WARWICK TOWNSHIP MUNICIPAL AUTHORITY

WARWICK TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA

SANITARY SEWER HYDRAULIC MODEL

SUMMARY REPORT

Prepared by:

ENTECH ENGINEERING
www.entecheng.com

Entech Engineering, Inc.
315 Clay Road | Lititz, PA 17543-9019
(p) 717.626.6666 (f) 717.626.6600

Project No.: 4185.081

Dated: January 25, 2021

WARWICK TOWNSHIP MUNICIPAL AUTHORITY
SANITARY SEWER HYDRAULIC MODEL SUMMARY REPORT

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE NO.
1.0	INTRODUCTION	1
2.0	SEWERGEMS MODEL	2
3.0	FLOW SCENARIOS	5
4.0	RESULTS	8
5.0	CONCLUSIONS	39
6.0	RECOMMENDATIONS	41

APPENDICES

Appendix A: Map of WTMA Sewer System
Appendix B: WTMA Sewer EDU Analysis Letter dated June 8, 2020
Appendix C: Projected Flows, Year 2040
Appendix D: 2019 Chapter 94 Report Data
Appendix E: SewerGEMS Models
Appendix F: SewerGEMS Point Load Summary Tables
Appendix G: SewerGEMS Output Table

1.0 INTRODUCTION

Entech Engineering Inc. (Entech) was tasked by Warwick Township Municipal Authority (WTMA) and Lititz Borough (Borough) with preparing an update of its joint Act 537 Plan. As part of its proposal to prepare this update, Entech offered both WTMA and the Borough the option of preparing a hydraulic model to calculate capacities and identify the most restrictive segments in their respective collection and conveyance systems. A major component of an Act 537 Plan update is identifying any of the most restrictive segments within the collection system. A hydraulic model is the most accurate and efficient means to accomplish this effort. WTMA authorized Entech to proceed with the hydraulic model at a project meeting on January 9, 2020.

Entech uses a software package developed by Bentley Systems called SewerGEMS. SewerGEMS allows for the model development of sanitary and combined sewer systems. It is traditionally used for the analysis of gravity flow systems. SewerGEMS requires the user to provide system data such as pipe diameter, pipe length, pipe material (and associated friction factor), invert elevation, and flow. Once the model is developed and calibrated, countless "what-if scenarios" can be analyzed. The most typical analysis done with a hydraulic model for an Act 537 Plan is to look at the hydraulic capacity of the segments modeled under current and future flow conditions. For this Act 537 Plan update, the model used the last full year of flow data, 2019, and projected flow in 2040.

2.0 SEWERGEMS MODEL

A SewerGEMS model of WTMA's sewer system was constructed using data from a variety of sources. The model structure was imported from a Geographic Information System (GIS) shapefile, which originated from Entech's GIS Geo-Database for WTMA's Collection and Conveyance system; refer to **Appendix A**. The GIS shapefile contains lines representing pipe segments and points representing manholes. While the imported GIS shapefile contained attributes for inverts, slope, and directionality for most pipe segments, some pipe segments were missing attributes. Because these attributes are vital for determining pipe capacity, missing attributes were manually entered into the model. Missing attributes were determined from either WTMA historical as-built drawings or survey data. Survey data has better accuracy than as-built drawings, thus survey data was used as the primary source for segment lengths and manhole inverts. Where survey data was not available, as-built drawings were used. In the event an attribute could not be found, or where details were indecipherable in the as-built drawings, the following assumptions were made:

1. Pipe material was assumed to be PVC with a corresponding Manning's number of 0.013.
2. Missing inverts were calculated using upstream or downstream inverts, slopes, and lengths.
3. Manholes were assumed to be 48" in diameter.
4. Approximate lengths were used from the GIS shapefile.

The as-builts and GIS shapefile are presumed to be relatively accurate; however, Entech recommends the WTMA employ a field surveyor to collect sewer pipe and manhole elevation data to verify the as-builts. Because surveying all manholes and pipe segments throughout the system is cost-prohibitive, our recommendation is to only survey those segments that are approaching or exceed theoretical pipe capacity, as identified in this report. By updating the model with survey data and correcting erroneous data, the model can then be calibrated to actual conditions, which will confirm or deny overloaded segments, and possibly delay or even avoid costly upgrades to address overloaded segments in the sewer system. A calibrated model will better support the WTMA in making informed decisions.

To reduce the complexity of the model and make the model more manageable, the model was divided into sewage basins. In total, nineteen (19) individual basin models were created. The gravity collection portion of WTMA's system was divided into two (2) models, the first being the Pierson Road interceptor (Meter Pit #2) and the second being the Brunnerville interceptor (Meter Pit #1). Models were also created for WTMA's seventeen (17) pumping station sewage basins.

As indicated in the proposal, and to limit cost, skeleton models were developed for each of the nineteen (19) individual basins. Each skeleton model only included interceptors and trunk sewers, and smaller sewer mains were largely excluded from each model. Modeling the entire collection system would involve a significant effort to manually enter missing data and perform analyses on model inputs and results, and thus would be costly. In other words, the larger the model, the more time and cost are required to build, check, and run the model.

In addition to interceptors and trunk sewers, sewage flows were also modeled in SewerGEMS. Each existing source of sewage flow was assigned a point load with a magnitude equal to its Equivalent Dwelling Unit (EDU) allocation. For instance, the UPMC Hospital was assigned a magnitude of 84 existing EDUs, Lititz Reserve was assigned a magnitude of 155 existing EDUs, and existing single-family homes were assigned a magnitude of 1 EDU each. In general, existing point loads were placed at locations in the model approximating their actual discharge point in the physical sewer system. For existing sources physically located on smaller sewer mains that were not included in the skeleton model, a point load equal in magnitude to all of these sources was placed where the truncated sewer main connects to an interceptor or trunk sewer.

WTMA’s sewage system also has several pumping stations that discharge to another pumping station or gravity sewer basin. Where a pumping station discharges to another sewer basin, a point load was added to the receiving basin’s model representing the contributing pumping station. The point load was assigned a magnitude corresponding to the pumping station’s estimated 2019 flow, or projected 2040 flow, and the point load was applied at the manhole to which the pumping station's force main physically discharges.

SewerGEMS multiplies the magnitude (number of EDUs) of each point load by a uniform flow per EDU value to find the corresponding flow of each point load. SewerGEMS then calculates the cumulative flow rate through a particular pipe segment by summing all flows contributed by point loads upstream of that segment. For instance, a pipe segment with 200 EDUs connected upstream will have an estimated flow rate twice that of a pipe segment with 100 EDUs connected upstream. The flow per EDU value is an input that can be changed by the user to approximate the desired flow condition, thus each segment can be evaluated under various flow conditions by changing the flow per EDU value.

3.0 FLOW SCENARIOS

For each basin, four (4) different flow scenarios were modeled:

1. Present Annual Average Flow (PAAF)
2. Present Peak Flow (PPF)
3. Future Annual Average Flow (FAAF)
4. Future Peak Flow (FPF)

The PAAF scenarios approximates the present-day annual average flow (AAF) condition. In WTMA's 2019 Chapter 94 Report, the present-day AAF and connected EDUs are reported for each meter pit and pumping station basin. Each basin is unique and has a unique PAAF, thus each basin's model must be treated independently and the corresponding flow per EDU value must be found for each model. To find the PAAF per EDU value, the following steps were taken. First, if any pumping station discharges to another basin, the upstream pumping station's PAAF is subtracted from the receiving basin's PAAF. This yields the PAAF that was generated solely by the basin itself. Next, the PAAF generated by the basin itself is then divided by the number of EDUs connected to the basin to find the corresponding PAAF per EDU value.

The PPF scenario estimates the present-day peak flow condition, such as during high flow and rain events. The PPF per EDU value for each basin was estimated by applying a peaking factor of 4.0 to the respective PAAF per EDU value. A peaking factor of 4.0 was selected based on engineering judgment and the following rationale.

The Pennsylvania Department of Environmental Protection (PADEP) Domestic Wastewater Facilities Manual (DWFM) states that sanitary sewer design should consider, in particular, the maximum hourly flow and groundwater infiltration. Thus, the design flow rate should be peak hourly flow plus some margin for infiltration. As per the Ten States Standards, peak hourly peaking factor is correlated to population, see **Figure 1**. With an estimated EDU count of 7,292 EDUs as estimated in Entech's letter titled "WTMA Sewer EDU Analysis," dated June 8, 2020, included as **Appendix B**, the equivalent population would be 19,251 persons (7,292 EDUs times 2.64 persons/EDU). The corresponding peak

hour peaking factor is approximately 2.7, excluding inflow and infiltration (I&I). Accounting for I&I, a peaking factor of 4.0 was selected.

As an example, refer to Pumping Station 7. Flow monitoring data collected for the Pumping Station 7 basin in March and April of 2020 revealed it had a peaking factor ranging from 3.15 to 4.55. In reality, because each pumping station basin is unique due to population, hydraulics, and system integrity, the peaking factor varies widely from basin to basin. For this reason, and in the absence of flow monitoring data from each pumping station basin, a peaking factor of 4.0 was selected for simplicity and uniformity across all basins in the WTMA system. A peaking factor of 4.0 is also common in wastewater system design. Thus, we believe a peaking factor of 4.0 is appropriate and conservative to protect against hydraulic overloads.

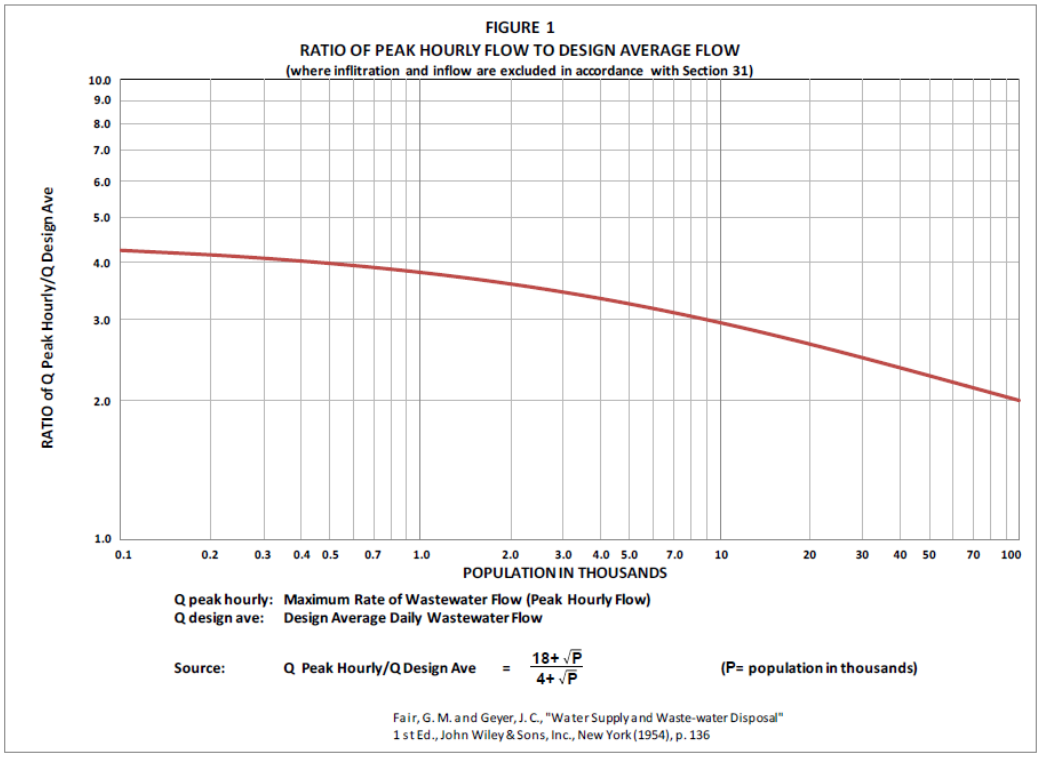


Figure 1: Ratio of Peak Hourly Flow to Average Flow Versus Population (Ten States Standards)

In addition to PAAF and PPF scenarios, future flow scenarios were also modelled. The FAAF and FPF scenarios predict flows for the year 2040. These future scenarios assume that sewer use patterns and flow per EDU values will remain the same as the PAAF and PPF scenarios. The FAAF and FPF models start with the PAAF and PPF models and add additional point loads to the model to simulate additional flows from future anticipated

developments. Anticipated flows from potential developments were determined as per input from Warwick Township staff regarding magnitudes of anticipated developments, or otherwise estimated based on developable acreages and land use type. See **Appendix C** for further details.

In general, potential future developments were represented by a single point load and that point load was applied at the end of the interceptor or trunk sewer. Where there was more than one (1) trunk sewer modeled, flows were divided equally between the various trunk sewers. This approach saved time and cost because applying combined point loads at the end of each trunk sewer is much quicker than applying multiple, smaller point loads across the entire interceptor and trunk sewers. The approach is also conservative because modeled flows are overstated upstream of where actual flows physically discharge.

4.0 RESULTS

After setting up the basin models, flow scenarios, and point loads, SewerGEMS was used to calculate each segment's theoretical full flow capacity and flow rate in each flow of the four (4) flow scenarios (PAAF, PPF, FAAF, and FPF). A table is included in summarizing the results. From this data the following can be determined: 1) the ratio of flow to theoretical capacity for each segment, 2) the most restrictive segments, and 3) potentially hydraulically overloaded segments. The most restrictive segment is considered the segment with the highest ratio of flow to theoretical capacity. If a segment is considered the most restrictive segment, that does not necessarily mean that the segment is potentially hydraulically overloaded. Potentially hydraulically overloaded segments are those segments that have a modeled flow greater than or equal to 100% of the pipe's theoretical full flow capacity.

The following paragraphs provide the following:

- a description of each sewage basin,
- detailed calculations of the flow per EDU value for each scenario,
- description of how projected flows were added to the model,
- identification of the most restrictive segment,
- identification of hydraulically overloaded segments in each sewage basin.

Lititz Treatment Plant (LTP) Gravity Sewer Basin

The Lititz Treatment Plant (LTP) gravity sewer basin is comprised of gravity sewer mains that convey sewage directly to the Lititz Wastewater Treatment Plant (WWTP). The LTP basin has two (2) sub-basins: the Pierson Road Interceptor and the Brunnerville Interceptor sub-basins.

As its name would suggest, most of the Pierson Road Interceptor is located on Pierson Road, with the remainder located parallel to Pierson Road. This interceptor is connected to, and its flow is measured by, Meter Pit #1. From Meter Pit #1, the interceptor discharges directly to the WWTP.

The Brunnerville Interceptor follows Lititz Run Road from Brunnerville towards the WWTP. This interceptor is connected to, and its flow is measured by, Meter Pit #2. From Meter Pit #2, the interceptor discharges to Lititz Borough’s interceptor, just upstream of the WWTP.

Pierson Road Interceptor Sub-Basin (Meter Pit #1)

A skeleton model was built in SewerGEMS for the Pierson Road Interceptor sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: LTP-001 to LTP-034, LTP-031 to LTP-026, and LTP-007 to LTP-006. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF,PPF, FAAF, and FPF scenarios was determined as per the following calculations. The Pierson Road Interceptor receives flow from Pumping Stations1, 2, 3, and 4. Thus, flows from these contributing pumping stations must first be deducted from the Meter Pit #1 flow to find the flow generated solely by the Pierson Road Interceptor sewage basin. The PAAFs listed below were provided in the 2019 Chapter 94 Report. The number of EDUs connected directly to the basin was estimated based on parcel information and sewer billing data for each parcel. Dividing the PAAF generated solely by the connections in the sewer basin by the number of EDUs connected directly to the basin yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

Meter Pit #1 PAAF (gpd)	805,470
- Pumping Station 1 PAAF (gpd)	383,242
- Pumping Station 2 PAAF (gpd)	4,826
- Pumping Station 3 PAAF (gpd)	157,453
- Pumping Station 4 PAAF (gpd)	212,404
Pierson Road Interceptor Sub-Basin PAAF (gpd)	47,545
PAAF (gpd)	47,545
÷ EDUs Connected to Sub-Basin	261
PAAF per EDU (gpd/EDU)	182
PAAF per EDU (gpd/EDU)	182
× Peaking Factor	4
PPF per EDU (gpd/EDU)	728

For the present day scenarios, point loads were established in the model to represent a total of 805,470 gpd in the PAAF scenario and 3,221,880 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented a total of 1,110,107 gpd in the FAAF scenario and 4,440,427 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

Of the segments modeled, LTP-033 to LTP-032 was identified as the most restrictive segment for all flow scenarios. This segment is located on Pierson Road near the intersection with Pennwick Drive, has a capacity of 2,640,405 gpd. The flow to capacity ratio is 15% in the PAAF scenario, 59% in the PPF scenario, 19% in the FAAF scenario, and 75% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Brunnerville Interceptor Sub-Basin (Meter Pit #2)

A skeleton model was built in SewerGEMS for the Brunnerville Interceptor sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: LTP-272 to LTP-072, LTP-213 to LTP-072, and LTP-155 to LTP-147. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The Brunnerville Interceptor receives flow from Pumping Stations 11, 12, 13, and 16. Thus, flows from these contributing pumping stations must first be deducted from the Meter Pit #2 flow to find the flow generated solely by the Brunnerville Interceptor sewage basin. The PAAFs listed below were provided in the 2019 Chapter 94 Report. The number of EDUs connected directly to the basin was estimated based on parcel information and sewer billing data for each parcel. Dividing the PAAF generated solely by the connections in the sewer basin by the number of EDUs connected directly to the basin yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer

use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

Meter Pit #2 AAF (gpd)	522,351
- Pumping Station 11 PAAF (gpd)	36,412
- Pumping Station 12 PAAF (gpd)	12,227
- Pumping Station 13 PAAF (gpd)	353,843
- Pumping Station 16 PAAF (gpd)	31,648
Brunnerville Interceptor Sub-Basin PAAF (gpd)	88,221
PAAF (gpd)	88,221
÷ EDUs Connected to Sub-Basin	484
PAAF per EDU (gpd/EDU)	182
PAAF per EDU (gpd/EDU)	182
× Peaking Factor	4
PPF per EDU (gpd/EDU)	728

For the present day scenarios, point loads were established in the model to represent a total of 522,351 gpd in the PAAF scenario and 2,089,404 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented a total of 648,499 gpd in the FAAF scenario and 2,593,797 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

Of the segments modeled, the segment LTP-076 to LTP-075 was identified as the most restrictive segment in the PAAF and PPF scenarios and LTP-160 to LTP-159 was identified as the most restrictive segment in the FAAF and FPF scenarios. LTP-076 to LTP-075 is located along a stream near the Bonfield Elementary School. This segment has a capacity of 4,151,221 gpd. The flow to capacity ratio is 13% in the PAAF scenario and 50% in the PPF scenario. LTP-160 to LTP-159 is located just south of where the Brunnerville Interceptor crosses Orchard Road. This segment has a capacity of 631,287 gpd. The flow to capacity ratio is 18% in the FAAF scenario and 73% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin.

See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 1 Basin

Pumping Station 1 is located on Buckwalter Road in the far southwestern corner of Warwick Township. The pumping station receives flow from prominent landmarks such as the Shoppes at Kissel Village shopping center, UPMC Lititz Hospital, Traditions of America residential development, and Highlands residential development. There are two (2) trunk sewers that convey flow by gravity to Pumping Station 1. The first trunk sewer is to the west of the pumping station, starting at the Highlands development and following a low-lying area near Traditions of America, crossing Millport Road and finally terminating at the pumping station. The second trunk sewer is to the east of the pumping station, starting at the shopping center on Peters Road, crossing over to Millport Road, crossing a farm field, then terminating at the pumping station.

A skeleton model was built in SewerGEMS for the Pumping Station 1 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L01-001 to L01-037 and L01-001 to L01-084. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF and FPF scenarios was determined as per the following calculations. Pumping Station 1 receives flow from Pumping Stations 9, 14, and 15, thus flows from these contributing pumping stations must first be deducted from the Pumping Station 1 flow to find the flow generated solely by the Pumping Station 1 sewage basin. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF generated solely by the connections in the sewer basin by the number of EDUs connected directly to the basin yields the AAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

Pumping Station 1 PAAF (gpd)	383,242
Pumping Station 9 PAAF (gpd)	24,500
Pumping Station 14 PAAF (gpd)	37,877
Pumping Station 15 PAAF (gpd)	6,844
Pumping Station 1 Basin PAAF (gpd)	314,021
PAAF (gpd)	314,021
÷ EDUs Connected to Basin	1,521
PAAF per EDU (gpd/EDU)	206
PAAF per EDU (gpd/EDU)	206
× Peaking Factor	4
PPF per EDU (gpd/EDU)	824

For the present day scenarios, point loads were established in the model to represent a total of 383,242 gpd in the PAAF scenario and 1,532,968 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented a total of 491,858 gpd in the FAAF scenario and 1,967,432 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

In the PAAF and PPF scenarios, the most restrictive segment is from L01-044 to L01-043. The segment is located just west of the pumping station on Buckwalter Road. This segment's capacity is 1,764,942 gpd. The segment has a flow to capacity ratio of 18% in the PAAF scenario and 68% in the PPF scenario. All segments had a flow to capacity ratio of less than 100% in the PAAF and PPF scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin in those scenarios.

In the FAAF and FPF scenarios, the most restrictive segment is from L01-002 to L01-001. The segment is located just east of the pumping station on Buckwalter Road. This segment's capacity is 431,355 gpd. The segment has a flow to capacity ratio of 29% in the FAAF scenario and 118% in the FPF scenario. There were a total of five (5) segments that had a flow to capacity ratio exceeding 100% in the FPF scenario, namely L01-002 to L01-001, L01-007 to L01-006, L01-008 to L01-007, L01-005 to L01-003, and L01-003 to L01-002. Because the flow to capacity ratio

exceeds 100% in these five (5) segments, they have been identified as hydraulically overloaded. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

To eliminate the hydraulic overload in these identified segments, flow must be reduced below the most restrictive segment's capacity. The most restrictive segment, L01-002 to L01-001, has a capacity of 431,355 gpd and flow is 133,578 gpd in the FAAF scenario. Dividing the capacity by the FAAF, the peaking factor must be 3.22 or less. A concerted inflow and infiltration program should be able to reduce the peaking factor to this value and thus reduce peak flows below theoretical pipe capacities.

Pumping Station 2 Basin

Pumping Station 2 is located on Owl Hill Road, a short distance to the west of the intersection of Owl Hill Road and Cinder Hill Road. The pumping station receives flow from a handful of residences on Owl Hill Road. There is only one (1) trunk sewer that conveys flow by gravity to Pumping Station 2. The trunk sewer extends from the pumping station along Owl Hill Road and terminates a short distance east of the intersection of Owl Hill Road and Rudy Dam Road. There are no other sewer mains in this pumping station basin.

A skeleton model was built in SewerGEMS for the Pumping Station 2 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L02-002 to L02-005 and L02-002 to L02-012. See **Appendix F** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	4,826
÷ EDUs Connected to Basin	52
PAAF per EDU (gpd/EDU)	93

PAAF per EDU (gpd/EDU)	93
× Peaking Factor	4
PPF per EDU (gpd/EDU)	372

For the present day scenarios, point loads were established in the model to represent a total of 4,826 gpd in the PAAF scenario and 19,304 gpd in the PPF scenario. The FAAF and FPF scenarios are the same, as no future growth is expected in this sewage basin. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

In all scenarios, the most restrictive segment is from L02-008 to L02-007. The segment is located on Owl Hill Road, just to the west of the pumping station. This segment's capacity is 493,932 gpd. The segment has a flow to capacity ratio of 1% in the PAAF and FAAF scenarios and 3% in the PPF and FPF scenarios. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 3 Basin

Pumping Station 3 is located on East Woods Drive, a short distance to the west of the intersection of East Woods Drive and Owl Hill Road. The pumping station receives flow from a majority of the residential developments in the vicinity of East Woods Drive, Rudy Dam Road, and Owl Hill Road. There is one (1) trunk sewer that conveys flow by gravity to Pumping Station 3. The trunk sewer follows New Haven Run from the pumping station to Canterbury Court. Several sewer mains connect to the trunk sewers near New Haven Run and extend sewer service north to Owl Hill Road, west to New Haven Drive, and south to East Woods Drive. There is also a sewer main that extends to the east of the pumping station along East Woods Drive.

A skeleton model was built in SewerGEMS for the Pumping Station 3 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly,

the following segments were modeled, listed by manhole number at the endpoints: L03-002 to L03-050 and L03-002 to L03-262. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. Pumping Station 3 receives flow from Pumping Station 6, thus flows from Pumping Station 6 must first be deducted from Pumping Station 3's flow to find the flow generated solely by the Pumping Station 3 sewage basin. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF generated solely by the connections in the sewer basin by the number of EDUs connected directly to the basin yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

Pumping Station 3 PAAF (gpd)	157,453
- Pumping Station 6 PAAF (gpd)	12,511
Pumping Station 3 Basin PAAF (gpd)	144,942
PAAF (gpd)	144,942
÷ EDUs Connected to Basin	638
PAAF per EDU (gpd/EDU)	227
PAAFper EDU (gpd/EDU)	227
× Peaking Factor	4
PPF per EDU (gpd/EDU)	908

For the present day scenarios, point loads were established in the model to represent a total of 157,453 gpd in the PAAF scenario and 629,812 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 239,494 gpd in the FAAF scenario and 957,976 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

In all scenarios, the most restrictive segment is from L03-039 to L03-017. This segment is located just west of Rudy Dam. This segment's capacity is 919,875 gpd. The segment has a flow to

capacity ratio of 6% in the PAAF scenario, 25% in the PPF scenario, 11% in the FAAF scenario, and 42% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 4 Basin

Pumping Station 4 is located on PA-772 (Rothsville Road) near the intersection of Rothsville Road and Warwick Road. The pumping station receives flow from residences along Rothsville Road and Hollywood Avenue. There is one (1) trunk sewer that follows Rothsville Road. Two (2) sewer mains extend from this trunk sewer. The first extends from the trunk sewer and continues within Rothsville Road from Millwyck Road to East Newport Road. The second extends from the end of the trunk sewer and continues within Hollywood Avenue.

A skeleton model was built in SewerGEMS for the Pumping Station 4 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: R04-001 to R04-020 and R04-008 to R04-035. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF and PPF scenarios was determined as per the following calculations. Pumping Station 4 receives flow from Pumping Station 5 and Pumping Station 7, thus flows from these contributing pumping stations must first be deducted from the Pumping Station 4 flow to find the flow generated solely by the Pumping Station 4 sewage basin. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF generated solely by the connections in the sewer basin by the number of EDUs connected directly to the basin yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

Pumping Station 4 PAAF (gpd)	212,404
- Pumping Station 5 PAAF (gpd)	61,249
- Pumping Station 7 PAAF (gpd)	110,831
Pumping Station 4 Basin PAAF (gpd)	40,324
PAAF (gpd)	40,324
÷ EDUs Connected to Basin	180
PAAF per EDU (gpd/EDU)	224
PAAF per EDU (gpd/EDU)	224
× Peaking Factor	4
PPF per EDU (gpd/EDU)	896

For the present day scenarios, point loads were established in the model to represent a total of 212,404 gpd in the PAAF scenario and 849,616 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 268,350 gpd in the FAAF scenario and 1,073,398 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is R04-024 to R04-023 in all scenarios. This segment is located on Rothsville Road at the intersection with Millwyck Road. This segment's capacity is 1,054,340 gpd, with a flow to capacity ratio of 15% in the PAAF scenario, 59% in the PPF, 20% in the FAAF scenario, and 78% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 5 Basin

Pumping Station 5 is located in the Rothsville area on Picnic Woods Road, about 0.4 miles north of PA-772 (Main Street). The pumping station receives flow from residences near the intersection of Rothsville Station Road and East Newport Road. There are two (2) trunk sewers that convey flow by gravity to the pumping station. The first trunk sewer extends from the pumping station southward towards Main Street. The second trunk sewer extends from the pumping station west through a farm field towards Diane Avenue. Several sewer mains extend from these trunk sewers.

A skeleton model was built in SewerGEMS for the Pumping Station 5 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: R05-001 to R05-068, R05-066 to R05-070, R05-053 to R05-057, R05-064 to R05-077, R05-001 to R05-013, R05-009 to R05-025, R05-026 to R05-021, R05-044 to R05-019 and R05-020 to R05-028. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. Pumping Station 5 receives flow from Pumping Station 18, thus flows from Pumping Station 18 must first be deducted from Pumping Station 5's flow to find the flow generated solely by the Pumping Station 5 sewage basin. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF generated solely by the connections in the sewer basin by the number of EDUs connected directly to the basin yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

Pumping Station 5 PAAF (gpd)	61,249
- Pumping Station 18 PAAF (gpd)	17,684
Pumping Station 5 Basin PAAF (gpd)	43,565

PAAF (gpd)	43,565
÷ EDUs Connected to Basin	226
PAAF per EDU (gpd/EDU)	193

PAAF per EDU (gpd/EDU)	193
× Peaking Factor	4
PPF per EDU (gpd/EDU)	772

For the present day scenarios, point loads were established in the model to represent a total of 61,249 gpd in the PAAF scenario and 244,996 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 75,190 gpd in the FAAF scenario and 300,759 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is from R05-002 to R05-001 in all flow scenarios. This segment is located on Picnic Woods Road, just outside of the pumping station. This segment's capacity is 493,932 gpd, with a flow to capacity ratio of 10% in the PAAF scenario, 38% in the PPF scenario, 12% in the FAAF scenario, and 47% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 6 Basin

Pumping Station 6 is located at the intersection of East Millport Road and Karen Court. The pumping station receives flow from the residential neighborhood near Karen Court. There are two (2) trunk sewers that convey flow by gravity to the pumping station. The first trunk sewer extends from the pumping station heading north along Karen Court. The second trunk sewer extends from the pumping station heading west along East Millport Road. Several sewer mains extend from these two (2) trunk sewers.

A skeleton model was built in SewerGEMS for the Pumping Station 6 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L06-001 to L06-011, L06-001 to L06-032, L06-029 to L06-028, L06-015 to L06-014, L06-008 to L06-018, and L06-020 to L06-022. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	12,511
÷ EDUs Connected to Basin	96
PAAF per EDU (gpd/EDU)	130

PAAF per EDU (gpd/EDU)	130
× Peaking Factor	4
PPF per EDU (gpd/EDU)	520

For the present day scenarios, point loads were established in the model to represent a total of 12,511 gpd in the PAAF scenario and 50,044 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 15,505 gpd in the FAAF scenario and 62,018 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is from L06-002 to L06-001 in all scenarios. This segment is located on Karen Court, just outside of the pumping station. This segment's capacity is 510,968 gpd and a flow to capacity ratio of 1% in the PAAF scenario, 5% in the PPF scenario, 2% in the FAAF scenario, and 7% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 7 Basin

Pumping Station 7 is located along an access road to the east of Earl Lane, between the Twin Brook mobile home park and the Rolling Hill Drive neighborhood. The pumping station receives flow from the Twin Brook mobile home park, Rolling Hill Drive neighborhood, Windy Hill Drive neighborhood, Church Drive, and surrounding area. There are three (3) trunk sewers that convey flow by gravity to the pumping station. The first trunk sewer extends from the pumping station heading north-west towards the Twin Brook mobile home park. The second trunk sewer extends from the pumping station south-west towards the Windy Hill Drive neighborhood. The third trunk sewer extends from the pumping station east towards the Rolling Hill Drive neighborhood. There are several smaller sewer mains that connect to these trunk sewers.

