

THE HALTON REGION CONSERVATION AUTHORITY

REPORT TO: Resource Planning - Fill and Flood Plain Advisory Board

REGARDING: Region of Halton, Environmental Assessment E.A., File #1-82-006-000, Ministry of the Environment Supplementary Review

FROM: John D. Hall, Manager, Resource Planning Division

DATE: January 13, 1987

The Ministry of the Environment is carrying out a supplementary review of the Region of Halton's Environment Assessment Document originally circulated to the Conservation Authority in October of 1985. The Ministry of the Environment has requested that the Conservation Authority be a part of the government review team to review the Region of Halton, November 1986, "Response Document" to the Ontario Government Review. The Authority staff have also reviewed additional technical studies prepared by the Region of Halton during 1986.

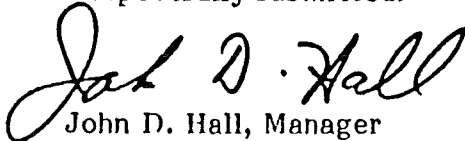
Staff have reviewed the "Response Document" and technical studies and have found that while some of the Authority's original concerns have been addressed, there are still significant items which have not been resolved. These items are set out in the attached staff report.

The following resolution is therefore set out for consideration of the Advisory Board.

RECOMMENDATION:

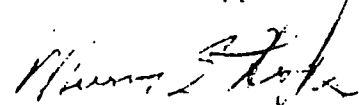
THAT the Resource Planning - Fill and Flood Plain Advisory Board recommend to the Authority that the staff report dated January 13, 1987 be forwarded to the Ministry of the Environment in response to the Supplementary Review of the Region of Halton Environmental Assessment, File #1-82-006-000.

Respectfully submitted:



John D. Hall, Manager
Resource Planning

Resolution approval:



Murray E. Stephen
General Manager

STAFF REPORT

Site P
(Prev:)

Introduction

The following comments are set out in the same order as found in the "Halton Region's Response to the Ontario Government Review of Halton's Environmental Assessment - Solid Waste Management System for the Regional Municipality of Halton - Landfill Component", November 19, 1986 document. The comments found on pages 10 through 15 inclusive of the above referenced document have been numbered 1 through 8 inclusive for ease of reference and are set out as Appendix A. The Conservation Authority's original response of December 30, 1985 to the Region of Halton's E.A. report is contained in Appendix B.

Comments 1 & 6

Site D

(Previous response: Halton Region Conservation Authority, December 30, 1985, Item 4, Halton Region Response, November 1986, Pages 13 & 14)

The Region of Halton in preliminary conceptual site plans did set out a drainage scheme. The Region has submitted to the Conservation Authority a more detailed proposal for drainage and storm water management works under Regulation 164, R.R.O. 1980. The Conservation Authority has reviewed the drainage system as set out in Technical Study, Design and Operation Report Site D, (Schedule A-D) and as the first stage of a two stage review process provided the Region of Halton with the following recommendations:

- 1.) The Bronte tributary diversion be sized to convey the Regional Storm flow and designed such that existing stage storage/discharge is maintained for a variety of storm flows, up to and including the Regional Storm event.
- 2.) The Bronte tributary diversion be analyzed with respect to erosion potential and a low flow channel lining specified.
- 3.) The perimeter ditch design be modified to convey a 50 year design storm with erosion control provided to 5 year storm conditions.
- 4.) The Storm Water Management ponds be designed such that there are no increases in post development flow rates over predevelopment flow rates for a range of storms up to and including the 1:100 year storm.
- 5.) The potential for increased erosion along the Bronte and Sixteen Mile Creek tributaries, through changes in the flow regime and infiltration rates resulting from the landfill sites construction be analyzed.

The Region of Halton is preparing a second engineering submission for the Conservation Authority addressing these items but as of the date of this report, it has not been received.

