

North Alouette River at 232 Street
Rating Curve Extension

A.G. Smith

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C.P. Robinson
Head, Hydrometric Survey Section

A.G. Smith
Network Planning and Evaluation

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North Alouette River at 232nd Street (08MH006)
Rating Curve Extension

Introduction

During the flood of December 14, 1979 the left bank and the center channel of the North Alouette River filled and the low water channel shifted towards the left bank. Over the intervening years to this date the center channel has eroded and the low water channel has shifted towards its old location of pre highwater 1979. The left bank however has remained stable.

Rating Curve Extension

The rating curves as developed over the years are correct as drawn, even to the extent of crossing as shown in Figure 1. This condition is explained by the widening of the low water channel and the deposition that took place on the left bank as shown in Figure 2. Figure 3 shows the center channel erosions to January 4, 1984.

The coefficients "a" and "b" are computed using the segment of rating curve #28 from the stage of 0.9 metres to 1.2 metres. The equation for this segment of line is

$$Q = 28.53 + 160.569(G - 0.9)^{3/2}$$

with a coefficient of determination of (R²) 0.994.

The rating curve can be extended by means of this equation. The maximum extension of this rating curve, by U.S.G.S. standards, would be to a stage of 1.520 metres for a discharge of 107 m³/s. Before the curve can be extended with confidence to 1.682 metres, which is the maximum stage to date, flow measurements will be required to define the rating curve to a much higher stage.

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MEMORANDUM

NOTE DE SERVICE

C.P. Robinson
Head, Hydrometric Survey Section

A.G. Smith
Network Planning and Evaluation

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Recommendations

The elevation of bankful flow should be measured and noted on the current rating curve to ensure the extension of rating curves is not carried to flood plain flow.

All peak flows greater than 107 m³/s should be removed from the files until the rating curve can be defined to the required stage.