A skeleton model was built in SewerGEMS for the Pumping Station 7 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: R07-001 to R07-005, R07-021 to R07-042, and R07-001 to R07-091. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. Pumping Station 7 receives flow from Pumping Station 8, thus flows from Pumping Station 8 must first be deducted from Pumping Station 7's flow to find the flow generated solely by the Pumping Station 7 sewage basin. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF generated solely by the connections in the sewer basin by the number of EDUs connected directly to the basin yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

Pumping Station 7 PAAF (gpd)	110,831
- Pumping Station 8 PAAF (gpd)	10,840
Pumping Station 7 Basin PAAF (gpd)	99,991
PAAF (gpd)	99,991
÷ EDUs Connected to Basin	390
PAAF per EDU (gpd/EDU)	256

PAAF per EDU (gpd/EDU)	256
× Peaking Factor	4
PPF per EDU (gpd/EDU)	1,024

For the present day scenarios, point loads were established in the model to represent a total of 110,831 gpd in the PAAF scenario and 443,324 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 152,836 gpd in the FAAF scenario and 611,343 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is from R07-021 to R07-001 in all scenarios. This segment is located on the access drive just outside of the pumping station. This segment's capacity is 716,904 gpd and a flow to capacity ratio of 11% in the PAAF scenario, 43% in the PPF scenario, 15% in the FAAF scenario, and 61% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 8 Basin

Pumping Station 8 is located in the Rothsville area on East Newport Road, a short distance east of the intersection of East Newport Road and Homestead Drive. This pumping station receives flow by gravity from two (2) trunk sewers. The first trunk sewer extends from the pumping station northwest along East Newport Road, continuing past the intersection with Rothsville Road, terminating half-way between Rothsville Road and Old Rothsville Road. The second trunk sewer extends from the pumping station southwest, crossing East Newport Road, then turning to the northwest to Homestead Drive. There are several smaller sewer mains that continue from Homestead Drive and extend throughout the entire residential neighborhood in that area, primarily following residential streets.

A skeleton model was built in SewerGEMS for the Pumping Station 8 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: R08-001 to

R08-015, R08-002 to R08-003, and R08-001 to R08-025. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	10,840
÷ EDUs Connected to Basin	106
PAAF per EDU (gpd/EDU)	102

PAAF per EDU (gpd/EDU)	102
× Peaking Factor	4
PPF per EDU (gpd/EDU)	408

For the present day scenarios, point loads were established in the model to represent a total of 10,840 gpd in the PAAF scenario and 43,360 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 20,990 gpd in the FAAF scenario and 83,962 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is from R08-022 to R08-021 in all scenarios. This segment is located on Main Street near the intersection with Rothsville Road. This segment's capacity is 493,932 gpd and has a flow to capacity ratio of 1% in the PAAF scenario, 3% in the PPF scenario, 2% in the FAAF scenario, and 9% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 9 Basin

Pumping Station 9 is located on Shelley Court in the far southwest corner of the Township. This pumping station receives flow by gravity from the residential developments along Woodcrest Avenue, from Millport Road to Sixth Street. There is one (1) trunk sewer in this basin, extending both northeast and southwest from the pumping station along Woodcrest Avenue. There are several smaller sewer mains that extend throughout the entire residential neighborhood in that area, primarily following residential streets.

A skeleton model was built in SewerGEMS for the Pumping Station 9 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L09-001 to L09-008, L09-007 to L09-006, L09-009 to L09-014, L09-009 to L09-011, L09-006 to L09-013, L09-015 to L09-022, L09-004 to L09-047, L09-032 to L09-043, L09-023 to L09-030, and L09-031 to L09-026. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	24,500
÷ EDUs Connected to Basin	179
AAF per EDU (gpd/EDU)	137
AAF per EDU (gpd/EDU)	137
× Peaking Factor	4
PPF per EDU (gpd/EDU)	548

For the present day scenarios, point loads were established in the model to represent a total of 24,500 gpd in the PAAF scenario and 98,000 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 25,661

gpd in the FAAF scenario and 102,644 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is from L09-015 to L09-004 in all scenarios. This segment is located on Woodcrest Avenue near the intersection with West Third Street. This segment's capacity is 493,932 gpd, with a flow to capacity ratio of 3% in the PAAF scenario, 14% in the PPF scenario, 4% in the FAAF scenario, and 15% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 10 Basin

Pumping Station 10 is located on Furnace Hills Pike in the northern part of the Township. The pumping station receives flow from the Brookwood Drive residential development and residences on side streets in the Lexington area from PA-501 to Elbow Road and from Chestnut Street to Ashley Drive. There are three (3) trunk sewers that convey flow by gravity to the pumping station. The first extends from the pumping station westward, crosses PA-501, then turns north to enter the Brookwood Drive development. The second extends from the pumping station eastward a short distance then terminates with smaller sewer mains extending from this point both north and south. The third extends from the pumping station north along PA-501 a short distance then veers right along Loop Road. There are many smaller sewer mains that connect to the three (3) trunk sewers.

A skeleton model was built in SewerGEMS for the Pumping Station 10 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L10-001 to L10-008, L10-003 to L10-028, L10-075 to L10-078, L10-071 to L10-092, L10-071 to L10-081, and L10-001 to L10-048. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are

assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	27,994
÷ EDUs Connected to Basin	247
PAAF per EDU (gpd/EDU)	113

PAAF per EDU (gpd/EDU)	113
× Peaking Factor	4
PPF per EDU (gpd/EDU)	452

For the present day scenarios, point loads were established in the model to represent a total of 27,994 gpd in the PAAF scenario and 111,976 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 44,428 gpd in the FAAF scenario and 177,711 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

In the PAAF and PPF scenarios, the most restrictive segment is from L10-073 to L10-072. This section is located on Furnace Hills Pike, just outside of the pumping station. The segment's capacity is 493,932 gpd, and has a flow to capacity ratio of 2% in the PAAF scenario, and 8% in the PPF scenario.

In the FAAF and FPF scenarios, the most restrictive segment is from L10-002 to L10-001. This segment is located to the east of the pumping station, just outside of the pumping station. This segment's capacity is 631,928 gpd, and has a flow to capacity ratio of 4% in the FAAF scenario, and 16% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 11 Basin

Pumping Station 11 is located on Hackman Road in the northeastern part of the Township. This pumping station receives flow from residences in the Brunnerville area. There are two (2) trunk sewers that convey flow by gravity to the pumping station. The first extends from the pumping station southward on Hackman Road. The second extends from the pumping station southward along a nearby stream. There are several smaller sewer mains that extend from the trunk sewers to residences along Brunnerville Road, Lincoln Road, Church Street, and Front Street.

A skeleton model was built in SewerGEMS for the Pumping Station 11 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L11-001 to L11-013, L11-047 to L11-052, L11-001 to L11-005, L11-047 to L11-054, and L11-007 to L11-047. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	36,412
÷ EDUs Connected to Basin	131
PAAF per EDU (gpd/EDU)	278

PAAF per EDU (gpd/EDU)	278
× Peaking Factor	4
PPF per EDU (gpd/EDU)	1,112

For the present day scenarios, point loads were established in the model to represent a total of 36,412 gpd in the PAAF scenario and 145,648 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 37,970

gpd in the FAAF scenario and 151,880 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is L11-001 to PS11 (the segment between the last manhole and the pumping station, also called CO-11 in SewerGEMS) in all scenarios. This segment's capacity is 563,056 gpd and a flow to capacity ratio of 6% in the PAAF, 26% in the PPF scenario, 7% in the FAAF scenario, and 27% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 12 Basin

Pumping Station 12 is located on Pine Hill Road in the northeastern part of the Township. This pumping station receives flow from a residential development east of Brunnerville and from residences along Pine Hill Road. There is one (1) trunk sewer that conveys flow by gravity to the pumping station. This trunk sewer extends from the pumping station in both a northwestern and southeastern direction along Pine Hill Road. There are no other gravity sewer mains in this basin. However, there are several low pressure sewer systems that connect to the trunk sewer.

A skeleton model was built in SewerGEMS for the Pumping Station 12 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L12-001 to L12-010 and L12- 001 to L12-013. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	12,227
÷ EDUs Connected to Basin	95
AAF per EDU (gpd/EDU)	329

AAF per EDU (gpd/EDU)	329
× Peaking Factor	4
PPF per EDU (gpd/EDU)	1,316

For the present day scenarios, point loads were established in the model to represent a total of 12,227 gpd in the PAAF scenario and 48,908 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 38,377 gpd in the FAAF scenario and 153,508 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is from L12-004 to L12-003 in all scenarios. This segment is located on Pine Hill Road, just south of the intersection with Fox Run Terrace. This segment's capacity is 493,932 gpd and a flow to capacity ratio of 2% in the PAAF scenario, 8% in the PPF scenario, 5% in the FAAF scenario, and 19% in the FPF scenario. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 13 Basin

Pumping Station 13 is located on East Market Street in Dean Saylor Park. This pumping station receives flow from the Kreider-May residential development, the Laurie Lane residential development, the Silver Creek Road development, Coventry Lane development, Wynfield Drive, Rock Lititz, United Zion, and surrounding residences and businesses. There is one (1) trunk sewer that extends from the pumping station along the Santo Domingo creek to PA-501 and continues north to Japonica Drive. There are many smaller sewer mains throughout the previously listed developments that connect to this trunk sewer.

A skeleton model was built in SewerGEMS for the Pumping Station 13 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L13-001 to L13-120, L13-026 to L13-175, L13-165 to L13-253, and L13-031 to L13-042. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the AAF and PF scenarios was determined as per the following calculations. Pumping Station 13 receives flow from Pumping Station 10, thus flows from this contributing pumping station must first be deducted from the Pumping Station 13 flow to find the flow generated solely by the Pumping Station 13 sewage basin. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF generated solely by the connections in the sewer basin by the number of EDUs connected directly to the basin yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

Pumping Station 13 PAAF (gpd)	353,843
- Pumping Station 10 PAAF (gpd)	27,994
Pumping Station 13 Basin PAAF (gpd)	325,849
PAAF (gpd)	314,021
÷ EDUs Connected to Basin	1,196
PAAF per EDU (gpd/EDU)	263
PAAF per EDU (gpd/EDU)	263
× Peaking Factor	4
PPF per EDU (gpd/EDU)	1,052

For the present day scenarios, point loads were established in the model to represent a total of 353,843 gpd in the PAAF scenario and 1,415,372 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented at a total of 454,302 gpd in the FAAF scenario and 1,817,207 gpd in the FPF scenario. It should be noted that the future scenario flows of 454,302 gpd and 1,817,207 gpd are higher than the

projected flows indicated in the Pumping Station 13 projection in **Appendix C**. This is because planned inflow and infiltration (I&I) reductions were accounted for in the Pumping Station 13 projection, but I&I reductions were not factored into the SewerGEMS model. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is from L13-031 to L13-030 in all scenarios. This segment is located just east of Furnace Hills Pike, near Keller Brothers Dodge. This segment's capacity is 1,010,359 gpd and has a flow to capacity ratio of 27% in the PAAF scenario, 107% in the PPF scenario, 29% in the FAAF scenario, and 117% in the FPF scenario. L13-031 to L13-030 is the only hydraulically overloaded segment in the PPF scenario. There were a total of two (2) segments that had a flow to capacity ratio exceeding 100% in the FPF scenario, namely L13-031 to L13-030 and L13-030 to L13-029. Because the flow to capacity ratio exceeds 100% in these two (2) segments, they have been identified as hydraulically overloaded. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

To eliminate the hydraulic overload in these identified segments, flow must be reduced below the most restrictive segment's capacity. The most restrictive segment, L13-031 to L13-030, has a capacity of 1,010,359 gpd and flow is 298,460 gpd in the FAAF scenario. Dividing the capacity by the FAAF, the peaking factor must be 3.38 or less. A concerted inflow and infiltration program should be able to reduce the peaking factor to this value and thus reduce peak flows below theoretical pipe capacities.

Pumping Station 14 Basin

Pumping Station 14 is located on West Orange Street, near the intersection with Pfautz Avenue. This pumping station receives flow from the Buttonwood Drive residential development. There is one (1) trunk sewer that conveys flow by gravity to the pumping station. This trunk sewer extends from the pumping station and continues both west and east on West Orange Street. There are also many smaller sewer mains that extend from the trunk sewer, continuing sewer service into the Buttonwood residential development.

A skeleton model was built in SewerGEMS for the Pumping Station 14 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L14-066 to L14-037, L14-067 to L14-059, L14-056 to L14-042, L14-042 to L14-046, L14-029 to L14-042, L14-037 to L14-041, L14-075 to L14-028, L14-041 to L14-037, L14-036 to L14-028, L14-019 to L14-028, L14-026 to L14-024, L14-080 to L14-024, L14-089 to L14-086, L14-018 to L14-016, L14-090 to L14-001, L14-006 to L14-001 and L14-001 to Pumping Station 14. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	37,877
÷ EDUs Connected to Basin	300
PAAF per EDU (gpd/EDU)	126

PAAF per EDU (gpd/EDU)	126
× Peaking Factor	4
PPF per EDU (gpd/EDU)	504

For the present day scenarios, point loads were established in the model to represent a total of 37,877 gpd in the PAAF scenario and 151,508 gpd in the PPF scenario. The FAAF and FPF scenarios are the same, as no future growth is expected in this sewage basin. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is L14-016 to L14-001 in all scenarios. This segment is located on West Orange Street, between Pfautz Avenue and the pumping station. This segment's capacity is 431,673 gpd and has a flow to capacity ratio of 8% in the PAAF and FAAF scenarios, and 31% in the PPF and FPF scenarios. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin.

See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 15 Basin

Pumping Station 15 is located on West Third Avenue, near the intersection of West Third Avenue and South Walnut Street. This pumping station receives flow from the Crosswinds development. There are two (2) trunk sewers that convey flow by gravity to the pumping station. The first trunk sewer extends from the pumping station in a northwest direction towards Woodcrest Avenue, at which point it makes a left turn onto Woodcrest Avenue and continues on Woodcrest Avenue until it reaches West Sixth Street. The second trunk sewer extends from the pumping station in a southeast direction towards Irish Place, making two (2) turns to follow parcel boundaries until it reaches Irish Place. There are several smaller sewer mains that connect to these two (2) trunk sewers.

A skeleton model was built in SewerGEMS for the Pumping Station 15 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L15-004 to L15-013, L15-008 to L15-011, L15-025 to L15-033, L15-028 to L15-030, and L15-025 to L15-027. Also, survey data and as-built drawings were not available from the pumping station to manhole L15-004 and from the pumping station to L15-025. For this reason, the missing segments were not populated in SewerGEMS and SewerGEMS was unable to calculate the capacity and flow rates for these segments. Instead, until survey data or as-built drawings become available, the capacity for the missing segments is assumed to be 494,371 gpd, the theoretical full flow capacity for an 8” diameter pipe at minimum slope. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	6,844
÷ EDUs Connected to Sub-Basin	87
PAAF per EDU (gpd/EDU)	79

PAAF per EDU (gpd/EDU)	79
× Peaking Factor	4
PPF per EDU (gpd/EDU)	316

For the present day scenarios, point loads were established in the model to represent a total of 6,844 gpd in the PAAF scenario and 27,376 gpd in the PPF scenario. The FAAF and FPF scenarios are the same, as no future growth is expected in this sewage basin. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is assumed to be L15-002 to L15-001 in all scenarios. This segment is located between Woodcrest Avenue and the pumping station. As previously noted, there were no as-built drawings or survey data available for this segment, so minimum slope was assumed. As such, this segment's capacity is 494,371 gpd and the segment has a flow to capacity ratio of 1% in the PAAF and FAAF scenarios, and 4% in the PPF and FPF scenarios. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 16 Basin

Pumping Station 16 is located on Cardinal Road, just south of the intersection of Chukar Court and Cardinal Road. This pumping station receives flow from the Cardinal Road residential development, an apartment complex on Brunnerville Road, and Hometowne Terrace Apartments. There are three (3) trunk sewers that convey flow by gravity to the pumping station. The first extends in an easterly direction from the pumping station to Cardinal Road. The second extends in a northerly direction from the pumping station towards the Hometowne Terrace Apartments. The third extends in a southwesterly direction towards the apartment complex on Brunnerville Road. There are several smaller sewer mains that extend from the first sewer main throughout the Cardinal Road development.

A skeleton model was built in SewerGEMS for the Pumping Station 16 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: L16-001 to L16-007, L16-002 to L16-017, L16-003 to L16-016, L16-004 to L16-014, L16-012 to L16-011, and L16-009 to L16-015. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the PAAF, PPF, FAAF, and FPF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	31,648
÷ EDUs Connected to Sub-Basin	218
PAAF per EDU (gpd/EDU)	145

PAAF per EDU (gpd/EDU)	145
× Peaking Factor	4
PPF per EDU (gpd/EDU)	580

For the present day scenarios, point loads were established in the model to represent a total of 31,648 gpd in the PAAF scenario and 126,592 gpd in the PPF scenario. The FAAF and FPF scenarios are the same, as no future growth is expected in this sewage basin. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is L16-002 to L16-001 in all scenarios. This segment is located just to the south and outside of the pumping station. This segment's capacity is 604,941 gpd and has a flow to capacity ratio of 5% in the PAAF and FAAF scenarios, and 21% in the PPF and FPF scenarios. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

Pumping Station 18 Basin

Pumping Station 18 is located on Briar Hill Road, to the north of Rothsville Road and to the east of Meadow Valley Road. This pumping station receives flow from the Santa Fe Drive residential development and the Iron Horse Drive residential development. There is one (1) trunk sewer that conveys flow by gravity to the pumping station. The trunk sewer extends from the pumping station in a southerly direction along Briar Hill Road. There are also several smaller sewer mains that extend from the trunk sewer throughout the two (2) residential developments.

A skeleton model was built in SewerGEMS for the Pumping Station 18 sewage basin. The model included major interceptors and trunk sewers and excluded smaller sewer mains. Accordingly, the following segments were modeled, listed by manhole number at the endpoints: R18-001 to R18-016, R18-015 to R18-014, R18-009 to R18-022, R18-015 to R18-014, and R18-004 to R18-028. See **Appendix E** for a depiction of the SewerGEMS model.

The flow per EDU corresponding to the AAF and PF scenarios was determined as per the following calculations. The PAAFs and EDUs listed below were provided in the 2019 Chapter 94 Report. Dividing the PAAF by the number of EDUs yields the PAAF per EDU. Multiplying by a peaking factor of 4.0 yields the PPF per EDU. Future sewer use patterns are assumed to remain the same as present, thus the FAAF per EDU value is the same as the PAAF per EDU value, and the FPF per EDU is the same as the PPF per EDU value.

PAAF (gpd)	17,684
÷ EDUs Connected to Sub-Basin	89
PAAF per EDU (gpd/EDU)	199

PAAF per EDU (gpd/EDU)	199
× Peaking Factor	4
PPF per EDU (gpd/EDU)	796

For the present day scenarios, point loads were established in the model to represent a total of 17,684 gpd in the PAAF scenario and 70,736 gpd in the PPF scenario. For the future scenarios, additional point loads were applied to the model representing the additional expected flows from future development. Including future developments, all point loads represented a total of 28,044 gpd in the FAAF scenario and 112,032 gpd in the FPF scenario. See **Appendix F** for a table summarizing the magnitude and location of each point load applied in the model.

The most restrictive segment is R18-002 to R18-001 in all scenarios. This segment is located on Briar Hill Road, just outside of the pumping station. This segment's capacity is 523,300 gpd and has a flow to capacity ratio of 4% in the PAAF and FAAF scenarios, and 15% in the PPF and FPF scenarios. All segments had a flow to capacity ratio of less than 100% in all scenarios, thus there were no hydraulically overloaded segments identified in this sewer basin. See **Appendix G** for a summary of all modeled segments, capacities, flows, and flow to capacity ratios.

5.0 CONCLUSIONS

In summary, skeleton models were created in SewerGEMS for each of WTMA's sewage basins. The skeleton models included major interceptors and trunk sewer segments and excluded smaller sewer mains. SewerGEMS was used to calculate hydraulic capacities in each sewer segment in the modeled basins. Present and future flow scenarios were also calculated in SewerGEMS. From the output of these models and scenarios, most restrictive sections were identified which have the least capacity in each basin, and hydraulically overloaded segments were determined. The following table summarizes the most restrictive segments and the hydraulically overloaded segments identified in each basin.

Basin	Most Restrictive Segments	Overloaded Segments
Pierson Road Interceptor (Meter Pit #1)	LTP-033 to LTP-032	None
Brunnerville Interceptor (Meter Pit #2)	LTP-076 to LTP-075	None
Pumping Station 1	L01-044 to L01-043; L01-002 to L01-001	L01-007 to L01-006 L01-008 to L01-007 L01-005 to L01-003; L01-003 to L01-002; L01-002 to L01-001
Pumping Station 2	L02-008 to L02-007	None
Pumping Station 3	L03-039 to L03-017	None
Pumping Station 4	R04-024 to R04-023	None
Pumping Station 5	R05-002 to R05-001	None
Pumping Station 6	L06-002 to L06-001	None
Pumping Station 7	R07-021 to R07-001	None
Pumping Station 8	R08-022 to R08-021	None
Pumping Station 9	L09-015 to L09-004	None
Pumping Station 10	L10-073 to L10-072; L10-002 to L10-001	None
Pumping Station 11	L11-001 to PS11	None
Pumping Station 12	L12-004 to L12-003	None
Pumping Station 13	L13-031 to L13-030	L13-031 to L13-030; L13-030 to L13-029
Pumping Station 14	L14-016 to L14-001	None
Pumping Station 15	L15-002 to L15-001	None
Pumping Station 16	L16-002 to L16-001	None
Pumping Station 18	R18-002 to R18-001	None

In total, there were seven (7) segments which are potentially overloaded in the Future Peak Flow scenario. In order to avoid hydraulic overloads, the peaking factor must be

reduced to 3.22 or less in the Pumping Station 1 Basin, and 3.38 or less in the Pumping Station 13 Basin.

6.0 RECOMMENDATIONS

Based on the results of this study, we offer the following recommendations:

1. Conduct field surveys to confirm inverts, pipe diameters, pipe materials, and capacities in potentially overloaded or near-overloaded segments. As discussed above, a corrected, field verified model will allow WTMA to make better informed decisions and possibly avoid costly upgrades to interceptors that are currently identified as overloaded due to potentially incorrect data.

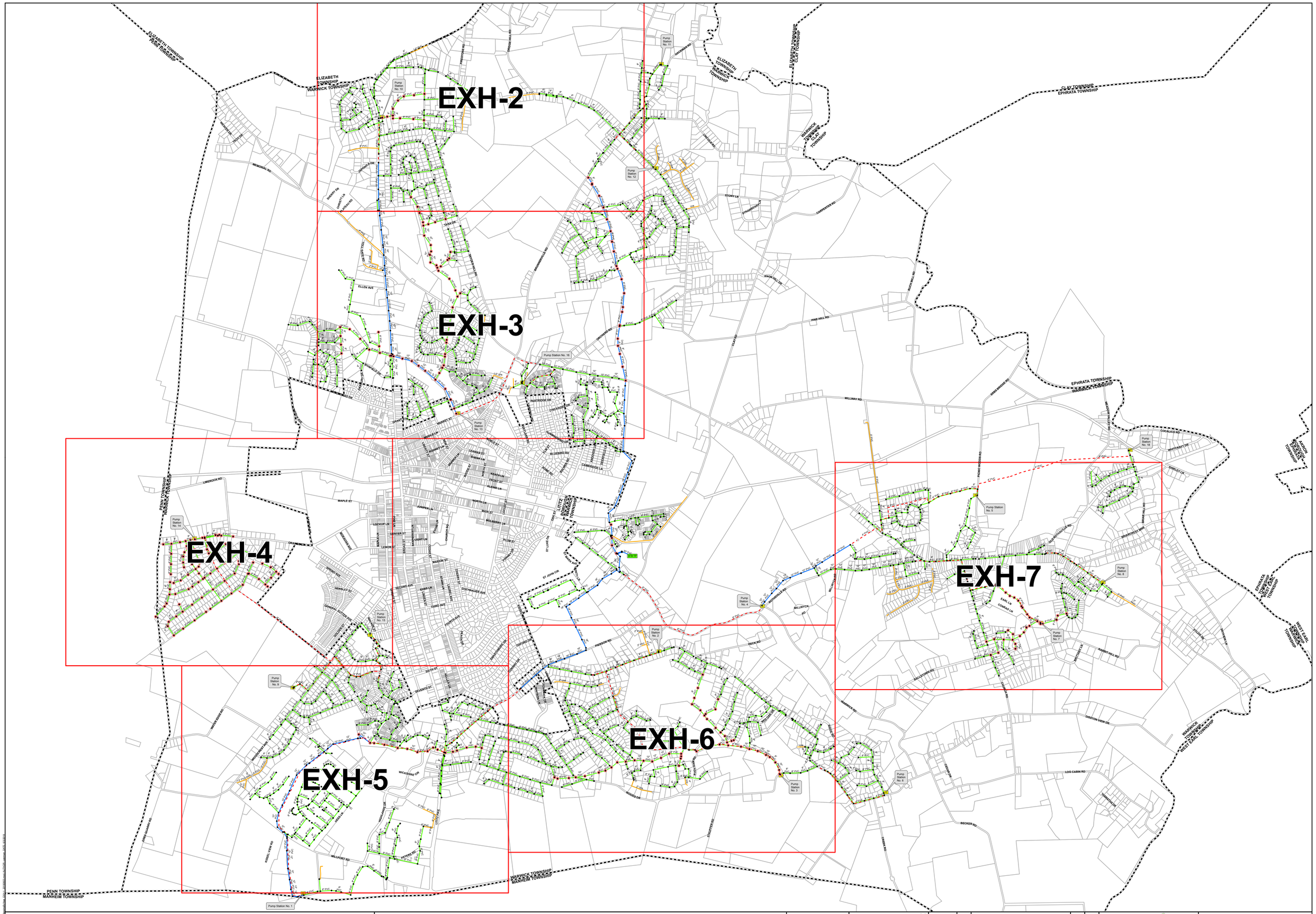
2. Conduct flow monitoring to confirm and calibrate flows estimated in the SewerGEMS model.

3. Implement an aggressive inflow and infiltration program to avoid potential hydraulic overloads in WTMA's collection system, repairing known sewer lateral issues and sewer main deficiencies. Sewer lateral issues and sewer main deficiencies are typically significant contributors to I/I in WTMA's system; thus, WTMA will get the most significant return on investment by focusing on laterals and sewer main deficiencies as opposed to manhole deficiencies.

4. Expand the SewerGEMS model beyond the interceptors and major trunk lines to evaluate pipe capacities in the smaller segments of the collection system.

Appendix A

Map of WTMA Sewer System



WARWICK TOWNSHIP MUNICIPAL AUTHORITY

LANCASTER COUNTY, PENNSYLVANIA

SEWER REHAB & EXCAVATION WORK

COLOR CODED BY PHASE (2019, 2020, 2021+)

Legend

- Sewer Manhole
- 2018/19 I & I Program
- Air Release Valve
- Pump Station
- Wastewater Treatment Plant
- Gravity Main
- Gravity Interceptor
- Force Main
- LPSS
- Grid Index
- Parcel
- Municipal Boundary

DATA CREDITS

Sewer Data: Entech Engineering 2019
Local Road: County of Lancaster 2017
State Road: County of Lancaster 2017
Parcel: County of Lancaster 2018
Municipal Boundary: PennDOT 2018
County Boundary: PennDOT 2018

STATEMENT OF ACCURACY

Unless otherwise noted, locations of map features should be considered approximate. Data was incorporated as the best available information at the time of publication, but may be inaccurate, incomplete, or current. The mapped data does not constitute a legal survey, and discretion should be exercised when using the information for engineering design purposes.

N

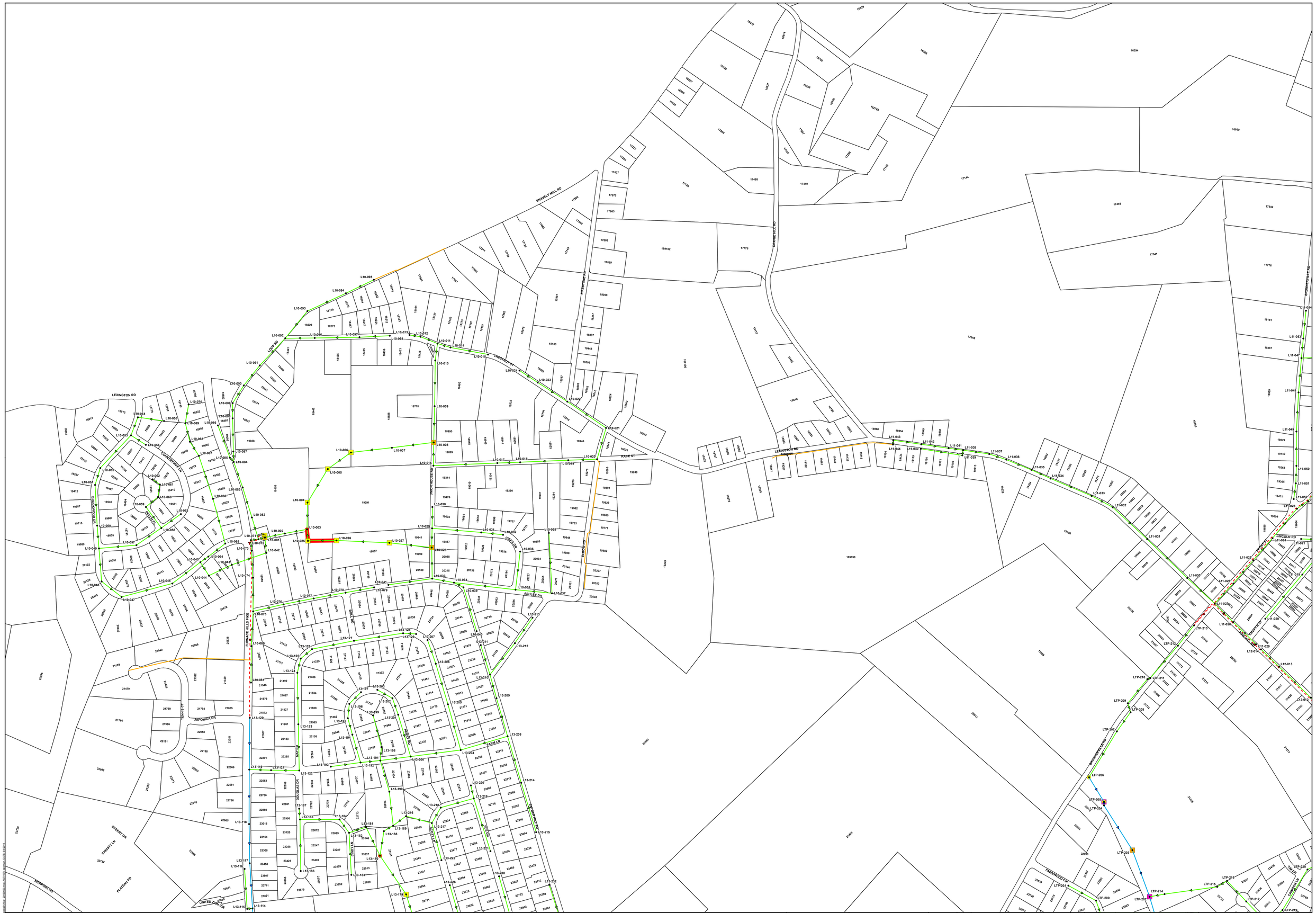
0 500 1,000 Feet

DATE	REV	ISSUED FOR / REVISED	TECH	APPD
06/03/19	1	MANHOLE REHAB/REPAIR CAT. UPDATED	CRZ	TAL
05/23/19	0	CLIENT REVIEW	CRR	TAL

LANCASTER COUNTY

ENTECH ENGINEERING 1.800.825.1372 www.entecheng.com

DATE	PREPARED	CHECKED	PROJECT ENGINEER
06/03/19	CRZ	LAB	TAL
PROJECT	SCALE	DRAWING NO.	
4185.072	1 " = 800 '	EXH-1	



WARWICK TOWNSHIP MUNICIPAL AUTHORITY

LANCASTER COUNTY, PENNSYLVANIA

SEWER REHAB & EXCAVATION WORK

COLOR CODED BY PHASE (2019, 2020, 2021+)

Legend

- Sewer Manhole
- Sewer Pump Station
- WWTP Wastewater Treatment Plant
- 2019 Manhole Work (WTMA Dig Repairs)
- 2019 Manhole Work (Dig Repairs)
- 2020 Manhole Work (Dig Repairs)
- 2021 Manhole Work (Dig Repairs)
- Early-2019 Manhole Work (Trenchless Rehab)
- Mid-2019 Manhole Work (Trenchless Rehab)
- 2020 Manhole Work (Trenchless Rehab)
- 2021 Manhole Work (Trenchless Rehab)
- Gravity Main
- Interceptor
- Force Main
- LPSS
- 2019 Sewer Main Work (Dig Repairs)
- Parcel

DATA CREDITS

Sewer Data: Entech Engineering Inc.
Local Road: PennDOT 2015
State Road: PennDOT 2015
Parcel: County of Lancaster PA
Municipal Boundary: PennDOT 2018
County Boundary: PennDOT 2018

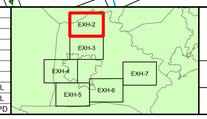
STATEMENT OF ACCURACY

Unless otherwise noted, locations of map features should be considered approximate. Data was incorporated as the best available information at the time of mapping, and may not be accurate, complete, or current. The mapped data does not constitute a legal survey, and discretion should be exercised when using the information for engineering design purposes.

