BF 70603 Local Road Over North Saskatchewan River Tributary Hydrotechnical Summary

Channel Capacity :

S = 0.003
B = 3 m, h = 1.6 m, T_h = 6 m
Use n = 0.05

At Bank Height : Y = 1.6 m, V = 1.1 m/s, Q = 8 cms
At Channel Capacity : Y = 2.4 m, V = 1.6 m/s, Q = 20 cms

Historical Highwater Data :

HW was noted in 1954 (over deck, Y ~ 2m), 1965 (approaches washed out), July 1986 (1.5m over deck, scour hole at opening), and July 1990 (1.3m over deck, approach washed out, drift caught on struts). Reports from 1959 and 1963 estimate Q = 7 – 9cms. A 2003 BIM report notes a HWM with Y = 2.7m (likely referenced to scour hole, based on drift on struts).

There are no WSC gauges on this stream. Gauges in the area suggest HW events in July 1982, 1986, 1990 and 2001. The largest events in the storm database are July 1982 (150mm), and June 1944, June 1965, and August 1989 (110mm).

Basin Runoff Potential :

d = 60mm, T_p = 20 hrs, q = 0.83 cms/km^2.
Gross DA = 50 km^2.
Q_p = 42 cms.

Conclusion :

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

Recommended parameters : Y = 2.4 m, V = 1.6 m/s, Q = 20 cms.