

**Public Hearing on Surveyor's Report & Engineer's Supplemental Report for Repairs to the  
Upper End of Main Tile in Drainage District 143  
Wednesday, March 25, 2020 11:00 AM**

**County Buildings are closed to the public due to Covid-19 concerns, and due to restrictions of mass public gatherings over 10 people, as set forth by Governor Reynolds in the State of Public Health Emergency Disaster Proclamation, this hearing will be open to the public via conference call only. The hearing date and time will remain the same, you may call at that time to access the hearing by following the instructions below:**

**To access the meeting, call 1-(312)-626-6799, when prompted, enter the meeting ID code: 729 321 381**

**You can also access the meeting online at:**

<https://zoom.us/j/729321381>

**When prompted enter meeting ID code: 729 321 381. You can use your computer's audio to attend the meeting.**

**If you would like to submit written comments to the Drainage Clerk prior to the hearing they can be sent to the Drainage Clerk at:**

**Email: [dsmith@hardincountyia.gov](mailto:dsmith@hardincountyia.gov)**

**Fax: 641-939-8223**

**US Mail: Hardin County Auditor's Office, 1215 Edgington Ave., Suite 1, Eldora, IA  
50627**

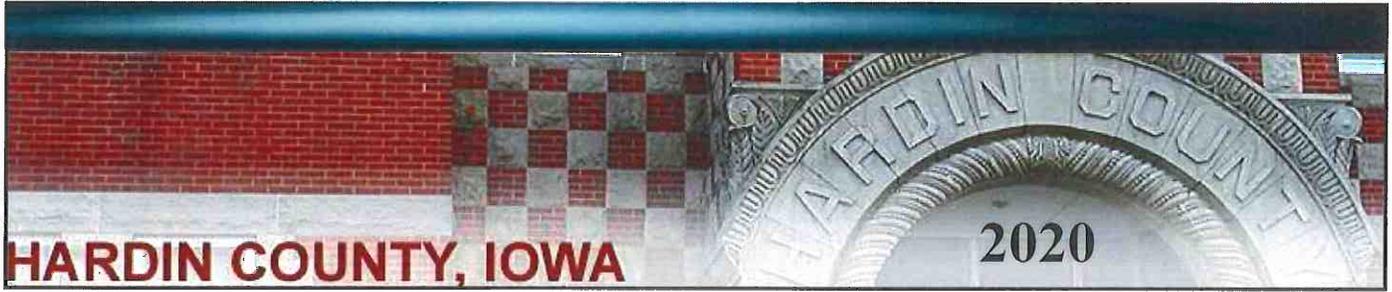
1. Open Meeting
2. Approve Agenda
3. Introductions/Attendance
4. Open Public Hearing
5. Verify Publication  
Published in the Times Citizen on March 4, 2020.
6. Explanation Of Project

Documents:

[6771.5 - DD 143 SURVEYORS\\_REPORT\\_2020-01-02\\_SIGNED.PDF](#)  
[6771.6 - DD 143 SUPPLEMENT ENGRS REPORT.PDF](#)

7. Written Or Verbal Comments/Discussion
8. Close Public Hearing
9. Possible Action
  - Adopt Recommendation of Supplement to Engineer's Report
  - Direct CGA to Prepare Plans and Specifications
10. Other Business

## 11. Adjourn Meeting



**SURVEYOR'S  
REPORT  
ON MAIN TILE  
RIGHT OF WAY  
DRAINAGE FOR  
DISTRICT NO. 143  
HARDIN COUNTY,  
IOWA**



I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF IOWA

*Zeb J. Stanbrough* 1-2-2020  
ZEB J. STANBROUGH, P.L.S. DATE

LICENSE NUMBER: 19957  
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2021  
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5106 Nordic Drive | Cedar Falls, IA 50613  
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**Surveyor's Report on Main Tile Right of Way for  
Drainage District No. 143  
Hardin County, Iowa**

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Investigation Summary for Work Order #167	App. B
Drainage District No. 2 Map	App. C
City of Radcliffe Map	App. D

# Surveyor's Report on Main Tile Right of Way for Drainage District No. 143 Hardin County, Iowa

## 1.0 INTRODUCTION

- SCOPE OF WORK – The Hardin County Board of Supervisors, acting as District Trustees, requested Clapsaddle-Garber Associates to determine the current easement width of the Main tile of Drainage District No. 143 through the City of Radcliffe. This report will summarize the history of establishment for said Drainage District 143 and the establishment of City of Radcliffe along with the surrounding subdivisions. At the Drainage District 143 Landowner Meeting held on April 24, 2019 the results of the investigation for Work Order #167 were discussed and reviewed by the District Trustees and landowners. For reference, a copy of the meeting minutes is included in Appendix A and a copy of the Investigation Summary for Work Order #167 (as considered at the April 24, 2019 Drainage District 143 Landowner Meeting) is included in Appendix B. As a result of this meeting, the District Trustees requested Clapsaddle-Garber Associates to move ahead with the Surveyor's Report to determine the width of the easement for the Main tile through the City of Radcliffe.
- LOCATION – The area of investigation was limited to the upper end of the Main tile located in Section 29, Township 87 North (T87N), Range 22 West (R22W), Hardin County, Iowa. Specifically, the downstream limit was where the Main tile crosses the east side of Section 29 (center of East Street aka County Highway S27) at approximately  $\frac{3}{8}$  mile north of Highway #175. It then goes west on Ionia Street with the upstream limit being where the Main tile crosses the south right of way line of Ionia Street at approximately  $\frac{3}{4}$  mile, which is just west of May Street. For reference, a copy of a Drainage District No. 2 map by Reigles Engineering Company, showing said limits is included in Appendix C.

2.0 PARTIAL DISTRICT HISTORY – The following is a summary of the pertinent history (prior to 2014) of the main of Drainage Districts No. 2 (renamed 143 later) and 143 as obtained from the Hardin County Auditor’s drainage minutes and records and those of Clapsaddle-Garber Associates. The partial Drainage District History also includes recorded subdivision that are on file in the *Hardin County Recorder’s office*.

1881, Jun. 8 *Original Town Radcliffe*

1883, Nov. 9 *Rumper’s Addition*

1884, May 23 *Stukenberg’s Addition*

1895, Jul. 16 *Rumpers Fourth Addition*

1901 Jun. 6 *Drake and Dallard’s Addition*

1903, Aug. 15 Petition and Bond for establishment of Drainage District No. 2 was filed. Said petition indicated that a main drain, sub-mains, and laterals should be installed. Specifically, it indicated that the main should start on the west side of Section 32, run northeast and east into Section 29 to Ionia Street. There it should run east on Ionia Street to the east side of Section 29 where it would continue southeast and terminate in an open ditch.

1903 E.E. Fox is appointed as the Engineer for the project and an Engineer's Report was filed for this project. Although no copies of said report could be located, it is known to have existed as E.E. Fox revised it through a letter dated Sept. 10, 1903.

1903, Aug. 27 Publication of Notice of Drainage District No. 2 establishment.

1903, Sept. 29 Notice to Contractors for construction of Drainage District No. 2 facilities with a bid date of Nov. 11, 1903.

1906, Mar. 1 Publication of Notice of Drainage District No. 2 establishment.

1906, Jul. 7 Publication of Notice to Contractors for construction of Drainage District No. 2 facilities with a bid date of Aug. 6, 1906.

1906, Aug. 14 Construction bond with Austin Rorem for construction of Drainage District No. 2 facilities was filed.

3.0 INVESTIGATION – All investigation for this report was limited to office work only. Said investigation included to looking for right of way information for the Drainage District 143 within the City of Radcliffe. The following Hardin County offices were searched for any information regarding Drainage District 143 right of way within the City of Radcliffe:

- County Auditor’s Office
  - Transfer books – Nothing was found related to Drainage District 143 right of way
  - Current plat books – Nothing was found related to Drainage District 143 right of way
  - Old plat books – Nothing was found related to Drainage District 143 right of way
- County Engineer’s Office
  - Field books – Nothing was found related to Drainage District 143 right of way
  - Sherman Township field book – Nothing was found related to Drainage District 143 right of way
- County Recorder’s Office
  - Record subdivisions – Nothing was found related to Drainage District 143 right of way

City of Radcliffe offices were not searched for any information in regard to Drainage District 143 right of way as it is not believed that the city would have any pertinent Drainage District records that would date back to the early 1900’s. A review of the district history shows that the City of Radcliffe existed prior to the Drainage District 143 establishment and therefore the right of way were platted existed prior to said Drainage District 143.