0 200 400 Feet

N

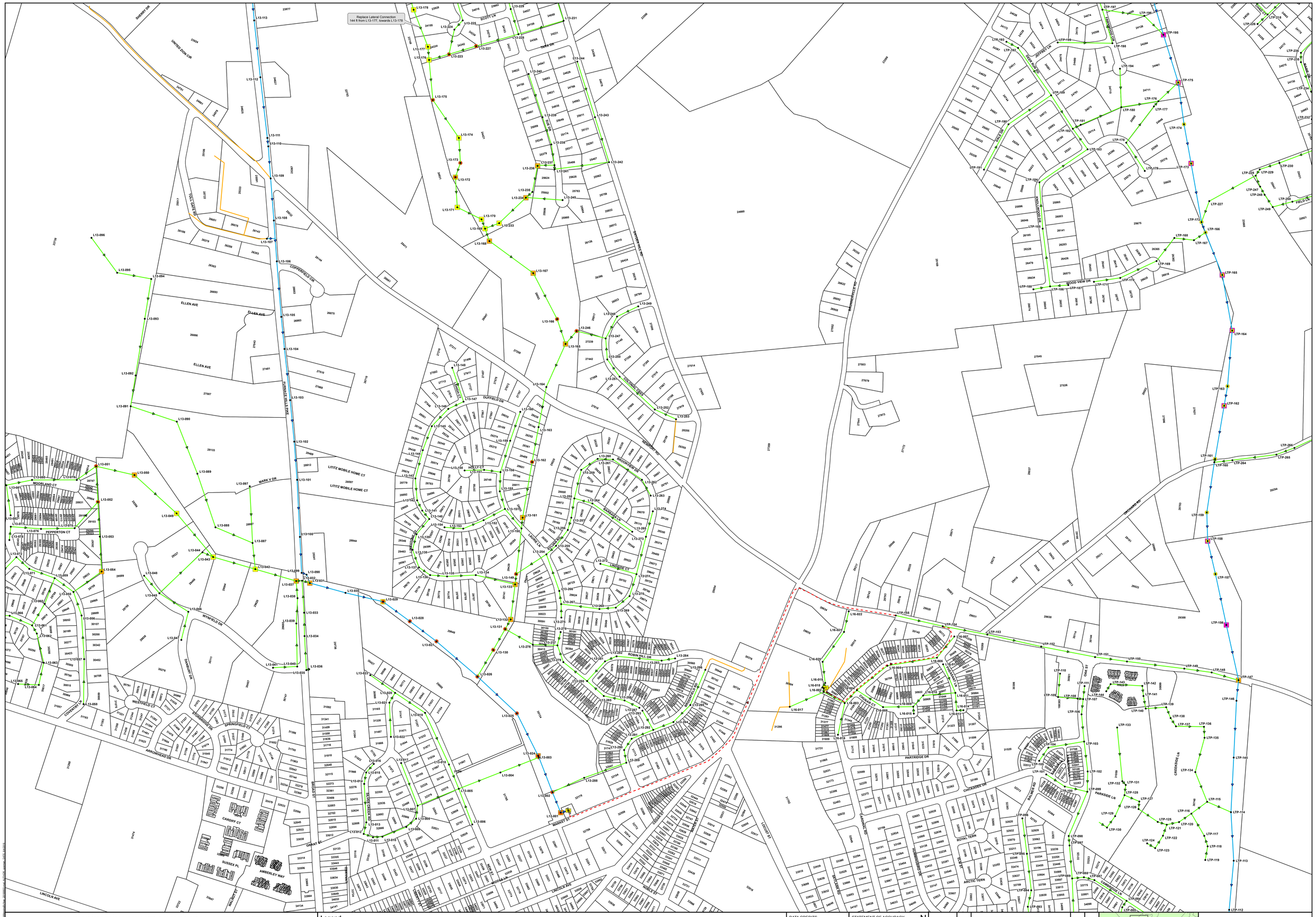
DATE	REV	ISSUED FOR / REVISED	TECH	APPD
06/03/19	1	MANHOLE REHAB/REPAIR CAT. UPDATED	CRZ	TAL
05/23/19	0	CLIENT REVIEW	CRZ	TAL



ENTECH ENGINEERING
1.800.825.1372
www.entecheng.com

DATE	PREPARED	CHECKED	PROJECT ENGINEER
06/03/19	CRZ	LAB	TAL

PROJECT	SCALE	DRAWING NO.
4185.072	1 " = 200 '	EXH-2



WARWICK TOWNSHIP MUNICIPAL AUTHORITY

LANCASTER COUNTY, PENNSYLVANIA

SEWER REHAB & EXCAVATION WORK

COLOR CODED BY PHASE (2019, 2020, 2021+)

Legend

- Sewer Manhole
- Sewer Pump Station
- WWTP Wastewater Treatment Plant
- 2019 Manhole Work (WTMA Dig Repairs)
- 2019 Manhole Work (Dig Repairs)
- 2020 Manhole Work (Dig Repairs)
- 2021 Manhole Work (Dig Repairs)
- Early-2019 Manhole Work (Trenchless Rehab)
- Mid-2019 Manhole Work (Trenchless Rehab)
- 2020 Manhole Work (Trenchless Rehab)
- 2021 Manhole Work (Trenchless Rehab)
- Gravity Main
- Interceptor
- Force Main
- LPSS
- 2019 Sewer Main Work (Dig Repairs)
- Parcel

DATA CREDITS

Sewer Data: Entech Engineering Inc.
Local Road: PennDOT 2015
State Road: PennDOT 2015
Parcel: County of Lancaster PA
Municipal Boundary: PennDOT 2018
County Boundary: PennDOT 2018

STATEMENT OF ACCURACY

Unless otherwise noted, locations of map features should be considered approximate. Data was incorporated as the best available information at the time of mapping, and may not be accurate, complete, or current. The mapped data does not constitute a legal survey, and discretion should be exercised when using the information for engineering design purposes.

N

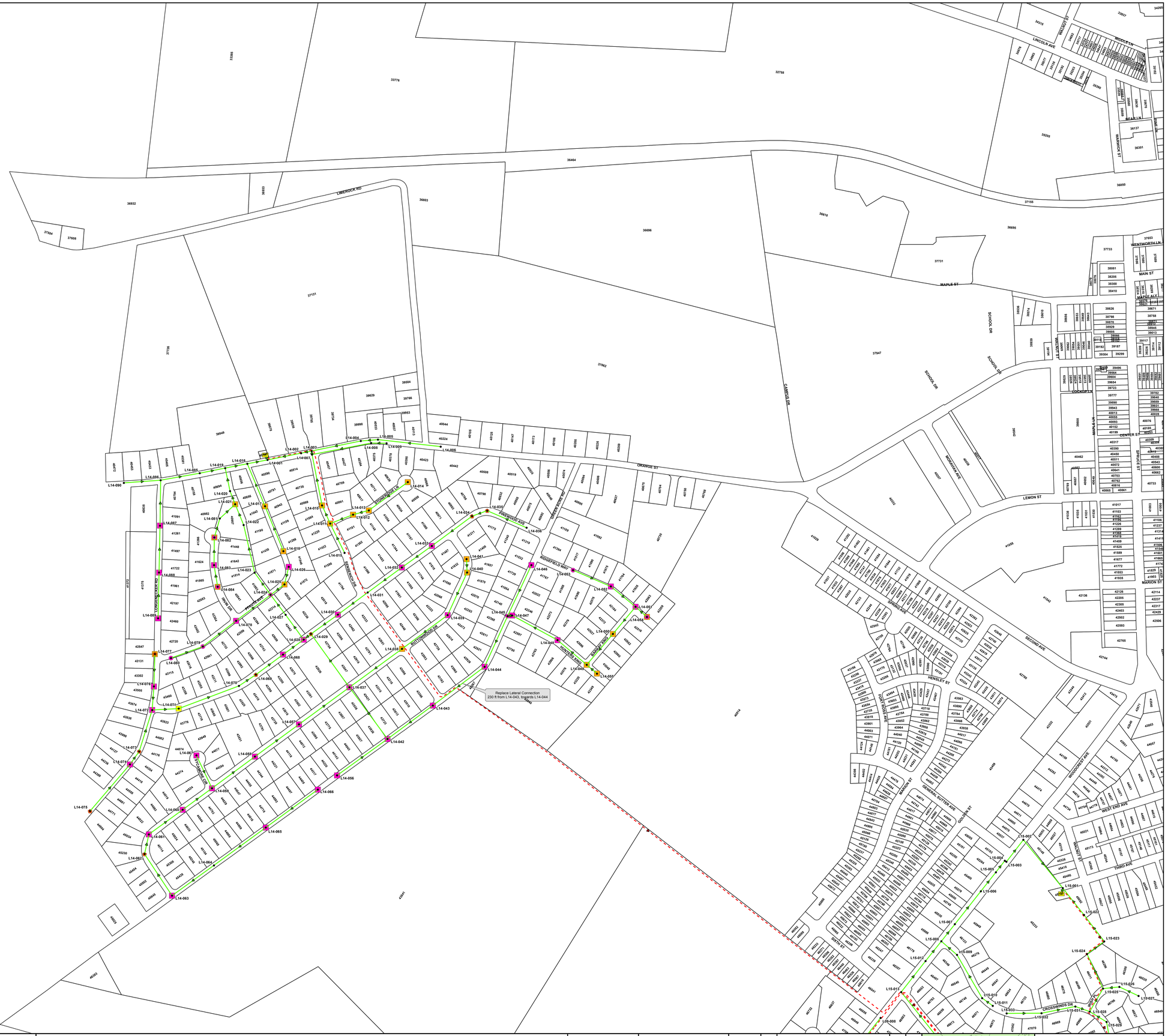
0 200 400 Feet

DATE	REV	ISSUED FOR / REVISED	TECH	APPD
06/03/19	1	MANHOLE REHAB/REPAIR CAT. UPDATED	CRZ	TAL
05/23/19	0	CLIENT REVIEW	CRZ	TAL

EXH-2 EXH-3 EXH-4 EXH-5 EXH-6 EXH-7

ENTECH ENGINEERING 1.800.825.1372 www.entechengr.com

DATE	PREPARED	CHECKED	PROJECT ENGINEER
06/03/19	CRZ	LAB	TAL
PROJECT	SCALE	DRAWING NO.	
4185.072	1 " = 200 '	EXH-3	



WARWICK TOWNSHIP MUNICIPAL AUTHORITY

LANCASTER COUNTY, PENNSYLVANIA

SEWER REHAB & EXCAVATION WORK

COLOR CODED BY PHASE (2019, 2020, 2021+)

Legend

- Sewer Manhole
- Sewer Pump Station
- WWTP Wastewater Treatment Plant
- 2019 Manhole Work (WTMA Dig Repairs)
- 2019 Manhole Work (Dig Repairs)
- 2020 Manhole Work (Dig Repairs)
- 2021 Manhole Work (Dig Repairs)
- Early-2019 Manhole Work (Trenchless Rehab)
- Mid-2019 Manhole Work (Trenchless Rehab)
- 2020 Manhole Work (Trenchless Rehab)
- 2021 Manhole Work (Trenchless Rehab)
- Gravity Main
- Interceptor
- Force Main
- LPSS
- 2019 Sewer Main Work (Dig Repairs)
- Parcel

DATA CREDITS

Sewer Data: Entech Engineering Inc.
Local Road: PennDOT 2015
State Road: PennDOT 2015
Parcel: County of Lancaster PA
Municipal Boundary: PennDOT 2018
County Boundary: PennDOT 2018

STATEMENT OF ACCURACY

Unless otherwise noted, locations of map features should be considered approximate. Data was incorporated as the best available information at the time of mapping, and may not be accurate, complete, or current. The mapped data does not constitute a legal survey, and discretion should be exercised when using the information for engineering design purposes.

0 200 400 Feet

N

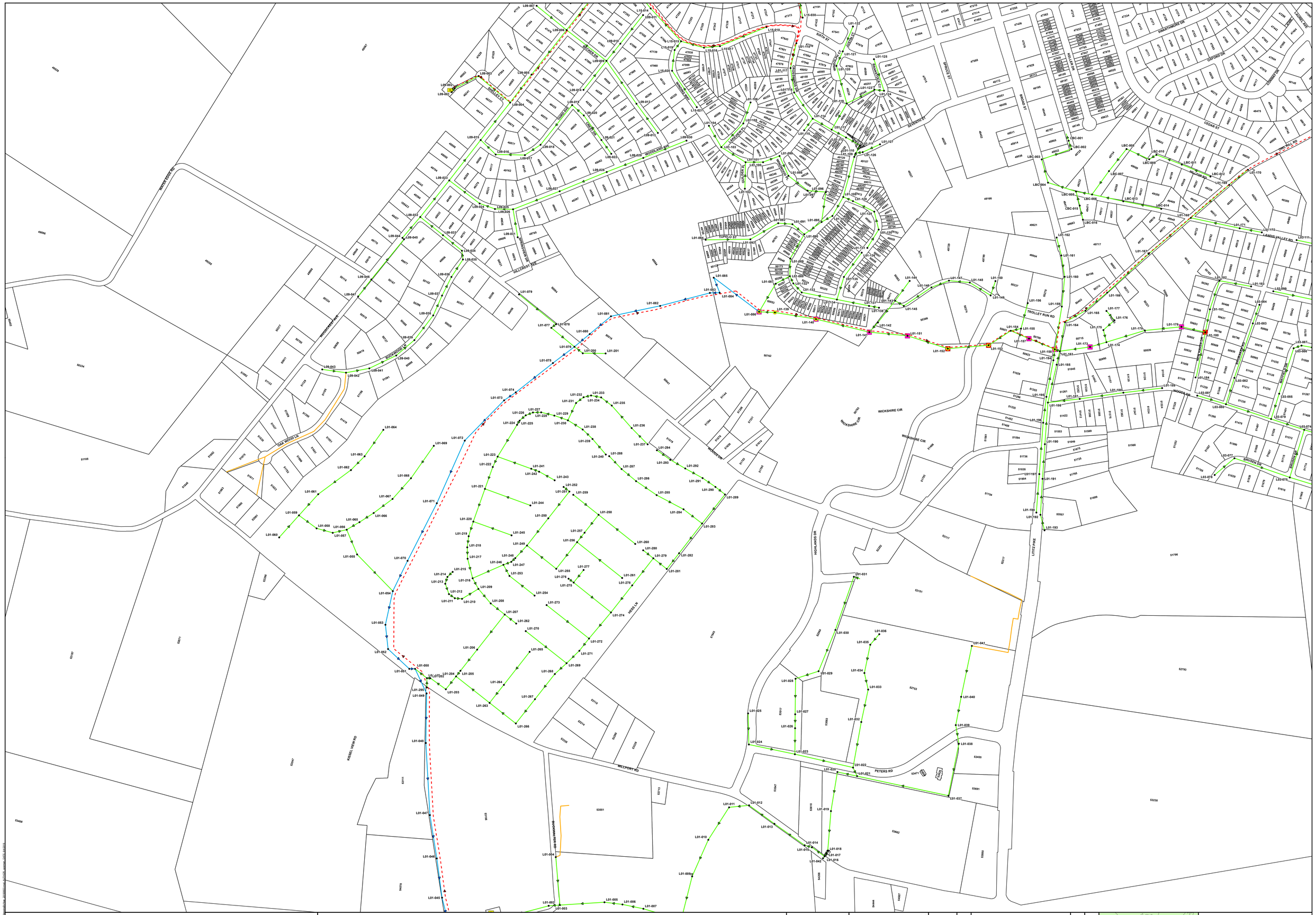
DATE	REV	ISSUED FOR / REVISED	TECH	APPD
06/03/19	1	MANHOLE REHAB/REPAIR CAT. UPDATED	CRZ	TAL
05/23/19	0	CLIENT REVIEW	CRZ	TAL

EXH-2 EXH-3 EXH-4 EXH-5 EXH-6 EXH-7

ENTECH ENGINEERING
1.800.825.1372
www.entecheng.com

DATE	PREPARED	CHECKED	PROJECT ENGINEER
06/03/19	CRZ	LAB	TAL

PROJECT	SCALE	DRAWING NO.
4185.072	1 " = 200 '	EXH-4



WARWICK TOWNSHIP MUNICIPAL AUTHORITY

LANCASTER COUNTY, PENNSYLVANIA

SEWER REHAB & EXCAVATION WORK

COLOR CODED BY PHASE (2019, 2020, 2021+)

Legend

- Sewer Manhole
- Sewer Pump Station
- WWTP Wastewater Treatment Plant
- 2019 Manhole Work (WTMA Dig Repairs)
- 2019 Manhole Work (Dig Repairs)
- 2020 Manhole Work (Dig Repairs)
- 2021 Manhole Work (Dig Repairs)
- Early-2019 Manhole Work (Trenchless Rehab)
- Mid-2019 Manhole Work (Trenchless Rehab)
- 2020 Manhole Work (Trenchless Rehab)
- 2021 Manhole Work (Trenchless Rehab)
- Gravity Main
- Interceptor
- Force Main
- LPSS
- 2019 Sewer Main Work (Dig Repairs)
- Parcel

DATA CREDITS

Sewer Data: Entech Engineering Inc.
Local Road: PennDOT 2015
State Road: PennDOT 2015
Parcel: County of Lancaster PA
Municipal Boundary: PennDOT 2018
County Boundary: PennDOT 2018

STATEMENT OF ACCURACY

Unless otherwise noted, locations of map features should be considered approximate. Data was incorporated as the best available information at the time of mapping, and may not be accurate, complete, or current. The mapped data does not constitute a legal survey. Caution should be exercised when using the information for engineering design purposes.

N

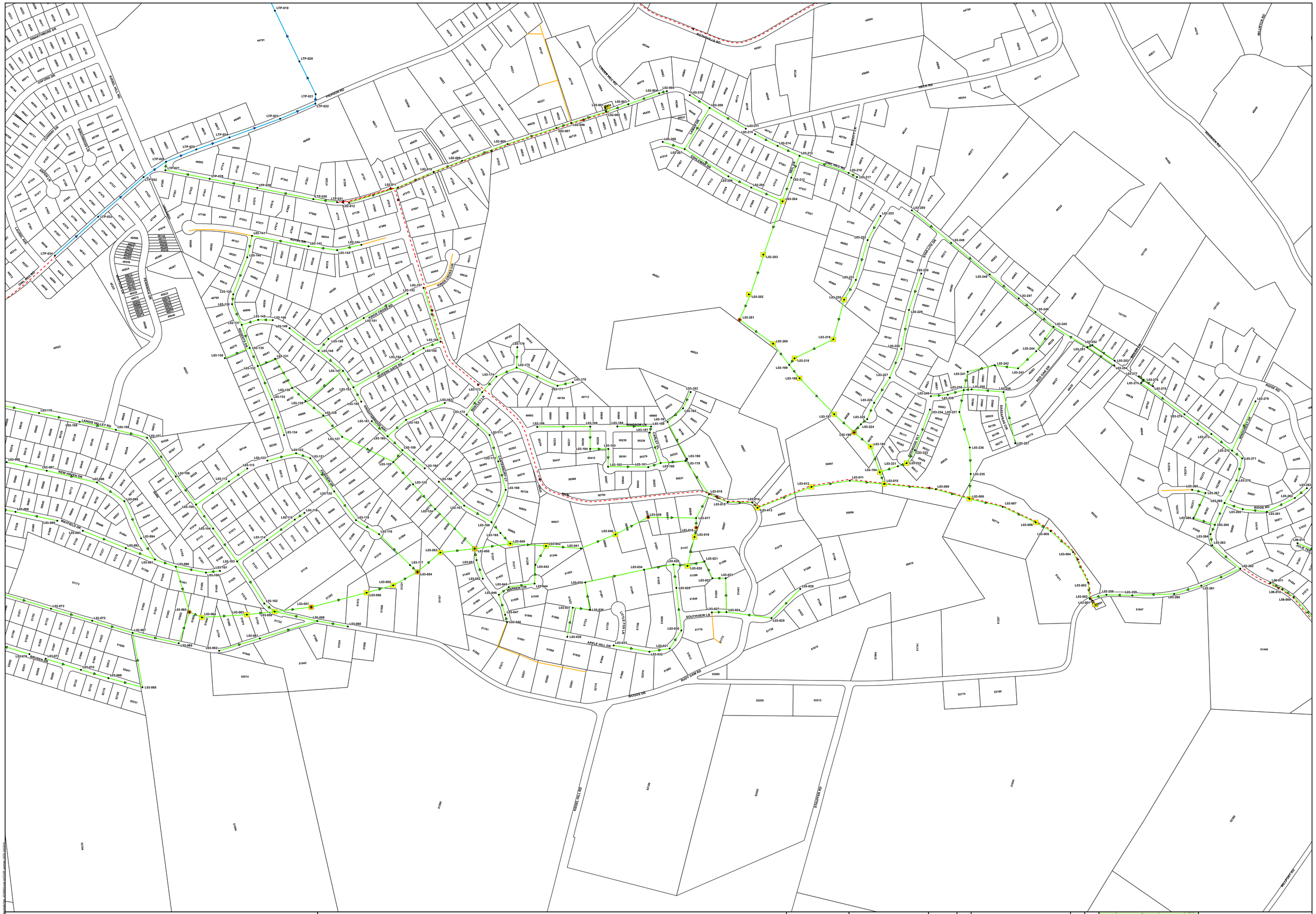
0 200 400 Feet

DATE	REV	ISSUED FOR / REVISED	TECH	APPD
06/03/19	1	MANHOLE REHAB/REPAIR CAT. UPDATED	CRZ	TAL
05/23/19	0	CLIENT REVIEW	CRZ	TAL

EXH-2 EXH-3 EXH-4 EXH-5 EXH-6 EXH-7

ENTECH ENGINEERING 1.800.825.1372 www.entecheng.com

DATE	PREPARED	CHECKED	PROJECT ENGINEER
06/03/19	CRZ	LAB	TAL
PROJECT	SCALE	DRAWING NO.	
4185.072	1 " = 200 '	EXH-5	



WARWICK TOWNSHIP MUNICIPAL AUTHORITY

LANCASTER COUNTY, PENNSYLVANIA

SEWER REHAB & EXCAVATION WORK

COLOR CODED BY PHASE (2019, 2020, 2021+)

Legend

- Sewer Manhole
- Sewer Pump Station
- WWTP Wastewater Treatment Plant
- 2019 Manhole Work (WTMA Dig Repairs)
- 2019 Manhole Work (Dig Repairs)
- 2020 Manhole Work (Dig Repairs)
- 2021 Manhole Work (Dig Repairs)
- Early-2019 Manhole Work (Trenchless Rehab)
- Mid-2019 Manhole Work (Trenchless Rehab)
- 2020 Manhole Work (Trenchless Rehab)
- 2021 Manhole Work (Trenchless Rehab)
- Gravity Main
- Interceptor
- Force Main
- LPSS
- 2019 Sewer Main Work (Dig Repairs)
- Parcel

DATA CREDITS

Sewer Data: Entech Engineering Inc.
Local Road: PennDOT 2015
State Road: PennDOT 2015
Parcel: County of Lancaster PA
Municipal Boundary: PennDOT 2018
County Boundary: PennDOT 2018

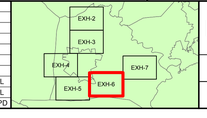
STATEMENT OF ACCURACY

Unless otherwise noted, locations of map features should be considered approximate. Data was incorporated as the best available information at the time of mapping, and may not be accurate, complete, or current. The mapped data does not constitute a legal survey, and discretion should be exercised when using the information for engineering design purposes.

0 200 400 Feet

N

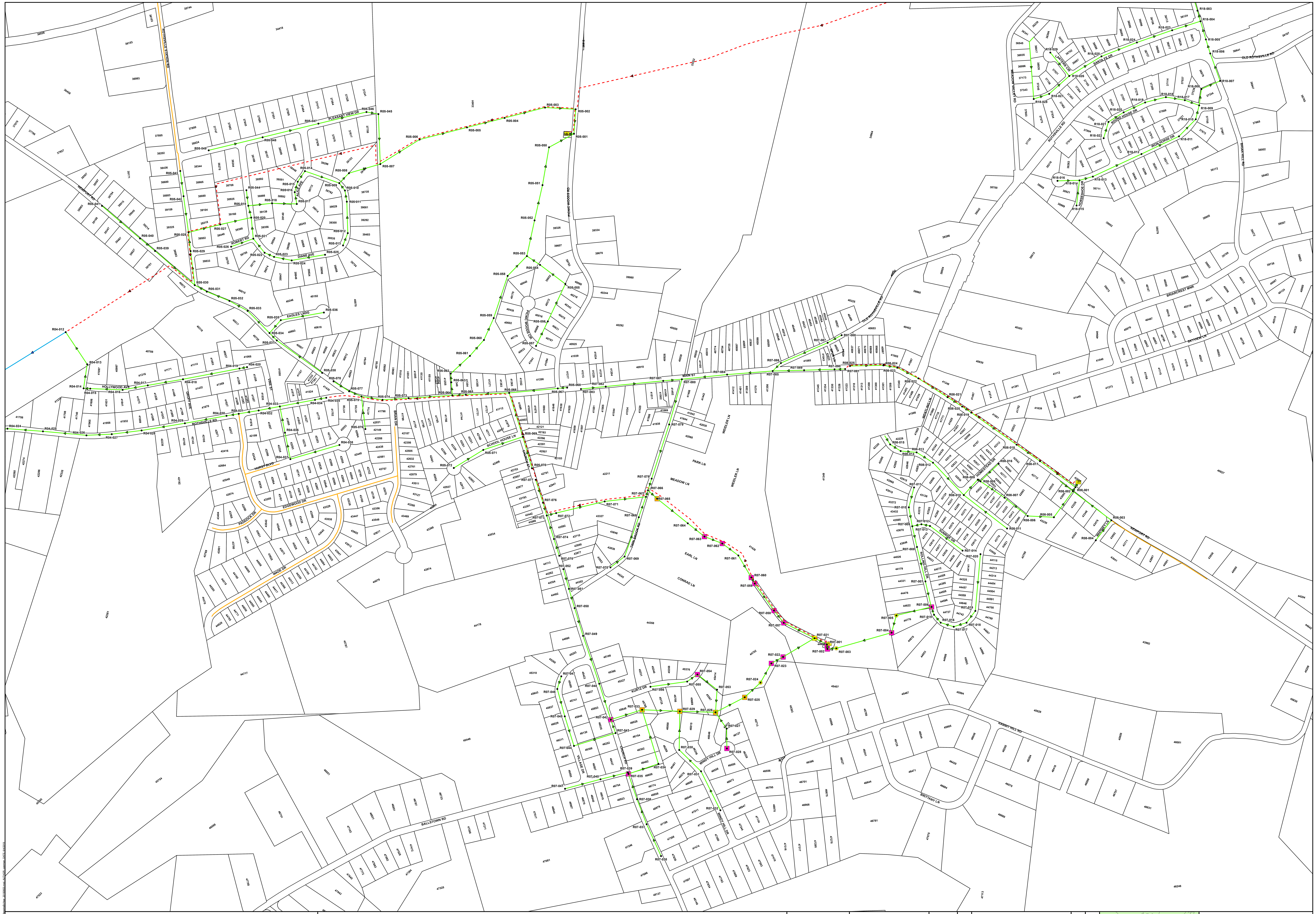
DATE	REV	ISSUED FOR / REVISED	TECH	APPD
06/03/19	1	MANHOLE REHAB/REPAIR CAT. UPDATED	CRZ	TAL
05/23/19	0	CLIENT REVIEW	CRZ	TAL



ENTECH ENGINEERING
1.800.825.1372
www.entecheng.com

DATE	PREPARED	CHECKED	PROJECT ENGINEER
06/03/19	CRZ	LAB	TAL

PROJECT	SCALE	DRAWING NO.
4185.072	1 " = 200 '	EXH-6



WARWICK TOWNSHIP MUNICIPAL AUTHORITY

LANCASTER COUNTY, PENNSYLVANIA

SEWER REHAB & EXCAVATION WORK

COLOR CODED BY PHASE (2019, 2020, 2021+)

Legend

- Sewer Manhole
- PS Sewer Pump Station
- WWTP Wastewater Treatment Plant
- 2019 Manhole Work (WTMA Dig Repairs)
- 2019 Manhole Work (Dig Repairs)
- 2020 Manhole Work (Dig Repairs)
- 2021 Manhole Work (Dig Repairs)
- Early-2019 Manhole Work (Trenchless Rehab)
- Mid-2019 Manhole Work (Trenchless Rehab)
- 2020 Manhole Work (Trenchless Rehab)
- 2021 Manhole Work (Trenchless Rehab)
- Gravity Main
- Interceptor
- Force Main
- LPSS
- 2019 Sewer Main Work (Dig Repairs)
- Parcel

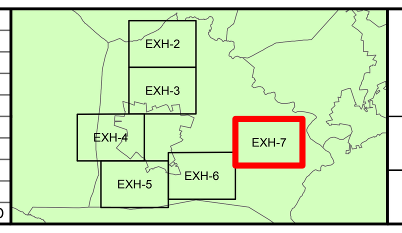
DATA CREDITS
Sewer Data: Entech Engineering Inc.
Local Road: PennDOT 2015
State Road: PennDOT 2015
Parcel: County of Lancaster PA
Municipal Boundary: PennDOT 2018
County Boundary: PennDOT 2018

STATEMENT OF ACCURACY
Unless otherwise noted, locations of map features should be considered approximate. Data was incorporated as the best available information at the time of mapping, and may not be accurate, complete, or current. The mapped data does not constitute a legal survey, and discretion should be exercised when using the information for engineering design purposes.

