AgriVia

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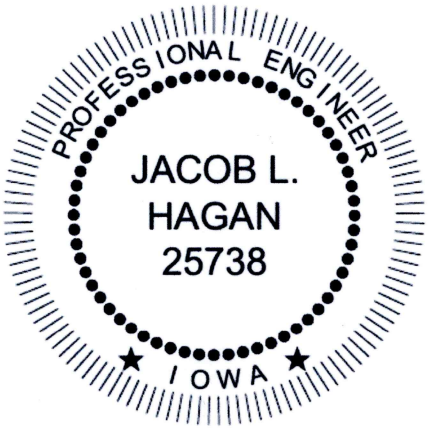
Dallas County Drainage Ditches Reconnaissance Report

Dallas County, Iowa
2026



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.

Jacob L. Hagan, P.E. 5/11/26
(date)
License No. 25738
My license renewal date is December 31, 2026.
Pages or sheets covered by this seal:

All

Project No. 2610-25

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Introduction

Overview
Dallas County, Iowa is at the southern edge of the Des Moines Lobe geological landform. Due to the need for tile drainage and the lack of sufficient natural outlets, the north half of the county contains 87 drainage districts, 71 of which are managed by the county Board of Supervisors acting as Trustees. Available records show that 14 of these districts have some form of open ditch facility. As directed by the Board, we have conducted a brief aerial survey of the open ditches and their condition.

Location
Maps of all the drainage district open ditches are included in the report.

Existing Infrastructure and Conditions

Field Survey
The aerial survey was completed in March 2026. Videos can be found on the AgriVia YouTube page. They will also be available on drainage district webpage on the Dallas County Drainage Districts website at a later date. Representative snapshots from each video taken during the field visit are included, along with brief comments and recommendations and maps of each district.

The following recommendations apply across all surveyed ditches and are not repeated for each district:

- While the districts have no authority to regulate land use, landowners are encouraged to maintain a minimum 10-foot buffer strip, consistent with recommendations in the Iowa State University Drainage Guide, to reduce sediment loading and improve bank stability.

- Most surface water entering the ditches is uncontrolled, which contributes to gully formation and increased sediment deposition within the channels. We recommend the County consider installing surface drain pipes, rock chutes, or other stabilized outlets where appropriate to better control runoff and reduce erosion of the ditch banks.

- Where maintenance is recommended, all trees should be removed from within the channel banks, and a minimum 25-foot-wide corridor should be cleared along the top of bank on both sides to provide adequate access for future maintenance activities.

Drainage District No. 1

The open ditch is approximately 2.6 miles long. Available records show the last major repair to this ditch was in 1983. The lower reach from the outlet to U Avenue shows sluggish flow and several submerged pipe outlets, even under the low flow conditions present at the time of survey. Several hundred feet of bank sloughing was observed, along with erosion gullies actively contributing sediment to the channel. Miscellaneous debris including broken pipe sections was noted. Vegetation is heavy in places, with large trees, small trees, and dense willows established along the banks.

Several bulkheads serving as outlets for major drainage district tiles can be seen. These are in very poor condition. Overall, the ditch appears to be in serviceable condition, although likely in need of a cleanout and repairs in the future.

Drainage District No. 1 **Open Ditch Location**

Dallas County, IA **May 2026**

Drainage District No. 4

The open ditch is approximately 4.1 miles long. Available records show the last major repair to this ditch was in 1983. The lower reach shows extensive meandering, bank sloughing, erosion and silt deposition. Erosion gullies are actively contributing sediment to the channel. Miscellaneous debris including several beaver dams was present. In the upper reach, some tiles were submerged, even under the relatively low flow conditions in mid-March. Water movement was slow.

Woody vegetation is relatively light, although with some large trees, small trees, and dense willows established along the banks in limited places.

Beaver dams should be removed. Overall, the ditch is in poor condition and appears to need a cleanout.


B AVE.
B AVE.
17
16
15
CH P46 D AVE.
CH F31 210th ST.
CH F31 210th ST.
CH F31 210th ST.
BEAUMONT AVE.
20
Main Open Ditch
21
22
CH P46 D AVE.
220th ST.
220th ST.
220th ST.
220th ST.
220th ST.
CH P46 D AVE.
29
28
27
BEAUMONT AVE.
CH P46 D AVE.
230th ST.
230th ST.
230th ST.
230th ST.
230th ST.
BEAUMONT AVE.
CH P46 D AVE.
32
33
34
AVE.
Legend
Dallas Drainage District Facilities

Drainage District No. 6
The open ditch is approximately 4.3 miles long. Available records show the last major repair to this ditch was in 2015. In the upper reach, many tiles were submerged, even under the relatively low flow conditions in mid-March. Water movement was extremely slow.

Woody vegetation is relatively light, although with some large trees, small trees, and dense willows established along the banks in limited places.

A petition for repairs has been filed, and AgriVia is preparing an improvement proposal to address the ditch's history of inadequate drainage and frequent repairs. Trees and woody vegetation will be removed as part of any project that proceeds.

