

Canaan Source Water Protection Committee

April 5, 2006 Field Trip.

4:00 PM Meeting opened at the Cardigan Mountain School Maintenance Building.

Persons present were Heidi Brannon, GSRWA; David Shinnlinger, Chair; Jay Waldner, Vice Chair; John Bergeron, Secretary; Bob Reagan, selectman; Wally Medeiros, Water and Sewer Advisory Committee; Tim Jennings, Cardigan Mountain School; Joe Damour, Water Systems Operators; Scott Clang, GSRWA; and Milt Wilson, Water and Sewer Advisory Committee.

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We traveled by Cardigan Mountain's bus to various sites around Canaan Street Lake.

Site one was the watershed boundary north of the maintenance building, where we viewed Cardigan's extensive leach fields. These fields are located just outside the watershed of Canaan Street Lake.

Site two was to the Cardigan Mountain School well water pump house serving a population of 300.

Site three was an athletic field containing two bedrock wellheads. The protection area for these wells covers most of Canaan Street Lake and the adjacent lands on the east, north, and west.

Site four was an infiltration swale, which managed rain runoff and improved water infiltration into the soil.

Site five were the tennis courts, which was an example of a large impervious surface that interfered with water infiltration.

Site six was a wetland, which provides several ecological functions.

Site seven was new development, which had cleared many trees near the lake. Within 250 feet of the water, the Shoreland Protection Act provides several limits to minimize water body impact. Because Canaan has no zoning, site design is not regulated.

Site eight was a recovering forestry site, where no vegetation buffer had been left adjacent to the stream. This increases sedimentation.

Site nine was an inlet stream with considerable road runoff.

Site ten on Corno Road included a poorly maintained leach field sprouting pine trees, which will lead to failure, and beach erosion that is fouling the lake.

Site eleven was the Canaan Water Treatment Plant which is currently failing some water requirements due to the interaction of organic materials and chlorine.

Site twelve was the town beach, where road runoff, including salt are entering the lake. Canaan is unusual, in that gasoline engines are allowed on a water body also serving as a reservoir.

Site thirteen was a return to the maintenance building. The vehicle fuel tanks are close to a drain, which dumps close to the dam. This summer these fuel tanks are being moved to the north side of Backbay road, which will reduce this potential contamination source.

The meeting was adjourned at 6:50 PM by unanimous consent.

Thank you to Heidi for providing sandwiches, drinks, and chips. And thank you to Cardigan Mountain School for providing transportation, and opening their facilities.

These minutes were approved at the April 19th meeting.

Respectfully Submitted:

John H. Bergeron, Secretary

Canaan Source Water Protection Committee

Minutes of April 19, 2006 meeting:

7:00 PM Meeting opened at the Fire Station.

Staff member present: Heidi Brannon, GSRWA

Members present: David Shinnlinger, Chair; John Bergeron, Secretary; Bob Reagan; Jim Linn; and Bill Wilson.

Members absent: Jay Waldner, Vice Chair; Wally Medeiros, Tim Jennings, and Joe Damour.

7 PM Meeting opened and minutes of April 5, 2006 were approved as amended. This was followed by a discussion of committee membership and project status. It was agreed that the primary emphasis would be Canaan Street Lake watershed protection, but other Canaan water sources would be considered as time and resources allow. Heidi provided a map showing two potential gravel well sites, one near the transfer station, and one near the river west of Canaan village. However the installation cost, flow rate, and water quality of these sites is largely unknown. NH Granit Data Mapper maps showing the Canaan Street Lake watershed in 1998 and 2003 were also provided.

