

How Many Dams On The Skagit River System?

Presentation by
Larry Kunzler to FCZD AC
October 20, 2008



FLOODS IN THE SKAGIT RIVER BASIN,
WASHINGTON

By James E. Stewart and G. Lawrence Bodhaine

ABSTRACT

According to Indian tradition, floods of unusually great magnitude happened in the Skagit River basin about 1815 and 1856. The heights of these floods were not recorded at the time; so they are called historical floods. Since the arrival of white men about 1863, a number of large and damaging floods have been witnessed and recorded.

Data concerning and verifying the early floods, including those of 1815 and 1856, were collected prior to 1923 by James E. Stewart. He talked with many of the early settlers in the valley who had listened to Indians tell about the terrible floods. Some of these settlers had referenced the maximum stages of floods they had witnessed by cutting notches at or measuring to high-water marks on tree. In order to verify flood stages Stewart spent many weeks finding and leveling to high-water marks such as drift deposits, sand layers in coves, and silt in the bark of certain types of trees.

Gaging stations have been in operation at various locations on the Skagit River and its tributaries since 1909, so recorded peak stages are available at certain sites for floods occurring since that date. All peak discharge data available for both historical and recorded floods have been listed in this report.

The types of floods as to winter or summer, the duration of peaks, and the effects on reservoirs are discussed.

In 1899 Sterling Dam was constructed at the head of Gages Slough near Sedro Woolley. This was the beginning of major diking in the lower reaches of the Skagit River. Maps included in the report show the location of most of the dike failures that have occurred during the last 73 years and the area probably inundated by major floods. The damage resulting from certain floods is briefly discussed.

The report is concluded with a brief discussion of the U.S. Geological Survey method of computing flood-frequency curves as applied to the Skagit River basin. The treatment of single-station records and a means of combining these records for expressing regional significance are exemplified. Historical data are used in the development of both the single-station and the regional curves.

