APPENDIX E2

COMMENTS AND RESPONSES

CANNING LAKE PROPERTY OWNERS ASSOCIATION

CANNING LAKE PROPERTY OWNERS' ASSOCIATION INC.

August 15, 1989

Mr. Kevin Walters, P.Eng.
297A Ontario Street
Toronto, Ontario
M5A 2V8

Dear Mr. Walters;

At the Annual General Meeting of our association held on July 9, 1989, the following resolution in regard to the Dysart sewage treatment plant was unanimously passed by our members:

"The Canning Lake Property Owners' Association is opposed to any changes to the Dysart sewage treatment plant or related facilities that do not result in a net decrease in effluent discharge to the lake chain."

Our interest is in ensuring there is a reduction in the nutrient loading of the lake system.

Since you were at our July 9, 1989 meeting and have an appreciation for the wishes of the association, please act as our representative at the public meeting in Haliburton on August 15, 1989 regarding the Dysart sewage treatment plant.

Yours truly,

Gary Kapac

Gary Kapac,
President,
Canning Lake Property Owners' Association
17 Wrenson Road
Toronto, Ontario
M4L 2G5

c.c. Kashagawigamog Lake Association, John Puffer

297A Ontario Street
Toronto, Ontario
M5A 2V8

September 18, 1989

Totten Sims Hubicki Associates
1500 Hopkins Street
Whitby, Ontario
L1N 2C3

Attention: Mr. R.B. Baker, P.Eng.

Dear Sir:

Thank you for the copy of your report on the Dysart treatment plant expansion proposal. I have reviewed the report and have a few comments, observations or questions which I hope can either be answered or will assist with the future progress of this project. I will address them essentially as encountered in the report.

A.1 On page 4-4, paragraph 4.1.2 refers to Haliburton in 1985 having 250 connections with an equivalent population of 750, yet table 4.3 below has this data under 1986. Regarding tables 4.4 to 4.6, how often was this data collected, i.e. how representative is it of the month it represents, and why do some months show no data?

A.2 Regarding table 5.1, I elected to check all drainage areas as these are quite critical to the evaluation, and are relatively easy to check. The Drainage Area row, I believe, should be labelled "sub-drainage area" or some such title. My areas, using the 1:50,000 maps I presume you have used, are 4.5, 42 and 73 km^2 respectively (to the nearest km^2). The South Basin figure might be worth your double-checking as there seems to be a difference of about 15% here.

A.3 Section 5 presumably summarizes Appendix 5, for which I have comments following. Section 6.1 on the page of the same number contains an unexplained apparent incongruity between the present growth rate of 15% and a "selected" future rate of 4%. This says that the previous 5 year population doubling will now take 20 years to re-occur.

In Section 8.2.3, I believe a very cursory and unfair evaluation of individual disposal systems is given. The description "expensive" is used but no figures are given. Any one of the sewage treatment plant alternatives can certainly be called "expensive". Reference to the MOE survey of septic systems on the lake is misleading. The geotechnical conditions have relatively little to do with the survey results, as the survey identified only the disposal system (or lack of the same) used, and did not evaluate their performance, or identify any functioning unsatisfactorily. The results were typical for any lake studied. As a result of the inspection, all unacceptable systems were required to upgrade to "satisfactory", rendering any of the quoted figures quite meaningless. You could have stated instead that "all systems on Kashagawigamog were successfully upgraded to satisfactory as of 1982".

A.4

While I agree that individual disposal systems are probably not the answer for an expanded village, they could well be for the resorts.

Regarding the bottom of page 8-6, aware that the MOE has guidelines for "dry-ditch" disposal of sewage effluent, I had put forward the possibility of foreshortening the forcemain to the Burnt River by discharge into the small nearby watercourse leading thereto, as a variation to my primary suggestion of conveyance directly to the Burnt River. Your wording tends to suggest that this was the main focus of my letter.

A.5

Regarding your profile for the Burnt River forcemain (following page 9-16), from visual examination and from the 1:50,000 topographic maps, I suspect that the high point in the main should actually be about 10 m lower than shown. Certainly the maps show the Burnt River to be below elevation 1100' (335 m) whereas your profile places it at about 340 m. This may or may not affect your cost estimate. Please dismiss this comment if you have established your elevation through survey.

