Ribov #620
Drainage Improvement Project

Proposed per ORC 6131

DELAWARE COUNTY COMMISSIONERS

DELAWARE COUNTY ENGINEER'S OFFICE

DELAWARE SOIL & WATER CONSERVATION DISTRICT

Project Timeline

- **September 2014**: Original petition for Improvement filed by Stephen L. Sheets and others for Ribov #620 watershed

"Commencing in Delaware County, Kingston Township within the Ribov #620 watershed and generally following, but not limited to the course and termini of the existing improvements."

"To generally improve the drainage, both surface and subsurface, to a good and sufficient outlet, by replacing, repairing or altering the existing improvements as required and/or creating new surface and subsurface drainage mains or laterals as requested by this petition."

-As quoted from the petition

Project Timeline

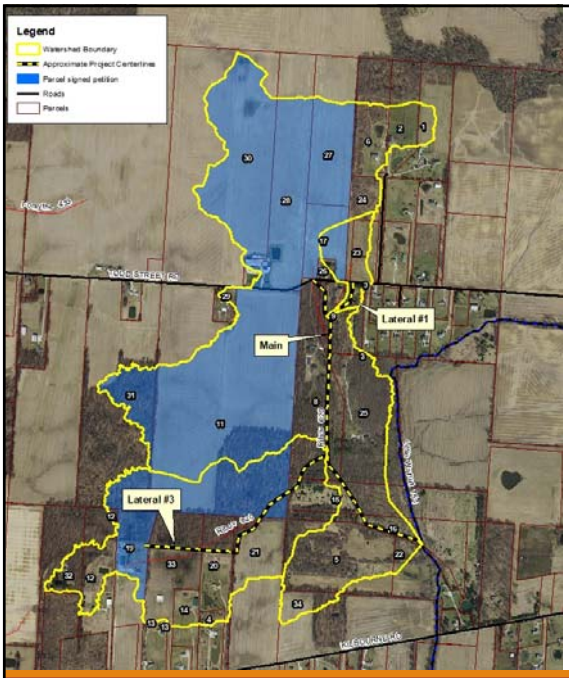
- **September 17, 2014**: Original petition for Improvement filed by Stephen L. Sheets and others for Ribov #620 watershed
- **December 15, 2014:** Initial Viewing
- **March 9, 2015:** Petition was amended based on a request by Kingston Township

"to have the East Lateral of Main "A" included in the Ribov #620 drainage project now under consideration by the Delaware County Board of Commissioners. The Trustees make this amendment request to provide a good and sufficient drainage outlet for the Todd Street Road culvert located within said East Lateral of Main "A". The Trustee's (SIC) believe this inclusion would assist in reducing or eliminating seasonal flooding and in the removal of water conditions that could jeopardize public health, safety, and welfare.

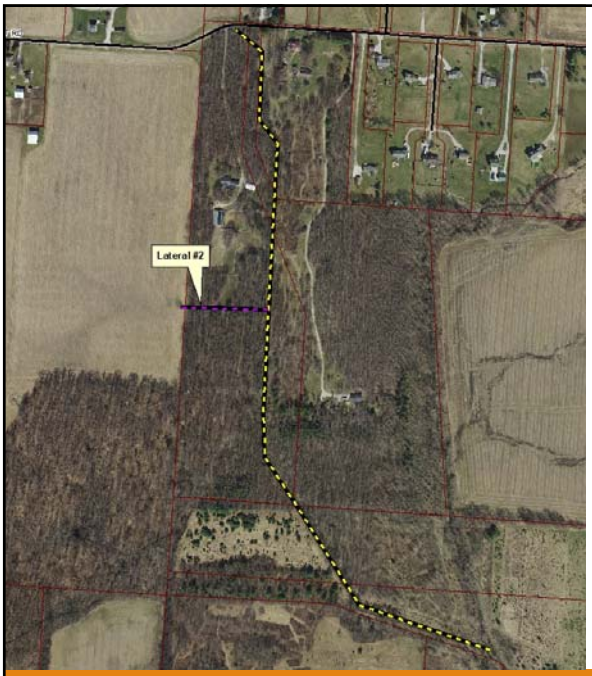
-As quoted from the amendment request

Project Timeline

- **September 17, 2014**: Original petition for Improvement filed by Stephen L. Sheets and others for Ribov #620 watershed
- **December 15, 2014:** Initial Viewing
- **March 9, 2015:** Petition was amended based on a request by Kingston Township
- **March 9, 2015**: 1st Hearing opened, then continued
- **April 13, 2015:** 2nd Viewing
- **April 30, 2015:** Continued 1st Hearing

