



Engineers, Surveyors, Planners, Scientists

December 18, 2020

Mr. Eric Richter
Township Administrator
Washington Township – Franklin County
6200 Eiterman Road
Dublin, Ohio 43016

Subject: Amlin Area Infrastructure – Preliminary Engineering Submittal

Mr. Richter,

The following items are enclosed for review:

1. Amlin Area Project Subareas Exhibit
2. Amlin Area Infrastructure Construction Plans (30%) (Subareas 1, 2, and 4 only)
3. Updated Preliminary Cost Opinions
4. Preliminary Storm Sewer Calculations
 - a. Cosgray Road South of Rings Road
 - b. Rings Road West of CSX (with existing outlet)
 - c. Rings Road West of CSX (with improved outlet)
 - d. Rings Road East of CSX (with existing outlet)
 - e. Rings Road East of CSX (with improved outlet)
 - f. Northern Alleys
5. Preliminary Storm Sewer Tributary Areas Maps
6. Stormwater Analysis for Northern Alleys & Ballentrae Woods Basin (Subarea 4)
7. CCTV Storm System Investigation Findings (revised 8/19/2020)
8. Retention Basin Screening and Entry Signage Graphics

As a supplement to the preliminary plan submission, we would like to share the following notes as we move forward with the next phase of project development:

Project Subareas

As illustrated in the Amlin Area Project Subareas Exhibit, the preliminary plan and cost opinions have been split into the following geographic regions.

1. Rings Rd Improvements from CSXT Railroad to Churchman Rd Roundabout (1,300 Lin. Ft.)
 - a. Full pavement reconstruction with curb and gutter;
 - b. All alley connections to Rings Road will be maintained;
 - c. Road will be lowered to improve roadside drainage;
 - d. Sidewalk on both sides of Rings Road within the limits of pavement reconstruction;
 - e. Street trees on both sides of the road;
 - f. Replacement of existing storm sewers within the project limits. Pipe sizes are preliminary pending further discussion regarding improvements to downstream outlet pipe in City of Dublin between Churchman Road and Cramer;
 - g. Street lighting;
 - h. Extension of sidewalk across CSXT Railroad (one side of the street only) and associated track improvements;
 - i. Community signage for westbound traffic to be installed west of Churchman Road, pending Dublin approval;
 - j. Landscape to provide screening between the roadway and the existing stormwater basin at 6923 Rings Road.

2. Rings Rd Improvements from Cosgray Rd to CSXT Railroad (1,000 Lin. Ft.)
 - a. Replacement of existing storm sewers on both sides of the street. Existing ditches will be enclosed to improve drainage and aesthetics, and to facilitate sidewalk construction;
 - b. Catch basins will be added at each property frontage to collect surface water and provide an accessible outlet for future drainage improvements by private property owners;
 - c. Sidewalk on one side only;
 - d. Street trees at locations to be determined in detailed design;
 - e. Community signage near the intersection of Rings Road and Cosgray Road.

3. Cosgray Rd Stormwater Improvements from Rings Road to Hayden Run / Faust Ditch (2,600 Lin Ft)
Note: This project subarea has been included in the cost opinions but is not shown in the preliminary plan set.
 - a. Replace existing 12-15 inch storm sewer on the east side of Cosgray Road with a 36-inch pipe (preliminary size);
 - b. Add catch basins along Cosgray Road to collect surface water and provide an accessible outlet for future drainage improvements by private property owners.

4. Alleys North of Rings Rd (2,100 Lin. Ft.)
 - a. Resurfacing of Frieszell Ave, 1st Ave, 2nd Ave, 3rd Ave, and unnamed alleys north of Rings Road;
 - b. Reconstruction of the east-west alley with an asphalt pavement section;
 - c. Replacement of existing storm sewer in the east-west alley from CSXT railroad to 3rd Ave – at 2nd Avenue, the pipe will outlet to a City of Dublin retention pond (pending Dublin approval);
 - d. Other localized drainage improvements along the alleyways.

Typical Section

During the preliminary design effort, we have further evaluated the initial recommendations provided by MKSK for Rings Road east of CSXT (Project Subarea 1), which were originally presented in October 2019. These initial recommendations presented low, medium, and high impact alternative improvements. After further evaluation, we are recommending a typical section, which is a blend of the medium and high impact alternatives – including, lowering Rings Road to improve roadside drainage. As discussed further in the Vertical Profile Design section below, a lower road profile allows for a reconstructed, curb and gutter section consisting of two 11' lanes with a 5' tree lawn including street trees and 5' walk on both sides of the road. West of 1st avenue, due to the close proximity of structures to the existing right-of-way and therefore reduced grading widths, the proposed tree lawn is reduced to 3'; along this section, street trees would be placed behind the walk.

During the preliminary design process, there was an interest from Township Trustees and residents for sidewalk on one side of Rings Road west of CSXT (Project Subarea 2), in addition to the stormwater drainage improvements. Rings Road pavement west of CSXT will be left in its existing condition, however, street trees will be added to both sides of the road at the minimum uncurbed lateral offset per the Ohio Department of Transportation Location and Design Manual. On the north side of Rings Road, a 5' walk has been proposed within the existing right-of-way.

