by stemming the loss of rainwater.
- Decrease the need and costs for constructing large detention ponds and expensive irrigation systems.
- Curtail flash flooding and pooling of standing water.
- Mitigate surface pollutants.
- Allow for more efficient approach to land development.
- Reduce the heat island effect by absorbing less heat than darker pavements.
- Less impact on wildlife habitats.
- Permit air and water to reach tree and plant roots in a paved environment.
- Provide beautiful design selections.

### Studies and Demonstrations

Successful performances in diverse climates and terrain have been documented throughout the country. Most impressive is the 2007 University of New Hampshire video of a research project <http://www.pervious-pavement.org> illustrating pervious concrete's ability to absorb 300 inches of rain per hour and rapidly drain pouring water.

Pervious, continued on page 11

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*Pervious, continued from page 10*

Another comparison study of two nearby parking lots demonstrates pervious concrete's remarkable ability to deal with wet and slick parking lots.

topped by the pervious concrete pavement. The pervious concrete is then smoothed with a roller screed and joints are cut with a finned roller and then covered with plastic and cured for a minimum of seven days.

A cross section of pervious concrete pavement surface and subbase which is placed on top of subgrade is shown in the accompanying graphic. Detailed engineering specs can be found by visiting <http://www.perviouspavement.org/engineering%20properties.htm>.

Pervious concrete offers a universe of creative and striking design options as illustrated in the photo below taken at the All Access Park Bettman Nature Preserve in Cincinnati, OH.

Environment conscious consumers and dedicated green minded builders, architects,

planners, and municipal and state leaders are discover-

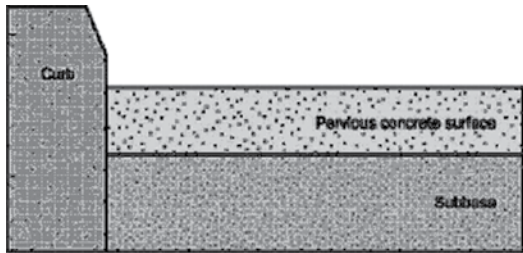


**Comparison of Post-Snowstorm Pavement Surfaces in Denver, CO.**

Taken within minutes of each other, these photos of two supermarket parking lots located directly across the street demonstrate the advantages of pervious concrete. Both lots were plowed in the morning following an overnight snow storm. The air circulating beneath the pervious concrete accelerates the melting of remaining snow and allows the melt water to drain immediately. Besides providing a safe and tidy surface during the day, the totally dry pervious pavement greatly reduces the risks associated with refreezing of puddles as the temperature drops later.

**Placement and Process and Qualifications are Key**

The placement and curing of pervious concrete is done on site. Prior to installation, a percolation test is taken of the soil type. The preparation and installation process involves the laying of an entire hydrological



system which includes the soil which is the subgrade, covered with a non woven geotextile


fabric, followed by a subbase of crushed stone, and



ing myriad possibilities and solutions pervious concrete offers for environmentally sensitive construction, beautiful design and ease of maintenance.

*The Connecticut Concrete Promotion Council (CCPC) of the Connecticut Ready Mixed Concrete Association is located in Wethersfield, Connecticut. You may contact Executive Director Jim Langlois at 860.529.6855 or email [jlangois@ctconstrucion.org](mailto:jlangois@ctconstrucion.org). For detailed information, data, demonstration, guidelines on maintenance procedures, and questions and answers, visit the National Ready Mixed Concrete Association website at [nrmca.org](http://nrmca.org).*





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# Does the Application Before Your Town's Inland Wetlands and Watercourse Commission Require a U. S. Army Corps of Engineers' Permit?

## STATUS OF THE DEPARTMENT OF THE ARMY PROGRAMMATIC GENERAL PERMIT IN CONNECTICUT

by Cori Rose, Senior Project Manager, U.S. Army Corps of Engineers  
New England District Regulatory Division

Federal regulation<sup>1</sup> requires that any person, firm, or agency (including federal, state, and local government bodies) planning to work in navigable waters of the United States (WOUS), or intending to discharge fill material in WOUS (including wetlands) first obtain a permit from the U.S. Army Corps of Engineers (Corps). In Connecticut, Nationwide Permits were revoked and the first State Programmatic General Permit (SPGP) established in 1985. The intent of the SPGP is to avoid duplication of effort with the state regulating body(s). The permit is re-evaluated every five years for its efficiency and effectiveness, as well as compliance with the National Environmental Policy Act (NEPA), Corps public interest review factors,<sup>2</sup> and impact analysis per Subpart F of the Clean Water Act 404(b) (1) Guidelines.<sup>3</sup>

Subject to certain exclusions and conditions, the SPGP eliminates, under a non-reporting category, the need for detailed review and Corps approval for most minor non-controversial work. Activities that are consistent with the SPGP terms and that impact less than 5,000 square feet (SF) of waters and wetlands are eligible, provided they are regulated by the municipality under the Connecticut Inland Wetlands and Watercourses Act, the State of Connecticut (Department of Environmental Protection, Department of Agriculture), or governing Tribal bodies within boundaries of an Indian Reservation. The categories of activities eligible for authorization under the SPGP are formulated such that projects authorized by this permit will have minimal individual and cumulative adverse environmental impact. In all cases, the Corps retains discretionary authority to require review of any activity under Category II, or as an individual permit, based on concerns for the aquatic environment or for any other factor of the public interest.