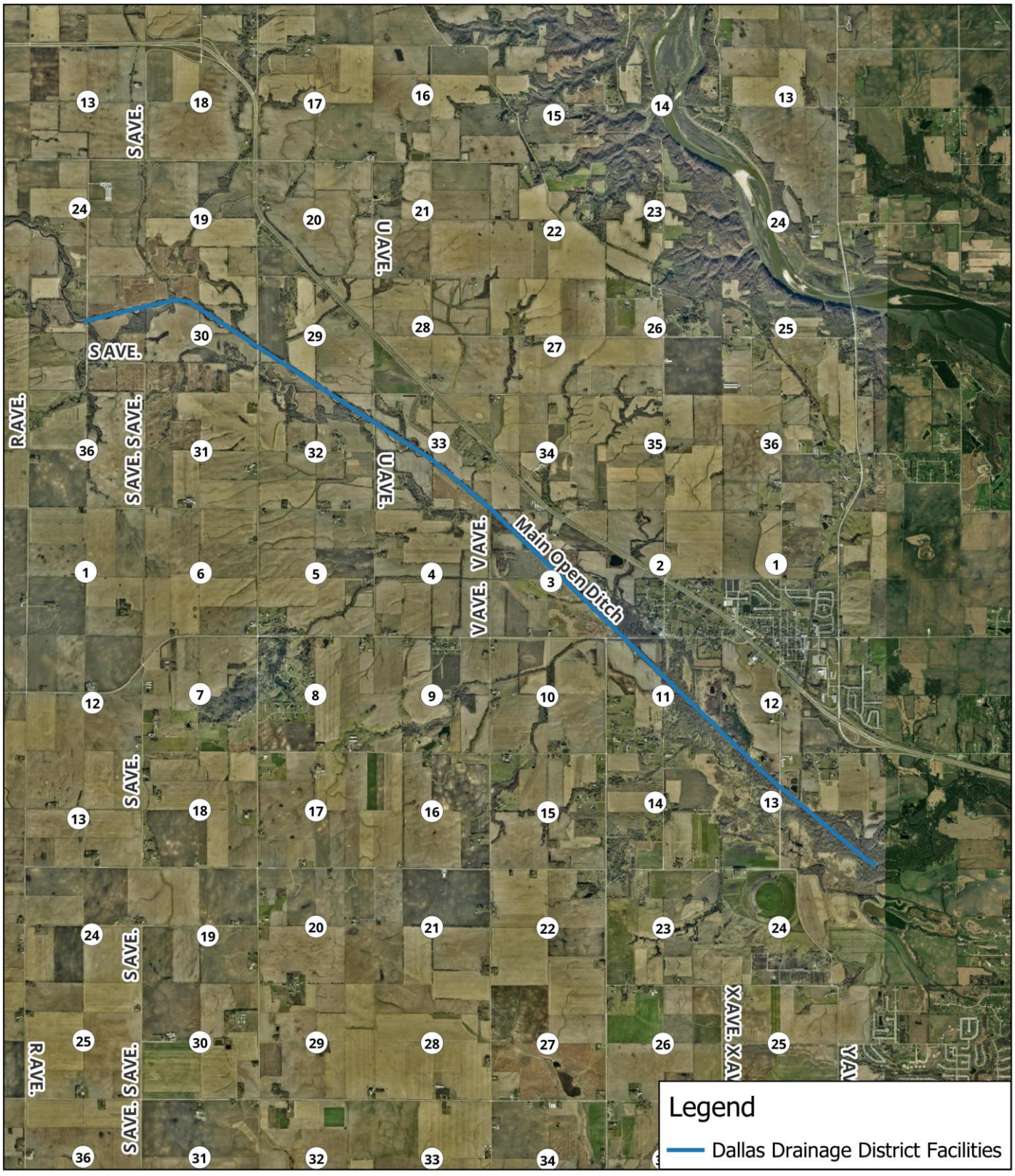

17
16
15
H AVE.
I AVE.
CH P58 J AVE.
KENWOOD PL.
CH F31 210th ST.
CH F31 210th ST.
20
21
22
Main Open Ditch
K AVE.
220th ST.
29
28
27
230th ST.
230th ST.
230th ST.
32
33
34
IDAHO PL.
IA 44 240th ST.
Legend
Dallas Drainage District Facilities

Drainage District No. 8

The open ditch is approximately 8.6 miles long. Available records show the last major work to this ditch was during its construction in 1910. This ditch is unique as it encompasses a stretch of the larger Beaver Creek system with tens of thousands of unassessed upstream acres draining to it.

Woody vegetation is extremely thick, with essentially the entire length of the ditch covered in a very large forest of trees. The ditch itself has completely broken out of its original channel in some places and cut large meanders into the surrounding lands.

This drainage district is effectively idle, but we recommend keeping it technically active in case work is desired in the future. It would be extremely difficult to reestablish a drainage district on a large stream such as this. Due to the conditions and history, we do not recommend any work on this ditch unless explicitly petitioned by landowners. The cost for any work here would likely far exceed any benefits received.


S AVE.
U AVE.
V AVE.
R AVE.
S AVE. S AVE.
Main Open Ditch
X AVE. X AV
Legend
Dallas Drainage District Facilities

Drainage District No. 10

The open ditch is approximately 4.4 miles long. Available records show the last major repair to this ditch was in 1995. The lower reach shows extensive meandering, bank sloughing, erosion and silt deposition. Erosion gullies are actively contributing sediment to the channel. Large numbers of evergreen trees have grown up on the ditch banks in the 31 years since the 1995 cleanout. In the upper reach, some tiles were submerged, even under the relatively low flow conditions in mid-March. Water movement was slow with extensive aquatic grass growth.

Woody vegetation is heavy, with large trees, small trees, and dense willows established along the banks in large stretches.