A.6

Regarding table 9.5, with the Burnt River as recipient, does the polymer storage etc. item still seem a likely required option? i.e. would 160 kg/year still be required.

A.7

On pages 9-24 and 9-25 you refer to a 11:1 dilution ratio, which you have based on a 110 km^2 area as shown on figure 9.6. This area is incorrect, as tributary Haas Creek has been excluded as well as a portion of the McCaslim Lake watercourse (see attached map). Your area did, however, include Minnicock Lake, the outlet for which I cannot conclusively determine from the topo map. It appears equally possible that it drains south, out of the upper Burnt watershed. The local MNR office may have a whiteprint depth contour map of this lake which may indicate the outlet location.

For the time being at least, adding in the aforementioned areas but leaving out Minnicock Lake (and adding a bit more area at Donald) results in an area of 121 km^2. It should be noted too that only about 1500 m downstream of the proposed discharge point, Koshlong Creek, with a drainage area of about 36 km^2 enters the stream, resulting in a total area of 157 km^2, coincidentally the same as the Drag River area for alternative 1. Further downstream, of course, more area is steadily gathered until 208 km^2 is collected just above the confluence with the Drag River. Adjusting your 7Q20 flow then for an area of 157 km^2 results in a dilution ratio of about 16:1, with the 121 km^2 initial dilution at about 12:1.

A.8 My comments for Section 9 are as for Section 5 except that, on page 9-44, reference is made to "shallow overburden" and its effects on tile beds. I saw no documentation on the depths of overburden in the subject areas, but I am aware that frequently in this basin it can be quite substantial. The lake chain occupies a trough in the bedrock surface which is as likely to be occupied by drift as it is water.

A.9 In Appendix 4, data for the various water bodies is contained. I was a little surprised by the relatively high phosphorous and TKN values for Head Lake as compared to Grass Lake. The answer may lie in the Head Lake sampling location near the north end of the lake, where two significant streams enter, draining a large area of swamps, marshes and beaver ponds (drainage area about 25 km^2). Also, as the Drag River enters the lake, it takes a sharp southward turn just below the lake surface, possibly leading to some short circuiting. As an item somewhat aside, in the past I have sounded Head Lake through an on-board depth finder and noted a couple of errors in the Lands & Forests contour map. Mainly, the 5' and 10' contours do not extend nearly so far west as shown. I have marked up a copy of this map (attached) showing revised approximate contours and the inlet configuration of the Drag River. (The deepest point <u>is</u> about where shown and is 18' as noted). This information could be of some use in checking the mean depth or lake volume if required.

A.10 Appendix 5 (report by Senes): On table 1 there appears to be some discrepancy between the data in the table and that provided in the preceding Appendix 4. A check shows the Secchi disc data is OK, and the chlorophyll <u>a</u> data essentially OK except for the 1976 North and South Kashagawigamog figures, for which it appears should read 2.8 and 2.1 respectively. These are likely typos. With the total phosphorous data, however, it is not clear whether this is for the whole water column or just the euphotic zone. Sometimes the table lists the euphotic data, occasionally the bottom data, but frequently it is not clear where it is from. The following table lists the data as I averaged it out using either the euphotic zone or the whole water column. Certainly, with adding and averaging there is bound to be some errors (on either side).

Lake	Year	Total P Euphotic	Total P Avg. of Both Zones
Head	76	11.0	--
	85	14.0	12.5
Grass	76	12.1	13.6
	77	15.0	20.9
	85	12.0	15.5
North Kashagawigamog	76	12.7	13.1
	77	10.0	10.5
	85	9.0	19.5
South Kashagawigamog	76	11.0	9.9
	77	12.6	10.7
	85	7.5	8.8

The net effect of the revised table 1, when considering the bottom water phosphorous as well, is to indicate that Head Lake has experienced no significant change, while Grass Lake and both Kashagawigamogs appear to have deteriorated somewhat. No conclusion can really be drawn from such limited data however.

A.14. Section 3 - Phosphorous Load Estimates - Page 4: Regarding the flux from precipitation, I do not agree that a 2% to 3% contribution should be ignored as negligible; especially in light of the manner in which the "anthropogenic" load is determined. More on this follows.

