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August 11, 1993

Larry Biegel
N.Y.S. Dept. of Environmental Conservation
21 South Putt Corners Rd.
New Paltz, NY 12561-1696

Re: Lake Mohegan: Town of
Yorktown Storm Drainage Project

Dear Mr. Biegel:

This will confirm my verbal complaint concerning the ongoing construction of a major storm water drainage system adjacent to Lake Mohegan, and which is being constructed to flow into the lake. I appreciate your taking the time to speak with me about my favorite subject.

The Project

As I mentioned, the project is located at the intersection of Lakeshore and Christine, on the East end of the lake. A map is enclosed for your convenience. A large diameter pipe is located what appears to be less than 100 feet from the lake, so as to allow several miles of storm water drains to be piped into the lake. The lot is very steep, about a 45 degree slope, facilitating water flow from the pipe into the lake. You have to see this to believe it.

The Lake District

We have conducted extensive research concerning the lake. As a member of the Mohegan Lake District, I have been active in water analysis, chemical application, fish stocking, weed harvesting and every manner of effort to try to save this lake. Ron Pierce, Jeff Rider and Terri Brockett can attest to our hard work over the past several years. We have given presentations at the N.Y.S. Federation of Lake Associations conferences; written for the "Waterworks" magazine, and for "Lake Line."

We have adopted tough wetlands laws here in Yorktown, but it is difficult to convince the Town to stop the Town from violating those law in spirit, if not the letter. We have banned

the use of fertilizers within 200 feet of the lake (but we now allow ten times that amount of pollution from a storm drain?); we have banned power boating because it stirred up the shallow bottom sediments; we have restricted any construction within 100 feet of the lake and the removal of buffer vegetation in this sensitive zone.

In short, we care.

The Impact

Our research data shows that the heaviest contributor of nutrients -- phosphorus and nitrogen -- to the lake is road runoff. Pertinent sections of a report to this effect are enclosed for your review.

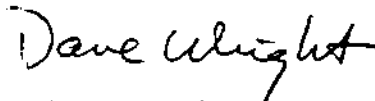
The problem is that this project will, if not immediately halted, irreparably set back the last five years of work on saving the lake. As you may know, the E.P.A. has concluded that stormwater runoff is very high in pollutants, and contributes approximately .15 pounds of phosphorus per curb mile per day. This amount of nutrient loading will simply kill the lake.

Failure to Mitigate

We have attempted unsuccessfully to convince the Town of Yorktown to take some steps to mitigate this environmental disaster, but to no avail. We have proposed perforation of the catch basins, and the pipes themselves, to allow at least some of the water to infiltrate. We have proposed a small retention or detention area.

Thank you for your assistance.

Sincerely,



David O. Wright

cc: Town of Yorktown and
Yorktown Conservation Board
Town of Cortlandt and
Cortlandt Conservation Advisory
Committee
U.S. Environmental Protection Agency

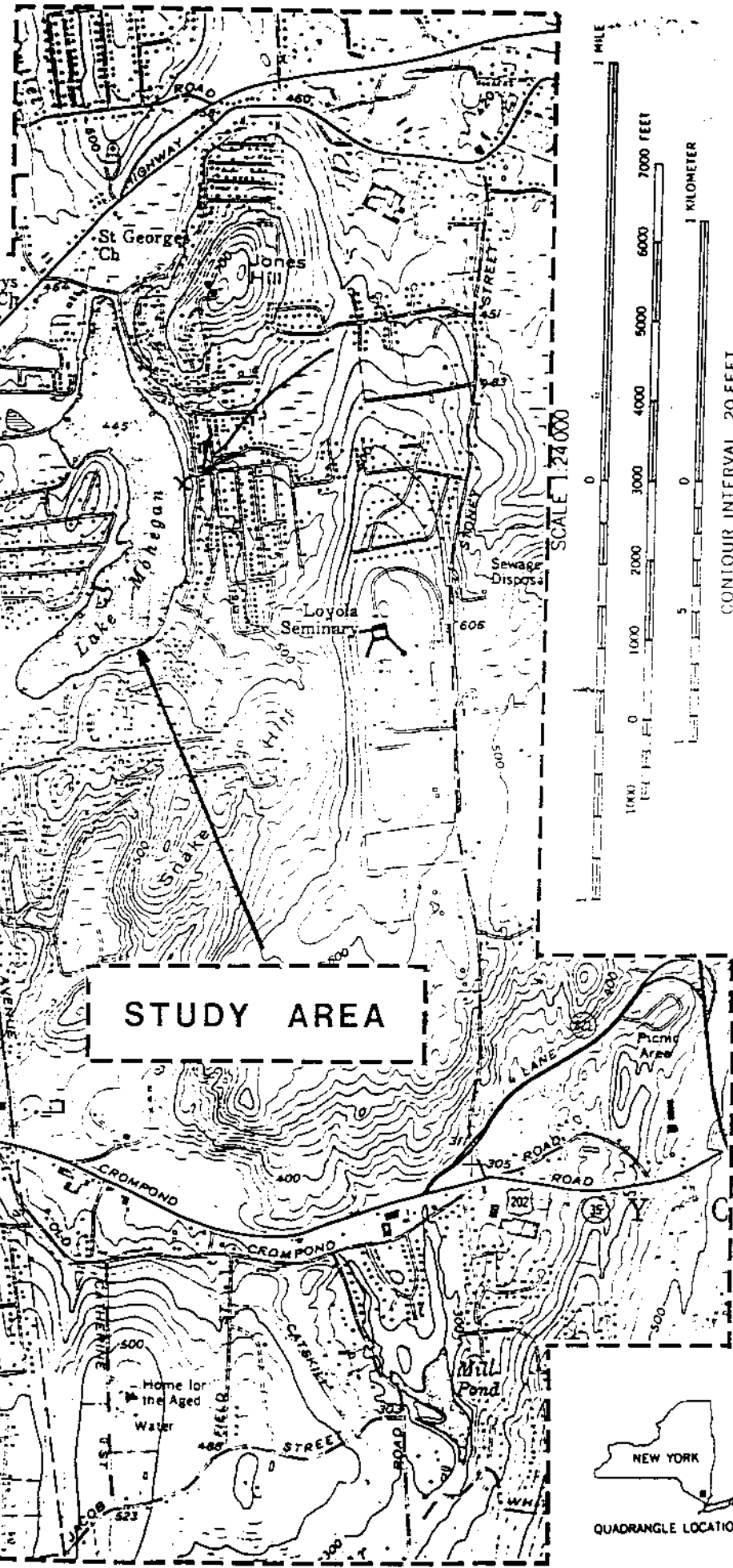
MOHEGAN LAKE, N. Y.