4.0 DISCUSSION AND CONCLUSIONS – Based on the above, it appears that no width was ever stated for to Drainage District 143 right of way and that no damages paid for taking the land to establish said right of way. As the City of Radcliffe and its surrounding subdivisions were established prior to Drainage District 143, it would logical that the existing street right of way for Ionia Street (66 feet) would have been used for the Drainage District 143 right of way through the City of Radcliffe. This would explain why no damages had been paid. Essentially, the right of way for Ionia Street and Drainage District 143 right of way are one and the same from East Street (aka County Highway S27) to east side of Cleveland Street. See attached City of Radcliffe map included in Appendix D.

5.0 RECOMMENDATIONS – Definition of the Drainage District 143 right of way would help define where maintenance could be done in the future to protect and ensure Main tile performance. Therefore, it is recommended that the Hardin County Board of Supervisors, acting as District Trustees, should take action to accomplish the following:

- Approve the Surveyor’s Report as prepared by Clapsaddle-Garber Associates.
- Hold the required hearing on the proposed Surveyor’s Report.

NOTE: It should be noted that Ionia street right of way and Drainage District 143 right of way may be one and the same, but trees outside of right of way may be influencing and/or having a negative effect of the Main tile performance.

## **DRAINAGE DISTRICT 143 LANDOWNER MEETING**

4/24/2019 - Minutes

1. Open Meeting

Hardin County Drainage District Board of Trustee, Lance Granzow, opened the meeting. Also present was Trustee, Lance Granzow; Landowners Taylor Roll, Jacob Handsaker, Kris Bell, Paul Handsaker, Phyllis Drake, Jim and Helen Granzow, Doris Eike, Bryan Drake, Calvin Hyland, Carole Topp, Kathy Houck, Curt Groen, Kim and Hope Boddard; Lee Gallentine and Zeb Stanbrough with Clapsaddle-Garber Associates; Drainage Clerks Becca Junker and Tine Schlemme.

2. Approve Agenda

Hoffman moved, Granzow seconded to approve the agenda as presented. All ayes. Motion carried.

3. Explanation Of Project

Gallentine explained at the hearing for the upper end of the main tile that was back in 2017 it was requested that instead of just worrying about trees in the golf course, the entire route to the main tile be looked at for possible trees causing root issues. CGA went out and took an inventory of all the trees within 50 feet of the main tile. Referring to the Investigation Summary, Gallentine explained the trees that were a main concern due to species were highlighted. Gallentine then directed the meeting back to the Trustee's to talk about the Landowner Meeting that took place in Radcliffe that he was not in attendance of.

Granzow explained that at the Radcliffe meeting the idea was to break up the project into different targeted sections so that it did not exceed the \$50,000 threshold. Following the Radcliffe meeting, it was brought to the Trustee's attention that the Code of Iowa specifically states that separating any project to keep under the \$50,000 threshold cannot be done. The Trustee's then decided to hold another landowners meeting to decide what the next step in clearing the tile would be.

4. Comments/Discussion

Hoffman explained that his duty as a drainage district trustee is to make sure the facility is flowing water. He expressed that he does not want to stand in front of the landowners and say they have to do one thing or another, but it is his duty to in fact do something so that the facility is flowing water properly. He addressed the written and verbal responses that were received by the landowners who could not make the meeting. There were more responses of no than there were of yes to move forward. He said that his initial opinion is to go with the voice of no but there has to be an understanding by not doing anything, if things get bad and there become damages, the Trustees will have to take action right away.

Granzow then explained that there are tree roots in the tile, they can be left or they can be taken out. There are trees growing, they can be left or they can be cut down. He does not want to demolish the town, but it is his feeling the trees need to come out. If that means ordering an easement then they need to order one. The Trustees need to protect the facilities. The tree roots are going to keep growing and keep blocking the infrastructure and could cause more damage resulting in tearing up the entire title versus jet cleaning now.

The Trustees then opened the floor for discussion.

Landowners brought up cutting problematic trees down and then jet cleaning the tile. While discussing this option, Gallentine informed the landowners that jetting the tile is an option but depending what kind of jet is used, it could possibly damage the tile. There would also have to be an access point every 500-1000 feet which adds to costs. If the tile is damaged during the jetting process then there will be added costs for replacing the tile completely.

There was discussion on how much of the tile has roots blocking the flow of water. After reviewing the footage that was taken, Schlemme came up with an estimated 1000 feet of blocked tile. Roll then added that 1/3 of it has roots in the tile. It was discussed that if trees were cut, it was still very important to do something with the roots that are already in the tile.

Lining the tile through the urban area was discussed. Once the tile was lined, there would be no need to do anything with the trees because the lining would block the roots from causing problems in the tile. Granzow then stated that they are saving the trees in the district at the expense of the people who do not want the trees. The larger expense of this project is falling on the farm ground rather than the people in town. It was brought up classifying on assessed value rather than drainage benefit and it was discussed that there would have to be a petition and a possible election that majority of the landowners agree on. Schlemme informed the landowners that if this was something they wanted to do, it would be important to get legal advice.

It was then brought up by a landowner that if CGA is going to be making a report, he would like them to also look into how much it would cost to install a new tile to the side of Ionia Street. He wanted to compare the price of lining the tile to the price of installing new tile that is not under the roadway as repairing tile under the roadway is expensive.

#### 5. Possible Action

Hoffman moved, Granzow seconded to instruct CGA to prepare a report and plans for a few different options.

- 1) CGA is to prepare a report and costs to partially and fully line the facility.
- 2) CGA is to prepare a report and costs to cut trees and clean the tile.
- 3) CGA is to prepare a report and costs to install a new tile to the side of Ionia.
- 4) CGA is to determine the current easement.

Hoffman informed the landowners that once CGA has completed the reports, another landowners meeting will be scheduled to go over the results. He also thought it would be beneficial for there to be a vendor who supplies the slip lining present to discuss and explain their products and educate both the landowners and Trustees.

#### 6. Other Business

Hoffman thanked everyone who was present for partaking in quality, constructive dialogue.

#### 7. Adjourn Meeting

Hoffman moved, Granzow seconded to adjourn the meeting. All ayes. Motion Carried.

## Drainage District:

143

### Investigation Summary:

- At the Hearing on Engineer's Report for Repairs to Upper End of Main Tile, the District Trustees requested an inventory of trees within the 50' of the Main Tile from the west end of town to the east end of town (i.e. west side of the golf course) be performed.
- CGA staff performed a site visit along the Main Tile route and found the following trees within 50' of the Main Tile (unless noted otherwise):
  - 3 Walnuts (28"-36")
  - 1 Buckeye (12")
  - 3 Oak (6"-36")
  - 12 Brush or Brush Lines
  - 1 Cedar (24")
  - 4 Blue Spruce (8"-15")
  - 13 Apple (2"-24")
  - 2 Honey Locusts (24"-36")
  - 10 Ash (10"-48")
  - 4 River Birch (24"-36")
  - 22 Soft Maple (2"-48")
  - 12 Hard Maple (8"-48")
  - 3 Mulberry (6")
  - 1 Boxelder (24")
  - 1 Sycamore (48") at 54' from tile