The most recent revision of the SPGP was issued on May 31, 2006 and included substantive changes in

the *Definition of Categories* over the previous permit (May 22, 2001), as well as clarification of eligibility requirements. A few of the larger modifications and more common questions pertaining to this permit are highlighted below.

### **Temporary Fill – What constitutes temporary fill and does it count toward a calculation of the 5,000 SF threshold and, therefore, eligibility under the permit?**

For the purposes of the SPGP, temporary fill in WOUS is interpreted to include the placement of “swamp/timber mats,” clean granular or stone fill, non-structural cofferdams (sandbags, geotubes, gabion cages, etc.) or any other mechanism (wood chips, for example) that effectively increases the elevation of the bottom of a WOUS. All of the temporary means identified above contribute to the threshold for eligibility under the SPGP non-reporting category. One nuance of this category often overlooked by a project proponent in CT is that a permit from the Corps is still required in the event that a wetland area exceeding 5,000 SF needs to be temporarily traversed for access to an upland development area, even in the absence of any permanent fill. In addition, failure to properly support or distribute the weight of heavy

*Corp, continued on page 13*

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equipment over wetland soils (e.g. the absence of mats or equipment with ground pressure  $\geq 3$  feet per square inch) can, and often does, constitute a regulated discharge that requires a Corps permit.

**Secondary Effects – How will I know if the secondary impact of a project with direct fill < 5,000 SF will exceed the eligibility threshold or have greater than minimal impact on WOUS?**

Secondary effects on an aquatic resource for the purposes of the SPGP are those impacts that are induced by, or recognizably related to, the regulated discharge of fill from a single and complete project. <sup>iii,4</sup> They are later in time or farther removed in distance, but are still reasonably foreseeable.<sup>5</sup> All components of a project with regulated fill are treated together as constituting one single and complete project (planned phases of a multi-phased project), unless the Corps determines that a component has independent utility. Secondary impact activities are not otherwise regulated by the Corps without the discharge of fill from a single and complete project. Some secondary impacts of a proposal are relatively easy to discern, such as the cutting of trees or removal

of vegetation above the ground surface within a wetland (for example golf course play-over areas) or the dewatering of a pond for the purposes of sediment removal. Following are some examples of scenarios with reasonably foreseeable secondary effects on an aquatic ecosystem that might be less obvious:

- fluctuating water levels in a nearby water or wetland as a result of a poorly designed stormwater retention system
- surface runoff from a development where the treatment facilities and/or the width of the vegetated buffer between the aquatic resource and the project is inadequate for, or inconsistent with, the site’s topographical setting (the steeper the setting, the wider the buffer)
- the presence and foreseeable release of a leachate or surface runoff with reasonable likelihood of altering the physical, chemical, or biological components of the aquatic environment (golf course, agricultural field, country club, athletic field, salvage yard, industrial treatment facility, DPW, automotive repair center etc.) or impinging upon the ability of the resource to meet its designated uses
- impoundment of water behind an undersized culvert
- excavation occurring as part of a single and complete project that is in close proximity to a wetland and at an appropriate elevation (e.g. cut) to function as a drain or diversion of surface water or shallow subsurface groundwater
- snow storage from an industrial or commercial facility with either an outlet to a WOUS or a configuration with reasonable likelihood of overland runoff
- proposed fill of a hydrologically isolated wetland (for example, a vernal pool or kettle hole pond) as part of a single and complete project with some amount of regulated fill in WOUS



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Although the above list is not intended to be all-inclusive, it does begin to set the stage for the types of scenarios to be on the look-out for when considering the feasibility of secondary impacts to aquatic resources.

