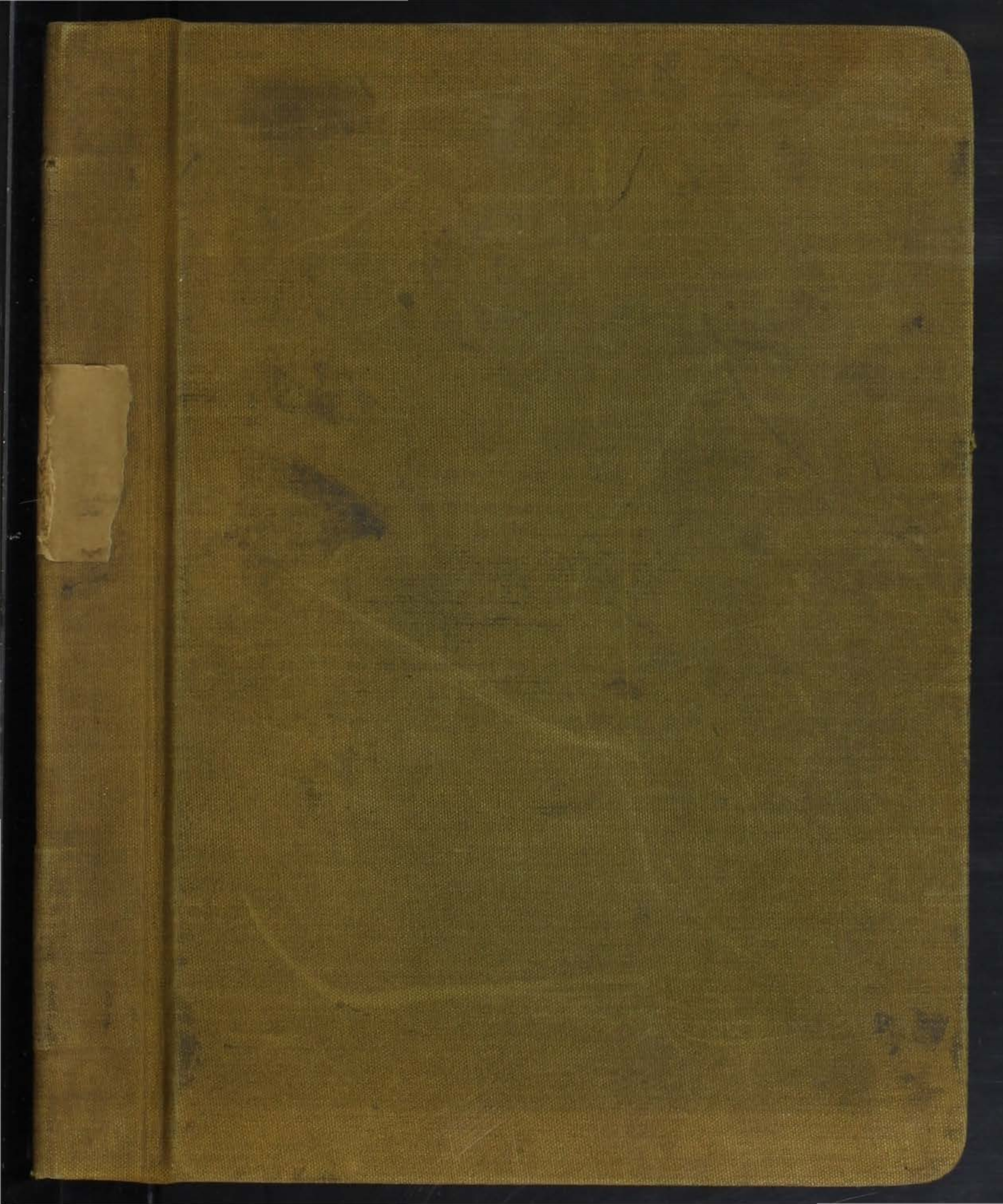






Report of the Webster County Agricultural Planning Committee
for 1941

Subject: The Drainage Systems of Webster County

How did we become interested in studying this subject? The selection of this topic--The Drainage Systems of Webster County--was not original on the part of the Webster County Planning Committee, but was called to our attention first by the co-ordinator of the Extension Service and Soil Conservation Service, Lester Clapp. Mr. Clapp asked the County Agent G. E. Anderson if he would be interested in getting together a representative of the Board of Supervisors, the County Engineer, the Webster County Farm Bureau to meet with representatives of the Soil Conservation Service, the Extension Service, and CCC camp supervisors.

This suggestion and idea was accepted by the County Agent, and a meeting was arranged to be held in the offices of the Webster County Farm Bureau, with the above mentioned gentlemen present. After spending approximately one day's time in discussing the value and merits of such an undertaking, it was decided by the representatives of the agencies present that it might be possible to develop a plan and a survey of the drainage systems of Webster County.

How it was to be done remained to be worked out, so a second and larger meeting was called, which included the Board of Supervisors, County Engineers, committee of five from the Webster County Farm Bureau, representative of the Bureau of Agricultural Economics Planning Division, Soil Conservation Service, Extension Service, Wildlife Conservation Association, and the CCC Camps. At this meeting the same problem was discussed pro and con.

The idea of securing the services of a CCC Camp was diminished somewhat because at that particular time orders had been issued by those in charge of the CCC Camps that no camps were going to be moved for at least a year or two, and with the war development in the foreground it appears as if it would be some time before there will be any services secured from a CCC Camp in Webster County, so this idea was immediately tossed out of the picture and the problem was discussed from the standpoint of going ahead and developing a plan of work for surveying the drainage systems of Webster County.

The group decided that this problem was well worth while and surely needed attention. After some consideration, it was finally decided that the proper group to study this problem was the Webster County Planning Committee, which was already appointed and set up as one of the committees of the Webster County Farm Bureau.

The members of the Planning Committee were immediately called in to a meeting to review the possibilities and make plans for developing the survey. All members of the committee thought the program very worth while, as it was of interest to all. They thought that besides a drainage survey, that a wildlife survey and erosion control survey could be made at the same time.

The Soil Conservation Service provided the services of Royce Ladd, Soil Conservation engineer, to assist with the project for a month and a half. It was necessary to complete the survey and all field work before members of the planning committee became active in their spring farming operations. At this first meeting of the planning committee, it was decided that a complete survey should be conducted and the members of the planning committee would assist in making the survey, and that each township should inspect in detail the drainage systems of that township. This was to be carried out by having the member of the Agricultural Planning Committee select two or three other men to act or serve as the township drainage committee to help in securing the material.

Mr. Jacobson of the Soil Conservation Service, Mr. Ladd, and Paul Leaverton, local Conservation Officer, and myself, spent some time in working out the proper symbols that should be used by the people making the survey so that all reports would be uniform and could be assembled into one county-wide report.

Details of launching the survey were carried out by the County Agent by making a schedule with the members of the planning committee so that they could meet and go with the Soil Conservation Engineer, Mr. Ladd or two men from the County Engineer's office who were used to assist in the work. The men walked each open drainage ditch in the township and made notes as to the actual conditions that were found. It took probably ten days to complete this work, doing from two to three townships per day.

When the work was completed, Mr. Ladd had at his disposal township maps upon which were listed the actual conditions that were found. Colors were used to indicate the condition of the ditch. Other symbols which were used are listed below:

Open Ditch

- | | |
|---|-------|
| Ditch in very bad condition tile completely submerged | ===== |
| Ditch in poor condition tile partly submerged ditch flow sluggish | ===== |
| Ditch in fair to good condition tile normally have clear outlet ditch flow sluggish | ===== |

Heavy tree growth in open ditch ↑
Scattered tree growth in open ditch ↑
Heavy tree growth on open ditch spoilbanks ↑
Scattered tree growth on open ditch spoilbanks ↑

Structure needed to protect open ditch and or tile ■

County tile that outlet into natural waterways

Tile outlet with poor outlet protection

Clear outlet ○

Partly submerged outlet ◐

Submerged outlet ●

Tile outlet with fair outlet protection

Clear outlet ○

Partly submerged outlet ◐

submerged outlet ●

Tile outlet with good outlet protection

Clear outlet ○

Partly submerged outlet ◐

Submerged outlet ●

Along with the symbols that were used on the map, a narrative report was made up, which presented and gave information that could not be noted on the map.

A copy of this narrative report sheet will be found on the following page.

With this material at hand--township maps and narrative reports from each township--Mr. Ladd spent approximately two or three weeks in summarizing, putting the maps in tip-top shape and detailed form, and making a county map from the information shown on the township maps.

Upon the completion of the county map, which showed at a glance the condition of the open drainage ditches and tile outlets in Webster County, we were then ready to get down to work and study the facts and make recommendations. A work committee had been appointed by the members of the planning committee. This work committee consisted of the following people:

Olger Strand, member of the Agricultural Planning Committee
Carl Scherf, member of the Agricultural Planning Committee
George Koestner, member of the Agricultural Planning Committee
Jim Fitzgerald, member of the Board of Supervisors
Stanley Matthews, Asst. County Engineer
Arthur Sollie, president of Webster County Farm Bureau
Edgar Hovey, chairman of Ag. Planning Committee

Narrative Section

1. Drainage District number_____
2. What appears to be the cause for silting in the open ditch?_____

3. Is the open ditch being damaged by over pasturing?_____

4. Do the ditch side slopes appear to be stable?_____

5. What seems to be the cause of holes developing over county tile lines?_____

6. Approximately what percent of spoilbank along the open ditch has been leveled?_____

7. Does there appear to be an adequate number of surface inlet pipe?_____

8. What is the condition of the surface inlet pipe that are in place?_____

9. What is the general condition of the intakes on county tile lines?_____

10. To what extent have fences been built across the open ditch and are they causing damage to the ditch?_____

Misc. Remarks: _____

This committee met approximately four times to study the different angles of the report. A summary of the findings of the committee are as follows:

I. The committee found that over 65% of all county tile outlets in the county were submerged or partly submerged, which resulted in ineffective use of the tile drainage system. This, of course, meant that this percent of the open drainage ditches were filled with sludge and were in poor to bad condition. The committee found that the following reasons were the cause of such development:

1. Excessive tree and brush growth had been allowed to develop in the open ditches.
2. Ditches, consequently, were filled with silt and other organic matter which had accumulated over a period of years.
3. The spoilbanks had never received any care and were left to contribute to weed and tree growth.
4. Improper pasturing of the open drainage ditches and undesirable fencing had led to the development of dams in the ditch and the sloughing off of the ditch bank.
5. In some areas surface soil had eroded into the drainage ditch, causing it to be partly filled with silt.
6. County tile and private tile outlets in many cases were improperly constructed, have broken down, and have contributed to erosion and silting and in many cases the entire outlet has been destroyed.
7. It was found that the surface pipes were in many cases improperly located and in other cases there was not a sufficient supply of these pipes available.

II. Present Management Practices.

The committee found at the present time there was no definite management practices established. The method that was used generally developed along these lines. If the drainage system became acute on a certain farm or in a certain area, enough interest was then aroused by the person involved to secure county assistance for his small area of open drainage ditch to be cleaned so that he would have an outlet for his tile system. This resulted in many cases of extremely high costs for the work done and often times a waste of money and time.

As was pointed out in one case, a small area of approximately a mile distance was cleaned out in a certain section of the drainage system to give relief to certain individuals. When the heavy rains came, the ditch filled up with water, whose flow was sluggish. In fact, in many cases the water flowed in the wrong direction. Consequently, farmers concerned had received no relief whatsoever as far as their drainage ditches were concerned.

This type of program is very expensive, because it is not economical to move a large drag line into an area for a small job of one-half to a mile of work and so, consequently, the bids made by contractors on this type of work had been exceedingly high. Also, it was found that the law specifies that not more than 10% of the original cost of the ditch can be spent without a special hearing.

The drainage ditches are by law the responsibility of the Board of Supervisors. However, up until recently it has not been politically expedient for Boards of Supervisors to urge increased spending by increased work which would result in increased cost to their clients—the farmer tax payer.

Farmers and landowners have been very negligent in the care and management given to their drainage system in a number of cases. In some cases the drainage ditch has been used as a dumping grounds. One township reported the remains of an old automobile had been dumped into the drainage ditch, which was forming an excellent dam. Another report indicated a hay rake had been dropped into the ditch, so in general the present management of the drainage system in Webster County has been very poor. No thought has been given to their value or their importance, as well as their initial cost and also the cost to repair them to their state of original efficiency. It was also found that in the beginning a number of ditches were improperly constructed. A certain percentage of the tile systems were not constructed properly due to lack of information and knowledge on the subject at the time they were developed.

III. The Webster County Planning Committee's recommendations for a program for improving and reconditioning open drainage ditches in Webster County are as follows:

1. The committee feels that any improvement program that is to be undertaken should be carried out and completed in each drainage district and that all piecemeal work should be stopped. The method or procedure in completing the task in each district are as follows:
 - a. Clear and grub all trees and brush in ditches and on all ditch banks.
 - b. Clean the main ditch thoroughly.
 - c. Clean the laterals to the main ditch if needed.
 - d. Repair county tile outlets and encourage repair of private tile outlets.
 - e. Install surface drain pipes where needed and see that they are properly located.
 - f. Level all spoilbanks so that they can be properly seeded.
 - g. Encourage the proper maintenance of private drainage systems by inspection and an educational program.

2. The committee recommends the following maintenance program, which should be adopted and maintained in the county following a complete repair of any specific drainage district.
- a. Keep hogs out of the drainage ditch as they contribute to the damming process and the sloughing off of ditch banks.
 - b. Seed all drainage ditch banks and slopes to Broms Grass or Broms Grass and alfalfa.
 - c. Discourage cultivation close to the open ditch channel and it is suggested that cultivation should not be allowed any closer than ten or twelve feet.
 - d. Encourage the installing of suitable fencing across the channel and the installing of water gates is recommended.
 - e. A periodical inspection should be made under the supervision of the county engineer's office and as ordered by the Board of Supervisors for the following purposes.
 1. To see that no tree growth is allowed on ditch banks or on the channel itself. *Sprayed with 2057*
 2. To prevent over-pasturing with livestock, especially hogs.
 3. Encourage the seeding of ditch banks to Broms Grass.
 4. Inspection should be made for broken tile outlets. These should be repaired or replaced.
 5. Evidence of broken tile back in a drainage system should be watched and should be located and repaired.

IV. How to bring about action and acceptance of the committee's recommendations.

It was felt by the work committee that the general public should be well informed in respect to the findings of the Webster County Planning Committee in regard to the drainage systems of Webster County. This should be presented to the public thru newspaper and radio publicity. Information in respect to the findings of the committee should be discussed at township Farm Bureau meetings and other gatherings. The program should be presented to the Board of Supervisors. Every effort should be made to encourage and establish demonstrations showing the effective use of the recommendations that have been made by the committee. This would be especially helpful since it would demonstrate to the public the actual value and advantage of a drainage system repaired and maintained.

V. Further suggestions that the committee has offered.--future work of the committee.

At the present time nothing has been done in respect to the erosion control survey and study that was planned. This

work should be completed and the erosion control survey made in the county during the winter of 1943. This special committee has been appointed to study the problem.

It is possible that further study may be made of the drainage systems, which would deal with the legislative aspects of the drainage law, financing of drainage improvement, more efficient methods of control and management, etc.

Narrative Section

Drainage District number _____

What purpose is the use made for water in the open ditch? _____

Is the open ditch being damaged by over pasturing? _____

SECTION IV _____

Narratives of drainage districts in which there
are open ditches, grouped by district number.

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

What is the condition of the surface water in the open ditch? _____

Scharf, Chas.
ker

Cooper Twp.

Narrative Section

1. Drainage District number 1
2. What appears to be the cause for silting in the open ditch? bank sloughing and washes
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? No
5. What seems to be the cause of holes developing over county tile lines? No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? Most of them are OK. The outlet of one is plugged and is damaged by erosion caused by tile outletting underneath it.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Misc. Remarks: This ditch has recently been cleared and seems to be of ample depth. In certain sections the banks are sloughing slightly. Headwall are needed at the upper end of the ditches. The county tile is washing badly and is in need of attention in sections 15 & 22. There are scattered trees along the banks and brush is beginning to grow on the side slopes of the ditch. At some locations washes are developing and pipe inlets should be installed to protect the ditch.

August Strand, Chm.

West Dayton Twp.

Narrative Section

1. Drainage District number 2
2. What appears to be the cause for silting in the open ditch? No evidence of silting
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 60%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No trouble caused by fences through the ditches.

Misc. Remarks: The open ditch is in good shape in this twp. There are several private tile that are in need of outlet protection. The clearing on the lower end of the ditch is generally heavy while on the upper end of the ditch is scattered. Possible wild life area NE $\frac{1}{4}$, NW $\frac{1}{4}$ Sec. 6. Several washes are developing through the bank.