This ditch should have all trees and beaver dams removed from within the banks. Overall, the ditch is in poor condition and appears to need a cleanout.

Drainage District No. 10 **Open Ditch Location**

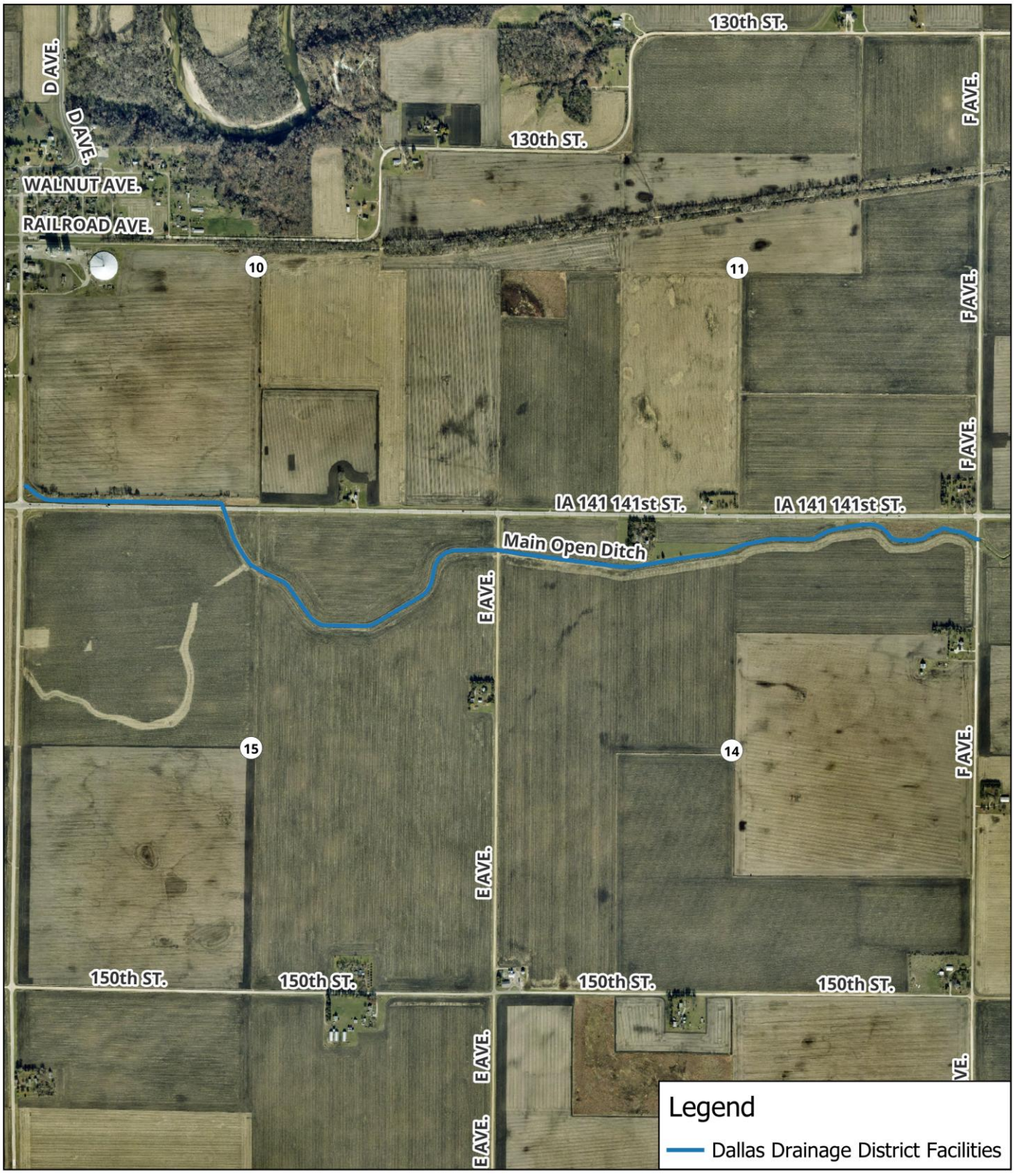
Dallas County, IA **May 2026**

Drainage District No. 13

The open ditch is approximately 2.2 miles long. Available records show the last major earthwork on this ditch was its construction in 1911. There was a tree and debris clearing project in 2006. The lower reach shows major meandering, bank sloughing, erosion and silt deposition. Numerous erosion gullies are actively contributing sediment to the channel. A significant stretch of the ditch has been used in the past for pasture, which causes damage to the structure of the ditch. In the upper reach, water movement was slow with extensive aquatic grass growth.

Woody vegetation is moderate, with small trees and brush established along the pasture section. A significant stretch of large trees has grown up along the north bank where the ditch parallels Highway 141. Some of these may be too close to the ditch and may need to be removed for maintenance access.

Overall, the ditch is in very poor condition and appears to need a cleanout.


130th ST.
D AVE.
D AVE.
130th ST.
F AVE.
WALNUT AVE.
RAILROAD AVE.
10
11
F AVE.
F AVE.
IA 141 141st ST.
IA 141 141st ST.
Main Open Ditch
E AVE.
15
14
F AVE.
E AVE.
150th ST.
150th ST.
150th ST.
150th ST.
E AVE.
E AVE.
Legend
Dallas Drainage District Facilities

Drainage District No. 15

The open ditch is approximately 2.9 miles long. Available records show the last major earthwork to this ditch was its construction in 1912. There was a tree and debris clearing project in 2001. The lower reach shows major meandering, bank sloughing, erosion and silt deposition. In the middle and upper reaches, some tiles were submerged, even under the relatively low flow conditions in mid-March. There were also periodic bank slides causing siltation and pinching off water flow. Water movement was very slow with extensive aquatic grass growth.

