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Franklin County Engineer
and Drainage Engineer

Final Hearing Report
Golfview Drainage Improvement
Petition per O.R.C. Chapter 6131
Brown Township
April 28, 2023

This report has been prepared for the Final Hearing on a drainage improvement petition filed by Greg Richards, owner of 1111 Golfview Place on March 5, 2021.

The general location and course of the requested improvements are as follows:

In Franklin County, Brown Township, generally bounded by Feder Road, Cole Road, and Hamilton Ditch, generally following, but not limited to the course and termini of the existing private tile, with adjustments to meet the current needs of petitioners and the current land use.

The following is the nature of the petitioned work:

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.

Petition Process

This petition has been submitted pursuant to Chapter 6131 of the Ohio Revised Code (O.R.C.), which authorizes the Board of Commissioners to act on behalf of benefited property owners to make drainage improvements. If the Board of Commissioners decides to proceed with this project, the costs related to the improvements and the development of plans, reports, schedules, and construction are assessed to the landowners in the watershed according to the benefit received to their watershed acreage. These special construction assessments will be added to the property taxes for each property and can be spread over a maximum of a 15-year period. Property owners may also choose to pay their construction assessment in a lump sum payment prior to placement on their property taxes. Additionally, the improvements will be placed on the Franklin County drainage maintenance program in perpetuity, per O.R.C. Chapter 6137, and the annual maintenance assessment will appear on property tax statements as a special assessment in the same manner as the construction assessments. These annual maintenance assessments are generally in the range of two to three percent of the construction assessment.

The decision to approve a drainage improvement petition project is a 3-step process. First, a viewing of the proposed improvement is conducted for the Commissioners to familiarize themselves with the watershed and general conditions. The Commissioners conducted the viewing for this project on May 19, 2021. Then, the first hearing was held on June 22, 2021. At the first hearing, the Commissioners

voted to advance the petition and directed the Franklin County Engineer to proceed in the development of engineering plans and specifications and the schedule of assessments. It is this information that is before the Commissioners for consideration at this second and final hearing.

Existing Conditions

The Golfview Ditch watershed is approximately 22 acres and spans across 25 parcels. The watershed is generally bound by Feder Road to the north, Cole Road to the east, Hamilton Ditch to the west, and The Hardwoods Subdivision to the south. The predominant land uses within the watershed are agricultural, residential, and recreational. Out of the 25 parcels, twenty-three of them are residential in nature. Twenty of these parcels have discharging home sewage treatment systems, which release treated effluent into the agricultural field drain petitioned to be improved.

The Golfview subdivision was signed to be constructed in 1969. The house of the primary petitioner, at 1111 Golfview Place, was built in 2015 on the last undeveloped parcel. Road drainage was installed around the Golfview Place cul-de-sac, but an existing, 8" diameter private field tile was used as the outlet. The field tile outlets to Hamilton Ditch, which eventually flows into Hellbranch Run before leading to Big Darby Creek. This tile is not a sufficient outlet for the Golfview subdivision and The Hardwoods subdivision, resulting in periodic flooding at the end of the cul-de-sac. The outlet has been inadequate since the subdivision was constructed, with multiple 12" pipes contributing water to an 8" clay tile that is undersized, aged, and deteriorated.



Figure 1: Flooded Conditions at Thorn Apple Country Club, Taken from 1089 Cole Road

The result of the failing tile is ponded water during rain events on the golf course at Thorn Apple Country Club east of Cole Road, as well as surface flow across the property at 1111 Golfview Place and the field next to Hamilton Ditch. The frequent surface flow threatens the home sewage treatment systems in the area and the swimming pool at 1111 Golfview Place, while also causing erosion at Hamilton Ditch, as seen in Figure 2 below.



Figure 2: Severe Erosion Occurring at Outlet to Hamilton Ditch

Project Scope

The general course of the proposed improvements is shown in blue in the image below. The project begins within the right-of-way on the east side of Cole Road and travels west, traversing through the yards of 1089 Cole Road and 1100, 1111, and 1112 Golfview Place before following the path of the existing tile in the agricultural field.



Figure 3: General Course of Proposed Improvement

An alternative alignment with similar starting and ending points was considered. This course was proposed to travel north parallel to Cole Road, west parallel to Feder Road, and south following Golfview Place. However, this alignment proposed an additional ~1,000 feet of pipe length, leading to higher material and construction cost, making the currently proposed alignment a better alternative.

The proposed project consists of three primary items of work:

- Surface swale shaping and grading;
- Subsurface drain tile installation;
- Road culvert replacement at Cole Road.

