APPENDIX H

SEPTEMBER 3, 1993

PUBLIC INFORMATION SESSION HANDOUT

MUNICIPALITY OF DYSART ET AL

"PUBLIC INFORMATION SESSION"

FOR

HALIBURTON SEWAGE TREATMENT PLANT EXPANSION

SEPTEMBER 3, 1993

Conestoga-Rovers & Associates

PUBLIC INFORMATION SESSION
PRESENTATION OUTLINE

1.0 INVITATION - PUBLIC INFORMATION SESSION

- GUEST COMMENT SHEET

2.0 CLASS EA PROCESS

- PLANNING AND DESIGN PROCESS
- ENVIRONMENTAL STUDY REPORT (ESR) ADDENDUM

3.0 INTRODUCTION OF PROJECT AND PROBLEM IDENTIFICATION

- PROJECT OBJECTIVE
- LOCATION AND STUDY AREA
- PROJECT CHRONOLOGY

4.0 ASSIMILATIVE CAPACITY EVALUATION SUMMARY

- PHOSPHOROUS LOADINGS
- PHOSPHOROUS RETENTION (0% TO 80%)
- SERVICE AREA REQUIREMENTS

5.0 SUMMARY OF ALTERNATIVES

- 8 ALTERNATIVES CONSIDERED
- IMPACTS/BENEFITS/COST EVALUATION

6.0 PREFERRED ALTERNATIVE

- 0.05 mg/L P DISCHARGE CRITERIA
- WATER QUALITY IMPACTS

INVITATION

PUBLIC INFORMATION SHEET

MEETING PLACE:	COMMUNITY CENTRE
TIME:	6:00 P.M. TO 9:00 P.M. FRIDAY, SEPTEMBER 3, 1993
RE:	PROPOSED DYSART et al's HALIBURTON SEWAGE TREATMENT PLANT EXPANSION

IN ACCORDANCE WITH ONTARIO MINISTRY OF ENVIRONMENT AND ENERGY (MOEE), ENVIRONMENTAL ASSESSMENT (EA) PROCESS AND THE MUNICIPAL ENGINEERS ASSOCIATION (MEA) CLASS EA SESSION IS BEING HELD TO INFORM YOU OF THE PROPOSED UNDERTAKING.

- **PROJECT OBJECTIVE**

  THE PROJECT WILL ACCOMMODATE PROJECTED FUTURE SEWAGE FLOWS BY THE PROPOSED EXPANSION OF THE SEWAGE TREATMENT PLANT (S.T.P.) AND TO ADDRESS THE ASSIMILATIVE CAPACITY OF THE DRAG RIVER SYSTEM.

- **PUBLIC INFORMATION SESSION**

  THE PURPOSE IS TO MAKE ALL INTERESTED PARTIES AWARE OF THE PROBLEM AND THE ALTERNATIVE SOLUTIONS BEING CONSIDERED, THEIR IMPACT ON THE ENVIRONMENT AND TO SOLICIT PUBLIC COMMENT AND INPUT. THIS IS YOUR OPPORTUNITY TO EXPRESS YOUR VIEWS AND TO LEARN ABOUT THE ENVIRONMENTAL ASSESSMENT (EA) PROCESS. PROJECT STAFF WILL BE PRESENT TO ANSWER QUESTIONS AND DISCUSS THE ASPECTS OF THIS PROJECT.

IF YOU HAVE ANY QUESTIONS ABOUT THIS INFORMATION SESSION, OR THE PROJECT ITSELF, PLEASE FILL OUT THE ATTACHED GUEST COMMENT SHEET OR CONTACT THE FOLLOWING:

MR. CHRIS HODGSON
REEVE
MUNICIPALITY OF DYSART et al
BOX 389
MAPLE AVENUE
HALIBURTON, ONTARIO K0M 1S0
(705)457-1740

MR. RON SCHWARK OR
MR. ED ROBERTS
CONESTOGA-ROVERS & ASSOCIATES
CONSULTING ENGINEERS
651 COLBY DRIVE
WATERLOO, ONTARIO N2V 1C2
(519)884-0510

GUEST COMMENT SHEET

PUBLIC INFORMATION SESSION

SEPTEMBER 3, 1993
PROPOSED HALIBURTON
SEWAGE TREATMENT PLANT EXPANSION

WE WELCOME YOUR INPUT DURING THIS INFORMATION SESSION. YOUR INPUT AND COMMENTS WILL BE FILED AND USED DURING THE DEVELOPMENT OF THE FINAL SOLUTION.

PLEASE PROVIDE YOUR NAME, ADDRESS AND TELEPHONE NUMBER BELOW. THIS INFORMATION WILL ASSIST US SHOULD WE NEED TO CONTACT YOU IN THE FUTURE. **(PLEASE PRINT)**

NAME: _____

ADDRESS: _____

_____

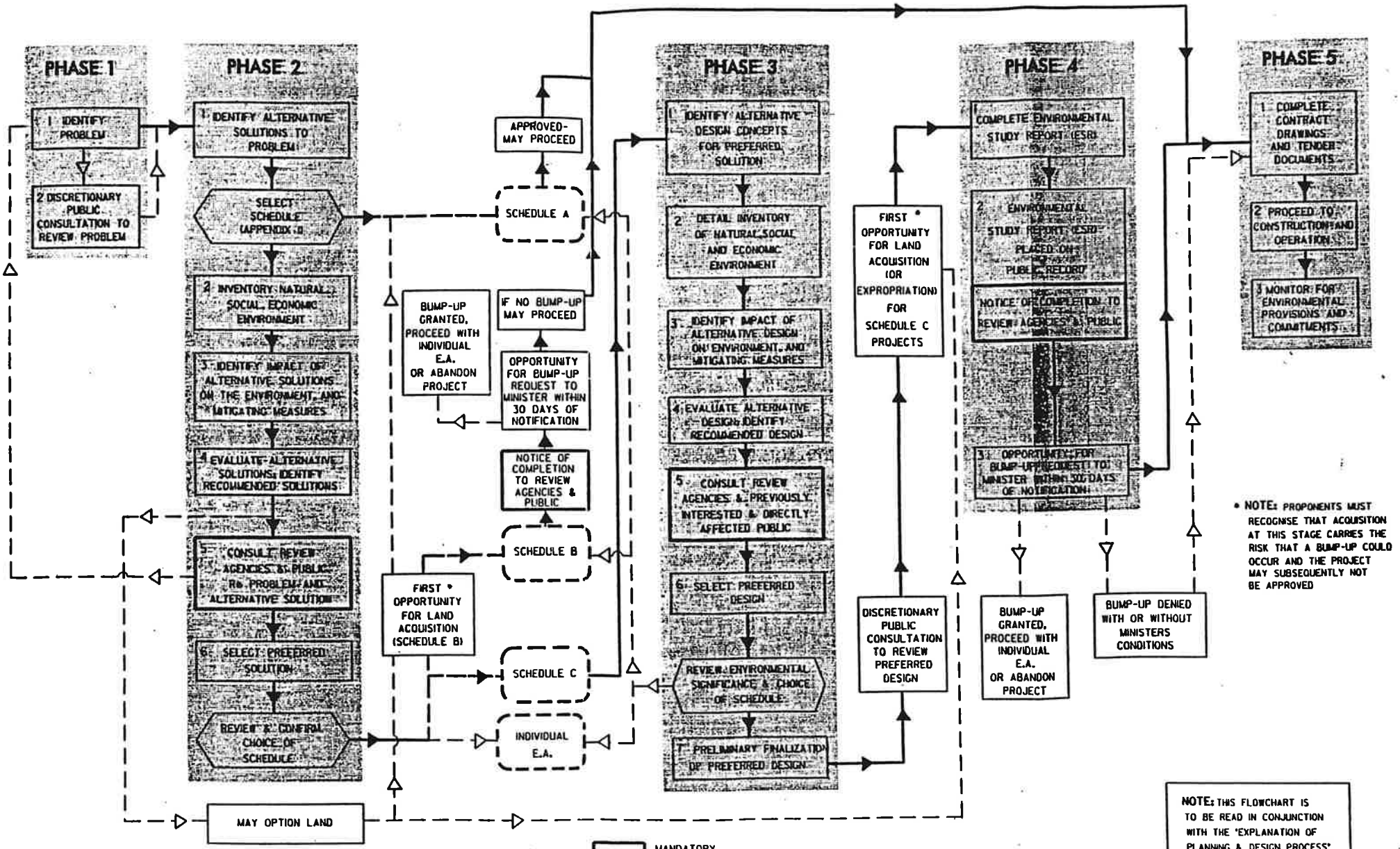
_____

TELEPHONE NO. _____

PLEASE LEAVE THIS SHEET ON YOUR WAY OUT/OR MAIL IT TO THE MUNICIPALITY OF DYSART BOX 389, HALIBURTON, ONT. K0M 1S0.

Conestoga-Rovers & Associates

PLANNING AND DESIGN PROCESS FOR MUNICIPAL SEWAGE AND WATER PROJECTS



* NOTE: PROPONENTS MUST RECOGNISE THAT ACQUISITION AT THIS STAGE CARRIES THE RISK THAT A BUMP-UP COULD OCCUR AND THE PROJECT MAY SUBSEQUENTLY NOT BE APPROVED

NOTE: THIS FLOWCHART IS TO BE READ IN CONJUNCTION WITH THE 'EXPLANATION OF PLANNING & DESIGN PROCESS' ON THE FOLLOWING PAGES.

MUNICIPALITY OF DYSART et al

HALIBURTON SEWAGE TREATMENT PLANT EXPANSION

JOBS ONTARIO PROGRAM
MOEE PROJECT NO. 03-0706-01

CLASS ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL STUDY REPORT ADDENDUM