In regard to the alleys north of Rings Road (Project Subarea 4), the east-west alley (designated as "Alley A" on the preliminary plans) will be rebuilt with an inverted crown to collect runoff. The north-south alleys (Alley B, Frieszel Ave, First Ave, Alley C, Second Ave, Alley D, and Third Ave) will be resurfaced to prolong their life and improve their serviceability and aesthetics.

Vertical Profile Design

The vertical alignment for Rings Road (east of CSXT) was designed using Ohio Department of Transportation standards and a design speed of 35 MPH within the limits of pavement reconstruction. *(Please note that the profile of Rings Road across the railroad tracks does not meet normal design criteria for 35 mph. This may need to be improved as part of sidewalk-related rail crossing improvements).* The proposed profile includes two low points (sumps) for which, the flood routing path will generally match the existing condition by draining into the agricultural field at near station 100+50. A roadside catch basin has been provided near this location.

Our goal of improving roadside drainage in Project Subarea 1 by lowering the road to be closer to front yard grades was limited to some extent by the elevation of the existing drainage outlet. As further described in the storm sewer section, the existing catch basin at station 103+15 north, which is the connection between the proposed and existing sewers, controls the depth of our proposed sewer design which, sequentially, controls the elevation of the proposed roadway as curb and gutter inlets and other drainage structures need to be incorporated. Despite this constraint, it is feasible to lower the road to a point where a majority of the walk and tree lawn will drain towards the road and, along certain portions of the road, the entire existing right-of-way and front yard areas will drain to the road. There are some areas behind the walks where low points will still be present, however, the drainage tributary areas are reduced and can be collected by small yard drains.

Preliminary Drainage Design

Improving roadside drainage is a critical aspect of the Amlin Area Improvements. Resident complaints regarding standing water near the roadway have been well documented by the Township and observed by the project team. Earlier this year EMH&T undertook CCTV investigations to locate, inspect, and clean storm sewers within in Amlin area. Those efforts are summarized in the previously submitted CCTV Storm System Investigations Findings, which was most recently shared with the Township, County, and City of Dublin in August 2020. This study generally found pipes to be in fair to poor condition.

In supplement to the condition assessments, hydraulic calculations performed as part of preliminary engineering suggest that many storm sewers in the area have insufficient hydraulic capacity based upon current County design standards. Along Rings Road, the Township intends to work with the County to replace storm sewers with more appropriately sized pipes from Cosgray Road to Churchman Road along with the planned street and sidewalk improvements. However, the positive impact of the increases in pipe sizes will not be fully realized without similar downstream improvements in two locations as discussed further below in the narratives for Project Subarea 1 and Project Subarea 2. While not currently part of the Township's plan to improve Rings Road, further discussions with City of Dublin and Franklin County Engineer's Office are needed to build consensus on how best to handle this issue.

Project Subarea 1: Rings Rd Improvements from CSXT Railroad to Churchman Rd Roundabout (1,300 Lin. Ft.) Existing 8-12" pipes are located on both sides of the road in the existing condition, connecting to an existing 15" pipe which flows east under Churchman Road and continues east. Based upon historical drainage records, we understand that this 15" pipe continues to flow east to a point 400 feet east of Dublin Royal Drive, where it is intercepted by the subdivision drainage system and conveyed to Cramer Ditch. Preliminary plans call for storm sewers to be replaced with pipes of adequate hydraulic capacity. However, increased pipe sizes within the Subarea 1 may not be appropriate without a plan to increase the size and capacity of the outlet sewer. Preliminary calculations show that, to meet current design criteria, the existing 15" diameter pipe should be replaced with a 36" storm sewer from Churchman Road to the east. Further discussions with City of Dublin are needed to build consensus on how best to handle this issue.

Project Subarea 2: Rings Rd Improvements from Cosgray Rd to CSXT Railroad (1,000 Lin. Ft.) An existing 8-12" storm sewer along Rings Road collects roadside drainage, flowing west to Cosgray Road where it outlets to an existing 12-18" pipe which flows south to Faust Ditch/Hayden Run (see Subarea 3

below). As part of the proposed improvements, existing pipes along Rings Road will be removed and replaced with a new system, with new storm sewers on both sides of the road. Rings Road in this area will remain uncurbed; therefore, shallow swales will flow to catch basins between each driveway. The frequency of catch basins will also provide opportunities for private drainage connections such as sump pump and roof drain outlets. Preliminary plans call for storm sewers to be replaced with pipes of adequate hydraulic capacity. However, increased pipe sizes within the Subarea 2 may not be appropriate without a plan to increase the size and capacity of the outlet sewer – See Subarea 3 below.