N

0 200 400 Feet

DATE	REV	ISSUED FOR / REVISED	TECH	APPD
06/03/19	1	MANHOLE REHAB/REPAIR CAT. UPDATED	CRZ	TAL
05/23/19	0	CLIENT REVIEW	CRZ	TAL



ENTECH ENGINEERING 1.800.825.1372 www.entecheng.com

DATE	PREPARED	CHECKED	PROJECT ENGINEER
06/03/19	CRZ	LAB	TAL
PROJECT	SCALE	DRAWING NO.	
4185.072	1 " = 200 '	EXH-7	

Appendix B

WTMA Sewer EDU Analysis Letter dated June 8, 2020

315 Clay Road | Lititz, PA 17543

June 8, 2020

Entech No. 4185.081

Mr. Todd Kauffman
Warwick Township Municipal Authority
P.O. Box 336
Lititz, PA 17543-0336

WTMA Sewer EDU Analysis

Dear Mr. Kauffman:

As part of ongoing Act 537 sewage planning efforts, Warwick Township Municipal Authority (WTMA) staff expressed concern about the accuracy of its sewer Equivalent Dwelling Unit (EDU) counts as stated in WTMA's billing software and annual Chapter 94 reports. Under-reporting connected sewer EDUs could result in the sewer system being overloaded. For this reason, having an accurate EDU count is important. Accordingly, WTMA tasked Entech with evaluating the number of EDUs presently connected to WTMA's sanitary sewer system.

Using WTMA's billing data, sewer EDU lists, and quarterly meter readings for calendar years 2015 through 2019, Entech compared EDU allocations against quarterly water and sewer usage to determine if accounts used more sewer capacity than allocated. As is WTMA's practice, the five (5) highest quarterly usages over the past five (5) years were used to determine a representative usage for each account. Representative usage was then compared with assigned EDUs, and usage discrepancies were identified.

WTMA's sewer accounts are divided into four (4) categories: S1 – Residential, S2 – Multi-Residential, S3 – Commercial Flat Rate, and S4 – Commercial Metered. While some discrepancies existed between representative usage and assigned EDUs in the S1 and S2 categories, WTMA staff were able to provide explanation for the discrepancies, All discrepancies in the S1 and S2 categories were due to irregularities such as meter error or leaks, thus no change to S1 and S2 accounts is recommended at this time. All accounts in Category S3 also had equal or lesser usage than allowed on an EDU basis, thus no change is recommended for category S3.

While erroneous meter readings were excluded from the analysis, Category S4 had several accounts that had greater sewer usage than allotted on an EDU basis. The recommended adjustment to the S4 category is 137 EDUs, accordingly.

The table below summarizes our recommended EDU adjustments by account category and type.

Account Type	Accounts	Assigned EDUs	Recommended EDUs	Recommended EDU Adjustment
S1 - Residential	4813	4817	4817	0
S2 - Commercial	1	2	2	0
S2 - Multi-Residential	115	1221	1221	0
S2 - Mixed Use	5	10	10	0
S2 - Institutional	7	28	28	0
S2 - Uncharacterized	6	11	11	0
S3 - Commercial	19	29	29	0
S3 - Mixed Use	4	8	8	0
S3 - Industrial	1	2	2	0
S3 - Institutional	4	24	24	0
S3 - Uncharacterized	1	1	1	0
S4 - Multi-Residential	1	2	2	0
S4 - Commercial	82	605	691	86
S4 - Institutional	14	226	228	2
S4 - Industrial	11	114	116	2
S4 - Mixed Use	6	52	99	47
S4 - Uncharacterized	2	3	3	0
Total	**5092**	**7155**	**7292**	**137**

In summary, EDU adjustments are only recommended in the S4 – Commercial and S4-Mixed Use categories. The number of recommended adjustments is relatively small in comparison to the overall number of accounts. Adjustment is recommended to only 22 (0.4%) out of WTMA's 5,092 sewer accounts, or an increase of 137 (1.9%) EDUs to WTMA's existing 7,155 EDUs. This small percentage is likely due to WTMA staff's attention to account maintenance. WTMA staff generate a high-low report each quarter. Accounts with irregular consumption are then contacted to determine the reason for the irregular reading. After speaking with the account holder, WTMA staff note the findings of the conversation and make an EDU adjustment as necessary.

In addition to recommending an adjustment to several accounts in the S4 category, it is our recommendation that WTMA continue account maintenance as previously described. While a certain EDU count has been determined in this analysis, we anticipate that WTMA's EDU count will vary slightly due to field confirmation of sewer usage, fluctuations in sewer use, negotiation with account holders, and addition of accounts.

For more information regarding our approach, a full EDU analysis is attached in Excel format. Please contact us if you have any questions regarding the provided information.

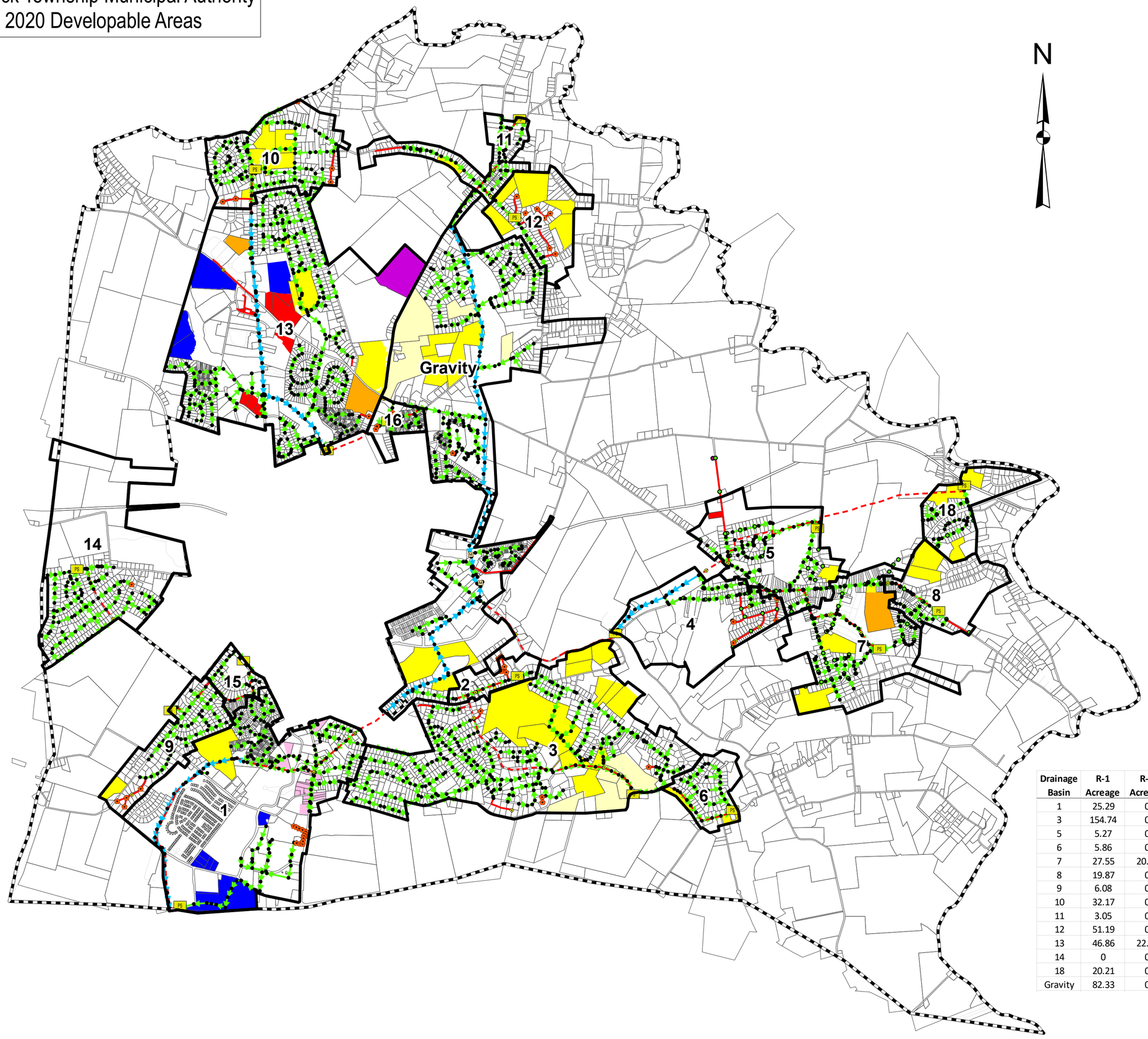
Sincerely,

Timothy Lester, PE
Project Manager

Appendix C

Projected Flows, Year 2040

Warwick Township Municipal Authority
2020 Developable Areas



Legend

- Sewer Meter Pits
- PumpStation
- Cleanout
- ARV Sewer
- Manhole
- Junctions
- Pumps
- Sewer Valve

Sewer type:

- Gravity
- Interceptor
- Forcemain
- LPSS
- Warwick Township
- Parcels

Developable Area Zoning:

- Rural Estate
- R-1 Residential
- R-2 Residential
- Local Commercial
- Community Commercial
- Industrial 1
- Campus Industrial

Drainage Basin	R-1 Acreage	R-2 Acreage	RE Acreage	LC Acreage	CC Acreage	I-1 Acreage	I-2 Acreage
1	25.29	0	0	17.93	0	0	42.2
3	154.74	0	50.74	0	0	0	0
5	5.27	0	0	0	1.81	0	0
6	5.86	0	0	0	0	0	0
7	27.55	20.42	0	0	0	0	0
8	19.87	0	0	0	0	0	0
9	6.08	0	0	0	0	0	0
10	32.17	0	0	0	0	0	0
11	3.05	0	0	0	0	0	0
12	51.19	0	0	0	0	0	0
13	46.86	22.91	0	0	27.55	29.31	49.11
14	0	0	0	0	0	0	0
18	20.21	0	0	0	0	0	0
Gravity	82.33	0	69.31	0	0	0	0

Last Updated 7/28/2020

Drainage Basin	Acreage							
	R-1	**R-2**	**RE**	**LC**	**CC**	**I-1**	**I-2**	**All**
1	25.29	0	0	17.93	0	0	42.2	85.42
3	154.74	0	50.74	0	0	0	0	205.48
5	5.27	0	0	0	1.81	0	0	7.08
6	5.86	0	0	0	0	0	0	5.86
7	27.55	20.42	0	0	0	0	0	47.97
8	19.87	0	0	0	0	0	0	19.87
9	6.08	0	0	0	0	0	0	6.08
10	32.17	0	0	0	0	0	0	32.17
11	3.05	0	0	0	0	0	0	3.05
12	51.19	0	0	0	0	0	0	51.19
13	46.86	22.91	0	0	27.55	54.39	64.73	216.44
14	0	0	0	0	0	22.79	0	22.79
18	20.21	0	0	0	0	0	0	20.21
Gravity	82.33	0	69.31	0	0	0	0	151.64
Total Acreage	**480.47**	**43.33**	**120.05**	**17.93**	**29.36**	**77.18**	**106.93**	**875.25**
Effective Density (EDUs/per acre) (1)	2.2	3.75	0 (2)	3.3	2.2	3	3	-
Total EDUs	**1,057**	**162**	**-**	**59**	**65**	**232**	**321**	**1,896**
Notes								
(1)	*Effective density is based on the following:*							
	R-1	*Minimum lot size 15,000 sq. ft. (43,560/15,000 *0.75 = 2.2 EDU/acre)*						
	R-2	*Max density of 5 EDU/acre (5*0.75 = 3.75 EDU/acre)*						
	LC	*Minimum lot size 10,000 sq. ft. (43,560/10,000 *0.75 = 3.3*						
	CC	*Minimum lot size 15,000 sq. ft. (43,560/15,000 *0.75 = 2.2 EDU/acre)*						
	I-1	*High density uses. 3 EDU/acre is a guess*						
	I-2	*High density uses. 3 EDU/acre is a guess*						
(2)	*RE is not zoned for public sewer*							

WTMA Gravity Sewer Basins
20 Year Flow Projection

By: T. Lester
Date: 01/15/2021

Pierson Road Interceptor (Meter Pit #1) Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	261	805,470	3,221,880
Potential Development			
R-1 Residential, Gravity[1]	109	25,217	100,868
RE Residential, Gravity[2]	0	-	-
PS 1 Projected Flows	468	108,616	434,464
PS 2 Projected Flows	0	-	-
PS 3 Projected Flows	353	82,041	328,164
PS 4 Projected Flows	241	55,946	223,784
Total	**1432**	**1,077,290**	**4,309,160**

Notes:

1) Gravity basin developable area divided proportionally between Meter Pit #1 (60%) and Meter Pit #2 (40%) sewage sub-basins.

2) RE is not zoned for public sewer.

Brunnerville Interceptor (Meter Pit #1) Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	484	522,351	2,089,404
Potential Development			
R-1 Residential, Gravity[1]	72	16,811	67,244.00
RE Residential, Gravity[2]	0	-	-
PS 11 Projected Flows	7	1,558	6,232.00
PS 12 Projected Flows	113	26,150	104,600.00
PS 13 Projected Flows	433	100,459	401,836.00
PS 16 Projected Flows	0	-	-
Total	**1108**	**667,329**	**2,669,316**

Notes:

1) Gravity basin developable area divided proportionally between Meter Pit #1 (60%) and

2) RE is not zoned for public sewer.

WTMA Pump Station 1
20 Year Flow Projection

By: T. Lester
Date: 01/15/2021

Pump Station 1 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	1521	383,242	1,532,968
Allocated, Currently Unused			
Traditions of America	6	1,393	5,573
Lititz Bend	57	13,235	52,942
Trimble Tract (West Woods Drive)	7	1,625	6,502
UPMC Hospital Complex	84	19,505	78,019
UPMC Medical Office (W. Woods & Highlands)	3	697	2,786
742 Woodcrest Avenue (Part of Willier Tract)	1	232	929
Moravian Manor (Pending)	6	1,393	5,573
Not included in 2019 Chapter 94 Report			
Riptide Car Wash (amount over allocation)	23	5,341	21,362
Potential Development			
R-1 Residential, PS 1 **(Walton Tract)**	40	9,288	37,152
LC Local Commercial, PS 1	59	13,739	54,956
I-2 Campus Industrial, PS 1 **(Buckwalter Tract)**	127	29,397	117,586
R-1 Residential, PS 9	5	1,161	4,644
Mixed use in PA-501 Corridor	50	11,610	46,440
Total	**1989**	**491,858**	**1,967,432**
Pump Station 1 Rated Capacity (as of today)			1,440,000
Additional Capacity Needed (Year 2040)			527,432

WTMA Pump Station 2
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 2 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	52	4,826	19,304
Allocated, Currently Unused			
None			
Potential Development			
None			
Total	**52**	**4,826**	**19,304**
Pump Station 2 Rated Capacity (as of today)			115,200
Additional Capacity Needed (Year 2040)			-

WTMA Pump Station 3
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 3 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	638	157,453	629,812
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS3	340	79,047	316,190
R-1 Residential, PS6	13	2,994	11,974
Total	**991**	**239,494**	**957,976**
Pump Station 3 Rated Capacity (as of today)			482,400
Additional Capacity Needed (Year 2040)			475,576

WTMA Pump Station 4
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 4 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	180	212,404	849,616
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS5	12	2,692	10,769
CC Community Commercial, PS5	4	925	3,698
R-1 Residential, PS18	44	10,324	41,296
R-1 Residential, PS7	61	14,074	56,295
R-2 Residential, PS7	77	17,781	71,123
R-1 Residential, PS8	44	10,150	40,602
Total	**421**	**268,350**	**1,073,398**
Pump Station 4 Rated Capacity (as of today)			648,000
Additional Capacity Needed (Year 2040)			425,398

WTMA Pump Station 5
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 5 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	226	61,249	244,996
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS5	12	2,692	10,769
CC Community Commercial, PS5	4	925	3,698
R-1 Residential, PS18	44	10,324	41,296
Total	**286**	**75,190**	**300,759**
Pump Station 5 Rated Capacity (as of today)			194,400
Additional Capacity Needed (Year 2040)			106,359

WTMA Pump Station 6
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 6 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	96	12,511	50,044
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS6	13	2,994	11,974
Total	**109**	**15,505**	**62,018**
Pump Station 6 Rated Capacity (as of today)			165,600
Additional Capacity Needed (Year 2040)			-

WTMA Pump Station 7
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 7 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	390	110,831	443,324
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS7	61	14,074	56,295
R-2 Residential, PS7	77	17,781	71,123
R-1 Residential, PS8	44	10,150	40,602
Total	**571**	**152,836**	**611,343**
Pump Station 7 Rated Capacity (as of today)			352,800
Additional Capacity Needed (Year 2040)			258,543

WTMA Pump Station 8
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 8 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	106	10,840	43,360
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS8	44	10,150	40,602
Total	**150**	**20,990**	**83,962**
Pump Station 8 Rated Capacity (as of today)			115,200
Additional Capacity Needed (Year 2040)			-

WTMA Pump Station 9
20 Year Flow Projection

By: T. Lester
Date: 01/15/2021

Pump Station 9 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	179	24,500	98,000
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS9	5	1,161	4,644
Total	**184**	**25,661**	**102,644**
Pump Station 9 Rated Capacity (as of today)			115,200
Additional Capacity Needed (Year 2040)			-

WTMA Pump Station 10
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 10 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	247	27,994	111,976
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS10	71	16,434	65,735
Total	**318**	**44,428**	**177,711**
Pump Station 10 Rated Capacity (as of today)			129,600
Additional Capacity Needed (Year 2040)			48,111

WTMA Pump Station 11
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 11 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	131	36,412	145,648
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS11	7	1,558	6,232
Total	**138**	**37,970**	**151,880**
Pump Station 11 Rated Capacity (as of today)			144,000
Additional Capacity Needed (Year 2040)			7,880

WTMA Pump Station 12
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 12 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	95	12,227	48,908
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS12	113	26,150	104,600
Total	**208**	**38,377**	**153,508**
Pump Station 12 Rated Capacity (as of today)			115,200
Additional Capacity Needed (Year 2040)			38,308

WTMA Pump Station 13
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 13 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	1196	353,843	1,415,372
Allocated, Currently Unused			
Rock Lititz	16	3,715	14,861
Potential Development			
R-1 Residential, PS13	103	23,938	95,752
R-2 Residential, PS13	86	19,949	79,796
CC Community Commercial, PS13	83	19,191	76,765
I-1 Industrial, PS13	10	2,322	9,288
I-2 Campus Industrial (Rock Lititz)	25	5,805	23,220
I-2 Campus Industrial, PS 13	39	9,105	36,418
R-1 Residential, PS10	71	16,434	65,735
Planned I&I Reductions			
Per PS13 Evaluation Report	-	(79,988)	(79,988)
Total	**1629**	**374,314**	**1,737,219**
Pump Station 13 Rated Capacity (as of today)			691,200
Additional Capacity Needed (Year 2040)			1,046,019

WTMA Pump Station 14
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 14 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	300	37,877	151,508
Allocated, Currently Unused			
None			
Potential Development			
None			
Total	**300**	**37,877**	**151,508**
Pump Station 14 Rated Capacity (as of today)			311,040
Additional Capacity Needed (Year 2040)			-

WTMA Pump Station 15
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 15 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	87	6,844	27,376
Allocated, Currently Unused			
None			
Potential Development			
None			
Total	**87**	**6,844**	**27,376**
Pump Station 15 Rated Capacity (as of today)			115,200
Additional Capacity Needed (Year 2040)			-

WTMA Pump Station 16
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 16 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	218	31,648	126,592
Allocated, Currently Unused			
None			
Potential Development			
None			
Total	**218**	**31,648**	**126,592**
Pump Station 16 Rated Capacity (as of today)			230,400
Additional Capacity Needed (Year 2040)			-

WTMA Pump Station 18
20 Year Flow Projection

By: M. Beggs
Date: 06/2/2020

Pump Station 18 Projected Flows, Year 2040			
		Projected Flow	
Flow Contribution	**EDUs**	**Average (gpd)**	**Peak (gpd)**
Present Day (Avg from 2019 Chapter 94 Report)	89	17,684	70,736
Allocated, Currently Unused			
None			
Potential Development			
R-1 Residential, PS18	44	10,324	41,296
Total	**133**	**28,008**	**112,032**
Pump Station 18 Rated Capacity (as of today)			129,600
Additional Capacity Needed (Year 2040)			-

Appendix D

2019 Chapter 94 Report Data

TRIBUTARY SEWER SYSTEM QUESTIONNAIRE

For Calendar Year 2019

Municipality Name: Warwick Township Municipal Authority **Date:** February 26, 2020

A. SEWER SYSTEM DETAILS

1. Connected Population

Present	Projected				
2019	**2020**	**2021**	**2022**	**2023**	**2024**
EDUs = 7,100	7,151	7,209	7,256	7,305	7,363
Equivalent Population* = 18,744	18,879	19,032	19,156	19,285	19,438

∗ Per the 2010 U.S. Census, there are 2.64 people/EDU in Warwick Township.

2. Sewer System

Length of pipe in sewer system (feet)		486,890 (92.2 miles) *	(estimated)
Total number of manholes		1,837*	(estimated)
Construction Material	**Pipes**	SDR 35, SDR 26, Asbestos Cement Lined, CL Ductile Iron	
	Manholes	Concrete; Some are PVC lined or have specialty coating applied	
Combined Sewers	**Location**	None	
	Percent of total system	NA	

∗ Rerouted approximately 1,100 feet of an 18” interceptor along with 5 manholes as part of new development.

B. SANITARY SEWER EXTENSIONS AND PROJECTS (DEP Form Section 4)

1. Extensions (2019 Only) *

Name/Area Served	Sewer Extension		DEP Permit No.	Housing Units Served (Actual/Estimated)					
	Size	Length		2019	2020	2021	2022	2023	2024

*There were no new sewer extensions in 2019.

2. Proposed Housing Developments

Name/Area Served	Total EDUs	EDUs in use	Permits Obtained? (Yes/No)	DEP Permit No.	Proposed Housing Units				
					2020	2021	2022	2023	2024
TOA - Phase 5*	85	79	Yes	A3-36955-336-3	6				
Lititz Reserve - Phase 3 &4*	38	34	Yes		4				
Lititz Reserve - Phase 5 & 6*	47	42			5				
Lititz Reserve- Phase 7*	23	0			10	10	2		
Lititz Reserve - Phase 8	33	0				4	8	10	9
Lititz Reserve - Phase 9	26	0						4	10
Lititz Reserve - Phase 10	21	0							4
Lititz Bend – Phase 1*	43	13	Yes						
Lititz Bend – Phase 2	27	0			8	8	8	10	10
Lititz Evangelical Free Church - Expansion Project*	10	0	Yes		10				
Rock Lititz Industrial/Commercial Pod 5*	16	0	Yes		8	8			
Trimble Tract/West Woods Drive	7	0	Yes			3	4		
Warwick Crossings	91	0	No			10	10	10	10
Orchard Road	69	0	No			15	15	15	15

*Development/project has previously been underway; proposed housing units have been approved

If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, include that information and the effect this build-out-rate will have on populations served.

Please see the above for projected buildout/connection schedule.

C. SANITARY SEWER OVERFLOWS (DEP Form Section 6)

Provide the date, location, and reason for any bypass, sanitary sewer overflow (SSO), or surcharge event that occurred in 2019. *

Bypass, SSO, or Surcharge Event?	Location	Reason
NA		

***There were no SSO events within the WTMA's collection system for 2019.**

D. PUMPING STATIONS (DEP Form Section 7)

1. Pumping Station Description

Name/Number	Location	Design Capacity (gpd)		Metered	Force Main		No. of EDUs Served	Estimated Service Population
		Existing	Ultimate	(Yes/No)	Length (ft.)	Size (in.)		
1	Buckwalter Road	1,440,000	1,440,000	No	11,399	10 & 12	1,521	4,015
2	Owl Hill Road	115,200	115,200	No	2,058	4	52	137
3	East Woods Drive	482,400	482,400	No	7,204	8	638	1,684
4	Rothsville Road	648,000	648,000	No	5,016	8 & 12	180	475
5	Picnic Woods Road	194,400	194,400	No	4,916	4	226	597
6	Millport Road	165,600	165,600	No	2,527	4	96	253
7	Twinbrook Road	352,800	352,800	No	4,677	6	390	1,030
8	East Newport Road	115,200	115,200	No	1,923	4	106	280
9	Shelly Court	115,200	115,200	No	3,559	4	179	473
10	Furnace Hills Pike	129,600	129,600	No	1,367	4	247	652
11	Hackman Road	144,000	144,000	No	2,668	4	131	346
12	Pine Hill Road	115,200	115,200	No	1,646	4	95	251
13	Market Street	691,200	691,200	No	3,217	8	1,196	3,157
14	West Orange Street	311,040	311,040	No	7,360	6	300	792
15	Walnut Street	115,200	115,200	No	1,422	4	87	230
16	Cardinal Road	230,400	230,400	No	1,221	4	218	576
18	Briar Hill Road	129,600	129,600	No	4,733	4	89	235

∗ Per the 2010 U.S. Census, there are 2.64 people/EDU in Warwick Township. The above estimated population does not include The EDUs that are connected to the system and flow by gravity to the WTMA meter pits to the Lititz WWTP.

2. Pumping Station Flows

Name/Number	Present Average Flow (gpd)	Present Peak Flow (gpd)	Projected New EDUs		Projected Peak Flows (gpd)	
	2019	2019	2020	2021	2020	2021
1 – Buckwalter Road	383,242	1,264,699	14	11	1,275,454	1,283,905
2 – Owl Hill Road	4,826	15,926	0	0	15,926	15,926
3 – East Woods Drive	157,453	519,595	0	0	519,595	519,595
4 – Rothsville Road	212,404	700,933	0	0	700,933	700,933
5 – Picnic Woods Road	61,249	202,122	0	0	202,122	202,122
6 – Millport Road	12,511	41,286	0	0	41,286	41,286
7 – Twinbrook Road	110,831	365,742	0	0	365,742	365,742
8 – East Newport Road	10,840	35,772	0	0	35,772	35,772
9 – Shelly Court	24,500	80,850	0	0	80,850	80,850
10 – Furnace Hills Pike	27,994	92,380	0	0	92,380	92,380
11 – Hackman Road	36,412	120,160	0	0	120,160	120,160
12 – Pine Hill Road	12,227	40,514	0	0	40,514	40,514
13 – Market Street	353,843	1,167,682	8	8	1,173,828	1,179,974
14 – West Orange Street	37,877	124,994	0	0	124,994	124,994
15 – Walnut Street	6,844	22,585	0	0	22,585	22,585
16 – Cardinal Road	31,648	104,438	0	0	104,438	104,438
18 – Briar Hill Road	17,684	58,357	0	0	58,357	58,357

Present Peak Flows = Present Flows x 3.3 peaking factor;
Projected Peak flows = [(Present flows + (Projected EDUs x 232.8 gpd/EDU)) x 3.3 peaking factor]
WTMA Pump station flows are estimated based on run times.

3. Pumping Station Condition

Discuss condition, maintenance, and repair of each pumping station. Use additional sheets if necessary.

Name/Number:	1 – Buckwalter Road	**Condition:**	Very Good
Check of pump station twice/week; routine maintenance			

Name/Number:	2 – Owl Hill Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance			

Name/Number:	3 – East Woods Drive	**Condition:**	Good
Check of pump station twice/week; routine maintenance; replaced pump #2			

Name/Number:	4 – Rothsville Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance; rebuilt check valves			

Name/Number:	5 – Picnic Woods Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance; replaced pump #2 and pump #4; replaced motor for pump #4; installed electrical upgrades; installed grinder			

Name/Number:	6 – Millport Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance; replaced block heater on standby generator			

Name/Number:	7 – Twinbrook Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance; replaced pump #3; replaced block heater on standby generator			

Name/Number:	8 – East Newport Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance			

Name/Number:	9 – Shelly Court	**Condition:**	Good
Check of pump station twice/week; routine maintenance;			

Name/Number:	10 – Furnace Hills Pike	**Condition:**	Good
Check of pump station twice/week; routine maintenance;			

Name/Number:	11 – Hackman Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance			

Name/Number:	12 – Pine Hill Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance; replaced block heater on standby generator			

Name/Number:	13 – Market Street	**Condition:**	Good; However, a new pump station with increased capacity is currently in design as part of the approved Correction Action Plan
Check of pump station twice/week; routine maintenance; replaced block heater on standby generator			

Name/Number:	14 – West Orange Street	**Condition:**	Good
Check of pump station twice/week; routine maintenance; replaced water pump on standby generator			

Name/Number:	15 – Walnut Street	**Condition:**	Good
Check of pump station twice/week; routine maintenance			

Name/Number:	16 – Cardinal Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance; installed upgrades on pump control panel; replaced radiator on standby generator			

Name/Number:	18 – Briar Hill Road	**Condition:**	Good
Check of pump station twice/week; routine maintenance;			

4. **Pumping Station Capacity Problems**

If the projected peak flow exceeds the pumping station capacity, explain proposed and ongoing efforts to correct the potential overload for each instance. Estimate the probable success of these efforts in eliminating the potential overload condition. Use additional sheets if necessary.

Several pump stations (#3, #4, #5, #7, and #13) are noted to be in a projected overload condition. These pump stations were also noted to be in a projected overload in the 2018 Chapter 94 Report. A Corrective Action Plan was submitted on 12/2/19 and approved by PADEP on 12/16/19.

- Pump Station #13 is currently being designed for replacement with a new pump station of increased capacity. The new pump station is anticipated to be operational in late 2020 or early 2021.

WTMA will continue the efforts outlined in the approved CAP during 2020.

I/I televising investigation began in early August 2018 and continued into 2019 along with the inspection of approximately 300 manholes. A list of manholes and sewer mains identified for I/I abatement was summarized and prioritized for repairs after reviewing the video and manhole inspections. A phased abatement plan has been implemented with the first phase being awarded in February 2020. I/I abatement on approximately 40 of the most easily accessible and/or considered high priority manholes was completed during 2019 along with additional video inspection of sewer mains.

A joint effort to update the Lititz Borough-Warwick Township Municipal Authority Act 537 Plan began in the fourth quarter of 2019 to account for additional projected growth and projected sewer flows in the area.