Henry Peterson, Chm.

Clay Twp.

Narrative Section

1. Drainage District number 2
2. What appears to be the cause for silting in the open ditch? Vegetative growth in ditch, wind erosion.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? The tile are exposed in several places in sub district #318 apparently due to wide joints between the tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? _____
7. Does there appear to be an adequate number _____ of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK except as noted above.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None noted

Misc. Remarks: There is quite a heavy growth of trees both on the banks and in the ditch. The outlet structures along this section of the ditch seem to be in fair condition.

Albert Martinson, Chm.

Lost Grove Twp.

Carl Myren

Narrative Section

1. Drainage District number 2
2. What appears to be the cause for silting in the open ditch? Washes in and through the bank and lack of vegetation on the side slopes of the open ditch.
3. Is the open ditch being damaged by over pasturing? In a few locations.
4. Do the ditch side slopes appear to be stable? Not in all locations
5. What seems to be the cause of holes developing over county tile lines? No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
7. Does there appear to be an adequate number of surface inlet pipe? No.
8. What is the condition of the surface inlet pipe that are in place? Many have the ends broken off and some do not have sufficient fill over the pipes.
9. What is the general condition of the intakes on county tile lines? They are in a good state of repairs.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Only a few were noted and the damage very slight.

Misc. Remarks: The ditch appears to have good fall and is of ample depth. Many washes have developed along the ditch, most of them being caused by tile outlet structures failure. Most of these washes are very large and are continuing to eat back into the fields. The clearing on this ditch is generally quite heavy. The bulkhead for DD #145 has toppled over into the ditch and the tile are beginning to drop off and wash back into the bank. Two locations for wild life areas were noted.

Jackson Twp.

Narrative Section

1. Drainage District number 3
2. What appears to be the cause for silting in the open ditch? vegetative growth in ditch.
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 30%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? None in place
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences are causing ditch obstruction.

Misc. Remarks: The tree growth on this ditch is generally heavy and the growth is rather dense in certain sections. The efficiency of the ditch could be improved by clearing trees and brush from the creek into which the ditch outlets. Several washes through the bank are causing damage to the ditch. There is a possible wild life area in a swamp area of approx. 15 acres in SE $\frac{1}{4}$ Sec. 5.

Narrative Section

Drainage District number 4

- What appears to be the cause for silting in the open ditch? Tree growth, vegetative growth, washes and wind erosion.
- Is the open ditch being damaged by over pasturing? In some locations
- Do the ditch side slopes appear to be stable? generally yes
- What seems to be the cause of holes developing over county tile lines? Broken tile & poor joints.
- Approximately what percent of spoilbank along the open ditch has been leveled? 25%
- Does there appear to be an adequate number of surface inlet pipe? No
- What is the condition of the surface inlet pipe that are in place? Generally good
- What is the general condition of the intakes on county tile lines? Good
- To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences were noted that are causing damage to the open ditch by collecting trash that floats down the ditch.

Misc. Remarks: Parts of the ditch have recently been cleaned out and are in good condition while other parts of the ditch are in rather poor condition. Several headwalls or other structures are needed at the ends and along the ditch for protection of the ditch. Many of the private tile that outlet into the open ditch are in need of outlet protection. There are many stumps which have been pulled, scattered along the leveled spoilbank of that section of lateral #1 which has been recently cleaned out.

Narrative Section

1. Drainage District number 4.
2. What appears to be the cause for silting in the open ditch? Silt from tile lines and washes.
3. Is the open ditch being damaged by over pastureing? No.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? Broken tile, wide joints and generally a poor job of laying.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 50%
7. Does there appear to be an adequate number of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place?
Some are in need of attention.
9. What is the general condition of the intakes on county tile lines?
Several intakes in this twp are in need of repair.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that are causing damage to the ditch.

Misc. Remarks: The ditch appears to be in fair condition. The tree growth is generally scattered and confined mostly to the spoilbanks. A structure is needed for the protection of the tile outlet is the SW $\frac{1}{4}$ of Sec. 28. The tile of District #43 is in very poor condition.

Narrative Section

4

1. Drainage District number _____
2. What appears to be the cause for silting in the open ditch? Vegetative growth, tree growth and pasturing with hogs.
3. Is the open ditch being damaged by over pasturing? Yes in NW $\frac{1}{4}$ of Sec. 2 by hogs.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
7. Does there appear to be an adequate number _____ of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Numerous fences were noted that are causing damage to ditch.

Misc. Remarks: The ditch is in good shape except the branch south and east of Duncombe which is in poor shape at the upper end. A structure is needed for the protection of the tile outlet of DD #110. The tree growth is rather heavy both in the ditch and on the banks throughout the township. There is a possible wild life area in the NW $\frac{1}{4}$ Sec. 2.

Narrative Section

1. Drainage District number 5
2. What appears to be the cause for silting in the open ditch? Tree growth & flat grade.
3. Is the open ditch being damaged by over pastureing? in sections
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? All holes have been repaired.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? No pipe found
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences were noted that are causing damage to the ditch.

Disc. Remarks: Nearly all of Lat. #1 is in bad shape . The balance of the ditch appears to be in fair shape. The tree growth in and along the ditch is scattered. Numerous private tile outlets are in need of attention. There is good wild life cover in the NW $\frac{1}{4}$ of SW $\frac{1}{4}$ Sec. 13. Washes have developed at some of the points where county tile empty into the open ditch.

Beismair, Chm.
Byrne

Fulton Twp.

Narrative Section

- Drainage District number 5
1. What appears to be the cause for silting in the open ditch? washes in & through the bank. Vegetation in ditch. Flat grade.
2. Is the open ditch being damaged by over pasturing? No damage noted.
3. Do the ditch side slopes appear to be stable? Yes
4. What seems to be the cause of holes developing over county tile lines? bad joints, broken tile.
5. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
6. Does there appear to be an adequate number of surface inlet pipe? No.
7. What is the condition of the surface inlet pipe that are in place? OK
8. What is the general condition of the intakes on county tile lines? OK
9. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No damage noted.

Disc. Remarks: The open ditch appears to be quite badly silted for a short distance below the headwall and the tile at the headwall are submerged. The tree growth along the ditch is generally scattered. Several private tile outlets are in need of attention. There is considerable vegetation in the upper end of the ditch.

Narrative Section

1. Drainage District number DD #5.
2. What appears to be the cause for silting in the open ditch? No indication of silting.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 30%
7. Does there appear to be an adequate number of surface inlet pipe? A surface pipe is needed in Sec. 6 on lateral.
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences that were causing damage.

Misc. Remarks: The open ditch appears to be in good condition except at the extreme upper end where the ditch is in bad condition for a short distance. Washes are developing over the county tile outlets. Some of the private tile outlets are in poor condition. There is approximately 40 acres of timber & underbrush in the NE $\frac{1}{4}$ of Sec. 5. This area is good wild life cover but is being cleared.

Narrative Section

1. Drainage District number 5 - Lat. #6.
2. What appears to be the cause for silting in the open ditch? Flat grade, vegetative growth in ditch bottom.
3. Is the open ditch being damaged by over pastureing? No.
4. Do the ditch side slopes appear to be stable? Yes.
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 40%
7. Does there appear to be an adequate number of surface inlet pipe? No inlet pipe
8. What is the condition of the surface inlet pipe that are in place? -
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that were built across the ditch.

Misc. Remarks: The clearing on and in the ditch is scattered with considerable growth of brush. The flow of water in the ditch was very slow and sluggish.

Narrative Section

1. Drainage District number 6
2. What appears to be the cause for silting in the open ditch? No silting
3. Is the open ditch being damaged by over pastureing? Livestock crossings are causing some damage.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? broken tile
6. Approximately what percent of spoilbank along the open ditch has been leveled? None
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? Ok
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? One fence is causing the flow of water to be retarded considerable.

Disc. Remarks: The ditch has good fall. The county tile outlets are in good condition. There are scattered trees in and along the ditch. The ditch in this Township consists of mostly straightening the old channel of a stream. A possible wildlife area is located in the SE $\frac{1}{4}$ Sec. 4, an old gravel pit.

3-10-41
Edgar Hovey, Chm.

Badger Twp.

Narrative Section

- Drainage District number 6.
- What appears to be the cause for silting in the open ditch? Dense tree growth and washes in the banks.
- Is the open ditch being damaged by over pasturing? There appears to be little damage by pasturing.
- Do the ditch side slopes appear to be stable? Yes and in most cases well sodded.
- What seems to be the cause of holes developing over county tile lines? The only holes noted seem to have been caused by broken tile or wide joints between the tile.
- Approximately what percent of spoilbank along the open ditch has been leveled? Less than 10%
- Does there appear to be an adequate number of surface inlet pipe? Yes with the exception of the SE $\frac{1}{4}$ section 25 where one seems to be needed on the north and west side of the ditch.
- What is the condition of the surface inlet pipe that are in place? Several are in need of attention. Some are broken off at the end. The inlet ends of many pipes are not open.
- What is the general condition of the intakes on county tile lines? Seem to be generally good.
- To what extent have fences been built across the open ditch and are they causing damage to the ditch? Many fences and obstructions were noted in the ditch doing much to retard the flow of water in the ditch.

Misc. Remarks: Headwall is needed at upper end of the ditch. May be advisable for headwall at end of lat. in Sec. 23. An old gravel pit in the SE $\frac{1}{4}$ Sec. 53 may be desirable for a wild life area. Two ducks were noted in the open ditch today. Many pheasants were found in the sweet clover on the west side of the ditch in the NW $\frac{1}{4}$ Sec. 11. Considerable brush and trees are growing in the ditch in this district.

Narrative Section

1. Drainage District number 6 (Section 13).
2. What appears to be the cause for silting in the open ditch? Washes, bank erosion, wind erosion and silt carried into the ditch by tile.
3. Is the open ditch being damaged by over pastureing? No.
4. Do the ditch side slopes appear to be stable? Sloughing some.
5. What seems to be the cause of holes developing over county tile lines? No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 100%
7. Does there appear to be an adequate number of surface inlet pipe? Yes.
8. What is the condition of the surface inlet pipe that are in place? in fair condition.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Misc. Remarks: This section of ditch is badly silted and the 32" county tile at the upper end of the ditch are submerged approximately 1 ft. Considerable dirt has washed into the upper end of the ditch and there is need for a head-wall at this location. There is a very scattered growth of mostly brush on the side slopes of the ditch.

Narrative Section

1. Drainage District number 6.
2. What appears to be the cause for silting in the open ditch? Flat grade.
Silt from tile and washes.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? Broken tile and wide joints.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 20%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? Some are in need of attention.
9. What is the general condition of the intakes on county tile lines? Several intakes in this twp. are in need of repair.
0. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences were noted that are causing damage to the open ditch.

Misc. Remarks: Part of the ditch is in very bad condition while the upper section is in fair condition. The tree growth in the ditch and on the spoilbanks is generally heavy. There are several private tile outlets that are in need of outlet protection. There are several washes through the spoilbanks that are causing damage to the ditch.

Jackson Twp.

Narrative Section

1. Drainage District number 9
2. What appears to be the cause for silting in the open ditch? Flat grade, vegetative growth in ditch.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 15%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several noted that are collecting trash.

Misc. Remarks: The open ditch is in fair shape but the grade seems to be rather flat. The tree growth is scattered with a heavy growth of brush both in the ditch bottom and on the slopes. The ditch outlets into a creek and it appears that the efficiency of the ditch could be improved by straightening the outlet stream.

Wm. Hiemeyer, Chm.
Walter Schulze
A. C. Schultze

Deer Creek Twp.

Narrative Section

1. Drainage District number 10
2. What appears to be the cause for silting in the open ditch? Flat grade & tree and brush growth in ditch, possibly some damage by wind erosion.
3. Is the open ditch being damaged by over pastureing? Very little.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? Broken tile
6. Approximately what percent of spoilbank along the open ditch has been leveled? 5%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No

Misc. Remarks: The upper end of the open ditch in this twp. appears to be silted badly. The county tile which outlets into the small open ditch that leads into the main open ditch is completely submerged. Washes have developed by surface water and private tile outlets are in need of protection. There are trees on most of the banks and brush and trees in the ditch at some locations.

Narrative Section

1. Drainage District number 11
2. What appears to be the cause for silting in the open ditch? No silting.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines?
None noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 100%
7. Does there appear to be an adequate number Yes of surface inlet pipe?
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No damage to ditch by fences, several gates have been constructed.

Misc. Remarks: This ditch was cleaned out about three years ago and is now in very good shape. There is no tree growth and the tile outlets are all in good shape.

Otto Johanson, Chm.

Roland twp.

Narrative Section

1. Drainage District number 12
2. What appears to be the cause for silting in the open ditch? Vegetative growth in ditch.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes found
6. Approximately what percent of spoilbank along the open ditch has been leveled? 75%
7. Does there appear to be an adequate number of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place?
OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? A few at the upper end of the ditch slight damage.

Disc. Remarks: The ditch is in generally fair to good condition. The upper end of the ditch where two 20" tile enter the ditch is in need of protection. The tree growth on the ditch is generally light. A trash pile is located at the upper end of the ditch. Possible wild life areas located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29

Albert Lampke, Chm.

Newark Twp.

Narrative Section

1. Drainage District number 13
2. What appears to be the cause for silting in the open ditch? Washes, vegetative growth in ditch and flat grade.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 50%
7. Does there appear to be an adequate number of surface inlet pipe? Yes.
8. What is the condition of the surface inlet pipe that are in place? Many of the inlet ends of the pipes are covered and the pipes will not function in their present condition.
9. What is the general condition of the intakes on county tile lines? There are several intakes in this twp. that are in need of repair.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that are causing damage to open ditch.

Misc. Remarks: This section of ditch is in poor condition. There are several washes through the spoilbanks. Several private tile outlets are in need of attention. The clearing on the ditch is scattered.

Narrative Section

1. Drainage District number 16
2. What appears to be the cause for silting in the open ditch? silt from tile lines & washes in banks.
3. Is the open ditch being damaged by over pastureing? Hogs & cattle are causing some damage.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? Poor job of laying tile and the settling of tile in quick sand
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
7. Does there appear to be an adequate number of surface inlet pipe?
Yes
8. What is the condition of the surface inlet pipe that are in place? Many of the surface pipe in place seem to be in the wrong locations
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Few were noted that were causing damage.

Misc. Remarks: /The ditch appears in bad condition. The tile at the end of the ditch are completely submerged. Some of the private tile are washed back into the bank. The outlets are in need of attention. Two bad washes were found at the upper end of the ditch. A bulkhead is needed for one of the tile. There is a possible location for wildlife area in the SE corner of the SW $\frac{1}{4}$ Section 32.

Ray Beismeir, Chm.
Geo. Byrne

Fulton Twp.

Narrative Section

1. Drainage District number 16
2. What appears to be the cause for silting in the open ditch? Flat Grade,
Dirt out of tile.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes
6. Approximately what percent of spoilbank along the open ditch has been leveled? 35%
7. Does there appear to be an adequate number _____ of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None noted

Misc. Remarks: The tile of Lat. #2 is partly submerged and the ditch appears to be silted in badly for a short distance below the headwall. The clearing is generally scattered. There is no headwall at the upper end of Lat. #4 and the need for one of this location is questionable.

Ralph Bishop, Chm.

Loyd Lyard

Carl Hedeon

Alvin Sandell

Burnside Twp.

Narrative Section

1. Drainage District number 19
2. What appears to be the cause for silting in the open ditch? Bank sloughing, wind, washes, & poor tile outlets.
3. Is the open ditch being damaged by over pastureing? No but controlled grazing would be better.
4. Do the ditch side slopes appear to be stable? Some sliding is occurring at the lower end of the ditch.
5. What seems to be the cause of holes developing over county tile lines? No county tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? No county tile
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? a very bad fence crossing was found in the NW $\frac{1}{4}$ Sec. 4.

Misc. Remarks: The ditch appears to have good fall at the lower end but is shallow. All tile have a clear outlet at low flow but will be discharging under a head if the ditch is flowing very full. The ditch could be greatly improved by shaping the lower end. Many private tile are washing into the banks and should be protected by a length of pipe. Considerable clearing has recently been completed in the NE $\frac{1}{4}$ Sec. 5 but much of the brush, branches and trunks are in the ditch or are in such a position that they will get into the ditch when the water gets higher.

Narrative Section

1. Drainage District number 19
2. What appears to be the cause for silting in the open ditch? It appears that the bottom is high at the center of Sec. 33 which obstructs the flow.
3. Is the open ditch being damaged by over pasturing? No.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 90%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No

Misc. Remarks: The ditch does not appear to be badly silted but the water is quite deep and does not have a chance to get out. A headwall is needed to protect the tile outlet that enters the open ditch in Sec. 31. The tree growth in the ditch is very scattered. The trouble in this section of ditch seems to be where the ditch passes through a knoll.

