

# Grinstead Discusses Drainage Question

Salem, Neb., May 25, 1904. On May 19th, near Wabash, Indiana, work has begun on a drainage channel 28 miles in length, following the main channel of Grass creek to its confluence with Tippecanoe river. The greatest width of this ditch is 75 feet and the least width of the same is 18 feet.

It runs through White and Pulaski counties. It is for the purpose of reclaiming 356,000 of hitherto worthless swamp lands.

It will cost \$95,000, being about \$2.67 cents per acre or 7 cents per cubic yard.

In Lynn county, Kansas, the Maries De Cygne river, somewhat larger than the Nemaha, and very much like it in topographical appearance, has been straightened, by which the bottom lands are not overflowed, their value being advanced thereby from \$25 to \$75 per acre.

In Salem township, Richardson county, Neb., following the sinuosities of the south fork and the Nemaha river below the junction at Salem, the distance is, by U. S. survey, 20 2/3 miles.

On a straight line from points of ingress to egress the distance is less than 6 1/4 miles; and the fall is not less than 60 feet through the township.

In the present condition of the stream, the velocity of the water does not exceed one mile per hour up to the time when the river breaks the banks. After that time, when the bottoms are covered, the water in the main channel practically ceases to run; and the velocity of the water is very much retarded, being very much less than before the banks were broken; thus producing a congestion of water, often lasting for several days.

If the river were straightened, making the distance through the township 7 1/4 miles, then the velocity of the water at flood time would be about 8 miles per hour. The same would be within the banks of the river at all times after the new channel shall have attained its growth by the operation of natural forces, which will go on to completion very rapidly.

The above mentioned shortening of distance can be made by not to exceed 4 miles of new channel.

The probable approximate cost of this improvement is, in my opinion, as follows: to wit: 24 feet wide at the top, 9 feet wide at bottom, average depth 10 feet; at 7 cents per cubic yard will make \$9,000 for the entire aggregate length of four miles of new

channel. There are 6,200 acres of overflowed lands tributary to Salem, and to be known as Salem drainage district. This at \$2.50 per acre amounts to \$15,000 in round numbers, or an excess of \$6,000, our cost of channel, with which to make two bridges and pay other incidental expenses.

A tax of 25 cents per annum will pay 6 per cent interest on this amount for 15 years, 8 months and 29 days, and provide a sufficient sinking fund with which to liquidate the principle.

If Falls City township will cooperate with Salem township and receive and take care of the ditch at or near corner of sections 12 and 13, township line, then the new channel in the aggregate need not, in my opinion, be more than 2 1/4 miles in length, and would leave the entire length of the stream a little less than 8 miles through the township.

There should be made, on the North Fork, in Liberty township and in the drainage district, a new channel in the aggregate of about 3/4 miles.

Falls City township can, in my opinion, with a ditch 4 3/4 miles in aggregate length, reduce length of river through township from 12 1/4 to 6 5/8 miles, having only one bridge to make via Exchange mills and Mo. Pacific bridge costing in all not to exceed \$15,000 being about \$3 per acre, all told; not to exceed an annual tax of 30 cents per acre, for a period of about 15 years; placing flood waters forever in the banks of the stream, lowering water line at least 6 feet.

The Mo. Pacific bridge, as it now is, with this improvement, has sufficient capacity, in my opinion for any flood waters that may come.

Jefferson township is five miles wide, east and west. The length of river through township is 13 3/8 miles wide, by meanders. This distance can, with 2 1/4 miles of new channel, be reduced to 6 1/2 mile thus eliminating 7 1/4 miles of the old channel, lowering water line not less than 8 feet; at a cost not to exceed \$7,000, all told, including one bridge and leaving both Burlington bridges as they are now with sufficient capacity to carry off all flood waters. The same would not cost, in my opinion, 20 cents per acre per annum for a period of 15 years.

Rulo township can have the best results, of all the townships of the county with the least expenditure of money.

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J. B. VARNER,

AGENT

to the east, it is less than 4 1/2 miles to the mouth of Nemaha and 45 feet of fall.

13 1/2 miles of river following sinuosities of same, can be reduced to 6 1/2 miles, with new channel not to exceed in the aggregate 1 mile in length. No new bridges to build. The total cost should not exceed \$1 per acre. 10 cents per acre per annum in 15 years should be the total cost. The flood line would be lowered at least 8 feet; thus eliminating any overflow excepting what may come from very high waters in the Missouri river when possibly the back water might extend for a very short distance up the Nemaha river; and then not oftener than once in a great many years.

In conclusion, to the owners of these overflowed lands, by these improvements, will come thrift and prosperity. To every citizen of the county will come the blessings of an entire community of prosperous citizenship; costing no one a penny except the owners of overflowed lands.

It will give to all the only possibility of having good roads. It will add to the assessors rolls \$2,000,000 in value of real estate which unless relieved, will continue to depreciate in value. It will decrease to all the tax payers of the county at least 50 per cent for repairs on bridges,

It will incidentally add to the productive area of fine alluvial soils 1200 acres by shortening the stream. It will make up to the

doctors who never grumble, in good roads over which they travel, for his loss in the destruction of the mosquito and the attendant miasmatic diseases.

Yours truly,  
R. E. Grinstead.

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