

Section 6  
APPENDIX

to

Lake Pocotopaug  
Management Recommendations

East Hampton Ad Hoc Lake Advisory Committee

March 28, 1995

Peter Aarrestad, Barton Blau, Kathy Ferner, Julie Pearce, George Pfaffenbach,  
Mark Philhower, Maria Foss-Rand, Thomas Wells and Raymond Zatorski

*"As for me, give me the companionship of  
a small lake with sweet crystal water..."*

Carl F Price, "Yankee Township", 1941

Table of Contents

1. LAC Position Statement: Lake Watershed Authority
2. Branse Model Open Space Section for Municipal Subdivision Regulations.
3. Conservation Commission Report, Information Concerning the Environmental Consequences of Placing Sand on Near Shore Areas of Lake Pocotopaug.
4. DEP Septic System Maintenance Model Ordinance. (Doenges 1993).
5. Soil Conservation Service listing, Highly Erodible and Potentially Highly Erodible Soils.
6. Water conservation practices, Wastewater Flow Reduction Methods. (Doenges.1990)
7. LAC report, Taxes and Lake Pocotopaug.
8. LAC report, Land Use and Phosphorus Input to Lake Pocotopaug.

It is the position of the AHLAC, that petitioning the legislature for "extraordinary power" is premature at this time, and would unfairly focus attention on our town by suggesting that we are incapable of effectively managing our own affairs. Arguments for establishing a watershed authority have included the following: 1) to obtain the authority to ban or regulate the use of fertilizers, and 2) to create a special tax district to help finance future projects. Although possessing the authority to ban fertilizers may sound appealing, it is the position of the AHLAC that a watershed wide restriction would be unenforceable and overly restrictive. The AHLAC believes that the public outreach efforts regarding fertilizer usage and maintenance of vegetated lakeshore and riparian buffer areas conducted to date have already yielded positive benefits to the lake ecosystem. Future education efforts and voluntary reductions in fertilizer usage must continue. A separate tax district would unnecessarily burden the towns bureaucracy and would create resentment amongst watershed residents. Many lakeshore residents, and others, already feel as though they are overtaxed.

In summary, the AHLAC recommends against establishing a watershed authority at this time. However, as the Town of East Hampton develops and implements effective lake and watershed management plans in future, establishing such an authority could be reconsidered if the need arises.

DRAFT POSITION STATEMENT

Date: 3/10/95

To: Ad Hoc Lake Advisory Committee

From: Peter Aarrestad, Ad Hoc Lake Advisory Committee (AHLAC)

Subject: Position paper regarding a watershed authority.  
.....

As directed at the 3/7/94 meeting of the AHLAC, I have drafted the following statement regarding the establishment of a watershed authority. As this issue has received lengthy discussion on numerous occasions, I believe this paper accurately represents the committee's position on this issue. I hope that the committee will vote to accept or modify this draft position without delay so we can complete our other duties within the short time frame still available.

On September 22, 1992 the Town Council resolved to create an Ad Hoc Lake Advisory Committee. According to item 4. of that resolution, one of the purposes of the committee shall be to "In Liaison with the Town Council and the consultant, develop recommendations toward the furtherance of a watershed and lake management plan and a Lake Pocotopaug Watershed Authority." In addition, item 5. directs the committee to "Consider the points of the Town Council Motion adopted August 25, 1992, pertaining to the establishment of a Lake Pocotopaug Advisory Committee." The relevant directory language of Motion 2 reads: "(1) develop a proposal for a Lake Pocotopaug Watershed Authority, (2) petition the legislature of the State of Connecticut for extraordinary powers for the Town of East Hampton to deal with the watershed through such an authority".

It is clearly recognized that the Town Council directed the AHLAC to consider the establishment of a watershed authority, but did not direct the ADLAC to carry out the steps leading to the establishment of such an authority.

Having clarified our charge regarding this matter, the AHLAC hereby offers the following recommendation with respect to a watershed authority. A brief discussion follows.

The AHLAC hereby recommends that the Town of East Hampton not petition the State Legislature to obtain extraordinary power to develop a watershed authority.

Since Lake Pocotopaug and its watershed exists entirely within the Town of East Hampton, the town already possesses the authority and ability to effectively regulate and manage the watershed in accordance with the powers and discretion granted all towns within the State of Connecticut. This can be done by the Town Council, by ordinance, and by the various land use boards and professional staff by enactment and enforcement of regulations and standards.

