REPORT ON HEARING

TOWN OF BEAUSEJOUR

SEWAGE LAGOON EXPANSION

THE CLEAN ENVIRONMENT COMMISSION

AUGUST 10, 1989

TOWN OF BEAUSEJOUR
SEWAGE LAGOON EXPANSION

TABLE OF CONTENTS

FIGURES

TOWN OF BEAUSEJOUR

SEWAGE LAGOON EXPANSION

INTRODUCTION

A proposal for a sewage lagoon site expansion was filed by Reid Crowther and Partners Ltd., on behalf of the Town of Beausejour on February 22, 1989. The proposal included the discharge of treated lagoon effluent from the Beausejour sewage lagoon through the municipal drain north and west and hence through a provincial drain known as the Bachman Drain north and east to the Brokenhead River a distance of 11 km (7 mi).

The proposal was advertised by the Environment Department on March 11, 1989 in the Winnipeg Free Press and a petition signed by 30 residents of the area was received in objection to the proposal. All of the concerns related to the effluent drainage route including problems of ponding, odor from ponded effluent, ditch erosion, vegetative growth inspired by nutrient enriched wastewater, threats to livestock watering from effluent ponding, and threat from flooding by the effluent addition.

On April 12, 1989 the Honourable Ed Connery, Minister of Environment and Workplace Safety and Health requested that the Commission hold a hearing on the matter and report back with recommendations. The Clean Environment Commission gave notice of the hearing on May 1, 1989 and the hearing was held on May 24, 1989 at 7 p.m. at Beausejour.

PUBLIC PARTICIPATION AND HEARING

Approximately 30 people attended the hearing including the proponent, their consultant, 20-25 concerned residents and representatives from the Environmental Control Branch, Fisheries Branch and Environmental Health Services.

Commissioners attending were Mr. Stan Eagleton, Chairperson, Mr. Arnie Barr, Mr. Ed Gramiak, Ms. Elizabeth Pawlicki, and Mrs. Donna Plant.

POSITION OF PROPONENT

Mr. Don Mazur, Mayor of the Town of Beausejour provided a historical perspective of the sewage lagoon and effluent discharge route. The current proposal is a short term plan to add an additional or 6th lagoon cell for effluent storage. The longer term plan, beyond 20 years, is to re-locate the complete system a further distance north of town.

Three sites north and east of the present lagoon site were examined. Two sites located east of the present lagoon were eliminated due to a porous soil in one case and in the second case a location that would have interfered with the construction of a highway interchange at the junction of PTH #12 & 44. The first site contemplated a discharge route via pipeline directly east along an extension of PTH 44 to the Brokenhead River.

It should be noted that representatives from the town of Beausejour, concerned citizens located along the Brokenhead River below the proposed pipeline discharge point, and representatives from the Environmental Control and the Fisheries Branch had met with the Commission on January 15th, 1988 at a regular meeting of the Commission to consider a variation of the Clean Environment Commission order respecting the existing town sewage lagoon and its discharge route. In order to deal with concerns of farmers adjacent to the current discharge route the Town was contemplating construction of a pipeline discharging directly to the Brokenhead River.

At this meeting the Fisheries representative noted that the present open drains north and east to the river provided an opportunity to dissipate ammonia present in the effluent. Ammonia in an unionized form is toxic to fish at low concentration. The reach of river below the proposed pipeline is one that is very acceptable as a fish habitat.

A number of residents located along the reach of the river below the proposed pipeline were present at the meeting to express their concern about a direct pipeline discharge to the river at that location.

The outcome of this previous meeting was that the Commission officially advised that the Town should re-examine the discharge route at such future time when the planned sewage lagoon expansion was being considered.