Narrative Section

1. Drainage District number 29
2. What appears to be the cause for silting in the open ditch? Vegetative and brush growth in ditch.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None leveled
7. Does there appear to be an adequate number of surface inlet pipe? No inlet pipe.
8. What is the condition of the surface inlet pipe that are in place? --
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? One fence was noted that was causing damage to the ditch.

Misc. Remarks: The clearing in this section of the ditch is scattered. Some of the trees have recently been cut and the brush left on the ditch slopes. The tile outlet of DD #322 is in poor condition and an outlet structure of some type should be provided. A wash has started back over the tile but has been checked temporarily with a pile of junk.

Henry Peterson, Chm.

Clay Twp.

Narrative Section

1. Drainage District number 29
2. What appears to be the cause for silting in the open ditch? No indication of silting
3. Is the open ditch being damaged by over pastureing? No apparent damage.
4. Do the ditch side slopes appear to be stable? Yes.
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 30%
7. Does there appear to be an adequate number Yes of surface inlet pipe?
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted.

Misc. Remarks: The ditch appears to be in good condition. Some of the private tile are in need of repair. The clearing is scattered. Some has been cut with the stumps remaining.

Ralph Bishop, Chm.
Loyd Lyard
Carl Hedeon
Alvin Sandell

Burnside Twp.

Narrative Section

1. Drainage District number 34
2. What appears to be the cause for silting in the open ditch? wind, bank sloughing, washes
3. Is the open ditch being damaged by over pastureing? to no great extent.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? There seems to be very few if any holes developed over county tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? about 30%
7. Does there appear to be an adequate number of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place? Those in place are OK
9. What is the general condition of the intakes on county tile lines? They are OK.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? At one location in S¹/₄ Sec. 7, a fence was causing damage to the ditch.

11. Remarks: Trees are scattered throughout the open ditch most of which are found in the bottom or on the side slopes of the ditch causing the flow of water to be retarded. A short section of the open ditch was cleaned at the upper end of the ditch a short time ago. A petition has been placed with the County Auditor to clean this ditch. No tile seem to be completely submerged but to provide good drainage the ditch should be cleaned, So as to give the tile an outlet when running at max. capacity.

Albert Martinson, Chm.
Carl Nyren

Lost Grove Twp.

Narrative Section

1. Drainage District number 37
2. What appears to be the cause for silting in the open ditch? Washes in and through ditch banks, flat grade, tree growth.
3. Is the open ditch being damaged by over pasturing? No.
4. Do the ditch side slopes appear to be stable? Yes, there is very little bank sloughing.
5. What seems to be the cause of holes developing over county tile lines? Broken tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 5%
7. Does there appear to be an adequate number of surface inlet pipe? No.
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences were noted that cross the ditch and are retarding the flow of water.

Misc. Remarks: The open ditch in this twp is in quite bad shape. Many of the tile are completely submerged. There is scattered trees growing along the ditch and in the ditch throughout most of its length. The ditch has been recently cleaned from a point about 1000 ft. below the Lost Grove & Dayton twp. line. Many of the incoming private tile are in need of attention (length of galvanized iron pipe on the outlet end). There are several possible wild life areas along the ditch.

August Strand, Chm.

West Dayton Twp.

Narrative Section

1. Drainage District number 37
2. What appears to be the cause for silting in the open ditch? No apparent silting at present.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 50% (Balance is now in wild life area)
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences in the ditch.

Disc. Remarks: This section of ditch was cleaned in the fall of 1940. There is heavy growth of wild grass, brush and trees on north spoil bank which is now a wild life area and should remain.

Henry Peterson, Chm.

Clay Twp.

Narrative Section

1. Drainage District number 48 (Sec. 35)
2. What appears to be the cause for silting in the open ditch? Flat grade, vegetative growth in ditch.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 90%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted causing damage to ditch.

11. Remarks: The ditch appears to be in poor condition. The flow of water is sluggish and there is considerable vegetative growth in the ditch. The bulkheads for the county tile outlets are in poor condition and most of the tree growth is in the open ditch.

Henry Peterson, Chm.

Clay Twp.

Narrative Section

1. Drainage District number 48 (Sec. 33 & 34)
2. What appears to be the cause for silting in the open ditch? No indication of silting.
3. Is the open ditch being damaged by over pasturing? No.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No hole noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences causing trouble

11. Remarks: The ditch appears to be in pretty good condition. A headwall is needed at the upper end of the open ditch and the headwall for the county tile outlet in Sec. 34 is in bad shape. The tree growth is rather heavy along the open ditch. There is considerable tree growth in the ditch.

Albert Martinson, Chm.
Carl Nyren

Lost Grove Twp.

Narrative Section

1. Drainage District number 48.
2. What appears to be the cause for silting in the open ditch? Washes, tree growth, and weed growth in ditch bottoms.
3. Is the open ditch being damaged by over pasturing? No, not a noticeable amount.
4. Do the ditch side slopes appear to be stable? Fairly.
5. What seems to be the cause of holes developing over county tile lines? No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10% to 15%
7. Does there appear to be an adequate number of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? From all indications OK.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Very few were noted that are causing damage to the ditch.

Misc. Remarks: The ditch seems to be in good shape except in the upper tier of sections where the grade seems to be quite flat and the flow is rather sluggish. No submerged tile were found. The timber growth on the open ditch seems to be generally quite light. The tile that enters the open ditch in the SE $\frac{1}{4}$ Section 4 is in bad shape. The bulkhead has failed and there is a wash developing back into the field which at present is about 60 ft. in length. Two possible wild life areas were noted, one in the NW corner of NE $\frac{1}{4}$ Sec. 16 and one in the NW $\frac{1}{4}$ Sec. 21.

August Strand, Chm.

West Dayton Twp.

Narrative Section

1. Drainage District number 49
2. What appears to be the cause for silting in the open ditch? No evidence of silting.
3. Is the open ditch being damaged by over pasturing? No.
4. Do the ditch side slopes appear to be stable? Yes.
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None.
7. Does there appear to be an adequate number of surface inlet pipe?
Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences were noted that are causing damage to the ditch.

11. Remarks: The open ditch was cleaned out about 3 years ago and is now in good shape. A road tile east side Sec. 4 is in need of outlet protection. Practically no tree growth on the open ditch.

to Jochimson, Chm.

Roland Twp.

Narrative Section

1. Drainage District number 52
2. What appears to be the cause for silting in the open ditch? vegetative growth in ditch and flat grade.
3. Is the open ditch being damaged by over pastureing? Yes by hogs. SW $\frac{1}{4}$ of Sec. 28.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 50%
7. Does there appear to be an adequate number No of surface inlet pipe?
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? A few fences cross the ditch and are causing damage to the ditch.

11. Remarks: The ditch is badly silted in this township. The tree growth is generally heavy both in the ditch and on the bank.

3-11-41

F. H. Monson, Chm.

Ed Monson

Carl Johnson

Gowrie Twp.

Narrative Section

1. Drainage District number 52
2. What appears to be the cause for silting in the open ditch? Bank sloughing through peat bed, NW 1/4 Sec. 4. Cattle tramping in banks. Very little clearing.
3. Is the open ditch being damaged by over pastureing? Yes in peat bed.
4. Do the ditch side slopes appear to be stable? Exempt in peat bed.
5. What seems to be the cause of holes developing over county tile lines? Seems to be broken tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? About 50%
7. Does there appear to be an adequate number No of surface inlet pipe?
8. What is the condition of the surface inlet pipe that are in place? Most of them seem to be OK that are in place.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Few were noted. Some brush is growing in the ditch.

Misc. Remarks: More surface inlet pipe could be installed for the benefit of the open ditch. Many of the private tile outleting into the open ditch should be protected by installing a length of pipe on the outlet and of the tile.

Chris Juhl, Chm.

Washington Twp.

Narrative Section

1. Drainage District number 54
2. What appears to be the cause for silting in the open ditch? Flat grade and heavy vegetative growth on tree growth in the ditch.
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 75%
7. Does there appear to be an adequate number No of surface inlet pipe?
8. What is the condition of the surface inlet pipe that are in place? Yes
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences are causing damage to the ditch by collecting trash.

Misc. Remarks: The ditch in the East $\frac{1}{2}$ Sec. 12 is almost completely filled with silt and vegetative growth. There is a heavy growth of trees and brush in the remainder of the ditch except in the south $\frac{1}{2}$ Section 14. There is possible wild life cover between the ditch and the railroad track in Sec. 12.

Carl Scharf, Chm.
Chmoker

Cooper Twp.

Narrative Section

1. Drainage District number 57
2. What appears to be the cause for silting in the open ditch? Flat grade, wind erosion & washes
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? Broken tile
6. Approximately what percent of spoilbank along the open ditch has been leveled? 15%
7. Does there appear to be an adequate number No of surface inlet pipe?
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Very few

Misc. Remarks: The ditch in section 13 & 24 is in poor condition, shallow with many private tile submerged. County tile outlet in Section 13 is partly submerged. Many of the county tile outlets are in need of attention and numerous washes were noted along the ditch. Private tile outlets are not properly protected and are causing damage to the ditch. Clearing is scattered.

Edgar Hovey, Chm.

Badger twp.

Narrative Section

1. Drainage District number 57
2. What appears to be the cause for silting in the open ditch? Flat grade
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines?
No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None leveled
7. Does there appear to be an adequate number of surface inlet pipe?
Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

11. Remarks: This section of ditch appears to have been recently cleared and there is but scattered stumps and brush on the side slopes of the ditch. The water in the ditch seems to hardly move indicating a very flat grade.

Narrative Section

1. Drainage District number 57
2. What appears to be the cause for silting in the open ditch? Flat grade, vegetation in ditch, wind erosion and washes
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 50%
7. Does there appear to be an adequate number of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that were causing damage to ditch.

Disc. Remarks: The lower end of the ditch is now being cleaned out. There is very little tree growth along the ditch. The county tile outlets appear to be in quite good shape with the exception of a bulkhead in the SW $\frac{1}{4}$ of Sec. 19 which is in poor shape.

Albert Lempke, Chm.

Newark Twp.

Narrative Section

1. Drainage District number 57
2. What appears to be the cause for silting in the open ditch? Flat Grade.
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None found.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 100%
7. Does there appear to be an adequate number of surface inlet pipe? No.
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? Several intakes are in need of repair in this twp.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Misc. Remarks: This section of ditch appears to have been recently cleaned and all tile have a fair outlet. The water in the ditch is moving very slowly indicating a very flat grade. There are a few scattered trees on the side slopes of the ditch and three rows of boxelder serving as a wind break. The upper end of the ditch is not protected by a headwall or similar structure to control surface water entering the ditch. There is a possible wild life area at the upper end of the open ditch.

3-10-41

Badger Twp.

Edgar Hovey, Chm.

Narrative Section

Drainage District number 59

1. What appears to be the cause for silting in the open ditch? Trees holding debris, washes in spoilbank, and vegetation in ditch bottom.
2. Is the open ditch being damaged by over pasturing? There seems to be no noticable damage to the open ditch by pasturing.
3. Do the ditch side slopes appear to be stable? Yes, generally well sodded.
4. What seems to be the cause of holes developing over county tile lines? The holes that have developed seem to be caused by cracked tile.
5. Approximately what percent of spoilbank along the open ditch has been leveled? Less than 15%
6. Does there appear to be an adequate number of surface inlet pipe? Yes, but some are not in the proper locations.
7. What is the condition of the surface inlet pipe that are in place? The inlet ends do not have clear openings. Some are not securely fastened together.
8. What is the general condition of the intakes on county tile lines? They appear to be OK.
9. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several were noted that are catching brush and therefore retarding the flow of water in the ditch.

Disc. Remarks: Tree growth in and along the ditch seem to have caused considerable damage to the ditch. The flow of water in the ditch is very slow in areas where there is heavy tree growth. In the SE $\frac{1}{4}$ Sec. of 17 is an abandoned gravel pit which may be possible to plant to trees and brush for wild life shelter.

Narrative Section

1. Drainage District number 69
2. What appears to be the cause for silting in the open ditch? washes.
3. Is the open ditch being damaged by over pasturing? Some damage by livestock.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines?
No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
7. Does there appear to be an adequate number of surface inlet pipe?
Yes
8. What is the condition of the surface inlet pipe that are in place? some
Of the pipe appear to be placed at wrong locations.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Few were noted that are causing damage to the open ditch.

Disc. Remarks: Low head dams may be advisable to keep sections of open ditch on steep grades from scouring and depositing the silt in sections on a flatter grade. Washes through the bank are occurring at the upper end of the ditch and near the south line of the NE $\frac{1}{4}$ of Sec. 33. There are two possible wildlife areas one between the ditch and the E & W $\frac{1}{2}$ fence and one between the ditch and the rail road track.

Belisneir, Chas.
Byrne

Fulton Twp.

Narrative Section

- Drainage District number 69
- What appears to be the cause for silting in the open ditch? Flat grade, washes in & through bank, tree & weed growth in the ditch.
- Is the open ditch being damaged by over pastureing? No apparent damage.
- Do the ditch side slopes appear to be stable? Yes
- What seems to be the cause of holes developing over county tile lines? Bad joints & broken tile.
- Approximately what percent of spoilbank along the open ditch has been leveled? 25%
- Does there appear to be an adequate number of surface inlet pipe? No
- What is the condition of the surface inlet pipe that are in place? OK
- What is the general condition of the intakes on county tile lines? OK
- To what extent have fences been built across the open ditch and are they causing damage to the ditch? Few were noted

sc. Remarks: The ditch is generally in bad condition, both by silting & tree growth. The clearing on the main ditch is rather light but the tree growth on the laterals is very heavy. The water in much of the ditch moves very slowly indicating a very flat grade. The tile at the upper ends of all laterals are badly submerged. It appears that in recent years an attempt has been made to give some of the incoming county tile an outlet by hand exc. in the open ditch below the tile outlets. Many private tile outlets are in need of attention.

rd Twp.
ard Hanson

Narrative Section

- Drainage District number 70
- What appears to be the cause for silting in the open ditch? Bank erosion, wind, washes
- Is the open ditch being damaged by over pastureing? No apparent damage.
- Do the ditch side slopes appear to be stable? Generally
- What seems to be the cause of holes developing over county tile lines? No holes were noted.
- Approximately what percent of spoilbank along the open ditch has been leveled? About 30%
- Does there appear to be an adequate number of surface inlet pipe? No
- What is the condition of the surface inlet pipe that are in place? OK
- What is the general condition of the intakes on county tile lines? OK
- To what extent have fences been built across the open ditch and are they causing damage to the ditch? Few fences are obstructing the flow. A small dam has been built in the NW $\frac{1}{4}$ of Sec. 18 just below a county tile outlet.

isc. Remarks: The water flows slow in Br. 4 but all tile seem to have a clear outlet. The open ditch in sections 5 & 6 is badly silted and very shallow. Many private tile outlets are in need of repair. There is considerable tree growth in the open ditch in Sec. 6. Surface inlet pipe are not provided at surface water concentration points. There are 3 areas along the ditch that have possibilities of wild life areas.

Narrative Section

1. Drainage District number 70
2. What appears to be the cause for silting in the open ditch? Flat Grade, tree growth, wind erosion & washes in the bank
3. Is the open ditch being damaged by over pastureing? No noticable damage.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 5%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? very few noted.

Disc. Remarks: The timber is quite heavy in sections 32 & 33. The ditch is generally shallow and the tile outlet at the end of the open ditch is completely submerged. A wooden headwall has been constructed at the end of the open ditch. There are several bad washes that have been caused by surface water that are damaging the open ditch.

Albert Lampke, Chm.

Newark Twp.

Narrative Section

1. Drainage District number 90
2. What appears to be the cause for silting in the open ditch? Vegetative growth and washes
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 20%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? Several intakes in this twp. are in need of repair.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that are causing damage to the open ditch.

Misc. Remarks: The ditch appears to be in quite good condition. However, there is a heavy growth of timber both in the ditch and on the spoilbanks. Several private tile outlets were noted that are in need of repair and one county tile outlet is in need of outlet protection.

Narrative Section

1. Drainage District number 96.
2. What appears to be the cause for silting in the open ditch? Tree growth, wind erosion, bank erosion.
3. Is the open ditch being damaged by over pastureing? At some locations.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 25%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? The inlets of many are plugged. Some have poor joints between pipes; needs bands.
9. What is the general condition of the intakes on county tile lines? OK
0. To what extent have fences been built across the open ditch and are they causing damage to the ditch? A number of fences built through the ditch are obstructing the flow of water.