Page 5: I note here that you estimate that 830 kg/year P originates from Head Lake. On an areal basis, this amounts to about 6 mg/(m^2/year) whereas further downstream it is claimed that 4.0 is typical of the watershed involved. This seems to be an incongruity. The watershed upstream of Head Lake is a sparsely inhabited forest with a large lake, Drag Lake, accepting most of the drainage. Granted, the village of Haliburton is within this area, but it is mainly sewered. The Head Lake watershed should ideally be discretized somewhat to account for the P retention of Drag Lake, and compare this against the measured value for Head or Grass Lake. I should point out as well that the Drag watershed is not particularly an igneous rock basin, but consists largely of meta-sediments including sandstones and marbles. Marbles weather to produce a considerably richer soil. Much of the area is also covered with glacial drift of sands, silts and clays along with occasional drumlins and eskers. A.11.

Furthermore, from Grass Lake on downstream, the watershed becomes increasingly populated, and includes agricultural lands (or golf courses) amounting to, I would estimate, 7% of the north basin sub-watershed and 5% of the south basin sub-watershed. In addition, considerable areas of wetlands and beaver ponds are contained in the basin. I suggest then that 4.0 mg may not be suitable for estimating the natural flux -- especially south of Haliburton.

A.12. The methodology for establishing the anthropogenic load concerns me. After estimating a total load in the lake basin, and after subtracting a very light estimate of the natural flux and a sewage plant contribution as well, the result is a significant remainder. This is then simply assigned to anthropogenic loading. This is then "substantiated" by selecting a very low retention of P in the cottage and resort/commercial septic systems and then, not surprisingly, under comparison they match quite closely.

While it is certainly difficult if not impossible to select the "correct" representative value for local septic system retention, this is a subject for which I have maintained some interest for years. I have come to the conclusion that it must typically be in the very high 90's percentage range. This is gathered from the following basic observations, based on assembled secchi disc and chlorophyll a data:

1) Lake trophic status in Ontario can be predicted by basin and lake characteristics. Anthropogenics (in terms of cottages and resorts) do not seem to bear any correlation.

2) Lakes without treatment plants in their watersheds do not seem to show any trend or change in trophic status, regardless of degree of development.

A.13. 3) Underdeveloped lakes experiencing development do not undergo any trophic change -- to date.

4) Lakes showing water quality problems unexplainable by geographical characteristics have treatment plants in their watersheds.

5) Disappointingly, lakes with MOE inspected and corrected septic systems do not exhibit any improvement thereafter.

As a prime example of this, we can look at a very small shallow lake with a very low flow-through having a very high density of cottages and permanent homes, almost all with serious substandard septic systems, and all of which has largely been in existence for 80 years or more. That lake is Musselman

Lake north of Stouffville. Notwithstanding all of the foregoing and the fact that it lies in an area of relatively rich productive soils, that lake has surprizingly good water quality as attested to by recent MOE study. I suggest that to collect all the sewage here and place the treated effluent in the lake, you would instantly create a serious problem.

As a local case in point, we can take a closer look at the Haliburton case. Prior to 1976, we had a sizeable village entirely on septics. By the approach used in this report, an improvement in water quality would undoubtedly be predicted for the after-installation of the plant. In fact, we did not see any improvement, and instead found a sudden deterioration. In spite of how unreliable the existing Self-Help data may be considered, we have many people attesting to this change, myself included. Yet we have a very good plant here removing up to 90% of the phosphorous. The indications are then that the overall removal efficiency of the septic system in Haliburton must have been significantly better.

Returning to the report, the remaining unaccounted for phosphorous was labelled "anthropogenic". I believe that it should have been labelled "anthropogenic and precipitation". By previous account, precipitation
A.14 accounts for 2-3% of the total loading. In the Grass Lake instance, for example, our remainder, 53.5 kg/year, constitutes about 5% of the total loading. Precipitation at 2.5% then would amount to about half of this remainder amount and thus the anthropogenic load is really only half the quantity given.

Eighty-six cottages are estimated for Grass Lake in the report. A local cottager has counted the cottages here and arrived at 59, assuming most of those in the narrows leading to Kashagawigamog Lake are not included. I will
A.15 also note that the cottage numbers given for Kashagawigamog appear light given the relative lake sizes, notwithstanding the reference to 491 cottages in the early 1980's survey. You may wish to verify this figure.