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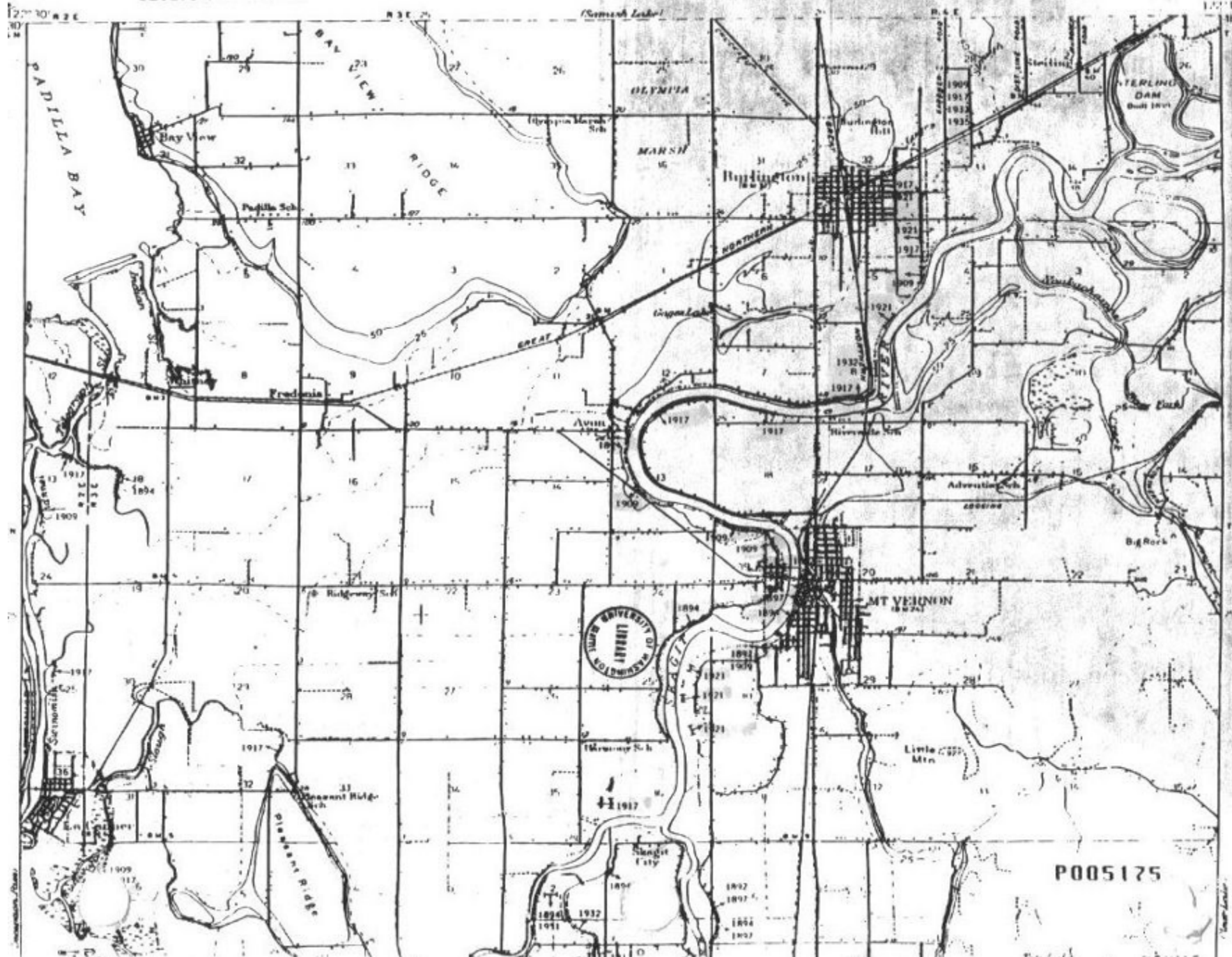
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The Skagit River basin has been subjected to major floods that dates from the year 1863. Indian legends tell of even greater floods in the nineteenth century prior to 1863. The relative magnitudes have been fairly well determined by intensive research and study in the valley. A brief resume of the floods is as follows:

1. About 1815: Highest flood
2. 1856: Second highest flood
3. 1880, 1882, and 1894: Spring floods that inundated lower valley for long period.
4. November 16, 1896: Highest flood since the settlement of the valley in or about 1878 and probably the highest since 1856.
5. November 19, 1897: Floods everywhere higher than the 1896 flood, especially high from the mouth of the Cascade River to just below Birdsvie. In general, in this section of the river the 1897 peak has not been exceeded to date (1958). The 1897 flood rose with remarkable suddenness, due to a very warm Chinook wind and heavy rain. The Cascade, Sauk, and Baker Rivers were very high and caused a high peak in the Skagit River near the mouth of each stream. Owing to the sudden starting and stopping of flood conditions, the peaks were rapidly reduced