Misc. Remarks: There is a large amount of tree growth in and along the open ditch. Numerous private tile outlets are in need of repair (pipe on outlet end). The upper end of Branch 1-A has been recently cleaned out. Surface water entering the ditch through unprotected openings in the banks is taking considerable dirt into the ditch.

Narrative Section

1. Drainage District number 96
2. What appears to be the cause for silting in the open ditch? No noticeable silting. Good fall.
3. Is the open ditch being damaged by over pastureing? None
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? None
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? None in place
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Misc. Remarks: The ditch appears to be in good shape. Several washes through the bank was noted that are causing damage to the ditch. The headwall on tile outlet of DD #80 is in bad shape. The timber growth on the ditch is scattered.

Albert Loupke, Chm.

Newark Twp.

Narrative Section

1. Drainage District number 102
2. What appears to be the cause for silting in the open ditch? Flat grade, tree and vegetative growth in the ditch, washes through the spoil banks and faulty tile outlets.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 15%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? Some in need of attention.
9. What is the general condition of the intakes on county tile lines? Several intakes in this twp. are in need of attention.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? A few fences have been built across the open ditch and are collecting trash.

Misc. Remarks: This section of open ditch is in very bad condition. The tree growth is generally heavy both in the ditch and on the spoilbanks. Many of the private tile that outlet into the open ditch are in need of outlet protection and there are many washes through the spoilbanks along the open ditch. The county tile outlet in Section 2 is in need of outlet protection.

3-11-41
F. H. Monson
Ed. Monson
Carl Johnson

Gowrie Twp.

Narrative Section

1. Drainage District number 197.
2. What appears to be the cause for silting in the open ditch? washes through the spoilbanks and restricted flow in the ditch caused by tree growth.
3. Is the open ditch being damaged by over pastureing? There appears to be no damage to the ditch by over pasturing.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? broken tile
6. Approximately what percent of spoilbank along the open ditch has been leveled? Not more than 10%
7. Does there appear to be an adequate number of surface inlet pipe? Yes but some are in need of repair.
8. What is the condition of the surface inlet pipe that are in place? Some have bad joints between the lengths of pipe and some do not have sufficient fill over the pipe. About 1/3 of the pipes are in need of attention.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Numerous fences have been built across the ditch in such a manner that they are collecting trash and causing damage to the ditch.

Misc. Remarks: A county tile outlet into the open ditch in the SW $\frac{1}{4}$ Section 14 has been recently repaired. However, there is not sufficient fill over the surface inlet pipe at this location and a tile in the line has been broken directly behind the fill. The county tile outlets in the SE $\frac{1}{4}$ Sec. 22 are in need of repair. Many of the private tile outlets should be protected by outlet pipe. The section recently cleaned in SW $\frac{1}{4}$ Section 12 is in good shape. Tree growth in the bottom of the ditch is bad throughout most of the ditch.

SECTION III

Photos



Picture #1

DD #70

Fulton Twp. Webster Co.
Iowa

View looking north from a point approximately 20 ft. down stream from end of open ditch main showing Mr. Ray Beismier standing on shoal in front of submerged tile in plank headwall. Location NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 33

March 17, 1941



Picture #2

DD #69

Fulton Twp. Webster Co.
Iowa

View looking north from a point approximately 50 ft. down stream from end of open ditch Lat. #3 showing Mr. Ray Beismier standing on shoal in front of submerged tile outlet in headwall. Note channel excavated by hand in an effort to obtain an outlet for the tile. Location NW $\frac{1}{4}$ Sec. 22

March 17, 1941



Picture #3

DD #2

Lost Grove Twp., Webster Co., Iowa

View looking northwest from a point on the east side of wash which extends approximately 150 ft. back into field caused by failure of the tile outlet and surface inlet pipe. Note private tile in back of wash. Location SW $\frac{1}{4}$ Sec. 12.

March 18, 1941



Picture #4

DD #2

Lost Grove Twp. Webster Co., Iowa

View looking north from south side of ditch showing wash through spoilbank caused by tile failure of picture #3. A large shoal has washed into the ditch and the outlet pipe are covered in the bottom of the wash. Location SW $\frac{1}{4}$ Sec. 12

March 18, 1941



Picture #5

DD#2

Lost Grove Twp., Webster Co.,
Iowa

View looking north from south side of open ditch showing a wash that extends approximately 150 ft. back into field where private tile now outlet. Note trash thrown in gully in an attempt to stop erosion. Also note galvanized iron pipe that was once outlet for tile.
Location SE $\frac{1}{4}$ Sec. 15
March 18, 1941



Picture #6

DD# 2

Lost Grove Twp., Webster Co., Iowa

View towards open ditch from a point approximately 150 ft. back in field showing wash around the north side of concrete structure and wash strewn with tile that extends 100 ft. into field.
Location SE $\frac{1}{4}$ Sec. 15
March 18, 1941



Picture #7

DD #48

Lost Grove Twp., Webster Co., Iowa

View looking upstream showing effect of tree growth in ditch bottom. Note trash collected on trees and wash in each side slope which necessitated bracing fence posts to maintain fence.

Location NE $\frac{1}{4}$ Sec. 16

March 18, 1941



Picture #8

DD #48

Lost Grove Twp., Webster Co., Iowa

View of headwall failure taken from a shoal in ditch looking upstream. The 20 inch county tile have washed out for a distance of approximately 60 ft. Back into the field.

Location SE $\frac{1}{4}$ Sec. 4

March 18, 1941



Picture #9

DD #69

Fulton Twp.
Webster Co., Iowa

View looking north from the south side of the upper end of the open ditch showing the submerged tile in the bulkhead. Mr. Jacobson indicating top of tile with stick. Note the shoal in the open ditch caused by material washed out of the tile.

Location: NW $\frac{1}{4}$ of Sec. 4
March 19, 1941



Picture #10

DD #30

Pleasant Valley Twp.
Webster Co., Iowa

View looking north from a point approximately 50 ft. south of present 28" tile outlet, showing results of improper tile outlet protection. Note how the tile are washing out back into the field and how the tree roots are holding the original outlet tile in place.

Location near the south line of the SE $\frac{1}{4}$ of Section 3
March 20, 1941



Picture #11

DD #6

Badger Twp., Webster Co., Iowa

View looking west from a point in the bottom of the open ditch approximately 25 ft. down stream from the existing tile outlet showing need for headwall to protect the tile outlet and the open ditch. The stick in the water is over the submerged 32" tile. Note the washes that have developed by surface water entering the open ditch.

Location: SE $\frac{1}{4}$ of Sec. 13, Badger Twp.
March 20, 1941



Picture #12

DD #121

Jackson Twp., Webster Co., Iowa

View looking northwest from gully floor showing unprotected 12" tile outlet which is rapidly washing back into the field. Note attempt to stop wash with a pile of junk and trash. Location near east side of NW $\frac{1}{4}$ Sec. 33, Jackson Twp.

March 21, 1941



UNITED STATES
DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Picture 13

Washington Twp., Webster Co., Iowa

View looking southeast along east and west $\frac{1}{4}$ fence showing wind drift along fence. Note tops of fence posts protruding from drift. The bulk of the drift is on the north side of fence.

Location: Midway between the NW $\frac{1}{4}$ and SW $\frac{1}{4}$ of Sec. 33
March 21, 1941



Picture #14

DD #4

Newark Twp., Webster Co., Iowa

View looking west from a point on the south side and 125 ft. down stream from the upper end of lateral #1 of DD #4 showing the unprotected tile outlet on north side of ditch. This ditch was cleaned out in 1940. Note silt deposit at upper end of the ditch caused by wash over private tile at extreme upper end of ditch.

Location south side Sec. 35
April 10, 1941



UNITED STATES
DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Picture #15

DD #57

Cooper Twp., Webster Co., Iowa

View looking upstream from east and west highway bridge showing dense tree growth and badly silted ditch. Many of the tile along this section of the ditch are completely submerged.

Location: south side of Sec. 13
April 10, 1941



Picture #16

DD #57

Colfax Twp., Webster Co., Iowa

View looking upstream from east side of open ditch showing a section of ditch on which the spoilbank has been recently leveled by a local contractor. Note how high point of leveled bank is near the ditch so that rain falling on bank drains away from the ditch and enters the ditch through surface inlet pipe.

Location: west side of Sec. 18
April 10, 1941



UNITED STATES
DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

DATA
ON
DRAINAGE DISTRICTS
IN
WEBSTER COUNTY, IOWA

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- II Cost Information and District locations.
- III Photos.
- IV Narratives of Drainage Districts in which there are open ditches, grouped by district numbers.

SECTION I

Narratives of Drainage Districts grouped by townships.

Narrative Section

1. Drainage District number 3.
2. What appears to be the cause for silting in the open ditch? vegetative growth in ditch.
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 30%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? None in place
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences are causing ditch obstruction.

Misc. Remarks: The tree growth on this ditch is generally heavy and the growth is rather dense in certain sections. The efficiency of the ditch could be improved by clearing trees and brush from the creek into which the ditch outlets. Several washes through the bank are causing damage to the ditch. There is a possible wild life area in a swamp area of approx. 15 acres in SD¹ Sec. 5.

Narrative Section

1. Drainage District number 9.
2. What appears to be the cause for silting in the open ditch? Flat grade, vegetative growth in ditch.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 15%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several noted that are collecting trash.

Misc. Remarks: The open ditch is in fair shape but the grade seems to be rather flat. The tree growth is scattered with a heavy growth of brush both in the ditch bottom and on the slopes. The ditch outlets into a creek and it appears that the efficiency of the ditch could be improved by straightening the outlet stream.

Ben Hood, Chm.

Jackson Twp.

DD #250

The tile outlets through a fair headwall and the tile has a good outlet. There is a small wash developing around the south side of the wall possibly because the weir notch is too small.

DD #121

The tile is outletting into a gully with no pipe or structure to protect the tile outlet. The tile are washing back rapidly as the outlet is also in surface waterway. A headwall or other protective structure is needed badly.

DD #243

The tile outlet is submerged but could be given a good outlet by a small amount of hand exc. The tile outlets through a galvanized iron pipe which is OK.

DD #123

The tile has a good outlet. The wall through which the tile outlet is in fairly good shape except that washes are developing on each side of the wall. There is no weir notch in the wall which has caused the wash.

Wm. Niemeyer, Chm.
Walter Schulze
A. C. Schultze

Dear Creek Twp.

Narrative Section

1. Drainage District number 10
2. What appears to be the cause for silting in the open ditch? Flat grade & tree and brush growth in ditch, possibly some damage by wind erosion.
3. Is the open ditch being damaged by over pasturing? Very little.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? Broken tile
6. Approximately what percent of spoilbank along the open ditch has been leveled? 5%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No

Misc. Remarks: The upper end of the open ditch in this twp. appears to be silted badly. The county tile which outlets into the small open ditch that leads into the main open ditch is completely submerged. Washes have developed by surface water and private tile outlets are in need of protection. There are trees on most of the banks and brush and trees in the ditch at some locations.

Wm. Niemeyer, Chm.
Walter Schultze
A. C. Schultze

Deer Creek Twp.

DD #84

Tile completely submerged. Could be given a good outlet by a small amount of excavation in the outlet stream.

DD #219

Tile outlet is completely submerged. Could be given a good outlet by a small amount of excavation in the ditch leading away from the bulkhead.

Two private tile from the A. C. Schultze (SW $\frac{1}{4}$ Sec. 32) farm outlet in the road ditch approximately 800 ft. from the tile outlet of DD #219. It seems that an agreement cannot be reached between the landowners so that the tile could be carried across a small section of a farm in the NW $\frac{1}{4}$ Sec. 5 of Douglas Twp. to a stream which would give the tile a good outlet. The outlet at present is badly submerged and in need of an improved outlet.

DD #115

The tile outlet is completely submerged. A good outlet could be secured by cleaning the section of ditch between the bulkhead and the road (approximately 100 ft.) or by extending the tile through the road grade.

DD #94 (outlet in N.E. $\frac{1}{4}$ Sec. 15)

The tile outlet is completely submerged and a wash is developing around the west end of the wall. A good outlet could be obtained by a small amount of excavation in the stream leading away from the tile outlet.

DD #345

Tile outlet about $\frac{3}{4}$ submerged but could be given good outlet by small amount of hand excavation in channel down stream from wall. The tile outlets through a pipe protected by a rubble masonry wall which is in good shape.

Farmers report that inlets are needed near the center of the mile where the tile cross the new grade, between sections 28 and 29, Deer Creek Twp. A private tile is outlating into the south road ditch near the N.E. corner of NW $\frac{1}{4}$ of Section 29. The depth of cover over the tile where the new road ditches cross the tile should be investigated as there may be very little cover over the tile.

DD #184

Tile outlet OK. A new wall has recently been constructed and appears to be in good shape. The wall has no apron for the

Wm. Niemeyer, Chm.
Walter Schulze
A. C. Schultze

Deer Creek Twp.

Page 2

water to spill on to and the wall may become undermined.

DD #207

Tile outlet OK. A new wall has been recently built and appears to be in good condition. The wall has no apron or rock for the water to spill on to and the wall will probably become undermined.

DD #135

The tile has a good outlet through a wall that has been recently repaired.

DD #76

This tile outlet is in good shape. The tile outlets through a structure that was built in 1935 and is in good shape. A hole has developed over the tile directly behind the wall probably due to a broken tile or poor joint.

Narrative Section

1. Drainage District number 6 (Section 13).
2. What appears to be the cause for silting in the open ditch? Washes, bank erosion, wind erosion and silt carried into the ditch by tile.
3. Is the open ditch being damaged by over pasturing? No.
4. Do the ditch side slopes appear to be stable? Sloughing some.
5. What seems to be the cause of holes developing over county tile lines? No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 100%
7. Does there appear to be an adequate number of surface inlet pipe? Yes.
8. What is the condition of the surface inlet pipe that are in place? in fair condition.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Misc. Remarks: This section of ditch is badly silted and the 32" county tile at the upper end of the ditch are submerged approximately 1 ft. Considerable dirt has washed into the upper end of the ditch and there is need for a head-wall at this location. There is a very scattered growth of mostly brush on the side slopes of the ditch.

Edgar Hovey, Chm.

Badger twp.

Narrative Section

1. Drainage District number 57
2. What appears to be the cause for silting in the open ditch? Flat grade
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines?
No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None leveled
7. Does there appear to be an adequate number of surface inlet pipe?
Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Misc. Remarks: This section of ditch appears to have been recently cleared and there is but scattered stumps and brush on the side slopes of the ditch.
The water in the ditch seems to hardly move indicating a very flat grade.

3-10-41

Badger Twp.

Edgar Hovey, Chm.

Narrative Section

1. Drainage District number 59.
2. What appears to be the cause for silting in the open ditch? Trees holding debris, washes in spoilbank, and vegetation in ditch bottom.
3. Is the open ditch being damaged by over pasturing? There seems to be no noticeable damage to the open ditch by pasturing.
4. Do the ditch side slopes appear to be stable? Yes, generally well sodded.
5. What seems to be the cause of holes developing over county tile lines? The holes that have developed seem to be caused by cracked tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? Less than 15%
7. Does there appear to be an adequate number of surface inlet pipe? Yes, but some are not in the proper locations.
8. What is the condition of the surface inlet pipe that are in place? The inlet ends do not have clear openings. Some are not securely fastened together.
9. What is the general condition of the intakes on county tile lines? They appear to be OK.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several were noted that are catching brush and therefore retarding the flow of water in the ditch.

Misc. Remarks: Tree growth in and along the ditch seem to have caused considerable damage to the ditch. The flow of water in the ditch is very slow in areas where there is heavy tree growth. In the SE $\frac{1}{4}$ Sec. of 17 is an abandoned gravel pit which may be possible to plant to trees and brush for wild life shelter.

3-13-41
Edgar Hovey, Chm.

Badger Twp.

Narrative Section

1. Drainage District number 6.
2. What appears to be the cause for silting in the open ditch? Dense tree growth and washes in the banks.
3. Is the open ditch being damaged by over pasturing? There appears to be little damage by pasturing.
4. Do the ditch side slopes appear to be stable? Yes and in most cases well sodded.
5. What seems to be the cause of holes developing over county tile lines? The only holes noted seem to have been caused by broken tile or wide joints between the tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? Less than 10%
7. Does there appear to be an adequate number of surface inlet pipe? Yes with the exception of the SW $\frac{1}{4}$ section 25 where one seems to be needed on the north and west side of the ditch.
8. What is the condition of the surface inlet pipe that are in place? Several are in need of attention. Some are broken off at the end. The inlet ends of many pipes are not open.
9. What is the general condition of the intakes on county tile lines? Seem to be generally good.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Many fences and obstructions were noted in the ditch doing much to retard the flow of water in the ditch.