Site F

(Previous response: Halton Region Conservation Authority, December 30, 1985, Items 1a (i) and 4, Halton Region's Response, November, 1986, Pages 10, 13 & 14)

The Halton Region Conservation Authority's initial concern that the drainage design for Site F provide flows to the outletting watercourses in the same ratios that presently exist has not been met. The Region of Halton's Technical Study, Design and Operations Report, Site F (Schedule A-F) shows a significant diversion of flows from the Indian Creek to the Falcon Creek as per drawing 6 of 11 and drawing 11 of 11. The existing watershed boundary is delineated on drawing 1 of 11. The text of the report makes no mention of this diversion.

The Region of Halton has submitted an application under Regulation 164, R.R.O. 1980 for approval of their Drainage Storm Water Management Works. The Conservation Authority's review of the Region's application has been separated into two stages. The first stage is a review of the design to determine any deficiencies and/or further information required. The second stage is the review of a further engineering submission submitted by the Region of Halton. At the completion of stage one of the Conservation Authority's review of the Region's application, the following recommendation was provided to the Region of Halton.

- 1.) The drainage plans should be revised to maintain the existing catchment areas draining into the Falcon and Indian Creeks.
- 2.) The perimeter ditch design modified to convey a 50 year design storm with erosion control protection up to 5 year storm conditions.
- 3.) The Storm Water Management ponds be designed such that there are no increases in post development flow rates over predevelopment flow rates for a range of storms up to and including the 1:100 year storm.
- 4.) The potential for increased erosion along the Indian Creek through changes in the flow regime and infiltration rates resulting from construction of the landfill site be analyzed.

The Region of Halton is preparing a second engineering submission for the Conservation Authority addressing these items but as of the date of this report, it has not been received.

Comment 2 & 8

(Previous Response: Halton Region Conservation Authority, December 30, 1985, Items 1a (ii), Halton Region Response, November 8, 1986, Pages 10 & 11).

The Conservation Authority has maintained that the advantage of being able to tie in a leachate collector system from Site F into the former Bayview Site should not have been included in the Public Health and Safety Component as a benefit of the development of Site F. The Region of Halton, in their November 1986 response to this concern, advised that the City of Burlington is installing a leachate collection system for the former Bayview landfill site.

The Region did not, however, advise that this would affect the ranking of Site F as contained in the Environmental Assessment document Phase 2, Stage C. The Conservation Authority therefore recommends that the Environmental Assessment Document be revised as necessary to remove its present position of that development of Site F will have a beneficial effect on existing surface water quality.

The previous draft summary report Phase 2, Stage 2c, January 1985, ranks Site F as the most preferred site from a Public Health and Safety perspective with Site D falling as the second most preferred site. The ranking applied to these two sites should be re-evaluated.

The latest reference to this item is contained on page 59 and Figure 6, Page 39 of the October, 1985 Environmental Assessment Summary Document.

Comment 3

(Previous Response: Halton Region Conservation Authority, December 30, 1985, Item 1a (iii) and 6, Halton Region Response, November 1986, Pages 11 & 12).

The Conservation Authority previously suggested that the use of an impermeable liner to contain leachate at sites D and F was dismissed too early in the site selection process. The Region of Halton has provided further information in its Technical Study Documents which suggest that the proposed tile underdrain system would provide leachate containment of approximately 93-96% for Site F and total containment for Site D. Liners therefore were not considered to be an effective method of providing additional environmental protection. As an alternative, purge well contingency plans were recommended for each site.

The Conservation Authority must be assured by the Region of Halton that leachate is adequately contained within the landfill sites and ground water contamination will not occur. To this end it will be necessary for the Region of Halton to commit itself to a monitoring program which will define any leachate migration and implement the purge well contingency plan to assure that leachate does not migrate off site.

Comment 5

(Previous Response: Halton Region Conservation Authority, December 30, 1985, Item 3, Halton Region Response, November 1986, Page 13).

The Conservation Authority previously noted the lack of contingency plans in the Environmental Assessment document. The Region of Halton has now submitted information on contingency plans in their Technical Study documents. The contingency plans are general in nature and appear to be dependent in most cases on further ground and surface water monitoring to develop the specifics of the individual contingency plan.