Woody vegetation is very light, with only a few small trees and brush.

Overall, the ditch is in poor condition and appears to need a cleanout.

Drainage District No. 15 **Open Ditch Location**

Dallas County, IA **May 2026**

Drainage District No. 19

The open ditch is approximately 2.0 miles long. Available records show the last major earthwork to this ditch was a cleanout in 1945. The lower reach shows major meandering, bank sloughing, erosion and silt deposition. In addition, significant numbers of mature, large trees have grown up along and within the lower reach of the ditch. The lower half of the ditch has been used as pasture ground which can cause damage.

In the middle and upper reaches, some tiles were submerged, even under the relatively low flow conditions in mid-March. There were also periodic bank slides causing siltation and pinching off water flow. Water movement was very slow with extensive aquatic grass growth. Woody vegetation was lighter here, with only a few small trees and brush. There were numerous gullies causing erosion into the fields and depositing silt into the ditch.

Overall, the ditch is in very poor condition and appears to need a cleanout.


200th ST.
200th ST.
200th ST.
200th ST.
E AVE.
E AVE.
E AVE.
E AVE.
F AVE.
F AVE.
F AVE.
F AVE.
F AVE.
14
Main Open Ditch
CH F31 210th ST.
CH F31 210th ST.
CH F31 210th ST.
CH F31 210th ST.
23
Legend
Dallas Drainage District Facilities

Drainage District No. 41

The open ditch is approximately 3.0 miles long. The last major earthwork to this ditch was a repair project completed in 2024. Due to the recency of this work, the open ditch was not documented with the drone in spring 2026. No trees are present as they were all removed during the construction. However, this ditch must be added to a spray program to ensure trees do not reestablish themselves as they had prior to the project.

Drainage District No. 60

The open ditch is approximately 0.6 miles long. Available records show the last major earthwork to this ditch was a cleanout in the late 1990s. Water movement was very slow with extensive aquatic grass growth. Woody vegetation is very light, with only a few small trees and brush. Several rusted or broken tile outlets can be seen. The banks appear to be unstable, with numerous sloughs, and the present width of the ditch indicates historical problems with slope stability. Several large gullies can be seen which are cutting into the banks and depositing silt into the ditch. Erosion protection should be installed at these locations.

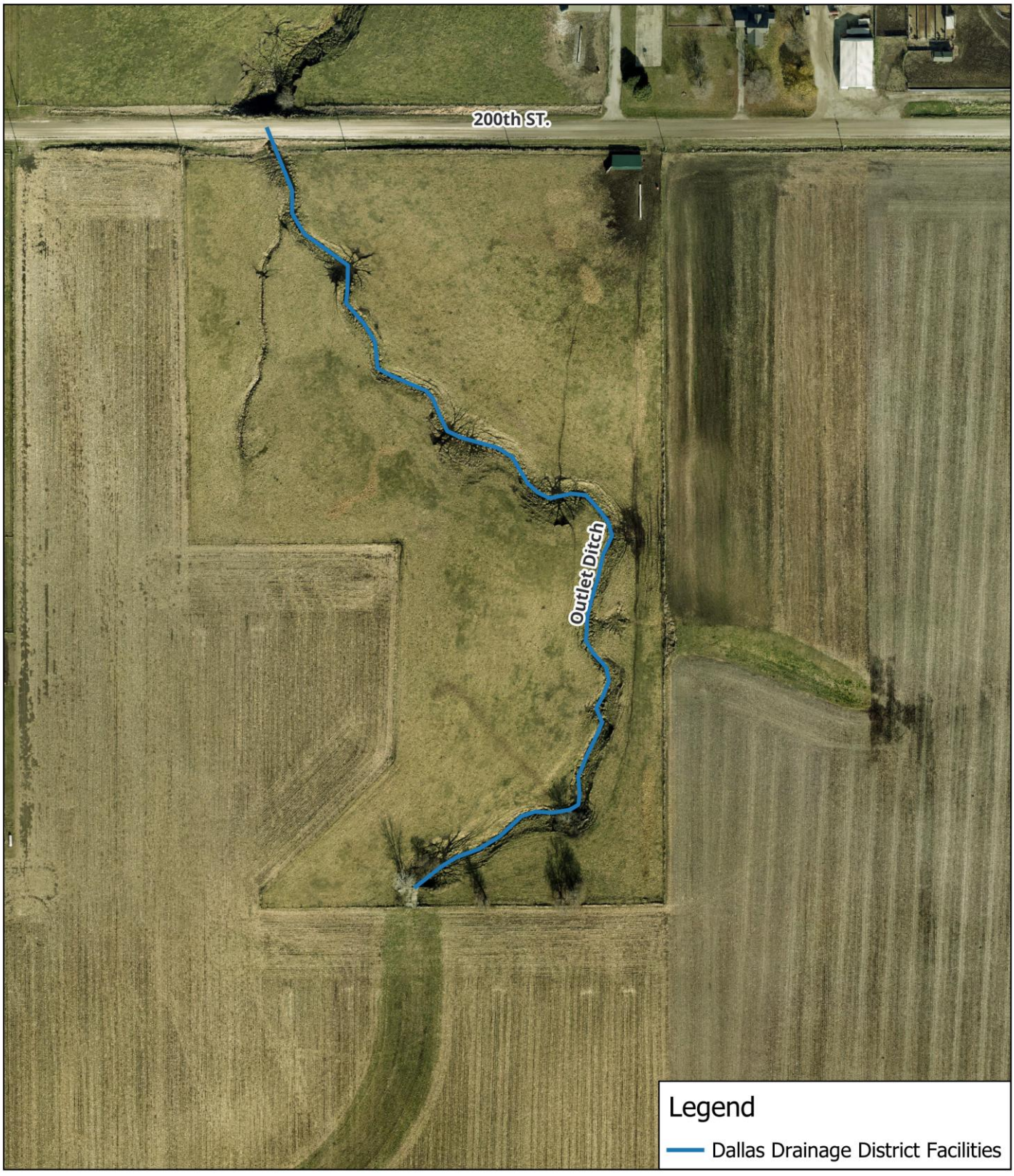
Overall, the ditch is in decent condition and appears to be functioning adequately, although in serious need of erosion protection on the surface gullies.