In the South Kashagawigamog basin, the resorts have been "allotted" their phosphorous contribution, but no allotment methodology is given. It appears that the same approach used for Grass Lake may have been used. The information given in sections 3.2.2 and 3.2.3 of the main report should be built upon to justify the contributions. Referring to this table, as it affects Grass Lake, I would expect that a system such as the Lakeview Motel should contri-
A.16 bute very little phosphorous. Clearly, the properties listed in section 3.2.2 a), b), f), g) and i) presently contribute nothing. Downstream, Pine Stone Inn should also have a close-to-zero contribution, as spray irrigation is an excellent way to distribute the phosphorous to the local terrestrial biota.

Further to this, Pine Stone likely relies on this effluent at least in part to fertilize its golf course. If this effluent becomes unavailable, will it then have to be replaced with fertilizer? If so, a net increase in phosphorous from this resort would certainly result from sewage disposal in a plant which discharged to the lake. I trust that the Highland Hills Estate and Old Slipper property were recognized as contributing nothing at present as well.

Information on how the other resorts elsewhere on the lake dispose of their sewage would be helpful in substantiating their allotted phosphorous contribution.

A.17. Regarding the bottom of page 7, this in no way substantiates the apportioning of the phosphorous loads.

Of course, I take exception to the unsubstantiable statement that maintenance of phosphorous levels requires the connection of the resorts to the plant, and its reiteration in Section 9 of the main report.

The net effect of considering of all the foregoing, I suspect, would be to account for most of the phosphorous without any significant anthropogenic loading -- in spite of a possible greater number of cottages on Kashagawigamog, once again suggesting a high efficiency of private disposal systems.
A.18. That this possibility exists is attested to in the admissions on page 12. I wonder what the results would be of a similar study that intentionally minimized the anthropogenic loading. The actual situation, of course, lies somewhere between, but it is my assertion that it is closer to the minimum condition. To ignore this possibility will risk the probability of the Kashagawigamog Lake chain joining the ranks of Muskoka Bay, Fairy, Sturgeon and Rice Lakes, and the Bay of Quinte and others.

The Canning Lake Property Owners Association and myself appreciate having had the opportunity to comment.