Date: December 14, 1989

To: Inland Wetland and Watercourse Commission  
From: East Hampton Conservation Commission

Report: Information Concerning the Environmental Consequences of  
Placing Sand on Near Shore Areas of Lake Pocotopaug

### History

The Lake Area Task Force (LATF) report, distributed in April, 1988, cited the acceleration of the lake aging process by the activities of man in the watershed as the most serious threat to Lake Pocotopaug's continuing recreational viability. The major processes causing lake aging are eutrophication and sedimentation. In its look at sedimentation, the report cited the creation and maintenance of sand beaches as a significant contributor to the sedimentation process. Several recommendations deal directly with the placing of sand. (Pages 36 and 37, LATF report.)

Since that time, because it is a regulated activity under Inland Wetland statutes, there have been numerous applications to the Inland Wetland and Watercourse Commission (IWWC) to place sand on beaches. Previously, permits were rarely sought, but with the heightened concern with the health of the lake and stepped up enforcement, it has become apparent that a policy is necessary for the IWWC to deal with these applications in a consistent and responsible manner. The purpose of this report is to respond to the IWWC's request for information to aid them with developing this policy.

In order to get some idea if the practice of placing sand on beaches is a problem, it is necessary to determine how much sand is being placed, how much is too much, and what effect this sand has on the lake's aquatic environment, and the affect on its viability as a recreational resource.

### Reports of actual amounts of sand placed

Sears Park: According to the Park and Recreation Dept., at least 200 truck loads of sand have been placed at Sears Park for beach maintenance since 1961, (probably much more.)

200 trucks x 27 tons/truck = 5400 tons (200 tons/year ave.)

Note: The Town of East Hampton has also placed sand regularly on other areas around the lake, such as Jones Beach.

Edgemere Condominiums: Edgemere had been placing 74 cubic yards of sand per year (until 1988) to maintain their beach.

74 cubic yards = 4 truck loads, or 112 tons/year

Lake Pocotopaug Association: At the August, 1989 meeting of the IWWC, the association reported that it placed 18 cubic yards of sand every 2 to 3 years.

18 cubic yards = 27 tons, or **11 tons/year** on average

#### Guesstimate of sand input due to beach maintenance

The above reports, as interesting as they are, do not give us a very good idea about the total amount of sand entering the lake on a yearly basis. To make some sort of (very) rough ballpark estimate, consider the following: The circumference of lake Pocotopaug is about 4.9 miles, with about 300 lake side lots. Say one out of four of those lot owners maintain their beaches by placing 1 truckload of sand every 3 years.

1 truckload = 27 tons of sand

$\frac{300 \text{ lots} \times 1/4}{3 \text{ years}} = 25 \text{ trucks/year, or } \mathbf{675 \text{ tons/year}}$

This estimate seems reasonable, considering that the above listed reports of sand actually being placed adds up to 323 tons/year, or about half of the guesstimate.

#### Sediment input to Lake due to erosion

Land is continually eroding. The input of sediment to the lake is dependent on the type of land use in the basin, and the total area of the basin. In pristine times, before Europeans had settled in the lake basin, the watershed was all forested. Erosion rates for forests are minimal. Now that part of the basin has been developed, erosion rates have sharply increased. From the information gathered for the Lake Area Task Force report, the sediment input to Lake Pocotopaug from land use is calculated to be as follows:

In pristine times:        **620 tons/year**

At present:                **5700 tons/year**

#### Field observations

The following points were noticed from field observations along the lake's edge:

1. Sand can be retained in level places by bulkheads, railroad ties, etc., at a distance from the water's edge.
2. Sand at or near the waters edge will move into the water due to wave action.
3. Sand placed on slopes near the shore will move down slope due to the action of rainfall and wind.
4. Most of the sand entering the lake will stay near the shore, in shallow water, (say, in 2-3 feet of water or less.) It seems to

move only gradually into deeper water. Finer material will travel to deeper areas.

5. Sand in the water near the shore tends to move parallel to the shoreline due to currents and wave action from prevailing winds and motorboat activity.

6. Concentrated overland flow of stormwater quickly erodes gullies into sand beach areas. Beaches along Lake Drive and North Main Street have serious problems in this respect, due to poor or none existent road drainage structures.

7. Small stone jetties which project out onto the water, perpendicular to the shoreline, effectively reduce movement of sand away from beaches and along the shoreline. In some cases they seem to catch and induce the build-up of sand in beach areas, mostly on the up-current side.

8. What goes in never comes out, unless we take it out.

#### Comments

The following is a summary of comments gathered from various sources. These sources include:

Charles Fredette, Water Resources Department, DEP  
Thomas McGowan, Lake Waramaug Task Force  
Dr. Lillian Harter, Fresh Water Ecologist  
Dr. Peter Rich, Limnologist, Uconn, Storrs  
Jerry Neborn, Soil Conservation Service, Litchfield  
Steve Gephard, Fisheries, DEP  
Brian Murphy, Fisheries, DEP  
Robert W. Kortmann, Ecosystem Consulting Service, Inc.  
Dr. Gregory Horne, Geologist, Wesleyan University

1. The placing of sand for beaches is a significant contributor to the sedimentation of lakes. Comments ranged from "A management plan should be instituted" (Fredette), to "the practice is very destructive, and should be prohibited" (Dr. Rich).

