BF 00935S Hwy 2A Over Red Deer River
Hydrotechnical Summary

Channel Capacity :

S = 0.0011
B = 90 m, h = 5 m, T_h = 140 m
Use AT equation

At Bank Height : Y = 5 m, V = 2.4 m/s, Q = 1400 cms
At Channel Capacity : Y = 6 m, V = 2.7 m/s, Q = 2000 cms

Historical Highwater Data :

HW was observed in 1940 (IJ, CNR bridge washed out), 1943 (IJ, Y ~ 7 – 8m), 1947 (IJ, Y ~ 6 – 7m), 1952 (June, Y ~ 5 – 5.5m), and 1955 (IJ, Y ~ 6m). The 1981 design drawing was based on Y ~ 6m (open water), and Y ~ 7 – 7.5m for ice jam.

WSC Gauge 05CC002 (DA = 11,600km^2, 1913 – Now) reports Q ~ 1900cms in June 1915 (gauged at Q ~ 1600cms, stage increase ~ 5m), and Q ~ 1500cms in August 1954 and June 2005 (~20% attenuation from Dickson Dam). Gauge 05CD004 (DA = 15,100km^2, 1944 – 1958) reports Q ~ 1500cms in August 1954.

Basin Runoff Potential :

DA = 11560km^2, beyond range of basin runoff potential technique.

Conclusion :

Historic observations govern. Recommended parameters :

Y = 6.0 m, V = 2.7 m/s, Q = 2000 cms.
HW EL 854.0 m (Dwg. AP148-3)