BF 01274 Hwy 766 Over Raven River
Hydrotechnical Summary

Channel Capacity :

S = 0.0003
B = 15 m, h = 4.0 m, T_h = 25 m
Use AT equation

At Bank Height : Y = 3.5 m, V = 1.1 m/s, Q = 75 cms
At Channel Capacity : Y = 4.5 m, V = 1.3 m/s, Q = 130 cms

Historical Highwater Data :

HW was noted at this site in June 1954 (EL. 957.5m, Y = 3.5m), June 1972 (Y = 2.4m) and July 1982 (Y = 1.2 m). The 1954 and 1972 events are believed to be influenced by BW from the Red Deer River (1400m d/s, about 0.2 – 0.3m drop). The 1959 report associates a HWM with Y = 3.4m to the 1915 flood. 1992 design notes resulted in Y = 4.5m based on BW from the Red Deer River. HW has been observed at other sites on this stream in 1915, 1954, 1972, 1982, and 1999.

Gauge 05CB004 (DA = 647km^2, 1972 – Now) is located u/s, and reports the highest flows in June 1972 (Q = 35cms) and July 1999 (Q = 40cms). The highest gauged flow is Q = 36cms with a stage rise of just under 3.0m. The largest storms in the database for this area are June 1970 with about 115mm of rainfall, and June 1928 with about 105mm.

Basin Runoff Potential :

d = 50mm, T_p = 20hrs, q = 0.7 cms/km^2.
Gross DA = 835 km^2.
Q_p = 585 cms.

Conclusion :

The channel capacity estimate is consistent with historic observations and is within the basin runoff potential. Consideration should be given to possible backwater influence from the Red Deer River.

Recommended parameters : Y = 4.5 m, V = 1.3 m/s, Q = 130 cms.