All disturbed areas will be restored and seeded and mulched.

Project Estimate

The total construction cost of the proposed improvement is estimated to be \$274,433.00. When including costs associated with survey, design, administration, and first year maintenance, the total project cost is estimated at \$323,739.65.

Construction	\$274,433.00
Survey, Design, Administration	\$35,585.00
Drainage Maintenance (5% of Construction Estimate)	\$13,721.65
TOTAL PROJECT ESTIMATE	\$323,739.65

It should be noted that property owners are only assessed for those improvements that benefit their property. Of the total estimated cost, \$37,600.00 has been directly assessed to Franklin County for work directly benefitting or within the Cole Road right-of-way.

The public agencies that own rights-of-way for public roads and other public lands are also assessed for both construction and maintenance costs in the same manner as private property owners. The total amount to be assessed for the watershed parcels and rights-of-way is after the direct assessments is \$278,139.65. This amount is assessed to each parcel within the Golfview watershed, including parcels owned by private property owners, as well as Franklin County and Brown Township for their respective road rights-of way. The total assessment value is \$98,778.22 for Franklin County and \$29,010.12 for Brown Township.

Calculation of Assessments

The Ohio Revised Code instructs the county engineer to calculate the assessments to individual property owners based on the benefits received from the improvements for the various properties within the watershed. The Ohio Revised Code further defines benefits as:

Advantages to land and owners, to public corporations as entities, and to the state resulting from drainage, conservation, control and management of water, and environmental, wildlife, and recreational improvements.

Assessments to individual parcels have been calculated using the following formula, a rationale that is widely used throughout the state of Ohio:

$$\frac{(\text{Acres Benefited}) \times (\text{Land Use Factor}) \times (\text{Percent of Improvement Used}) \times (\text{Remote Factor})}{(\text{Appraised Value Base})} = (\text{Individual Parcel Assessment Factor})$$

Each parcel's assessment is then determined by:

$$(\text{Individual Parcel Assessment Factor}) \div (\text{Total of all Individual Assessment Factors}) \times (\text{Total Construction Cost}) + (\text{Direct Assessment}) = (\text{Parcel Assessment})$$

Explanation of Factors:

- **Acres Benefited**

Total number of acres within a given parcel that contribute drainage to the watershed.

- **Land Use Factor**

The relative benefit to parcels of drainage is based on the amount of increased storm water runoff resulting from the land use of the parcel.

- **Percent of Improvement Used**

The point at which drainage from a given parcel enters the proposed improvement. Parcels that are further upstream of the improvement are weighted more than parcels downstream because the upstream parcel uses more of the improvement.

- **Remote Factor**

The remote factor is based upon a parcel's distance from the improved section of the drainage course and has been established in 0.5-mile increments. Parcels that are most "remote" from the actual improvement receive the greatest reduction on their assessment. In this project, all parcels are within 0.5-miles of the proposed improvement, so no reduction on the assessments has been given based on this factor.

- **Appraised Value Base**

The appraised value of the parcel is reported as the Franklin County Auditor 2022 Appraised Values. The value is then multiplied by the ratio of parcel watershed acreage to total acreage. The appraised value base is the watershed appraised value in proportion to the total appraised value of the watershed.

Benefits versus Cost

One of the primary factors set forth for consideration in the approval or dismissal of a petition request is the benefit of the proposed improvements to the watershed in question. The following analysis examines this factor from the standpoint of the value of drainage to residential parcels and public health.

The increased value or benefit for residential parcels is typically found in two ways: the increased marketability of the home and functionality of the home sewage treatment system and associated drainage needs. Approximately 11 acres of the watershed is for residential use. When evaluating the cost of providing adequate drainage outlets for residential properties, we find that for new construction,

developers or homebuilders spend around \$3,700.00 per lot to attain adequate drainage infrastructure within a development. With 23 residential parcels in the watershed, the potential total benefit is \$85,100.00. While this analysis does not consider many potential variables, it could aid in the decision-making process.

As mentioned previously, the watershed contains twenty discharging home sewage treatment systems (HSTS). The flooding of any HSTS system is problematic because it prevents the aerobic processes from taking place and breaking down the pathogens in the waste. If the system floods, there are significant risks involved with human sewage contaminating the land, groundwater, and surface water. Human sewage contains high levels of bacteria and viruses that when released untreated, pollute nearby watercourse, affect aquatic life, contaminate land used for food production, and risk infection and disease to humans and animals from contact with the sewage. According to a study completed by J. C. Lance and C. P. Gerba in 1983, pathogens are able to travel much further in saturated soil than in unsaturated soil, allowing more opportunity for the pathogens to reach groundwater.