E. METER PITS

Name/Number	Location	Size/Type*	Sensor**	Number of EDUs Served	Estimated Connected Population[1]
Meter Pit #1	Lititz Wastewater Treatment Plant	24” Flume	Ultrasonic	4,220	11,141
Meter Pit #2	Lititz Run Trout Hatchery	18” Flume	Ultrasonic	2,820	7,445

[1] Per the 2010 U.S. Census, there are 2.64 people/EDU in Warwick Township
* i.e., weir, flume, pipe, etc.
** i.e., float, bubbler, ultrasonic, etc.

F. INDUSTRIAL WASTES (DEP Form Section 8)

1. Industrial Waste Dischargers

Industry Name	Location	2019 Average Daily Flow (gpd)	Metered (Yes/No)	Average Waste Strength (mg/L BOD_5)
Sauder Eggs	570 Furnace Hills Pike	3,035	Yes Water Meter	NA
Stauffer's of Kissel Hill	1050 Lititz Pike	4,071	Yes Water Meter	NA
Sechan Electronics (1 & 2)	525 Furnace Hills Pike	2,312	Yes Water meter	NA
Weiser's Store	680 Furnace Hills Pike	591	Yes Water Meter	NA
Tait Towers	9 Wynfield Drive	1,115	Yes Water Meter	NA
Oehme Contract Carriers	1 Mark V Drive	25	Yes Water Meter	NA
Risser Poultry	12 Wynfield Drive	3,293	Yes Water Meter	NA
HPI Rolex	1 Wynfield Drive	1,548	Yes Water Meter	NA
Pinnacle Health	1500 Highlands Drive	32,395	Yes Water Meter	NA
Rock Lititz	100 Rock Lititz Boulevard	10,797	Yes Water Meter	NA
Millway Manufacturing	739 Rothsville Road	19	Yes Water Meter	NA
Red Rose Cabinetry	740 Rothsville Road	170	Yes Water Meter	NA

2. Industrial Waste Monitoring

Discuss the program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year. Use additional sheets if necessary.

The above listed users are mostly considered commercial customers and one is an institutional customer. The facilities discharge primarily domestic waste.

No additional waste monitoring is currently being performed.

Some commercial and institutional facilities connected to the sewer system submit copies of their hauling manifests to the WTMA when they have their grease traps pumped out.

3. Industrial Waste Issues

Discuss specific problems in the sewer system known or suspected to be caused by industrial discharges. Include a summary of the steps being taken to eliminate the problems. Use additional sheets if necessary.

No known problems

G. PREPARER

Signed: Todd R. Kauffman

Typed Name: Todd R. Kauffman

Title: Superintendent

Address: 315 Clay Road

P.O. Box 336

Lititz, PA 17543

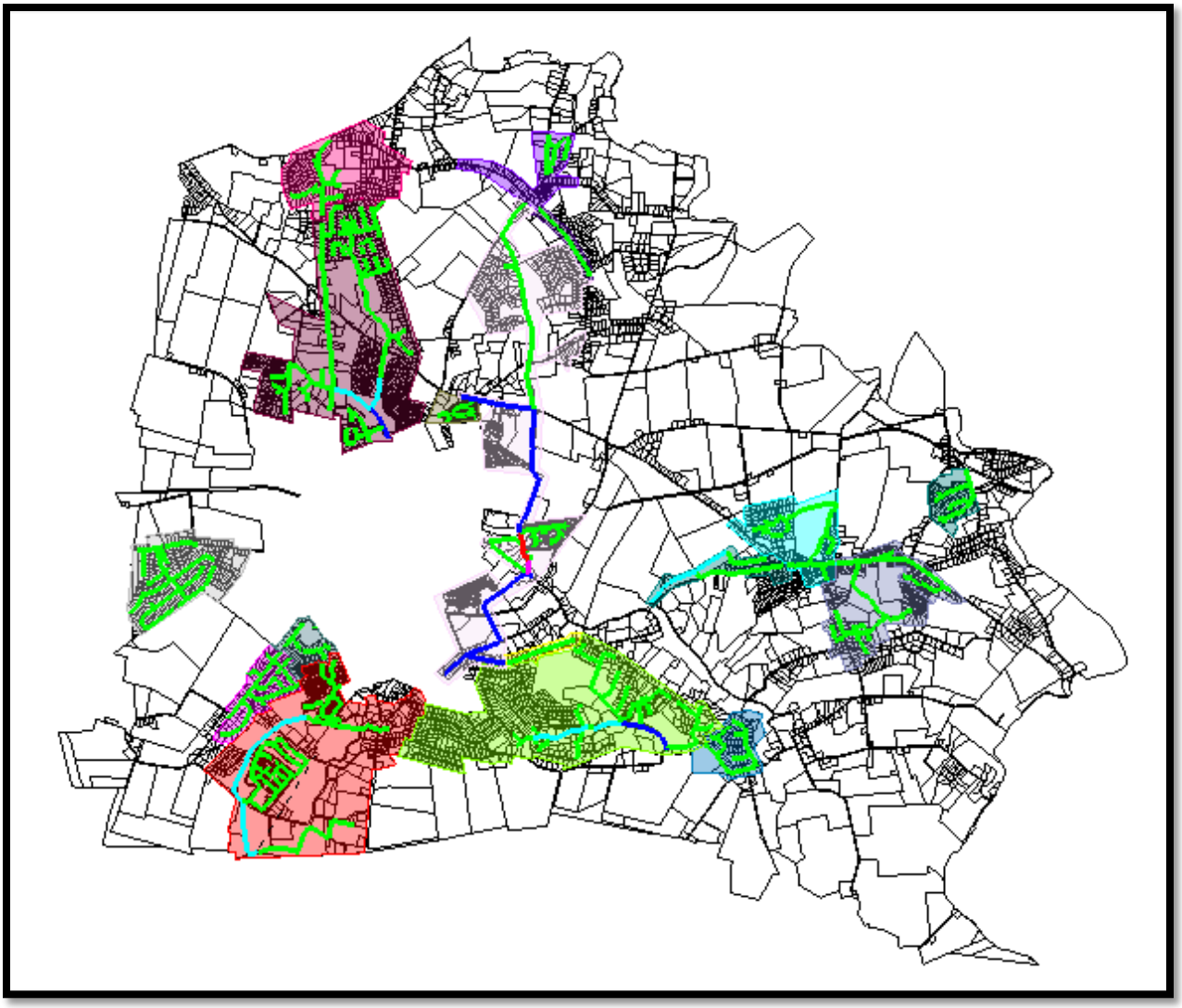
Phone Number: (717) 627 - 2379

NOTE: This tributary questionnaire is intended to supplement the information provided in the PA DEP Chapter 94 Municipal Wasteload Management Annual Report form (DEP Form). In addition to this completed tributary questionnaire, please be sure to attach the completed DEP Form and the additional information requested on the DEP Form, including:

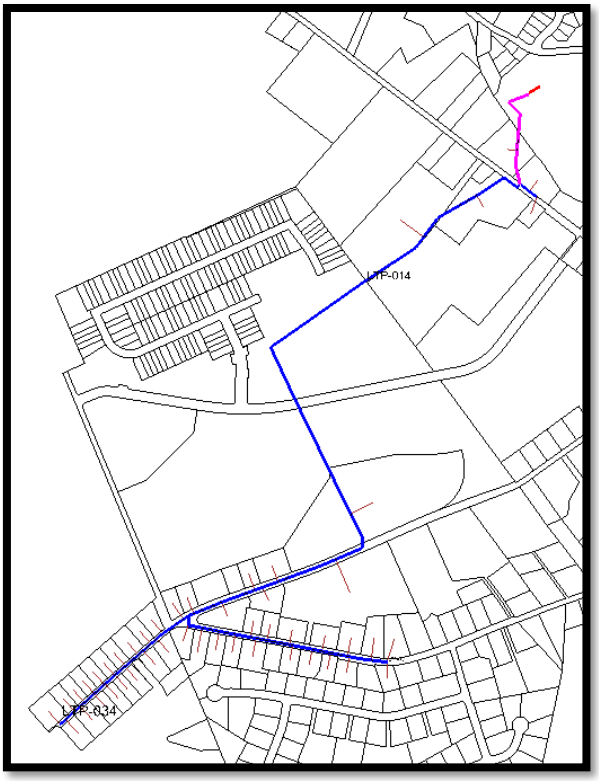
- A map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages (DEP Form Section 4)
- A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted (DEP Form Section 7)
- Corrective Action Plan (CAP), if applicable (DEP Form Section 9)
- Annual CSO Report, if applicable (DEP Form Section 11)
- A calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually, if applicable (DEP Form Section 12)

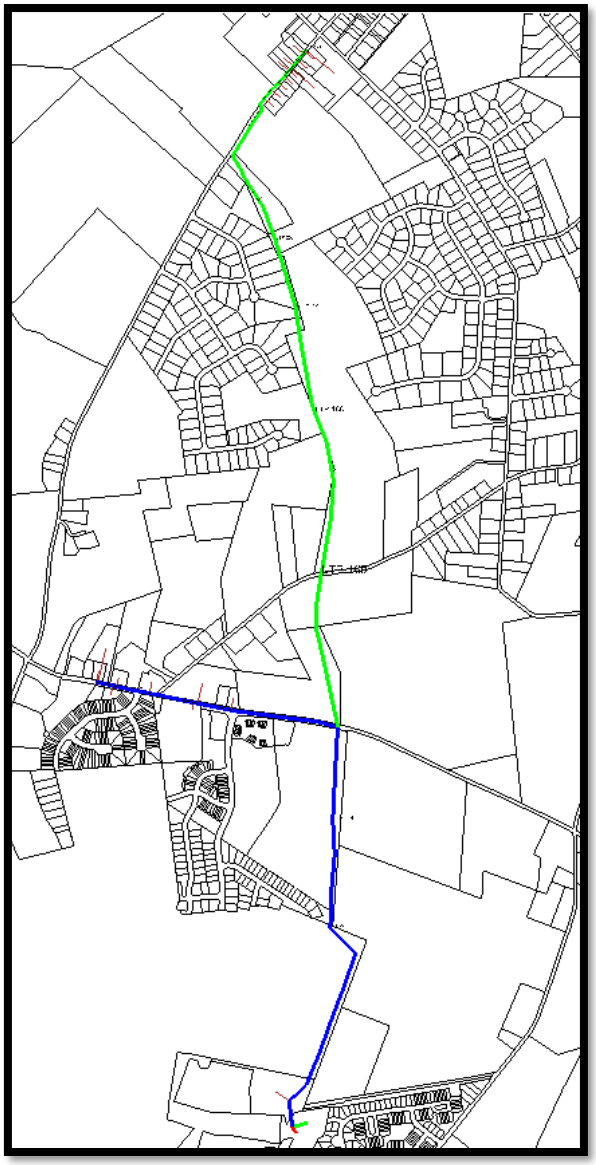
Appendix E

SewerGEMS Models

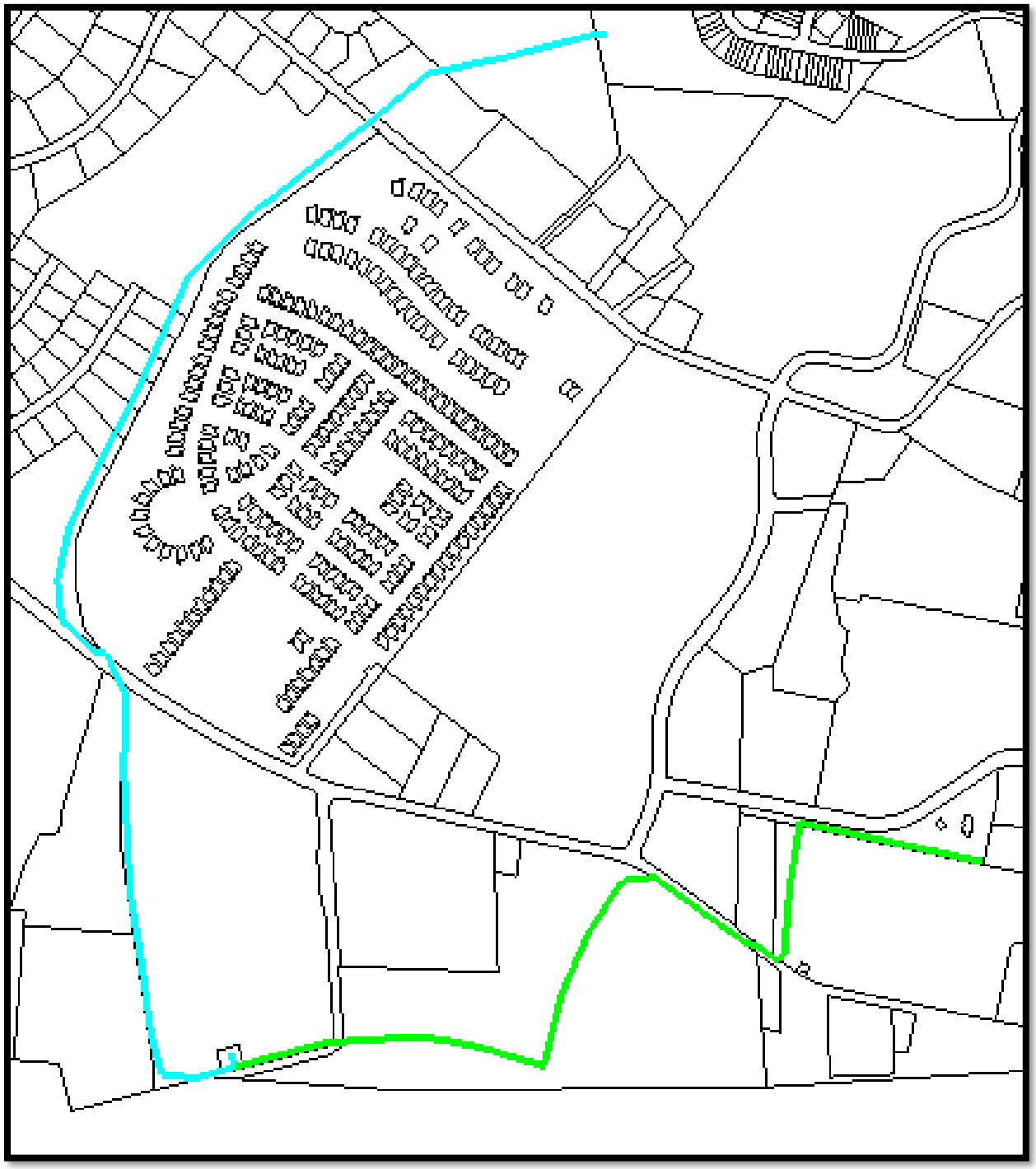


Full System SewerGems Model Map: All imported As-built data

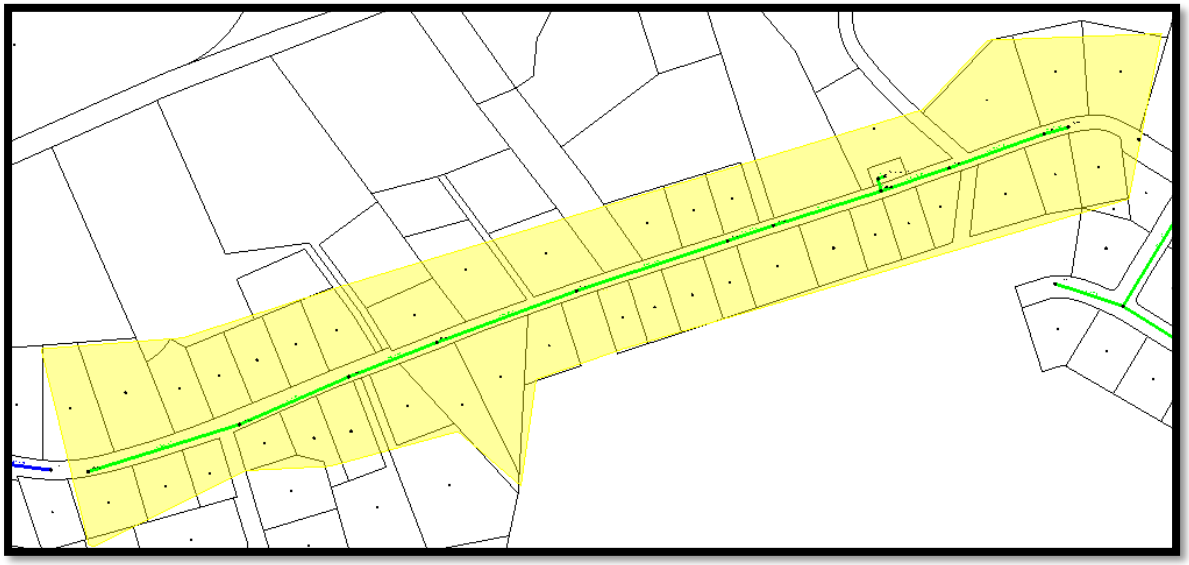




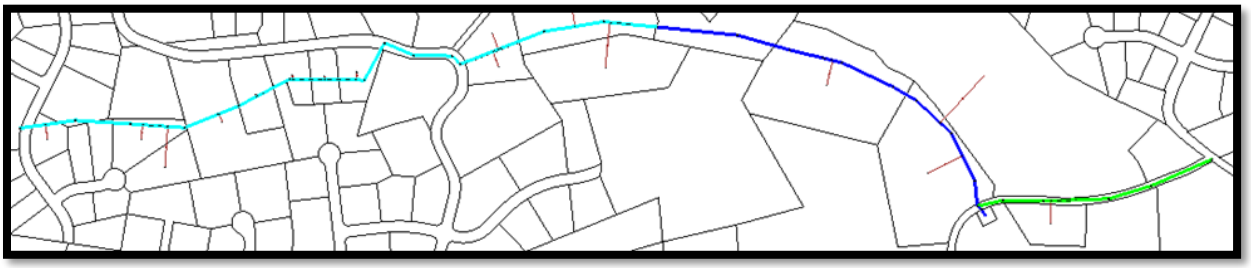
Meter Pits #1 and #2 (Gravity) SewerGems Model Map: Pierson Road interceptor to Meter pit one (left), Brunnerville interceptor to meter pit two (right)



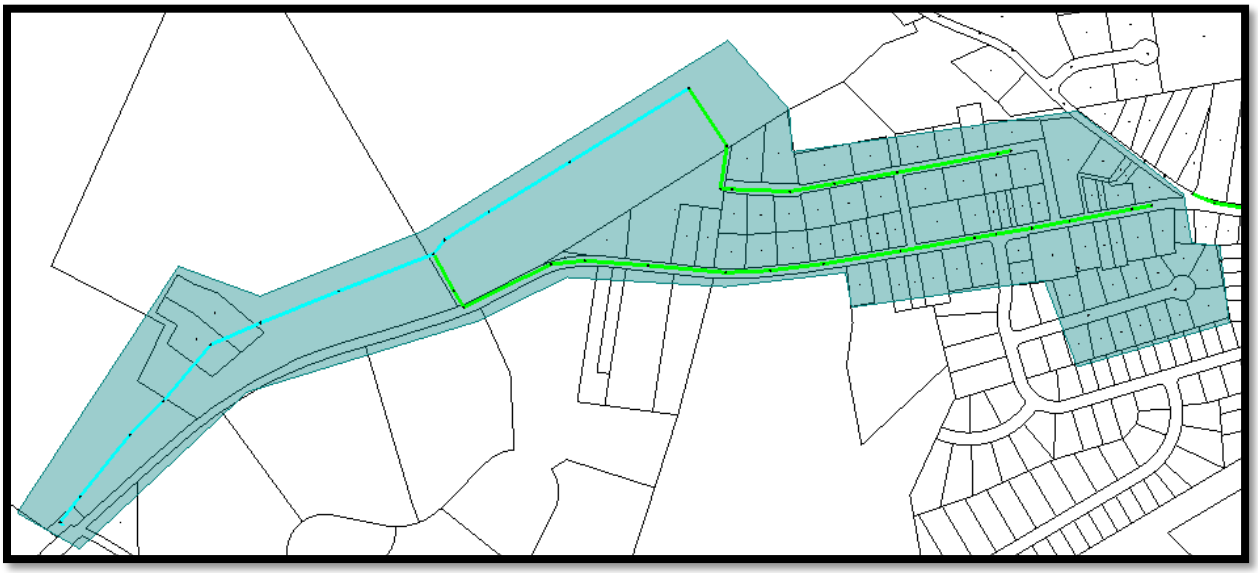
Pump station one (PS 1) SewerGems Model Map



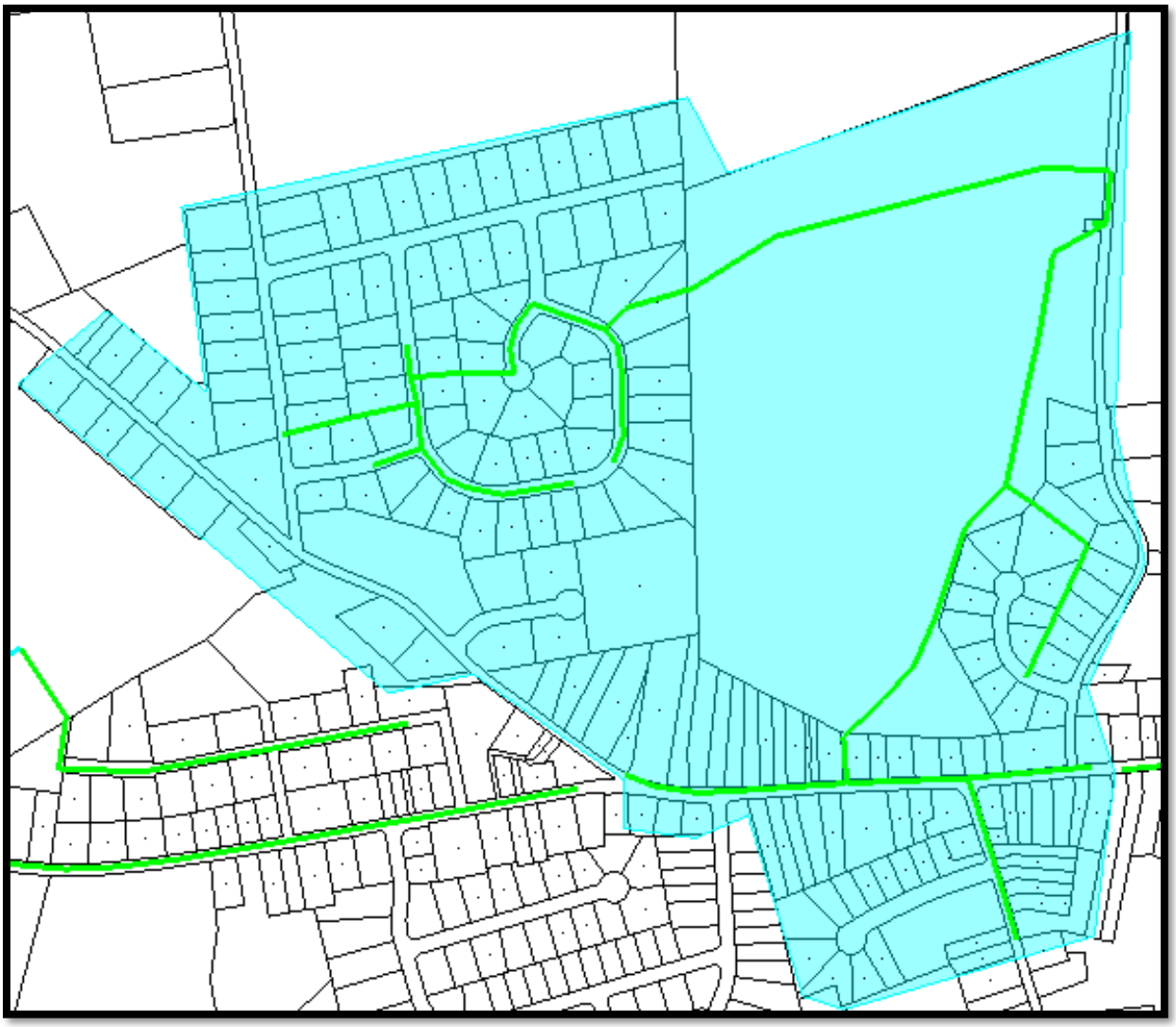
Pump station Two (PS 2) SewerGems Model Map



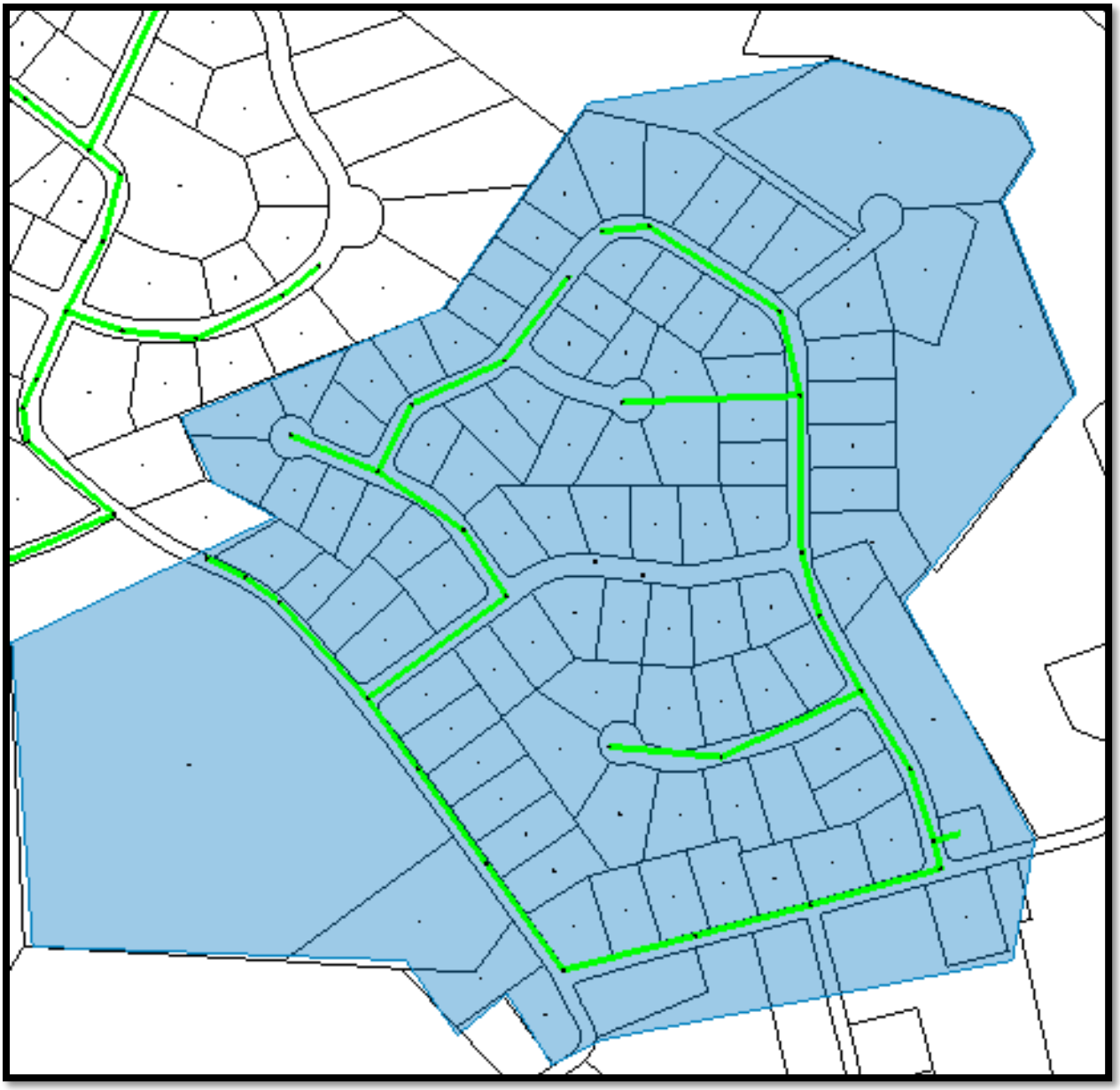
Pump station Three (PS 3) SewerGems Model Map



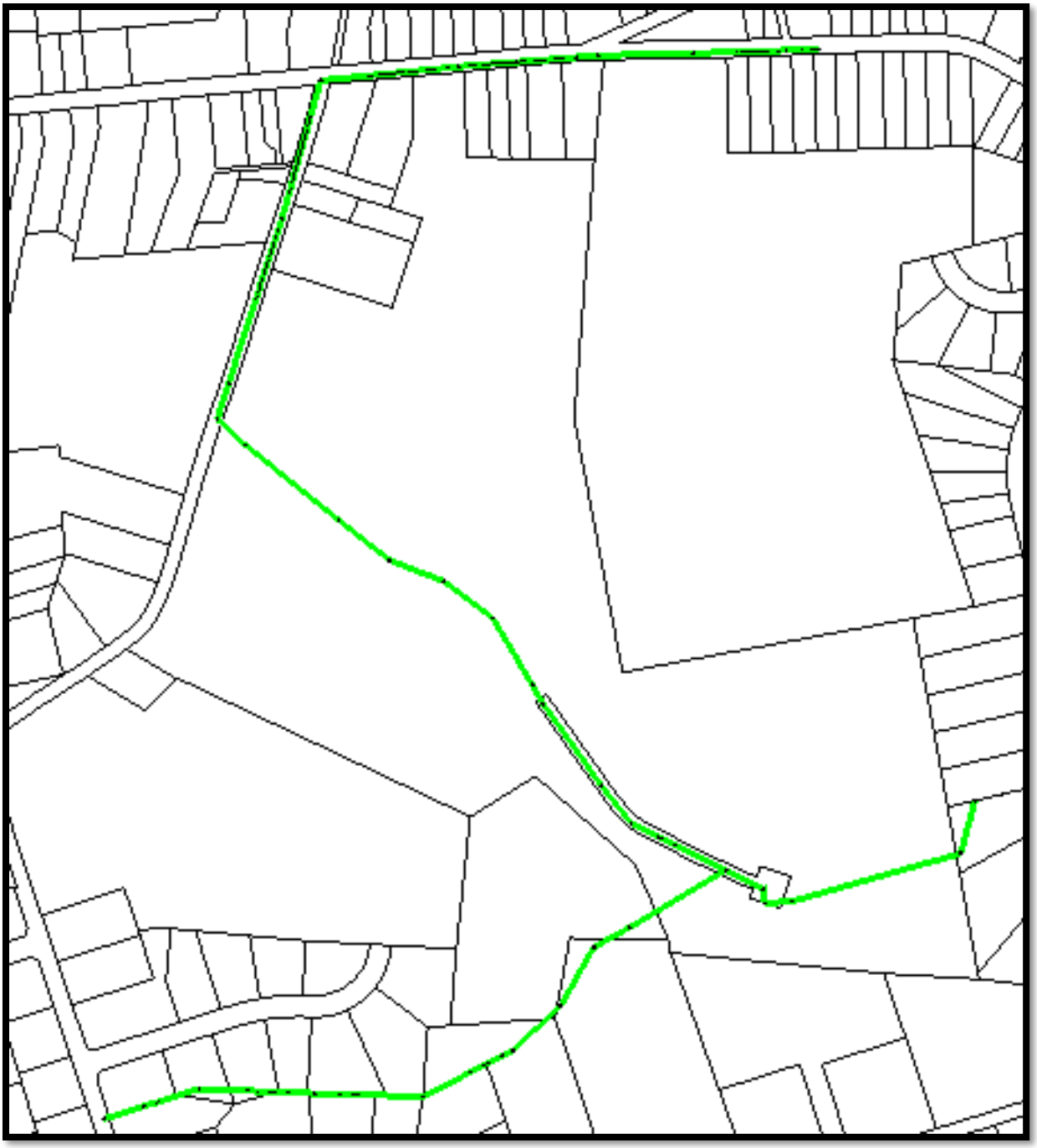
Pump station four(PS 4) SewerGems Model Map