The Conservation Authority is concerned that the design criteria for the Storm Water Management system is not appropriate for the two sites as it applies to the containment of any contaminated surface runoff. The Region of Halton proposed to utilize a 1 in 25 year design storm criteria for the storm drainage system and management ponds. The ponds are to be monitored and any contaminated water held and either trucked off site in the case of Site D or pumped to the sanitary sewer system at Site F.

Site C
Landfill
Position
Surface

The Conservation Authority recommends that the Storm Water Management ponds be designed to contain the total volume of runoff from a 100 year flood event for containment of potentially contaminated surface runoff. In addition, the time required to pump out the ponds at sites D and F should be determined for a 100 year flood event and the impact of the pump-out time on the continued operation of the sites and drainage system be evaluated.

The contingency plan for monitoring the water quality in the storm water management ponds does not indicate what contaminants will be monitored and who will determine the water quality standards for the required use of the contingency plan. The Conservation Authority submits that the Region of Halton must indicate the water quality standards that they will meet for discharge of storm water to receiving watercourses.

The special requirements for the storm water management ponds should be recalculated to determine if sufficient area exists in both sites to incorporate the storage ponds to meet the 1 in 100 year flood volume criteria. Until the Region of Halton has adequately addressed this concern, the Conservation Authority reserves further comment regarding the adequacy of the site plan.

The Conservation Authority has noted that the operating plan for Site F required the construction of dykes to divert surface runoff and prevent it from entering the landfill operation. The dykes are designed to control the two year storm event. The Conservation Authority recommends that the dykes be designed to contain up to the 100 year flood in order to ensure that there is no contamination of surface runoff up to that storm condition.

The Region of Halton has not prepared plans nor did the Region respond to the Authority's comment requiring siltation control for both sites. It is therefore recommended by the Halton Region Conservation Authority that siltation control plans be prepared for sites D and F as part of the Technical Study documents. Any changes to the site plan for both sites should be considered incomplete until such time as siltation control has been addressed and the assurance provided by the Region that their operating plans can accomodate siltation control.

Comments 4 & 7

(Previous Response: Halton Region Conservation Authority, December 30, 1985, Items 1b, Halton Region Response, November 1986, Pages 12, 14 & 15).

The Conservation Authority continues to have several concerns which have not been addressed in the Region of Halton's Environmental Assessment or Technical Study documents regarding the natural environment. At Site F, the Region of Halton has selected a preferred option which is intended to reduce the impact on the natural environment at the site. However, it will still result in the loss of a major portion of the significant Oak-Hickory forest complex, a large number of habitat types and a major concentration of provincially and regionally significant plant species on the site according to Halton Region Landfill, Technical Study, Biophysical Analysis Report, Site F Schedule D-F, by Bird and Hale Ltd. (1986). The Conservation Authority has noted that the Region of Halton has investigated three (3) possible alternatives to allow for the protection of the Oak-Hickory forest, however, the Authority questions whether the possibility of expanding the landfill site to the west to join with the existing Burlington Landfill Site has been considered at all. This recommendation was made by the Conservation

Authority in its December 30, 1985 response to the Ministry of the Environment but was not addressed by the Region of Halton in their November 1986 response.

Furthermore, by way of a minor modification to option three, the Conservation Authority recommends the forested ridge on the east side of the landfill site which represents a large area of the Oak-Hickory forest complex and supports a number of the rare and significant plant species could be preserved as per the attached plan.

The Authority continues to have a major concern which was not addressed in the proponent's review with the analysis of the Environmental Assessment.

The Region of Halton used a paired comparison method of the various factors in order to select the preferred site. It is the submission of the Halton Region Conservation Authority that a more suitable method of ranking the sites would have been achieved if a weighted ranking system was used. A weighted ranking system would have provided a more definitive guideline to compare the differences that exist between the candidate sites under consideration, especially ones which are closely ranked such as Site D and Site F. The Environmental Assessment suggests that there is less of a gap between Sites D and F as compared to the remaining sites, however there is no indication of the degree of difference. A weighted ranking system would have provided this information.

