

Minneapolis, Minn., July 17, 1915.

To the Honorable Board of County Commissioners,
Anoka County,
Minn.

Gentlemen:-

Your Engineer appointed by your order of May 20th, 1915, to survey and report on the repairs needed on County Ditch #53 did on the 9th of June file his report on same, and on the 12th of July, 1915, was instructed by you to prepare a further report and estimate on said ditch, begs to submit said further report and estimate as follows:

From Station #144+46 to Station 148+70 there is 24 inch tile which has been in place since September 1912, and during that time has developed three small leaks but ^{it} does not seem to have any broken pipe. I would advise that this be left in place for the present as it gives evidence of standing the test. At any rate if it has to be replaced at sometime it is a separate piece of tile line and will not require any tearing up of other work.

The cleaning out of the open ditch from Golden Lake to this tile line and from this tile line to the upper tile line must be done, as fully covered in my report of June 9th. The upper tile line from station 110+20 to 126+92 has shown many leaks and upon examining them considerable ^{the} cracked tile is found. Many of the tile are cracked lengthwise on top and sides, the lower half being sound and in place. These cracks can be repaired so the sand will not run in but there is always danger of a collapse, thus shutting of the water and raising the head until it has force enough to tear out the obstructed part. Then we have a break in the line, as now, and immense quantities of sand run down and obstruct the mouth. To replace all or part of this upper tile line with corrugated iron is a good ~~move~~ ^{move}, provided the tax payers are willing to stand the taxes, at this time. With the tile in its present state no one can be sure how long the water will run. A break

may come at any moment and shut off the water. The law makes the commissioners proceedings so slow that a seasons hay crop may be lost before any relief can be had.

Certain land owners having land in the drainage district have made advances this season that enabled us to keep enough water running so all or most of the hay crop can be cut, which, when considering the amount of hay, is a great saving to all the land owners. What ever repairs are to be made should be made this fall after the hay is harvested and after the rainy season is over, so the land will have the benefit of the winters drainage for next season.

Your Engineer would recommend that 12 gauge galvanized and corrugated iron pipe be used. The iron should be of the very best rust resisting kind that can be procured, even though the price be much higher, as the cost of installing cheap pipe will come just as heavy on the tax payers and the extra cost will only be the extra cost of pipe. Would advise using ²⁶~~30~~ inch diameter.

The repairs should begin at the lower end of upper tile cut or more definitely at station 126+92, and proceed up stream. ^{of the} upper tile cut about 200 ft. has not shown any signs of breaking as yet and it might be well to leave that much of the tile in place, however, if let by contract provisions should be made to have that replaced at the same unit rate while the contractor is still on the work.

Your Engineer advise replacing the 24 inch tile from Station 126+92 (which is the outlet of the upper tile line) to Station 114+62 which is the upper man hole, a distance of 1230 lineal feet. It might be well however to figure on the whole thing now so that proceedings would not need to be had in case the balance, 442 lineal feet, should need replacing by that time. So I will figure the whole tile line and any part of same can be figured at the same rate per foot. The present market on iron pipe, galvanized, is high and may raise again so it would be

adviseable to let the contract as soon as the necessary proceedings can be had.

The cleaning out of open ditch to upper tile line will cost about \$1200.00.

The replacing of the 24 inch tile with ²⁶~~30~~ inch diameter #12 gauge, galvanized, corrugated iron pipe, including all tools, material and labor will cost about ~~\$3.00~~^{\$4.00} per lineal foot in place and covered 5 ft; deep.

For the 1672 feet

Cleaning open ditch

Total, - - -

4688.00
~~8360.00~~
1200.00
~~9560.00~~
7888.00

These prices are based on the pipe at \$3.00 per foot. Pipe of this diameter and gauge can be had at about \$1.50 per foot but the number of years that it will last is some what of a question.

I ^{am} ~~can~~ figuring on the very highest grade of pipe obtainable and would only recommend the best.

James Cort
Engineer