BF 13544 Local Road Over Rosebud River
Hydrotechnical Summary

Channel Capacity :

S = 0.0004
B = 10 m, h = 3.5 m, T_h = 20 m
Use n = 0.035

At Bank Height : Y = 3.5 m, V = 1.0 m/s, Q = 55 cms
At Channel Capacity : Y = 4.5 m, V = 1.3 m/s, Q = 95 cms

Historical Highwater Data :

Hw has been observed in 1947 (washout), and 1960 (to bottom of stringers, Y = 3.6 – 4.0m). A 1952 report refers to a HWM to the deck (Y = 4.0 – 4.5m d/s). A 1999 BIM report notes debris on the caps (Y = 4.0 – 4.5m). Ice abrasion marks were noted in 1981 to Y = 1.8 – 2.4m. Ice damage to a wingwall was observed in 1940.

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, T_p = 40hrs, use q = 0.25 cms/km^2.
Gross DA = 1340 km^2.
Q_p = 335 cms.

Conclusion :

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

Recommended parameters : Y = 4.5 m, V = 1.3 m/s, Q = 95 cms.