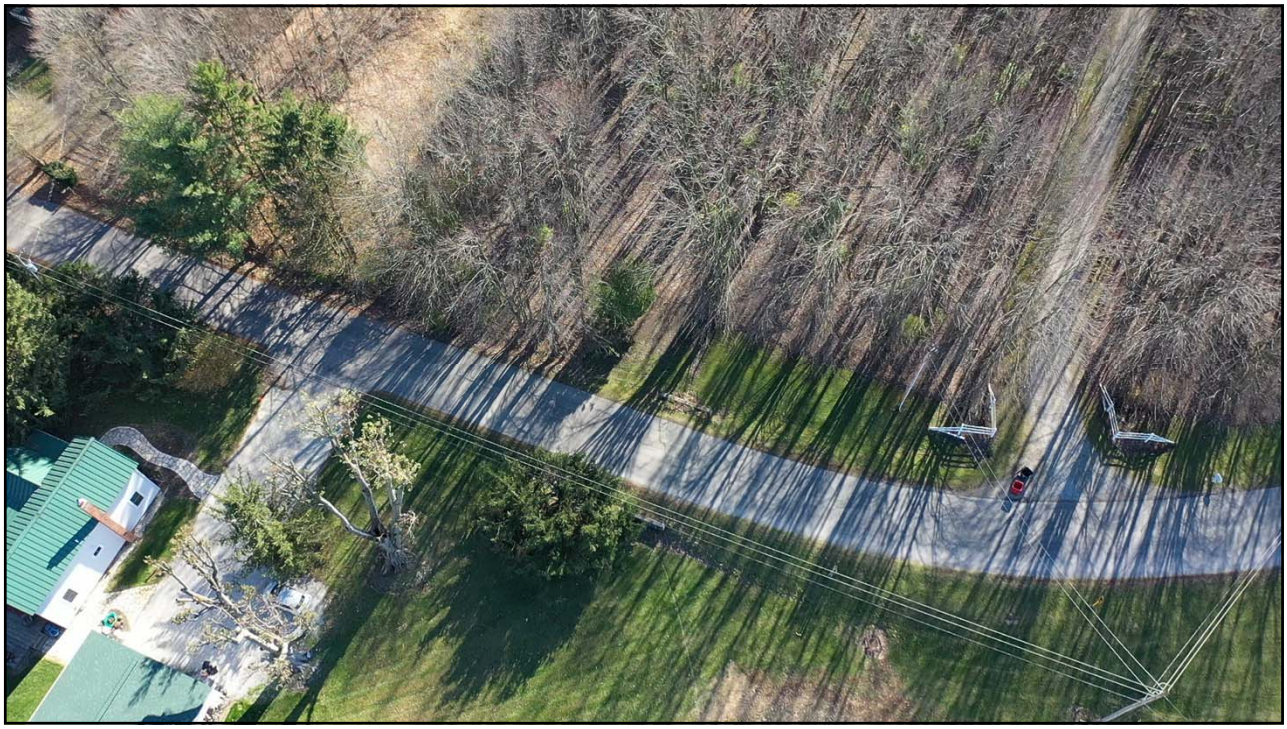


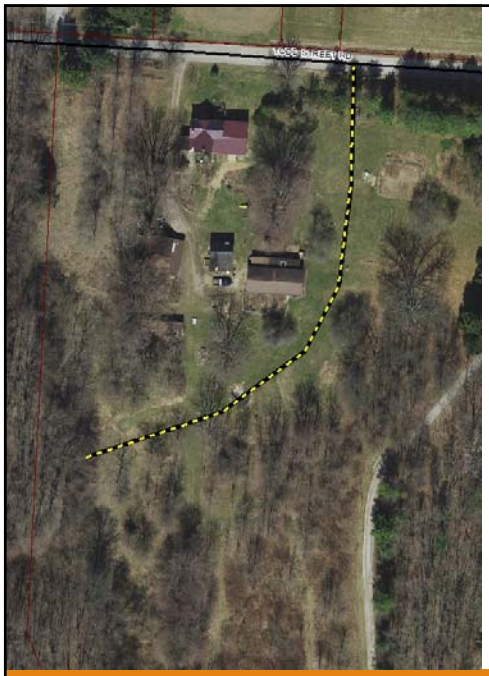
- Watershed = Appx. 357 acres
- 52% agricultural, 32% woodlands, 15% rural residential, 1% road right-of-way
- Original petition signed by three distinct landowners representing 7 of the 34 parcels in the Ribov #620 watershed
- Project has been divided into Main, Lateral #1, and Lateral #3



