BF 01806 Local Road Over Rosebud River
Hydrotechnical Summary

Channel Capacity :

S = 0.0009
B = 7 m, h = 2.0 m, T_h = 13 m
Use n = 0.045.

At Bank Height : Y = 2.0 m, V = 0.8 m/s, Q = 17 cms
At Channel Capacity : Y = 3.0 m, V = 1.2 m/s, Q = 40 cms

Historical Highwater Data :

Culverts were washed out at the low level crossing in 1996 and 1997 (Y ~ 2.0m). A 2003 design note was based on Q = 36cms and Y = 3.9m.

WSC Gauge 05CE006 (DA = 753km^2, 1957 – Now) reports Q = 40 – 45cms in April 1969 and 1971 (rating curve shows a rise in stage of 2.4m for Q = 34cms). 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 = 40mm, T_p = 20 hrs, q = 0.55 cms/km^2.
Gross DA = 233 km^2.
Q_p = 128 cms.

Conclusion :

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

Recommended parameters : Y = 3.0 m, V = 1.2 m/s, Q = 40 cms.