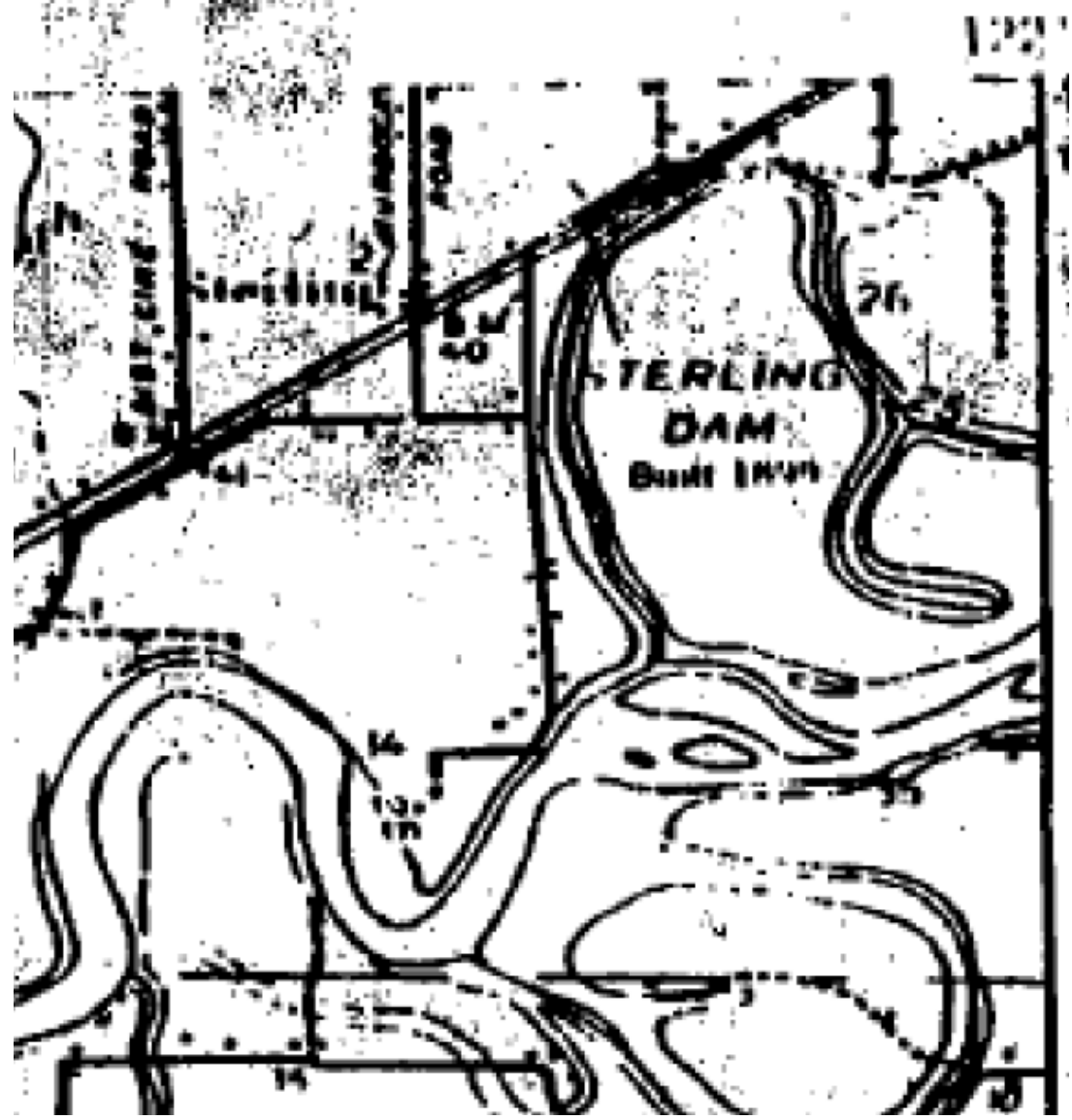
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WATER SUPPLY
PLATE 2