CONESTOGA-ROVERS & ASSOCIATES

SEPTEMBER, 1993

CRA

PROJECT OBJECTIVES

THE MUNICIPALITY OF DYSART et al PROPOSES

TO DETERMINE THE ASSIMILATIVE CAPACITY

OF THE DRAG RIVER SYSTEM TO ACCEPT ADDITIONAL

LOADINGS AND IN VIEW OF THIS ASSIMILATIVE

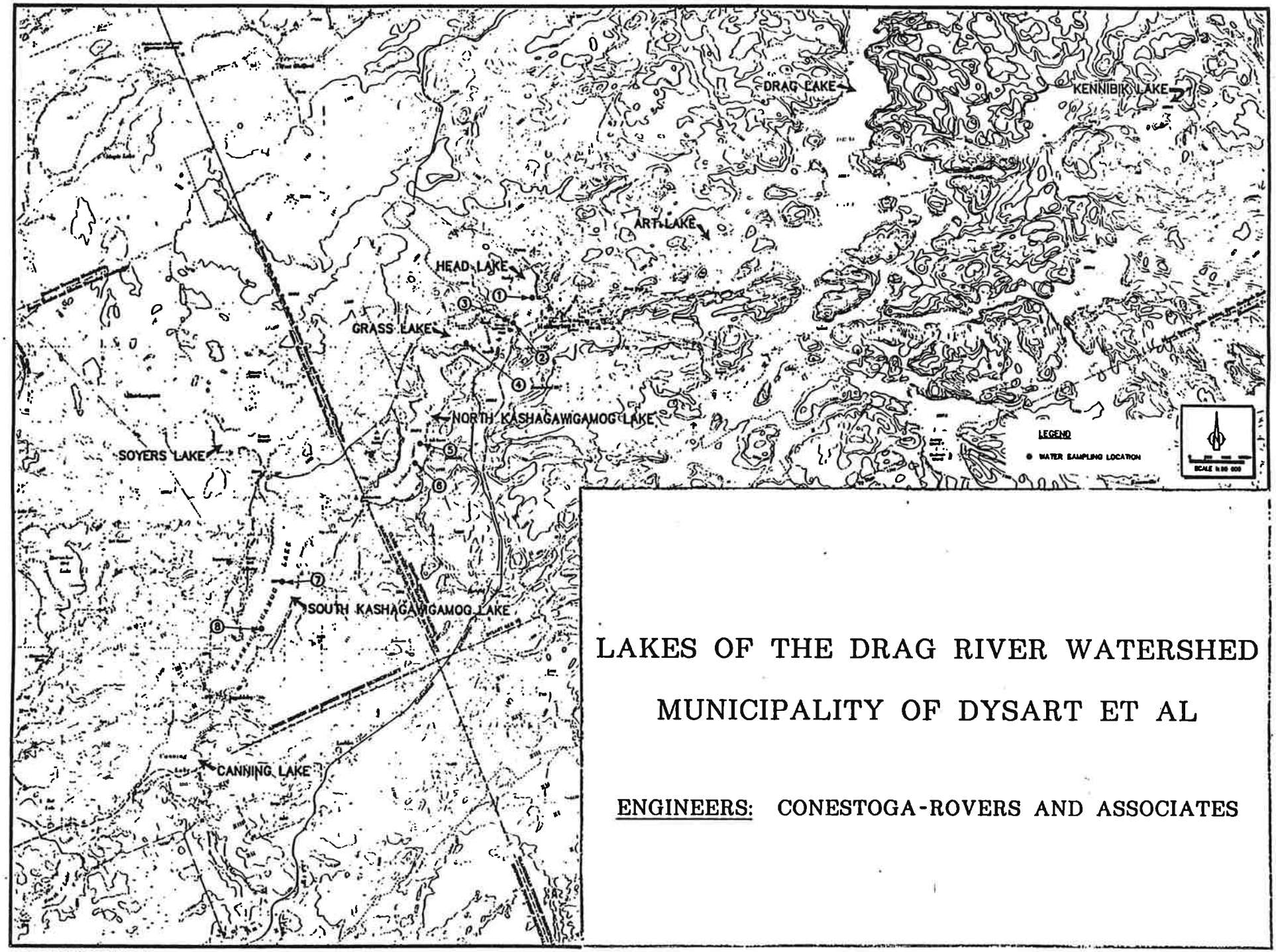
CAPACITY CONSIDER AN EXPANSION TO THE

EXISTING TREATMENT WORKS TO PROVIDE FOR

THE CONNECTION OF THE KASHAGAWIGAMOG

SEWER EXTENSION AND GROWTH WITHIN THE

VILLAGE OF HALIBURTON.



LAKES OF THE DRAG RIVER WATERSHED

MUNICIPALITY OF DYSART ET AL

ENGINEERS: CONESTOGA-ROVERS AND ASSOCIATES

PROJECT No. 4061 (1) JULY 05/83 (0) REV.0

PROJECT CHRONOLOGY

OCT. 1989	ENVIRONMENTAL STUDY REPORT (ESR) WAS FILED FOR A 30 DAY REVIEW PERIOD
NOV. 1989	A BUMP-UP REQUEST WAS SUBMITTED TO THE MINISTER
DEC. 1989	COMMENTS WERE RECEIVED REGARDING WATER QUALITY FROM CANNING LAKE COTTAGERS ASSOCIATION
APR. 1990	MINISTER RESPONDED DENYING A BUMP-UP BUT INDICATED THAT FURTHER WATER QUALITY ASSESSMENTS WOULD BE UNDERTAKEN
JAN. 1991	MINISTER PROVIDED DIRECTION TO DYSART et al TO PROCEED WITH AN ADDENDUM TO THE ESR TO ADDRESS THE ASSIMILATIVE CAPACITY OF THE DRAG RIVER SYSTEM TO ACCEPT THE PROPOSED ADDITIONAL LOADINGS, AND TO ESTABLISH BASELINE WATER QUALITY
MAR. 1991	MOEE LETTER TO DYSART et al OUTLINING OF PROJECT TASKS TO BE COMPLETED: 1. MOEE TO DO A COMPLETE PHOSPHORUS MODELLING OF DRAG RIVER SYSTEM 2. M. MICHALSKI TO DO A WATER QUALITY SAMPLING PROGRAM OF DRAG RIVER SYSTEM
OCT. 1992	MOEE LIMNOLOGY SECTION DRAFT REPORT
FEB. 1993	M. MICHALSKI DRAFT REPORT
JULY 9, 1993	PUBLIC INFORMATION SESSION NO. 1
JULY/AUG. 1993	PREPARATION OF ESR ADDENDUM REPORT
AUG. 1993	PREPARATION OF FINAL MOEE AND M. MICHALSKI REPORT AND CRA WATER QUALITY EVALUATION
SEPT. 1993	PUBLIC INFORMATION SESSION NO.2
SEPT. 1993	PROPOSED FILING OF ESR ADDENDUM FOR 30 DAY REVIEW PERIOD

TABLE 1

DRAG RIVER SYSTEM PHOSPHOROUS LOADINGS (1)
WITH HALIBURTON SEWAGE TREATMENT PLANT EXPANSION
SERVICE AREA - HALIBURTON AND HIGHWAY 121

Retention of (P)	*Description*	*Head*		*Grass*		*N. Kashag*		*S. Kashag*		*Canning*	
		80%	*0%*	*80%*	*0%*	*80%*	*0%*	*80%*	*0%*	*80%*	*0%*
Objectives (2)		13.5		12.9		11.2		8.5		8.0	
Existing Conditions (3) (Euphotic Zone)		10.0		12.6		12.7		9.5		9.5 (est.)	
Do nothing alternative (existing vacant lots developed)		10.5	15.6	11.6	19.4	10.7	21.2	7.7	14.6	7.3	14.4
Do nothing alternative (existing lots not developed)		9.9	12.8	10.8	15.9	10.0	18.1	7.4	12.9	7.0	12.9
Alternative 1	Drag R.	9.9	12.8	12.8	20.7	11.0	20.2	7.9	14.1	7.5	14.0
Alternative 2	Grass	9.9	12.8	12.8	20.7	11.0	20.2	7.9	14.1	7.5	14.0
Alternative 3	Grass/Kashag	9.9	12.8	12.1	19.9	11.0	20.3	7.9	14.2	7.5	14.0
Alternative 4	Kashag	9.9	12.8	10.8	18.7	11.1	20.3	7.9	14.2	7.5	14.0
Alternative 5	Burnt	9.9	12.8	10.8	18.7	9.9	19.1	7.3	13.6	7.0	13.5
Alternative 6	Kashag/pipe	9.9	12.8	10.8	18.7	11.1	20.3	7.9	14.2	7.5	14.0
Alternative 7	Wetland/Kashag	9.9	12.8	10.8	18.7	10.4	19.7	7.6	13.9	7.2	13.8
Alternative 8 (4)	Claricone/Drag	9.9	12.8	11.3	19.2	10.2	19.4	7.5	13.7	7.1	13.6

Notes:

Concentrations in µg/L
(1) Trophic Status Modeling Performed by N. Hutchinson MOEE (Oct. 19, 1992 and Aug. 24, 1993)
(2) Table 8.0 N. Hutchinson's Report, Oct. 19, 1992
(3) Table 5.0 M. Michalski's Report, Feb. 1993
(4) Interpolated Values

TABLE 2

DRAG RIVER SYSTEM PHOSPHOROUS LOADINGS (1)
WITH HALIBURTON SEWAGE TREATMENT PLANT EXPANSION
SERVICE AREA - GRASS, HEAD AND NORTH SIDE OF NORTH KASHAGAWIGAMOG

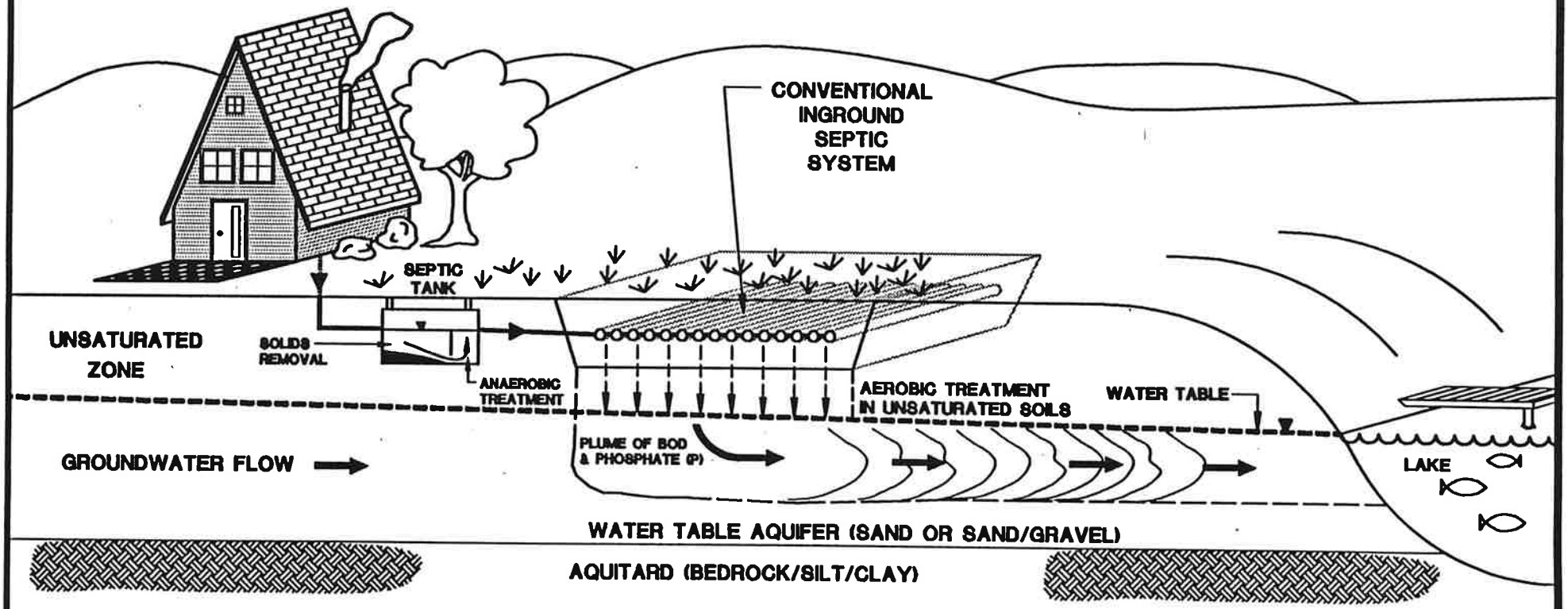
Description		*Head*		*Grass*		*N. Kashag*		*S. Kashag*		*Canning*	
Retention of (P)		*80%*	*0%*	*80%*	*0%*	*80%*	*0%*	*80%*	*0%*	*80%*	*0%*
Objectives (2)		13.5		12.9		11.2		8.5		8.0	
Existing Conditions (3) (Euphotic Zone)		12.4		12.6		12.7		9.5		9.5 (est.)	
Do nothing alternative (existing vacant lots developed)		10.5	15.6	11.6	19.4	10.7	21.2	7.7	14.6	7.3	14.4
Do nothing alternative (existing lots not developed)		9.9	12.8	10.8	15.9	10.0	18.1	7.4	12.9	7.0	12.9
Alternative 1	Drag R.	9.5	10.9	11.1 11.2 (5)	12.4 12.4 (5)	9.5 8.9 (5)	12.7 9.6 (5)	7.1 6.8 (5)	10.3 8.7 (5)	6.9 6.6 (5)	10.9 9.7 (5)
Alternative 2	Grass	9.5	10.9	11.1	12.4	9.5	12.7	7.1	10.3	6.9	10.9
Alternative 3	Grass/Kashag	9.5	10.9	10.4	11.7	9.5	12.8	7.1	10.3	6.9	11.0
Alternative 4	Kashag	9.5	10.9	9.1	10.4	9.6	12.8	7.2	10.3	6.9	11.0
Alternative 5	Burnt	9.5	10.9	9.1	10.4	6.3	11.6	5.5	9.7	5.5	10.5
Alternative 6	Kashag/pipe	9.5	10.9	10.1	10.4	8.9	12.8	6.8	10.3	6.6	11.0
Alternative 7	Wetland/Kashag	9.5	10.9	9.1	10.4	9.6	12.2	7.2	10.0	6.9	10.7
Alternative 8 (4)	Claricone/Drag	9.5	10.9	9.6 9.7 (5)	10.9 10.9 (5)	7.1 6.5 (5)	11.9 8.8 (5)	5.9 5.6 (5)	9.9 8.3 (5)	5.9 5.6 (5)	10.6 9.4 (5)

Notes:

Concentrations in µg/L

(1) Trophic Status Modeling Performed by N. Hutchinson MOEE (Oct. 19, 1992 and Aug. 24, 1993)
(2) Table 8.0 N. Hutchinson's Report, Oct. 19, 1992
(3) Table 5.0 M. Michalski's Report, Feb. 1993
(4) Interpolated Values
(5) Concentration values reflect south side of North Kashagawigamog serviced.

