BF 09905 Hwy 813 Over Athabasca River
Hydrotechnical Summary

Channel Capacity :

S = 0.00033
B = 200 m, h ~ 10 m, T_h = 280 m (natural constriction at bridge ~ 50m less)
Use AT equation

Historical Highwater Data :

HW was noted on file in 1954, 1972, 1980 (HW EL = 513.1m), and 1986. An ice jam was noted in April 1963 to EL 514.5m (noted to be just below the 1954 open water HW elevation). The 1950 design was based on HW EL = 513.6m. The AENV flood hazard mapping system reports HW EL = 513.8 for the bridge site at Q = 6200cms. HW has been noted at BF76034 and BF71600 upstream in 1944 and 1954 with Y ~ 9 – 9.5m.

WSC Gauge 07BE001 (DA = 74600km^2, 1913 – Now) is located ~ 1km upstream of BF09905 and reports Q = 5700cms (1954, EL 514.7m, stage rise ~ 8m), 5000cms (1944), 4600cms (1971), 4500cms (1986), and 4300cms (1980). A gauging measurement was taken at Q = 5600cms in 1954. The gauge shows a 1.5m rise in stage between 1980 and 1954 events, suggesting HW EL = 514.7 for 1954 at the bridge site (translation based on channel slope from gauge to bridge would suggest 514.4m).

Basin Runoff Potential :

Gross DA ~ 75,000 km^2.
Basin runoff potential does not apply.

Conclusion :

Historic observations govern. Recommended parameters :

Y ~ 10m, V = 3.0 m/s, Q = 5700 cms (based on constricted channel).
EL 515.0m (641-P)