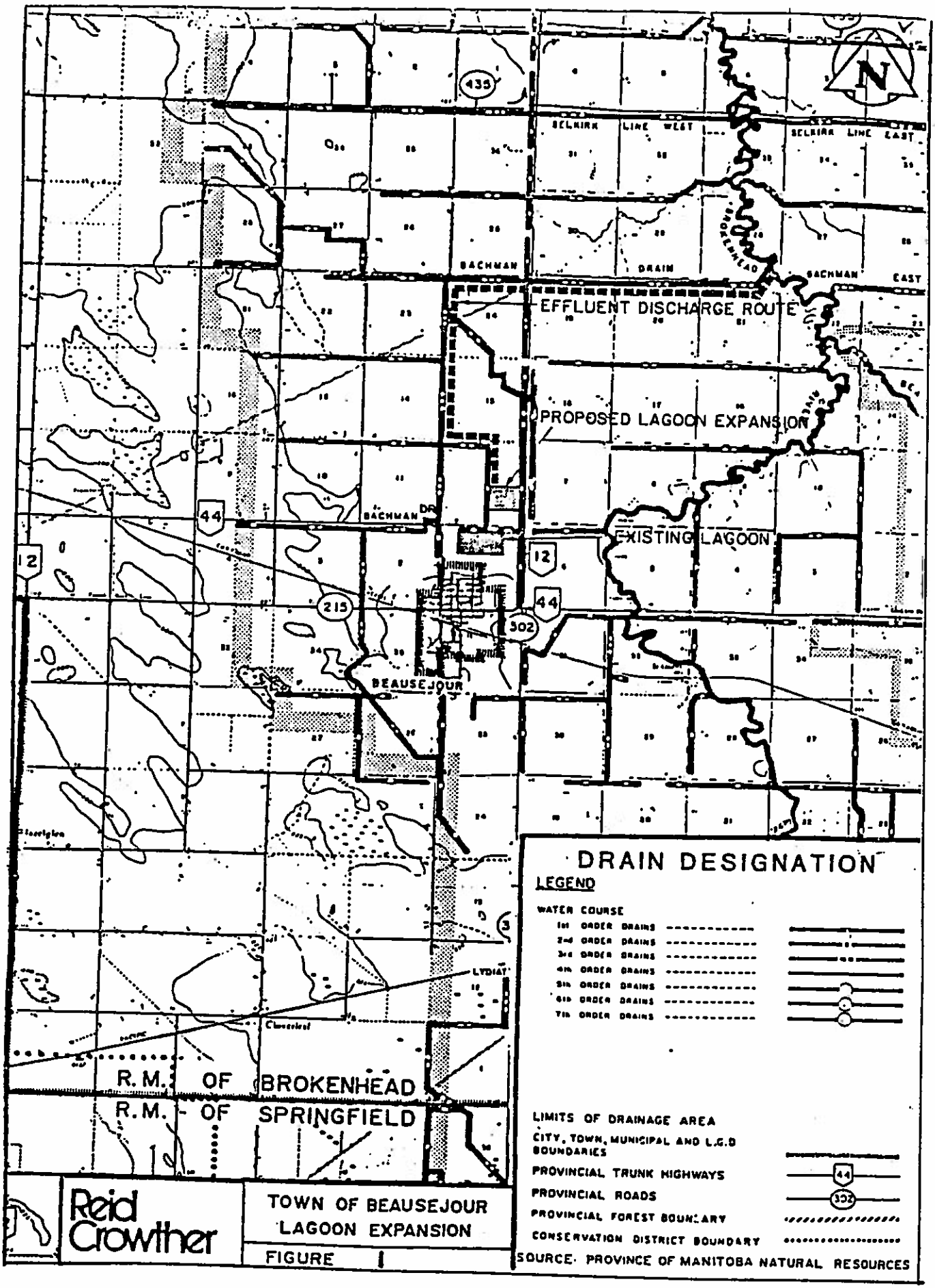
At the hearing, Mayor Mazur noted that the proposal accepted by Town Council was to construct a 6.5 ha (16 a) cell on a site on the north side of PTH 44, north of the present cell #5 (figure 1) This site is located on SE 1/4 12. 13. 7. The present drainage route would continue to be used for effluent discharge to the Brokenhead River.

The Mayor drew attention to two public meetings that had been called to discuss the town's proposal with many of the citizens living in the R.M. of Brokenhead in proximity to the effluent discharge route. Some of the questions relating to the drainage route had been answered by the Water Resources Branch representative at one of the meetings but some still remained unanswered.

All but the first 2 km of the drain is a provincial waterway known as the Bachman Drain. A considerable area of agricultural land to the south of Beausejour is drained by this system. The Town of Beausejour has assumed responsibility to maintain the municipal drain required to reach the Bachman Drain.

Mr. N. Faruqui, P. Eng. of Reid Crowther and Partners spoke on behalf of the town concerning lagoon design considerations.

He noted that the lagoon system consists of 5 cells located north of town but south of PTH 44. Three of the cells are primary cells averaging 3.5ha (8.5a) with storage cells having an area of 3.5 ha (8.5 a) and 13 ha (32.5a). As a winter discharge of the lagoon is not permissible, some 200 days of storage must be provided to prevent a discharge of effluent from November 1st to May 15th.