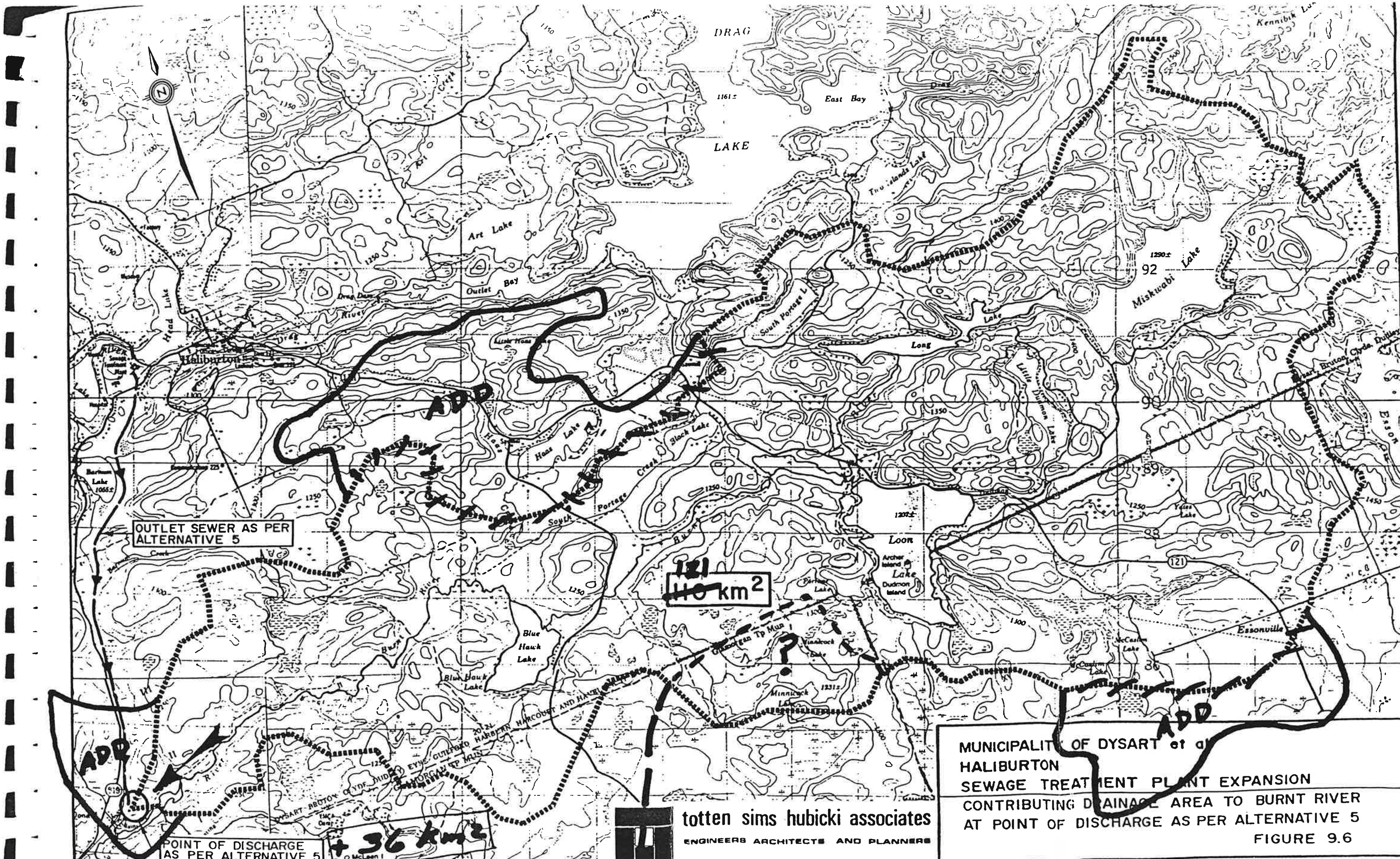
Yours very truly,

K. Walters

Kevin Walters, P.Eng.

KW:cy

cc: MOE - Mr. R. Shaw
- Mr. J. Beaver



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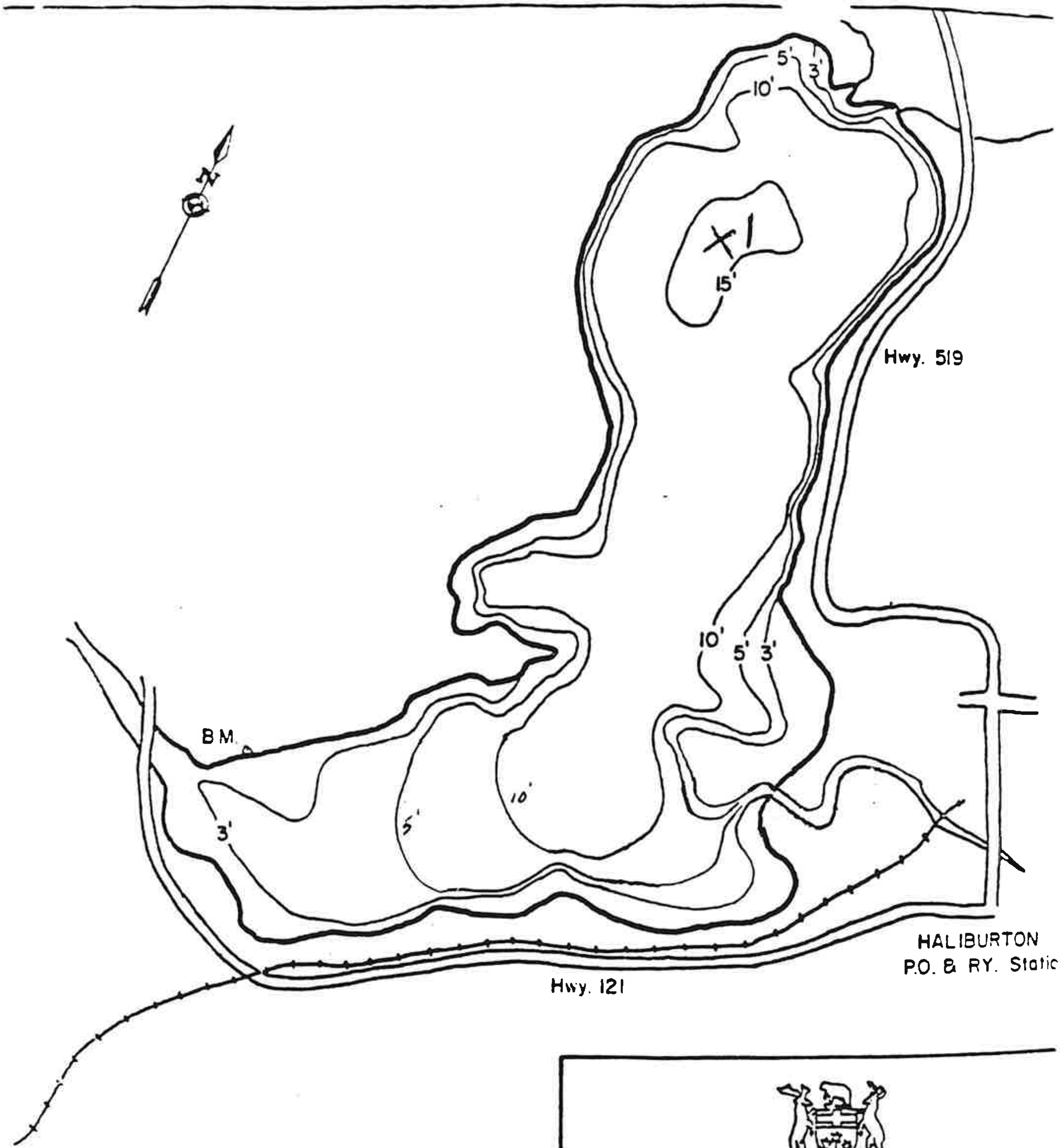
ENGINEERS ARCHITECTS AND PLANNERS