CONVENTIONAL INGROUND SEPTIC SYSTEM



CRA

SEPTIC SYSTEM OVERVIEW

TABLE 3

SUMMARY OF ALTERNATIVES
HALIBURTON SEWAGE TREATMENT PLANT EXPANSION

Alternative	*Description*	*Total Capacity (m3/day)*	*Impacts*	*Benefits*	*Cost Estimate*	*Operating & Maintenance*
1	Expand existing STP with outlet sewer to Drag River	2,907	• will slightly impact Grass Lake • will not impact Kashagawigamog Lake • phosphorous effluent discharge of 0.2 mg/L • lowest capital and operating cost	• service projected growth of Haliburton • service Highway 121, Grass, Head and N. Kashagawigamog • will not impact aesthetics of area with expanded plant	$ 4,600,000	$ 197,000
1 (a)	Expand existing STP with outlet sewer to Drag River	2,907	• phosphorous effluent discharge reduced to 0.1 mg/L • high operating cost		$ 4,800,000	$ 212,000
2	Expand existing STP with sewer outlet to Grass Lake		• will slightly impact water quality on Grass Lake • will slightly impact water quality on Kashagawigamog Lakes and Canning Lake • phosphorous effluent discharge of 0.2 mg/L • additional cost and physical impact of outlet to Grass Lake	• service projected growth of Haliburton • service Highway 121 Grass, Head and N. Kashagawigamog • will not impact aesthetics of area with expanded plant	$ 4,950,000	$ 194,000
3	Expand existing STP to Service Highway 121 development and construct a new plant to service the north shore of North Kashagawigamog.	2,907	• will slightly impact water quality on Grass Lake • will slightly impact water quality on Kashagawigamog Lakes and Canning Lake • phosphorous effluent discharge of 0.2 mg/L • impact of aesthetics on Kashagawigamog Lake during the building of a new STP at a new location • high capital and operating cost • requires long lead time to determine optimum Site location	• service projected growth of Haliburton • service Highway 121 Grass, Head and N. Kashagawigamog	$ 6,300,000	$ 230,000

TABLE 3

SUMMARY OF PREFERRED ALTERNATIVES
HALIBURTON SEWAGE TREATMENT PLANT EXPANSION

Alternative	*Description*	*Total Capacity (m3/day)*	*Impacts*	*Benefits*	*Cost Estimate*	*Operating & Maintenance*
4	Construct new STP to service Highway 121 development and Hamlet of Haliburton	2,907	• will not impact Grass Lake water quality • will slightly impact water quality on Kashagawigamog Lakes and Canning Lake • require building a new STP at a new location and retire existing STP • capital investment of existing plant is lost • impact of aesthetics on Kashagawigamog Lake • phosphorous effluent discharge of 0.2 mg/L • requires water quality impact assessment of Burnt River System	• service projected grown of Haliburton • service Highway 121 Grass, Head and N. Kashagawigamog	$ 5,900,000	$ 197,000
5	Expand existing STP with outlet to Burnt River	2,907	• will not impact water quality of Grass Lake, Kashagawigamog Lakes and Canning Lake • phosphorous effluent discharge of 0.2 mg/L • requires water quality impact assessment of Burnt River System • highest capital cost and high operating cost	• service projected growth of Haliburton • service Highway 121 Grass, Head and N. Kashagawigamog • can further expand plant without increased loading to Drag River System	$ 7,100,000	$ 220,000
6	Expand existing STP with outlet to North Kashagawigamog	2,907	• will not impact water quality on Grass Lake • will slightly impact water quality on Kashagawigamog Lakes and Canning Lake • phosphorous effluent discharge of 0.2 mg/L	• service projected growth of Haliburton • service Highway 121 Grass, Head and N. Kashagawigamog	$ 6,500,000	$ 215,000

TABLE 3

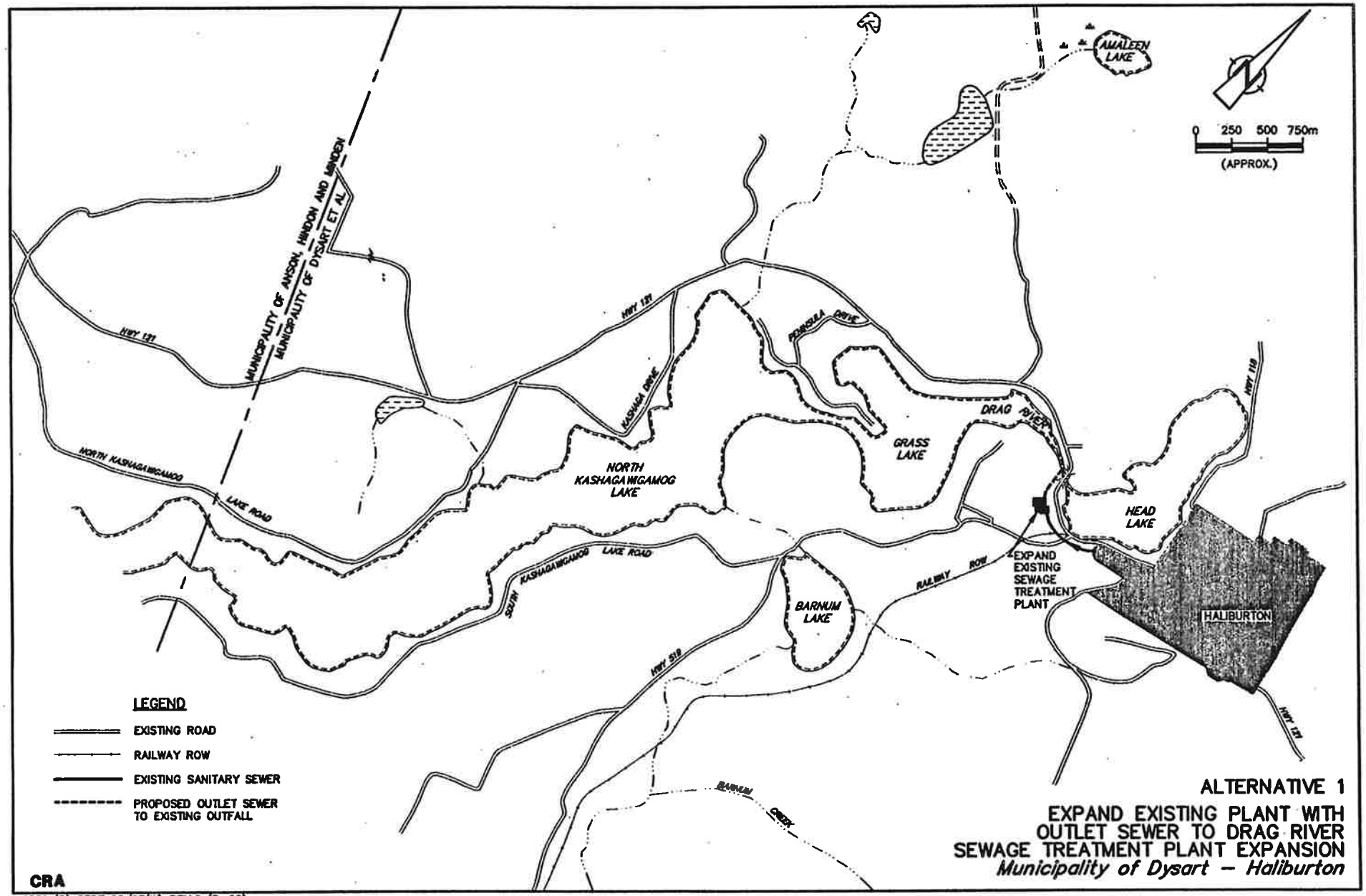
SUMMARY OF PREFERRED ALTERNATIVES
HALIBURTON SEWAGE TREATMENT PLANT EXPANSION

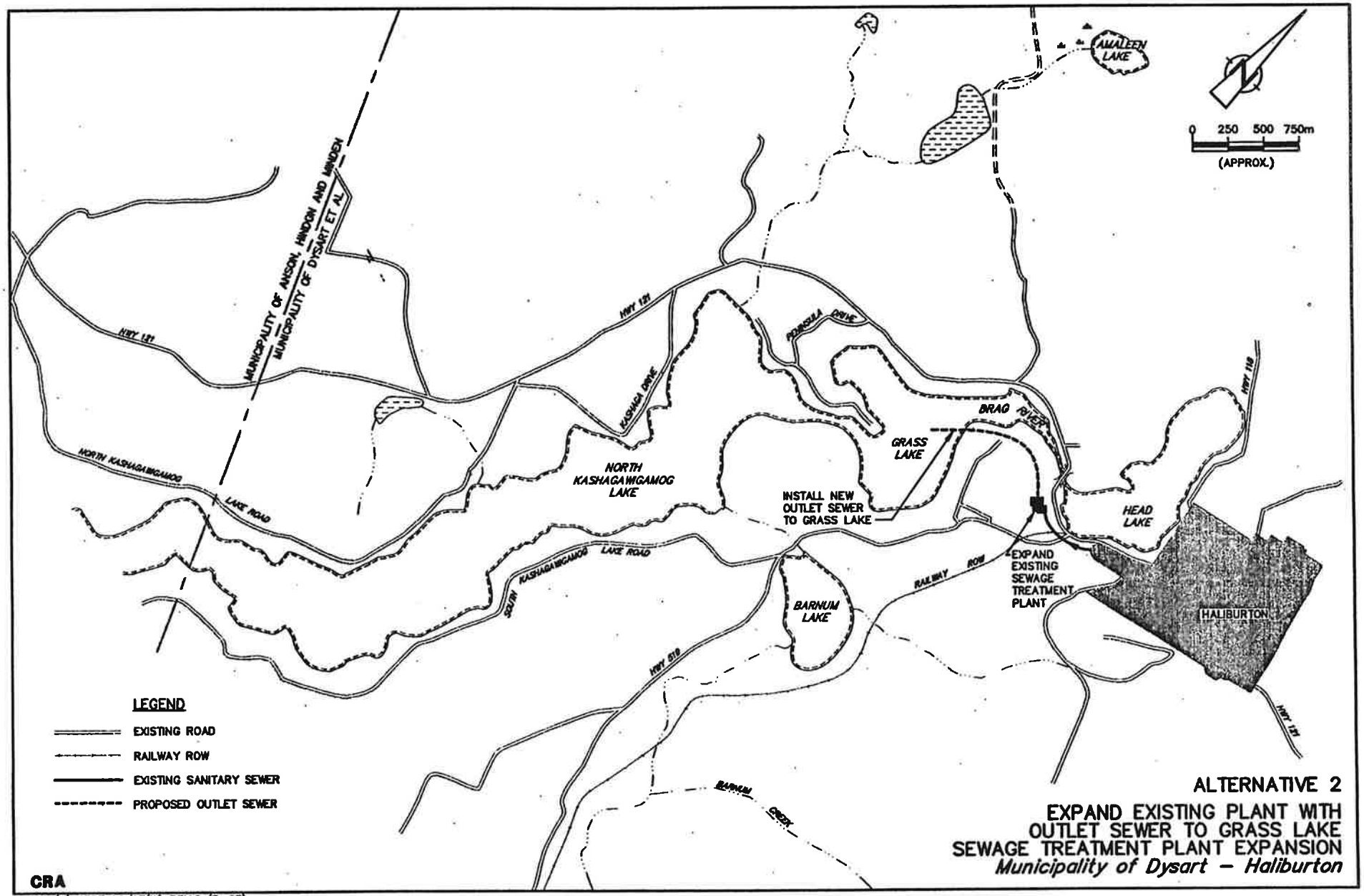
Alternative	*Description*	*Total Capacity (m3/day)*	*Impacts*	*Benefits*	*Cost Estimate*	*Operating & Maintenance*
7	Expand existing STP, wetland treatment and outlet to North Kashagawigamog	2,907	• will not impact water quality on Grass Lake or Kashagawigamog Lake • minimal impact on water quality of Kashagawigamog and Canning Lakes • phosphorous effluent discharge 0.10 mg/L to 0.15 mg/L • high operating cost • treatment efficiency varies with season(s)	• service projected growth of Haliburton • service Highway 121 Grass, Head and N. Kashagawigamog • high treatment efficiency	$ 5,700,000	$ 215,000
8	Expand existing STP Clarlcone treatment with outlet to Drag River	2,907	• will slightly impact Grass Lake • phosphorous effluent discharge of 0.05 mg/L • least impact on water quality for Kashagawigamog and Canning Lake	• application of Best Available Technology (BAT) • Treatment efficiency is constant throughout year • reasonable operating cost • Best treatment alternative in meeting MOEE objectives	$ 5,675,000	$ 200,000