Project Subarea 3: Cosgray Rd Stormwater Improvements from Rings Road to Hayden Run / Faust Ditch (2,600 Lin Ft)

This subarea is generally located outside the project study area, which was focused on Rings Road and adjacent alleys. However, since this subarea contains the drainage outlet for project Subarea 2, which has experienced the worst flooding most recently, drainage in this subarea was studied in more detail as a first step toward a potential coordinated drainage improvement involving City of Dublin and/or Franklin County. In this area, a 12-15" storm sewer runs along the east side of Cosgray Road to a point approximately 2,000 feet south of Rings Road, where it turns west and outlets to Faust Ditch/Hayden Run. EMH&T preliminarily delineated tributary areas and prepared hydraulic calculations to determine that the existing storm sewer should be replaced with a 36" pipe. A cost opinion was prepared for this improvement to facilitate discussion with City of Dublin and Franklin County.

Project Subarea 4: Alleys North of Rings Rd (2,100 Lin. Ft.)

Surface drainage in the alleys east of CSX and north of Rings Road generally flow north to an existing tile located on the north side of the alley on the far north side of Amlin, parallel to Rings Road. CCTV investigations show that this tile flows east, ultimately connecting to City of Dublin storm sewer manhole located near the intersection of Churchman Road and Cadmore Drive, passing through the rear yards of 6870, 6856, 6852, and 6844 Rings Road. Due to multiple blockages and hammer-type taps, this tile was unable to be cleaned and will be completely replaced by the Project. To limit project disturbance and its overall impact on residents, we examined an alternative outlet for this pipe, in which it would outlet directly to a stormwater basin recently constructed as part of the Ballentrae Woods Development. Like the existing tile, this basin is also tributary to the Churchman Road storm sewer system. A separate stormwater analysis was prepared to our findings related to this alternative and is provided as part of this submittal. Please note that use of this basin will require the approval of City of Dublin.

Conceptual Post-Construction Stormwater Management Design

Since this Project is transportation-related and linear in nature, we are proposing to use Ohio Department of Transportation criteria for post-construction stormwater requirements and methods of treatment. Per the Ohio Department of Transportation Location and Design Manual Volume 2, stormwater quantity control (detention) will not be required for a project of this type. Along Rings Road (Project Subareas 1 & 2), the method(s) of quality treatment will be determined during detailed design but may include a mixture of vegetated swales, filter strips, and/or hydrodynamic separators. Water quality treatment for the northern alleys (Project Subarea 4) will be provided within the Ballentrae Woods Basin pending approval of that alternative.

CSXT Rail Crossing Improvements

As part of our preliminary submittal, we have proposed a sidewalk crossing of the CSXT railroad which will likely include a full replacement of the crossing. This work will include maintaining the existing gates while widening and reconstructing the crossing surface.

Based upon past projects, we expect that the interface with CSXT will follow their Public Project process. CSXT typically retains a third party representative (engineering consultant) to manage each public project, and EMH&T's railroad coordination efforts through the duration of the project will typically occur directly with the CSXT representative. As the project advances into detailed design, EMH&T will provide a preliminary plan to the CSXT representative showing the pedestrian improvements of the Rings Road at-

grade crossing DOT #513314P, and request a Preliminary Engineering (PE) agreement. This PE Agreement between the sponsoring Agency and CSXT authorizes the Railroad to incur costs (typically their consultant fees) to review and approve the engineering through final design. An estimated fee (force account) must be paid in advance with the PE Agreement, and any remaining funds will be applied to construction of the project. After the final design has been approved by CSXT, they will provide a Construction and Maintenance (C&M) Agreement which will discuss the scope of work the Agency and Railroad will be responsible for and future maintenance responsibilities. The C&M Agreement will include a Force Account estimate by the Railroad for their project costs, payment of which must be made prior to construction. CSXT will self-perform most work including track, crossing surface and signal improvements, and will draw from the Force Account to pay for that work. Any remaining funds in the Force Account at the completion of the project will be returned to the Agency. The costs described above have been included in the cost opinion for Subarea 1.

Preliminary Cost Opinions

The Preliminary Project Cost Opinions for the Amlin Area Infrastructure Improvements, which were previously submitted to the Township on 9/15/2020, have been updated to reflect the latest plans and exhibits. Costs have been split by project subarea. The following are notes and clarifications in regards to the cost opinions:

- Quantities used to prepare the cost opinions are based upon preliminary plans.
- Unit prices are based upon historical bid data for similar projects.
- Inflation is based upon ODOT's current business plan inflation calculator.
- Right-of-way and easement acquisition costs are roughly based upon Franklin County Auditor's Land Values.
- Reimbursable private utility costs are very approximate based upon limited information. These are subject to change as project development advances.

Utility Coordination

As a follow-up to this preliminary submission, plans will be distributed to representatives of known private utilities within the project corridor to make them aware of this project and to verify that their facilities are shown completely and accurately. Record drawings and locations obtained from this utility submittal will be accumulated and utilized during final engineering.

We appreciate the opportunity to assist the Township with this project and look forward to advancing the next phase of design. If you should have any questions or require additional information, please do not hesitate to contact us by phone or email.

Respectfully submitted,

EVANS, MECHWART, HAMBLETON & TILTON, INC.



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