### Contractor Time and Materials (spent while CGA was on-site):

None as only investigation was performed

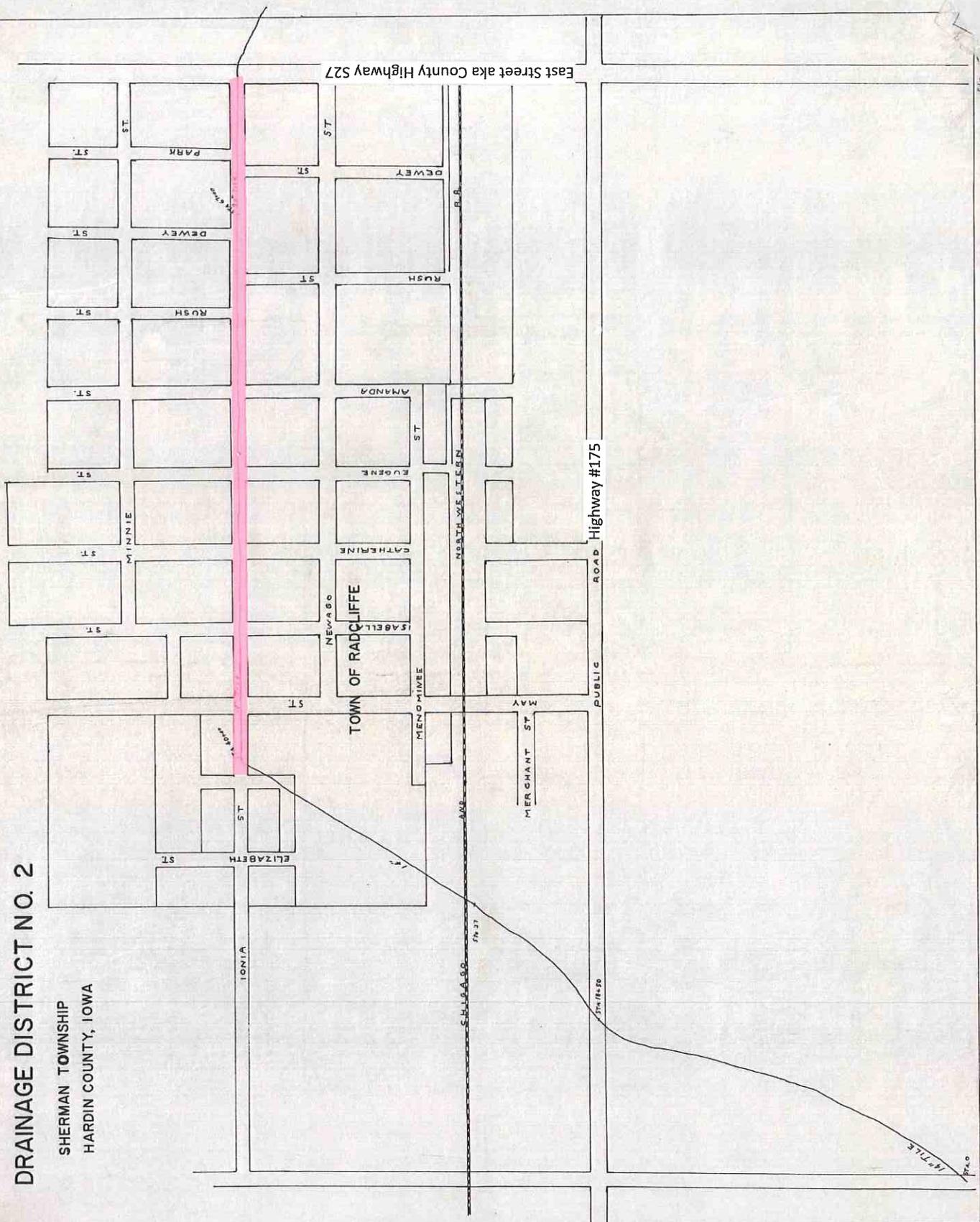
### Additional Actions Recommended:

Although all trees are capable of producing tree roots which can negatively impact tile, the above yellow highlighted trees species are some that we typically find majorly impacting tile negatively. If the District Trustees do not pursue lining the Main tile, they may wish to pursue removal of at least the yellow highlighted trees as it is CGA's opinion that they will eventually (or may already be) negatively impacting the Main Tile. It is also our opinion that the cost of removal of just these trees would be over \$50,000. This cost is high enough that a hearing and engineer's report would be required.

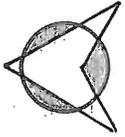


# DRAINAGE DISTRICT NO. 2

SHERMAN TOWNSHIP  
HARDIN COUNTY, IOWA

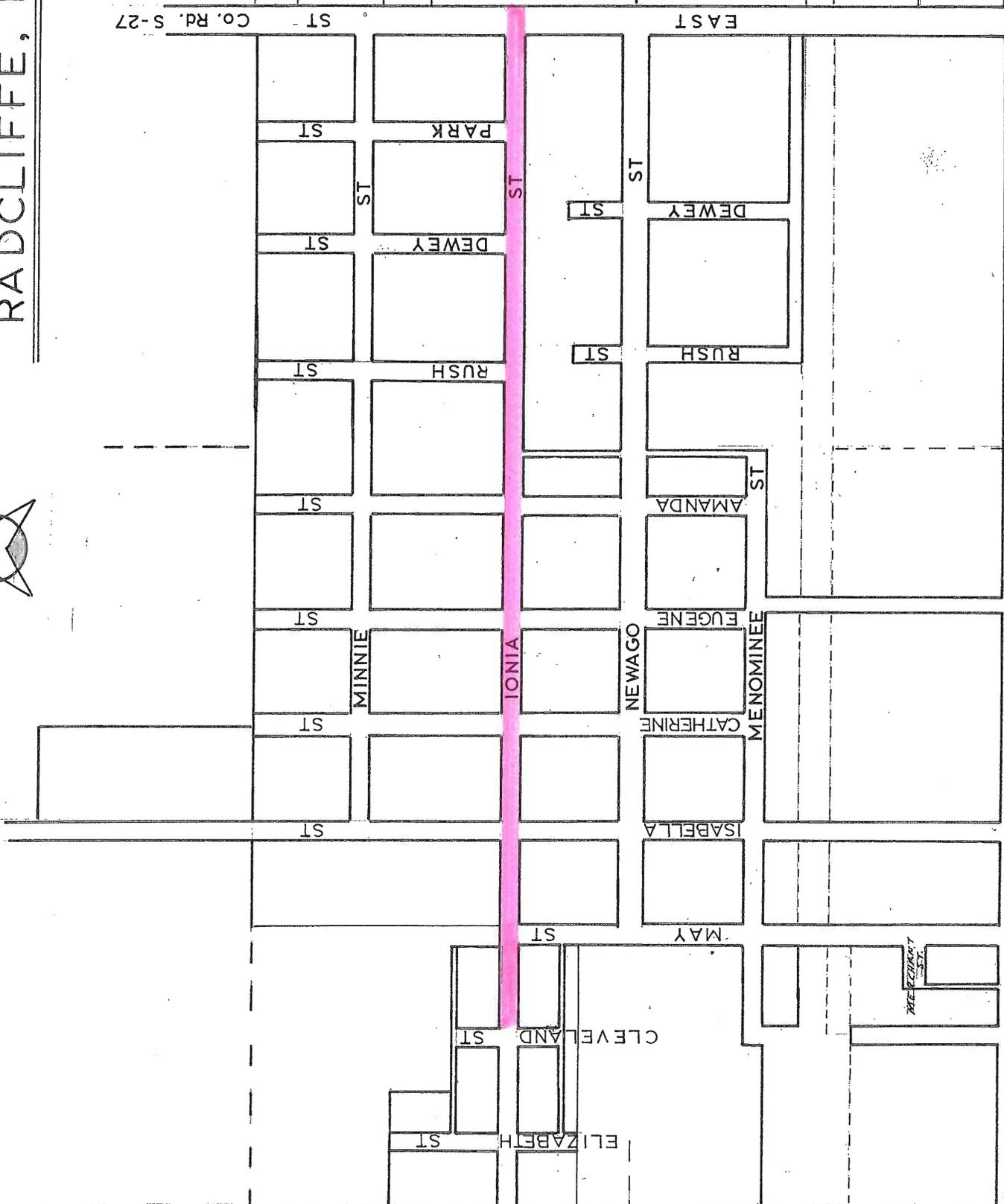


NORTH



# CITY OF RADCLIFFE, IOWA

Co. Rd. S-27



IOWA HWY. NO. 175

IOWA

HARDIN COUNTY, IOWA



2020



**SUPPLEMENT TO  
ENGINEER'S  
REPORT  
ON REPAIRS TO  
UPPER END OF  
MAIN TILE OF  
DRAINAGE  
DISTRICT NO. 143  
HARDIN COUNTY**



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA

*Lee O. Gallentine*, P.E. Jan 8, 2020  
LEE O. GALLENTINE, P.E. DATE

LICENSE NUMBER: 15745  
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2020  
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511 Bank Street | Webster City, IA 50595

**Project Office**  
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# Supplement to Engineer's Report on Repairs to Upper End of Main Tile of Drainage District No. 143, Hardin County, Iowa

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# **Supplement to Engineer's Report on Repairs to Upper End of Main Tile of Drainage District No. 143, Hardin County, Iowa**

## 1. INTRODUCTION

- SCOPE OF WORK – The Hardin County Board of Supervisors, acting as District Trustees, requested Clapsaddle-Garber Associates to investigate and report concerning repairs to the upper end of the main tile of Drainage District No. 143. At the hearing held on August 16, 2017 and several landowner meetings since, the original Engineer's Report, subsequent investigation results (copy included in Appendix A for reference), and subsequent repair results were discussed and reviewed by the District Trustees. As a result, at the landowner meeting held on April 24, 2019 the District Trustees requested Clapsaddle-Garber Associates to move ahead with this supplement for additional options to reinstate the capacity of the Main tile along Ionia Street.