7:30 PM The field trip of April 5 was reviewed and this led to a discussion of ways to protect the Canaan Street Lake watershed. Items were explored and discussed but no conclusions were reached at this time. Should year round buoys or markers protect the reservoir area? There is concern that a snow machine could break through thin ice near the reservoir intake pipe. Should all jet skis be banned, not just those that meet the legal definition? Should there be a horsepower limit? Jet skis and high performance watercrafts disturb lake bottom organic material, which creates hazardous byproducts during water treatment (chlorinating). Should two cycle engines be banned? These engines introduce large quantities of oil and gas into the water. Should realtors and landowners be educated about watershed sensitivity and existing watershed and shoreland regulations? Should the existing state watershed regulations be revised to address current threats? These regulations are decades old. Should the town purchase watershed properties and conserve them? Should the town require a minimum lot size in the watershed, similar to the existing two acre Historic District requirement on the west side. Should watershed area septic systems have required periodic inspection and pumping? Failing septic systems is a major cause of water supply degradation. Should seaplanes be banned? While infrequently used, and not a major contamination source during normal operation, a catastrophic seaplane crash would have major repercussions, including system shutdown and long term pollution. Should swales and ditches be added to Fernwood Farms Road near Sucker Brook to catch road sediment before it enters the brook and the lake?

7:55 PM Canaan Street Lake Trophic Status & Water Quality Data were discussed. This included annual water test results going back several years. While the lake is generally in good condition, the challenge will be to retain that status as Canaan's population continues to grow. One area of concern is conductivity, which has been getting worse every year since 1988, and is now worse than the average NH lake. Conductivity is a measure of human activity and results from road salt and failing septic systems. The Canaan Street beach area could be graded to prevent road salt from entering the

lake. Cars and trucks could be prohibited from parking on or near the ice during the winter, since they carry salt on their undercarriage. Septic systems were discussed above.

8:30 PM Potential contamination sources were discussed. Fish parts and bait left on the ice or placed in the lake adds to the organic lake content, which should be avoided. Human activity at the beach is a potential contamination source and additional education may be appropriate. Fecal activity by very young children is difficult to control. Perhaps the lake host can assist with education. Fuel oil tanks not mounted on an impervious surface can lead to considerable contamination. Older properties may have raw sewerage piped into the lake. MtBE has not been detected yet, but could become a major problem. All known potential point contamination sources are associated with Cardigan Mountain School. But the bigger threat may be residential, lot development, forestry, recreation, and transportation non-point sources.

The meeting was adjourned at 9:15 PM.

Respectfully Submitted:

John H. Bergeron, Secretary

These minutes were approved at the May 3rd meeting.

Canaan Source Water Protection Committee

Minutes of May 3, 2006 meeting:

7:00 PM Meeting opened at the Fire Station.

Staff member present: Heidi Brannon, GSRWA

Members present: David Shinnlinger, Chair; Jay Waldner, Vice Chair; John Bergeron, Secretary; Bob Reagan; Wally Medeiros; and Tim Jennings.

Members absent: Jim Linn; Bill Wilson and Joe Damour.

7:00 PM Meeting opened with review and discussion of potential contamination sources.

7:15 PM Minutes of April 19, 2006 were approved.

7:20 PM Discussion of older septic systems close to Canaan Street Lake, which present a risk of contamination. A map showing the locations was provided. There are 31 developed lots with high-risk systems, 43 developed lots with negligible septic risk, and 24 undeveloped lots with no septic risk.

7:25 PM Discussion of Canaan Street Salt and Canaan Street Beach.

7:40 PM What are the major sources of contamination? Is it road salt? Is it septic failure? Is it organic matter disturbed by high performance watercraft? What protection ordinances are possible? Is there an emergency plan to respond to an oil spill? The lake host is currently restricted to performing weed inspection and education, but can that role be expanded in the future to include water source protection education? Should there be a no wake zone buffer zone between the reservoir and the main part of the lake? Should there be signs on the roads stating that you are entering a water supply protection zone?

8:10 PM Review of existing DES administrative rules for Canaan Street Lake. Can these be modified? What are the state's model rules? Should we educate landowners on the use of fertilizers?

