BF 71081 Hwy 40 Over Waiparous Ck
Hydrotechnical Summary

Channel Capacity:

S = 0.009
B = 12 m, h = 2 m, T_h = 22 m
Use AT equation

At Bank Height: Y = 2 m, V = 2.8 m/s, Q = 100 cms
At Channel Capacity: Y = 3 m, V = 4.0 m/s, Q = 220 cms

Historical Highwater Data:

1970 report noted a HWM with Y = 2.1m. 1973 report notes a HWM about 1.2 – 1.5m above low water and the bridge was designed for Q = 200cms and Y = 2.1m. 1975 report noted a HWM with Y = 1.4m. HW was noted in June 1990 with Y = 1.0 m. HWM was reported in 1991 at 1.75m above a gravel bar u/s (Y = 0.5m), and another in 2000 (Y = 1.1m).

WSC Gauge 05BG006 (DA = 333 km^2, 1966 – Now)
1967, reported Q ~ 110 cms
1983, reported Q ~ 64 cms
1990, reported Q ~ 150 cms
1995, reported Q ~ 93 cms
2005, reported Q ~ 240 cms
2013, reported Q ~ 270 cms

WSC Gauge 05BG009 (DA = 230km^2, 1977 – 1984)
1983, reported Q ~ 48 cms

The largest storms in the database for this area are June 1928 with 115mm of rainfall, and June 1970 with 105mm.

Basin Runoff Potential:

d = 75 mm, T_p = 20 hrs, q = 1.05 cms/km^2
Gross DA = 211 km^2.
Q_p = 220 cms.

Conclusion:

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

Recommended parameters: Y = 3 m, V = 4.0 m/s, Q = 220 cms.