2. REPAIR METHODS – To repair the issues discussed in the original report along Ionia Street that haven't already been repaired, there are several options, but the following are some of the ones discussed at the above mentioned hearings and meetings:

Full Tile Lining

- Remove tree roots and debris from the existing Main tile by either jet cleaning or mechanical cutting.
- Prevent roots from infiltrating the existing Main tile again by installing a CIPP liner.
- For reference, the general route and location of said cutting and lining are shown on the map included in Appendix C.

Partial Tile Lining

- Remove tree roots and debris from the existing Main tile by either jet cleaning or mechanical cutting. This would be only where tree root infiltration has previously been identified (assumed to be  $\frac{1}{3}$  of length of the full tile lining length based on April 24, 2019 meeting minutes).
- Prevent roots from infiltrating the existing Main tile again by installing a CIPP liner in this same length.
- For reference, the general route and location of said cutting and lining are shown on the map included in Appendix C.

Tile Cleaning and Tree Removal

- Remove tree roots and debris from the existing Main tile by either jetting cleaning or mechanical cutting.
- Remove trees identified as problematic within 50 feet of either side of the existing Main tile. For reference, they are highlighted yellow in subsequent investigation results included in Appendix A.
- For reference, the general route and location of said cutting are shown on the map included in Appendix C.

Offset Tile Replacement

- Install a new Main tile on either the north side or south side of Ionia Street pavement (depending upon number of existing utilities at these locations). The offset Main tile would connect to the existing Main tile in the golf course and would connect back into the existing Main tile west of May Street.
- Remove trees within 50 feet of either side of the rerouted Main tile.
- For reference, the general route and location of said replacement is shown on the map included in Appendix C.

With the above-mentioned repairs, the following should be noted:

- All of the above options would only remove obstructions in the Main tile at locations of proposed work. Any obstructions at other locations would remain in the existing Main tile.
- All private connections repairs would be reconnected to the Main tile after repairs.
- Repair of any of the key issues identified under the discussions and conclusions of the original report (except roots and rock/soil) on the existing Main tile have either been

completed are not necessary for cleaning and/or lining. For reference, a table stating said spot locations is included in Appendix B.

- All options would require installation of access manholes in the area of repair.
- The Offset Tile Replacement option would abandon the existing Main tile in place.
- All options except the Full Tile Lining option would require future monitoring for additional tree growth and root infiltration.
- The Offset Tile Replacement option would not provide for reconnection of any private connections on the opposite side of Ionia Street that the offset Main tile is installed (assumed number of private connections to be half of total for other options).
- The Tile Cleaning and Tree Removal option would involve removing trees outside of the existing right of way of Ionia Street.
- The pipe sizes used are those that are currently manufactured that most closely meet or exceed the current main tile size.
- It is our understanding of Iowa Code that the removal of hedges, trees, and obstructions is a power given to the Drainage District Trustees through Iowa Code Chapter 468.138 and 468.139.
- Repairs have historically been viewed as not having an impact on jurisdictional wetlands. As such, individual landowners should consult with applicable staff at the Hardin County NRCS office to verify the existence of said jurisdictional wetlands and that there will be no impact on them.

Per Iowa Code Chapter 468.126, the above actions would be considered a repair. As such, Subsection 1, paragraph c of Chapter 468.126 states "If the estimated cost of the repair does not exceed fifty thousand dollars, the board may order the work done without conducting a hearing on the matter. Otherwise, the board shall set a date for a hearing. . ." The opinion of probable construction cost contained in the Opinion of Probable Construction Costs section of this report exceeds said \$50,000 limit. Therefore, a hearing will be required. Per Iowa Code Chapter 468.126.1.g, the right of remonstrance does not apply to the proposed repairs.

3. OPINION OF PROBABLE CONSTRUCTION COSTS – Using the above methods of repair, an itemized list of project quantities and associated opinions of probable construction costs was compiled and is included in Appendices D, E, F and G of this report. A summary of said costs (to the nearest dollar) are as follows:

<b>METHOD</b>	<b>DRAINAGE COEFF.</b>	<b>TOTAL COST</b>
Full Tile Lining	Existing	\$ 455,366
Partial Tile Lining	Existing	\$ 270,944
Tile Cleaning and Tree Removal	Existing	\$ 342,616
Offset Tile Replacement	Existing	\$ 455,022

It should be noted that said costs include materials, labor, and equipment supplied by the contractor to complete the necessary improvement and includes applicable engineering, construction observation, and project administration fees by Clapsaddle-Garber Associates. However, said costs do not include any interest, legal fees, county administrative fees, crop damages, other damages, previous repairs, engineering fees to date, wetland mitigation fees, or reclassification fees (if applicable). As always, all costs shown are opinions of Clapsaddle-Garber Associates based on previous lettings on other projects. Said costs are just a guideline and are not a guarantee of actual costs.

4. RECOMMENDATIONS – There is a definite need to perform one of the repairs from the original report or this supplement. The repair would remove some or all of the current restrictions to the Main tile and extend the life span of the Main tile. Therefore, it is recommended that the Hardin County Board of Supervisors, acting as District Trustees, should take action to accomplish the following:
- Approve the Supplement to Engineer’s Report as prepared by Clapsaddle-Garber Associates.
  - Hold the required hearing or hearings on the proposed repair.
  - Adopt one of the recommendations of the Original Report or Supplement to Engineer’s Report.
  - Direct Clapsaddle-Garber Associates to prepare plans and specifications for the proposed repair.
  - Direct Clapsaddle-Garber Associates to proceed with receiving bids from interested contractors.
  - Award contract to the lowest responsible contractor.
  - If desired or required by Iowa Code, proceed with reclassification proceedings.

## Drainage District:

143

### Investigation Summary:

- At the Hearing on Engineer's Report for Repairs to Upper End of Main Tile, the District Trustees requested an investigation of who owned the fiber optic utilities that were bored through the Main Tile.
- Based on information from the Iowa One-Call service, it appeared that the most likely utility at issue was Radcliffe Telephone Company.
- Contacted Radcliffe Telephone Company via telephone on November 11, 2018 and they indicated that they use orange conduit for their fiber optic line.
- Attached photographs (Pic #1 and Pic #2) from CCTV inspection clearly show that conduit bored through the Main Tile is orange. The locations of said fiber optic lines being bored through the Main Tile are shown on the attached CCTV Investigation Map.