8:25 PM A summary document was distributed by Heidi, and reviewed by the committee. This included potential contamination sources at or near Cardigan Mountain School, Crescent Campsites, Mascoma High School, and Indian River School. The summary was revised to remove the third sentence in the second paragraph.

8:40 PM Implementation discussion: Should the reservoir have markers in the winter as well as the summer? Should they be larger than present ones? What can we do to educate the public and landowners? What enforcement is possible? What additional signage is reasonable? Should Canaan Street have swales, ditches, and or culverts to minimize road salt? What can be done about septic failures, petroleum spills, and turbidity? Should we have a turbidity study? Should more frequent bacterial testing be performed in more locations? Is grant money available? Should test holes near the south end of the pond be undertaken as a solution to the organic matter problem?

Heidi will initiate work on one implementation item and options were discussed.

The meeting was adjourned at 9:05 PM.

Respectfully Submitted:

John H. Bergeron, Secretary

These minutes were approved at the June 7, 2006 meeting.

Canaan Source Water Protection Committee

Minutes of May 17, 2006 meeting:

7:00 PM Meeting opened at the Fire Station.

Staff member present: Heidi Brannon, GSRWA

Members present: David Shinnlinger, Chair; Jay Waldner, Vice Chair; John Bergeron, Secretary; Bob Reagan; and Tim Jennings.

Members absent: Jim Linn, Bill Wilson, Joe Damour, and Wally Medeiros.

7:00 PM Meeting opened with review and discussion of Canaan Water Department daily water test results for the past 12 months. Test data was from raw water, finished water, and town hall water. Turbidity was discussed and questions were raised as to any correlation with lake boating activity. Additional water testing for more parameters, in more locations around lake, and during peak human activity periods, such as summer weekends. Perhaps Volatile Organic Compounds should be sampled on summer weekends.

A workshop on updated FEMA flood maps will be held in Hanover on June 22nd.

8:00 PM A two page summary of Management Recommendations was provided by Heidi and discussion followed. Major points included public education, watershed boundary markers, boating restrictions, stormwater control, septic system regulation, shoreland protection, reservoir markers, emergency spill response, land conservation, no wake zones, and health ordinance.

The meeting was adjourned at 9:05 PM.

Respectfully Submitted:

John H. Bergeron, Secretary

These minutes were approved at the June 7, 2006 meeting.

Canaan Source Water Protection Committee

Minutes of June 7, 2006 meeting:

7:00 PM Meeting opened at the Fire Station.

Staff member present: Heidi Brannon, GSRWA

Members present: David Shinnlinger, Chair; Jay Waldner, Vice Chair; John Bergeron, Secretary; Bob Reagan; and Wally Medeiros.

Members absent: Jim Linn, Bill Wilson, Joe Damour, and Tim Jennings

Also in attendance were Scott Clang of GSRWA and Paul Susca, Source Water Protection Coordinator for NH DES.

7:00 PM Minutes of the May 06 and May 17 meetings were read and approved.

Discussion of the two page document "Canaan Source Water Protection Committee Possible Management Recommendations – Canaan Street Lake 5/17/06" took place. This document had been discussed at the previous meeting, but Paul Susca was able to provide additional information, guidance and recommendations. Also reviewed was a single page document "Committee Suggested Recommendations for Watershed Protection Plan, 6/7/06", which was provided by Heidi. Paul made the following comments on both documents. The current DES regulation (Env-Ws 386) which protects the watershed and reservoir can be revised if the town demonstrates a need and the selectmen support the change. Such changes could include increased buffer zones, boating restrictions, or reservoir boundaries for example. Buoys need approval of the NH Department of Safety and any wintertime marker placed on the ice requires the approval of the NH Fish & Game Department. The preferred method of placing restrictions in the watershed area is through the use of zoning restrictions. Shoreland protection is more commonly implemented than watershed protection. By ordinance the town may create shoreland protection regulations which are more restrictive than DES regulations. DES Sourcewater Protection grants could be used to support a septic system ordinance and/or tracking program. As a start we should complete a septic system census for homes located within 200 feet of the lake. Grants are also available for storm water management programs, such as controlling Canaan Street drainage. The state has land acquisition grant money available for available parcels. The current emergency plan is not comprehensive and requires an update. The town should complete a nutrient loading and build out analysis for the Canaan Street Lake watershed. It is essential that any proposed change or restriction be justified by adequate studies, most often requiring consultants. Proposal support by the town and the selectmen is also required.

