BF 08689 Hwy 59 Over Grande Prairie Ck
Hydrotechnical Summary

Channel Capacity :

S = 0.003
B = 4 m, h = 2.5 m, T_h = 10 m
Use n = 0.05

At Bank Height : Y = 2.5 m, V = 1.4 m/s, Q = 25 cms
At Channel Capacity : Y = 3.5 m, V = 2.0 m/s, Q = 55 cms

Historical Highwater Data :

HW was noted in spring 1925 with a washout at the east abutment. HW was noted at the culvert at this site in 1960 (0.3m above u/s crown, Q ~ 30cms), and 1964 (1.6m above u/s crown (Q ~ 40cms). A 1999 BIM report notes a HWM over the grade (likely June 1990 based on WSC gauge) with Q ~ 50cms.

WSC gauges 07GE003 (1969 – Now, DA = 152 km^2) reports Q = 64cms (stage rise = 5.7m, located u/s of culvert) in June 1990 with highest measured Q = 23cms (Y = 2.8m, April 1974). The largest storms in the database for this basin are in the range of 100 – 110mm in July 1935, and June 1964, 1965, and 1990.

Basin Runoff Potential :

d = 60mm, T_p = 20hrs, q = 0.85 cms/km^2.
DA = 142 km^2.
Q_p = 120 cms.

Conclusion :

The channel capacity estimate is consistent with historic information and within the basin runoff potential.

Recommended Parameters : Y = 3.5 m, V = 2.0 m/s, Q = 55 cms.