SUMMARY

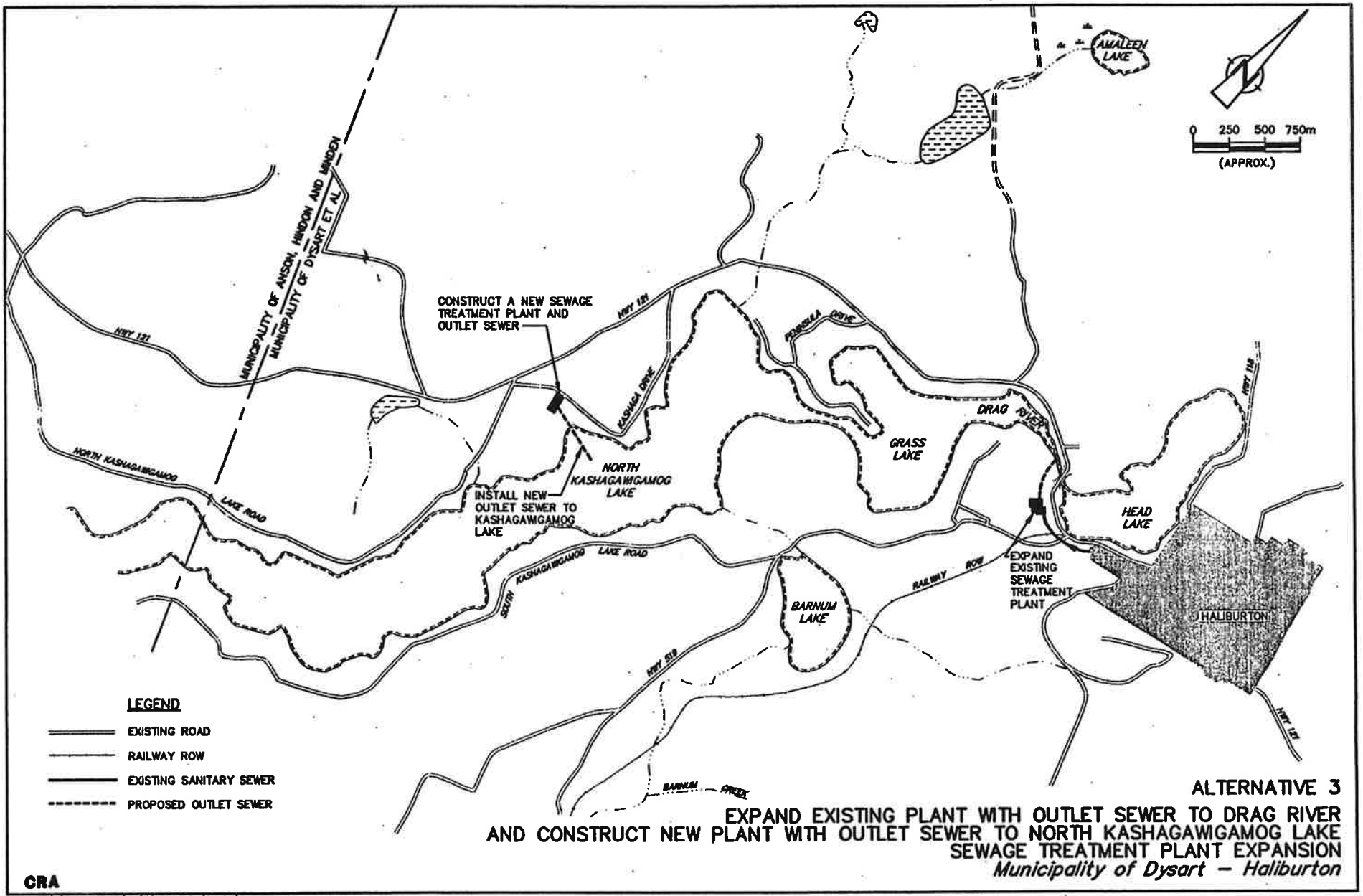
ALTERNATIVE No. 8 IS CONSIDERED TO BE THE PREFERRED ALTERNATIVE. THIS ALTERNATIVE INCLUDES THE BEST AVAILABLE TECHNOLOGY (BAT) FROM A TREATMENT PERSPECTIVE. IN COMBINATION WITH SERVICING GRASS, HEAD AND NORTH KASHAGAWIGAMOG LAKES AND THE (BAT) TREATMENT SYSTEM, THE MOEE WATER QUALITY OBJECTIVE IS BEST SATISFIED BY THIS ALTERNATIVE.

OVER THE LONG TERM, THE WATER QUALITY DOWN STREAM OF GRASS LAKE SHOULD ACTUALLY IMPROVE OVER EXISTING CONDITIONS. THE LOWER LAKES OF SOUTH KASHAGAWIGAMOG, SOYERS AND CANNING, COULD DIRECTLY IMPACT THEIR WATER QUALITY DEPENDING ON THE FUTURE LAND USE POLICIES AND MAINTENANCE OF PRIVATE SEPTIC TILE BED SYSTEMS.


AMALEEN LAKE
0 250 500 750m
(APPROX.)
MUNICIPALITY OF ANSON, HINDON AND MINDEN
MUNICIPALITY OF DYSART ET AL
HWY 121
HWY 121
KASHAGA DRIVE
PENINSULA DRIVE
DRAG RIVER
HWY 118
GRASS LAKE
NORTH KASHAGAWIGAMOG LAKE
NORTH KASHAGAWIGAMOG LAKE ROAD
SOUTH KASHAGAWIGAMOG LAKE ROAD
HEAD LAKE
EXPAND EXISTING SEWAGE TREATMENT PLANT
RAILWAY ROW
BARNUM LAKE
HALIBURTON
HWY 519
HWY 121
BARNUM CREEK
LEGEND
EXISTING ROAD
RAILWAY ROW
EXISTING SANITARY SEWER
PROPOSED OUTLET SEWER TO EXISTING OUTFALL
ALTERNATIVE 1
EXPAND EXISTING PLANT WITH OUTLET SEWER TO DRAG RIVER
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton
CRA
4881 (P) SEPT 02/93(W) REV.0 (P-02)



4881 (P) SEPT 02/93(W) REV.0 (P-03)