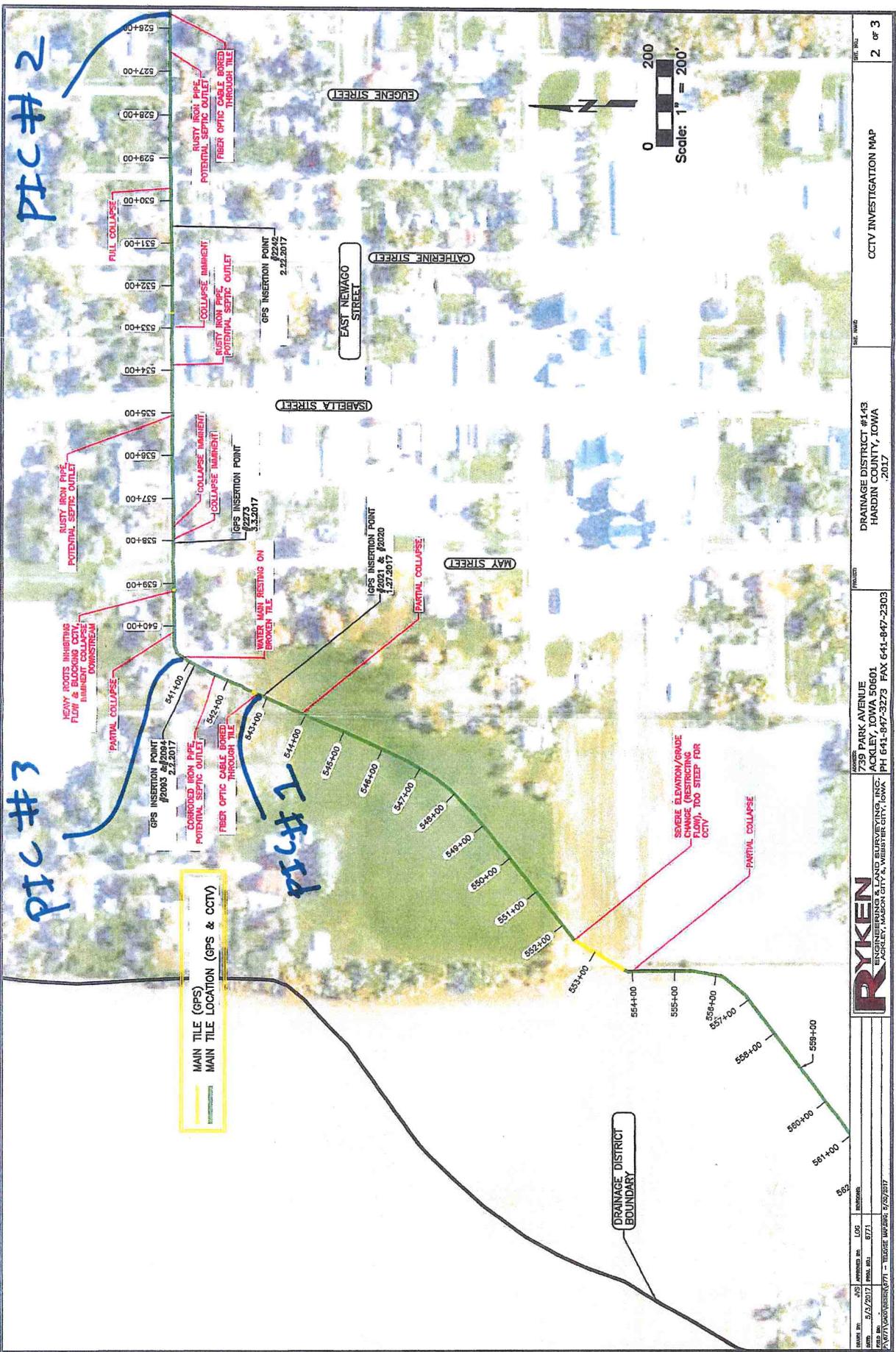
### Contractor Time and Materials (spent while CGA was on-site):

None as only investigation was performed.

### Additional Actions Recommended:

Radcliffe Telephone Company should remove their fiber optic lines from the Main Tile and repair the Main Tile at these two locations. The repair should be observed, documented, and performed to applicable Drainage District standards. It is CGA's opinion that this should be done at no cost to the drainage district unless there is an agreement or Iowa Code section that states otherwise.





DATE: 5/10/2017	PROJECT: DRAINAGE DISTRICT #143 HARDIN COUNTY, IOWA 2017	DATE: 5/22/2017	SCALE: 1" = 200'
PROJECT NO: 143	PROJECT NAME: DRAINAGE DISTRICT #143 HARDIN COUNTY, IOWA 2017	PROJECT NO: 143	PROJECT NAME: DRAINAGE DISTRICT #143 HARDIN COUNTY, IOWA 2017
CLIENT: RYKEN ENGINEERING & LAND SURVEYING, INC. ASKLEY, IOWA 50601 PH 641-847-3273 FAX 641-847-2303	CLIENT: RYKEN ENGINEERING & LAND SURVEYING, INC. ASKLEY, IOWA 50601 PH 641-847-3273 FAX 641-847-2303	CLIENT: RYKEN ENGINEERING & LAND SURVEYING, INC. ASKLEY, IOWA 50601 PH 641-847-3273 FAX 641-847-2303	CLIENT: RYKEN ENGINEERING & LAND SURVEYING, INC. ASKLEY, IOWA 50601 PH 641-847-3273 FAX 641-847-2303
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PIC #1

2/2/2017

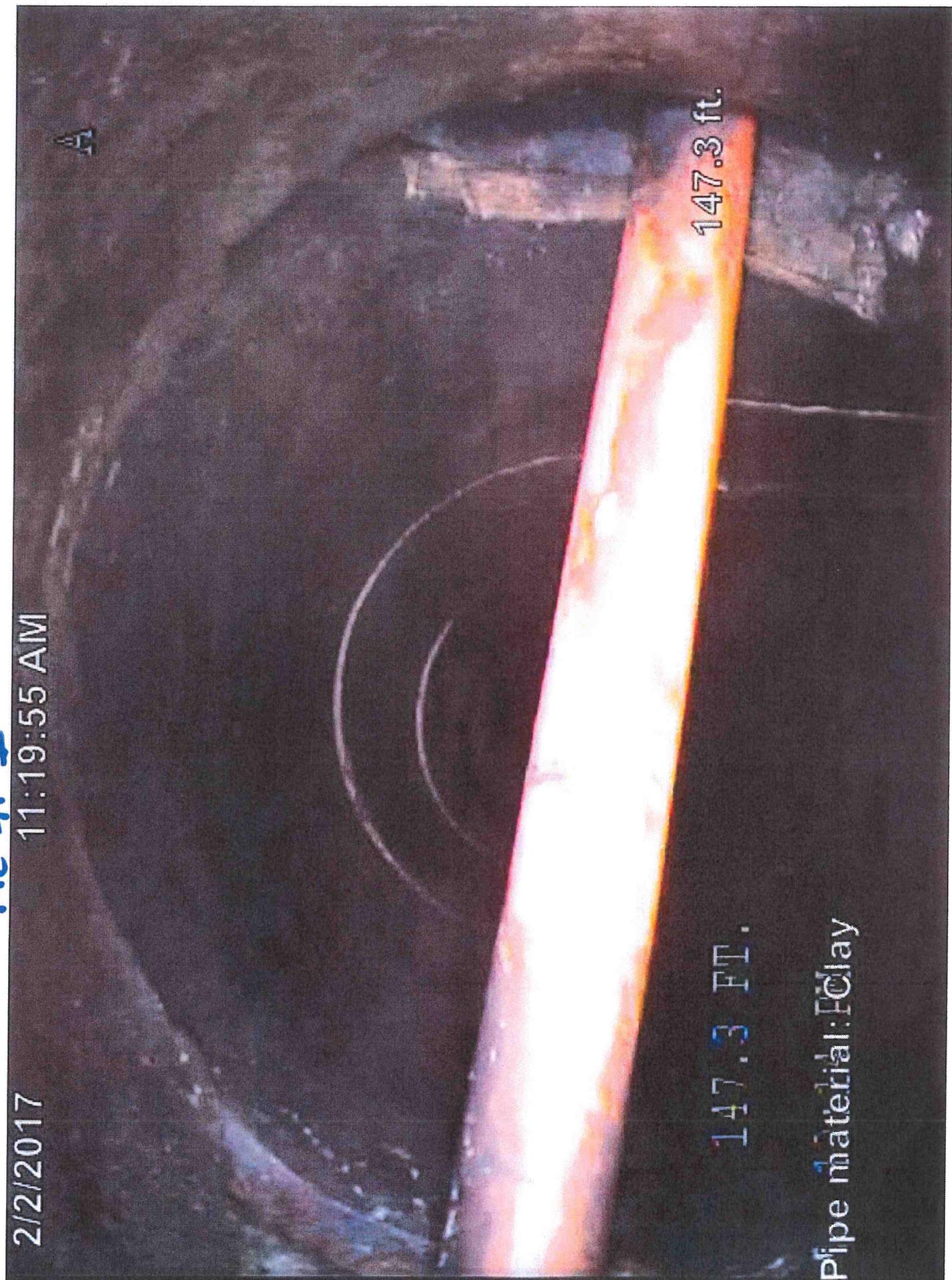
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A

147.3 ft.