2. Sand generally used for beaches contains little organic material, and therefore doesn't add significantly to nutrient loading.

3. Sand can affect the quality of fish habitat. Some species prefer gravel areas to spawn. Species that could be affected are small mouth bass, sunfish, and perhaps trout.

4. The reclamation of sand washed into the lake for use on the shore could be a viable alternative. Since this sand will have some silt and organic material mixed in if it has been there long, turbidity could be a problem. Turbidity curtains should be used. Although this silt and organic material content may seem to make it somewhat less desirable in an esthetic sense for use on a beach, rainfall will quickly wash this lighter material away. In the case of Lake Pocotopaug, the ability to draw the level of the lake down would

allow reclamation with ordinary equipment with reduced turbidity because more of the bottom would be exposed. Equipment such as a tractor with a rake on back could be backed into the water to draw surface sand onto the shore. Only 6 inches of sand should be removed.

5. Sand placed on hardpan or other material which is comparatively impervious will tend to wash out more in heavy rains.

6. If sand is placed:

a. Use washed quarry sand. It should contain less than 10% silt and organic material.

b. Coverage need not be more than 6 inches.

c. Concentrated overland flow must be avoided. Berms or diversions should be used to effectively channel surface flow to safer points of entry into the lake to prevent rapid erosion.

d. Use of a larger grained sand may decrease it's movement, if a coarser sand is acceptable to beach users.

e. Sand should not be placed on sloping areas. Placement should be limited to 10 percent slopes or less. Steeper areas should be stabilized with healthy vegetation.

f. Feldspar sand should not be used, since it reacts with acid rain and breaks down into silt.

g. Jetties can be used to reduce dispersment of sand away from beach areas. However, they also disrupt the natural flow of currents along the shore, which may not be desirable.

#### What does it all mean?

Some means to put this information into perspective is needed. One could calculate how long it would take, using the above rates, to fill in the entire lake. But this would be meaningless, because the lake would cease being a viable recreational resource long before this happens. Perhaps a more reasonable approach is to consider a situation where the community may be compelled to consider a large scale dredging project. Since most of the solid material entering the lake is deposited near the shore in shallow areas, this is where the problem would most likely become a high visibility problem in the public's eye; when it becomes impossible to bring an ordinary motorboat up to a dock, or when it is necessary to walk out 100 feet to find water deep enough to comfortably swim in.

For this purpose, consider the following question: How long would it take to fill in a strip of shore line 100 feet wide, around the entire 4.9 mile circumference of Lake Pocotopaug? Assume the water now averages 3 feet deep in this strip, and that it becomes completely filled in to the point where it is dry land. (i.e., the shoreline is moved out 100 feet.) Also assume that 75% of the material entering the lake stays in the shallows.

At pristine rates, 620 tons/year

953 years

At present rates from land use alone, 5400 t/y

109 years

At present rates plus beach sand, 5400 + 675 t/y

97 years

Certainly, a problem would be perceived long before this 100 foot strip becomes totally filled.

These are, of course, very rough calculations that include a lot of assumptions. However, the trend is clear.

### Conclusions

1. Sedimentation is a serious threat to the long term viability of Lake Pocotopaug as a recreational resource. All practical means to curb the input of solid material into the lake should be explored and evaluated as to their cost effectiveness and implemented. It should be noted that increased future development in the lake basin will increase input rates. (Perhaps up to 50 to 100 percent with current zoning.)

2. Sand placed for the creation and maintenance of beaches is a significant contributor to the sedimentation of the lake, and, by itself would double the amount of material entering the lake in pristine times. This source of material is also the easiest and least costly to control. All other sources would require varying degrees of cost to individuals or the general public to control.

3. If sediment input is not delt with today, it may only be several generations before a large scale dredging program will be needed. Otherwise, recreational use of the lake will be substantially degraded.

4. The only "safe" place to place sand, (i.e., the only place where it has a reasonable chance of staying put,) is on level areas, away from wave action, with curbs or railroad ties to retain it.

The issue of placing sand on beaches is a question of balancing the desires of today with tomorrow's long term consequences of this practice. It has become fashionable and expected that a shoreline must be sandy, in spite of the fact that most of these sandy beaches were man made, not naturally occurring. This sand, as most people will agree, is a "nice" addition to a swimming area. However, it is not a necessity for the enjoyment of the shore. The long term consequences of this practice, however, will substantially detract from the enjoyment of the lake by future generations.

Therefore, it is our opinion that the recommendations of the LATF report concerning sedimentation be strongly considered in any policy making, including those concerning the placing of sand.



