04/10/14

BF 01741 Hwy 22 Over Highwood River
Hydrotechnical Summary

Channel Capacity :

S = 0.0045
B = 30 m, h = 3.5 m, T_h = 50 m
Use AT equation

At Bank Height : Y = 3.5 m, V = 3.2 m/s, Q = 450 cms
At Channel Capacity : Y = 4.5 m, V = 3.9 m/s, Q = 750 cms

Historical Highwater Data :

The bridge washed out in June 1932. HW was noted in June 2013 with video showing flow just above the base of the columns in the pier (Y ~ 5.5m). HW was observed in May 1967 (Y ~ 3m) and in June 1995 (Y ~ 3m). Photos of HW are also available for June 1963 and May 1990 with water close to the top of south edge of bank (Y ~ 3m). The 1960 design was based on Y ~ 4.5m.

WSC Gauge 05BL019 (DA = 774km^2, 1952 – Now) reports Q ~ 650cms (June 1995, stage increase ~ 3m, max gauging at Q ~ 310cms), and Q ~ 260 – 280cms (1953, 1967). Gauge 05BL004 (DA = 1980km^2, 1909 – 1915, 1986 – Now) reports Q = 800cms (June 1995, large extrapolation). Gauge 05BL009 (DA = 2340km^2, 1912 – 1993 (missing 1932)) reports Q = 710cms (June 1942) and Q = 640cms (June 1923).

Basin Runoff Potential :

Gross DA = 1110 km^2

Conclusion :

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

Y = 5.0 m, V = 4.4 m/s, Q = 950 cms.
EL 1186.5 m (16787-C)