ER 1527





Sterling Dam





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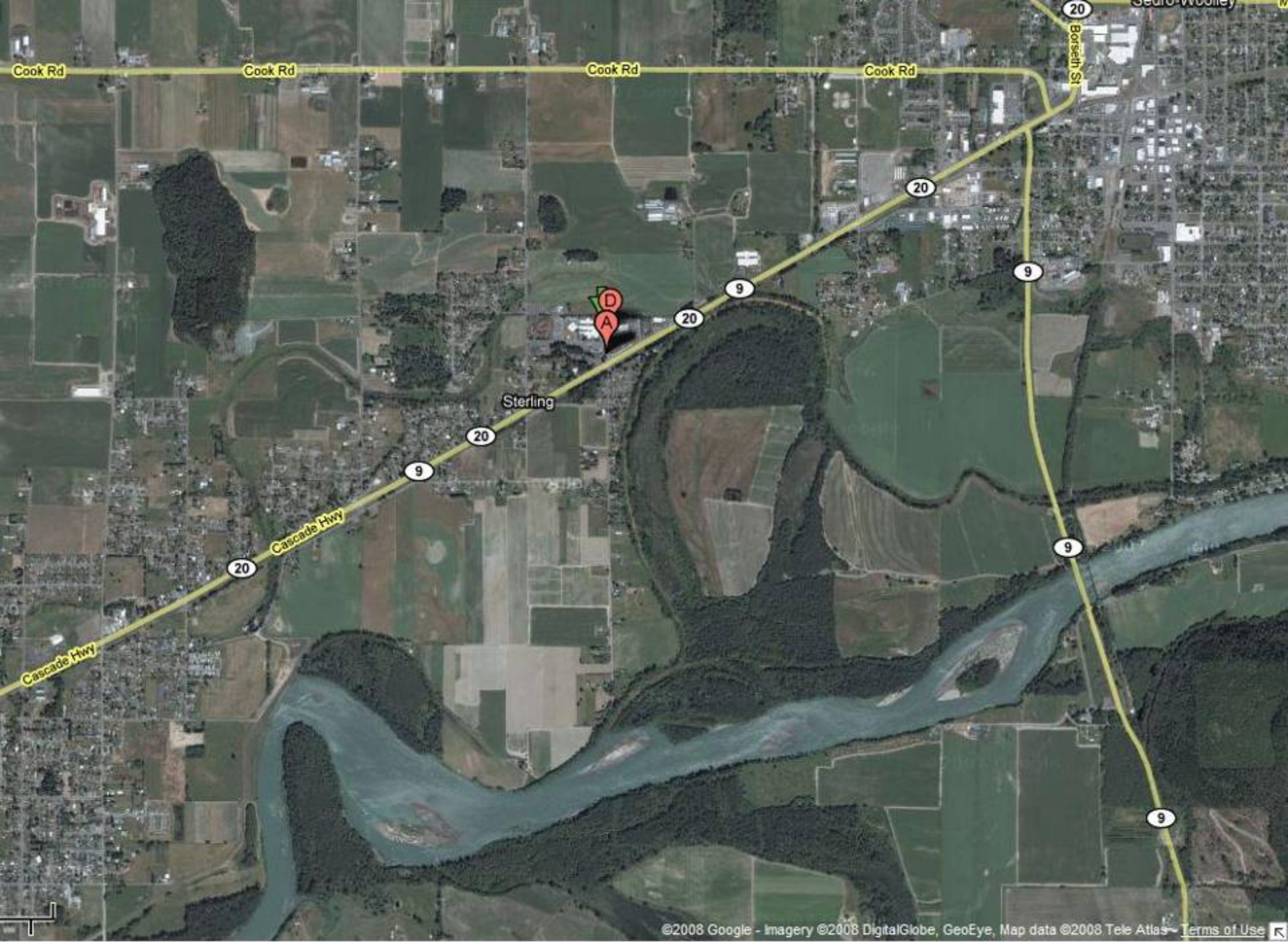
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D/M RPT
 110,000 CFS CHANNEL
 130,000 CFS OVERFLOW