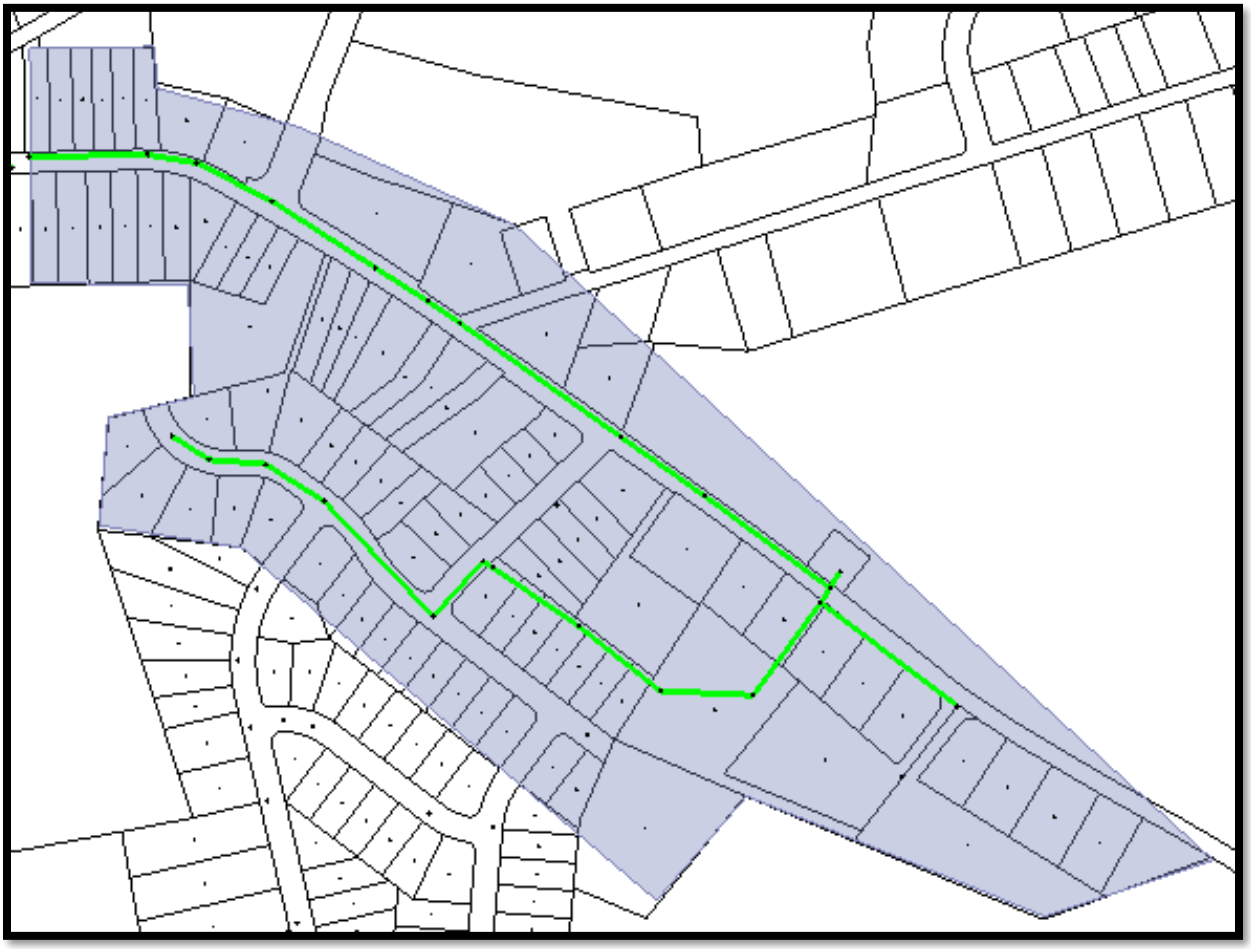
Pump station Five (PS 5) SewerGems Model Map



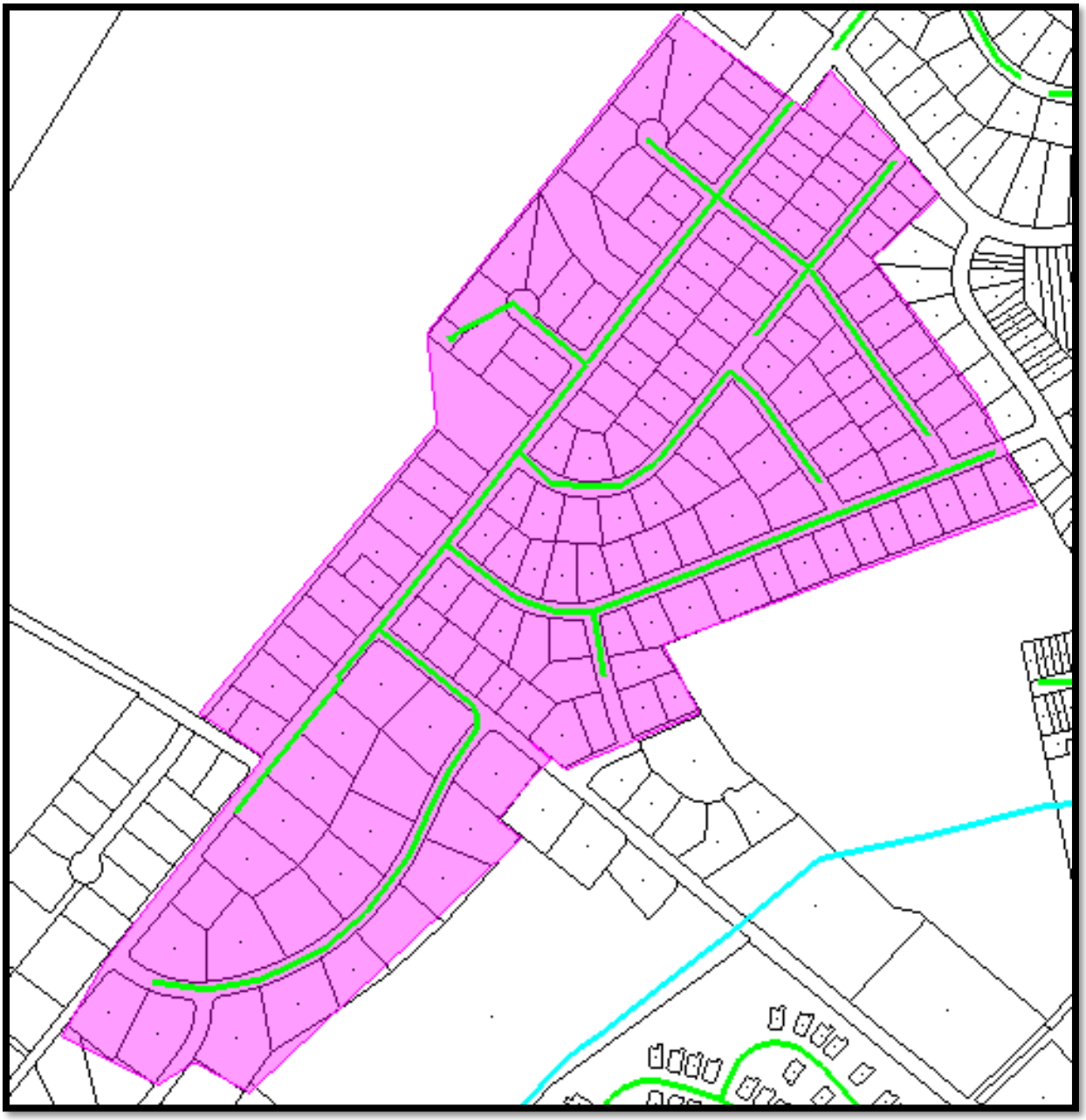
Pump station Six (PS 6) SewerGems Model Map



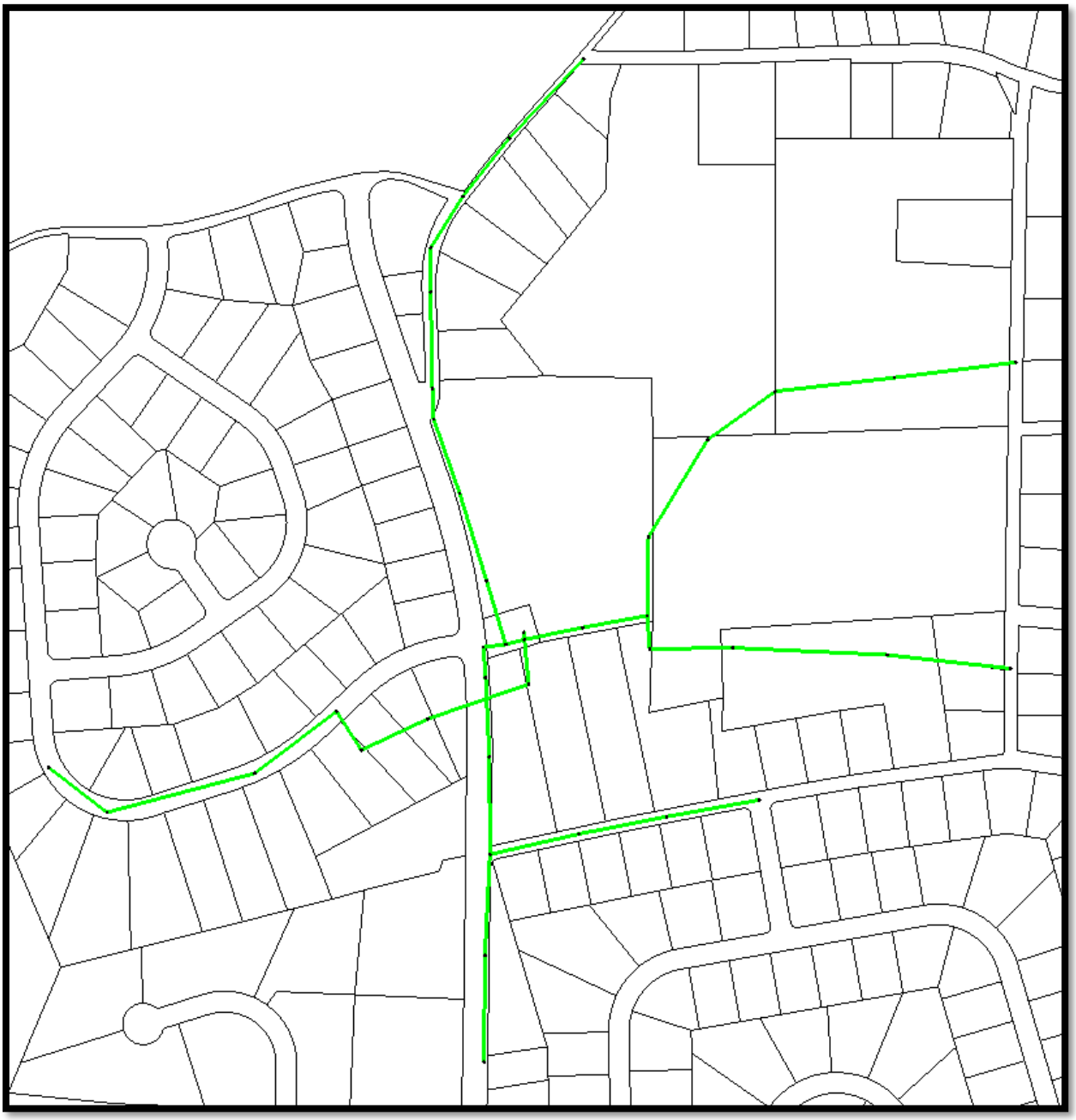
Pump station Seven (PS 7) SewerGems Model Map



Pump station Eight (PS 8) SewerGems Model Map



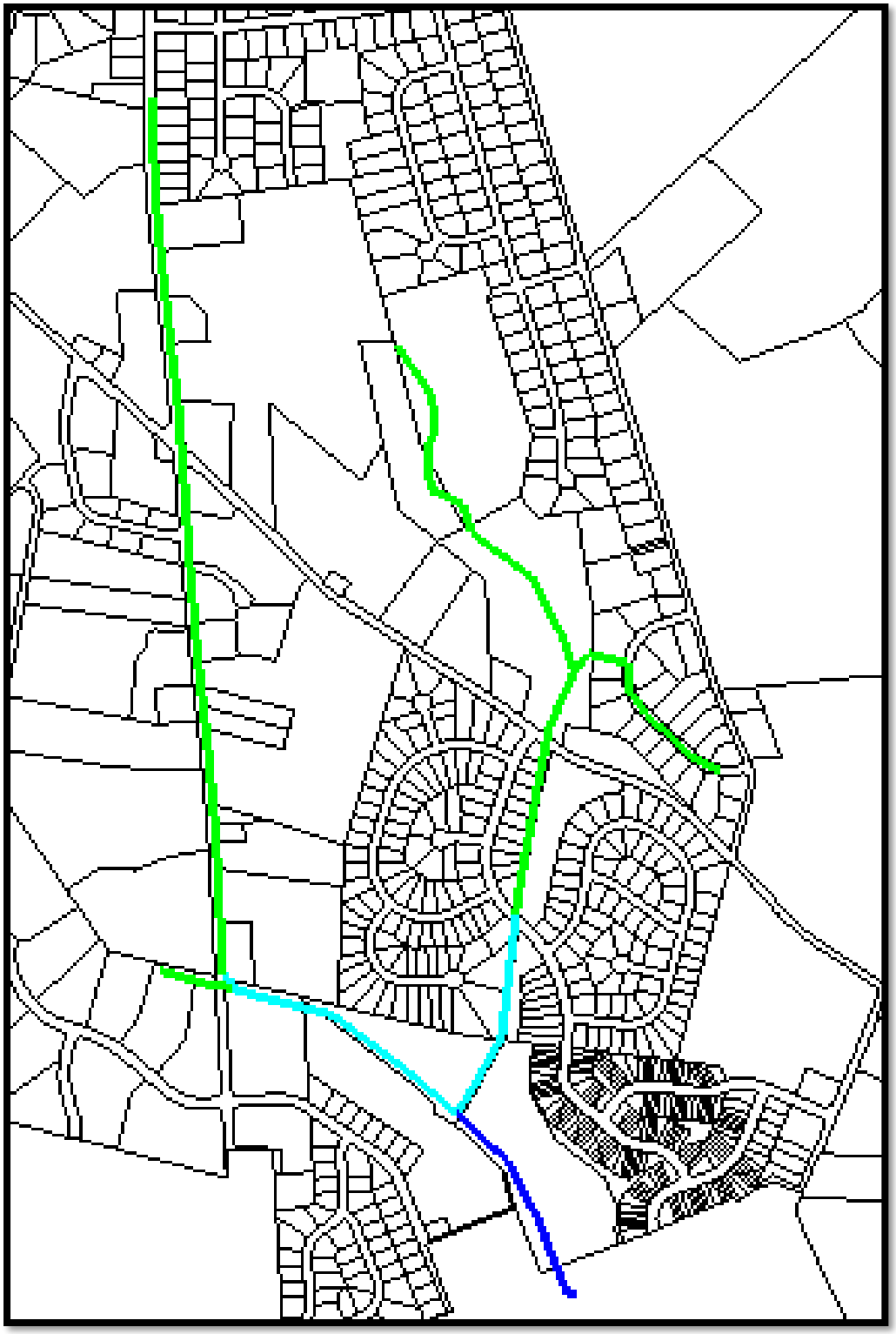
Pump station Nine (PS 9) SewerGems Model Map



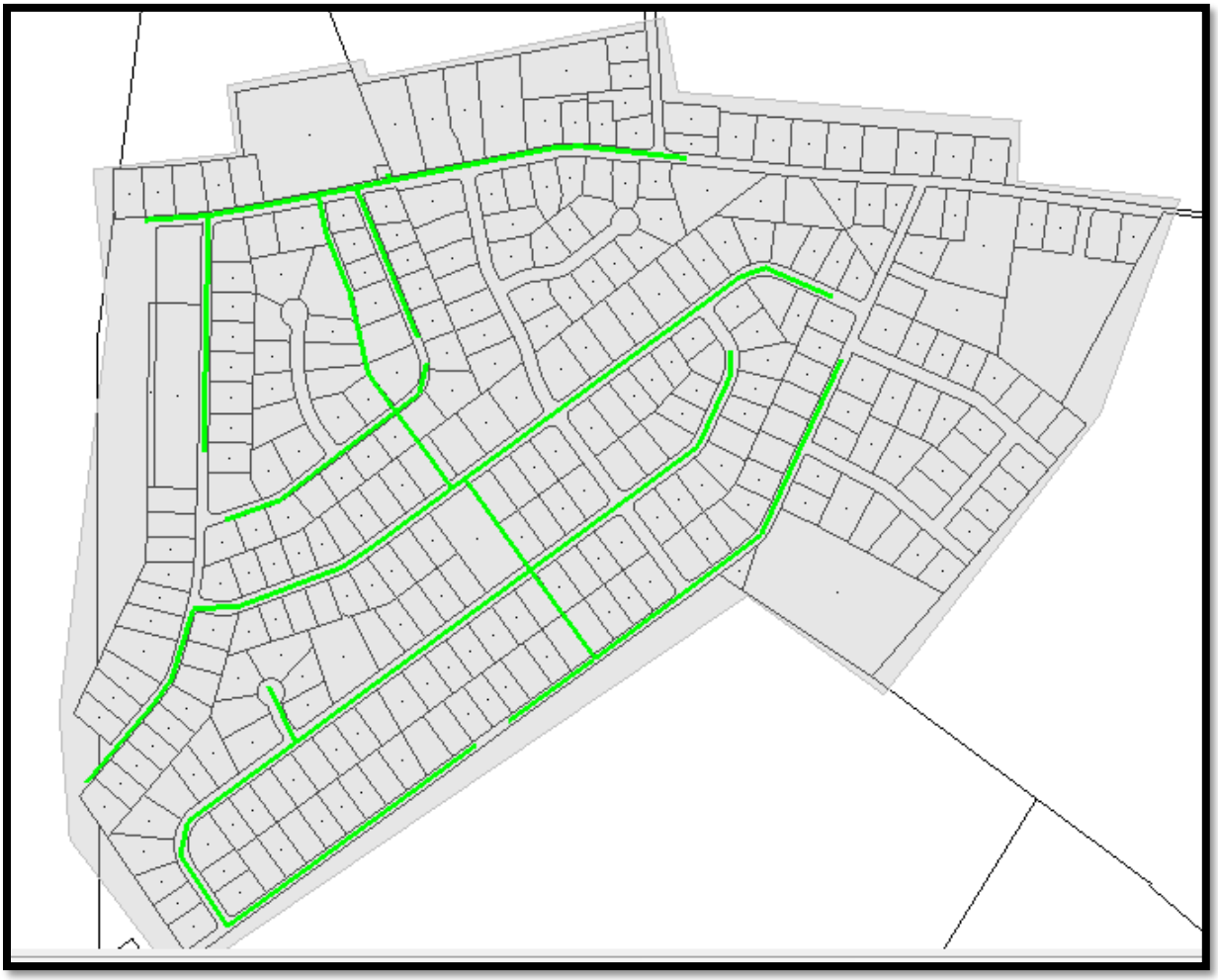
Pump station Ten (PS 10) SewerGems Model Map

Pump station Eleven (PS 11) SewerGems Model Map

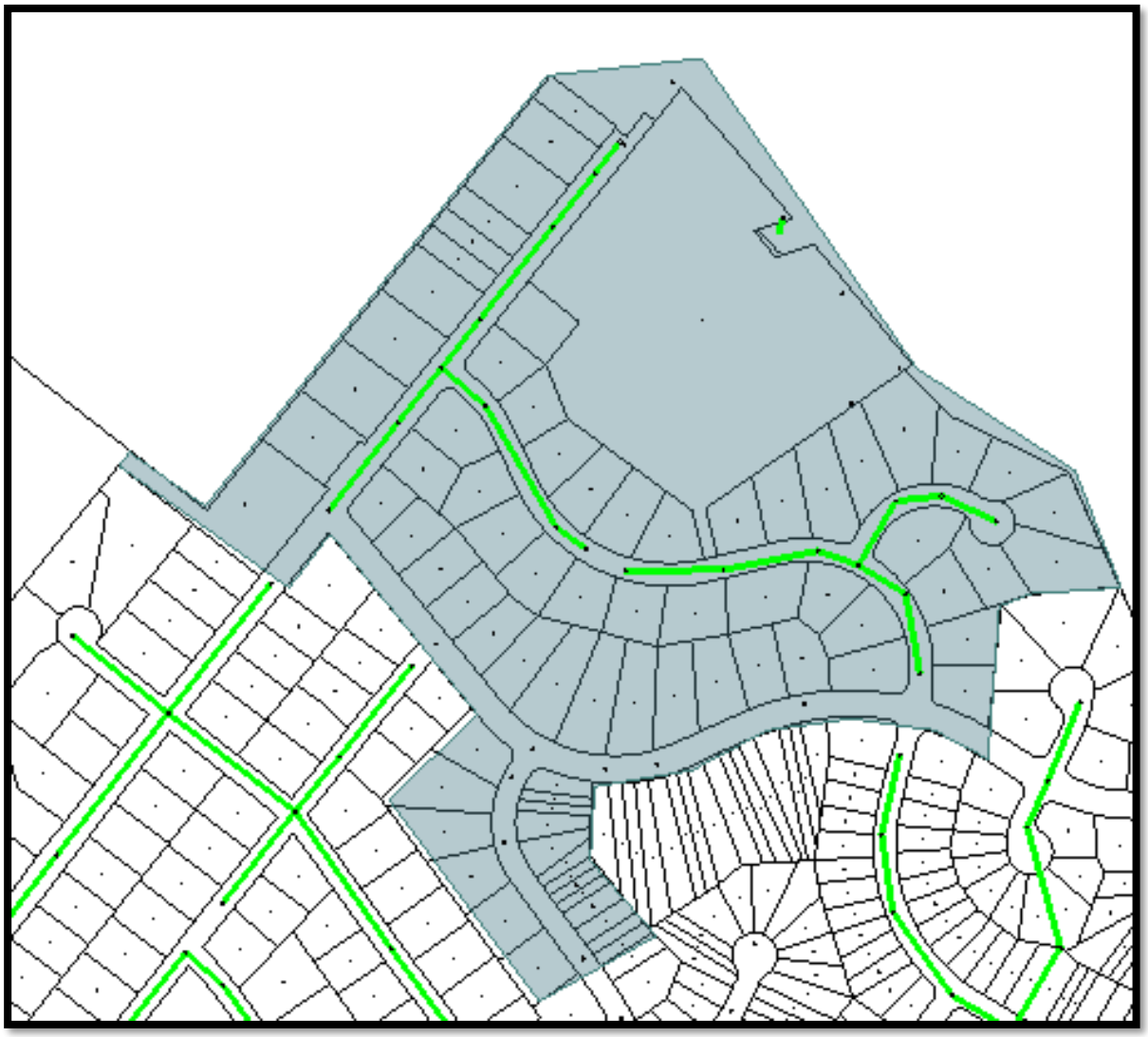
Pump station Twelve (PS 12) SewerGems Model Map



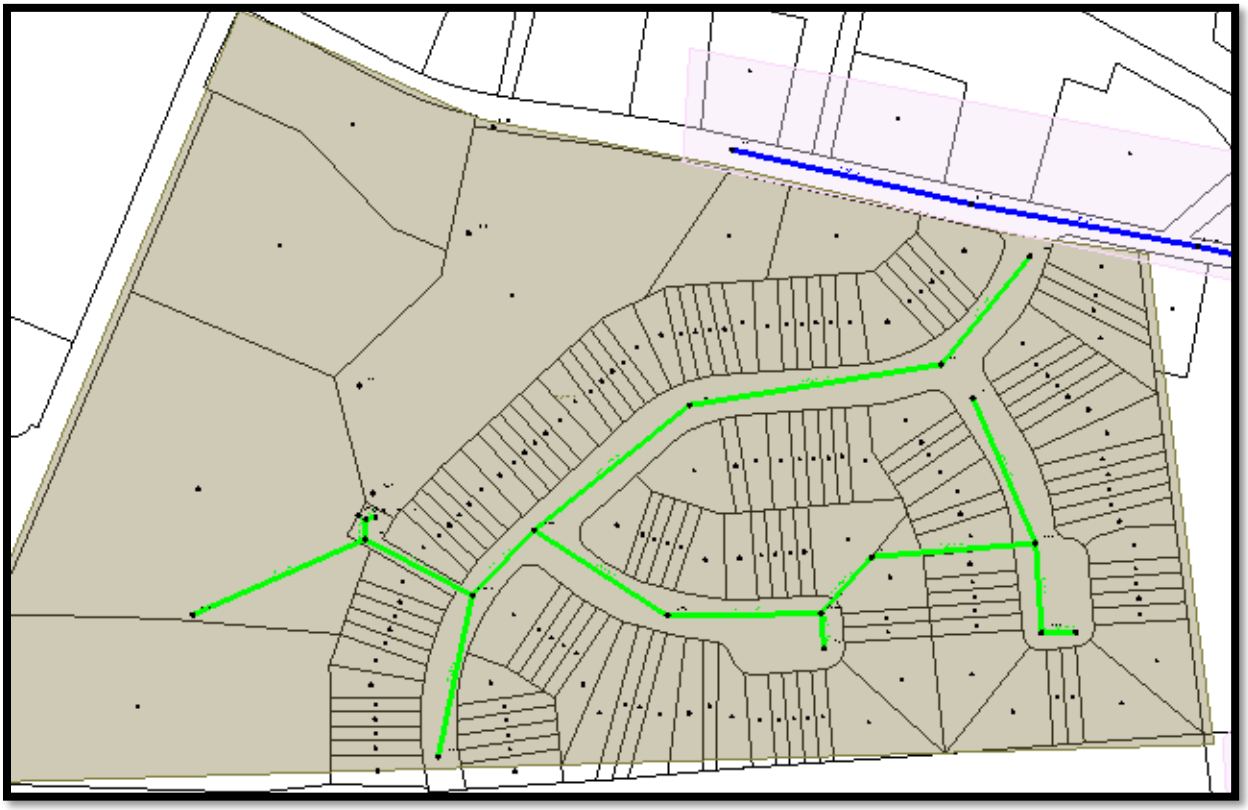
Pump station Thirteen (PS 13) SewerGems Model Map



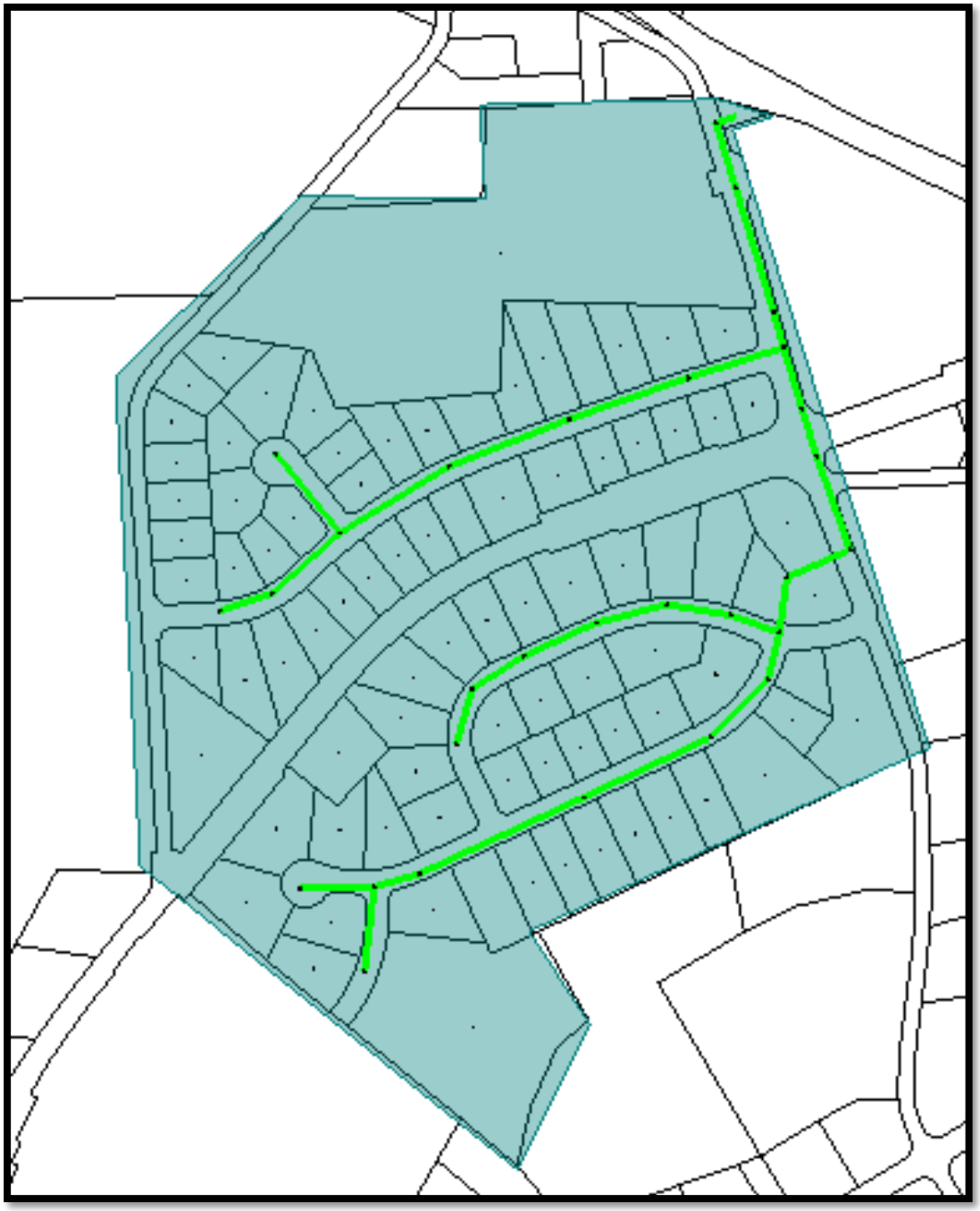
Pump station Thirteen (PS 14) SewerGems Model Map



Pump station Fifteen (PS 15) SewerGems Model Map



Pump station Sixteen (PS 16) SewerGems Model Map



Pump station Eighteen (PS 18) SewerGems Model Map

Appendix F

SewerGEMS Point Load Summary Tables

Pierson Road Interceptor (Meter Pit #1) Sewage Basin							
Point Load Applied To		**AAF (Present Day)**		**Additional AAF (Future)**		**Projected AAF (Future)**	
Manhole	**Representing**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**
LTP-034	PS 1	383,242	2,106	108,616	597	491,858	2,703
LTP-031	PS 2	4,826	27	-	-	4,826	27
LTP-031	PS 3	157,453	865	82,041	451	239,494	1,316
LTP-007	PS 4	212,404	1,167	55,946	307	268,350	1,474
LTP-009	Customers Upstream	2,184	12	-	-	2,184	12
LTP-014	Lititz Reserve	28,210	155	-	-	28,210	155
LTP-011	Customers Upstream	6,770	37	-	-	6,770	37
Throughout	Customers Upstream	10,381	57	-	-	10,381	57
LTP-018	Future Growth	-	-	25,217	139	25,217	139
Total		**805,470**	**4,426**	**271,820**	**1,494**	**1,077,290**	**5,920**