**Vernal Pools – Can the Corps regulate vernal pools or the upland habitat surrounding them?**

Although some apparently, hydrologically distinct vernal pools can still be regulated by the Corps through the presence of vernal swales between


wetlands, the upland habitat surrounding them cannot. Wording within the current SPGP prohibits the non-reporting eligibility of any project with direct or secondary impact to "Special Wetlands," the category of which includes vernal pools. Not all vernal pools are subject to the jurisdiction of the Corps, but all are subject to Connecticut Water Quality Standards (CWQS). In those instances where a single and complete project with fill in a jurisdictional area will impact a vernal pool, its eligibility under Category I is suspended. Following a case-by-case review of the pool's jurisdiction, the Corps will determine whether secondary impacts to the aquatic resource from work within 500 feet of the vernal pool has been minimized to the greatest extent practicable and whether the activity complies with the eligibility criteria under Category I, or if additional review and interagency coordination for compliance with CWQS is required under Category II. Secondary impacts to a vernal pool may occur as a direct result of upland modification (loss of canopy cover, creation of migratory barriers) or as a result of land use (water quality or quantity). Where the Corps concludes that mitigation is warranted to sustain the purpose of the Clean Water Act (i.e., restore and maintain the chemical, physical and biological integrity of the aquatic environment), the project will be reviewed under Category II. Compensatory mitigation may also be required to offset any direct and/or secondary adverse impacts to a non-jurisdictional vernal pool where the impact is directly related to a permit action for a single and complete project within the Corps permit review area.

Finally, the most obvious additions to the May 31, 2006 SPGP include the addition of stream crossing guidelines for roadways and driveways; conditional waiver of the one acre threshold for maintenance of water depths within a pond or lake, restoration or enhancement projects administered or sponsored by federal or state agencies, and the 5,000 SF threshold for replacement of utility projects. Projects with detention or retention of stormwater in a WOUS, fill in a FEMA established floodway, or fill within a FEMA established floodplain that would result in an increase in flood water surface elevation, flood flow velocity or a restriction of flood flow conveyance (impacts either upstream or downstream) are excluded from eligibility under either Category I or II of the SPGP. These activities need to be reviewed under the individual permit process and require an individual 401 Water Quality Certification from CT DEP.

The CT PGP and supporting documentation as well as other pertinent regulatory guidance can be obtained at the Army Corps of Engineers, New England District Website located at [www.nae.usace.army.mil/reg/index.htm](http://www.nae.usace.army.mil/reg/index.htm).

(Endnotes)

- 1 Department of the Army, Title 33, Code of Federal Regulations (CFR), Parts 320 through 330
- 2 Department of the Army, 33 CFR 320.4(a)(1) and (2)
- 3 USEPA, 40 CFR Part 230
- 4 CT SPGP, issuance date May 31, 2006.
- 5 Council on Environmental Quality, 40 CFR Part 1500 et seq.; NEPA, 42 U.S.C. 4321-4347.

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## Resources

### Conservation Buffer Publications

*Conservation Buffers: Design Guidelines for Buffers, Corridors and Greenways*  
National Agroforestry Center, 2008.

The document was produced by Gary Bentrup, a Forest Service Landscape Architect. His research, covering over 1400 scientific papers, is synthesized into easily understood design guidelines.

You can view, download as a pdf and order the free document at the Buffer Guidelines website - [www.bufferguidelines.net](http://www.bufferguidelines.net) The references can also be downloaded as a pdf document.

#### *Planners Guide to Wetland Buffers for Local Governments*

Environmental Law Institute, March 2008  
[http://www.elistore.org/Data/products/d18\\_01.pdf](http://www.elistore.org/Data/products/d18_01.pdf)

#### *Coastal Riparian Buffer Analysis*

A study by the UConn Center for Land Use Education and Research (CLEAR)

A public summary (highly recommended), interactive map (ditto), and extensive data tables (not recommended for the faint of heart) are posted on the project website at: [http://clear.uconn.edu/projects/riparian\\_buffer/riparian\\_buffer.html](http://clear.uconn.edu/projects/riparian_buffer/riparian_buffer.html). The direct link to the public summary is: [http://clear.uconn.edu/projects/riparian\\_buffer/results/CLEAR\\_Summary\\_021508.pdf](http://clear.uconn.edu/projects/riparian_buffer/results/CLEAR_Summary_021508.pdf)

### Websites

#### *Watershed Forestry Resource Guide Website*

The website, launched by the Center for Watershed Protection, serves as a central source for resources related to forests and watersheds, including fact sheets, slideshows, training exercises and other tools, as well as links to research papers, reports and relevant websites. Launched in cooperation with the USDA Forest Service - Northeastern Area, with supplemental funding from The Home Depot Foundation, the URL for the site is <http://www.forestsforwatersheds.org/>



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Please share this information with your commissioners. If issues arise accessing the site or viewing the video, contact Darcy Winther, Wetlands Management Section, Inland Water Resources Division, CT DEP. Phone: 860-424-3063, fax: 860-424-4075, email: [darcy.winther@ct.gov](mailto:darcy.winther@ct.gov).

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