147.3 FT.

Pipe material: FClay



PEC # 2

2/22/2017

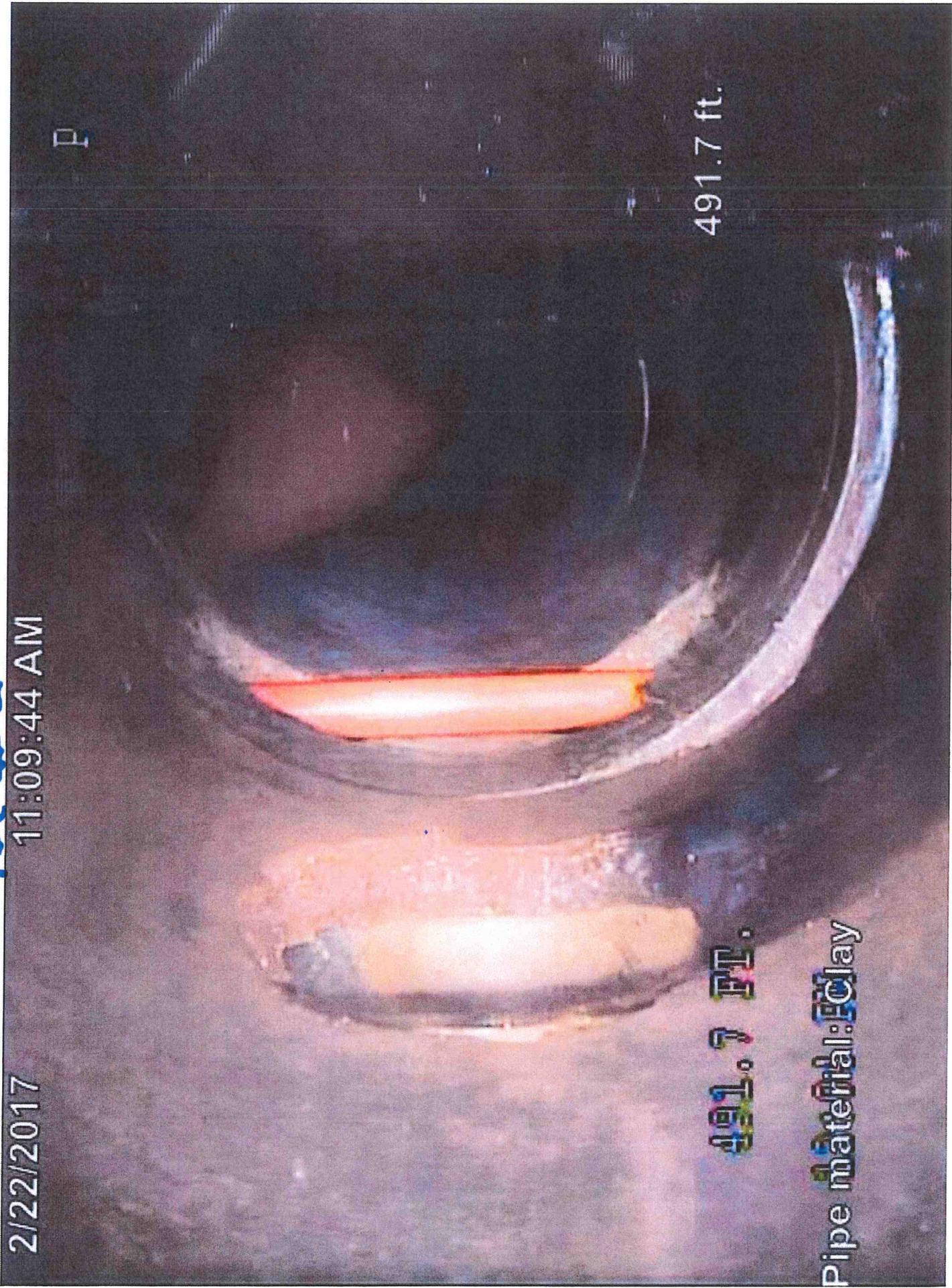
11:09:44 AM

F

491.7 FT.

491.7 ft.

Pipe material: EClay



2/2/2017

PEC # 3

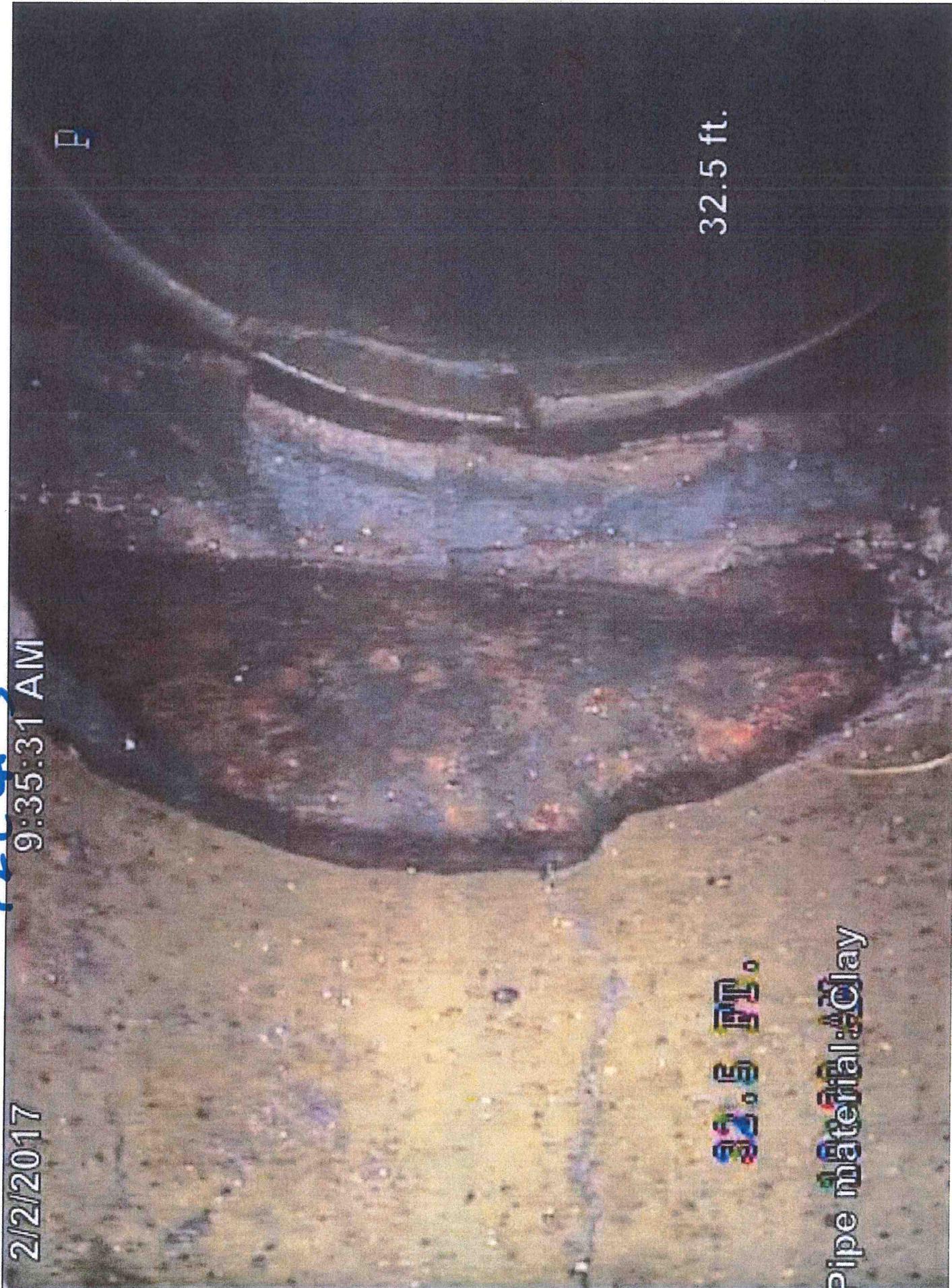
9:35:31 AM

F

32.5 FT.

32.5 ft.