24
F AVE.
F AVE.
F AVE.
F AVE.
F AVE.
Outlet Ditch
160th ST.
160th ST.
Legend
Dallas Drainage District Facilities

Drainage District No. 61

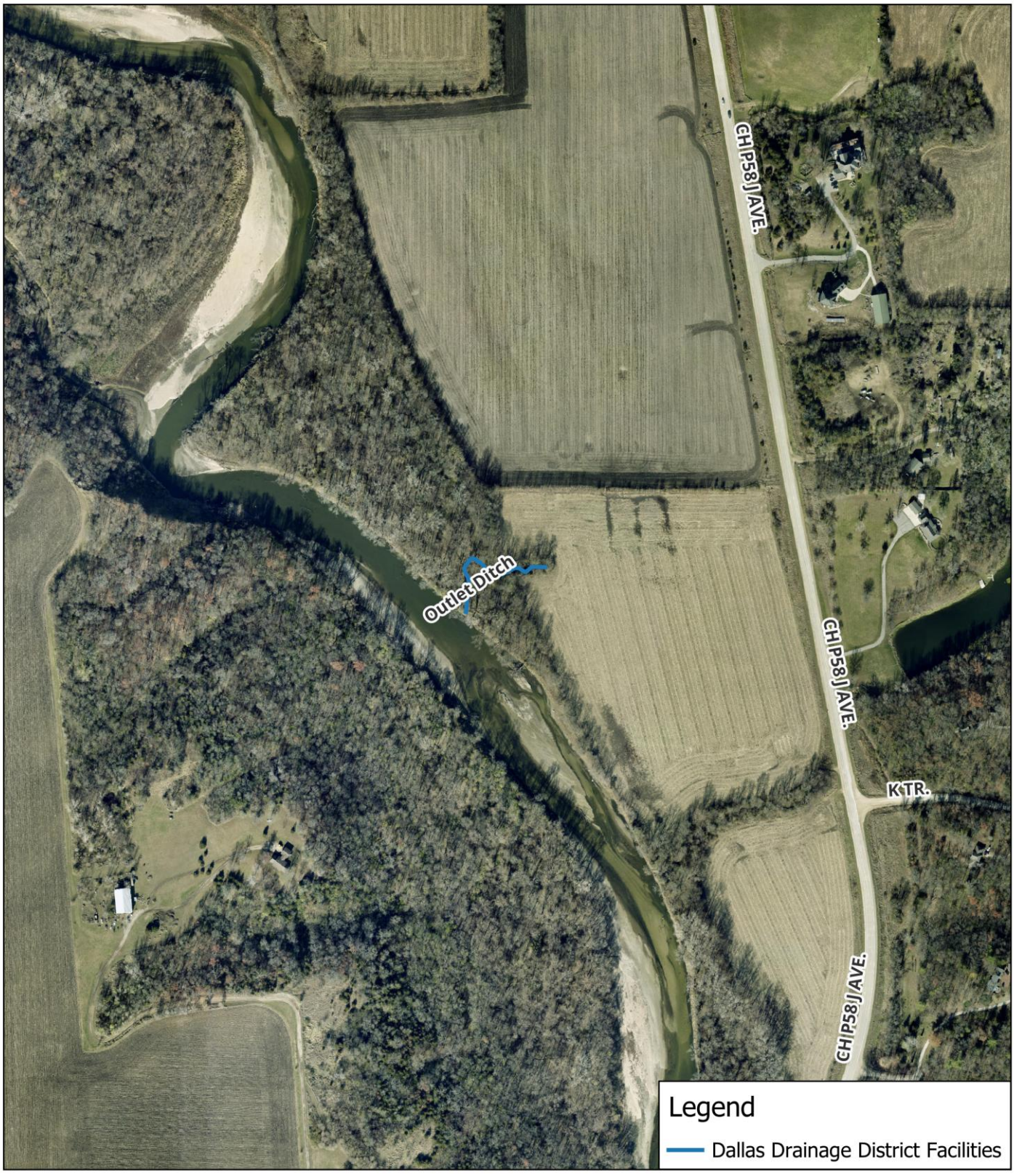
The open ditch is approximately 0.3 miles long. Available records show the last major earthwork to this ditch was its original construction in 1918. Water movement was very good; it appears the ditch has significant fall over its short distance. There were a few medium size trees downstream of the bulkhead. Due to the high fall, the ditch is unlikely to need maintenance in the future, so these can be left. The trees growing around the tile bulkhead should be removed, however.