N
435
SELKIRK LINE WEST
SELKIRK LINE EAST
BACHMAN
DRAIN
BACHMAN EAST
EFFLUENT DISCHARGE ROUTE
PROPOSED LAGOON EXPANSION
EXISTING LAGOON
BACHMAN DR
44
12
215
302
BEAUSEJOUR
LYDIATT
R.M. OF BROKENHEAD
R.M. OF SPRINGFIELD
DRAIN DESIGNATION
LEGEND
WATER COURSE
1st ORDER DRAINS
2nd ORDER DRAINS
3rd ORDER DRAINS
4th ORDER DRAINS
5th ORDER DRAINS
6th ORDER DRAINS
7th ORDER DRAINS
LIMITS OF DRAINAGE AREA
CITY, TOWN, MUNICIPAL AND L.G.D BOUNDARIES
PROVINCIAL TRUNK HIGHWAYS
PROVINCIAL ROADS
PROVINCIAL FOREST BOUNDARY
CONSERVATION DISTRICT BOUNDARY
SOURCE: PROVINCE OF MANITOBA NATURAL RESOURCES
Reid Crowther
TOWN OF BEAUSEJOUR
LAGOON EXPANSION
FIGURE 1

The current lagoon system has reached capacity and therefore a 6.5ha (16a) cell has been proposed to take care of winter storage needs for the next 20 years. This cell will be located north of PTH 44 and serviced by a force main from the current storage cell #5. It is proposed to utilize the current discharge route and follow the present discharge period practice, which is May 15 to June 15 and Oct 1 to November 1.

In response to the question of flooding along the municipal and Bachman Drain, the consultant noted that the lagoon is discharged during a period which follows the spring run-off event. In any event, the contribution from a 200 mm (8 in) pipe which drains the lagoon, would be small relative to run-off from a storm event in the drainage basin of the Bachman Drain. The area drained by the Bachman Drain is 26 km^2 (60 km^2). The lagoon drainage represents 1.5 to 2% of the overall flow to the drain.

Apart from lagoon drainage, regular ditch maintenance is required to take care of normal drainage. There are nutrients in the lagoon effluent that contribute to weed growth in ditches. There are also such nutrients in normal agricultural drainage associated with the removal of top soil and fertilizers from arable land.

The Water Resources Branch has been in correspondence with the Town with a commitment to remove vegetation from the drain, to control erosion and prevent ponding in the drain. The section of municipal drain north of the lagoon is the responsibility of the Town to maintain. This ditch was mechanically cleaned in 1982/83 and thereafter weeds have been controlled by the use of the herbicide "Round-up" when the ditch is dry in the summer. The ditch is inspected by town personnel before lagoon discharge takes place.

Herbicide applications must be authorized by the Environment Department. Round-up is inactivated relatively quickly in the soil and is retained by the soil. There is not a threat to the local groundwater from herbicide application because of the deep layer of impervious clay separating the water bearing formation from the surface of the ground.

Department of Agriculture personnel are not concerned with the impact on livestock, watering from ditches and drains where lagoon effluent is present.

Odors from the new lagoon system should be less than formerly, with the addition of the new cell providing an increased capacity. Odor from a well-designed lagoon is normally confined to a short period during the spring of the year at ice break-up.

CITIZEN CONCERNS

Mr. Roger Mroz, a farmer located approximately 1 km (0.5 mi) north of the proposed lagoon along the discharge route, addressed the Commission.

He noted that in 1987 he was largely responsible in having the Town examine alternative discharge means. Part of his land is adjacent to the effluent discharge route and was flooded in the spring of 1987. He feels that the effluent from the town was, at least in some measure, responsible for flooding of his farmland. After listening to the evidence, he would still favor a pipeline discharge to the River.

He expressed concern about livestock who strayed from pasture and subsequently consumed lagoon effluent in the drainage system. Another concern related to groundwater contamination as there are a number of springs located along the Bachman Drain near the outlet. He also noted the problem of ponding behind the drop structures located along the drain. There was also a concern that any drainage maintenance program would not continue indefinitely.

The Mroz family felt that over the long term there would be less maintenance cost associated with an effluent pipeline than a ditch .

A citizen from the area near the outfall of the Bachman Drain drew attention to the fact that the drain discharges into bushland before it reaches the river flood plain. This section is not controlled by the Province and, as a consequence, flooding can occur in this area.