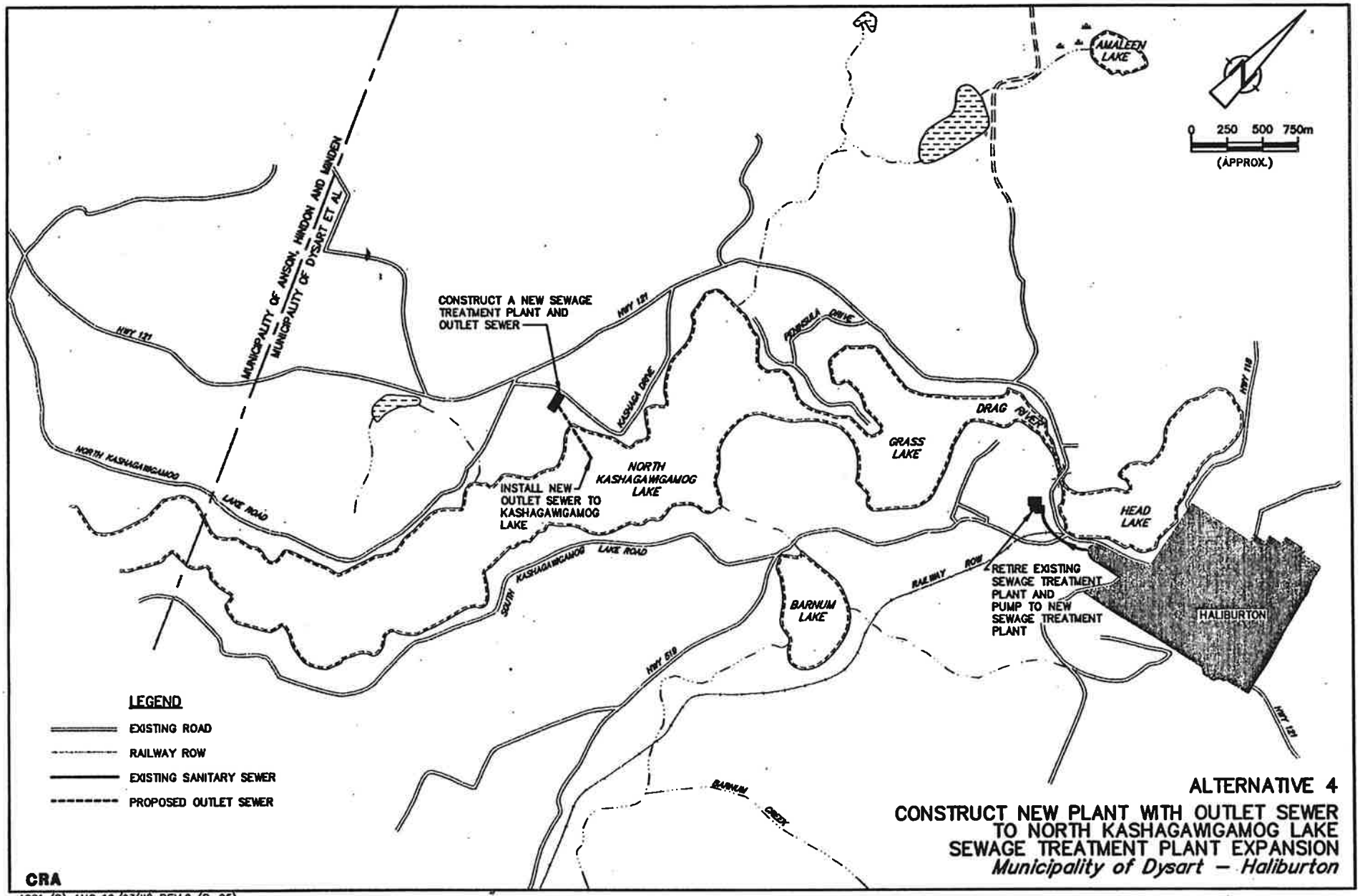


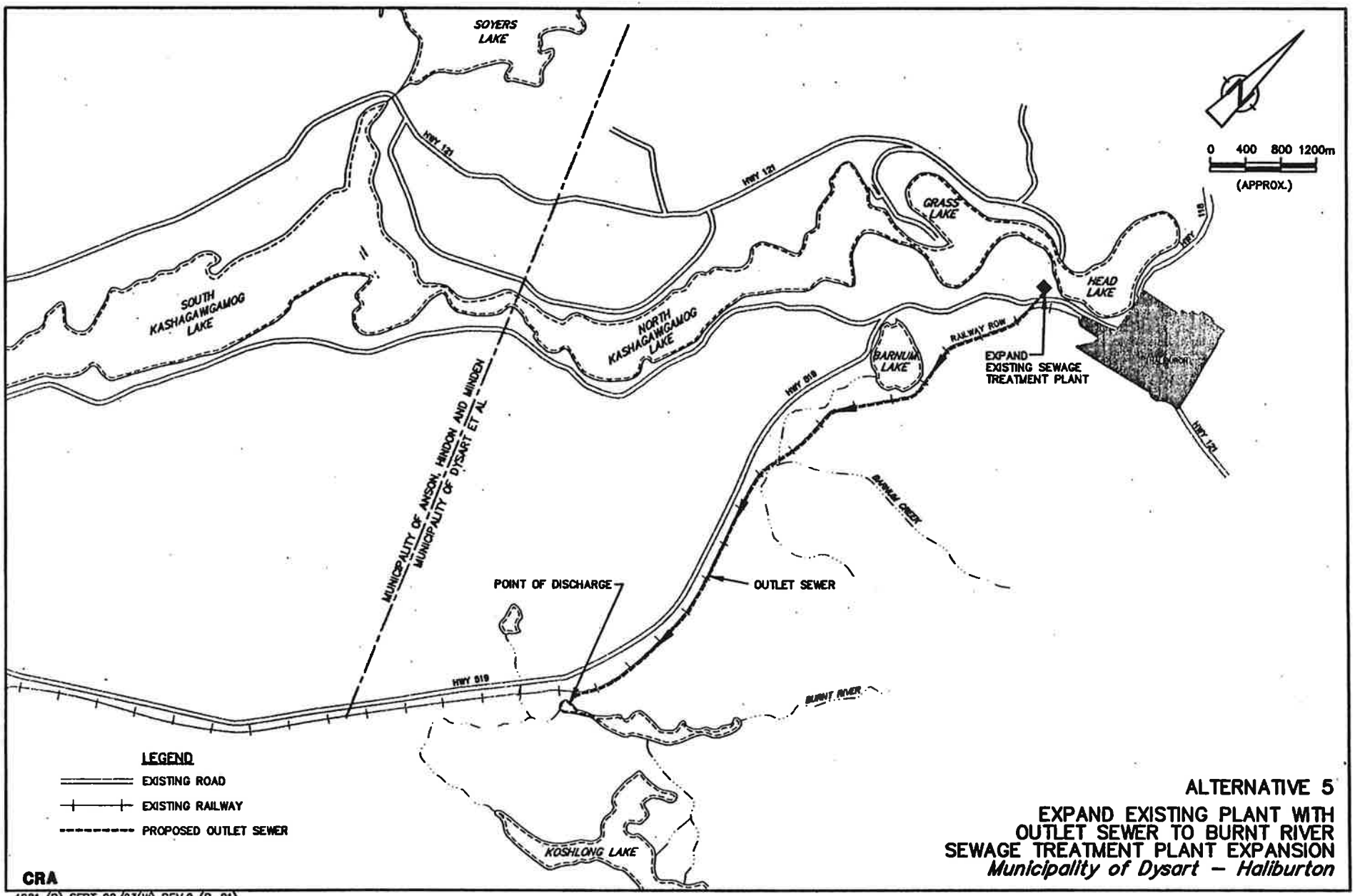
ALTERNATIVE 3

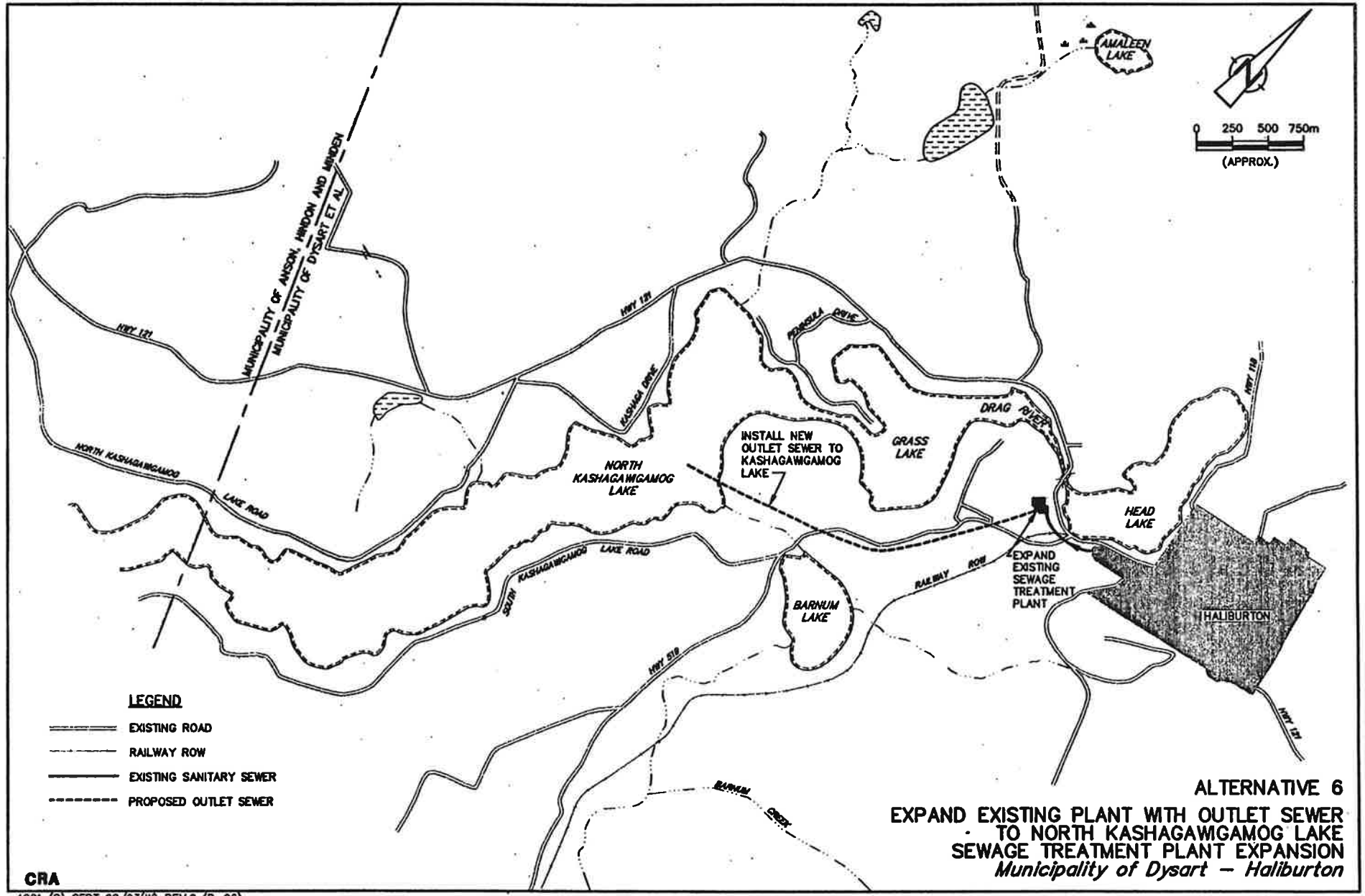
EXPAND EXISTING PLANT WITH OUTLET SEWER TO DRAG RIVER
AND CONSTRUCT NEW PLANT WITH OUTLET SEWER TO NORTH KASHAGAWIGAMOG LAKE
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton

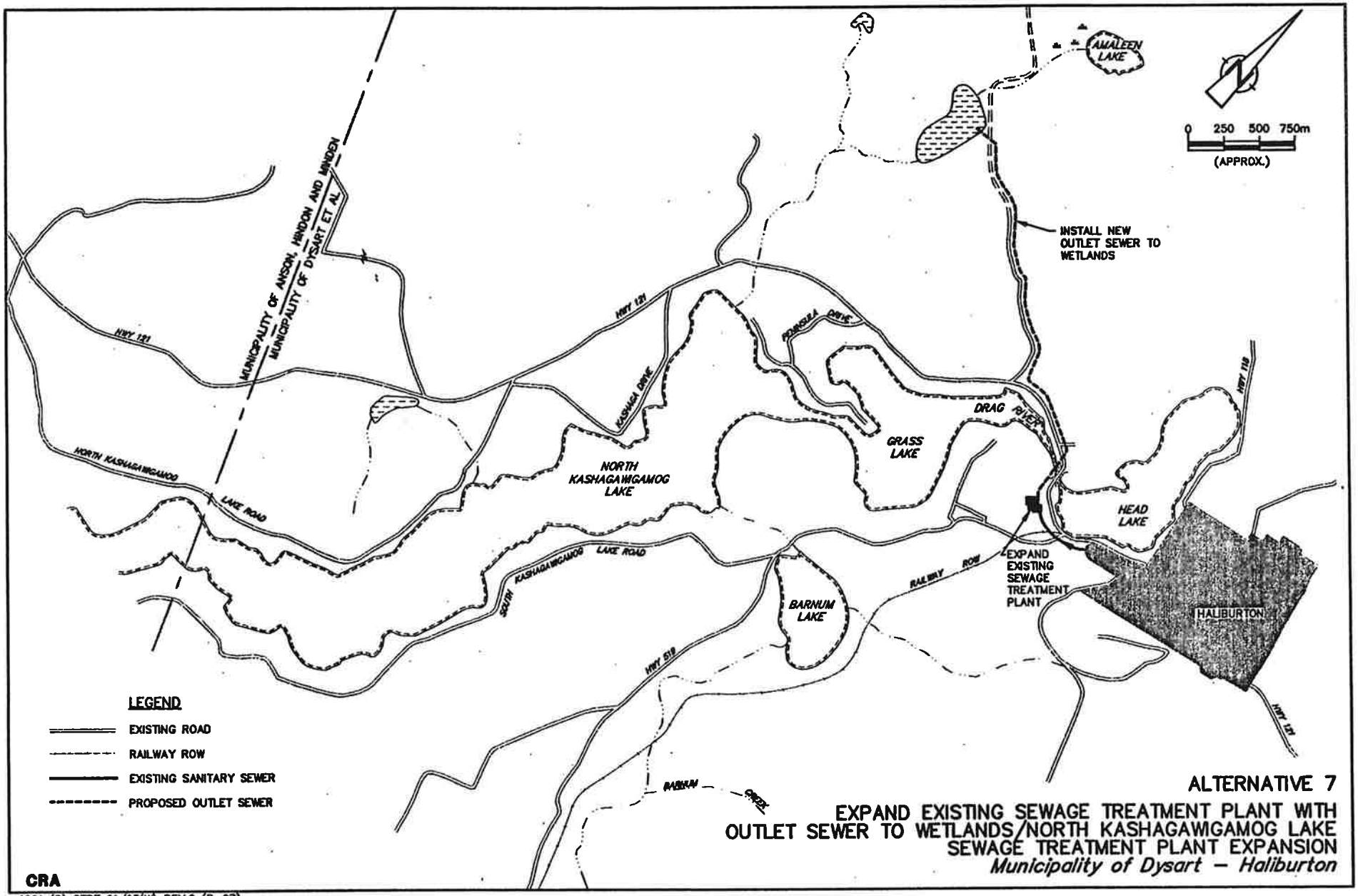
CRA

4881 (P) SEPT 01/93(W) REV.0 (P-04)