Notes:

1) AAF per EDU value for this sewage basin is 182 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Brunnerville Interceptor (Meter Pit #2) Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
LTP-213	PS 11	36,412	200	1,558	9	37,970	209
LTP-213	PS 12	12,227	67	26,150	144	38,377	211
LTP-154	PS 13	353,843	1,944	100,459	552	454,302	2,496
LTP-155	PS 16	31,648	174	-	-	31,648	174
LTP-079	Customers Upstream	22,033	121	-	-	22,033	121
LTP-114	Customers Upstream	40,060	220	-	-	40,060	220
LTP-160	Customers Upstream	2,185	12	-	-	2,185	12
LTP-175	Customers Upstream	11,836	65	-	-	11,836	65
LTP-202	Customers Upstream	5,463	30	-	-	5,463	30
LTP-161	Future Growth	-	-	16,811	92	16,811	92
Throughout	Customers Upstream	6,644	37	-	-	6,644	37
Total		**522,351**	**2,870**	**144,978**	**797**	**667,329**	**3,667**

Notes:

1) AAF per EDU value for this sewage basin is 182 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 1 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
L01-084	PS 9	24,500	119	1,161	6	25,661	125
L01-084	PS 14	37,877	183	-	-	37,877	183
L01-084	PS 15	6,844	33	-	-	6,844	33
L01-037	Customers Upstream	30,383	147	-	-	30,383	147
L01-049	Customers Upstream	61,901	300	-	-	61,901	300
L01-054	Customers Upstream	8,547	41	-	-	8,547	41
L01-046	Customers Upstream	86,003	417	-	-	86,003	417
L01-008	Customers Upstream	41,300	200	-	-	41,300	200
L01-009	Future Growth	-	-	55,543	269	55,543	269
L01-081	Future Growth	-	-	55,543	270	55,543	270
L01-084	Adjustment	85,887	416	-	-	85,887	416
Total		**383,242**	**1,856**	**112,247**	**545**	**495,489**	**2,401**

Notes:

1) AAF per EDU value for this sewage basin is 206 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 2 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
Throughout	Customers Upstream	3,620	39	-	-	3,620	39
L02-013	Adjustment	1,206	13	-	-	1,206	13
Total		**4,826**	**52**	**-**	**-**	**4,826**	**52**

Notes:

1) AAF per EDU value for this sewage basin is 93 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 3 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
L03-262	PS 6	12,511	55	2,994	13	15,505	68
L03-005				-	-		
L03-008	Customers Upstream	7,043	31	-	-	7,043	31
L03-010	Customers Upstream, Future Growth	14,994	66	-	-	14,994	66
L03-013	Customers Upstream	55,432	244	-	-	55,432	244
L03-050	Customers Upstream, Future Growth	55,432	244	39,523	174	94,955	418
L03-262	Customers Upstream	8,406	37	39,524	174	47,930	211
Throughout	Customers Upstream	3,635	16	-	-	3,635	16
Total		**157,453**	**693**	**82,041**	**361**	**239,494**	**1,054**

Notes:

1) AAF per EDU value for this sewage basin is 227 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 4 Sewage Basin							
Point Load Applied To		**AAF (Present Day)**		**Additional AAF (Future)**		**Projected AAF (Future)**	
Manhole	**Representing**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**
R04-012	PS 5	61,249	273	13,941	62	75,190	335
R04-035	PS 7	110,174	492	42,005	188	152,179	680
R04-035	Customers Upstream	13,665	61	-	-	13,665	61
R04-020	Customers Upstream	13,889	62	-	-	13,889	62
Throughout	Customers Upstream	12,769	57	-	-	12,769	57
Total		211,746	945	55,946	250	**267,692**	**1,195**

Notes:

1) AAF per EDU value for this sewage basin is 224 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 5 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
R05-002	PS 18	17,684	91	10,324	53	28,008	144
R05-055	Future Growth	-	-	3,617	19	3,617	19
R05-028	Adjustment	21,205	110	-	-	21,205	110
Throughout	Customers Upstream	22,360	116	-	-	22,360	116
Total		**61,249**	**317**	**13,941**	**72**	**75,190**	**389**

Notes:

1) AAF per EDU value for this sewage basin is 193 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 6 Sewage Basin							
Point Load Applied To		**AAF (Present Day)**		**Additional AAF (Future)**		**Projected AAF (Future)**	
Manhole	**Representing**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**
L06-011	Future Growth	-	-	2,994	23	2,994	23
L06-032	Customers Upstream	782	6	-	-	782	6
L06-018	Adjustment	782	6	-	-	782	6
Throughout	Customers Upstream	10,947	84	-	-	10,947	84
Total		**12,511**	**96**	**2,994**	**23**	**15,505**	**119**

Notes:

1) AAF per EDU value for this sewage basin is 130 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 7 Sewage Basin							
Point Load Applied To		**AAF (Present Day)**		**Additional AAF (Future)**		**Projected AAF (Future)**	
Manhole	**Representing**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**
R07-091	PS 8	10,840	42	10,150	40	20,990	82
R07-091	Customers Upstream	33,331	130	10,612	41	43,943	171
R07-042	Customers Upstream	33,330	130	10,612	41	43,942	171
R07-005	Customers Upstream	33,330	130	10,630	42	43,960	172
Throughout	Customers Upstream	-	-	-	-	-	-
Total		**110,831**	**432**	**42,004**	**164**	**152,835**	**596**

Notes:

1) AAF per EDU value for this sewage basin is 256 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections (Attachment 3) by the AAF per EDU value for this sewage basin.

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 8 Sewage Basin							
Point Load Applied To		**AAF (Present Day)**		**Additional AAF (Future)**		**Projected AAF (Future)**	
Manhole	**Representing**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**
R08-025	Customers Upstream	2,966	29	-	-	2,966	29
R08-022	Future Growth	-	-	10,150	100	10,150	100
Throughout	Customers Upstream	7,874	77	-	-	7,874	77
Total		**10,840**	**106**	**10,150**	**100**	**20,990**	**206**

Notes:

1) AAF per EDU value for this sewage basin is 102 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 9 Sewage Basin							
Point Load Applied To		**AAF (Present Day)**		**Additional AAF (Future)**		**Projected AAF (Future)**	
Manhole	**Representing**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**
R09-047	Customers Upstream	3,832	28	1,161	8	4,993	36
Throughout	Customers Upstream	20,668	151	-	-	20,668	151
Total		**24,500**	**179**	**1,161**	**8**	**25,661**	**187**

Notes:

1) AAF per EDU value for this sewage basin is 137 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 10 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
L10-048	Customers Upstream	4,660	41	-	-	4,660	41
L10-078	Customers Upstream	4,660	41	-	-	4,660	41
L10-081	Customers Upstream	4,660	41	-	-	4,660	41
L10-092	Customers Upstream	4,660	41	-	-	4,660	41
L10-008	Customers Upstream	4,660	41	-	-	4,660	41
L10-028	Customers Upstream	4,694	42	-	-	4,694	42
L10-006	Future Growth	-	-	16,434	145	16,434	145
Total		**27,994**	**247**	**16,434**	**145**	**44,428**	**392**

Notes:

1) AAF per EDU value for this sewage basin is 113 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 11 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
L11-005	Customers Upstream	2,224	8	-	-	2,224	8
L11-013	Customers Upstream	29,463	106	1,558	6	31,021	112
L11-052	Customers Upstream	3,613	13	-	-	3,613	13
L11-054	Customers Upstream	1,112	4	-	-	1,112	4
Throughout	Customers Upstream	-	-	-	-	-	-
Total		**36,412**	**131**	**1,558**	**6**	**37,970**	**137**

Notes:

1) AAF per EDU value for this sewage basin is 278 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 12 Sewage Basin							
Point Load Applied To		**AAF (Present Day)**		**Additional AAF (Future)**		**Projected AAF (Future)**	
Manhole	**Representing**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**
L12-010	Customers Upstream, Future Growth	7,079	55	13,075	101	20,154	156
L12-013	Future Growth	-	-	13,075	101	13,075	101
Throughout	Customers Upstream	5,148	40	-	-	5,148	40
Total		**12,227**	**95**	**26,150**	**202**	**38,377**	**297**

Notes:

1) AAF per EDU value for this sewage basin is 129 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 13 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
L13-120	PS 10	27,994	103	16,434	60	44,428	163
L13-109	Customers Upstream	53,945	198	-	-	53,945	198
L13-119	Customers Upstream	8,539	31	-	-	8,539	31
L13-099	Customers Upstream	118,150	434	-	-	118,150	434
L13-025	Customers Upstream	5,449	20	-	-	5,449	20
L13-024	Customers Upstream	15,530	57	-	-	15,530	57
L13-002	Customers Upstream	16,619	61	-	-	16,619	61
L13-042	Rock Lititz	12,805	47	9,520	35	22,325	82
L13-042	Coventry Drive	49,041	180	-	-	49,041	180
L13-253	Customers Upstream	8,173	30	24,835	91	33,008	121
L13-175	Customers Upstream	37,598	138	24,835	91	62,433	229
L13-150	Customers Upstream	-	-	24,835	91	24,835	91
Total		**353,843**	**1,299**	**100,459**	**368**	**454,302**	**1,667**

Notes:

1) AAF per EDU value for this sewage basin is 272 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 14 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
L14-089	Adjustment	5,177	41	-	-	5,177	41
Throughout	Customers Upstream	32,700	259	-	-	32,700	259
Total		**37,877**	**300**	**-**	**-**	**37,877**	**300**

Notes:

1) AAF per EDU value for this sewage basin is 126 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 15 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
L15-027	Adjustment	393	5	-	-	393	5
L15-011	Adjustment	394	5	-	-	394	5
L15-011	Customers Upstream	2,045	26	-	-	2,045	26
Throughout	Customers Upstream	4,012	51	-	-	4,012	51
Total		**6,844**	**87**	**-**	**-**	**6,844**	**87**

Notes:

1) AAF per EDU value for this sewage basin is 79 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 16 Sewage Basin							
Point Load Applied To		AAF (Present Day)		Additional AAF (Future)		Projected AAF (Future)	
Manhole	Representing	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)	Flow (gpd)	Magnitude (EDUs)
L16-017	Adjustment	11,469	79	-	-	11,469	79
Throughout	Customers Upstream	20,179	139	-	-	20,179	139
Total		**31,648**	**218**	**-**	**-**	**31,648**	**218**

Notes:

1) AAF per EDU value for this sewage basin is 145 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Pumping Station 18 Sewage Basin							
Point Load Applied To		**AAF (Present Day)**		**Additional AAF (Future)**		**Projected AAF (Future)**	
Manhole	**Representing**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**	**Flow (gpd)**	**Magnitude (EDUs)**
R18-028	Customers Upstream	2,583	13	-	-	2,583	13
R18-012	Future Growth	-	-	2,384	12	2,384	12
R18-001	Future Growth	-	-	7,940	40	7,940	40
Throughout	Customers Upstream	15,101	76	-	-	15,101	76
Total		**17,684**	**89**	**10,324**	**52**	**28,008**	**141**

Notes:

1) AAF per EDU value for this sewage basin is 199 gpd/EDU.

2) Present Day AAF values are from the 2019 Chapter 94 Report and Pumping Station 20 Year Flow Projections (Attachment 3). As the flow per EDU value is variable for each sewage basin, magnitudes (EDUs) may not match published values.

3) Additional AAF magnitudes were found by dividing the projected flows as reported in the Pumping Station 20 Year Flow Projections

4) Projected AAF flows and magnitudes are totals of the Present Day AAF and Additional AAF flows and magnitudes.

Appendix G

SewerGEMS Output Table

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
Meter Pit 1	9671	CO-105	31,667,261	3	805,298	10	3,221,511	3	1,077,320	14	4,309,914
Meter Pit 1	8721	LTP-002_LTP-001	6,701,534	12	805,323	48	3,221,428	16	1,077,473	64	4,309,757
Meter Pit 1	8937	LTP-003_LTP-002	6,359,079	13	805,377	51	3,221,382	17	1,077,419	68	4,309,739
Meter Pit 1	8869	LTP-004_LTP-003	6,739,078	12	805,320	48	3,221,414	16	1,077,444	64	4,309,775
Meter Pit 1	9400	LTP-005_LTP-004	6,357,634	13	805,321	51	3,221,413	17	1,077,428	68	4,309,776
Meter Pit 1	8909	LTP-006_LTP-005	5,879,568	14	803,502	55	3,214,124	18	1,075,608	73	4,302,491
Meter Pit 1	8939	LTP-007_LTP-006	3,702,848	6	212,581	23	850,322	7	268,642	29	1,074,530
Meter Pit 1	8736	LTP-008_LTP-006	6,931,698	9	590,927	34	2,363,848	12	806,988	47	3,227,953
Meter Pit 1	8854	LTP-009_LTP-008	4,608,285	13	590,967	51	2,363,820	18	807,003	70	3,227,966
Meter Pit 1	9072	LTP-010_LTP-009	4,788,054	12	588,787	49	2,355,100	17	804,824	67	3,219,201
Meter Pit 1	9361	LTP-011_LTP-010	5,074,429	12	588,786	46	2,355,093	16	804,804	63	3,219,218
Meter Pit 1	9196	LTP-012_LTP-011	11,947,004	5	581,461	19	2,325,962	7	797,940	27	3,191,523
Meter Pit 1	9425	LTP-013_LTP-012	8,032,570	7	581,317	29	2,325,268	10	797,715	40	3,190,858
Meter Pit 1	8749	LTP-014_LTP-013	6,636,185	9	581,330	35	2,325,253	12	797,736	48	3,190,811
Meter Pit 1	9341	LTP-015_LTP-014	6,613,699	8	553,302	33	2,213,142	12	769,504	47	3,078,016
Meter Pit 1	9388	LTP-016_LTP-015	7,050,803	8	553,276	31	2,213,106	11	769,525	44	3,077,957
Meter Pit 1	8906	LTP-017_LTP-016	5,273,641	10	553,258	42	2,213,136	15	769,477	58	3,077,960
Meter Pit 1	9452	LTP-018_LTP-017	8,032,570	7	553,283	28	2,213,134	10	769,520	38	3,078,001
Meter Pit 1	9354	LTP-019_LTP-018	9,186,139	6	553,281	24	2,213,125	8	744,169	32	2,976,768
Meter Pit 1	9530	LTP-020_LTP-019	13,581,764	4	553,321	16	2,213,149	5	744,145	22	2,976,851
Meter Pit 1	9287	LTP-021_LTP-020	17,308,012	3	553,337	13	2,213,176	4	744,245	17	2,976,805
Meter Pit 1	8783	LTP-022_LTP-021	24,317,764	2	552,986	9	2,212,430	3	744,124	12	2,976,008
Meter Pit 1	9317	LTP-023_LTP-022	19,366,019	3	553,094	11	2,212,374	4	744,042	15	2,975,976
Meter Pit 1	9508	LTP-024_LTP-023	20,252,821	3	552,902	11	2,211,608	4	743,886	15	2,975,342
Meter Pit 1	9258	LTP-025_LTP-024	12,332,397	4	552,491	18	2,210,212	6	743,520	24	2,973,834
Meter Pit 1	9209	LTP-026_LTP-025	7,593,041	7	552,394	29	2,209,499	10	743,283	39	2,973,131
Meter Pit 1	8771	LTP-027_LTP-026	14,952,472	1	165,374	4	661,796	2	247,463	7	990,153
Meter Pit 1	9416	LTP-028_LTP-027	2,281,859	7	165,252	29	661,032	11	247,331	43	989,346
Meter Pit 1	9454	LTP-029_LTP-028	2,292,174	7	164,716	29	658,840	11	246,798	43	987,171
Meter Pit 1	9547	LTP-030_LTP-029	2,286,658	7	163,793	29	655,196	11	245,884	43	983,537
Meter Pit 1	9035	LTP-031_LTP-030	8,474,013	2	162,871	8	651,567	3	244,984	12	979,850
Meter Pit 1	9112	LTP-032_LTP-026	3,848,487	10	386,581	40	1,546,284	13	495,416	51	1,981,624
Meter Pit 1	9558	LTP-033_LTP-032	2,640,405	15	386,212	59	1,544,822	19	495,050	75	1,980,172
Meter Pit 1	9555	LTP-034_LTP-033	4,174,847	9	384,754	37	1,538,974	12	493,592	47	1,974,327

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
Meter Pit 2	9693	CO-109	1,152,508	5	56,415	20	225,684	7	84,271	29	337,062
Meter Pit 2	8803	LTP-072_LTP-071	13,175,838	4	522,290	16	2,089,424	5	667,356	20	2,669,557
Meter Pit 2	9304	LTP-073_LTP-072	4,569,001	11	522,328	46	2,089,358	15	667,394	58	2,669,576
Meter Pit 2	9206	LTP-074_LTP-073	4,972,902	11	522,155	42	2,088,619	13	667,214	54	2,668,857
Meter Pit 2	9528	LTP-075_LTP-074	6,450,599	8	522,176	32	2,088,639	10	667,185	41	2,668,871
Meter Pit 2	9426	LTP-076_LTP-075	4,151,221	13	522,141	50	2,088,645	16	667,226	64	2,668,861
Meter Pit 2	9470	LTP-077_LTP-076	6,759,604	8	522,179	31	2,088,650	10	667,240	39	2,668,827
Meter Pit 2	9455	LTP-078_LTP-077	5,781,971	9	522,170	36	2,088,621	12	667,239	46	2,668,842
Meter Pit 2	9484	LTP-079_LTP-078	5,962,637	9	522,148	35	2,088,652	11	667,219	45	2,668,876
Meter Pit 2	9513	LTP-112_LTP-079	6,072,052	8	500,155	33	2,000,559	11	645,216	43	2,580,744
Meter Pit 2	9462	LTP-113_LTP-112	6,737,908	7	500,155	30	2,000,552	10	645,222	38	2,580,754
Meter Pit 2	9457	LTP-114_LTP-113	4,233,536	12	500,150	47	2,000,558	15	645,191	61	2,580,764
Meter Pit 2	9515	LTP-145_LTP-114	4,360,161	11	460,084	42	1,840,380	14	605,147	56	2,420,587
Meter Pit 2	9539	LTP-146_LTP-145	7,792,303	6	460,058	24	1,840,386	8	605,150	31	2,420,601
Meter Pit 2	8968	LTP-147_LTP-146	10,633,385	4	460,107	17	1,840,426	6	605,146	23	2,420,584
Meter Pit 2	9117	LTP-148_LTP-147	4,257,525	9	389,649	37	1,558,637	12	490,126	46	1,960,505
Meter Pit 2	9118	LTP-149_LTP-148	6,192,298	6	389,681	25	1,558,663	8	490,120	32	1,960,482
Meter Pit 2	9552	LTP-150_LTP-149	8,084,556	5	389,676	19	1,558,622	6	490,086	24	1,960,505
Meter Pit 2	9197	LTP-151_LTP-150	6,334,167	6	389,678	25	1,558,648	8	490,138	31	1,960,488
Meter Pit 2	9520	LTP-152_LTP-151	3,365,869	12	389,667	46	1,558,633	15	490,138	58	1,960,518
Meter Pit 2	9521	LTP-153_LTP-152	3,365,869	12	389,465	46	1,557,926	15	489,936	58	1,959,777
Meter Pit 2	9418	LTP-154_LTP-153	3,734,096	10	386,740	41	1,546,999	13	487,225	52	1,948,862
Meter Pit 2	9449	LTP-155_LTP-154	4,105,646	9	354,892	35	1,419,609	11	455,357	44	1,821,470
Meter Pit 2	9662	LTP-156_LTP-147	902,497	8	70,431	31	281,732	13	115,023	51	460,093
Meter Pit 2	9661	LTP-157_LTP-156	854,042	8	70,433	33	281,740	13	115,022	54	460,098
Meter Pit 2	9231	LTP-158_LTP-157	771,504	9	70,431	37	281,738	15	115,023	60	460,094
Meter Pit 2	9133	LTP-159_LTP-158	1,021,175	7	70,430	28	281,732	11	115,025	45	460,101
Meter Pit 2	9477	LTP-160_LTP-159	631,287	11	70,433	45	281,737	18	115,027	73	460,095
Meter Pit 2	8734	LTP-161_LTP-160	979,377	7	68,253	28	273,001	12	112,844	46	451,356
Meter Pit 2	9507	LTP-162_LTP-161	915,559	7	68,246	30	273,001	10	96,097	42	384,388
Meter Pit 2	8957	LTP-163_LTP-162	921,758	7	68,247	30	272,997	10	96,093	42	384,382
Meter Pit 2	9527	LTP-164_LTP-163	956,540	7	68,249	29	272,997	10	96,094	40	384,386
Meter Pit 2	9532	LTP-165_LTP-164	842,156	8	68,248	32	273,002	11	96,098	46	384,385
Meter Pit 2	9422	LTP-166_LTP-165	866,273	8	68,254	32	272,997	11	96,096	44	384,383
Meter Pit 2	8811	LTP-172_LTP-166	754,159	9	68,251	36	272,998	13	96,095	51	384,387
Meter Pit 2	9557	LTP-173_LTP-172	878,844	8	68,251	31	273,004	11	96,093	44	384,380
Meter Pit 2	9342	LTP-174_LTP-173	872,750	8	68,249	31	272,996	11	96,098	44	384,385
Meter Pit 2	9374	LTP-175_LTP-174	830,889	8	68,249	33	272,997	12	96,092	46	384,386
Meter Pit 2	9467	LTP-195_LTP-175	989,777	6	56,417	23	225,679	9	84,270	34	337,069
Meter Pit 2	9692	LTP-202_LTP-202A	987,864	6	56,417	23	225,678	9	84,265	34	337,059
Meter Pit 2	9465	LTP-203_LTP-202	774,233	7	50,960	26	203,840	10	78,809	41	315,221
Meter Pit 2	9500	LTP-204_LTP-203	974,700	5	50,957	21	203,839	8	78,804	32	315,228
Meter Pit 2	8735	LTP-205_LTP-204	1,022,536	5	50,779	20	203,117	8	78,623	31	314,491
Meter Pit 2	9135	LTP-206_LTP-205	1,187,543	4	50,779	17	203,117	7	78,627	26	314,497
Meter Pit 2	9504	LTP-207_LTP-206	2,125,515	2	50,779	10	203,114	4	78,623	15	314,491
Meter Pit 2	9028	LTP-208_LTP-207	1,781,293	3	50,785	11	203,121	4	78,626	18	314,487
Meter Pit 2	8779	LTP-209_LTP-208	1,876,199	3	50,770	11	203,117	4	78,631	17	314,488
Meter Pit 2	9180	LTP-210_LTP-209	1,374,195	4	50,777	15	203,106	6	78,618	23	314,498
Meter Pit 2	8733	LTP-211_LTP-210	1,760,416	3	50,418	11	201,656	4	78,268	18	313,037
Meter Pit 2	9378	LTP-212_LTP-211	1,358,893	4	50,415	15	201,660	6	78,259	23	313,035
Meter Pit 2	9079	LTP-213_LTP-212	1,329,953	4	49,328	15	197,285	6	77,164	23	308,669

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 01	9562	CO-1	4,017,376	10	383,258	38	1,532,950	12	495,543	49	1,982,254
PS 01	9618	L01-002_L01-001	431,355	17	71,644	66	286,562	29	127,181	118	508,718
PS 01	9620	L01-003_L01-002	506,590	14	71,642	57	286,563	25	127,179	100	508,717
PS 01	9619	L01-005_L01-003	485,587	15	71,643	59	286,564	26	127,180	105	508,715
PS 01	6920	L01-006_L01-005	580,939	12	71,641	49	286,566	22	127,179	88	508,717
PS 01	6932	L01-007_L01-006	437,160	16	71,642	66	286,563	29	127,179	116	508,719
PS 01	6989	L01-008_L01-007	481,570	15	71,643	60	286,563	26	127,178	106	508,716
PS 01	7002	L01-009_L01-008	470,749	6	30,349	26	121,397	18	85,888	73	343,548
PS 01	6994	L01-010_L01-009	439,810	7	30,351	28	121,396	7	30,351	28	121,401
PS 01	6988	L01-011_L01-010	498,947	6	30,351	24	121,399	6	30,351	24	121,399
PS 01	6928	L01-012_L01-011	520,219	6	30,350	23	121,398	6	30,350	23	121,398
PS 01	6963	L01-013_L01-012	522,969	6	30,348	23	121,397	6	30,348	23	121,397
PS 01	6985	L01-014_L01-013	486,214	6	30,349	25	121,398	6	30,349	25	121,398
PS 01	6876	L01-015_L01-014	493,932	6	30,347	25	121,399	6	30,347	25	121,399
PS 01	6901	L01-016_L01-015	527,797	6	30,348	23	121,399	6	30,348	23	121,399
PS 01	9622	L01-017_L01-016	1,115,911	3	30,353	11	121,400	3	30,353	11	121,400
PS 01	9621	L01-018_L01-017	2,342,925	1	30,341	5	121,387	1	30,341	5	121,387
PS 01	6992	L01-019_L01-018	493,932	6	30,347	25	121,399	6	30,347	25	121,399
PS 01	6991	L01-020_L01-019	552,233	5	30,351	22	121,397	5	30,351	22	121,397
PS 01	6929	L01-021_L01-020	493,932	6	30,347	25	121,399	6	30,347	25	121,399
PS 01	7013	L01-037_L01-021	780,975	4	30,349	16	121,395	4	30,349	16	121,395
PS 01	6942	L01-043_L01-001	1,835,593	17	311,610	68	1,246,404	20	368,385	80	1,473,522
PS 01	6934	L01-044_L01-043	1,764,942	18	311,601	71	1,246,402	21	368,379	83	1,473,515
PS 01	6954	L01-045_L01-044	2,091,418	15	311,600	60	1,246,401	18	368,382	70	1,473,529
PS 01	6990	L01-046_L01-045	2,442,250	13	311,607	51	1,246,402	15	368,389	60	1,473,531
PS 01	7000	L01-047_L01-046	1,956,450	12	225,500	46	902,021	14	282,296	58	1,129,146
PS 01	7012	L01-048_L01-047	1,518,653	15	225,505	59	902,034	19	282,287	74	1,129,149
PS 01	7006	L01-049_L01-048	1,861,906	12	225,514	48	902,038	15	282,284	61	1,129,153
PS 01	6951	L01-050_L01-049	1,266,567	13	163,577	52	654,283	17	220,345	70	881,391
PS 01	6873	L01-051_L01-050	2,655,655	6	163,562	25	654,274	8	220,340	33	881,385
PS 01	6955	L01-052_L01-051	1,994,089	8	163,575	33	654,280	11	220,347	44	881,387
PS 01	6943	L01-053_L01-052	1,726,759	9	163,576	38	654,286	13	220,352	51	881,390
PS 01	6979	L01-054_L01-053	2,066,827	8	163,569	32	654,275	11	220,344	43	881,398
PS 01	6974	L01-070_L01-054	1,733,097	9	155,112	36	620,414	12	211,888	49	847,536
PS 01	7010	L01-071_L01-070	2,367,817	7	155,116	26	620,415	9	211,872	36	847,536
PS 01	7011	L01-072_L01-071	1,816,701	9	155,110	34	620,422	12	211,882	47	847,527
PS 01	7008	L01-073_L01-072	2,495,932	6	155,097	25	620,414	8	211,880	34	847,544
PS 01	6897	L01-074_L01-073	2,702,462	6	155,094	23	620,431	8	211,873	31	847,546
PS 01	7004	L01-075_L01-074	1,688,330	9	155,107	37	620,428	13	211,885	50	847,542
PS 01	6950	L01-076_L01-075	2,232,430	7	155,109	28	620,414	9	211,880	38	847,542
PS 01	9638	L01-080_L01-076	2,205,301	7	155,099	28	620,417	10	211,885	38	847,541
PS 01	9637	L01-081_L01-080	4,340,656	4	155,092	14	620,410	5	211,867	20	847,556
PS 01	9636	L01-082_L01-081	3,581,966	4	155,099	17	620,432	4	156,138	17	624,552
PS 01	9635	L01-083_L01-082	1,557,433	10	155,105	40	620,419	10	156,133	40	624,562
PS 01	9634	L01-084_L01-083	1,706,600	9	155,113	36	620,417	9	156,137	37	624,564

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 02	9563	CO-2	1,425,859	0	4,819	1	19,306	0	4,819	1	19,306
PS 02	8738	L02-002_L02-001	1,986,594	0	4,728	1	18,932	0	4,728	1	18,932
PS 02	9018	L02-003_L02-002	1,687,099	0	742	0	2,969	0	742	0	2,969
PS 02	9214	L02-004_L02-003	1,896,982	0	550	0	2,219	0	550	0	2,219
PS 02	8766	L02-005_L02-004	1,209,881	0	278	0	1,113	0	278	0	1,113
PS 02	9284	L02-006_L02-002	1,028,559	0	3,991	2	15,963	0	3,991	2	15,963
PS 02	8884	L02-007_L02-006	1,471,097	0	3,810	1	15,226	0	3,810	1	15,226
PS 02	9489	L02-008_L02-007	493,932	1	3,621	3	14,477	1	3,621	3	14,477
PS 02	9451	L02-009_L02-008	1,076,910	0	3,058	1	12,255	0	3,058	1	12,255
PS 02	9168	L02-010_L02-009	1,003,841	0	2,600	1	10,390	0	2,600	1	10,390
PS 02	9324	L02-011_L02-010	676,344	0	2,320	1	9,279	0	2,320	1	9,279
PS 02	9482	L02-012_L02-011	1,235,159	0	1,853	1	7,423	0	1,853	1	7,423

