BF 07421 Hwy 724 Over Bear River
Hydrotechnical Summary

Channel Capacity :

S = 0.001
B = 8 m, h = 2.5 m, T_h = 15 m
Use n = 0.04

At Bank Height : Y = 2.5 m, V = 1.1 m/s, Q = 30 cms
At Channel Capacity : Y = 3.5 m, V = 1.5 m/s, Q = 65 cms

Historical Highwater Data :

A photo from spring 1963 shows HW with some erosion and drift. A photo from June 1990 shows HW with water over the top of bank, drift, and V ~ 1m/s. The 1973 design was based on Y = 3.0m and Q = 70cms.

Gauge 07GE004 (DA = 1190 km^2, 1969 – Now) has recorded spot levels on Bear Lake just d/s with the highest levels in May 1974 and May 1997. There is no reference to a 1974 event on bridges on this stream, but there is a reference to the 1997 event at some of the bridges further upstream and at gauge 07GE007 (u/s of La Glace Lake, DA = 180 km^2, operating 1985 - 1999) where the highest recorded flow of 36cms was recorded on April 18, 1997. The June 1990 storm covered lower parts of the basin with 140mm and upper parts with about 100mm. A slight shift in location would have resulted in much higher input. Other large events are the June storms of 1964 and 1965.

Basin Runoff Potential :

d = 60mm, T_p = 20 hrs, q = 0.83 cms/km^2.
Gross DA = 532 km^2.
Q_p = 440cms.

Conclusion :

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

Recommended parameters : Y = 3.5 m, V = 1.5 m/s, Q = 65 cms.