Pipe material: Clay



## Drainage District:

143

## Investigation Summary:

- At the Hearing on Engineer's Report for Repairs to Upper End of Main Tile, the District Trustees requested an inventory of trees within the 50' of the Main Tile from the west end of town to the east end of town (i.e. west side of the golf course) be performed.
- CGA staff performed a site visit along the Main Tile route and found the following trees within 50' of the Main Tile (unless noted otherwise):
  - 3 Walnuts (28"-36")
  - 1 Buckeye (12")
  - 3 Oak (6"-36")
  - 12 Brush or Brush Lines
  - 1 Cedar (24")
  - 4 Blue Spruce (8"-15")
  - 13 Apple (2"-24")
  - 2 Honey Locusts (24"-36")
  - 10 Ash (10"-48")
  - 4 River Birch (24"-36")
  - 22 Soft Maple (2"-48")
  - 12 Hard Maple (8"-48")
  - 3 Mulberry (6")
  - 1 Boxelder (24")
  - 1 Sycamore (48") at 54' from tile

## Contractor Time and Materials (spent while CGA was on-site):

None as only investigation was performed

## Additional Actions Recommended:

Although all trees are capable of producing tree roots which can negatively impact tile, the above yellow highlighted trees species are some that we typically find majorly impacting tile negatively. If the District Trustees do not pursue lining the Main tile, they may wish to pursue removal of at least the yellow highlighted trees as it is CGA's opinion that they will eventually (or may already be) negatively impacting the Main Tile. It is also our opinion that the cost of removal of just these trees would be over \$50,000. This cost is high enough that a hearing and engineer's report would be required.



**Drainage District:**

143

**Investigation Summary:**

At the Hearing on Engineer's Report for Repairs to Upper End of Main Tile, the District Trustees requested an opinion of probable construction cost to line the existing Main tile from the west end of town to the east end of town (i.e. west side of the golf course).

**Contractor Time and Materials (spent while CGA was on-site):**

None as only investigation was performed

**Additional Actions Recommended:**

Based on conversations with some lining companies and recent bid letting for sanitary sewer lining, CGA drafted the attached Engineer's Opinion of Probable Construction Costs. Said opinion is just below \$500,000. This cost is high enough that a hearing and engineer's report would be required.





By: Z.J.S.  
 Date: 11/21/2018  
 Checked By: L.O.G.  
 Date: 11/21/2018

**Engineer's Opinion of Probable Construction Costs**

Project: Main Tile for D.D. #143

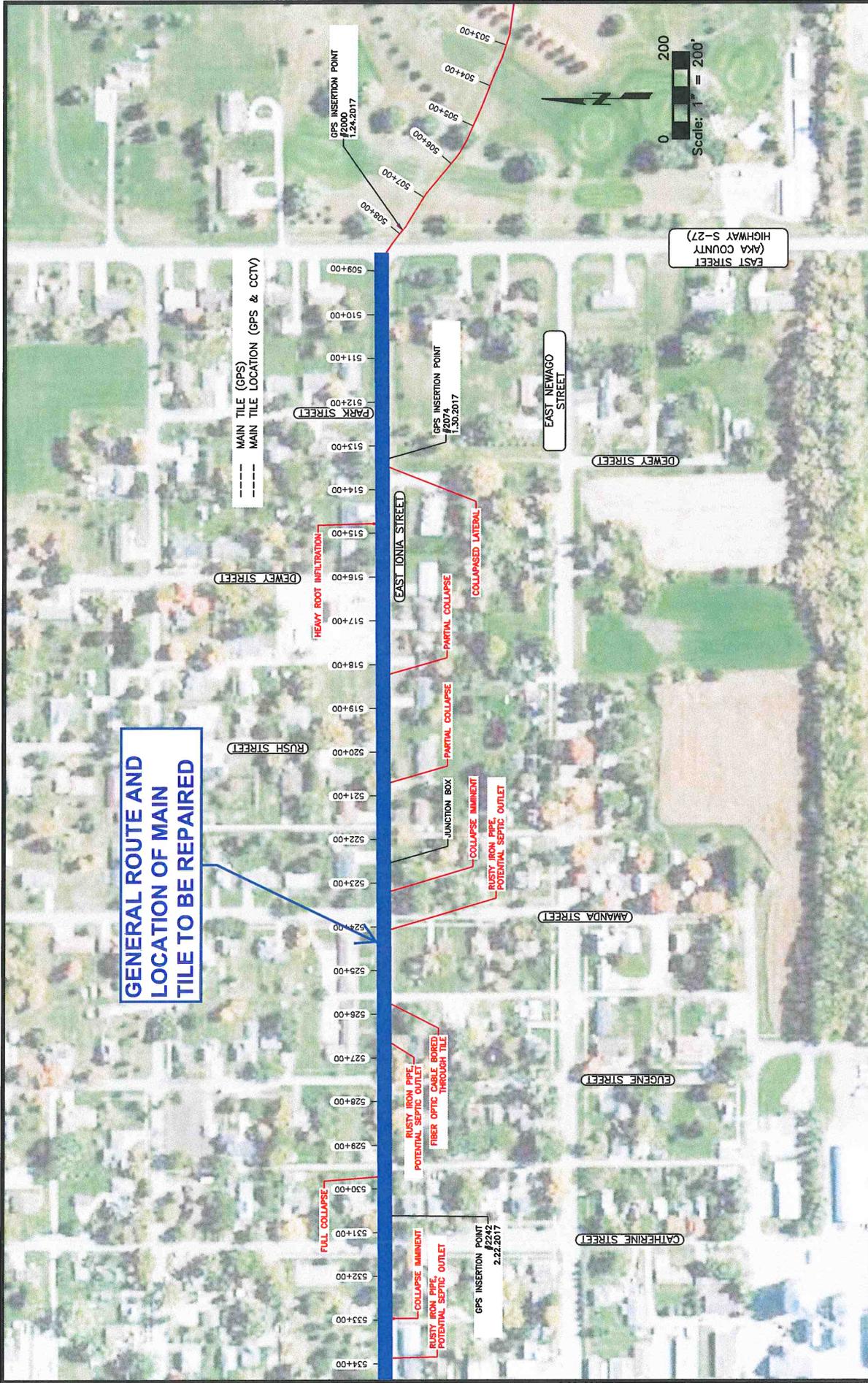
Location: City of Radcliffe, Hardin County, Iowa

TILE LINING	ITEM #	DESCRIPTION	Unit Cost	Units	Quantity	Units	Total Cost	
	<b>CONSTRUCTION COSTS</b>							
	101	TILE CLEANING	\$ 5.00	LF	4609	LF	\$ 23,045.00	
	102	14-INCH TILE LINING	\$ 35.00	LF	1315	LF	\$ 46,025.00	
	103	18-INCH TILE LINING	\$ 50.00	LF	2558	LF	\$ 127,900.00	
	104	20-INCH TILE LINING	\$ 60.00	LF	736	LF	\$ 44,160.00	
	105	ACCESS MANHOLES	\$ 10,000.00	EA	9	EA	\$ 90,000.00	
	106	REINSTATE TAP	\$ 200.00	EA	87	EA	\$ 17,400.00	
	107	REMOVE AND REPLACE ASPHALT	\$ 60.00	SY	150	SY	\$ 9,000.00	
	108	TRAFFIC CONTROL	\$ 5,000.00	LS	1	LS	\$ 5,000.00	
<b>CONSTRUCTION SUBTOTAL</b>							\$ 362,530.00	
Contingency (10%)							\$ 36,253.00	
<b>CONSTRUCTION TOTAL</b>							\$ 398,783.00	
Engr. & Const. Observation (25%)							\$ 99,695.75	
<b>TOTAL DISTRICT COST</b>							\$ 498,478.75	

# Tabulated Defects

	GPS #2273 Upstream	GPS #2273 Downstream	GPS #2242 Downstream	GPS #2242 Upstream	GPS #2094 Downstream	GPS #2074 Upstream	GPS #2000 Upstream
Total	3508						
Total Length Televised (ft)	108	538	804	198	194	931	735
Date:	3/3/2017	3/3/2017	2/22/2017	2/22/2017	2/2/2017	1/30/2017	1/24/2017
Top crack (ft)	63	286	552	29	122	484	164
Side crack (ft)	30	128	62	4	9	418	21
Bottom crack (ft)	53	0	0	8	0	423	6
Partial or imminent collapse (#)	4	10	9	0	3	22	4
Debris (ft)	4	20	0	0	195	69	597
Offset Joint (#)	8	14	15	15	8	232	45
Soil/voids visible in offset joint (#)	7	6	9	10	5	25	18
Holes (non-fixed) (#)	1	5	6	0	3	4	1
Holes (fixed) (#)	1	2	0	0	2	6	1
Iron pipe, potentially septic outlet	0	2	2	0	0	0	0
Water main crushing	0	0	0	0	1	0	0