MAIN

- New Open Channel, appx. 3-6’ deep
- Open Channel Restoration
- Grade stabilization structure
- Crossing culvert
- Drainage maintenance easement for Lateral #2 which has no construction necessary





LATERAL #1

- 12” pipe and 4” pipe extending from the Main to Todd Street Road right-of-way
- All existing laterals to be connected
- Flood route easement over existing surface drainage pathway

LATERAL #3

- Subsurface drain
- Surface grading
- Grade stabilization structure
- Easement over existing surface drainage pathway

Construction Items – Representative Pictures

OPEN CHANNEL

Construction Items – Representative Pictures

GRADE STABILIZATION STRUCTURE

Construction Items – Representative Pictures

SIDE INLET STRUCTURE

Construction Items – Representative Pictures

SURFACE DRAIN - SWALE

Construction Items – Representative Pictures

TILE MAIN BREATHER

Construction Items – Representative Pictures

RE-SEEDING FOLLOWING CONSTRUCTION

Project Cost Estimate

- **Main:**

Construction - $67,790.00

Administration, Construction Inspection, Drainage Maintenance Pay-in - $30,424.44

Contingency - $13,887.78

Total: **$112,102.22**

Project Cost Estimate

- **LATERAL #1:**

Construction - $10,799.00

Administration, Construction Inspection, Drainage Maintenance Pay-in - $1,064.95

Contingency - $1,694.85

Total: **$13,558.80**

*$7,607.00 to be direct assessed to Kingston Township for work directly benefitting the road right-of-way

Total assessed to Landowners: $5,951.80

Project Cost Estimate

- **LATERAL #3:**

Construction - $50,915.00

Administration, Construction Inspection, Drainage Maintenance Pay-in - $5,170.75

Contingency - $8,012.25

Total: **$64,098.00**

Calculation of Assessments

- ORC instructs the County Engineer to calculate assessments to individual property owners based on the benefits received

- *"Lands that have been removed from their natural state by deforestation, cultivation, artificial drainage, urban development, or other manmade causes shall be considered as benefited by an improvement required to dispose of the accelerated flow of water from the uplands." (ORC 6131.01)*

Calculation of Assessments

- Acres Benefited x Landuse Factor x % Use = Parcel Assessment Factor

- Parcel % Share = Parcel Assessment Factor / Sum of Assessment Factors

- Parcel Assessment = % Share x Total Estimated Cost

Payment Options

- Pay full assessment upfront within 30 days of the final hearing (by January 4, 2021, also must give Notice of Intent by December 28,2020)
- Have assessment placed on property tax bill as a Special Assessment
- Having the assessment placed on property taxes will include interest and other fees if the project is bonded and Auditor's/Treasurer's 2% collection fee

Amortization Example

**Assuming no upfront payments*

Total Estimated Construction Cost (all parts) – Direct Assessments = $182,152.02

Average (mean) Assessment not including ROW = $5,241 = 2.9% Share of Project

Debt Issuing Fees (Bond Counsel, Bank) = $8,000

Bond Interest, 4% (estimate) = $182,152.02 x 4% = $7,286.08

Total Estimated Cost = $197,438.10

2.9% Share of Total Estimated Cost = $5,725.70

Auditor/Treasurer Fees (2%) = $114.51

Total Assessment for Average Parcel = $5,840.21

Amortization Example

Total Assessment = $5,840.21 Semi-annual payment = $365.01

8-Year Repayment Schedule

	1st Half	2nd Half
2021:	$365.01	$365.01
2022:	$365.01	$365.01
2023:	$365.01	$365.01
2024:	$365.01	$365.01
2025:	$365.01	$365.01
2026:	$365.01	$365.01
2027:	$365.01	$365.01
2028:	$365.01	$365.01

