



# Separable Maintenance

John Kolb, Rinke Noonan

Chris Otterness, PE Houston Engineering, Inc.

AMC Drainage Seminar

# Separable Maintenance

---

- As part of drainage system improvement proceedings
  - If the existing drainage system needs repair and the petition for the improvement is for a separable part only of the existing drainage system, the engineer may include in the detailed survey report a statement showing the proportionate estimated cost of the proposed improvement required to repair the separable part of the existing system and the estimated proportionate cost of the added work required for the improvement.
  - If the drainage authority determines that only a separable portion of the existing drainage system will be improved and that the portion needs repair, the drainage authority shall determine and assess, by order, the proportionate cost of the improvement that would be required to repair the separable portion of the drainage system to be improved. The order must direct that:
    - the repair portion is allocated as repairs and assessed against all property benefited by the entire drainage system, as provided by section [103E.731](#); and
    - the balance of the cost of the improvement is assessed in addition to the repair assessment against the property benefited by the improvement.

# Separable Maintenance, Common Explanation

---

- Offset of the cost to repair from the cost to improve.
- Has been referred to in court cases as repair cost avoidance.
- Based on the statutory requirement to maintain the ditch as a cost to the entire drainage system.
- When a portion of the system is in need of maintenance and is petitioned for improvement, the owners of the system, not impacted by the improvement “avoid” to maintenance cost.

# Separable Maintenance, Hearing Required

---

- The notice of hearing on the detailed survey report must be given by publication and mailing to all persons owning property affected by the existing drainage system. The hearing may be held at the same time and location as the establishment hearing for the improvement.
- Notice must be given by publication, posting, and mail to all persons owning property affected by the existing drainage system.
- If the notice is not given or is not legally given, the drainage authority loses jurisdiction. Proceedings may be recessed to allow for proper published, posted, and mailed notice.
- If notice is required under this chapter and proper notice has been given to some parties but the notice is defective or not given to other parties, the drainage authority has jurisdiction of all parties that received proper notice. The proceedings may be continued by order of the drainage authority for the time necessary to publish, post, or mail a new notice. The new notice needs only be given to those not properly notified by the first notice.

# Separable Maintenance, Who Initiates

---

- Petitioners may request consideration of separable maintenance by alleging that existing system, or separable portion thereof, is in need of repair.
- Drainage Authority may direct engineer to investigate as part of preliminary or detailed survey reports.
- Engineer may recommend (best made as part of preliminary survey report).

# Separable Maintenance, Separable Portion

---

- Murray County Ditch 34, 615 N.W.2d 40 (Minn. 2000): 6-3 decision affirming trial and appeals court. Both majority and dissent discuss concept of “separable portion”. No clear decision on how court would handle application of separable maintenance to a “full system improvement”.
  - If the existing drainage system needs repair and the petition for the improvement is for a separable part only of the existing drainage system
  - If the drainage authority determines that only a separable portion of the existing drainage system will be improved and that the portion needs repair
- Consider situation where only some owners are benefitted by improvement vs. situation where all owners (and possibly new owners) are benefitted by the improvement.

# Separable Maintenance, Cost Benefit

---

- Must the system benefits exceed the separable maintenance costs?
  - The generally favored answer is yes. Even though ordinary maintenance does not require a cost benefit analysis, when combined with a petitioned improvement proceeding, the benefits must exceed the cost of separable maintenance.
  - Footnote 12 in Murray County Ditch No. 34, 615 N.W.2d 40, 47 (Minn. 2000). In Murray, the majority acknowledged that 103E.215, subd. 6, does not explicitly indicate whether cost-versus-benefit is required, but to harmonize that section with 103E.341 requires that cost-versus-benefit applies in order to avoid different cost-benefit formulas within the same project proceeding.
- In many cases a concurrent redetermination of benefits is advised if separable maintenance is to be considered (except in situation of whole system improvement).

# Separable Maintenance, Whole System Improvement

---

- Can separable maintenance be applied to a whole system improvement? Not directly. The engineer and viewers must consider a different basis of benefit.
- Engineer instruction to viewers is key.
  - Condition, useful life and utility of current system can and should be considered.
  - If current system is beyond service life, non-functioning or beyond reasonable repair, viewing for improvement should NOT be made based on the difference between the existing system in a state of repair and the improved condition
  - Rather, viewing for improvement should be based on current condition, useful life and utility and the improved condition.
  - Starting point must be provided by engineer, and should be addressed in the preliminary survey report.

# How do we demonstrate that a tile system needs complete replacement?

---



# Arguments that tile system needs replacement

## 1. AGE

- Lifespan of tile materials
  - Corrugated metal – 50 years
  - Concrete – 80-100 years
  - Clay – 100 years +
  - Plastic -- ?
- Material lifespan varies significantly depending on installation and site conditions



***MEDIOCRE***

# Arguments that tile system needs replacement

## 2. MAINTENANCE RECORD

- Repeated maintenance = rapidly failing system
  - Blow-out failures
  - Blockages
- Inspectors note overall condition of system during repairs
- Combined with age, may be reasonable argument for replacement



### Description

Branch

45

Problem/Proposed Work

Sinkhole

**BETTER**

# Arguments that tile system needs replacement

## 3. TELEVISIONING

- Typically requires breaking tile at 4-6 locations
- Provides representative sample of conditions
- Can be used for multiple purposes (e.g., identifying lateral tile locations)

