BF 02108 Local Road Over James River
Hydrotechnical Summary

Channel Capacity :

S = 0.0035
B = 25 m, h = 2.0 m, T_h = 40 m
Use AT equation

At Bank Height : Y = 2.0 m, V = 2.0 m/s, Q = 130 cms
At Channel Capacity : Y = 3.0 m, V = 2.8 m/s, Q = 300 cms

Historical Highwater Data :

HW was observed at this site in 1915 (log jam caused river to relocate), Jun 1965 (Y = 1.0m), April 1968 (Y = 2.4m above low water), July 1972 (Y = 2.1m, bank erosion), June 1990 (Y = 2.8m), and July 1999 (Y = 2.5m, scour adjacent to north approach, over bank).

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 = 595 km^2.
Q_p = 595 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 = 2.8 m/s, Q = 300 cms.