Misc. Remarks: Headwall is needed at upper end of the ditch. May be advisable for headwall at end of lat. in Sec. 23. An old gravel pit in the SE $\frac{1}{4}$ Sec. 33 may be desirable for a wild life area. Two ducks were noted in the open ditch today. Many pheasants were found in the sweet clover on the west side of the ditch in the NW $\frac{1}{4}$ Sec. 11. Considerable brush and trees are growing in the ditch in this district.

Edgar Hovey, Chm.

Badger Twp.

Narrative Book

Drainage District number

DD #253

The outlet is OK for clearance but the water is beginning to undermine the headwall. The surface water has caused considerable erosion back of the wall and a hole has developed because of a broken tile.

DD #211

The outlet is now submerged but could quite easily be given a clear outlet by some hand excavation in the channel of the creek for a short distance below the wall. A private tile outlets behind the wall and has washed back into the field NW of the wall for approximately 300 ft. This private tile is causing no damage to the wall or county tile but would improve the field for farming operations if repaired.

DD #163

The tile at present has a good outlet and is protected by a plank retaining wall with no weir notch or provision for surface water. Very slight washes are beginning to develop around the ends of the wall.

A consent drain owned by five (5) landowners outlets in a creek near the SW corner of the NW $\frac{1}{4}$ of Section 21. A galvanized iron pipe is now provided for the tile outlet and the water is beginning to run under the pipe. It is possible that this will soon cause trouble.

DD #170

The tile has a good outlet and a good bulkhead. A slight wash is developing around the structure and two holes have developed in the road ditches because of a broken tile and poor joints.

Narrative Section

Drainage District number 6

1. What appears to be the cause for silting in the open ditch? Flat grade.
Silt from tile and washes.
2. Is the open ditch being damaged by over pastureing? No
3. Do the ditch side slopes appear to be stable? Yes
4. What seems to be the cause of holes developing over county tile lines?
Broken tile and wide joints.
5. Approximately what percent of spoilbank along the open ditch has been leveled? 20%
6. Does there appear to be an adequate number of surface inlet pipe?
No
7. What is the condition of the surface inlet pipe that are in place? Some
are in need of attention.
8. What is the general condition of the intakes on county tile lines? Several
intakes in this twp. are in need of repair.
9. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences were noted that are causing
damage to the open ditch.

Misc. Remarks: Part of the ditch is in very bad condition while the upper
section is in fair condition. The tree growth in the ditch and on the spoil-
banks is generally heavy. There are several private tile outlets that are
in need of outlet protection. There are several washes through the spoil-
banks that are causing damage to the ditch.

Narrative Section

1. Drainage District number 102.
2. What appears to be the cause for silting in the open ditch? Flat grade, tree and vegetative growth in the ditch, washes through the spoil banks and faulty tile outlets.
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 15%
7. Does there appear to be an adequate number _____ of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place? Some in need of attention.
9. What is the general condition of the intakes on county tile lines? Several intakes in this twp. are in need of attention.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? A few fences have been built across the open ditch and are collecting trash.

Misc. Remarks: This section of open ditch is in very bad condition. The tree growth is generally heavy both in the ditch and on the spoilbanks. Many of the private tile that outlet into the open ditch are in need of outlet protection and there are many washes through the spoilbanks along the open ditch. The county tile outlet in Section 2 is in need of outlet protection.

Narrative Section

1. Drainage District number 90.
2. What appears to be the cause for silting in the open ditch? Vegetative growth and washes
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 20%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? Several intakes in this twp. are in need of repair.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that are causing damage to the open ditch.

Misc. Remarks: The ditch appears to be in quite good condition. However, there is a heavy growth of timber both in the ditch and on the spoilbanks. Several private tile outlets were noted that are in need of repair and one county tile outlet is in need of outlet protection.

Albert Lempke, Chm.

Newark Twp.

Narrative Section

1. Drainage District number 57
2. What appears to be the cause for silting in the open ditch? Flat Grade.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None found.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 100%
7. Does there appear to be an adequate number of surface inlet pipe? No.
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? Several intakes are in need of repair in this twp.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Misc. Remarks: This section of ditch appears to have been recently cleaned
and all tile have a fair outlet. The water in the ditch is moving very slowly
indicating a very flat grade. There are a few scattered trees on the side
slopes of the ditch and three rows of boxelder serving as a wind break. The
upper end of the ditch is not protected by a headwall or similar structure
to control surface water entering the ditch. There is a possible wild life
area at the upper end of the open ditch.

Narrative Section

1. Drainage District number 13
2. What appears to be the cause for silting in the open ditch? Washes, vegetative growth in ditch and flat grade.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 50%
7. Does there appear to be an adequate number of surface inlet pipe? Yes.
8. What is the condition of the surface inlet pipe that are in place? Many of the inlet ends of the pipes are covered and the pipes will not function in their present condition.
9. What is the general condition of the intakes on county tile lines? There are several intakes in this twp. that are in need of repair.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that are causing damage to open ditch.

Misc. Remarks: This section of ditch is in poor condition. There are several washes through the spoilbanks. Several private tile outlets are in need of attention. The clearing on the ditch is scattered.

Narrative Section

Drainage District number 4What appears to be the cause for silting in the open ditch? Silt from tile lines and washes.Is the open ditch being damaged by over pastureing? No.Do the ditch side slopes appear to be stable? YesWhat seems to be the cause of holes developing over county tile lines? Broken tile, wide joints and generally a poor job of laying.Approximately what percent of spoilbank along the open ditch has been leveled? 50%Does there appear to be an adequate number of surface inlet pipe? NoWhat is the condition of the surface inlet pipe that are in place? Some are in need of attention.What is the general condition of the intakes on county tile lines? Several intakes in this twp are in need of repair.To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that are causing damage to the ditch.

sc. Remarks: The ditch appears to be in fair condition. The tree growth is generally scattered and confined mostly to the spoilbanks. A structure is needed for the protection of the tile outlet is the SW $\frac{1}{4}$ of Sec. 28. The tile of District #43 is in very poor condition.

Narrative Section

Drainage District number 57

What appears to be the cause for silting in the open ditch? Flat grade, vegetation in ditch, wind erosion and washes

Is the open ditch being damaged by over pastureing? No

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines?
No holes noted

Approximately what percent of spoilbank along the open ditch has been leveled? 50%

Does there appear to be an adequate number of surface inlet pipe?
No

What is the condition of the surface inlet pipe that are in place?
OK

What is the general condition of the intakes on county tile lines?
OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that were causing damage to ditch.

sc. Remarks: The lower end of the ditch is now being cleaned out. There is very little tree growth along the ditch. The county tile outlets appear to be in quite good shape with the exception of a bulkhead in the SW $\frac{1}{4}$ of Sec. 19 which is in poor shape.

Colfax Twp.

Narrative Section

Drainage District number 4

What appears to be the cause for silting in the open ditch? Tree growth, vegetative growth, washes and wind erosion.

Is the open ditch being damaged by over pastureing? In some locations

Do the ditch side slopes appear to be stable? generally yes

What seems to be the cause of holes developing over county tile lines? Broken tile & poor joints.

Approximately what percent of spoilbank along the open ditch has been leveled? 25%

Does there appear to be an adequate number of surface inlet pipe?
No

What is the condition of the surface inlet pipe that are in place? Generally good

What is the general condition of the intakes on county tile lines? Good

To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences were noted that are causing damage to the open ditch by collecting trash that floats down the ditch.

c. Remarks: Parts of the ditch have recently been cleaned out and are in good condition while other parts of the ditch are in rather poor condition. Several headwalls or other structures are needed at the ends and along the ditch for protection of the ditch. Many of the private tile that outlet into the open ditch are in need of outlet protection. There are many stumps which have been pulled, scattered along the leveled spoilbank of that section of lateral #1 which has been recently cleaned out.

Narrative Section

Drainage District number 6

What appears to be the cause for silting in the open ditch? No silting

Is the open ditch being damaged by over pasturing? Livestock crossings are causing some damage.

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines? broken tile

Approximately what percent of spoilbank along the open ditch has been leveled? None

Does there appear to be an adequate number of surface inlet pipe? No

What is the condition of the surface inlet pipe that are in place? Ok

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? One fence is causing the flow of water to be retarded considerable.

Misc. Remarks: The ditch has good fall. The county tile outlets are in good condition. There are scattered trees in and along the ditch. The ditch in this Township consists of mostly straightening the old channel of a stream. A possible wildlife area is located in the SW $\frac{1}{4}$ Sec. 4, an old gravel pit.

Narrative Section

Drainage District number 57What appears to be the cause for silting in the open ditch? Flat grade,
wind erosion & washesIs the open ditch being damaged by over pasturing? NoDo the ditch side slopes appear to be stable? YesWhat seems to be the cause of holes developing over county tile lines?
Broken tileApproximately what percent of spoilbank along the open ditch has been
leveled? 15%Does there appear to be an adequate number of surface inlet pipe?
NoWhat is the condition of the surface inlet pipe that are in place? OKWhat is the general condition of the intakes on county tile lines? OKTo what extent have fences been built across the open ditch and are they
causing damage to the ditch? Very few

Misc. Remarks: The ditch in section 13 & 24 is in poor condition, shallow
with many private tile submerged. County tile outlet in Section 13 is partly
submerged. Many of the county tile outlets are in need of attention and
numerous washes were noted along the ditch. Private tile outlets are not
properly protected and are causing damage to the ditch. Clearing is scattered.

Narrative Section

Drainage District number 1.

What appears to be the cause for silting in the open ditch? bank sloughing and washes

Is the open ditch being damaged by over pastureing? No

Do the ditch side slopes appear to be stable? No

What seems to be the cause of holes developing over county tile lines? No holes were noted.

Approximately what percent of spoilbank along the open ditch has been leveled? 10%

Does there appear to be an adequate number of surface inlet pipe? No

What is the condition of the surface inlet pipe that are in place? Most of them are OK. The outlet of one is plugged and is damaged by erosion caused by tile outletting underneath it.

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Disc. Remarks: This ditch has recently been cleared and seems to be of ample depth. In certain sections the banks are sloughing slightly. Headwall are needed at the upper end of the ditches. The county tile is washing badly and is in need of attention in sections 15 & 32. There are scattered trees along the banks and brush is beginning to grow on the side slopes of the ditch. At some locations washes are developing and pipe inlets should be installed to protect the ditch.

DD #300

Tile outlet completely submerged. There is no protection for the outlet and a headwall is needed as there is considerable surface run-off at this point. A small amount of hand excavation would give the tile a clear outlet.

DD #215

Tile outlet OK. The tile outlets through a galvanized iron pipe. The outlet is for a driveway. The tile outlet is in a ditch. A small hole is developing over the tile in the earth.

DD #290

Tile outlet OK. The tile outlets through a galvanized iron pipe.

DD #351

Tile outlet OK. The tile outlets through a galvanized iron pipe.

DD #351

Tile outlet OK. The tile outlets through a galvanized iron pipe.

DD #351

Tile outlet OK. The tile outlets through a galvanized iron pipe.

DD #351

Tile outlet OK. The tile outlets through a galvanized iron pipe.

DD #351

Tile outlet OK. The tile outlets through a galvanized iron pipe.

DD #351

Tile outlet OK. The tile outlets through a galvanized iron pipe.

DD #351

Tile outlet OK. The tile outlets through a galvanized iron pipe.

Douglas Twp.

DD #238

The tile has a good outlet but the bulkhead through which it outlets is leaning forward and will soon tip into the open ditch. Sink holes are beginning to develop over the tile on west side of the railroad probably due to bad joints.

DD #60

Tile outlet OK for clearance. The rubble masonry bulkhead is in poor shape. A sink hole is developing over the tile on the north side of the road. Poor joints is the cause.

DD #279

The tile outlet is OK. At present the tile are outletting through a galvanized iron pipe in a waterway. The tile are bare for a distance of approximately 100 ft. back of the outlet. A weir notched headwall could be used to a very good advantage at this location.

DD #254

Tile outlet OK. It is possible that the structure may be damaged by surface run-off in the future because of small weir notch.

DD #314

The tile outlet is submerged and there is no pipe or structure for the protection of the tile outlet. The tile outlet into a creek a short distance from the river. It appears that a good outlet could be obtained in the river if desired.

DD #292

Tile outlet OK. The tile outlets through a galvanized iron pipe into the side of a gully outlet is in good shape.

DD #291

The outlet is not protected and is washing back rapidly. The line does not have a good outlet at present.

DD #122

The outlet OK. The tile outlet through a galvanized iron pipe into a natural waterway on the north side of the road. Small washes are developing on each side of the pipe by the water from the road ditch.

DD #8

The present tile outlet is nearly submerged but could be given a good outlet by a small amount of hand excavation. The tile in the bulkhead is broken and the structure is in generally poor

condition.

DD #27

Tile outlet OK. The tile outlet through a galvanized iron pipe into a gully. The tile are quite shallow for a distance back of the outlet.

DD #218

Do the ditch Tile outlet OK. The tile outlet through a galvanized iron pipe and spills on the floor of the gully. The life of the outlet could be lengthened by providing rock for the water to fall onto.

DD #116

Tile outlet OK. The wall protecting the tile outlet is in good shape.

DD #318

Tile outlet OK. The tile outlet into a natural waterway through a bulkhead which is in good shape.

DD #340

Tile outlet OK. The tile outlets through a galvanized iron pipe on the west side of the road and empties into a gully.

DD #298

Tile outlet OK.

There is a great deal of erosion in this township.

causing damage to the ditches.

Narrative Section

Drainage District number 16

What appears to be the cause for silting in the open ditch? silt from tile lines & washes in banks.

Is the open ditch being damaged by over pastureing? Hogs & cattle are causing some damage.

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines? Poor job of laying tile and the settling of tile in quick sand

Approximately what percent of spoilbank along the open ditch has been leveled? 10%

Does there appear to be an adequate number of surface inlet pipe? Yes

What is the condition of the surface inlet pipe that are in place? Many of the surface pipe in place seem to be in the wrong locations

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? Few were noted that were causing damage.

Misc. Remarks: /The ditch appears in bad condition. The tile at the end of the ditch are completely submerged. Some of the private tile are washed back into the bank. The outlets are in need of attention. Two bad washes were found at the upper end of the ditch. A bulkhead is needed for one of the tile. There is a possible location for wildlife area in the SE corner of the SW $\frac{1}{4}$ Section 32.

Narrative Section

Drainage District number 69.What appears to be the cause for silting in the open ditch? washes.Is the open ditch being damaged by over pasturing? Some damage by livestock.Do the ditch side slopes appear to be stable? YesWhat seems to be the cause of holes developing over county tile lines?
No holes notedApproximately what percent of spoilbank along the open ditch has been leveled? 10%Does there appear to be an adequate number of surface inlet pipe?
YesWhat is the condition of the surface inlet pipe that are in place? some
Of the pipe appear to be placed at wrong locations.What is the general condition of the intakes on county tile lines? OKTo what extent have fences been built across the open ditch and are they causing damage to the ditch? Few were noted that are causing damage to the open ditch.

(Disc. Remarks: Low head dams may be advisable to keep sections of open ditch on steep grades from scouring and depositing the silt in sections on a flatter grade. Washes through the bank are occurring at the upper end of the ditch and near the south line of the NE $\frac{1}{4}$ of Sec. 33. There are two possible wildlife areas one between the ditch and the E & V $\frac{1}{2}$ fence and one between the ditch and the rail road track.

DD #172

This tile has a good outlet through a wall that is in fair condition.

DD #325

This tile outlets through a pipe which is breaking away from the tile so that the end of the pipe is submerged. The tile outlets into what is now an old elbow of the creek because of a straightened section of channel.

DD #152

The tile is about 2/3 submerged at the bulkhead. The bulkhead is in poor condition and the tile through the wall is broken. A small amount of hand excavation would give the tile a good outlet.

DD #164

The tile outlet is submerged when the water level in the creek is above normal. The tile outlet through a bulkhead which is in rather poor condition. A hole has developed over the tile behind the bulkhead approximately 100 ft. probably due to a broken tile. There is a thick growth of willows over the tile a short distance behind the outlet.

DD #50

The tile outlet is in good shape has a good outlet and is well protected.

DD #15

The tile outlet is in bad shape, the outlet structure is in poor shape, a wash has developed around the east side of the wall and the tile are broken behind the outlet.

DD #14

The tile outlet is in poor condition and is in need of outlet protection.

DD #61

The tile outlet is in good shape.

DD #21

The tile outlet is in good shape however, holes are developing back over the tile line due to poor joints or broken tile.

Jack Black, Chm.

Johnson Twp.

