BF 76099 Hwy 734 Over Red Deer River
Hydrotechnical Summary

Channel Capacity :

S = 0.0055
B = 30 m, h = 2 m, T = 50 m
Use AT equation

At Bank Height : Y = 2.0 m, V = 2.4 m/s, Q = 200 cms
At Channel Capacity : Y = 3.0 m, V = 3.4 m/s, Q = 450 cms

Historical Highwater Data :

A 1950 survey notes a HWM 4m above the bottom of the scour hole. A 1970 report notes A HWM with Y = 2.1m. A 1975 report notes a HWM 2.7m below the deck (Y = 4.3m referenced to scour hole). A 1992 design was based on Y = 2.3m and Q = 560cms.

WSC Gauge 05CA004 (DA = 941km^2, 1968 – Now) reports Q = 170cms in June 1990. Gauges 05CA009 (DA = 2250km^2, 1973 – Now) and 05CA001 (DA = 2490km^2, 1951 – 1973) report Q = 700cms in June 1990 (stage rise = 2.7m) and Q = 650cms in June 1965. The storm database indicates that no storms have covered the basin with more than 100mm of rainfall.

Basin Runoff Potential :

d = 70mm, T_p = 20hrs, q = 1.0 cms/km^2.
DA = 1655 km^2.
Q_p = 1650cms.

Conclusion :

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

Recommended parameters : Y = 3.0 m, V = 3.3 m/s, Q = 450 cms.