DES has watershed outreach project funding at the \$2K level. They also have a November first deadline for \$15K studies funded at 100%. And there is a 25% state share on land acquisition grants.

Not all 2 stroke engines are dirty, as there is a fuel injected variety which runs clean. Nancy Kinner of UNH Environmental Research Group has done some studies on the impact of boats on water quality.

The meeting was adjourned at 9:10 PM.

Respectfully Submitted:

John H. Bergeron, Secretary

These minutes were approved at the July 19, 2006 meeting.

Canaan Source Water Protection Committee

Minutes of July 19, 2006 meeting:

7:05 PM Meeting opened at the Fire Station.

Staff member present: Heidi Brannon, GSRWA

Members present: Jay Waldner, Vice Chair; John Bergeron, Secretary; Bob Reagan; Tim Jennings; Bill Wilson; and Wally Medeiros.

Members absent: David Shinnlinger, Chair; Jim Linn; and Joe Damour.

7:05 PM Minutes of the June 06 meetings were read and approved.

Events at the Canaan Lake Association annual meeting were discussed. The association had passed a motion supporting most items in the current town master plan. Support was expressed for shoreline buffers, additional public shoreline, watershed protection, improved water quality, reduced water pollution, and improved septic system management. Improvements to the boat launch were not supported due to the adverse effect of increased boating activity. They did not intend to reduce or eliminate powerboats, but rather to discourage any additional impact on lake water quality.

Having discussed buoys at the CLA meeting, the meeting discussed it also, and it was reported they would most likely be installed within a week.

Heidi's Power Point presentation to CLA was well received. She was thanked for her time and efforts at CLA.

7:15 PM Heidi provide a preliminary protection plan section "IX. Recommendations for resolving Local Water Quality Concerns". The format, organization and style of this were discussed in an effort to determine the best approach for clear presentation. This proved difficult and required much discussion. Topics of discussion included road salt, septic systems, boating, stormwater, land use, site development, wetland buffers, education, additional studies, storm drainage, erosion, improved road standards, shore setbacks, reservoir protection, water quality, nutrient loading, enforcement.

The meeting was adjourned at 9:30 PM.

Respectfully Submitted:

John H. Bergeron, Secretary

These minutes were approved at the August 2, 2006 meeting.

Canaan Source Water Protection Committee

Minutes of August 2, 2006 meeting:

7:00 PM Meeting opened at the Fire Station.

Staff member present: Heidi Brannon, GSRWA

Members present: David Shinnlinger, Chair; Jay Waldner, Vice Chair; John Bergeron, Secretary; Bob Reagan; and Tim Jennings.

Members absent: Wally Medeiros; Jim Linn; Bill Wilson; and Joe Damour.

7:00 PM: A booth for Old Home Day celebrations was discussed. Documents to be reproduced, times for individuals to staff the booth, equipment required, and booth location were discussed. Heidi will arrange for water/soil/pollutant demonstration equipment.

7:25 PM: Discussion continued from the last meeting about the objectives, content, order, and structure of the water protection plan and recommendations. Based upon our comments, Heidi will revise the plan and email an update to us before the next meeting. We discussed future activities for the committee, once the plan is published. This may involve consultants, scientists, grant applications, and more volunteer effort.

The meeting was adjourned at 9:15 PM.

Respectfully Submitted:

John H. Bergeron, Secretary

These minutes were approved at the August 16, 2006 meeting.