DD #214

The outlet structure is in very bad shape.

DD #20

The outlet structure is in poor condition

DD #7 (Includes all of Sec. 21 and outlets in Lizard Creek in NE $\frac{1}{4}$ Sec. 22)

The tile outlet and outlet structure are in good shape.

Narrative Section

Drainage District number 5

What appears to be the cause for silting in the open ditch? washes in & through the bank. Vegetation in ditch. Flat grade.

Is the open ditch being damaged by over pasturing? No damage noted.

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines? bad joints, broken tile.

Approximately what percent of spoilbank along the open ditch has been leveled? 10%

Does there appear to be an adequate number of surface inlet pipe? No.

What is the condition of the surface inlet pipe that are in place? OK

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? No damage noted.

Disc. Remarks: The open ditch appears to be quite badly silted for a short distance below the headwall and the tile at the headwall are submerged. The tree growth along the ditch is generally scattered. Several private tile outlets are in need of attention. There is considerable vegetation in the upper end of the ditch.

Beismuir, Chn.
Byrne

Fulton Twp.

Narrative Section

Drainage District number 69

What appears to be the cause for silting in the open ditch? Flat grade, washes in & through bank, tree & weed growth in the ditch.

Is the open ditch being damaged by over pasturing? No apparent damage.

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines? Bad joints & broken tile.

Approximately what percent of spoilbank along the open ditch has been leveled? 25%

Does there appear to be an adequate number of surface inlet pipe? No

What is the condition of the surface inlet pipe that are in place? OK

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? Few were noted

Disc. Remarks: The ditch is generally in bad condition, both by silting & tree growth. The clearing on the main ditch is rather light but the tree growth on the laterals is very heavy. The water in much of the ditch moves very slowly indicating a very flat grade. The tile at the upper ends of all laterals are badly submerged. It appears that in recent years an attempt has been made to give some of the incoming county tile an outlet by hand exc. in the open ditch below the tile outlets. Many private tile outlets are in need of attention.

Beismuir, Chm.
Byrne

Fulton Twp.

Narrative Section

Drainage District number 70

What appears to be the cause for silting in the open ditch? Flat Grade, tree growth, wind erosion & washes in the bank

Is the open ditch being damaged by over pastureing? No noticeable damage.

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines?
No holes noted.

Approximately what percent of spoilbank along the open ditch has been leveled? 5%

Does there appear to be an adequate number of surface inlet pipe?
No

What is the condition of the surface inlet pipe that are in place? OK

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? very few noted.

Disc. Remarks: The timber is quite heavy in sections 32 & 33. The ditch is generally shallow and the tile outlet at the end of the open ditch is completely submerged. A wooden headwall has been constructed at the end of the open ditch. There are several bad washes that have been caused by surface water that are damaging the open ditch.

Beismair, Chn.
Byrne

Fulton Twp.

Narrative Section

Drainage District number 16

What appears to be the cause for silting in the open ditch? Flat Grade,
Dirt out of tile.

Is the open ditch being damaged by over pasturing? No

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines?
No holes

Approximately what percent of spoilbank along the open ditch has been
leveled? 35%

Does there appear to be an adequate number of surface inlet pipe?
No

What is the condition of the surface inlet pipe that are in place?
OK

What is the general condition of the intakes on county tile lines?
OK

To what extent have fences been built across the open ditch and are they
causing damage to the ditch? None noted

Disc. Remarks: The tile of Lat. #2 is partly submerged and the ditch appears
to be silted in badly for a short distance below the headwall. The clearing is
generally scattered. There is no headwall at the upper end of Lat. #4 and the
need for one of this location is questionable.

Selma, Cal.

Fulton Twp.

Narrative Section

Drainage District number 3 - 1st, 2nd

DD#344

What appears to be the cause for silting in the open ditch? Flat ground

This tile outlets into an open ditch in Calhoun

County. The tile outlets through a galvanized iron pipe

which is submerged. There is a surface water wash over the

tile back for a distance of approximately 100 ft. There is

no headwall with weir notch or other provision for the

controlled entrance of surface water into the ditch. tile lines

Approximately what percent of spoilbank along the open ditch has been leveled? 25%

Does there appear to be an adequate number of surface inlet pipes? No inlet pipe

What is the condition of the surface inlet pipe that are in place? None

What is the general condition of the intakes or crumps tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that were built across the ditch.

Remarks: The clearing on and in the ditch is scattered with considerable growth of brush. The flow of water in the ditch was very slow and sluggish.

Narrative Section

1. Drainage District number 5 - Lat. #6.
2. What appears to be the cause for silting in the open ditch? Flat grade, vegetative growth in ditch bottom.
3. Is the open ditch being damaged by over pastureing? No.
4. Do the ditch side slopes appear to be stable? Yes.
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 40%
7. Does there appear to be an adequate number of surface inlet pipe? No inlet pipe
8. What is the condition of the surface inlet pipe that are in place? -
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted that were built across the ditch.

Wisc. Remarks: The clearing on and in the ditch is scattered with considerable growth of brush. The flow of water in the ditch was very slow and sluggish.

Narrative Section

1. Drainage District number 29.
2. What appears to be the cause for silting in the open ditch? Vegetative and brush growth in ditch.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None leveled
7. Does there appear to be an adequate number of surface inlet pipe? No inlet pipe.
8. What is the condition of the surface inlet pipe that are in place? --
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? One fence was noted that was causing damage to the ditch.

Misc. Remarks: The clearing in this section of the ditch is scattered. Some of the trees have recently been cut and the brush left on the ditch slopes. The tile outlet of DD #322 is in poor condition and an outlet structure of some type should be provided. A wash has started back over the tile but has been checked temporarily with a pile of junk.

Narrative Section

1. Drainage District number 96
2. What appears to be the cause for silting in the open ditch? Tree growth, wind erosion, bank erosion.
3. Is the open ditch being damaged by over pastureing? At some locations.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 25%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? The inlets of many are plugged. Some have poor joints between pipes; needs bands.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? A number of fences built through the ditch are obstructing the flow of water.

Misc. Remarks: There is a large amount of tree growth in and along the open ditch. Numerous private tile outlets are in need of repair (pipe on outlet end). The upper end of Branch 1-A has been recently cleaned out. Surface water entering the ditch through unprotected openings in the banks is taking considerable dirt into the ditch.

Elkhorn Twp.

Narrative Section

Drainage District number _____

What seems to be the cause for silting in the open ditch? No noticeable

Drainage District #31

Tile outlet OK. The bulkhead is in need of repair and the tile are in need of attention behind the structure.

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines? None noted

Approximately what percent of spoilbank along the open ditch has been leveled? None

Does there appear to be an adequate number of surface inlet pipes? No

What is the condition of the surface inlet pipe that are in place? None in place

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? None

Remarks: The ditch appears to be in good shape. Several sections

through the back was noted that are causing damage to the ditch. The

handwall on tile outlet of 25' out is in bad shape. The timber growth on

the ditch is unthinned.

Narrative Section

Drainage District number 96What appears to be the cause for silting in the open ditch? No noticeable silting. Good fall.Is the open ditch being damaged by over pastureing? NoneDo the ditch side slopes appear to be stable? YesWhat seems to be the cause of holes developing over county tile lines? None notedApproximately what percent of spoilbank along the open ditch has been leveled? NoneDoes there appear to be an adequate number of surface inlet pipe? NoWhat is the condition of the surface inlet pipe that are in place? None in placeWhat is the general condition of the intakes on county tile lines? OKTo what extent have fences been built across the open ditch and are they causing damage to the ditch? NoneMisc. Remarks: The ditch appears to be in good shape. Several washesthrough the bank was noted that are causing damage to the ditch. Theheadwall on tile outlet of DD #80 is in bad shape. The timber growth onthe ditch is scattered.

Narrative Section

Drainage District number 19.

What appears to be the cause for silting in the open ditch? It appears that the bottom is high at the center of Sec. 33 which obstructs the flow.

Is the open ditch being damaged by over pasturing? No.

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines?
None noted

Approximately what percent of spoilbank along the open ditch has been leveled? 90%

Does there appear to be an adequate number of surface inlet pipe?
Yes

What is the condition of the surface inlet pipe that are in place? OK

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? No

Disc. Remarks: The ditch does not appear to be badly silted but the water is quite deep and does not have a chance to get out. A headwall is needed to protect the tile outlet that enters the open ditch in Sec. 31. The tree growth in the ditch is very scattered. The trouble in this section of ditch seems to be where the ditch passes through a knoll.

Otho Twp.

Drainage District - 269

Tile outlet OK and is well protected.

Pleasant Valley

DD #156

The tile outlet is OK. The headwall is fair but the tile outlet through a galvanized iron pipe. The water from the tile flows into a stock watering tank.

DD #30

The tile outlet is not protected by a galvanized iron pipe or a structure and the tile are washing out quite badly and the wash will soon be back into a field. The tile outlet into a gully at a point which is also a surface water concentration point which will cause the wash to develop very rapidly.

What seems to be the cause of the wash?

None.

Approximately what percent of the tile is washed out?

Level 100.

Does there appear to be any damage to the tile?

What is the condition of the tile?

What is the general condition of the tile?

To what extent does the tile cause damage to the field?

Large wash.

Remarks: This tile is washed out and the water is lost.

Why does the tile wash out?

All is gone.

Narrative Section

1. Drainage District number 11
2. What appears to be the cause for silting in the open ditch? No silting.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines?
None noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 100%
7. Does there appear to be an adequate number Yes of surface inlet pipe?
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No damage to ditch by fences, several gates have been constructed.

Misc. Remarks: This ditch was cleaned out about three years ago and is now in very good shape. There is no tree growth and the tile outlets are all in good shape.

Narrative Section

1. Drainage District number 54.
2. What appears to be the cause for silting in the open ditch? Flat grade and heavy vegetative growth on tree growth in the ditch.
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? None noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 75%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? Yes
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences are causing damage to the ditch by collecting trash.

Misc. Remarks: The ditch in the East $\frac{1}{2}$ Sec. 12 is almost completely filled with silt and vegetative growth. There is a heavy growth of trees and brush in the remainder of the ditch except in the south $\frac{1}{2}$ Section 14. There is possible wild life cover between the ditch and the railroad track in Sec. 12.

Narrative Section

1. Drainage District number 4
2. What appears to be the cause for silting in the open ditch? Vegetative growth, tree growth and pasturing with hogs.
3. Is the open ditch being damaged by over pasturing? Yes in NW $\frac{1}{4}$ of Sec. 2 by hogs.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Numerous fences were noted that are causing damage to ditch.

Misc. Remarks: The ditch is in good shape except the branch south and east of Duncombe which is in poor shape at the upper end. A structure is needed for the protection of the tile outlet of DD #110. The tree growth is rather heavy both in the ditch and on the banks throughout the township. There is a possible wild life area in the NW $\frac{1}{4}$ Sec. 2.

DD #79

Tile outlet OK. Headwall in fair condition. A hole is developing over the tile in a field approximately 1500 ft. above the outlet. A broken tile or a wide joint between the tile appears to be the cause of the trouble. A hole has also developed behind the headwall.

DD #75

Tile outlet OK. The tile outlets through a galvanized iron pipe into a gully. The tile is spilling on blue clay; rock rip-rap would prevent further cutting.

DD #113

Tile outlet is half submerged. Bulkhead is in fair condition and a wash is developing on the south side of the structure. A small amount of hand excavation would give the tile a good outlet. A hole is developing in the field on the west side of the road probably due to wide joints between the tile.

DD #151

The tile outlet is half submerged. The bulkhead is in fair condition but a wash is developing on the north side of the structure. A small amount of hand excavation would give the tile a clear outlet.

DD #275

Tile outlet OK. The tile outlets through a galvanized iron pipe into a branch of Bushy Creek. The tile are bare for a short distance on the east side of the north and south road. The joints between the tile at this point are quite wide.

DD # 130

The tile outlet is $2/3$ submerged and there is no protection for the outlet. A small amount of hand excavation in natural waterway below the outlet would give the tile a clear outlet.

DD #276

Tile outlet OK. The headwall at the tile outlet is in fair condition.

Yell Twp.

DD #334

Tile outlet OK. The tile outlet into a natural creek
through a galvanized iron pipe which is in good shape.

Ralph Bishop, Chm.
Lloyd Lyard
Earl Hedeen
Alvin Sandell

Burnside Twp.

Narrative Section

- Drainage District number 34.
- What appears to be the cause for silting in the open ditch? wind, bank sloughing, washes
- Is the open ditch being damaged by over pasturing? to no great extent.
- Do the ditch side slopes appear to be stable? Yes
- What seems to be the cause of holes developing over county tile lines? There seems to be very few if any holes developed over county tile.
- Approximately what percent of spoilbank along the open ditch has been leveled? about 30%
- Does there appear to be an adequate number of surface inlet pipe? No
- What is the condition of the surface inlet pipe that are in place? Those in place are OK
- What is the general condition of the intakes on county tile lines? They are OK.
- To what extent have fences been built across the open ditch and are they causing damage to the ditch? At one location in SE 1/4 Sec. 7, a fence was causing damage to the ditch.

Disc. Remarks: Trees are scattered throughout the open ditch most of which are found in the bottom or on the side slopes of the ditch causing the flow of water to be retarded. A short section of the open ditch was cleaned at the upper end of the ditch a short time ago. A petition has been placed with the County Auditor to clean this ditch. No tile seem to be completely submerged but to provide good drainage the ditch should be cleaned. So as to give the tile an outlet when running at max. capacity.

Ralph Bishop, Chm.

Burnside Twp.

Loyd Lyard

Carl Hedeen

Alvin Sandell

Narrative Section

1. Drainage District number 19.
2. What appears to be the cause for silting in the open ditch? Bank sloughing, wind, washes, & poor tile outlets.
3. Is the open ditch being damaged by over pasturing? No but controlled grazing would be better.
4. Do the ditch side slopes appear to be stable? Some sliding is occurring at the lower end of the ditch.
5. What seems to be the cause of holes developing over county tile lines? No county tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? No county tile
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? a very bad fence crossing was found in the NW $\frac{1}{4}$ Sec. 4.

Misc. Remarks: The ditch appears to have good fall at the lower end but is shallow. All tile have a clear outlet at low flow but will be discharging under a head if the ditch is flowing very full. The ditch could be greatly improved by shaping the lower end. Many private tile are washing into the banks and should be protected by a length of pipe. Considerable clearing has recently been completed in the NE $\frac{1}{4}$ Sec. 5 but much of the brush, branches and trunks are in the ditch or are in such a position that they will get into the ditch when the water gets higher.

Ralph Bishop, Chm.

Lloyd Lyard

Carl Hedeen

Alvin Sandell

Marquette Section

Drainage Districts #26 & #61

Headwall in poor shape, the tile are partly submerged but could be given good outlet by a little hand labor.

Drainage District #180

Headwall in fair shape, the tile outlet is partly submerged but the outlet could be improved by a little hand labor.

Drainage District #265

Headwall in poor shape, the tile outlet is OK.

Drainage District #17

The outlet is protected by a pipe, the outlet pipe could be improved a little hand labor. It is reported that in times of heavy runoff the tile spouts water in Section N.W. 1/4 Sec. 9. The topography of the land is such that a cut-off line can be made from the center of Section 8 to the open ditch of D.D. 34.

Drainage District #62

Tile outlet O.K. The tile outlets through a concrete bulkhead that is in fair condition.

Drainage District #40

Tile outlet is O.K. A bulkhead for the outlet is under construction. The outlet has been extended with 24" tile very recently.

Remarks: The ditch appears to be in poor condition. The flow of water

is sluggish and there is considerable vegetative growth in the ditch.

The bulkheads for the county tile outlets are in poor condition and

most of the tree growth is in the open ditch.

Henry Peterson, Chm.

Clay Twp.

Narrative Section

1. Drainage District number 48 (Sec. 35)
2. What appears to be the cause for silting in the open ditch? Flat grade, vegetative growth in ditch.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 90%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes or county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted causing damage to ditch.

Misc. Remarks: The ditch appears to be in poor condition. The flow of water is sluggish and there is considerable vegetative growth in the ditch.
The bulkheads for the county tile outlets are in poor condition and most of the tree growth is in the open ditch.

Henry Peterson, Chm.

Clay Twp.

Narrative Section

1. Drainage District number 48 (Sec. 33 & 34).
2. What appears to be the cause for silting in the open ditch? No indication of silting.
3. Is the open ditch being damaged by over pastureing? No.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No hole noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10%
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences causing trouble

Misc. Remarks: The ditch appears to be in pretty good condition. A headwall is needed at the upper end of the open ditch and the headwall for the county tile outlet in Sec. 34 is in bad shape. The tree growth is rather heavy along the open ditch. There is considerable tree growth in the ditch.