Further, the significance of the natural plant communities at Site F was disqualified using the paired comparison system since the agricultural and bio-physical factors were considered together under the general heading of Natural Environment. In the Environmental Assessment Summary Report, Site F was compared with Site D and it was determined that,

"The natural environment impact is virtually even in this comparison due to the benefits from an agricultural perspective compared to the disbenefits of the bio-physical impacts. Since the factors have equal importance under the natural environment, there is no clear preference for either site for this category".

The bio-physical environment of Site F fulfills sufficient criteria to warrant designating it as an Environmentally Sensitive Area, as set out in the Official Plan for the Region of Halton. The Environmentally Sensitive Areas are the most significant natural areas in Halton. However, the agricultural component of Site D is represented at a number of locations in Halton and cannot be regarded as one of the most significant of Halton's cultivated lands. Using paired comparisons these factors cancelled one another out. A weighted ranking system would have more accurately emphasized the differences between the bio-physical and agricultural factors.

The evidence of the Technical Documents issued by the Region's Schedule D-F documents further supports the contention of the Authority that portions of Site F would constitute designation as an Environmentally Sensitive Area under the Region of Halton's Official Plan. The following criteria for designating Site F as an Environmentally Sensitive Area are fulfilled.

Criterion 1

The area represents a distinctive and unusual landform within the municipality, Ontario or Canada

The dramatic topography at the site and the exposed clay deposits are considered to be uncommon in Ontario (Proctor and Redfern 1982).

Criterion 3

The plant and/or animal communities are identified as unusual or of high quality within the municipality, Ontario or Canada

The Oak-Hickory forest complex which occurs on the site B considered to be rare in Ontario (Proctor and Redfern 1982).

Criterion 4

The area is an unusual habitat with limited representation in the municipality, Ontario or Canada, or a small remnant of a particular habitat which has virtually disappeared within the municipality.

The presence of the significant Oak-Hickory forest with its "Carolinian" association at Site F is considered to be rare in Ontario (Proctor and Redfern 1982).

Criterion 5

The area has an unusually high diversity of biological communities and associated plants and animals due to a variety of geomorphological features, soils, water, sunlight and associated vegetation and microclimatic effects.

The topography, soils, water, and microclimatic effects occurring at the site have interacted to allow for the establishment of a great diversity of habitats. Bird and Hale (1986) describe twenty-one vegetation habitat types at Site F.

Criterion 6

The area provides habitat for indigenous species that are rare or endangered at the Regional, Provincial or National level.

Bird and Hale (1986) report a total of 116 significant plant species at the site of which four are provincially rare and thirteen are regionally rare.

For an area to qualify as an Environmentally Sensitive Area, it is only necessary for one of the nine criteria to be fulfilled. In this case five are fulfilled. Further, the significance of Site F could be put into perspective by comparing the significant biological attributes of Site F with the other existing Environmentally Sensitive Areas.

In the General Overview Analysis Stage 2A, Environmentally Sensitive Areas were considered to be unacceptable for landfilling if they provided habitat for provincially or nationally rare or endangered species. Therefore, had Site F received an Environmentally Sensitive Area designation prior to the Environmental Assessment process, Site F would have been eliminated at the initial screening stage and not been considered for landfilling.

The operating plan for Site F contradicts the Option III plan prepared to protect and retain portions of the significant natural features of the site. At the end of year eleven, it is proposed to locate a temporary stockpile in the forested area east of the landfill limit. The Conservation Authority recommends this temporary stockpile be relocated to an alternate location where significant natural features do not exist. Also, it was reported in the Design and Operation Report, that if the shale resource was not fully utilized, Option III would have adequate lands available to provide long term on-site storage following completion of the landfill site (Page 61). The Conservation Authority questions what location would be selected for such a purpose and what would be the environmental implications.

At Site D two small woodlots D1 and D2, will be affected by the proposed landfilling operations. The Halton Region Conservation Authority questioned whether any attempt was made to modify the site plan to protect them. If the cover material stockpile was relocated slightly to the north, a larger portion of woodlot D1 would be protected and could be incorporated into the screening of the landfill site. Similarly, slight modifications to the western boundary of the site would allow for the protection of woodlot D2. For example, the limit of landfill could be curved to avoid the woodlot, and the berm could be broken at this location, since the mature trees would provide the same screening for the site, as would the berm.