MUNICIPALITY OF DYSART et al
HALIBURTON
SEWAGE TREATMENT PLANT EXPANSION

CONTRIBUTING DRAINAGE AREA TO BURNT RIVER AT POINT OF DISCHARGE AS PER ALTERNATIVE 5

FIGURE 9.6



ONTARIO

DEPARTMENT OF LANDS AND FORESTS

HEAD LAKE

District: Lindsay	Township: Dysart
Lat: 45° 03'	Long: 78° 31'
Area: 153.30 acres	Vol: 1310.95 acre feet
Elevation: 1050 feet	Perimeter: 2.94 mils
Scale: 8" = 1 mile	Depths shown in feet
Survey date: Oct.28-29/68	Drawn by: P.F.E.

APPENDIX E2

COMMENTS AND RESPONSES

CANNING LAKE PROPERTY OWNERS ASSOCIATION

A. Reply to Comments by Kevin Walters dated 18 September 1989 (Exhibit A)

A.1 The Haliburton Sewage Treatment Plant has 250 connections with an equivalent population of 750 in 1986, as shown in Table 4.3.

The sewage characteristics as shown in Table 4.4 to 4.6 were obtained from the MOE Municipal Utility Monitoring Program sheet. The data is one sample per month, however, some months have no data.

A.2 The drainage area in Table 5.1 is the same area of the local watershed area as shown in Table 2 of the Senes Report in Appendix 5. We have checked our files and they revealed that the 84.1 km^2 of the area includes the south basin of Kashagawigamog Lake and Canning Lake.

A.3 As noted in page 6-2, a growth rate of 4.0% was selected after consultation with the Municipality.

A.4 It is agreed that any one of the sewage treatment plant alternatives can certainly be called "expensive". However, the individual sewage system is not only expensive to construct and maintain, it also presents a health hazard and pollution problems when not operated properly.

The statement on page 8-2 is to demonstrate the private sewage system had not been operated properly in the area which had been surveyed by the MOE. Given the fact that the private sewage system had not been operated properly in the area, we would not recommend such a system for the project.

A.5 It is agreed with your statement that the few metre elevation difference will not affect the cost estimate.

A.6 The MOE Central Region has stated that a total phosphorus loading of 160 kg/year to North Kashagawigamog Lake is required for any new or expanded discharging upstream of or directly to this lake. Thus, it appears that the polymer addition may not be required for the effluent discharge to the Burnt River option.

A.7 It is concurred that the drainage area as shown in Figure 9.6 should be 121 km^2. This would result in the initial dilution ratio of 12:1.

A.8 Although the variable depth of overburden exists in the study area, it was the intention of the report to outline in general the effects of shallow depths of overburden to the tile beds.