Overall, the ditch is in good condition, with only the trees near the bulkhead needing to be removed.


200th ST.
Outlet Ditch
Legend
Dallas Drainage District Facilities

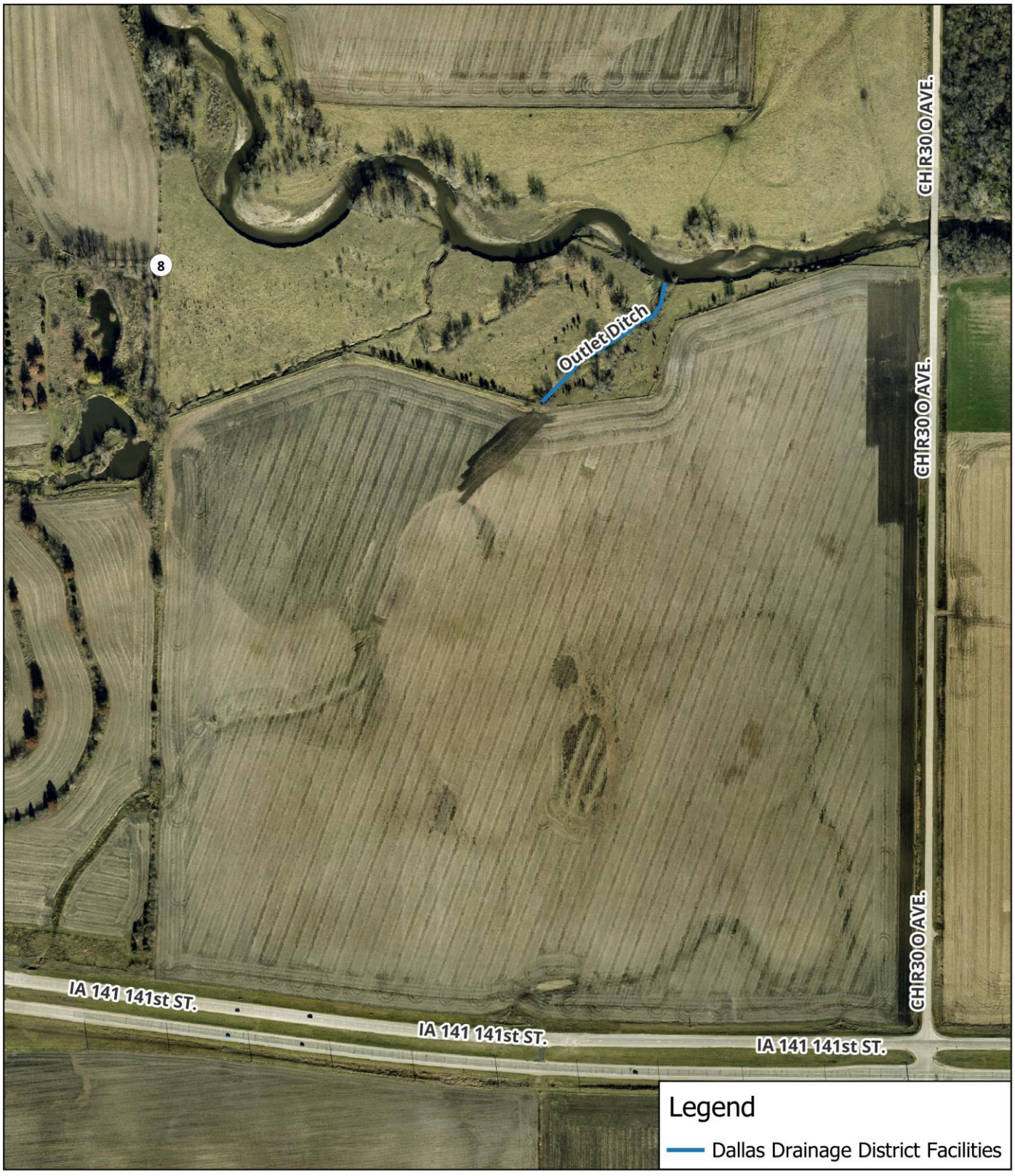
Drainage District No. 70

The open ditch is approximately 0.1 miles long. Available records show the last major earthwork to this ditch was its original construction in 1920. There are many large trees downstream of the bulkhead. This ditch is unlikely to need maintenance in the future, so these can be left. The trees growing around the tile bulkhead should be removed, however.


Outlet Ditch
CH P58 J AVE.
CH P58 J AVE.
K TR.
CH P58 J AVE.
Legend
Dallas Drainage District Facilities

Drainage District No. 99

The open ditch is approximately 0.1 miles long. Available records show the last major earthwork to this ditch was its original construction in 1949. Water movement was very good; it appears the ditch has significant fall over its short distance to Beaver Creek. There were several medium size trees downstream of the bulkhead. Barring a tile improvement project and considering the present condition of the ditch, maintenance is unlikely in the future, so these can be left for the time being. The trees growing around the tile bulkhead should be removed, however.


8
Outlet Ditch
CH R30 O AVE.
CH R30 O AVE.
CH R30 O AVE.
IA 141 141st ST.
IA 141 141st ST.
IA 141 141st ST.
Legend
Dallas Drainage District Facilities

Drainage District No. 105

The open ditch is approximately 0.25 miles long. This is a new ditch, constructed in 2024 as part of an improvement project. Water movement was very good; the ditch has significant fall over its short distance. There are no trees growing on this ditch. This ditch should be on rotation to have trees sprayed and cut every three years.