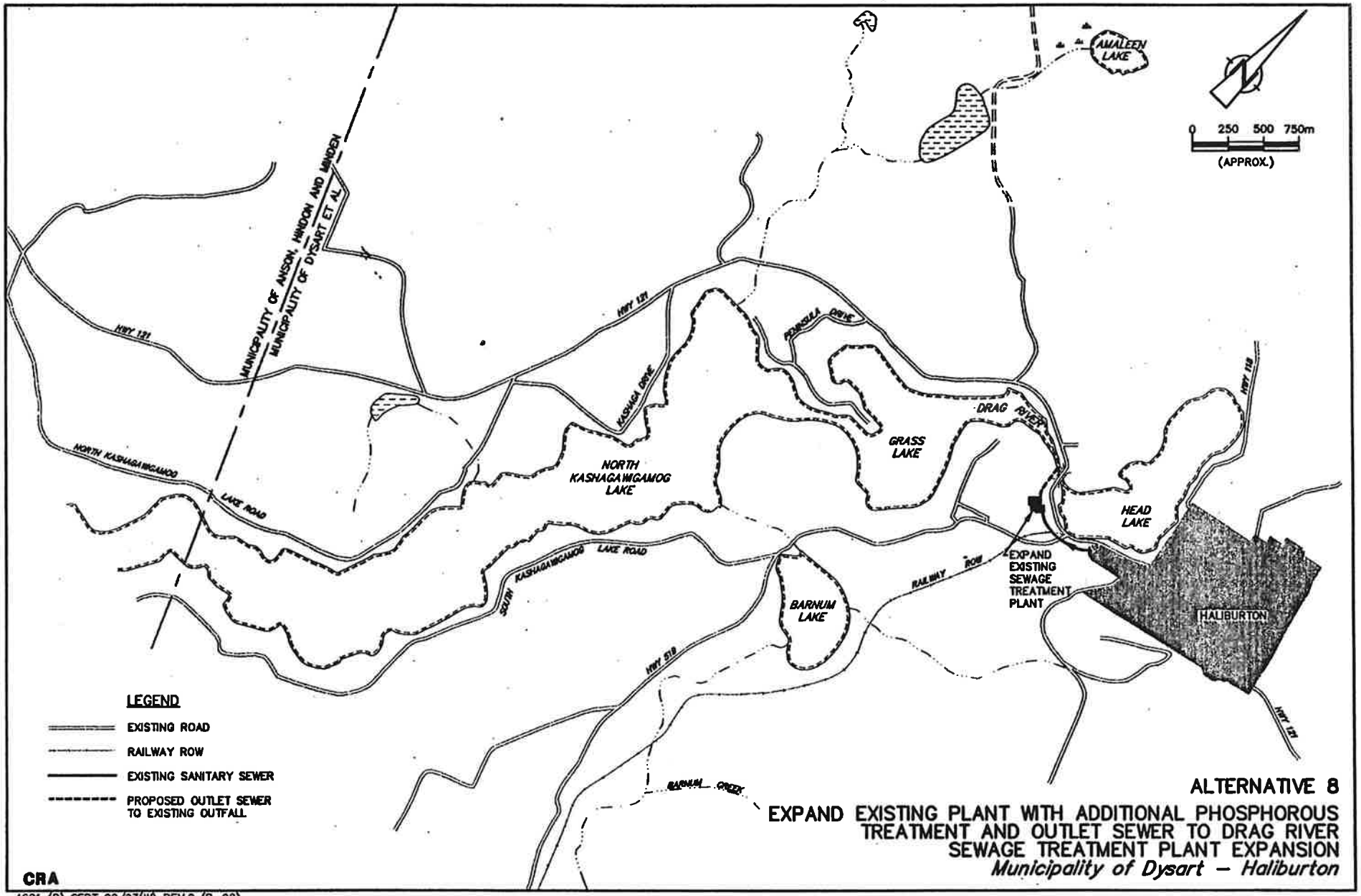

AMALEEN LAKE
0 250 500 750m
(APPROX.)
MUNICIPALITY OF ANSON, HINDON AND MINDEN
MUNICIPALITY OF DYSART ET AL
CONSTRUCT A NEW SEWAGE TREATMENT PLANT AND OUTLET SEWER
HWY 121
HWY 121
PENINSULA DRIVE
KASHAGA DRIVE
DRAG RIVER
HWY 118
GRASS LAKE
NORTH KASHAGAWIGAMOG LAKE
NORTH KASHAGAWIGAMOG LAKE ROAD
INSTALL NEW OUTLET SEWER TO KASHAGAWIGAMOG LAKE
HEAD LAKE
SOUTH KASHAGAWIGAMOG LAKE ROAD
RAILWAY ROW
RETIRE EXISTING SEWAGE TREATMENT PLANT AND PUMP TO NEW SEWAGE TREATMENT PLANT
BARNUM LAKE
HALIBURTON
HWY 518
HWY 121
BARNUM CREEK
LEGEND
EXISTING ROAD
RAILWAY ROW
EXISTING SANITARY SEWER
PROPOSED OUTLET SEWER
ALTERNATIVE 4
CONSTRUCT NEW PLANT WITH OUTLET SEWER TO NORTH KASHAGAWIGAMOG LAKE
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton
CRA
4881 (P) AUG 10/93(W) REV.0 (P-05)


SOYERS LAKE
HWY 121
HWY 121
GRASS LAKE
HEAD LAKE
SOUTH KASHAGAWIGAMOG LAKE
NORTH KASHAGAWIGAMOG LAKE
MUNICIPALITY OF ANSON, HINDON AND MINDEN
MUNICIPALITY OF DYSART ET AL
BARNUM LAKE
RAILWAY ROW
EXPAND EXISTING SEWAGE TREATMENT PLANT
HWY 118
HWY 121
HWY 519
BARNUM CREEK
POINT OF DISCHARGE
OUTLET SEWER
HWY 519
BURNT RIVER
KOSHLONG LAKE
0 400 800 1200m
(APPROX.)
LEGEND
EXISTING ROAD
EXISTING RAILWAY
PROPOSED OUTLET SEWER
CRA
4881 (P) SEPT 02/93(W) REV.0 (P-01)
ALTERNATIVE 5
EXPAND EXISTING PLANT WITH
OUTLET SEWER TO BURNT RIVER
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton


AMALEEN LAKE
0 250 500 750m
(APPROX.)
MUNICIPALITY OF ANSON, HINDON AND MINDEN
MUNICIPALITY OF DYSART ET AL
HWY 121
HWY 121
KASHAGA DRIVE
PENINSULA DRIVE
DRAG RIVER
HWY 118
NORTH KASHAGAWIGAMOG LAKE ROAD
NORTH KASHAGAWIGAMOG LAKE
INSTALL NEW OUTLET SEWER TO KASHAGAWIGAMOG LAKE
GRASS LAKE
HEAD LAKE
SOUTH KASHAGAWIGAMOG LAKE ROAD
RAILWAY ROW
EXPAND EXISTING SEWAGE TREATMENT PLANT
BARNUM LAKE
HALIBURTON
HWY 518
HWY 121
BARNUM CREEK
LEGEND
EXISTING ROAD
RAILWAY ROW
EXISTING SANITARY SEWER
PROPOSED OUTLET SEWER
CRA
4881 (P) SEPT 02/93(W) REV.0 (P-08)
ALTERNATIVE 6
EXPAND EXISTING PLANT WITH OUTLET SEWER TO NORTH KASHAGAWIGAMOG LAKE
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton



4881 (P) SEPT 01/93(W) REV.0 (P-07)



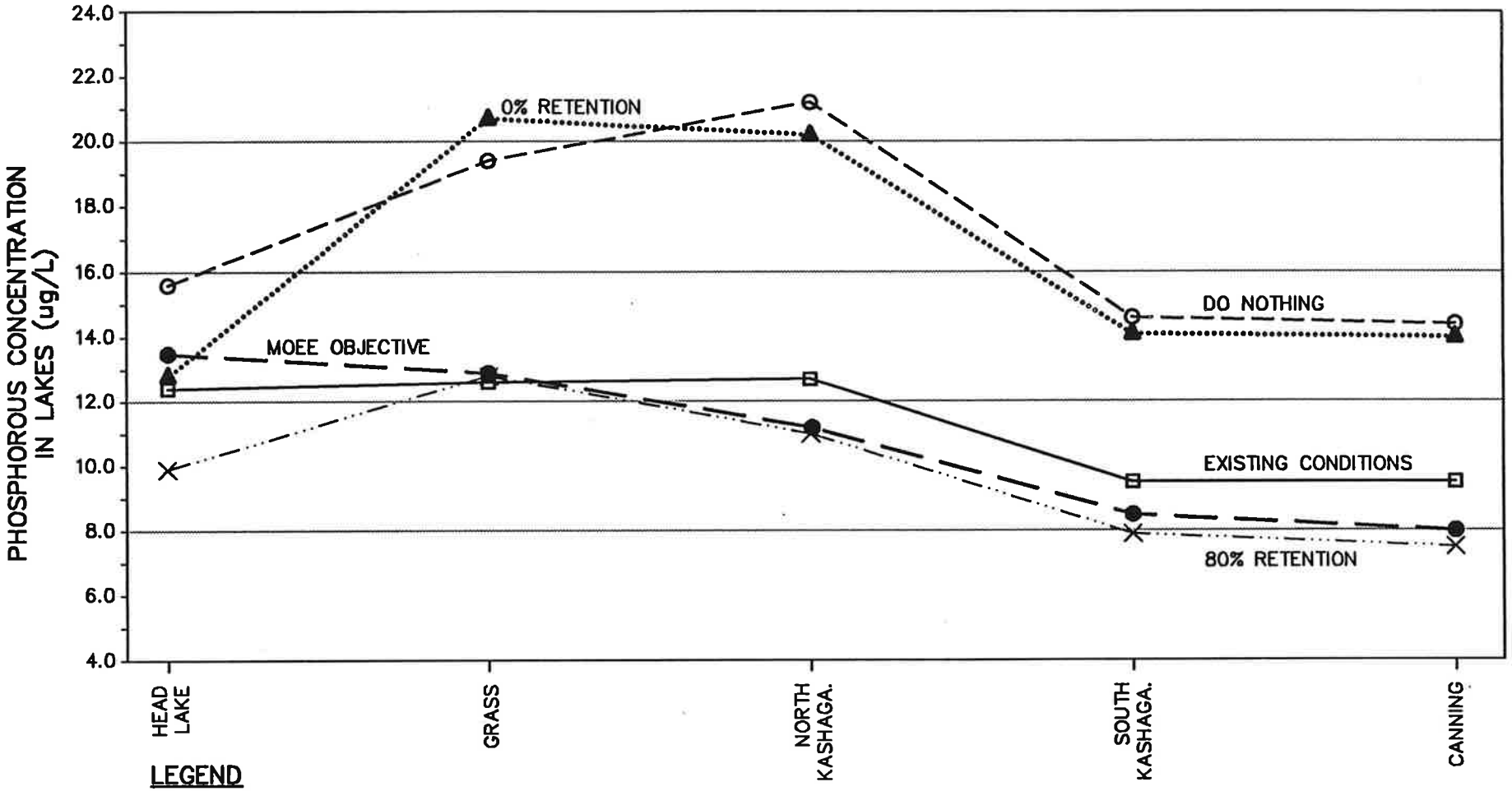
ALTERNATIVE 8

EXPAND EXISTING PLANT WITH ADDITIONAL PHOSPHOROUS TREATMENT AND OUTLET SEWER TO DRAG RIVER SEWAGE TREATMENT PLANT EXPANSION

