

CHIEF ENGINEER'S ANNUAL REPORT
for the year 1927.

Tacoma, Washington,
January 7, 1928.

TO THE JOINT COMMISSION
INTER-COUNTY RIVER IMPROVEMENT.

GENTLEMEN:-

I have the honor to submit herewith my annual report for the year 1927, the expenditures for work performed being shown on the attached itemized schedule, amounting to \$66,825.66, leaving an unexpended balance for the year of \$3,174.34.

At the Joint Board meeting of January 12, 1927 a budget was adopted for the year amounting to \$70,000.00. Item 3 of this budget provided \$8,500.00 for replacement of old bulkhead No. 4, and at the meeting of August 8th, upon recommendation of Mr. Thomson and myself, this item was transferred to Maintenance and Repairs to take care of emergency work below the N. P. Stuck River Bridge and at the Mellin Curve.

WEATHER AND RIVER CONDITIONS.

The first 8 months of the year were about normal, but in October and November we had very heavy rainfalls, resulting in a high water stage of 11.6 feet on October 3rd and 13.7 feet on November 11th, the highest water we have had for over 5 years.

There is still a very great amount of snow in the upper regions, which should we have continued rains and warm weather may result in as extreme flood.

These high water stages have resulted in erosion of unprotected banks on the Boatman tract, and have in several places shown up weakness in old Type 4 and 5 revetment in the Auburn, Dieringer, Roesli, and Murphy Sections, the latter being the most extensive where almost 2 miles of old Type 4, with lumber mattress has begun to fail from

undermining and caving. I have had a crew at work there for the past 2 months filling and patching these places temporarily, but it is evident that it will be necessary to lay a brush mattress and new toe this year.

During November the revetment on right bank at the Mellin Curve began to fail, and this will require similar treatment.

No weakness has yet developed on any work done during the past 5 years.

Following is a detailed analysis of work performed:-

MUCKLESHOOT SECTION.

No change in conditions in this section, and no work done except the removal of a small amount of drift at the barrier and repairs to the road and bridge.

AUBURN SECTION.

On November 10th the Joint Board authorized the construction of a new bulkhead on the right bank above the N. P. Bridge. The work was started about November 25th and we have driven at this date 860 feet with about 250 feet more to complete it.

A portion of Type 5 revetment immediately above the bridge failed in November and will need repairing. It will be necessary to build several retards opposite the Auburn Dam this year to hold channel to present location.

All work in the two preceding sections has been charged to Item 6, (Maintenance and Repairs.)

COUNTY LINE SECTION, Item 1.

Work in this Section consisted of gravel removal on the left bank, and driving 7 bulkheads, a total length of about 1200 feet. We also laid 1100 feet of brush mattress and new concrete toe on right bank below N. P. Bridge.

Conditions are good in this Section as shown by attached photos.

DIERINGER SECTION.

The early high water in October cut a new channel in the left bank at the Mellin Curve, and upon recommendation of Mr. Thomson, approved by the Board, we have driven 4 bulkheads, a total length of 1110 feet, filled with brush and closing this new channel, and are now removing gravel bar with the large donkey, placing the gravel between bulkheads. (See photo.)

ROESLI SECTION.

No new work has been done in this Section, but early in the fall old Type 5 revetment above the No. Puyallup Bridge began to fail. As soon as they could be released from other work I moved both small donkeys onto this location, and have been filling the very deep water next to the bank with gravel from bar in middle of channel. High water has interrupted our work several times. A new mattress and concrete toe will have to be placed here as soon as conditions permit.

During high water in October we had some very serious erosion on the Boatman Tract, which was taken care of by throwing in bundles of brush. Both Mr. Thomson and myself believe it will be necessary to drive some bulkheads and remove bar at this point; provided for under Item 4 in the 1928 budget. All work in this Section was charged to Maintenance and Repairs.

PUYALLUP SECTION.

No work has been done here.

MURPHY SECTION.

The replacement of Bulkhead No. 10, Item 5, with 695 feet of Type 7 revetment was completed in October at a cost of \$8,230.86. Other work on old Type 4 revetment was charged to Maintenance and Repairs.

RESERVATION SECTION.

The replacement of bulkhead No. 5 with Type 7 revetment, (Item 4) after many delays due to high water, was finally completed Dec. 31st,

652 feet at a cost of \$10,234.20.

INDUSTRIAL INSURANCE.

The total amount paid for Industrial Insurance and Medical Aid is \$790.65.

GENERAL CONTROL.

Under General Control, Item 7, \$7490.65 was expended for Engineering, Hydro-graphic Surveys and Office expense.

AUTOMOBILES AND TRUCKS.

During the year a new Utility car was purchased for the foreman to replace the 1917 Dodge touring car which I was able to dispose of at cash sale for \$50.00.

We also bought a used 1922 Reo speed wagon for \$290.00 which was used for long hauls on brush to replace team haul. This Reo with some repairs will probably serve our purpose for brush hauling for several years. I have an opportunity to buy a similar Reo at the same price and in fairly good condition, and as our 1924 Ford truck is practically worn out believe we should make the exchange.

AUTOMOBILE INSURANCE.

From the beginning of the Inter-County work no cars or trucks except the Chief Engineer's car have been covered by insurance. During the past 5 years we found it more difficult to secure brush within team hauling distance which has made it necessary to substitute auto-trucks, and altho we have fortunately never had any accidents I feel that we should no longer accept this risk.

I would therefore recommend that all cars and trucks be fully covered with liability, fire and property damage insurance.

BUDGET for 1928.

I am attaching hereto proposed budget for 1928, which has been prepared by Mr. Thomson and myself. We had hoped to utilize a larger

portion of the appropriation for new construction, but the extensive damage done in October and November and the probability of another high water make it necessary to provide a large amount for Maintenance and Repairs.

Just where and how this work is to be done cannot be determined until after our Spring run-off.

I may say that we are facing this year probably some of the most difficult problems we have yet encountered, that of maintaining and repairing a large portion of the earlier revetment work, having not been subject to the stress of much water for the past 5 or 6 years, but rapidly showing and developing signs of weakness and total failure at the first high water.

You will note that Item 9 of the proposed Budget provides \$10,000.00 for new equipment. Our program calls for a large amount of levee building and gravel removal for which it will be necessary to purchase at least one and possibly two gas donkeys with larger capacity than our Fordsons. These will cost when fully equipped about \$5,000.00 each. I would like to have authority to get one of these machines at once.

In conclusion I wish to again express my appreciation for the able and courteous cooperation and advise of Mr. R. H. Thomson, Consulting Engineer.

FINANCIAL STATEMENT.

The financial statements from the two counties show the following fund balances:

King County	November 30, 1927	\$ 16,593.17
Pierce County	November 30, 1927	9,439.32
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	TOTAL	\$ 26,032.49

Respectfully submitted,



H. F. Gronen,
Chief Engineer.

HFG:LT