Drainage District No. 105 **Open Ditch Location**

Dallas County, IA **May 2026**

Drainage District Tile Outlet Structures

Most of the original tile drainage districts in the County included an outlet structure to protect the transition between the buried tile main and the receiving open channel. These outlet structures are commonly concrete bulkheads. Due to their remote locations and the difficulty of mowing around them, trees frequently become established nearby.

Tree growth adjacent to outlet structures can crack or shift the bulkheads, separate or damage tile connections, accelerate erosion, and make future repairs and maintenance access significantly more difficult. Trees should not be allowed to grow within a minimum of 25 feet of these structures.

Using aerial imagery, we identified the following 18 county-controlled drainage districts with trees growing too close to outlet structures:

- DD 16
- DD 28
- DD 32
- DD 34
- DD 37
- DD 42
- DD 44
- DD 52
- DD 55
- DD 61
- DD 64
- DD 66
- DD 70
- DD 80
- DD 88
- DD 89
- DD 93
- DD 99

We recommend these areas be cleared and incorporated into the County's regular spraying and maintenance rotation along with the open ditches. Proactive maintenance around outlet structures will help avoid costly and difficult repairs in the future and substantially extend the service life of the structures.

Additional Drainage District Tile Tree Maintenance

One of the most common and costly maintenance issues for drainage district tile systems is obstruction caused by tree root intrusion. Since our appointment as watchmen in July 2025, approximately half of the repair requests we have received have been related to tree root blockages. These are largely preventable conditions.

Areas where trees are located directly above or adjacent to district tile lines should be identified and addressed proactively. This approach is significantly more efficient and cost-effective than responding to full or partial tile failures after they occur. Reactive repairs often require work under flooded or saturated conditions, and are frequently constrained by tight timing due to planting windows, crop damage risk, or active field conditions.

At a minimum, trees should be removed from areas directly overlying district tile systems located on County-owned property, such as bike trails. These situations present additional repair complexity due to the presence of heavily trafficked infrastructure above the affected tile, which further increases the cost, risk, and logistical difficulty of making repairs once failures occur.

Proposed Project

Tree Clearing
We are proposing a structured tree maintenance program intended to improve the long-term stability and function of drainage ditches and outlet structures while reducing future maintenance demands and preserving access for necessary repairs.

The Board of Supervisors, acting as Trustees, is required under Iowa Code Chapter 468.138 to maintain drainage district facilities in a proper state of repair and to preserve their functioning capacity. This includes the removal of trees, hedges, shrubs, and their root systems where they interfere with drainage infrastructure.

The initial phase of the program will represent a significant investment due to the maturity and extent of tree growth that has accumulated over recent decades. However, once this initial work is completed, ongoing maintenance costs are expected to be substantially lower, provided that a consistent spraying and cutting rotation is implemented and maintained.

The upfront investment is intended to prevent significantly larger future repair costs, as demonstrated by recent tree-related infrastructure failures and repairs observed across multiple drainage districts in the County and throughout the State.

The initial work would proceed in the same manner as other drainage district tree clearing projects associated with repairs or improvements, consistent with established practice in Iowa. Following completion of this initial phase, the County could implement a recurring three-year cycle of competitive bidding for spraying and cutting services across all drainage ditches and outlet structures to maintain long-term control of woody vegetation.

County Drainage District Mapping
To help prevent issues such as the tree root intrusion under the bike trail in DD 32 this spring, we propose a comprehensive digital mapping project for all County-controlled drainage districts. This effort would compile and review all available historical and construction records for each district and use that information to develop a GIS-based dataset of drainage infrastructure locations.

This mapping would provide several practical benefits. It would allow the County to proactively identify areas that are likely to experience future tree root conflicts or other maintenance risks and address them in advance, reducing the likelihood of emergency repairs and associated costs.

In addition, making this information accessible through the County Assessor's website, similar to systems currently used in neighboring Greene and Boone Counties, would improve transparency and usability for a wide range of stakeholders, including farmers, landowners, County staff, tile contractors, and the general public. Improved access to this information would also assist landowners and contractors when designing or installing private drainage systems that connect to district facilities for which assessments are applied.

We have already completed mapping for several districts that have been addressed to date, and these examples are available for the Board's review as a demonstration of the proposed system and its capabilities.

Construction Considerations

Tree Clearing

- **Clearing and Grubbing**
  Trees will be removed as a maintenance measure. Tree growth within a ditch right-of-way shades out grass, increases erosion potential, drops debris into the channel, obstructs maintenance access, and provides material for beaver dam construction. Trees over tile lines cause cracking and blockages. Trees and stumps will be removed to ground level. All woody debris will be burned, and the resulting ashes and remnants will be buried within the ditch right-of-way or near the tile lines. Landowners wishing to retain wood from trees marked for removal are encouraged to remove the tree prior to the start of construction.

- **Seeding and Fertilizing of Banks**
  All ditch banks disturbed during construction will be re-seeded by the contractor to minimize erosion and promote the establishment of desirable vegetation. According to NRCS guidance, the most cost-effective method for stabilizing exposed banks without additional seedbed preparation is to broadcast seed and fertilizer daily as work progresses. Banks will be scraped with an approved harrow to create ridges, then seeded with a summer cover crop mixture and fertilizer. After completion of the project, the banks will be seeded with a permanent seed mixture via hydroseeding.

