

CHIEF ENGINEER'S ANNUAL REPORT.

For the year 1926.

Tacoma, Washington.
January 10, 1927

TO THE JOINT COMMISSION
INER-COUNTY RIVER IMPROVEMENT.

GENTLEMEN:

I have the honor to submit herewith my annual report for the year 1926, the expenditures for work performed being shown on the attached itemized budget schedule.

At the Joint Board meeting on January 18, 1926 a budget for the year amounting to \$81,500. was adopted. Item 7 of this budget provided \$9,000. for the replacement of old bulkhead #5 in the Reservation Section with Type 7 revetment, but on July 10th the Joint Board authorized an increase to the budget of \$11,800 due to the failure of old bulkhead #8 which was substituted for bulkhead #5 at an increased cost of \$1,800, and \$10,000 for the construction of bulkheads and channel control in the Poesli Section shown as Item 10 in the schedule, these additions having been recommended by Mr. R. H. Thomson, Consulting Engineer and myself, and making the total budget for the year \$93,300.

Total expenditures amounted to \$ 87,784.46.

WEATHER AND RIVER CONDITIONS.

The first nine months of 1926 proved to be a continuation of three previous abnormally dry years but beginning October 1st rainfall has been practically normal, and altho there is more snow in the mountains than there has been for the past three winters it would not seem to be sufficient to bring about extreme high water.

The maximum stage during the year was 9.4 feet in October.

The following is a detailed analysis of work performed:

MUCKLESHOOT SECTION.

No work has been performed in the Section since 1924, at which time cables were removed between piers 1 and 7 on the Drift Barrier and a number of Drift retards were constructed between the Drift Barrier and the Auburn Dam. This work has resulted in holding the channel in a fairly definite location thereby materially lessening the amount of drift and gravel being carried into the lower river. Under present rainfall conditions it should not be necessary to do any work in this Section in 1927.

AUBURN SECTION.

ITEM 1 of the budget provided \$5,000. for bank protection above the New Stuck River Bridge. Mr. Thomson and myself have visited this Section a number of times and have concluded that the expenditure of large sums in this section under present conditions is unwarranted, and the expenditure of \$500. shown under Item 1 has therefore consisted of reinforcing present old bulkheads and replacement of a small amount of concrete toe.

COUNTY LINE SECTION.

Under the plan of development submitted by Mr. Thomson and myself adopted by your Board in July, 1925 we have continued the construction of bulkheads and gravel removal in this section. 2,300 feet of pile bulkheads were driven and brushed and approximately 60,000 yards of gravel removed resulting in turning the main channel from the unprotected left bank into its correct location. The work done in 1925 and 1926 has all been confined to the left side of the stream and it is proposed that the appropriation for 1927 will be used for similar work on the right bank.

This work is illustrated by six photos accompanying this report.

DIERINGER SECTION.

There has been practically no change in this section and only \$275. expended for construction of retards.

ROESLI SECTION.

ITEM 4. Two large gravel bars were removed in this section, one in the Stuck River just above the confluence and the other in the Puyallup River below the Nix Bulkhead, and a number of retards constructed at each location. Total expenditure \$4,445.42. (See photos attached.)

ITEM 10. As mentioned above the Joint Board on July 10th authorized the driving or a series of bulkheads on the left bank above the Nix Bulkhead where the banks are being very rapidly carried away. The work is shown in the accompanying photos and was completed late in December at a cost of \$8,822.70. We also went up the Puyallup River just below the New Highway Bridge and constructed three quite large retards on the left bank the cost of which was charged to Maintenance and Repairs.

(See photos attached)

PUYALLUP SECTION.

ITEM 5. The work in this section consisted of the removal of all old bulkheads between the North Puyallup and Meridian Street Bridges, replacing same with levee and Type 7 revetment, a distance of approximately 1,800 feet at a cost of \$15,517.80. (This work is shown in photos attached.)

MURPHY SECTION.

ITEM 7. Old bulkhead No. 8 was replaced with Type 7 revetment, a distance of approximately 900 feet and at a cost of \$10,677.68. (See photos attached.) In addition to the above there was expended under Item 6 \$1,951.79 for removal of bars and channel control.

RESERVATION SECTION.

The only work done in this section is classified as Maintenance and Repairs and consisted of cutting of brush along the banks and some minor repairs to old concrete revetment.

MAINTENANCE AND REPAIRS.

ITEM 8. There has been expended under this Item \$10,567.27, about \$2,000. of which was used for the replacement of concrete toe and laying brush mattress on about 900 feet of old Type 5 revetment on the right bank of the channel below the N. P. Stuck River Bridge.

ITEM 9. Item 9 is for General Control comprising Engineering, Hydro Graphic Surveys and Office expense.

INDUSTRIAL INSURANCE.

In January, 1925 Industrial Insurance rates were raised from 1/10 of 1 per cent to 1 per cent, in 1926 the rate was raised to 1½ per cent and after January 1, 1927 the rate is 2 per cent, an increase of 2,000 per cent in two years. The total amount paid for Industrial Insurance and Medical Aid during 1926 was \$852.28.

SALE OF ABANDONED CHANNEL.

I am submitting herewith for execution by your Chairman a deed to Gertrude Ida Bringham for Two and 32/100 acres (2.32) of old abandoned channel of the Puyallup River in Section 20, Township 20, Range 4 E., W.M. This land was sold under contract by authority of your Board January 18, 1926 and has now been paid in full.

RESUME OF 5 YEAR PROGRAM.

The year 1926 concludes the period of the five year supplemental agreement which provided for expenditure of \$120,000. a year.

The expenditures during these five years are as follows:

1922	.....	\$ 108,639.88
1923	.....	101,712.06
1924	.....	100,105.51
1925	.....	112,168.28
1926	.....	<u>87,784.46</u>
Total		\$ 510,410.19

The above shows a saving to the two Counties of \$89,509.81

A general resume of the construction work done during the period is as follows:

1,200 Lin. Ft. Reinforced Concrete Piles Driven and Brushed.
 5,500 " " Wooden Pile Bulkheads Driven and Brushed.
 115,000 Cu. Yds. Gravel Bars removed.
 8,800 Lin. Ft. Old Bulkheads Removed.
 6,600 " " Levee Built.
 1,400 " " Type 4 Revetment Constructed.
 15,400 " " Type 7 Revetment Constructed.

In addition to the above there has been expended on other work during the 5 year period amounts as follows:

River clearing	\$ 35,000.00
Maintenance and Repairs ...	85,000.00
Retards, etc.	9,000.00
General Control	<u>50,104.00</u>
Total	\$179,104.00

INVENTORY.

Inventory of machinery, equipment, tools, automobiles, and trucks and office supplies taken January 1, 1927 shows a total valuation after depreciation of \$ 25,235.56.

In conclusion I might say that we have been very fortunate during the past four years in freedom from excessive floods which has kept our expense for Maintenance and Repairs at a minimum, making it possible to apply the greater portion of funds expended on new construction and if similar rainfall conditions continue we will likewise find it possible each year to do some new work; however as we have no guarantee against excessive floods Mr. Thomson and myself agree that extreme high water might result in a very considerable amount of damage especially at the

entrance to old channels in the lower river which are now being held by bulkheads driven in 1915.

I wish to express at this time my appreciation for the cordial co-operation and advice of Mr. Thomson.

FINANCIAL STATEMENT:

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

King County	November 30, 1926	\$ 31,203.27
Pierce County ...	November 30, 1926	18,499.36
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Total		\$ 49,702.63

Respectfully submitted,



HFG:LT

H. F. Gronen,
Chief Engineer.