NORMAN RPT.
 63,000 CFS

EXISTING CONDITIONS

SKG RIVER TO SLOUGH	25,000
GALES SLOUGH	17,000
NORTH OF SLOUGH	15,000
OVERBANK STORAGE	2,000

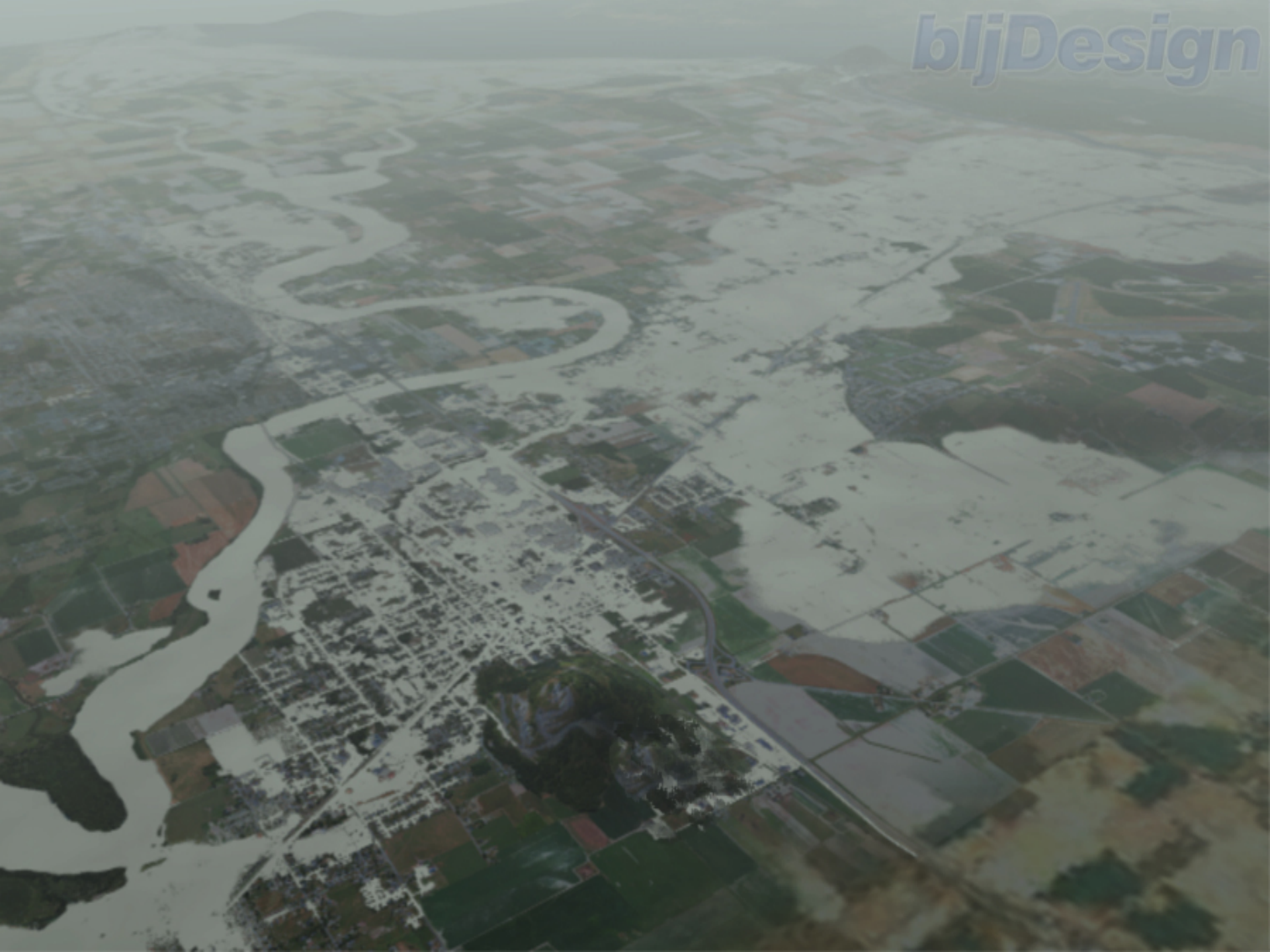
WITH PROJECT

RIVER TO SLOUGH	34,000
GALES SLOUGH	20,000
NORTH OF SLOUGH	11,000
OB STORAGE	2,000

8,000 CFS MOVED SOUTH

Vertical text on the right edge of the map, possibly a scale or legend.

bljDesign





As mentioned before, the waters flowing through the breaks in the dyke ahead of bridge #35 flow west to Swinomish Slough and Padilla Bay; they follow the Anacortes Branch of the Great Northern Railway. The relief channel should therefore follow approximately the same course which would call for the

Source: Proposed Flood Control Skagit River, 1922 Robert Herzog, GNRR