BF 02405 Hwy 771 Over Battle River
Hydrotechnical Summary

Channel Capacity :

S = 0.0006
B = 6 m, h = 2.0 m, T_h = 10 m
Use n = 0.04

At Bank Height : Y = 2.0 m, V = 0.8 m/s, Q = 12 cms
At Channel Capacity : Y = 3.0 m, V = 1.1 m/s, Q = 28 cms

Historical Highwater Data :

HW was noted in July 1982 (Y = 2m), and July 1990 (0.4m above u/s crown, erosion at inlet and d/s banks). Reports from 1961 and 1962 note HWM over the grade with Y = 2.1m and estimated Q = 25cms. The 1988 design was based on Y = 2.8m and Q = 30cms.

Gauge 05FA001 (DA = 1830km^2, 1913 – 1931, 1967 – Now) reports Q = 290cms in July 1990 (gauged at Q = 268cms, stage increase = 4m). The next largest event is April 1974 with Q = 110cms. The largest storms in the storm database are July 1982 and July 1990 with about 125mm of rainfall, and June 1944 with 115mm.

Basin Runoff Potential :

d = 60 mm, T_p = 20 hrs, q = 0.83 cms/km^2.
Gross DA = 144 km^2.
Q_p = 120 cms.

Conclusion :

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

Recommended parameters : Y = 3.0 m, V = 1.1 m/s, Q = 28 cms.