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#1951

to the State Drainage Commission,
The Capitol.
Gentlemen:-

In compliance with your instructions I have acted on the request of Hon. G. H. Warner, of Aitkin, and have made examination of the burned-over areas in Workman Township (T.49 N., R.24 W.), in Aitkin County with a view of determining how the fires have affected drainage conditions in that locality.

Description Of Territory.

All of Workman Township located south of the Mississippi River and west of the Sandy River with the exception of the lands immediately bordering on the river banks and on lake shores, was in its natural state an open wire grass and moss marsh, with small tamarack scattering, on which water stood continuously except probably during exceptionally dry seasons.

The territory lies on the summit of the divide between the Mississippi River to the north and west, and the Sandy River to the east and the Rice River to the south and west. By taking advantage of the situations offered, this area may be provided with outlets into all these streams.

History Of Drainage.

About 1906 the settlers who had taken homesteads and settled in this locality instituted proceedings for the drainage of their lands. As a result, what is known on the records as County Ditch No.4, Aitkin County, was ordered constructed. The contract was awarded to two of the settlers living in the territory that was to be affected by the ditch, and was completed in 1908. The ditch was constructed on the location indicated on the accompanying blue print by the broken red line. It was a hand-dug affair averaging in depth from 2 feet to 4 feet, with a bottom width of about 4 feet.

The cost of construction was assessed against the adjoining benefited lands, to be paid in ten annual installments. The last installment on the cost of this ditch was paid in 1918.

Lands Occupied.

The settlement affected shows signs of thrift. Much work has been done by way of clearing the land from tamarack roots and boulders, the latter abounding on the higher portions. The buildings and herds of cattle indicate that dairying and stock-raising have been pursued successfully.

While the older settlers have no doubt reaped considerable benefits from County Ditch No.4 by way of crops taken from the reclaimed lands, yet I was impressed with the fact that the settlers must have spent most of their time and probably all of their savings preparing the drained lands for farming. The real benefits from drainage, as far as giving the settlers an income from actual crops is concerned, was to have been realized in the future from the products to be raised from the drained lands which have been cleared and broken in the past.

Effect of Recent Fires.

The effect of the recent fires have been to almost completely obliterate County Ditch No.4. The partially decomposed moss and vegetable top growth which made up the surface soil have been burned to an average depth of probably 18 inches. The entire area affected, except where the settlers fought down the fires to save their buildings, hay and live stock, has been swept. The grass roots, both on the tame and wild meadows, have been destroyed, requiring the reseeded of all burned over lands and the maturing of a new crop of grass for pasture and hay to furnish forage for the stock. (See accompanying views).

Drainage A Primary Necessity.

To sow grass seed on the lands in their present condition would be a waste of time and money. Because of lack of drainage this entire area will be covered with small lakes and pools with the melting of the snow in the spring. The level land with the numerous burned out depressions will, within the course of one or two years, return to canes and rushes and a growth of willow and alder brush unless drainage outlets are provided.

A reconstruction of County Ditch No.4 must be perfected

before the lands can produce a livelihood for the settlers living in the community. From the preliminary examination which I made while on the ground, and from the suggestions ^{received} ~~given~~ from such of the settlers I interviewed, reconstruction of County Ditch No.4, and new additions should be made along the location indicated in yellow on the accompanying blue print. Attention is called to the fact that the location of the proposed reconstruction does not follow the old County Ditch No.4 over its entire length, but goes to an outlet farther west. This change is recommended in order that a greater area of lands in need of drainage may be benefited.

The branches indicated on the section lines between sections 33 and 34, 32 and 35, 31 and 32 and 36 and 31 should be constructed so as to connect respectively with Lateral #1, Lateral #2 and Lateral #3, of State Ditch No.66, and Lateral #1 of State Ditch No.65. This arrangement will afford unimpeded outlets to the south, and together with the outlets into the Mississippi River and Sandy River, will make this proposed system ideal both as regards design and results to be accomplished. No complicated engineering problems are involved.

There are probably 5,000 acres of land that would receive direct benefits from the proposed improvement.

Estimate Of Cost.

I estimate the cost of reconstructing County Ditch No.4 along the location indicated in yellow on the accompanying blue print together with the additional branches recommended, to be as follows:

130,000 cu.yds. of excavation @ 12¢	\$15,600.00
6 Miles highway construction @ \$150.00	900.00
Administration and Engineering.	1,600.00
Total,-	<u>\$18,100.00</u>

Respectfully submitted,

Acting State Drainage Engineer.