A number of other neighbors bordering on the drainage route object to the lagoon discharge in proximity to their property.

Another neighbor located along the east flowing section of the Bachman Drain complained about odors from effluent retained in the ditch after discharge had ceased. There are a series of 5 drop structures erected in the drain to reduce the velocity of flow and thus reduce erosive forces. There are drain holes in the lower section of the sheet pilings that comprise the drop structures which permit the accumulated water pools to drain slowly. As a result, both drainage water and/or effluent remain in pools behind these structures for a considerable length of time following a lagoon discharge.

WATER RESOURCES BRANCH

Mr. J. Stefanson, Regional Engineer with the Water Resources Branch pointed out that the Province took over some of the main stems of the agricultural drainage system from the municipalities in 1965. The Bachman Drain was in that category. He noted that there had been problems with the drain from the perspective of cattail growth and erosion. A documentation of cattails in the early 80's was presented which showed cattails 2-3 metres (7-8 Ft) high. Such a growth offers a resistance to flow. Cattails were removed from the ditch in the early to mid-eighties, the drain was widened and re-shaped in places, the gradient was improved at a number of locations, and drop structures were installed.

Mr. Stefanson explained the cattail regulation program. During reconstruction when the drain is dry, soil sterilants are used to control vegetation. Less persistent herbicides are used thereafter to control the cattails.

Improvements are also contemplated to enlarge the bottom openings in the sheet steel pile of the drop structures, which will permit more rapid drainage of the pools of water behind the upstream face of the structure. Mr. Stefanson stated that he would examine the drain outlet and confer with residents about any problems being experienced.

One of the residents maintained that the frequency of maintaining the Provincial drain is inadequate. The bullrushes remained untouched for 4 years with the result that in 1987 the resistance to flow due to the bullrushes caused flooding of farmland. In response, Mr. Stefanson noted that the need for cattail and bullrush control was common to many waterways and they have to be controlled universally. Herbicide applications have to be done at the correct time with the proper material and dosage. At times, spraying has to be repeated. The maintenance budget for his district is limited and must be spread over 35km (20 mi) of ditches.

Another neighbor complained about the effluent backing up in some of the tributary drains. An observation was made that the Town was maintaining its portion of the drain much more effectively than the Province; however, another observer noted that there is a major difference in the size and configuration of the respective drains and that similar methodology could not be used to maintain the Provincial waterway.

ENVIRONMENTAL MANAGEMENT DIVISION

Mr. K. Plews, Chief of Pest Control discussed the Regulations under the Environment Act governing the use of chemical pesticides in the Province. Permits are required before herbicides are applied to a drain by a municipality or the Province. A proposed program would have to be advertised in the local media. After a pre-determined time a use permit is either denied or issued, with conditions attached.

The Province has applied for a permit for the application of "Round-up" to the Bachman Drain. If there are objections to the program, a buffer bordering any objector's property must be maintained. The chemical "Round-up" is a relatively new herbicide and if applied correctly according to label directions, human health or environmental problems are not anticipated. It is expected that the herbicide would be inactivated in the soil and would not reach the Brokenhead River.

Another general condition is that pesticides are not permitted to be applied to open water.

Mr. Mike Van Den Bosch, Environmental Engineer, noted that the Beausejour proposal would require a new licence with effluent quality criteria and conditions relating to the construction of the new cell. Consideration need not be given to a restriction on unionized ammonia in the effluent with the current proposal.

In response to a question about the duration of discharge of the lagoon cell, he advised that he would not want to see that period too short since rapid discharge could create problems of soil sloughing from the dykes of the lagoon cell. He would have no problem with a 3 or 4 week discharge period nor with the continuance of the frequency and duration of discharge as contained in the current environment licence.

In response to questions about microbiological effluent limits, it was his feeling that a fecal coliform count of 200 per 100 ml is quite acceptable in the case of both the surface drainage course and the Brokenhead River.

ENVIRONMENTAL HEALTH SERVICES

Dr. N.S. Rihal, representing the Environmental Health Services Branch of the Manitoba Department of Health, indicated that the Department has no concerns with the lagoon expansion.

DISCUSSION & CONCLUSION

The Town of Beausejour has been employing wastewater treatment lagoons since the outset of the development of the waterworks and wastewater system in the community in the late fifties. Throughout the years, the lagoons have been expanded to accommodate increased water useage. Currently the lagoons have reached their design capacity and must be expanded.