N4115—W7345/7.5

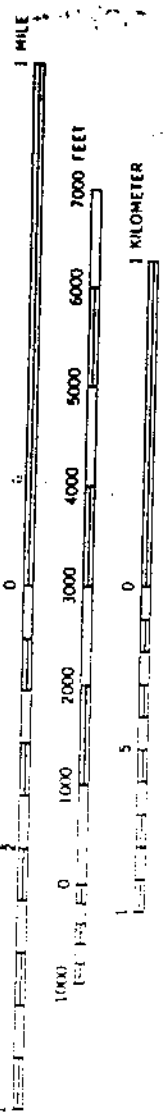
1956
PHOTOREVISED 1981
DMA 6266 IV SE—SERIES V821

20'
4975
4575
30'
4970

BEAR MTN BRIDGE 72 MI
IPEEKSKILLI 6266 IV SW
BEAR MTN BRIDGE 73 MI
K-SKILLI WUNC U.S. 61 2 4 MI



SCALE 1:24,000



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



NEW YORK
QUADRANGLE LOCATION

UTM GRID AND 1981 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

13°
231 MILS

0°47'
14 MILS

Figure 1

WATER QUALITY ASSESSMENT
OF LAKE MOHEGAN BASIN
OCTOBER 1982

Prepared for
Alfred Crew Consulting Engineers, Inc.
Ridgewood, NJ

Prepared by
K-V Associates, Inc.
281 Main Street
Falmouth, MA
November 1982

on-site systems (EPA, 1981). The graph is used with a minimum amount of data to make a preliminary determination on the need for further data collection. for on-site systems, U.S. EPA's National Eutrophication Survey assumes that 0.25 lbs (0.1 kg) per year of total phosphorus enters lakes from every person served by on-site systems within 300 feet of lakeshores. The nomograph incorporates the areal water load, the lake surface area, the lake's phosphorus retention coefficient, and observed water flow through the lake (see Appendix for detailed explanation). The fraction of phosphorus concentration due to the dark dashed line represents septic systems under the current observed number of on-site systems within the 300 foot boundary of the lake.

* Road Catch Basin Sources

The anticipated phosphorus load was based upon estimates by Sartor and Boyd (1974) of .15 lb P/curb mile/day. Subsurface leakage was assumed, as in the case with septic system flow to be roughly 10% of total loading. With Lake Mohegan, the total footage of 14,500 feet was found for roadways within the recharge area, multiplied times 2 and divided by 5,280 ft/mile to convert to curb miles.

Watershed Non-Point Source Loadings

The simple nutrient export model developed by Omernik (1977) was used to derive approximate phosphorus loadings from the watershed runoff of Lake Mohegan.

Additional Point-Source Contributions

Loading contributions were also calculated for the inflow from stream sources.

Table 6. Eutrophication Analysis - Table of Results

NUTRIENT LOADING BY SOURCE

Source	Phosphorus Conc. (mg/l)	Phosphorus Loading (lbs/yr)	
		Observed	Observed + Calculated
Non-point source			
Precipitation	.036		32
Groundwater	.071	89.5	
Septic system	.003*		11
→ Road catch basin Watershed			301
			266
Point-source			
Mohegan outlet		.5	.5
Seminary stream		8	8
		<hr/>	<hr/>
	Totals of Loading	130	618
<hr/>			
Critical (eutrophic)	.02		64
Observed (surface)	.064		204

*from Figure 6

groundwater contributions of phosphorus may be anticipated with sewerage of the eastern shore within the probable recharge zone. The elevated mean phosphorus level in groundwater (.070 ppm) may indicate contributions from septic systems and yard fertilizer beyond the 300 foot shoreline zone.

If anaerobic soil conditions are present, such as those found in many of the soil corings along the shoreline, the transport of phosphorus may be greatly accelerated. With 397 homes within the recharge area, the potential for phosphorus loading could be quite large. Using estimates of .25 lbs P/year/person (U.S.EPA, 1981) and an average of three persons/home, as much as 298 lbs P/year may be contributed.

Comparing this potential amount to that observed in the groundwater, only 30% of the total load may be assumed to be leaching under current conditions. This percentage agrees with the 26% phosphorus breakthrough calculated for the island location (station 29). The calculated loading is based on 112 homes and if the number were increased approximately four times to represent the worst of possible conditions, the loading would still be less than road plus watershed runoff.

It is still important to consider that if anaerobic conditions are allowed to worsen, as may occur with aging septic systems, the contribution by septic systems may become much more significant.

* Recommendations for Mitigating Actions

- 1) Removal of nutrients within pond:
 - a) Harvest vegetation
 - b) Dredge bottom deposits
 - c) In situ filtering/aeration

2) Control of road runoff to reduce nutrient loading

3) Clearing of channel of Mohegan outlet to increase water flow rate