***BEST***



## Example Conditions Found – Tile Failure



## Example Conditions Found – Tile Failure



## Example Conditions Found - Blockages



## Example Conditions Found - Blockages



## Example Conditions Found – Offset Joints

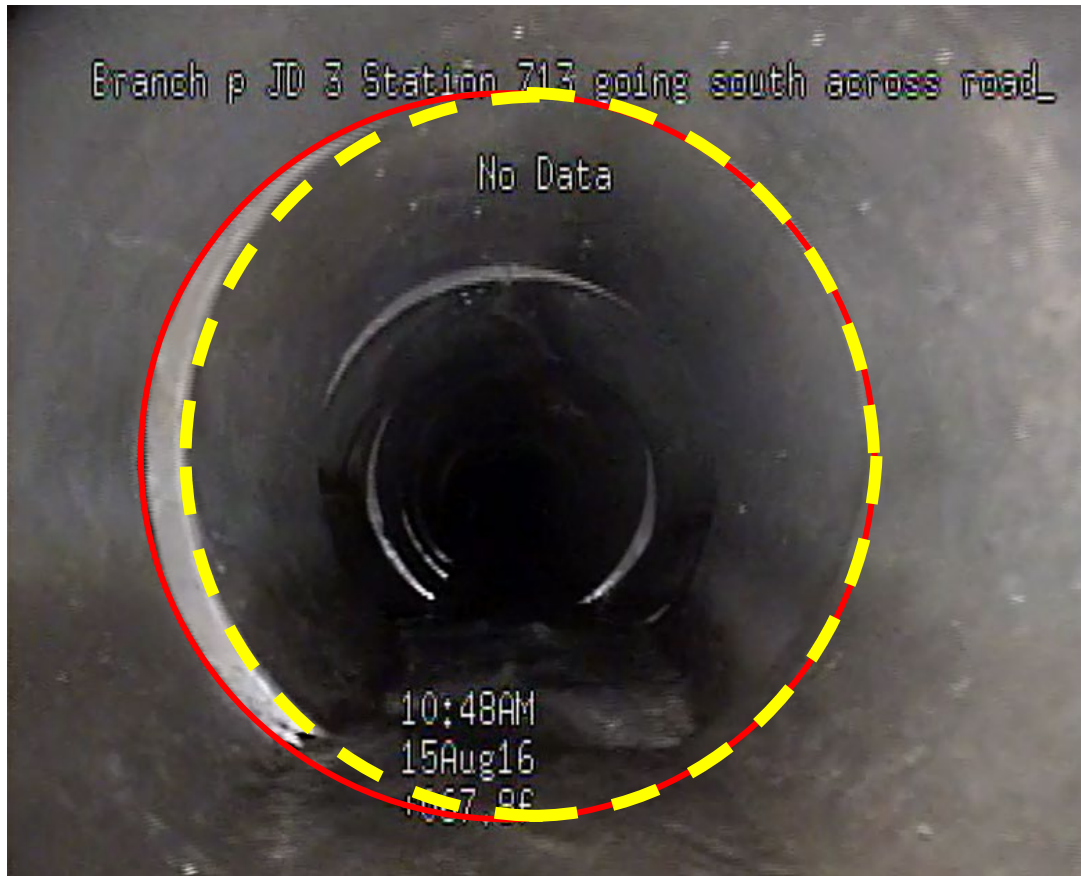


## Example Conditions Found – Offset Joints



# How Offset Joints Affect Performance

- Decreased Cross-Section



- Increased Turbulence (Pipe Roughness)



***Performance  
decreased 40% (or  
more)***

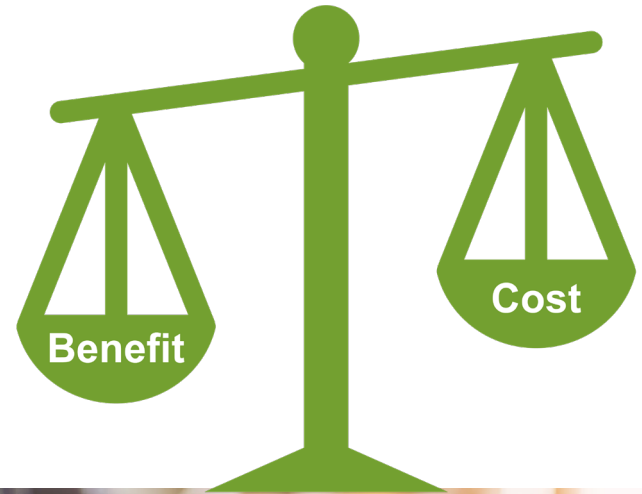
# Does the **WHOLE** system need replacement?

- Are the deficiencies widespread or isolated?
- Age DOES play a factor here
  - Old tile is often brittle
  - Hard to make connections
- On a per-foot basis, patching is much more expensive than systematic replacement



# Costs Included in Separable Maintenance

- Construction Costs  
(w/contingency)
- Engineering/Legal/Admin
- Damages



# Separable Maintenance Costs - Construction

- Includes most cost items in improvement
  - Tile
  - Intakes
  - Lateral connections
  - Road crossings
- Primary differences
  - Tile size
  - Realignments



# Separable Maintenance Costs - Engineering

- Most engineering costs for improvement/repair are similar
  - Survey
  - Engineer's Report
  - Plans and specs
  - Final hearing
  - Staking and observation
- Primary differences:
  - Hydrologic modeling
  - M.S. 103E.015 Environmental Considerations
  - Preliminary hearing



# Damages

- Damages need to be estimated for both improvement and repair
- Includes
  - Footprint of excavation
  - Stockpiles
  - Access corridor
- Primary factor is depth
- If alignment is same, and minor change in depth, damage width/cost will be same for improvement/repair



**Questions?**

---