BF 73753 Hwy 9 Over Rosebud River
Hydrotechnical Summary

Channel Capacity :

S = 0.0006
B = 9 m, h = 3 m, T_h = 20 m
Use n = 0.035

At Bank Height : Y = 3.0 m, V = 1.1 m/s, Q = 50 cms
At Channel Capacity : Y = 4.0 m, V = 1.5 m/s, Q = 90 cms

Historical Highwater Data :

HW was noted in March 1960 to 0.9m below the bottom flange (Y = 4.0m). Scour occurred at the east pier during HW in July 1970. The 1950 design was based on Y = 4.5m.

WSC Gauge 05CE006 (DA = 753km^2, 1957 – Now) reports the largest events in the 40 – 45cms range in April 1969 and 1971 (stage rise = 2.5m, max. gauging at Q = 35cms). WSC Gauge 05CE005 (DA = 3580km^2, 1967 – Now) reports Q = 200cms in April 1971 (gauged at Q = 170cms, stage rise = 4.5m), with Q = 120cms in March 1997. The largest storms in the database for this area are in May 1923 and June 1928 and 1970 with rainfall in the 110 to 120mm range.

Basin Runoff Potential :

d = 35mm, Tp = 40hrs, use q = 0.25 cms/km^2.
Gross DA = 800 km^2.
Q_p = 200 cms.

Conclusion :

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

Recommended parameters : Y = 4.0 m, V = 1.5 m/s, Q = 90 cms.