**GENERAL ROUTE AND  
LOCATION OF MAIN  
TILE TO BE REPAIRED**

--- MAIN TILE (GPS)  
--- MAIN TILE LOCATION (GPS & CCTV)

EAST STREET  
(AKA COUNTY  
HIGHWAY S-27)

0 200  
Scale: 1" = 200'

DRAWN BY: JUS DATE: 5/3/2017 PLOT NO.: 170712040000000171 PROJECT: 3939 PARK AVENUE AND SURVEYING, INC. ENGINEERS AND SURVEYORS ENGINEERS AND SURVEYORS CITY & WESTBROOK, IOWA PH 641-847-3373 FAX 641-847-2303	DRAINAGE DISTRICT #143 HARDIN COUNTY, IOWA 2017	PROJECT: CCTV INVESTIGATION MAP SHEET NO.: 3 of 3
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By: L.O.G.  
 Date: 1/7/2020  
 Checked By: L.O.G.  
 Date: 1/7/2020

**Engineer's Opinion of Probable Construction Costs**  
**Project: Main Tile for D.D. #143 (Ionia Street Only)**  
 Location: City of Radcliffe, Hardin County, Iowa

FULL TILE LINING	ITEM #	DESCRIPTION	Unit Cost	Units	Quantity	Units	Total Cost	
	<b>CONSTRUCTION COSTS</b>							
	1000	TILE CLEANING	\$ 5.00	LF	3275	LF	\$ 16,375.00	
	1001	18-INCH OR 20-INCH TILE LINING	\$ 70.00	LF	2525	LF	\$ 176,750.00	
	1002	22-INCH OR 24-INCH TILE LINING	\$ 95.00	LF	750	LF	\$ 71,250.00	
	1003	ACCESS MANHOLES	\$ 10,000.00	EA	4	EA	\$ 40,000.00	
	1004	PRIVATE CONNECTIONS	\$ 200.00	EA	60	EA	\$ 12,000.00	
	1005	REMOVE AND REPLACE ASPHALT	\$ 60.00	SY	80	SY	\$ 4,800.00	
	1006	TRAFIC CONTROL	\$ 10,000.00	LS	1	LS	\$ 10,000.00	
	<b>CONSTRUCTION SUBTOTAL</b>							\$ 331,175.00
Contingency (10%)							\$ 33,117.50	
<b>CONSTRUCTION TOTAL</b>							\$ 364,292.50	
Engr. & Const. Observation (25%)							\$ 91,073.13	
<b>TOTAL CONSTRUCTION COST</b>							\$ 455,365.63	



By: L.O.G.  
 Date: 1/7/2020  
 Checked By: L.O.G.  
 Date: 1/7/2020

**Engineer's Opinion of Probable Construction Costs**  
**Project: Main Tile for D.D. #143 (Ionia Street Only)**  
 Location: City of Radcliffe, Hardin County, Iowa

PARTIAL TILE LINING	ITEM #	DESCRIPTION	Unit Cost	Units	Quantity	Units	Total Cost	
	<b>CONSTRUCTION COSTS</b>							
	2000	TILE CLEANING	\$ 20.00	LF	1100	LF	\$ 22,000.00	
	2001	18-INCH OR 20-INCH TILE LINING	\$ 100.00	LF	850	LF	\$ 85,000.00	
	2002	22-INCH OR 24-INCH TILE LINING	\$ 125.00	LF	250	LF	\$ 31,250.00	
	2003	ACCESS MANHOLES	\$ 10,000.00	EA	4	EA	\$ 40,000.00	
	2004	REINSTATE TAP	\$ 200.00	EA	20	EA	\$ 4,000.00	
	2005	REMOVE AND REPLACE ASPHALT	\$ 60.00	SY	80	SY	\$ 4,800.00	
	2006	TRAFIC CONTROL	\$ 10,000.00	LS	1	LS	\$ 10,000.00	
	<b>CONSTRUCTION SUBTOTAL</b>							\$ 197,050.00
Contingency (10%)							\$ 19,705.00	
<b>CONSTRUCTION TOTAL</b>							\$ 216,755.00	
Engr. & Const. Observation (25%)							\$ 54,188.75	
<b>TOTAL CONSTRUCTION COST</b>							\$ 270,943.75	



By: L.O.G.  
 Date: 1/7/2020  
 Checked By: L.O.G.  
 Date: 1/7/2020

**Engineer's Opinion of Probable Construction Costs**  
**Project: Main Tile for D.D. #143 (Ionia Street Only)**  
 Location: City of Radcliffe, Hardin County, Iowa

TILE CLEANING AND TREE REMOVAL	ITEM #	DESCRIPTION	Unit Cost	Units	Quantity	Units	Total Cost	
	<b>CONSTRUCTION COSTS</b>							
	3000	TILE CLEANING	\$ 5.00	LF	3275	LF	\$ 16,375.00	
	3001	TREE REMOVAL	\$ 3,000.00	EA	48	EA	\$ 144,000.00	
	3002	SEEDING AND RESTORATION	\$ 500.00	EA	48	EA	\$ 24,000.00	
	3003	ACCESS MANHOLES	\$ 10,000.00	EA	4	EA	\$ 40,000.00	
	3004	PROTRUDING TAP GRINDING	\$ 1,000.00	EA	10	EA	\$ 10,000.00	
	3005	REMOVE AND REPLACE ASPHALT	\$ 60.00	SY	80	SY	\$ 4,800.00	
	3006	TRAFFIC CONTROL	\$ 10,000.00	LS	1	LS	\$ 10,000.00	
	<b>CONSTRUCTION SUBTOTAL</b>							\$ 249,175.00
Contingency (10%)							\$ 24,917.50	
<b>CONSTRUCTION TOTAL</b>							\$ 274,092.50	
Engr. & Const. Observation (25%)							\$ 68,523.13	
<b>TOTAL CONSTRUCTION COST</b>							\$ 342,615.63	



By: L.O.G.  
 Date: 1/7/2020  
 Checked By: L.O.G.  
 Date: 1/7/2020

**Engineer's Opinion of Probable Construction Costs**

**Project: Main Tile for D.D. #143 (Ionia Street Only)**

Location: City of Radcliffe, Hardin County, Iowa

OFFSET TILE REPLACEMENT	ITEM #	DESCRIPTION	Unit Cost	Units	Quantity	Units	Total Cost	
	<b>CONSTRUCTION COSTS</b>							
	4000	24" DUAL WALL POLYPROPYLENE OR RCP TILE	\$ 55.00	LF	750	LF	\$ 41,250.00	
	4001	18" DUAL WALL POLYPROPYLENE OR RCP TILE	\$ 45.00	LF	2525	LF	\$ 113,625.00	
	4002	24" x 18" POLYPROPYLENE OR RCP REDUCER	\$ 650.00	EA	1	EA	\$ 650.00	
	4003	CONCRETE COLLAR	\$ 400.00	EA	2	EA	\$ 800.00	
	4004	PRIVATE CONNECTIONS	\$ 500.00	EA	30	EA	\$ 15,000.00	
	4005	SEEDING AND RESTORATION	\$ 20,000.00	LS	1	LS	\$ 20,000.00	
	4006	DRIVEWAY OR SIDEWALK REMOVAL & REPLACEMENT	\$ 2,000.00	EA	15	EA	\$ 30,000.00	
	4007	REMOVE AND REPLACE ASPHALT	\$ 80.00	SY	620	SY	\$ 49,600.00	
4008	ACCESS MANHOLES	\$ 10,000.00	EA	4	EA	\$ 40,000.00		
4009	TRAFFIC CONTROL	\$ 20,000.00	LS	1	LS	\$ 20,000.00		
<b>CONSTRUCTION SUBTOTAL</b>							\$ 330,925.00	
Contingency (10%)							\$ 33,092.50	
<b>CONSTRUCTION TOTAL</b>							\$ 364,017.50	
Engr. & Const. Observation (25%)							\$ 91,004.38	
<b>TOTAL CONSTRUCTION COST</b>							\$ 455,021.88	