Bidding & Construction

- Approved projects are advertised for public bid
- Lowest and best bid to be awarded contract
- Projects are not subject to prevailing wage

Bidding & Construction

- Bids may not be accepted in excess of Final Hearing Engineer's Estimate (ORC 6131.40)
- Final schedule of assessments is reduced pro rata by the difference between the estimated cost and final cost
- Upfront payments receive a refund

Drainage Maintenance

- ORC 6137 requires projects to be placed onto Drainage Maintenance
- Purpose of Drainage Maintenance is to keep the project operating at its designed capacity
- Maintenance funds are collected as a Special Assessment
- Common Maintenance activities include inspections, seeding, repairs, and erosion control

Drainage Maintenance

- Maintenance assessments are determined based on the Final Schedule of Construction Assessments
- Most projects average 2.5 – 5.0% annual collections
- Collection Percentage can vary depending on the maintenance needs of the project
- Drainage Maintenance is perpetual

Amortization Example

Construction Assessment = $5,241 x 3% Maintenance Collection + 2% Auditor/Treasurer = $160 - Annual Maintenance Assessment

8-Year Repayment Schedule

	1st Half	2nd Half
2022:	$365.01 (C) + $80 (M)	$365.01 (C) + $80 (M)
2023:	$365.01 (C) + $80 (M)	$365.01 (C) + $80 (M)
2024:	$365.01 (C) + $80 (M)	$365.01 (C) + $80 (M)
2025:	$365.01 (C) + $80 (M)	$365.01 (C) + $80 (M)
2026:	$365.01 (C) + $80 (M)	$365.01 (C) + $80 (M)
2027:	$365.01 (C) + $80 (M)	$365.01 (C) + $80 (M)
2028:	$365.01 (C) + $80 (M)	$365.01 (C) + $80 (M)
2029:	$365.01 (C) + $80 (M)	$365.01 (C) + $80 (M)
2030:	$80 (M)	$80 (M)

Cost/Benefit Analysis

- Benefits of drainage improvements exist for both agricultural and residential parcels
- Benefit to agricultural parcels is realized by the increased yield as a result of good drainage
- Estimated yield increases given the soils in the area would average 46 bushels per acre for corn, and 14 bushels per acre for soybeans given the appropriate drainage improvements are in place

Cost/Benefit Analysis

- USDA Average Crop price (2017-2013) for corn is $3.71 per bushel, and for soybeans is $9.50 per bushel
- 52% (187 acres) of the land in the watershed is currently agricultural
- Corn: 46 bu/acre increase x $3.71 x 187 acres = $31,913.42
- Soybeans: 14 bu/acre increase x $9.50 x 187 acres = $24,871.00
- Average Annual Benefit = $28,392.21

Cost/Benefit Analysis

- Benefits to residential parcels focus on quality of life, neighborhood perception, and homesite sewage treatment systems (HSTS)
- A failed HSTS can cost $15,000 - $25,000 to repair or replace
- New developments average $1,000 - $3,000 per lot spent on providing adequate drainage outlets
- 20 residential parcels = $20,000 - $60,000 benefit at minimum

Decisions

- Options:
  - Approve Main, Lateral #1, and Lateral #3
  - Approve Main, Lateral #1, and Deny Lateral #3
  - Approve Main, Lateral #3, and Deny Lateral #1
  - Approve Main, Deny Lateral #1 and Lateral #3
  - Deny all parts
- Approval of any part will require setting repayment period and whether to bond, confirming the schedule of assessments, and ordering the project be advertised for competitive bid

Decisions

- If decision is to deny, it is recommended to distribute costs incurred to this point to the landowners in the same ratio as determined by the final schedule of assessments

- Estimated costs to date: $19,800

Engineer's Recommendation

Based on all of the information gathered and generated, I believe this project as proposed is technically feasible and would serve as an adequate outlet for the drainage needs of the watershed. Furthermore, the parcel assessments for this project are within the range of assessments that can be expected for a project of this scope. The testimony brought to the Board of Commissioners by the landowners as to whether the benefits of this project exceed the costs, should be given significant consideration in the decision to move forward with this project.