4

## APPENDIX B-3. SEPTIC SYSTEM MAINTENANCE MODEL ORDINANCE

(Prepared by the CT DEP)

### SECTION 1. Purpose

The purpose of this regulation is to ensure periodic inspection and pumping out of septic tanks, to prevent malfunctioning of septic systems which can create conditions causing the spread of disease. This regulation is promulgated under Section 19a-207 of the Connecticut General Statutes.

found that both inlet and outlet baffles were structurally sound and functioning properly. If I did not, I replaced faulty baffle or baffles with an acceptable PVC Tee baffle per Public Health Code requirements.

Signature\_\_\_\_\_

### SECTION 2. Septic Tank Maintenance Certificate

2.1 Requirement of Certificate. Any person who owns a building, residence, or other structure, which is served by an on-site sewage system and is occupied, either seasonally or permanently, must have a valid septic tank maintenance certificate issued in his or her name for that system.

2.2 Application for Certificate. To obtain a septic tank maintenance certificate, a person must file an application with the local director of health or his authorized representative on forms supplied by it. All applications shall state the applicant's name and address, and the address or location of the on-site sewage system. Each application shall also contain the following statement, which must be completed and signed by a septic tank pumper licensed with the State Department of Health.

I certify that on the\_\_\_\_day of\_\_\_\_\_, 19\_\_\_\_, I inspected the septic tank located at the address stated on this application, and I: (check one)

pumped all sludge and scum out of the septic tank,

found that the depth of sludge was less than 1/3 the depth of the liquid in the tank, and that the scum layer was more than 3" above the bottom of the outlet baffle; thus, I did not pump the septic tank.

2.3 System Map. An application for a septic tank maintenance certificate shall include a map of the system showing the location of the system and manholes or covers in relation to the building served. If such a map for the system is already on file with the local director of health from a previous application for that system, then subsequent applications need not include a map.

2.4 Application Fee. A fee of \$\_\_\_\_\_ shall accompany each application for a septic tank maintenance certificate.

2.5 Issuance. The local director of health or his authorized representative, shall issue a certificate to the applicant upon receipt of the fee and a completed application. The certificate shall include the applicant's name and address, the address or location of the on-site sewage system, and the date of issuance.

2.6 Validity. A septic tank maintenance certificate shall be valid for three years from the date of issuance.

2.7 Transfer of Certificate. When property served by an on-site sewage system is sold or given to a new owner, the certificate may be transferred to the new property owner. However, the new property owner must record his name and address with the local director of health or his authorized representative within 30 days after obtaining possession.

### SECTION 3. Enforcement

- 3.1 Responsibility for Enforcement. The local director of health or his authorized representative shall be responsible for enforcement of these regulations.
- 3.2 Inspections. The local director of health or his authorized representative, whenever they have probable cause to believe that a valid septic tank maintenance certificate is not held or that the application for a certificate contains significant misinformation, shall have the right, at reasonable time, to enter the property, question the owner, or dig up the ground and inspect the septic tank.
- 3.3 Orders. If the local director of health or his authorized representative determines that a valid septic tank maintenance certificate is not held, or if an inspection reveals that a septic tank has not been pumped, the local director of health or his authorized representative shall order the owner to file an application for a certificate and have the septic tank pumped out, if needed.
- 3.4 Issuance of Orders. Every order authorized by this ordinance shall be in writing. Orders issued under this ordinance shall be served on the persons responsible in a manner consistent with other health orders.
- 3.5 Hearing. Any owner receiving a written order shall be given an opportunity, within a reasonable length of time, for a hearing before the local director of health to object to the order. If the evidence indicates that, in fact, a violation has not occurred, the local director of health shall revoke the written order.
- 3.6 Penalties. A person neglecting or refusing to comply with a written order issued under this ordinance shall be fined not more than \$\_\_\_\_\_ for each offense. Failure to comply with each written order issued shall be considered as one offense.

### SECTION 4. Definitions

- 4.1 Local director of health - means and includes town, city and borough and local district director of health, local superintendent and commissioner of health and any other officer or person having the powers and duties of a local director of health as defined in sections 19a-206 and 19a-207 of the Connecticut General Statutes.
- 4.2 On-site sewage system - any system which treats and/or disposes of sewage underground on the same property where the sewage is generated or on another property per use of a legal easement, and includes a tank for the collection of solids.
- 4.3 Owner or Person - any individual, partnership, public or private corporation, unincorporated organization, trust, or other entity.
- 4.4 Certificate - written certificate issued by the local director of health or other authorized person.
- 4.5 Septic tank - any watertight tank used for the collection of solids in an on-site sewage system.

Note that this model ordinance has not been reviewed by the Attorney General's office for legal sufficiency and therefore should not be adopted without consultation with your Town Attorney.