c.c. G. Tofte
✓ W. Kreuder
M. Frigon

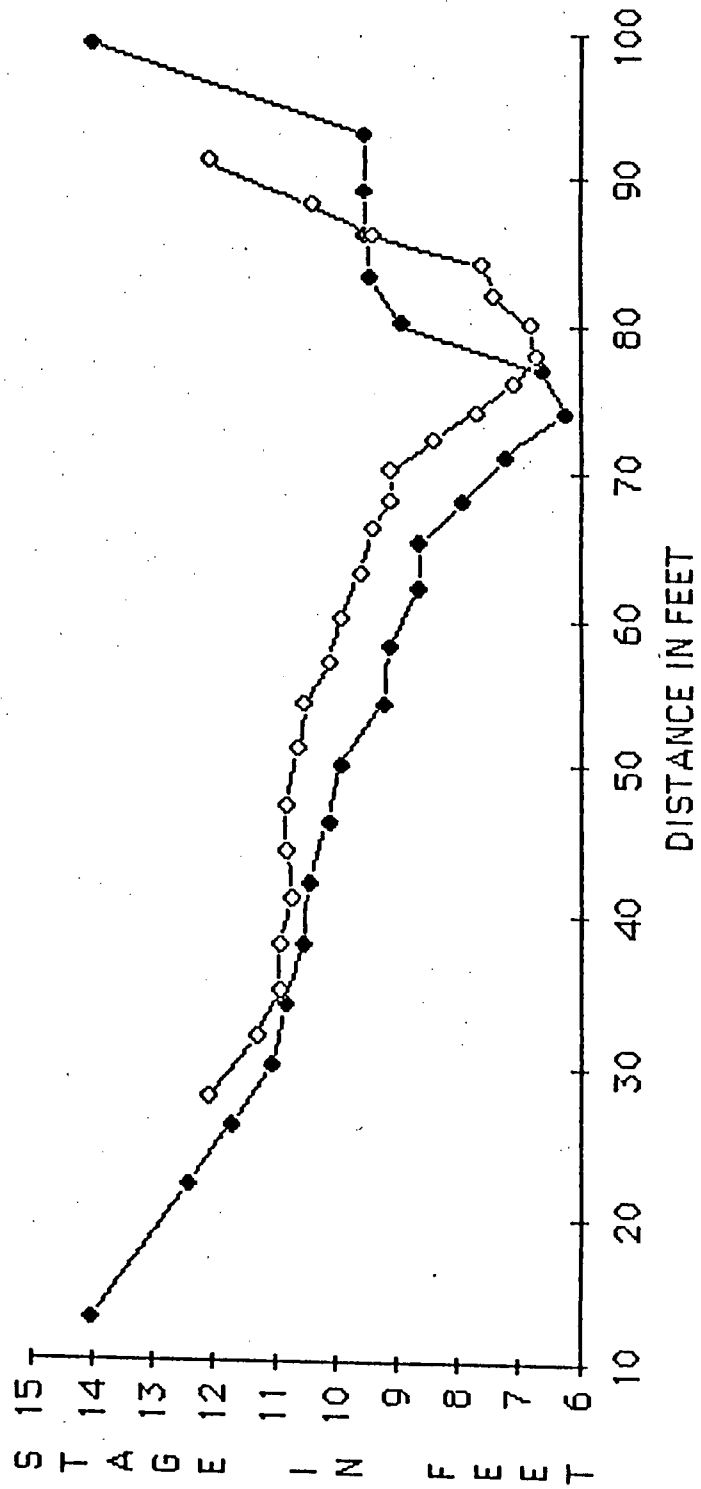


Figure 2 Cross section of North Alouette River channel at road bridge

◆- 14-Dec-79 ○- 4-Jan-84

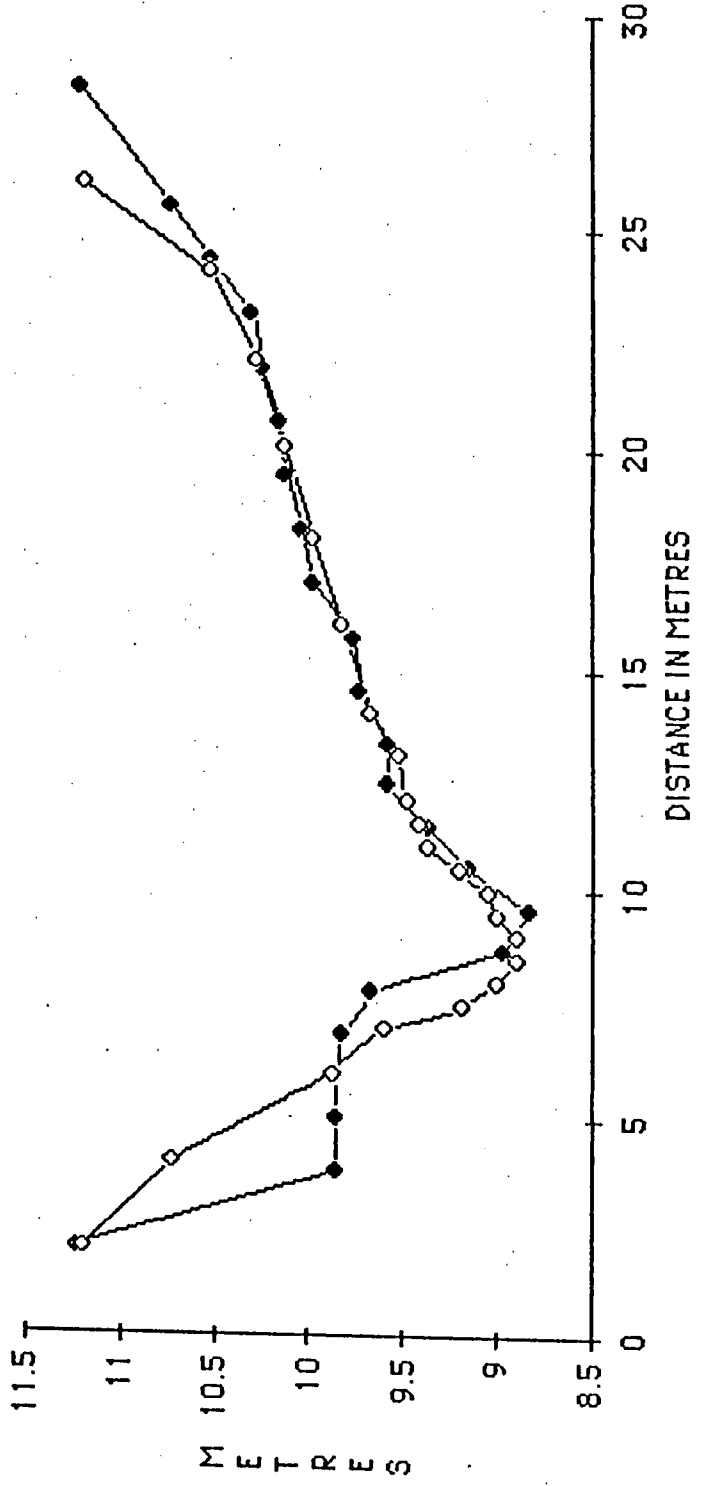


Figure 3 Cross section of North Alouette River channel at road bridge