Narrative Section

1. Drainage District number DD #5
2. What appears to be the cause for silting in the open ditch? No indication of silting.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 30%
7. Does there appear to be an adequate number of surface inlet pipe?
A surface pipe is needed in Sec. 6 on lateral.
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences that were causing damage.

Misc. Remarks: The open ditch appears to be in good condition except at the extreme upper end where the ditch is in bad condition for a short distance. Washes are developing over the county tile outlets. Some of the private tile outlets are in poor condition. There is approximately 40 acres of timber & underbrush in the NE $\frac{1}{4}$ of Sec. 5. This area is good wild life cover but is being cleared.

Henry Peterson, Chm.

Clay Twp.

Narrative Section

1. Drainage District number 29.
2. What appears to be the cause for silting in the open ditch? No indication of silting
3. Is the open ditch being damaged by over pastureing? No apparent damage.
4. Do the ditch side slopes appear to be stable? Yes.
5. What seems to be the cause of holes developing over county tile lines? No holes noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 30%
7. Does there appear to be an adequate number of surface inlet pipe?
Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences noted.

Misc. Remarks: The ditch appears to be in good condition. Some of the private tile are in need of repair. The clearing is scattered. Some has been cut with the stumps remaining.

Henry Peterson, Chm.

Clay Twp.

Narrative Section

1. Drainage District number 2
2. What appears to be the cause for silting in the open ditch? Vegetative growth in ditch, wind erosion.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? The tile are exposed in several places in sub district #318 apparently due to wide joints between the tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? _____
7. Does there appear to be an adequate number _____ of surface inlet pipe?
Yes
8. What is the condition of the surface inlet pipe that are in place? _____
OK
9. What is the general condition of the intakes on county tile lines? OK
except as noted above.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? None noted

Misc. Remarks: There is quite a heavy growth of trees both on the banks and in the ditch. The outlet structures along this section of the ditch seem to be in fair condition.

Narrative Section

1. Drainage District number 5.
2. What appears to be the cause for silting in the open ditch? Tree growth & flat grade.
3. Is the open ditch being damaged by over pasturing? in sections
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? All holes have been repaired.
6. Approximately what percent of spoilbank along the open ditch has been leveled? None
7. Does there appear to be an adequate number of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place? No pipe found
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences were noted that are causing damage to the ditch.

Misc. Remarks: Nearly all of Lot. #1 is in bad shape. The balance of the ditch appears to be in fair shape. The tree growth in and along the ditch is scattered. Numerous private tile outlets are in need of attention. There is good wild life cover in the NW $\frac{1}{4}$ of SW $\frac{1}{4}$ Sec. 13. Washes have developed at some of the points where county tile empty into the open ditch.

Narrative Section

1. Drainage District number 52.
2. What appears to be the cause for silting in the open ditch? vegetative growth in ditch and flat grade.
3. Is the open ditch being damaged by over pasturing? Yes by hogs. SW $\frac{1}{4}$ of Sec. 28.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 50%
7. Does there appear to be an adequate number _____ of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? A few fences cross the ditch and are causing damage to the ditch.

Misc. Remarks: The ditch is badly silted in this township. The tree growth is generally heavy both in the ditch and on the bank.

Narrative Section

1. Drainage District number 12.
2. What appears to be the cause for silting in the open ditch? Vegetative growth in ditch.
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes found
6. Approximately what percent of spoilbank along the open ditch has been leveled? 75%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? A few at the upper end of the ditch slight damage.

Misc. Remarks: The ditch is in generally fair to good condition. The upper end of the ditch where two 20" tile enter the ditch is in need of protection. The tree growth on the ditch is generally light. A trash pile is located at the upper end of the ditch. Possible wild life areas located in the

SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29

Twp.
Hanson

Narrative Section

Drainage District number 70

What appears to be the cause for silting in the open ditch? Bank erosion,
wind, washes

Is the open ditch being damaged by over pasturing? No apparent damage.

Do the ditch side slopes appear to be stable? Generally

What seems to be the cause of holes developing over county tile lines?
No holes were noted.

Approximately what percent of spoilbank along the open ditch has been
leveled? About 30%

Does there appear to be an adequate number of surface inlet pipe?
No

What is the condition of the surface inlet pipe that are in place? OK

What is the general condition of the intakes on county tile lines? OK

To what extent have fences been built across the open ditch and are they
causing damage to the ditch? Few fences are obstructing the flow. A
small dam has been built in the NW $\frac{1}{4}$ of Sec. 18 just below a county tile
outlet.

Misc. Remarks: The water flows slow in Br. 4 but all tile seem to have a
clear outlet. The open ditch in sections 5 & 6 is badly silted and very
shallow. Many private tile outlets are in need of repair. There is
considerable tree growth in the open ditch in Sec. 6. Surface inlet pipe
are not provided at surface water concentration points. There are 3 areas
along the ditch that have possibilities of wild life areas.

Jochinson, Chm.

Roland Trp.

Narrative Section

Drainage District #263

At present the outlet is not protected but plans are under way for the construction of a new bulkhead at the outlet location.

Is the open ditch being damaged by over pasturing? There appears to be no damage to the ditch by over pasturing.

Do the ditch side slopes appear to be stable? Yes

What seems to be the cause of holes developing over county tile lines? Broken tile

Approximately what percent of gradients along the open ditch has been leveled? Not more than 10%

Does there appear to be an adequate number of surface inlet pipes? Yes but some are in need of repair.

What is the condition of the surface inlet pipe that are in place? Some have had joints between the lengths of pipe and some do not have sufficient fill over the pipe. About 1/3 of the pipes are in need of attention.

What is the general condition of the intakes or county tile lines? OK

To what extent have fences been built across the open ditch and are they causing damage to the ditch? Fences have been built across the ditch in places where they are not necessary and are causing damage to the ditch.

Disc. Remarks: A county tile outlet into the open ditch in the SW 1/4 Section

is now being repaired. However, there is not sufficient fill over

the surface inlet pipe at this location and a tile in the line has been

broken directly behind the fall. The county tile outlets in the SW 1/4

Sec. 26 are in need of repair. Many of the private tile outlets should

be protected by outlet pipe. The section recently cleared in SW 1/4 Section

is in good shape. Tree growth in the bottom of the ditch is not through

out west of the ditch.

3-11-41
F. H. Monson
Ed. Monson
Carl Johnson

Gowrie Twp.

Narrative Section

1. Drainage District number 197
2. What appears to be the cause for silting in the open ditch? washes through the spoilbanks and restricted flow in the ditch caused by tree growth.
3. Is the open ditch being damaged by over pasturing? There appears to be no damage to the ditch by over pasturing.
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? broken tile
6. Approximately what percent of spoilbank along the open ditch has been leveled? Not more than 10%
7. Does there appear to be an adequate number of surface inlet pipe? Yes but some are in need of repair.
8. What is the condition of the surface inlet pipe that are in place? Some have bad joints between the lengths of pipe and some do not have sufficient fill over the pipe. About 1/3 of the pipes are in need of attention.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Numerous fences have been built across the ditch in such a manner that they are collecting trash and causing damage to the ditch.

Misc. Remarks: A county tile outlet into the open ditch in the SW $\frac{1}{4}$ Section 14 has been recently repaired. However, there is not sufficient fill over the surface inlet pipe at this location and a tile in the line has been broken directly behind the fill. The county tile outlets in the SE $\frac{1}{4}$ Sec. 22 are in need of repair. Many of the private tile outlets should be protected by outlet pipe. The section recently cleaned in SW $\frac{1}{4}$ Section 12 is in good shape. Tree growth in the bottom of the ditch is bad throughout most of the ditch.

3-11-41

Gowrie Twp.

F. H. Monson, Chm.

Ed Monson

Carl Johnson

Narrative Section

1. Drainage District number 52.
2. What appears to be the cause for silting in the open ditch? Bank sloughing through peat bed. NW 1/4 Sec. 4. Cattle tramping in banks. Very little clearing.
3. Is the open ditch being damaged by over pastureing? Yes in peat bed.
4. Do the ditch side slopes appear to be stable? Except in peat bed.
5. What seems to be the cause of holes developing over county tile lines? Seems to be broken tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? About 50%
7. Does there appear to be an adequate number of surface inlet pipe?
No
8. What is the condition of the surface inlet pipe that are in place? Most of them seem to be OK that are in place.
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Few were noted. Some brush is growing in the ditch.

Misc. Remarks: More surface inlet pipe could be installed for the benefit of the open ditch. Many of the private tile outleting into the open ditch should be protected by installing a length of pipe on the outlet end of the tile.

Albert Martinson, Chm.
Carl Nyren

Lost Grove Twp.

Narrative Section

1. Drainage District number 37.
2. What appears to be the cause for silting in the open ditch? Washes in and through ditch banks, flat grade, tree growth.
3. Is the open ditch being damaged by over pastureing? No.
4. Do the ditch side slopes appear to be stable? Yes, there is very little bank sloughing.
5. What seems to be the cause of holes developing over county tile lines? Broken tile.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 5%
7. Does there appear to be an adequate number of surface inlet pipe? No.
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Several fences were noted that cross the ditch and are retarding the flow of water.

Misc. Remarks: The open ditch in this twp is in quite bad shape. Many of the tile are completely submerged. There is scattered trees growing along the ditch and in the ditch throughout most of its length. The ditch has been recently cleaned from a point about 1000 ft. below the Lost Grove & Dayton twp. line. Many of the incoming private tile are in need of attention (length of galvanized iron pipe on the outlet end). There are several possible wild life areas along the ditch.

Albert Martinson, Chm.

Lost Grove Twp.

Carl Nyren

Narrative Section

1. Drainage District number 2.
2. What appears to be the cause for silting in the open ditch? Washes in and through the bank and lack of vegetation on the side slopes of the open ditch.
3. Is the open ditch being damaged by over pasturing? In a few locations.
4. Do the ditch side slopes appear to be stable? Not in all locations
5. What seems to be the cause of holes developing over county tile lines? No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 100
7. Does there appear to be an adequate number of surface inlet pipe? No.
8. What is the condition of the surface inlet pipe that are in place? Many have the ends broken off and some do not have sufficient fill over the pipes.
9. What is the general condition of the intakes on county tile lines? They are in a good state of repairs.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Only a few were noted and the damage very slight.

Misc. Remarks: The ditch appears to have good fall and is of ample depth. Many washes have developed along the ditch, most of them being caused by tile outlet structures failure. Most of these washes are very large and are continuing to eat back into the fields. The clearing on this ditch is generally quite heavy. The bulkhead for DD #145 has toppled over into the ditch and the tile are beginning to drop off and wash back into the bank. Two locations for wild life areas were noted.

Albert Martinson, Chm.
Carl Nyren

Lost Grove Twp.

Narrative Section

1. Drainage District number 48.
2. What appears to be the cause for silting in the open ditch? Washes, tree growth, and weed growth in ditch bottoms.
3. Is the open ditch being damaged by over pastureing? No, not a noticable amount.
4. Do the ditch side slopes appear to be stable? Fairly.
5. What seems to be the cause of holes developing over county tile lines? No holes were noted.
6. Approximately what percent of spoilbank along the open ditch has been leveled? 10% to 15%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? From all indications OK.
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? Very few were noted that are causing damage to the ditch.

Misc. Remarks: The ditch seems to be in good shape except in the upper tier of sections where the grade seems to be quite flat and the flow is rather sluggish. No submerged tile were found. The timber growth on the open ditch seems to be generally quite light. The tile that enters the open ditch in the SE $\frac{1}{4}$ Section 4 is in bad shape. The bulkhead has foiled and there is a wash developing back into the field which at present is about 60 ft. in length. Two possible wild life areas were noted, one in the NW corner of NE $\frac{1}{4}$ Sec. 16 and one in the NW $\frac{1}{4}$ Sec. 21.

Albert Martinson, Chm.
Carl Nyren

Lost Grove Twp.

Narrative Section

DD #177

Drainage District number

Outlets into lower end of open ditch, outlet and bulkhead

OK.

DD #198

Outlets into creek. Bulkhead in fair condition and tile has a clear outlet. (about a 12" private tile outlet into the creek from the east and is in need of attention.)

DD #35

Outlets in elbow of old stream which has now been straightened. The outlet is completely submerged and there is no indication of a headwall or pipe for outlet protection. There is a private tile outlet beside the county outlet which is in need of attention. It may be possible to extend the outlet to the present open stream a distance of approximately 700 ft.

DD #200

The tile outlets into a stream. At present the tile is standing & full of water. The bulkhead is in fair condition. However, there is a surface wash around and back of the bulkhead.

DD #174

The tile outlets into a stream and is in very good shape. The bulkhead has been recently repaired and is now in very good condition.

DD #270

The bulkhead for this tile line is now in good shape but the water is beginning to undermine the footing of the structure.

DD #244

The bulkhead for the tile seems to be in fair shape except that some of the water is running under the structure which will soon cause damage.

Narrative Section

1. Drainage District number 2
2. What appears to be the cause for silting in the open ditch? No evidence of silting
3. Is the open ditch being damaged by over pastureing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 60%
7. Does there appear to be an adequate number of surface inlet pipe? No
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No trouble caused by fences through the ditches.

Misc. Remarks: The open ditch is in good shape in this twp. There are several private tile that are in need of outlet protection. The clearing on the lower end of the ditch is generally heavy while on the upper end of the ditch is scattered. Possible wild life area NW $\frac{1}{4}$, NW $\frac{1}{4}$ Sec. 6. Several washes are developing through the bank.

Narrative Section

Drainage District number 49

1. What appears to be the cause for silting in the open ditch? No evidence of silting.
2. Is the open ditch being damaged by over pastureing? No.
3. Do the ditch side slopes appear to be stable? Yes.
4. What seems to be the cause of holes developing over county tile lines? No holes noted.
5. Approximately what percent of spoilbank along the open ditch has been leveled? None.
6. Does there appear to be an adequate number Yes of surface inlet pipe?
7. What is the condition of the surface inlet pipe that are in place? OK
8. What is the general condition of the intakes or county tile lines? OK
9. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences were noted that are causing damage to the ditch.

Misc. Remarks: The open ditch was cleaned out about 3 years ago and is now in good shape. A road tile east side Sec. 4 is in need of outlet protection. Practically no tree growth on the open ditch.

Narrative Section

1. Drainage District number 37.
2. What appears to be the cause for silting in the open ditch? No apparent silting at present.
3. Is the open ditch being damaged by over pasturing? No
4. Do the ditch side slopes appear to be stable? Yes
5. What seems to be the cause of holes developing over county tile lines? No holes noted
6. Approximately what percent of spoilbank along the open ditch has been leveled? 50% (Balance is now in wild life area)
7. Does there appear to be an adequate number of surface inlet pipe? Yes
8. What is the condition of the surface inlet pipe that are in place? OK
9. What is the general condition of the intakes on county tile lines? OK
10. To what extent have fences been built across the open ditch and are they causing damage to the ditch? No fences in the ditch.

Misc. Remarks: This section of ditch was cleaned in the fall of 1940. There is heavy growth of wild grass, brush and trees on north spoil bank which is now a wild life area and should remain.

DD #176

Tile outlet is OK and bulkhead is in good shape. Outlets into creek at end of open ditch.

DD #183

Tile outlet is OK and wall is in fair condition. Outlets into a gully.

DD #285

Tile outlet is OK. A galvanized iron pipe is used to protect the outlet of this tile line and is in good shape.

DD #190

Tile outlet is OK and it appears that a new wall has been recently built to protect the outlet. Wall is in good condition.

DD #134.

The tile has a good outlet through a rather large concrete wall. The wall appears to have been rather recently constructed. The wall is located in a natural water course which drains a rather large area. A wash has developed on the south side of the wall and has gone back up the water course for several hundred feet.

DD #117

The tile outlet is OK and the wall seems to be in good shape. The tile outlet into a gully.

DD #107

The tile outlets through the east wingwall of the road culvert into a full ditch. The outlet could be slightly improved by deepening the bull ditch. At present there is about 6 inches of water standing in the tile.

East Dayton - Hardin Twp.

DD #335

Tile outlet OK and well protected.

DD #234

Tile outlet OK and well protected.

DD #324

Tile outlet OK and is well protected.

DD #245

Tile outlet OK and is well protected.

SECTION II

Cost information and district locations.