The treatment systems present require mechanical aeration, which uses an electric powered motor. When there is flooding near the HSTS, the motor is tripped to run more frequently to process the additional water, causing the motor to run until failure. When it fails and the soil is too saturated, the water levels will continue to rise, possibly leading to the wastewater to backflow to the lowest plumbing fixture in the house. Locally, the cost to construct an alternate sewage treatment system, should the existing system fail, is approximately \$30,000 on average.

According to Ohio Revised Code 3718.011, a sewage treatment system is a public health nuisance if:

- (1) The sewage treatment system is not operating properly due to a missing component, incorrect settings, or a mechanical or electrical failure.*
- (2) There is a blockage in a known sewage treatment system component or pipe that causes a backup of sewage or effluent affecting the treatment process or inhibiting proper plumbing drainage.*
- (3) ...There is ponding of liquid or bleeding of liquid onto the surface of the ground or into surface water and the liquid has a distinct sewage odor, a black or gray coloration, or the presence of organic matter.*
- (4) ...The system routinely exceeds the effluent discharge limitations specified in the permit.*

This proposed improvement would address points 2 and 3 and avoid the home sewage treatment systems becoming a public health nuisance by providing an adequate outlet, mitigating the backup and ponding of sewage near homes, roads, and recreational areas.

It would also be reasonable to consider the cost of environmental degradation due to residential sewage treatment systems that may not be functioning properly. The improvement would reduce the amount of sediment, nutrients, and bacteria from entering Hamilton Ditch and Big Darby Creek resulting from malfunctioning HSTSs and crop field surface runoff and soil erosion.

The proposed drainage improvement will improve the agricultural drainage, reducing tile blowouts in the field and improving farming conditions. While this does not take into consideration individual farm

management practices, it does illustrate the fact that good agricultural drainage is a key factor in farm profitability and would reflect positively when considering a cost/benefit analysis for this project.

Other benefits that are commonly perceived as a result of drainage improvements focus on quality of life and positive neighborhood perception. Homes in communities that have planned and maintained stormwater drainage infrastructures have higher resale values than those communities that are known to have a history of drainage problems or flooding. The watershed area benefiting from this proposed drainage improvement has a combined total property value of \$4,666,866.35 according to the Franklin County Auditor 2022 appraised values. If approved, the project will also improve drainage at the golf course and decrease the time conditions are too wet for use.

If this petition is dismissed at the final hearing and the project is not constructed, the aged 8" clay outlet will continue to deteriorate and will eventually fail completely. When it fails, the aerobic treatment units will not have an outlet for their discharge and will also fail. In addition, surface flooding on the residential properties and along Cole Road will continue to occur.

Recommendations

Based on all the information gathered and generated for this project, we believe this project is technically feasible, would adequately serve the project area's drainage needs and is most consistent with other Franklin County efforts to meet Clean Water Act requirements through our Ohio EPA Municipal Separate Storm Sewer System (MS4) permit to reduce contamination from home sewage treatment systems, which are a primary pollutant of concern. However, the benefits of this petition project do not outweigh the costs calculated for individual property owners. Inasmuch as Ohio Revised Code Section 6131.21 states "the board shall set aside the former order and dismiss the petition" if "the cost of the improvement will be equal to or greater than the benefits that will be derived from the improvement if constructed," we recommend this petition be dismissed by the Board.

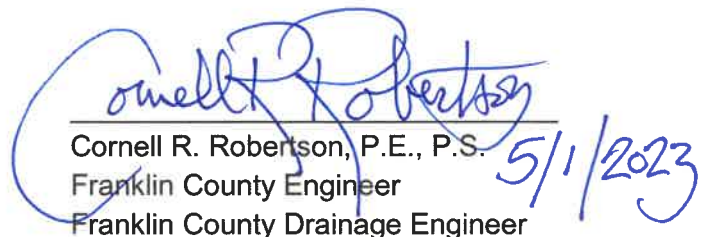
If the Board of Commissioners chooses to dismiss the petition, Ohio Revised Code Section 6131.21(D) allows all costs for the proceedings, including the costs incurred by the Boards of Commissioners and the Franklin County Engineer's Office, to be distributed to the benefiting landowners in the same ratio as determined in the final estimated assessments presented at this hearing. Since we are recommending dismissal at this final hearing, the Franklin County Engineer's Office recommends the costs incurred through this petition thus far not be distributed to the benefiting landowners.

Prepared by,



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Approved by,



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