BF 77074 Hwy 734 Over James River
Hydrotechnical Summary

Channel Capacity :

S = 0.007
B = 18 m, h = 1.8 m, T_h = 25 m
Use AT equation

At Bank Height : Y = 1.8 m, V = 2.6 m/s, Q = 100 cms
At Channel Capacity : Y = 2.7 m, V = 3.5 m/s, Q = 220 cms

Historical Highwater Data :

The 1970 report notes a HWM with Y = 2.1m and the 1975 report notes a HWM with Y = 1.2m. The 1990 BIM notes Y = 1.0m and the 1996 BIM notes Y = 3.0m (no description provided).

WSC Gauge 05CA002 (DA = 821km^2, 1966 – Now) is located d/s and reports HW events in June 1990 (Q = 237cms), June 1972 (Q = 215cms), July 1981 (Q = 178cms), July 1986 (Q = 170cms), June 1970 (Q = 151cms), and July 1999 (Q = 139cms). The largest gauged flow is Q = 203cms in June 1990 (Y = 2.1m, T = 45m, A = 80m^2). The largest storms in the database for this area are June 1970 with 120mm of rainfall, and June 1928 and July 1965 with 105mm.

Basin Runoff Potential :

d = 70 mm, T_p = 20 hrs, q = 1.0 cms/km^2
Gross DA = 300 km^2.
Q_p = 300 cms.

Conclusion :

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

Recommended parameters : Y = 2.7 m, V = 3.5 m/s, Q = 220 cms.