DRAINAGE DISTRICT COST INFORMATION

Drainage District Number	Original Assessment	Expenditures for period 1/1/35 to 1/1/41	Township Location of Drain
1	\$ 10,610.67	\$ 3,122.41	Cooper and part of Fort Dodge
2	17,733.37	9.76	Burnside, Clay, Dayton & Lost Grove
3	9,791.67	1,030.33	Jackson and joint with Humboldt County #2 Humboldt
4	91,580.98	3,584.75	Colfax & Newark
		2,600.27	DD#4, Lat. #7
5	68,556.94	8,567.31	Clay, Roland, Fulton & Elkhorn
6	36,351.45	1,045.49	Newark & Badger
7	Not Established		
8	2,674.85	42.37	Johnson
9	5,979.13	138.28	Jackson and joint with Humboldt County #3
10	5,456.14	458.07	Deer Creek and Joint with Humboldt County #1
11	6,952.52	3,100.42	Washington and joint with Hamilton County #11
12	22,779.91	235.75	Roland and joint with Calhoun County #38
13	6,884.48	5.50	Newark and joint with Wright County #11
14	1,873.99	3.50	Johnson
15	3,517.50	22.64	Johnson
16	32,672.97	194.68	Johnson and joint with Calhoun County #31
Relief 16	39,984.00	31.08	Johnson and joint with Calhoun County #247
17	5,532.24	99.02	Burnside
18	2,605.84	3.50	Dayton, Lost Grove and joint with Boone #24 and Greene Co. #17
19	15,260.68	3.50	Burnside, Clay, Elkhorn & Otho
20	6,471.15	128.57	Johnson
Relief 20	6,277.95	3.50	Johnson
21	10,108.00	23.15	Johnson
22	1,245.00	2,194.45	Johnson and joint with Calhoun # 12

Drainage Cost Data

23		Not Established	
24	8,083.74	31.82	Roland
25		Not Established	
26	7,861.43	5.90	Burnside
Relief			
26	10,158.40	3.50	Burnside
27	6,370.20	77.21	Douglas & Johnson
28	10,311.53	428.26	Badger & Cooper
29	26,484.72	2,526.86	Elkhorn & Clay
30	19,642.34	60.73	Washington, Pleasant Valley, Colfax & Cooper
31	5,285.10	255.06	Elkhorn
Relief			
31	31,057.50	27.50	Elkhorn
32		Not Established	
33		Not Established	
34	49,423.00	464.96	Clay & Burnside
Let. C, D & E			
34	18,381.00		
35	18,364.37	266.40	Lost Grove, Gowrie & joint with Greene Co. #18
36		Not Established	
37	14,955.00	1,136.70	Lost Grove & Dayton
38		Not Established	
39		Not Established	
40	3,607.62	681.84	Burnside
41		Not Established	
42		Not Established	
43	42,156.18	1,335.71	Newark
44		Not Established	
45		Not Established	
46		Not Established	
47	21,851.00	58.77	Dayton

Drainage Cost Data

48	33,215.33	122.78	Lost Grove & Clay
Branch A			
48	2,278.02	-	-
49	29,079.60	1,400.80	Dayton & Burnside
50	6,300.31	78.84	Johnson
51	11,212.06	126.10	Gowrie
Relief			
51	55,684.00	3.50	
52	16,077.45	7.50	Roland & Gowrie
53	Not Established		
54	13,306.60	26.11	Washington & joint with Hamilton #58
55	12,694.40	134.08	Jackson
56	Not Established		
57	45,181.49	1,862.73	Newark, Badger, Cooper & Colfax
58	Not Established		
59	12,845.45	40.71	Badger & joint with Humboldt #4
60	1,552.61	4.40	Douglas
61	1,954.96	3.50	Johnson
62	7,248.85	16.09	Burnside & Yell
63	1,013.28	None	Colfax
64	24,293.15	109.54	Clay, Lost Grove, Gowrie & Roland
65	16,353.50	113.00	Gowrie
66	Not Established		
67	Not Established		
68	8,041.81	5.10	Newark
Relief			
68	18,332.90	3.50	
69	108,255.00	1,696.28	Douglas, Fulton & Johnson
70	54,874.64	1,105.41	Fulton, Gowrie, Roland & joint with Calhoun #95
71	Not Established		
72	Not Established		

Drainage Cost Data

73	3,048.89	17.20	Newark
74	Not Established		
75	5,986.82	29.93	Washington
76	2,708.17	105.60	Deer Creek
77	17,578.30	8.77	Gowrie, Roland & joint with Calhoun #111
78	Not Established		
79	13,605.86	89.78	Washington
80	5,522.00	11.50	Elkhorn & Otho
81	481.12	6.70	Burnside
82	4,692.00	9.55	Colfax, Newark
83	Not Established		
84	2,564.95	78.30	Deer Creek
85	Not Established		
86	3,001.00	3.50	Washington
87	6,950.78	55.02	Burnside, Dayton
88	3,548.30	91.98	Badger
89	5,184.00	3.50	Lost Grove & Gowrie
90	21,222.12	81.38	Newark & joint with Wright #49
91	3,154.65	3.50	Colfax
92	9,203.75	413.22	Newark & joint with Wright #46
93	4,065.80	16.33	Badger & Cooper
94	3,100.00	60.34	Deer Creek
95	6,401.70	27.88	Colfax & joint with Hamilton #87
96	100,694.00	2,092.29	Otho, Elkhorn, Walton & Clay
97	Not Established		
98	Not Established		
99	2,945.40	5.06	Colfax & joint with Hamilton #88

Drainage Cost Data

100	1,800.00	5.00	Otho & Elkhorn
101	1,716.00	51.05	Jackson & joint with Humboldt Co. #6
102	25,057.00	375.55	Newark & joint with Humboldt Co. #5
103	1,632.00	3.50	Otho & Elkhorn
104	Not Established		
105	1,921.72	3.50	Cooper
106	24,525.20	15.65	Lost Grove, Clay & Gowrie
107	9,396.20	43.50	Dayton
108	3,918.80	26.41	Colfax & joint with Hamilton Co. #117
109	Not Established		
110	515.00	3.50	Washington
111	3,198.02	17.66	Deer Creek
112	1,529.29	3.75	Washington
113	7,546.00	13.06	Washington
114	Not Established		
115	1,415.00	3.50	Deer Creek
116	4,059.68	51.78	Douglas & Johnson
117	3,029.18	51.27	Dayton
118	Not Established		
119	Not Established		
120	1,865.11	3.50	Gowrie & joint with Calhoun Co. #147
121	1,280.00	6.46	Jackson
122	12,683.29	63.44	Douglas
123	4,076.00	18.47	Jackson
124	4,394.00	50.16	Deer Creek
125	3,800.86	46.24	Newark
126	Not Established		

Drainage Cost Data

127	861.25	78.46	Colfax and Newark
128	902.29	4.63	Newark
129	7,797.00	15.15	Badger
130	5,554.00	11.60	Washington
131	Not Established		
132	Not Established		
133	2,524.98	22.83	Newark
134	6,442.37	37.75	Dayton
135	12,928.24	606.63	Deer Creek and Jackson
136	Not Established		
137	3,853.00	88.22	Cooper
138	2,575.42	71.82	Colfax
139	2,306.59	222.68	Cooper
140	10,508.47	103.50	Dayton & Lost Grove & joint with Boone #2, Greene #97
141	22,513.74	203.51	Cooper
142	Not Established		
143	1,590.00	6.00	Colfax
144	6,880.73	128.10	Colfax, Pleasant Valley & Cooper
145	1,120.75	3.50	Lost Grove & Harcourt Inc.
145	1,034.00	Reconstruction	
146	1,640.00	3.50	Colfax & Washington
147	6,165.00	239.31	Clay
148	2,448.92	1.63	Johnson
149	6,384.32	12.01	Newark
150	320.00	None	Cooper & Colfax
151	40,945.46	285.65	Washington
152	1,226.86	8.70	Johnson
153	2,835.00	3.50	Colfax

Drainage Cost Data

154	4,056.92	39.78	Cooper & Pleasant Valley
155	Not Established		
156	6,694.00	278.38	Cooper & Pleasant Valley
157	1,432.00	3.50	Cooper & Washington
158	2,741.90	7.50	Colfax
159	495.00	12.31	Badger
160	979.61	5.06	Washington
161	Not Established		
162	Not Established		
163	1,100.86	89.22	Badger & Deer Creek
164	4,753.00	29.37	Johnson
165	5,042.00	22.12	Elkhorn
166	13,338.00	328.04	Deer Creek
167	2,952.00	22.80	Colfax
168	3,636.00	30.88	Fulton
169	3,470.00	7.60	Lost Grove
170	5,764.00	136.57	Badger
171	Not Established		
172	5,331.00	55.96	Jackson & Johnson & joint with Calhoun #175 & Pocahontas #78
173	2,005.92	3.50	Colfax
174	2,890.00	343.78	Lost Grove
175	1,350.00	None	Cooper
176	21,926.00	44.83	Dayton
177	2,443.00	13.04	Lost Grove
178	48,623.00	125.17	Dayton & joint with Boone #138
179	6,079.00	12.61	Badger & Newark
180	2,350.00	3.50	Burnside

Drainage Cost Data

181	13,494.00	5.83	Roland & Callender, Inc.
182	1,459.00	3.50	Elkhorn
183	4,630.96	71.60	Dayton & Burnside
184	2,686.00	59.75	Deer Creek & joint with Humboldt #8
185	2,220.00	3.50	Deer Creek & Jackson
186	4,850.00	85.16	Elkhorn
187	615.00	6.36	Badger, Colfax, Cooper & Newark
188	391.00	15.45	Fulton
189	62,705.00	32.51	Gowrie & Lost Grove
190	3,113.00	110.30	Dayton
191	20,183.00	14.79	Elkhorn
192	7,514.00	251.20	Deer Creek & joint with Humboldt #9
193	6,061.00	8.70	Lost Grove
194	8,713.00	48.33	Badger & Cooper
195	28,456.30	1,045.77	Jackson, Deer Creek & Clare, Inc.
196	950.00	46.83	Fulton & Roland
197	81,506.88	68.88	Clay, Gowrie, Lost Grove, Roland & Gowrie, Inc.
198	5,712.00	None	Lost Grove
199	8,913.00	77.05	Dayton
200	7,193.00	28.30	Lost Grove
201	1,555.00	10.71	Burnside & Clay
202	Not Established		
203	605.00	3.50	Newark
204	3,304.00	552.85	Douglas & Elkhorn
205	Not Established		
206	Not Established		
207	2,358.00	131.31	Deer Creek
208	5,062.00	137.35	Elkhorn

Drainage Cost Data

209	3,966.72	27.44	Johnson
210	17,019.00	3.50	Hardin & Joint with Boone #1 & Hamilton #192
211	2,885.00	10.05	Badger
212	-	-	Gowrie & Joints with Greene Co. #105
213	11,594.00	78.98	Newark
214	2,790.00	24.07	Johnson
215	6,412.00	343.41	Cooper & Fort Dodge, Inc.
216	13,320.25	60.23	Colfax & Edwards, Inc.
217	4,600.00	19.67	Johnson & joint with Calhoun #201
218	11,840.00	153.99	Douglas
219	52,353.50	922.31	Jackson & Glare, Inc. & Deer Creek & Douglas
220	Not Established		
221	4,388.00	none	Gowrie & joint with Greene County #110
222	19,486.78	417.28	Dayton & joint with Boone County #2
223	3,480.39	99.94	Johnson
224	8,054.00	23.09	Burnside & Clay
225	8,764.00	76.63	Cooper
226	Not Established		
227	4,343.80	3.50	Hardin & joint with Hamilton Co. #203
228	5,500.00	7.33	Elkhorn
229	7,766.20	99.54	Fulton & Moorland, Inc.
230	13,976.29	160.95	Johnson
231	1,709.00	None	Roland
232	Not Established		
233	1,038.76	3.50	Webster & joint with Hamilton Co. #196
234	3,866.82	3.50	Hardin
235	2,762.50	3.50	Gowrie & Roland & joint with Calhoun #213

Seignage Cost Data

6	15,070.10	20.00	Elkhorn
7	Not Established		
8	15,993.78	108.04	Douglas & Johnson
9	Not Established		
10	4,872.73	48.39	Clay
11	Not Established		
12	647.90	None	Washington
13	3,099.85	3.50	Jackson & Johnson
14	2,119.09	None	Lost Grove & Harcourt, Inc.
15	2,749.76	16.32	Dayton
16	Not Established		
17	86,282.00	317.08	Newark & joint with Humboldt Co. #7
18	12,473.16	12.86	Colfax & Washington & joint with Hamilton #204
19	13,532.00	1,274.59	Colfax
20	16,647.00	276.67	Jackson & Lost Grove & joint with Harcourt
21	Not Established		
22	Not Established		
23	6,383.00	83.88	Badger
24	1,920.00	28.92	Douglas
25	1,550.43	5.50	Gowrie, Inc.
26	5,181.00	11.30	Jackson
27	4,260.56	None	Roland
28	27,699.95	10.50	Newark
29	Not Established		
30	Not Established		
31	3,247.00	16.90	Elkhorn & Fulton
32	Not Established		
33	35,542.95	256.78	Clay & Roland

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Drainage Cost Data

264	1,476.00	7.11	Jackson & joint with Humboldt #101
265	2,532.00	28.96	Burnside
266	Not Established		
267	2,048.00	None	Dayton
268	Not Established		
269	2,437.70	230.23	Otho
270	2,302.40	None	Lost Grove
271	2,375.10	11.79	Elkhorn & Fulton
272	9,259.07	7.50	Gowrie
273	Not Established		
274	9,633.50	19.78	Washington
275	3,302.00	11.03	Washington
276	8,551.70	4.70	Washington
277	3,636.90	3.50	Dayton & Lost Grove & joint with Boone #178 & Greene #140
278	4,426.00	None	Burnside
279	23,016.00	107.52	Deer Creek & Douglas
280	2,209.55	3.50	Cooper
281	826.50	3.50	Colfax
282	Not Established		
283	1,901.90	None	Newark
284	2,004.64	4.15	Newark
285	5,316.24	3.50	Dayton
286	5,492.45	32.75	Elkhorn
287	38,870.00	12.30	Jackson
288	15,832.60	688.38	Jackson
289	Not Established		
290	750.00	6.65	Cooper

Drainage Cost Data

291	873.00	3.50	Douglas
292	3,821.70	2.45	Douglas
293	946.00	None	Roland
294	Not Established		
295	13,770.20	45.25	Badger
296	10,741.60	171.84	Jackson
297	Not Established		
298	6,395.00	4.30	Douglas
299	18,851.20	40.57	Hardin & joint with Hamilton Co. #229
300	5,501.40	37.80	Cooper
301	2,612.50	2.08	Badger
302	4,651.00	114.77	Deer Creek & Jackson
303	560.00	None	Gowrie
304	7,807.70	27.00	Cooper
305	Not Established		
306	69,979.00	104.80	Badger & Newark
307	Not Established		
308	327.00	24.63	Otho
309	3,255.00	4.00	Roland
310	1,328.00	None	Elkhorn
311	15,093.00	7.60	Newark
312	39,631.00	728.60	Deer Creek
313	37,118.00	62.13	Gowrie & Roland
314	5,698.20	151.10	Douglas
315	11,721.10	3.50	Lost Grove & joint with Greene #156
316	12,877.00	22.81	Badger & Badger, Inc.
317	1,160.00	None	Newark

Drainage Cost Data

318	40,100.00	39.37	Lost Grove & Clay
319	Not Established		
320	2,950.00	28.56	Elkhorn
321	Not Established		
322	1,055.00	3.50	Elkhorn
323	2,910.00	None	Roland
324	2,450.00	79.00	Hardin
325	Not Established		
326	Not Established		
327	1,121.00	None	Newark
328	1,811.00	None	Lost Grove
329	Not Established		
330	1,160.00	None	Fulton
331	Not Established		
332	1,300.00	None	Dayton & Lost Grove
333	Not Established		
334	6,604.00	473.82	Burnside, Dayton & Tell
335	1,810.00	None	Hardin
336	1,713.70	3.50	Dayton & joint with Boone #204
337	Not Established		
338	1,094.00	3.50	Badger
339	1,140.00	None	Cooper
340	2,813.00	5.60	Elkhorn & Douglas
341	8,624.00	3.41	Elkhorn, Otho, Burnside & Clay
342	452.68	3.50	Cooper
343	Not Established		
344	4,476.60	124.23	Fulton & joint with Calhoun #256
345	1,355.34	5.58	Deer Creek

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Drainage Cost Data

346		Not Established	
347	1,000.00	3.50	Cooper
348	2,808.00	485.06	Jackson
349		Not Established	
350	2,900.00	665.25	Cooper Sec. 21-28
351	839.91	27.04	Cooper Sec. 31
352	3,707.24	No Assessment Levied	

\$ 3,103,281.35

\$ 62,516.25

TOTALS (approximate)

Tatum Line
MADE IN U.S.A.
STYLE N.
LOOSE SHEET HOLDER
No. 418



1850
1850