HALIBURTON SEWAGE TREATMENT PLANT EXPANSION
CLASS ENVIRONMENTAL ASSESSMENT PHASE I AND II REPORTS
MOE PROJECT #3-0706

A. Reply to Comments by Kevin Walters dated 18 September 1989 (Exhibit A)

A.9

The accepted scientific procedure is to sample a lake at midlake location, which corresponds to the deepest point. The location of the sampling station is particularly important, if the lake is sampled only at one location. Lake sampling was performed by the Ontario Ministry of the Environment and the sampling location is clearly stated in the summary report.

There is no evidence that the water column in Head lake is poorly mixed due to the location of the inlet and outlet streams. This is best evidenced by the water quality in the outflow (Drag River), which is, as expected, similar to the water quality in Head Lake. Furthermore, due to its shallow depth, Head Lake does not stratify during the summer. Evidently, the water quality in Head lake is influenced by runoff from the Hamlet of Haliburton. The contribution of urban runoff to the phosphorus mass flux is well known. The phosphorus load depends on a number of factors (including percent impervious surface, land slope, animal population, precipitation duration and intensity, antecedent conditions) and phosphorus concentration in the runoff which may range from 0.35 mg/L to 3.5 mg/L (Uttomark *et al.*, U.S., EPA Report, EPA-600/3-74-020).

A.10

The letter from Mr. Walters includes data on a table on page 4. The table lists concentrations of total phosphorus (presumably as microgram per litre, the units are not stated) in the euphotic zone and the average phosphorus concentration in both the euphotic and hypolimnetic zones, respectively. Chapra (1983, Engineering Approaches for Lake Management, Data Analysis and Empirical Modelling, Butterworth Publishers) has stated the importance of a scientific approach to data analysis. An important aspect of the scientific methodology is the statistical analysis of the data. Based on such statistical analysis,the best statistical correlation has been found to be between the epilimnetic and metalimnetic phosphorus levels and phytoplankton biomass

(Lakeshore Capacity Study, Ontario Ministry of the Environment, 1986). This corresponds, albeit approximately, to the euphotic zone. Hypolimnetic phosphorus levels can be influenced by back-mixing from sediments. In any case, phosphorus below the metalimnion is not available to phytoplankton in a stratified lake. In the analysis performed by SENES, epilimnetic total phosphorus concentrations were employed in the evaluation of the current loading as well as for predictive purposes.

A.11

As stated implicitly on page 5 in Appendix 5, the annual load to Grass Lake can be calculated from measured observations, i.e. the flow and phosphorus concentration in the Drag River. In any scientific analysis, measurements should take precedence over predictive analysis. The calculated areal contribution of 6 mg/(m^2.y) for the Head Lake watershed is not surprising, since the watershed includes storm and snowmelt runoff from Haliburton, which would contribute significantly to the areal load. One may argue about the "correctness" of the 6 mg/(m^2.y) load. In any case, Head Lake was not modelled explicitly, since it is upstream of the sewage treatment plant outfall and will not be affected by the proposed extension to the plant.

Admittedly, there is some uncertainty involved in estimating the areal phosphorus contribution from the watersheds draining to Grass Lake and Kashagawigamog Lake. The use of higher watershed areal contributions as suggested by Mr. Walters would give somewhat lower anthropogenic loadings, to the lakes but would not change the conclusions of the report substantively.

A.12

We do not believe that the methodology employed to calculate the anthropogenic phosphorus load is conservative in the least. The analysis is based on an average phosphorus retention coefficient of 0.6 in the septic systems which is equal to the mean value of the data reported on Table 29 of the Lake Capacity Study: Trophic Status report (Dillon *et al.*, 1986). (Note the value of 0.6 was calculated based on eight of the ten values reported in the table; two low values of 0.01 and 0.04 were excluded as their inclusion in the analysis would lower the overall average phosphorus retention coefficient for septic systems to 0.5). As noted by Dillon *et all.* (1986) the total phosphorus retention on soils in Ontario ranges from 1% to 99% with the fine grained soils having a high clay content being more effective in the attenuation of phosphorus than sandy soils or soils with high gravel content. Hence, the usage of a phosphorus retention coefficient of 0.6 cannot be considered to be conservative. Furthermore, the estimation of the anthropogenic phosphorus load using the factor of 0.6 compared well with anthropogenic loads calculated by difference analysis as explained in the report.