Municipality of Dysart – Haliburton

CRA

4881 (P) SEPT 02/93(W) REV.0 (P-08)



LEGEND

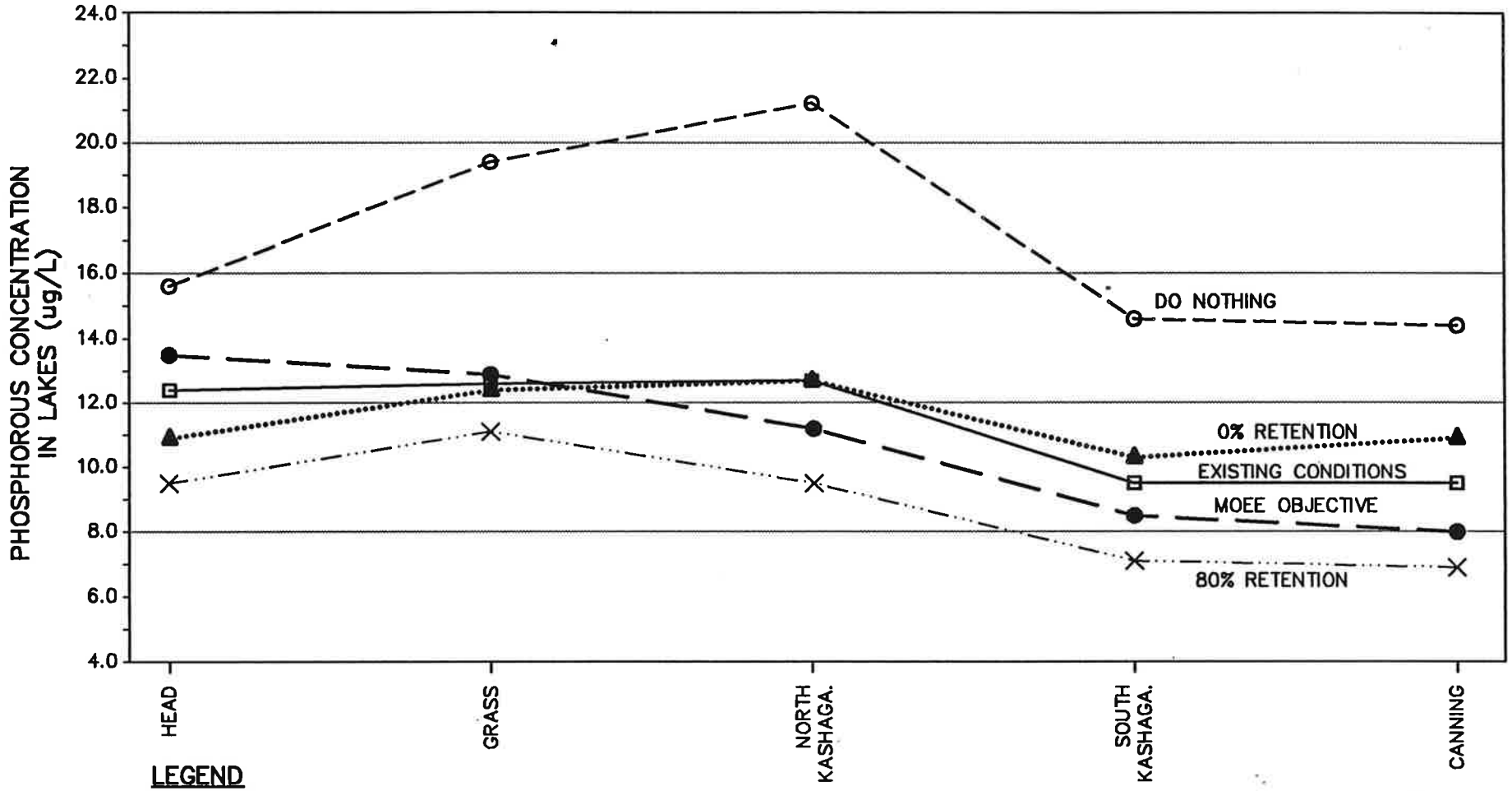
- ● MOEE OBJECTIVE
- □ EXISTING CONDITIONS
- ○ DO NOTHING (DEVELOPED)
- ▲ ALTERNATIVE 1 (0% RETENTION)
- × ALTERNATIVE 1 (80% RETENTION)

figure 1

ALTERNATIVE 1
DRAG RIVER SYSTEM PHOSPHOROUS LOADINGS
SERVICING HALIBURTON AND HIGHWAY 121
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton

CRA

4881 (P) SEPT 02/93(W) REV.0 (G-01)



LEGEND

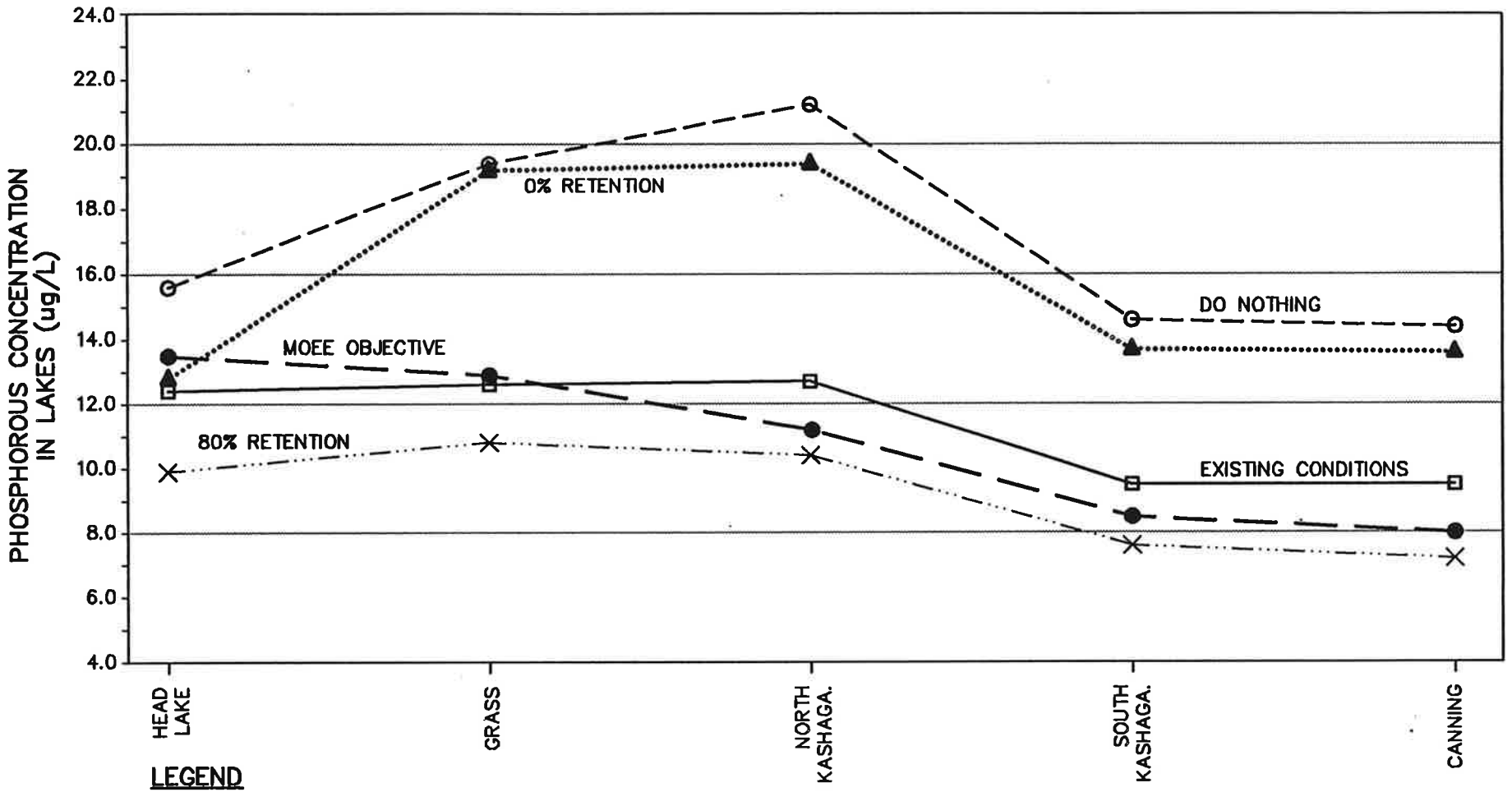
- MOEE OBJECTIVE
- EXISTING CONDITIONS
- DO NOTHING (DEVELOPED)
- ALTERNATIVE 1 (0% RETENTION)
- ALTERNATIVE 1 (80% RETENTION)

figure 2

ALTERNATIVE 1
DRAG RIVER SYSTEM PHOSPHOROUS LOADINGS
SERVICING HEAD, GRASS & NORTH KASHAGAWIGAMOG LAKES
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton

CRA

4881 (P) SEPT 02/93(W) REV.0 (G-02)