There would appear to be little concern from any source with the proposed expansion of the lagoon system by the addition of a 6.5 ha (16a) cell. Most of the concerns expressed have been related to the discharge route, which consists of an initial reach of 2.5 km (1 1/2 mi) of municipal drain under the Town's jurisdiction and a further 9 km (6 mi) of Provincial waterway (Bachman Drain) subject to maintenance by the Water Resources Branch. The Bachman Drain discharges to a flood plain area of the Brokenhead River some 8 km (5 mi) north east of the Town.

The two principle concerns, related to the lagoon discharge route, are the plugging of the drains by cattails and bullrushes and the retention of wastewater effluent following the lagoon discharge in a number of pools created by "drop structures" that have been constructed by the Water Resources Branch to reduce the velocity of flow and mitigate erosion in the drain.

The Commission heard evidence concerning programs by both the Provincial Water Resources and the Town with regard to programs that each had undertaken to control vegetation in the ditches. In the mid-eighties, the Water Resources Branch had undertaken some reconstruction of the Bachman Drain. At that time soil sterilants were used to kill the aquatic vegetation. Subsequently, there has been an annual program using the herbicide Round-up to control the weeds. A number of years ago, the Town undertook to manually cut off the weeds in the portion of drain under their responsibility. Since that time the herbicide "Round-up" has been used to regulate the growth and development of cattails and bullrushes.

The "drop structures" on the east-west section of the Bachman drain are a necessary element in this section of the drainage system. Since the structure is basically a low dam, water does collect in a pool upstream of the sheet steel pile. There is provision to drain this pool by means of a number of 15 cm (6 in.) openings near the bottom of the dam but this is a slow process. The Water Resources representative indicated that his Branch would undertake to investigate the possibility of hastening the withdrawal of water from these pools. Of the 5 "drop structures" only 3 are located close to dwellings (within a 100 m).

Groundwater contamination from the discharge route would not seem to be a problem.

There was a concern for stray cattle drinking effluent from the drain but evidence was given that this should not be a problem.

The Water Resources representative indicated that he would be in touch with Mr. and Mrs. A. Buss who are located near the outfall of the Bachman Drain. They had some concerns about this portion of the drain for which no agency had maintenance responsibilities. Plugging of this section of the drain by debris and deadfall could cause flooding of some of their pasture land.

RECOMMENDATIONS

The Commission recommends:

1. that approval of the lagoon expansion as presented in the report by Reid Crowther and Partners Ltd, Engineering Consultants acting on behalf of the Town of Beausejour be given subject to;

(a) Odors, Groundwater Contamination and Organic Loading

i. the lagoon shall be operated in such a manner that the release of offensive odors are minimized.

ii. that the lagoon and drainage route shall be constructed and operated in such a manner as to prevent groundwater contamination.

iii. the lagoon shall be operated in such a manner that the organic loading on the primary cells is not in excess of 56 kg/ha/day of 5 day biochemical oxygen demand (BOD).

(b) Effluent Limitations

i. Effluent shall not be discharged from the lagoon system where the organic content is in excess of 30 mg/l B.O.D.

ii. Effluent shall not be discharged from the lagoon system where the fecal and total coliform content of the effluent exceeds 200 and 1500 per 100 ml of sample.

iii. Effluent shall not be discharged between November 1st and May 15th of the succeeding year and June 15th and October 1st.

(c) Construction Standards

i. That lagoon construction standards be followed as specified by Environmental Management Services objectives for Sewage Lagoon number ES145 in the construction of the 6.5 ha (16a) cell expansion.

2. that approval of the drainage route to the Brokenhead River as presented in the report by Reid Crowther and Partners Ltd. be given subject to the following:

a) that each summer an inspection be undertaken by representatives of the Town of Beausejour and the Water Resources Branch to establish concerns with respect to effective drainage in each reach of the drainage route under the jurisdiction of the 2 authorities and that if there are problems with respect to the impedance of drainage, the problems should be corrected immediately and this will include the use of agricultural chemicals in a prescribed manner to control cattails and bullrushes.

b) that effluent shall not be discharged from the lagoon system when it will cause or contribute to flooding along the drainage route.

c) that Water Resources Branch investigate means of lowering the pools connected with the "drop structures" along the east-west section of the Bachman Drain especially those in proximity to residences. If such a program cannot be undertaken or until this program is undertaken, the Town shall be responsible to pump out these pooled areas following the May 15th discharge of the lagoon unless there is a spring freshet that flushes the pooled effluent to the River.