A.13

As noted in A.12 above, data reported on phosphorus retention in septic tile filter beds indicate a range of values anywhere from 1% to 99% depending on soil characteristics and other factors. The scientific literature does not support a claim of greater than 90%.

The basic observations of Mr. Walters concerning phosphorus loading effects on water quality have been summarized in point form below:

"1) Lake trophic status in Ontario can be predicted by basin and lake characteristics. Anthropogenics (in terms of cottages and resorts) do not seem to bear any correlation."

Comment: This observation is contradicted by voluminous scientific evidence collected in Ontario (Lakeshore Capacity Study, Dillon *et al.*, 1986; Dillon, P.J. and Ringler, F.H., 1974; J. Fish. Res. Bd. Canada, 32, 1951; to cite a few examples).

"2) Lakes without treatment plants in their watersheds do not seem to show any trend or change in trophic status, regardless of degree of development."

Comment: Again, research during the past twenty years indicates otherwise. For example, the study by Dillon *et al.* (1978) examined the benefits of phosphorus removal at Gravenhurst Bay over a period of 8 years. Chapra *et al.* (1983, JWPCF, 55, 81-91) discussed the effectiveness of phosphorus treatment in the Great Lakes Region. In addition, several well known U.S. EPA case studies (U.S. EPA 440/5-81-010) indicate the benefits of phosphorus removal by waste treatment practices.

"3) Underdeveloped lakes experiencing development do not undergo any trophic change - to date.

Comment: Studies conducted in the Experimental Lakes Area by the Ontario Ministry of the Environment have demonstrated that phosphorus input resulting from development directly affects the lake's trophic studies. These studies were based on paired lakes involving underdeveloped lakes as the control.

"4) Lakes showing water quality problems unexplainable by geographical characteristics have treatment plants in their watersheds."

Comment: It must be emphasized, that sewage treatment plants do not create phosphorus or other nutrients, as implied by the above observation. In fact, the function of a waste treatment plant is to remove phosphorus (and other substance) from the waste water. Of course, the physical presence of a plant does not guarantee sufficient removal.

"5) Disappointingly, lakes with MOE inspected and corrected septic systems do not exhibit any improvement thereafter."

Comment: This latter observation may be interpreted as an illustration of the inefficiency of a septic system to remove phosphorus. Even a corrected system is not expected to remove as much phosphorus as a well operated sewage treatment plant. The total phosphorus retained in a conventional septic system can range anywhere from 1% to 88% with sand and gravel tile beds (see Table 29 of Lakeshore Capacity Study: Trophic Status; Dillon *et al.*, 1986), while over 90% is achieved routinely in many sewage treatment plants.

A.14

Mr. Walters has correctly observed that the phosphorus load from precipitation is not explicitly accounted for in the analysis. As noted in the report, the phosphorus flux from direct precipitation on a lake is negligible in comparison to the other sources and has been considered to be implicitly included in the natural watershed phosphorus load.

A.15

The number of cottages on Grass Lake was taken to include those in the narrows. The total number of cottages on Grass Lake and the northern basin of Kashagawigamog Lake were confirmed with the municipalities registry records.

A.16

The same methodology was applied to estimate the anthropogenic phosphorus load on all the lakes as stated in the report. The information provided in the report on the existing sewage systems at the commercial properties and the resorts and the data on population equivalents included on Table 6.1 were used to confirm the phosphorus loads from these facilities. With respect to the sewage system at the Pine Stone Inn, it was considered to contribute nothing to the existing phosphorus load on the north basin of Kashagawigamog Lake due to its remoteness from the lake. The Inn is considered to contribute to the expanded sewage treatment plant. Hence, we have once again taken a very conservative approach.

A.17

The model predictions were used to verify that the total estimated phosphorus loads were correct. The predicted phosphorus concentrations were shown to agree closely with observed levels thus confirming that the total phosphorus loads were good estimates. The report does not suggest that the model predictions were used to confirm the apportionment of the total phosphorus load between the contributing sources.

A.18

We reiterate, that a primary objective of the sewage treatment is the reduction of the nutrient load on the lakes. Removal of phosphorus in the treatment plant to achieve an effluent concentration of 0.2 mg/L represents a 95% plus reduction. This efficiency cannot be relied upon from septic tile fields as previously stated.