LEGEND

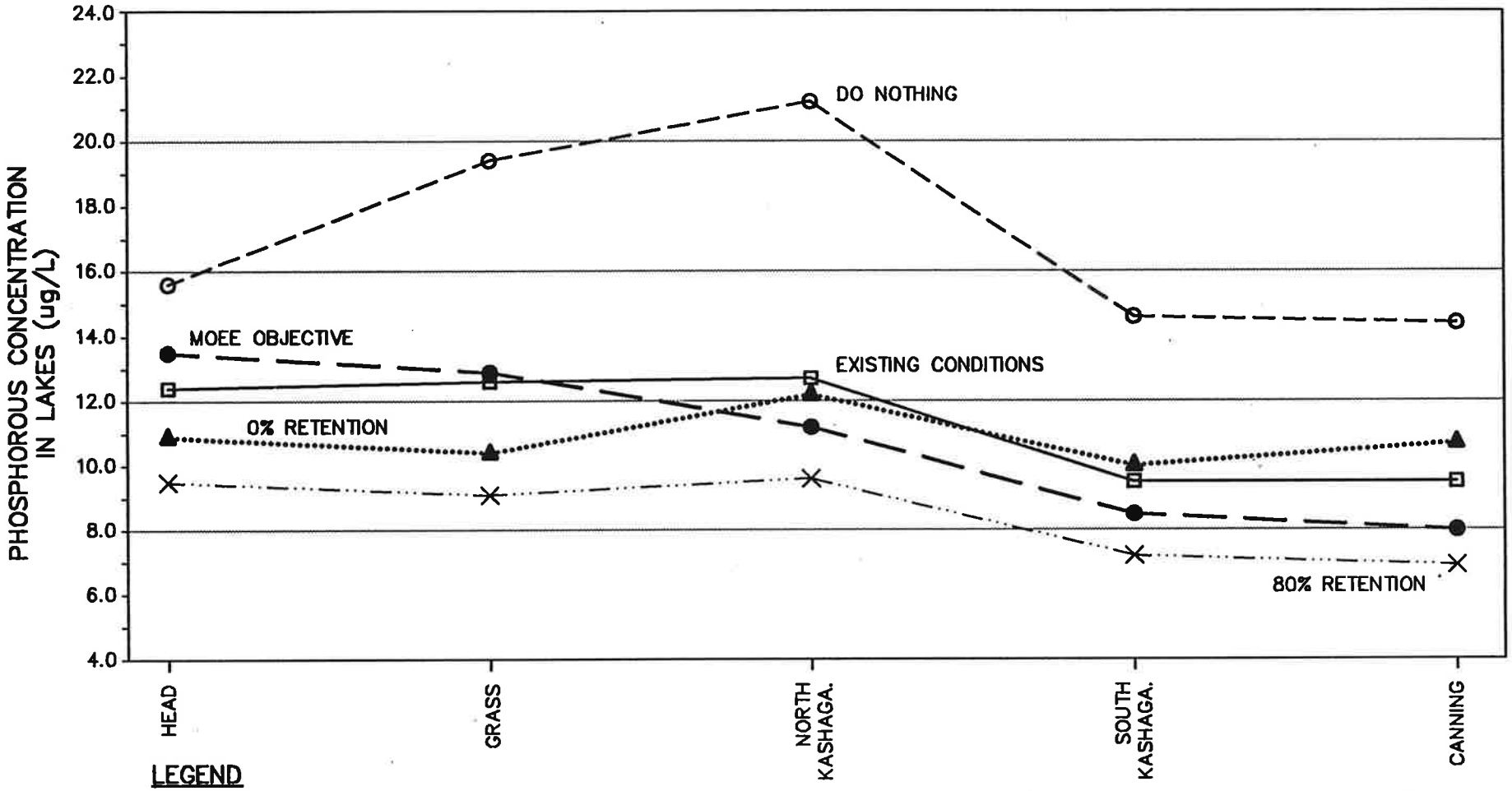
- MOEE OBJECTIVE
- EXISTING CONDITIONS
- DO NOTHING (DEVELOPED)
- ALTERNATIVE 7 (0% RETENTION)
- ALTERNATIVE 7 (80% RETENTION)

figure 3

ALTERNATIVE 7
DRAG RIVER SYSTEM PHOSPHOROUS LOADINGS
SERVICING HALIBURTON AND HIGHWAY 121
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton

CRA

4881 (P) SEPT 02/93(W) REV.0 (G-03)



LEGEND

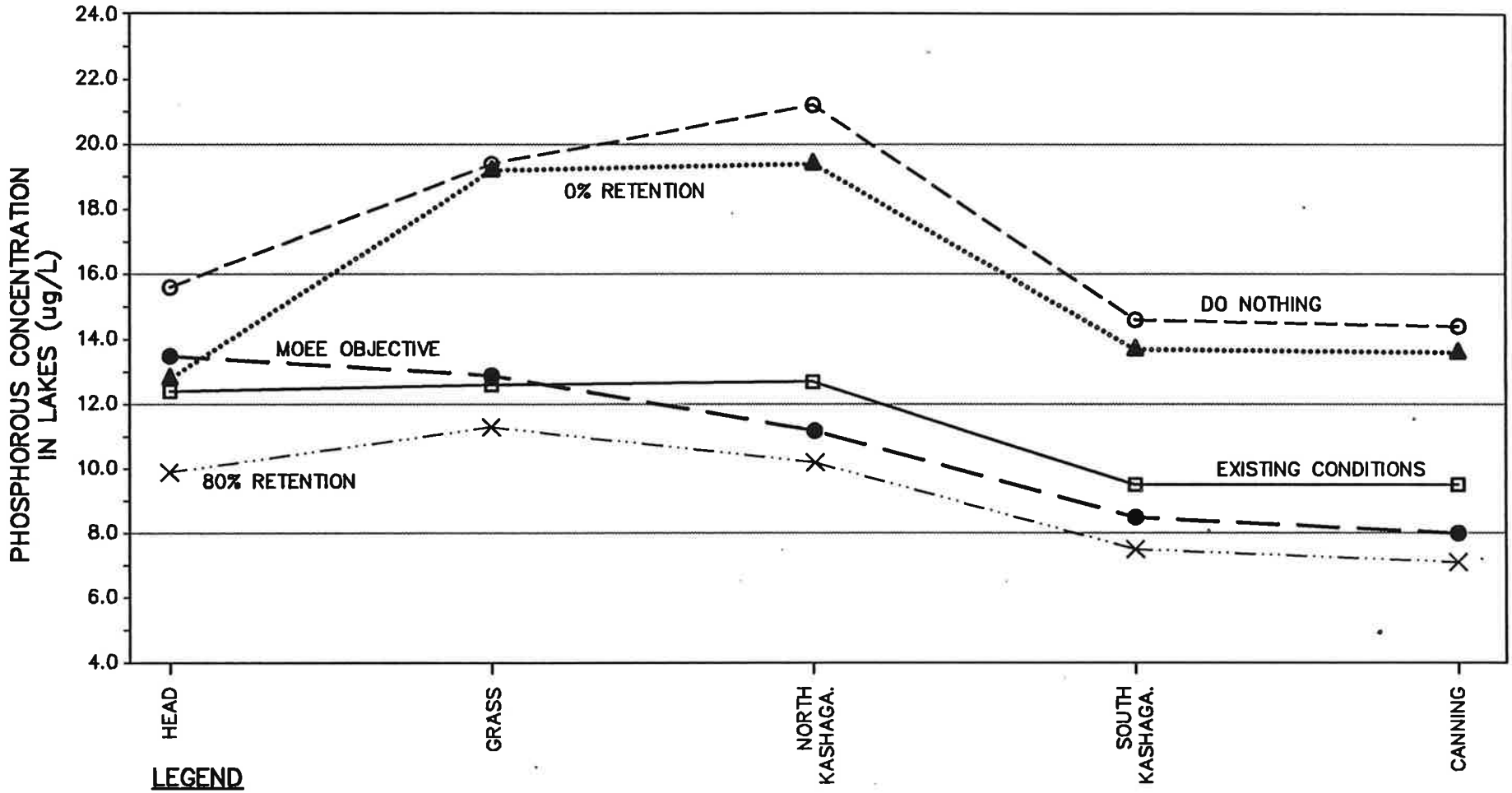
- MOEE OBJECTIVE
- EXISTING CONDITIONS
- DO NOTHING (DEVELOPED)
- ALTERNATIVE 7 (0% RETENTION)
- ALTERNATIVE 7 (80% RETENTION)

figure 4

ALTERNATIVE 7
DRAG RIVER SYSTEM PHOSPHOROUS LOADINGS
SERVICING HEAD, GRASS & NORTH KASHAGAWIGAMOG LAKES
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton

CRA

4881 (P) SEPT 02/93(W) REV.0 (G-04)



LEGEND

- MOEE OBJECTIVE
- EXISTING CONDITIONS
- DO NOTHING (DEVELOPED)
- ALTERNATIVE 8 (0% RETENTION)
- ALTERNATIVE 8 (80% RETENTION)

figure 5

ALTERNATIVE 8
DRAG RIVER SYSTEM PHOSPHOROUS LOADINGS
SERVICING HALIBURTON AND HIGHWAY 121
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton

CRA

4881 (P) SEPT 02/93(W) REV.0 (G-05)

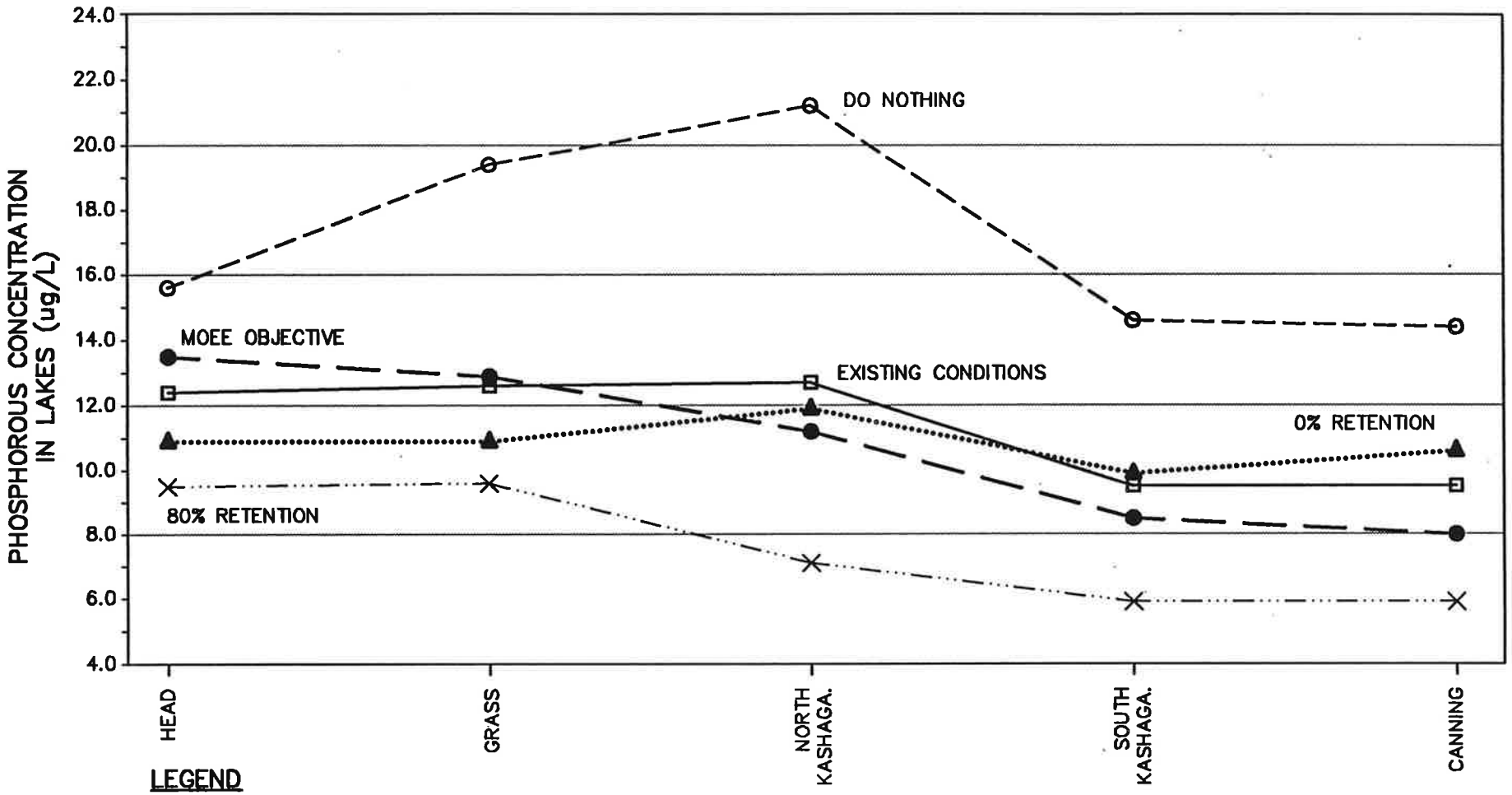


figure 6

ALTERNATIVE 8
DRAG RIVER SYSTEM PHOSPHOROUS LOADINGS
SERVICING HEAD, GRASS & NORTH KASHAGAWIGAMOG LAKES
SEWAGE TREATMENT PLANT EXPANSION
Municipality of Dysart – Haliburton

CRA

4881 (P) SEPT 02/93(W) REV.0 (G-06)