  However, vegetation establishment is highly weather-dependent and often inconsistent. Some areas may experience weed growth or poor vegetative cover that will require additional maintenance or time to fully stabilize.

- **Pollution and Erosion Control**
  The contractor will be responsible for minimizing pollution and erosion during construction, under the engineer's direction. The contractor will also perform daily seeding of exposed ditch banks and apply a temporary seed mix to the top of the banks upon completion.

- **Driveway Restoration**
  Once the project is complete, any driveways that were damaged will be restored to original condition.

- **Mobilization**
  Mobilization includes transporting equipment and materials to the site, setting up access, and preparing staging areas. After work is complete, all equipment will be removed and the site cleaned up.

Construction Timeline
If approved, we anticipate putting the tree clearing work out for bid in fall 2026, with a spring 2027 completion deadline aligned with the allowable tree-clearing window. While contractors must finish all work by this deadline, they are free to choose their own construction schedule.

Estimated Costs

Cost Estimate – County Mapping
We estimate that digitally mapping all drainage district facilities and providing the associated files and data to the County could be completed by AgriVia for approximately $20,000.

Cost Estimate – Tree Clearing
In our experience, tree clearing costs vary widely and depend heavily on the contractor and the specific conditions of each project. If the Board wishes to proceed, we recommend preparing a bid package organized by drainage district and making final decisions based on the submitted bids.

We estimate that preparation of the bid package could be completed by AgriVia for approximately $10,000, apportioned across the districts. If the project moves forward, additional engineering costs related to construction administration and project oversight would also be incurred.

Permitting

U.S. Fish and Wildlife
If the work is done outside of the bat active season, no permits should be required from any agencies for tree clearing maintenance activities along a drainage facility. A permit may be required from the USFWS if the activity is occurring inside the roosting window.

Maintenance and Long-Term Management

Spraying
We recommend that the County solicit quotes every three years for a countywide tree spraying and clearing contract to help ensure drainage ditches and tile lines remain free of trees and woody vegetation. Once the initial bid package has been prepared identifying the necessary maintenance areas throughout the County, it can be reused and updated as needed for future bidding cycles, substantially reducing the effort required for subsequent contracts.

Landowner Considerations

Public Notice and Public Hearing
A public hearing is only legally required if the estimated costs for a particular district exceed $50,000. Based on our preliminary estimates, only DD 10 may exceed that threshold.

However, we also recommend holding a public hearing for all affected landowners along the open ditches within the surveyed districts to fully inform them of the proposed work and provide an opportunity for questions and input.

Objections
Landowners with concerns about the proposed project are encouraged to submit written objections before or during the hearing. Written submissions become part of the official record and help guide any revisions to the report.

Landowner Construction Considerations
If the project is approved, construction will proceed through the standard public bidding process. A bid letting will be held to obtain competitive proposals, and the lowest responsible bid will be submitted to the Board of Trustees for consideration and approval. Prior to construction, all affected landowners will be notified of the expected schedule and scope of work. Construction limits will be staked in the field and shown on the plans. Landowner cooperation, including preserving survey stakes and providing necessary access, will be critical to ensuring efficient completion of the project.

Throughout construction, we will coordinate directly with the contractor and act as the primary point of contact for all landowners. To ensure clear and consistent communication, landowners will be asked to direct any questions or concerns to us rather than contacting the contractor directly.

Right-of-Way and Work Limits
Drainage districts have the legal authority to enter private lands to construct, maintain, or improve drainage systems, including both open ditches and subsurface tile. Landowners must allow reasonable access, and the district is responsible for minimizing disturbance and compensating for any damages, such as crop loss or soil compaction.

Open ditches typically require a formal right-of-way to accommodate construction activities, future maintenance access, and spoil placement. Subsurface tile mains, however, are commonly installed and maintained without a formally recorded right-of-way, instead relying on the district's statutory authority to access and maintain the system. In these cases, landowners retain ownership of the property, but the district maintains the right to access tile routes for inspection, maintenance, and improvements.

The specific areas impacted by any future work would be surveyed and documented during or following construction. Review of existing right-of-way documentation for each district was not included as part of this study.

Construction Damages
In accordance with Iowa Code §468.103, landowners are entitled to compensation for damages resulting from construction activities, including crop loss, soil disturbance, and impacts to land use. Work on this project in the winter should result in very few damages to landowners. We do not recommend compensating landowners for the removal of nuisance trees.

Damages and other construction-related compensation will be paid by the drainage districts and funded through the assessment schedules. As a result, all landowners within the district including those who incur damages will share in the cost of these payments through their proportionate assessments. The Board of Trustees retains the authority to amend, approve, or deny any such claims.

Conclusion and Recommendations

Conclusion
Across the 14 open ditches surveyed, totaling approximately 35 miles of channel, most require some level of tree removal and maintenance. Nuisance trees should also be removed from many tile districts.

Trustees are responsible for maintaining the drainage districts under their supervision in a reasonable state of repair and functionality. The proposed work is a preventive maintenance measure that can reduce long-term costs associated with direct infrastructure repairs as well as crop damage resulting from inadequate drainage.

Digitally mapping the County's drainage district infrastructure would also improve long-term usability, accessibility of records, and efficiency of future maintenance activities.

Recommendations

We recommend the Board review the findings of this report and direct the engineer to proceed with the GIS mapping project and prepare a bid package to address these tree-related maintenance backlogs.

Sincerely,

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