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 03	9564	CO-3	9,206,030	2	147,296	6	579,980	2	220,945	10	874,573
PS 03	8732	L03-002_L03-001	8,534,620	2	162,158	8	648,631	3	247,504	12	990,016
PS 03	8894	L03-003_L03-002	3,976,868	3	135,214	14	548,808	5	178,959	18	707,883
PS 03	9232	L03-004_L03-003	4,173,937	3	137,740	13	550,960	4	179,479	17	713,743
PS 03	9170	L03-005_L03-004	4,344,420	3	130,333	12	525,675	4	169,432	16	677,730
PS 03	8915	L03-006_L03-005	3,706,261	4	137,132	15	544,820	5	174,194	19	700,483
PS 03	9278	L03-007_L03-006	4,444,464	3	137,778	12	542,225	4	173,334	16	702,225
PS 03	9238	L03-008_L03-007	4,838,097	3	135,467	11	541,867	4	174,171	15	701,524
PS 03	9252	L03-009_L03-008	3,484,639	4	132,416	15	522,696	5	170,747	20	686,474
PS 03	9490	L03-010_L03-009	3,635,258	4	127,234	14	512,571	5	167,222	19	672,523
PS 03	9246	L03-011_L03-010	2,341,425	5	117,071	20	465,944	7	156,875	27	629,843
PS 03	9327	L03-012_L03-011	3,197,509	4	111,913	14	454,046	5	153,480	19	610,724
PS 03	9553	L03-013_L03-012	3,264,358	4	114,253	14	453,746	5	153,425	19	610,435
PS 03	9617	L03-014_L03-013	2,088,349	3	56,385	11	229,718	5	96,064	19	386,345
PS 03	9616	L03-015_L03-014	2,502,561	2	57,559	9	230,236	4	97,600	16	387,897
PS 03	9614	L03-016_L03-015	1,442,385	4	57,695	16	229,339	7	96,640	27	386,559
PS 03	9107	L03-017_L03-016	1,472,944	4	57,445	16	228,306	7	97,214	26	387,384
PS 03	9446	L03-039_L03-017	919,875	6	57,032	25	229,049	11	96,587	42	387,267
PS 03	9286	L03-040_L03-039	1,942,188	3	56,323	12	227,236	5	95,167	20	384,553
PS 03	9302	L03-041_L03-040	1,297,846	4	54,510	17	219,336	7	93,445	29	372,482
PS 03	9251	L03-042_L03-041	3,519,579	2	56,313	7	232,292	3	98,548	11	394,193
PS 03	9264	L03-049_L03-042	2,385,305	2	54,862	9	221,833	4	95,412	16	381,649
PS 03	9267	L03-050_L03-049	3,688,176	2	55,323	6	221,291	3	95,893	10	376,194
PS 03	8910	L03-258_L03-002	1,421,828	2	21,327	6	83,888	5	63,982	18	254,507
PS 03	9081	L03-259_L03-258	1,975,728	1	21,733	4	84,956	3	63,223	13	254,869
PS 03	9369	L03-260_L03-259	1,734,641	1	22,550	5	90,201	4	67,651	16	268,869
PS 03	9132	L03-261_L03-260	1,283,324	1	16,683	5	65,450	4	50,050	16	198,915
PS 03	9375	L03-262_L03-261	1,295,101	2	20,722	7	84,182	5	63,460	20	253,840

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 04	9565	CO-4	2,847,383	7	211,760	30	847,096	9	267,768	38	1,071,100
PS 04	9596	CO-34	1,822,885	1	18,138	4	72,569	1	18,138	4	72,569
PS 04	8935	R04-002_R04-001	4,538,886	5	211,784	19	847,092	6	267,794	24	1,071,086
PS 04	9414	R04-003_R04-002	3,988,177	5	211,772	21	847,089	7	267,766	27	1,071,105
PS 04	9092	R04-004_R04-003	2,902,422	7	211,761	29	847,101	9	267,777	37	1,071,081
PS 04	9362	R04-005_R04-004	3,988,177	5	211,772	21	847,089	7	267,766	27	1,071,105
PS 04	9169	R04-006_R04-005	3,885,570	5	211,530	22	846,200	7	267,560	28	1,070,203
PS 04	9439	R04-007_R04-006	3,038,332	7	211,316	28	845,294	9	267,312	35	1,069,280
PS 04	9548	R04-008_R04-007	3,459,615	6	211,313	24	845,288	8	267,324	31	1,069,298
PS 04	8795	R04-009_R04-008	4,605,150	2	79,393	7	317,571	2	93,254	8	373,109
PS 04	9144	R04-010_R04-009	4,310,800	2	79,405	7	317,534	2	93,286	9	373,100
PS 04	9821	R04-011A_R04-011	1,456,276	5	79,382	22	317,556	6	93,275	26	373,098
PS 04	9501	R04-011_R04-010	4,937,023	2	79,387	6	317,549	2	93,260	8	373,091
PS 04	9820	R04-012_R04-011A	3,783,517	2	79,378	8	317,551	2	93,264	10	373,093
PS 04	9597	R04-013_R04-012	2,732,420	1	18,143	3	72,573	1	18,143	3	72,573
PS 04	8752	R04-015_R04-014	1,247,117	1	17,697	6	70,786	1	17,697	6	70,786
PS 04	9205	R04-016_R04-015	1,896,100	1	17,691	4	70,781	1	17,691	4	70,781
PS 04	9068	R04-017_R04-016	1,897,331	1	16,791	4	67,203	1	16,791	4	67,203
PS 04	9265	R04-018_R04-017	493,932	3	16,354	13	65,406	3	16,354	13	65,406
PS 04	9550	R04-019_R04-018	570,344	3	15,679	11	62,721	3	15,679	11	62,721
PS 04	8761	R04-020_R04-019	603,169	2	14,337	10	57,343	2	14,337	10	57,343
PS 04	9025	R04-021_R04-008	4,497,779	3	131,920	12	527,724	4	174,064	15	696,211
PS 04	8804	R04-022_R04-021	6,077,445	2	131,941	9	527,765	3	174,058	11	696,171
PS 04	9518	R04-023_R04-022	3,244,713	4	131,930	16	527,753	5	174,046	21	696,186
PS 04	8949	R04-024_R04-023	892,134	15	131,938	59	527,742	20	174,046	78	696,194
PS 04	9262	R04-025_R04-024	895,558	15	131,710	59	526,848	19	173,828	78	695,294
PS 04	9393	R04-026_R04-025	3,554,137	4	131,503	15	525,941	5	173,584	20	694,407
PS 04	9065	R04-027_R04-026	3,373,437	4	131,024	16	524,165	5	173,159	21	692,600
PS 04	9153	R04-028_R04-027	896,614	15	130,592	58	522,367	19	172,706	77	690,814
PS 04	9399	R04-029_R04-028	895,558	15	130,143	58	520,579	19	172,252	77	689,025
PS 04	9373	R04-030_R04-029	2,216,394	6	128,795	23	515,201	8	170,906	31	683,647
PS 04	8829	R04-031_R04-030	1,375,297	9	127,903	37	511,610	12	170,014	49	680,071
PS 04	8963	R04-032_R04-031	2,051,982	6	127,223	25	508,933	8	169,350	33	677,380
PS 04	9595	R04-033_R04-032	1,085,902	12	126,334	47	505,346	16	168,445	62	673,791
PS 04	9594	R04-034_R04-033	1,352,688	9	125,895	37	503,552	12	168,004	50	672,002
PS 04	8818	R04-035_R04-034	1,734,241	7	124,328	29	497,276	10	166,435	38	665,723

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 05	9566	CO-5	1,951,382	3	61,117	13	244,430	4	75,187	15	300,708
PS 05	9047	R05-002_R05-001	493,932	10	47,422	38	189,680	12	57,830	47	231,318
PS 05	9171	R05-003_R05-002	499,778	6	29,687	24	118,742	6	29,687	24	118,742
PS 05	9368	R05-004_R05-003	780,975	4	29,685	15	118,739	4	29,685	15	118,739
PS 05	9326	R05-005_R05-004	1,330,369	2	29,681	9	118,749	2	29,681	9	118,749
PS 05	9460	R05-006_R05-005	739,721	4	29,685	16	118,740	4	29,685	16	118,740
PS 05	9431	R05-007_R05-006	780,975	4	29,685	15	118,739	4	29,685	15	118,739
PS 05	9210	R05-008_R05-007	1,224,631	2	29,685	10	118,740	2	29,685	10	118,740
PS 05	8859	R05-009_R05-008	763,019	4	29,300	15	117,200	4	29,300	15	117,200
PS 05	8780	R05-010_R05-009	2,739,842	0	1,726	0	6,932	0	1,726	0	6,932
PS 05	8814	R05-011_R05-010	1,746,313	0	1,729	0	6,933	0	1,729	0	6,933
PS 05	9187	R05-012_R05-011	2,106,133	0	1,537	0	6,171	0	1,537	0	6,171
PS 05	8842	R05-013_R05-012	1,791,680	0	573	0	2,311	0	573	0	2,311
PS 05	9273	R05-014_R05-009	633,901	4	27,568	17	110,261	4	27,568	17	110,261
PS 05	9606	R05-015_R05-014	672,354	4	27,183	16	108,720	4	27,183	16	108,720
PS 05	9605	R05-016_R05-015	1,819,297	1	26,980	6	107,957	1	26,980	6	107,957
PS 05	9604	R05-017_R05-016	1,820,743	1	26,601	6	106,404	1	26,601	6	106,404
PS 05	9051	R05-018_R05-017	638,574	4	26,220	16	104,867	4	26,220	16	104,867
PS 05	9036	R05-019_R05-018	553,904	5	25,829	19	103,320	5	25,829	19	103,320
PS 05	8827	R05-020_R05-019	943,275	3	24,865	11	99,468	3	24,865	11	99,468
PS 05	8983	R05-021_R05-020	1,530,392	0	2,693	1	10,789	0	2,693	1	10,789
PS 05	8931	R05-022_R05-021	1,697,504	0	2,122	1	8,488	0	2,122	1	8,488
PS 05	8797	R05-023_R05-022	1,616,772	0	1,730	0	6,936	0	1,730	0	6,936
PS 05	8932	R05-024_R05-023	1,186,386	0	1,542	1	6,169	0	1,542	1	6,169
PS 05	9229	R05-025_R05-024	882,397	0	1,156	1	4,624	0	1,156	1	4,624
PS 05	9027	R05-026_R05-021	1,049,890	0	388	0	1,543	0	388	0	1,543
PS 05	9190	R05-027_R05-020	665,243	3	22,166	13	88,670	3	22,166	13	88,670
PS 05	9213	R05-028_R05-027	1,545,244	1	21,788	6	87,136	1	21,788	6	87,136
PS 05	8886	R05-044_R05-019	1,289,738	0	580	0	2,309	0	580	0	2,309
PS 05	9130	R05-050_R05-001	1,719,650	1	13,688	3	54,754	1	17,351	4	69,388
PS 05	9320	R05-051_R05-050	1,366,644	1	13,680	4	54,748	1	17,343	5	69,398
PS 05	9270	R05-052_R05-051	608,839	2	13,687	9	54,747	3	17,352	11	69,396
PS 05	9275	R05-053_R05-052	1,742,428	1	13,486	3	53,980	1	17,163	4	68,617
PS 05	8889	R05-054_R05-053	1,601,499	0	3,283	1	13,100	0	6,934	2	27,754
PS 05	9189	R05-055_R05-054	2,505,373	0	3,282	1	13,103	0	6,940	1	27,760
PS 05	9357	R05-056_R05-055	3,093,509	0	2,506	0	10,023	0	2,506	0	10,023
PS 05	9110	R05-057_R05-056	780,975	0	1,539	1	6,170	0	1,539	1	6,170
PS 05	9120	R05-058_R05-053	1,522,401	1	10,017	3	40,100	1	10,017	3	40,100
PS 05	9409	R05-059_R05-058	1,746,313	1	9,832	2	39,327	1	9,832	2	39,327
PS 05	9039	R05-060_R05-059	2,137,167	0	9,254	2	37,016	0	9,254	2	37,016
PS 05	8984	R05-061_R05-060	2,175,231	0	9,245	2	37,001	0	9,245	2	37,001
PS 05	9082	R05-062_R05-061	2,301,938	0	9,254	2	37,015	0	9,254	2	37,015
PS 05	8773	R05-063_R05-062	1,746,313	1	9,255	2	37,004	1	9,255	2	37,004
PS 05	8840	R05-064_R05-063	3,117,160	0	8,479	1	33,915	0	8,479	1	33,915
PS 05	8853	R05-065_R05-064	959,052	1	5,208	2	20,821	1	5,208	2	20,821
PS 05	9390	R05-066_R05-065	629,581	1	5,011	3	20,046	1	5,011	3	20,046
PS 05	9458	R05-067_R05-066	1,116,140	0	1,730	1	6,942	0	1,730	1	6,942
PS 05	8782	R05-068_R05-067	1,327,392	0	584	0	2,310	0	584	0	2,310
PS 05	9429	R05-069_R05-066	2,053,656	0	2,115	0	8,482	0	2,115	0	8,482
PS 05	9216	R05-070_R05-069	712,651	0	770	0	3,086	0	770	0	3,086
PS 05	9397	R05-073_R05-064	1,291,697	0	3,281	1	13,111	0	3,281	1	13,111
PS 05	9084	R05-074_R05-073	1,903,602	0	1,542	0	6,168	0	1,542	0	6,168
PS 05	8988	R05-075_R05-074	1,348,860	0	769	0	3,089	0	769	0	3,089
PS 05	8845	R05-077_R05-075	807,895	0	194	0	768	0	194	0	768

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 06	9567	CO-6	987,546	1	12,512	5	49,180	2	15,504	6	60,961
PS 06	8778	L06-002_L06-001	510,968	1	6,515	5	25,615	2	9,514	7	37,398
PS 06	9407	L06-003_L06-002	1,789,713	0	6,389	1	25,110	1	9,378	2	36,886
PS 06	9319	L06-004_L06-003	957,097	1	6,259	3	24,588	1	9,255	4	36,370
PS 06	9410	L06-005_L06-004	1,495,031	0	5,995	2	23,562	1	8,985	2	35,343
PS 06	9381	L06-006_L06-005	780,975	1	5,475	3	21,516	1	8,474	4	33,301
PS 06	9307	L06-007_L06-006	819,770	1	4,951	2	19,470	1	7,952	4	31,250
PS 06	9125	L06-008_L06-007	1,652,136	0	4,692	1	18,438	0	7,682	2	30,218
PS 06	9379	L06-009_L06-008	1,502,235	0	391	0	1,532	0	3,395	1	13,325
PS 06	8855	L06-010_L06-009	1,880,837	0	130	0	521	0	3,122	1	12,301
PS 06	8858	L06-011_L06-010	1,872,712	0	-	0	-	0	2,996	1	11,779
PS 06	9529	L06-012_L06-008	1,167,551	0	4,168	1	16,392	0	4,168	1	16,392
PS 06	9076	L06-013_L06-012	1,692,599	0	3,521	1	13,829	0	3,521	1	13,829
PS 06	9227	L06-014_L06-013	2,592,555	0	3,396	1	13,326	0	3,396	1	13,326
PS 06	9167	L06-015_L06-014	1,902,517	0	782	0	3,082	0	780	0	3,082
PS 06	9049	L06-016_L06-014	2,214,264	0	2,214	0	8,702	0	2,214	0	8,702
PS 06	9219	L06-017_L06-016	1,426,190	0	1,954	1	7,687	0	1,954	1	7,687
PS 06	9235	L06-018_L06-017	2,245,260	0	1,437	0	5,636	0	1,437	0	5,636
PS 06	9050	L06-019_L06-001	1,896,522	0	5,993	1	23,574	0	5,993	1	23,574
PS 06	9146	L06-020_L06-019	855,515	1	5,860	3	23,056	1	5,860	3	23,056
PS 06	9472	L06-021_L06-020	1,804,910	0	1,300	0	5,126	0	1,300	0	5,126
PS 06	9285	L06-022_L06-021	1,559,055	0	652	0	2,557	0	655	0	2,557
PS 06	9124	L06-023_L06-020	1,461,070	0	4,296	1	16,905	0	4,296	1	16,905
PS 06	8979	L06-024_L06-023	2,385,918	0	4,175	1	16,391	0	4,175	1	16,391
PS 06	9865	L06-027_L06-028	2,665,631	0	3,652	1	14,341	0	3,652	1	14,341
PS 06	9866	L06-028_L06-024	1,600,523	0	672	1	15,365	0	3,905	1	15,365
PS 06	9609	L06-029_L06-028	1,947,746	0	915	1	18,698	0	915	0	3,584
PS 06	9607	L06-030_L06-028	2,694,081	0	3,206	0	9,214	0	2,344	0	9,214
PS 06	9478	L06-031_L06-030	2,419,763	0	2,323	0	8,203	0	2,081	0	8,203
PS 06	8881	L06-032_L06-031	1,463,388	0	512	0	4,610	0	1,171	0	4,610

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 07	9568	CO-7	2,582,263	4	110,831	17	443761.9	6	152,818	24	611,506
PS 07	8739	R07-002_R07-001	1,430,454	2	33,330	9	133447.0	3	44,101	12	176,475
PS 07	8775	R07-003_R07-002	1,144,742	3	33,335	12	133454.1	4	44,095	15	176,473
PS 07	9549	R07-004_R07-003	549,445	6	33,329	24	133449.3	8	44,098	32	176,471
PS 07	8926	R07-005_R07-004	706,558	5	33,328	19	133454.6	6	44,096	25	176,470
PS 07	8857	R07-021_R07-001	716,904	11	77,504	43	310304.7	15	108,711	61	435,024
PS 07	9283	R07-022_R07-021	2,140,847	2	33,333	6	133460.4	2	43,845	8	175,442
PS 07	8849	R07-023_R07-022	787,212	4	33,331	17	133448.3	6	43,840	22	175,446
PS 07	8999	R07-024_R07-023	607,912	5	33,332	22	133448.8	7	43,843	29	175,443
PS 07	8992	R07-025_R07-024	494,939	7	33,329	27	133450.5	9	43,842	35	175,446
PS 07	9218	R07-026_R07-025	1,948,238	2	33,334	7	133454.3	2	43,835	9	175,439
PS 07	9263	R07-029_R07-026	1,300,390	3	33,329	10	133446.1	3	43,849	13	175,449
PS 07	9306	R07-033_R07-029	1,345,672	2	33,332	10	133450.3	3	43,842	13	175,449
PS 07	9215	R07-042_R07-033	2,320,365	1	33,320	6	133444.2	2	43,832	8	175,443
PS 07	9240	R07-057_R07-021	1,652,139	3	44,178	11	176861.4	4	64,863	16	259,584
PS 07	8887	R07-058_R07-057	1,684,519	3	44,168	10	176857.7	4	64,871	15	259,584
PS 07	9220	R07-059_R07-058	1,178,586	4	44,173	15	176858.7	6	64,869	22	259,584
PS 07	8757	R07-060_R07-059	840,945	5	44,175	21	176850.8	8	64,871	31	259,575
PS 07	9071	R07-061_R07-060	511,239	9	44,171	35	176853.1	13	64,866	51	259,577
PS 07	8962	R07-062_R07-061	1,468,580	3	44,175	12	176861.1	4	64,867	18	259,571
PS 07	8947	R07-063_R07-062	1,506,335	3	44,166	12	176858.8	4	64,863	17	259,572
PS 07	8982	R07-064_R07-063	2,303,741	2	44,163	8	176858.2	3	64,873	11	259,586
PS 07	9333	R07-065_R07-064	1,408,664	3	44,176	13	176857.8	5	64,869	18	259,575
PS 07	8833	R07-066_R07-065	1,665,044	3	44,174	11	176861.0	4	64,870	16	259,580
PS 07	9593	R07-078_R07-066	1,140,687	4	44,167	16	176852.1	6	64,871	23	259,575
PS 07	9592	R07-079_R07-078	1,831,549	2	44,177	10	176854.3	4	64,873	14	259,585
PS 07	9591	R07-080_R07-079	504,775	9	44,173	35	176853.0	13	64,869	51	259,575
PS 07	9420	R07-084_R07-080	930,285	5	44,170	19	176856.4	7	64,869	28	259,577
PS 07	9423	R07-085_R07-084	493,932	9	44,172	36	176852.3	13	64,868	53	259,576
PS 07	9186	R07-089_R07-085	719,102	6	44,174	25	176856.0	9	64,870	36	259,581
PS 07	9163	R07-090_R07-089	907,411	5	44,173	19	176854.4	7	64,871	29	259,574
PS 07	8802	R07-091_R07-090	780,975	6	44,172	23	176851.8	8	64,868	33	259,580

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 08	9569	CO-8	1,727,855	1	10,834	3	43,352	1	21,063	5	84,268
PS 08	8741	R08-002_R08-001	764,759	1	4,091	2	16,366	1	4,091	2	16,366
PS 08	9450	R08-003_R08-002	825,383	0	305	0	1,230	0	305	0	1,230
PS 08	9199	R08-005_R08-002	1,181,543	0	3,781	1	15,136	0	3,781	1	15,136
PS 08	9087	R08-006_R08-005	1,375,648	0	3,480	1	13,908	0	3,480	1	13,908
PS 08	9143	R08-007_R08-006	412,338	1	3,373	3	13,500	1	3,373	3	13,500
PS 08	9601	R08-008_R08-007	683,074	0	2,862	2	11,455	0	2,862	2	11,455
PS 08	9600	R08-009_R08-008	660,044	0	2,350	1	9,406	0	2,350	1	9,406
PS 08	8975	R08-010_R08-009	1,425,859	0	2,039	1	8,184	0	2,039	1	8,184
PS 08	9413	R08-012_R08-010	964,960	0	1,737	1	6,957	0	1,737	1	6,957
PS 08	8952	R08-013_R08-012	916,963	0	917	0	3,677	0	917	0	3,677
PS 08	8893	R08-014_R08-013	921,702	0	507	0	2,046	0	507	0	2,046
PS 08	8830	R08-015_R08-014	912,995	0	310	0	1,223	0	310	0	1,223
PS 08	9404	R08-017_R08-001	1,025,470	1	6,748	3	27,001	2	16,972	7	67,907
PS 08	9588	R08-018_R08-017	1,600,523	0	6,546	2	26,185	1	16,773	4	67,078
PS 08	9524	R08-019_R08-018	1,689,958	0	6,337	2	25,366	1	16,562	4	66,263
PS 08	8808	R08-020_R08-019	780,975	1	5,623	3	22,500	2	15,854	8	63,407
PS 08	8918	R08-021_R08-020	780,975	1	5,420	3	21,680	2	15,643	8	62,587
PS 08	9242	R08-022_R08-021	686,038	1	5,111	3	20,451	2	15,340	9	61,359
PS 08	9033	R08-023_R08-022	604,941	1	4,604	3	18,408	1	4,604	3	18,408
PS 08	8864	R08-024_R08-023	493,932	1	4,193	3	16,774	1	4,193	3	16,774
PS 08	9223	R08-025_R08-024	676,820	1	3,885	2	15,547	1	3,885	2	15,547

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 09	9570	CO-9	1,665,044	1	24,493	6	98,005	2	25,625	6	102,483
PS 09	8740	L09-002_L09-001	1,300,974	2	24,497	8	98,002	2	25,616	8	102,478
PS 09	9096	L09-003_L09-002	912,677	3	24,496	11	98,003	3	25,619	11	102,475
PS 09	9356	L09-004_L09-003	1,015,024	2	23,955	9	95,808	2	25,071	10	100,284
PS 09	9577	L09-005_L09-004	890,449	1	6,429	3	25,734	1	6,438	3	25,752
PS 09	9536	L09-006_L09-005	1,171,463	1	6,021	2	24,085	1	6,033	2	24,109
PS 09	9321	L09-007_L09-006	907,980	0	817	0	3,287	0	826	0	3,287
PS 09	9495	L09-008_L09-006	1,076,500	0	958	0	3,832	0	958	0	3,832
PS 09	9473	L09-009_L09-006	924,062	0	3,419	1	13,685	0	3,428	1	13,704
PS 09	9003	L09-010_L09-009	495,483	0	1,095	1	4,380	0	1,095	1	4,385
PS 09	9282	L09-011_L09-010	924,062	0	961	0	3,835	0	961	0	3,835
PS 09	9496	L09-012_L09-009	1,641,372	0	1,362	0	5,482	0	1,362	0	5,482
PS 09	9272	L09-013_L09-012	780,975	0	547	0	2,187	0	547	0	2,195
PS 09	9292	L09-014_L09-009	1,062,772	0	414	0	1,647	0	414	0	1,647
PS 09	9578	L09-015_L09-004	493,932	3	17,243	14	68,983	4	18,359	15	73,433
PS 09	8971	L09-016_L09-015	1,246,723	0	2,469	1	9,849	0	2,469	1	9,862
PS 09	9142	L09-017_L09-016	1,209,881	0	2,323	1	9,304	0	2,323	1	9,316
PS 09	8941	L09-018_L09-017	493,932	0	1,916	2	7,666	0	1,916	2	7,671
PS 09	9476	L09-019_L09-018	837,502	0	1,508	1	6,022	0	1,508	1	6,030
PS 09	8885	L09-020_L09-019	1,383,891	0	678	0	2,740	0	678	0	2,740
PS 09	9158	L09-021_L09-020	837,502	0	544	0	2,186	0	544	0	2,194
PS 09	8903	L09-022_L09-021	1,420,502	0	142	0	554	0	142	0	554
PS 09	9481	L09-023_L09-015	1,018,267	1	14,235	6	56,941	2	15,345	6	61,371
PS 09	9313	L09-024_L09-023	1,192,637	0	4,794	2	19,166	0	4,794	2	19,178
PS 09	8896	L09-025_L09-024	676,344	1	4,383	3	17,517	1	4,383	3	17,538
PS 09	8933	L09-026_L09-025	675,249	1	4,106	2	16,422	1	4,112	2	16,442
PS 09	9468	L09-027_L09-026	1,002,972	0	2,879	1	11,494	0	2,879	1	11,504
PS 09	9480	L09-028_L09-027	1,175,546	0	2,057	1	8,217	0	2,057	1	8,217
PS 09	9330	L09-029_L09-028	951,166	0	1,370	1	5,479	0	1,370	1	5,479
PS 09	9432	L09-030_L09-029	855,515	0	821	0	3,285	0	821	0	3,285
PS 09	9127	L09-031_L09-026	1,711,031	0	958	0	3,833	0	958	0	3,833
PS 09	9435	L09-032_L09-023	855,515	1	8,760	4	35,042	1	9,864	5	39,456
PS 09	9139	L09-033_L09-032	1,684,560	0	2,881	1	11,506	0	2,881	1	11,506
PS 09	9045	L09-034_L09-033	780,975	0	2,601	1	10,403	0	2,601	1	10,410
PS 09	8774	L09-035_L09-034	552,233	0	2,325	2	9,305	0	2,330	2	9,316
PS 09	8978	L09-036_L09-035	552,233	0	2,192	2	8,758	0	2,192	2	8,769
PS 09	8974	L09-037_L09-036	552,233	0	1,916	1	7,665	0	1,916	1	7,671
PS 09	8994	L09-038_L09-037	1,942,588	0	1,651	0	6,566	0	1,651	0	6,585
PS 09	9179	L09-039_L09-038	552,233	0	1,370	1	5,473	0	1,370	1	5,478
PS 09	9034	L09-040_L09-039	552,233	0	1,093	1	4,379	0	1,093	1	4,385
PS 09	9147	L09-041_L09-040	552,233	0	955	1	3,833	0	961	1	3,838
PS 09	9031	L09-042_L09-041	552,233	0	685	0	2,739	0	685	0	2,739
PS 09	9038	L09-043_L09-042	780,975	0	414	0	1,640	0	414	0	1,648
PS 09	9114	L09-044_L09-032	780,975	1	5,334	3	21,352	1	6,435	3	25,757
PS 09	8722	L09-045_L09-044	489,502	1	4,929	4	19,707	1	6,026	5	24,113
PS 09	9491	L09-046_L09-045	493,932	1	4,929	4	19,708	1	6,026	5	24,114
PS 09	8989	L09-047_L09-046	780,975	1	4,241	2	16,971	1	5,342	3	21,375

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 10	9571	CO-10	3,330,867	1	28,013	3	111,984	1	44,434	5	177,702
PS 10	9749	L10-002_L10-001	631,928	1	9,334	6	37,328	4	25,764	16	103,061
PS 10	9748	L10-003_L10-002	1,470,879	1	9,325	3	37,331	2	25,770	7	103,065
PS 10	9747	L10-004_L10-003	968,925	0	4,670	2	18,661	2	21,103	9	84,403
PS 10	9746	L10-005_L10-004	1,228,505	0	4,668	2	18,661	2	21,106	7	84,398
PS 10	9745	L10-006_L10-005	2,033,437	0	4,657	1	18,667	1	21,107	4	84,408
PS 10	9744	L10-007_L10-006	1,587,153	0	4,666	1	18,665	0	4,666	1	18,665
PS 10	9743	L10-008_L10-007	1,878,217	0	4,658	1	18,669	0	4,658	1	18,669
PS 10	9753	L10-025_L10-003	492,137	1	4,665	4	18,662	1	4,665	4	18,662
PS 10	9752	L10-026_L10-025	2,053,274	0	4,661	1	18,664	0	4,661	1	18,664
PS 10	9751	L10-027_L10-026	1,725,386	0	4,659	1	18,669	0	4,659	1	18,669
PS 10	9750	L10-028_L10-027	1,809,660	0	4,669	1	18,658	0	4,669	1	18,658
PS 10	9712	L10-042_L10-001	496,094	1	4,668	4	18,663	1	4,668	4	18,663
PS 10	9281	L10-043_L10-042	493,402	1	4,668	4	18,665	1	4,668	4	18,665
PS 10	9067	L10-044_L10-043	496,624	1	4,668	4	18,663	1	4,668	4	18,663
PS 10	8888	L10-045_L10-044	501,143	1	4,666	4	18,663	1	4,666	4	18,663
PS 10	9257	L10-046_L10-045	299,552	2	4,667	6	18,665	2	4,667	6	18,665
PS 10	9497	L10-047_L10-046	281,689	2	4,668	7	18,665	2	4,668	7	18,665
PS 10	9061	L10-048_L10-047	554,878	1	4,667	3	18,666	1	4,667	3	18,666
PS 10	8753	L10-071_L10-001	3,290,821	0	13,986	2	55,977	0	13,986	2	55,977
PS 10	8762	L10-072_L10-071	3,263,225	0	9,333	1	37,331	0	9,333	1	37,331
PS 10	8800	L10-073_L10-072	493,932	2	9,330	8	37,326	2	9,330	8	37,326
PS 10	9108	L10-074_L10-073	579,187	2	9,331	6	37,329	2	9,331	6	37,329
PS 10	9226	L10-075_L10-074	720,023	1	9,332	5	37,326	1	9,332	5	37,326
PS 10	9184	L10-076_L10-075	2,081,298	0	4,662	1	18,669	0	4,662	1	18,669
PS 10	9172	L10-077_L10-076	1,552,584	0	4,673	1	18,662	0	4,673	1	18,662
PS 10	9201	L10-078_L10-077	1,283,273	0	4,671	1	18,659	0	4,671	1	18,659
PS 10	9249	L10-080_L10-075	855,515	1	4,663	2	18,667	1	4,663	2	18,667
PS 10	9280	L10-081_L10-080	1,047,788	0	4,663	2	18,661	0	4,663	2	18,661
PS 10	9011	L10-082_L10-071	2,066,266	0	4,670	1	18,658	0	4,670	1	18,658
PS 10	9185	L10-083_L10-082	2,019,827	0	4,666	1	18,663	0	4,666	1	18,663
PS 10	9102	L10-084_L10-083	1,721,888	0	4,666	1	18,665	0	4,666	1	18,665
PS 10	8799	L10-087_L10-084	1,655,324	0	4,668	1	18,672	0	4,668	1	18,672
PS 10	9222	L10-088_L10-087	1,542,302	0	4,673	1	18,662	0	4,673	1	18,662
PS 10	8877	L10-089_L10-088	493,932	1	4,668	4	18,666	1	4,668	4	18,666
PS 10	8972	L10-090_L10-089	493,932	1	4,668	4	18,666	1	4,668	4	18,666
PS 10	9074	L10-091_L10-090	552,233	1	4,666	3	18,665	1	4,666	3	18,665
PS 10	9299	L10-092_L10-091	493,932	1	4,668	4	18,666	1	4,668	4	18,666

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 11	9572	CO-11	563,056	6	36,413	26	145,646	7	38,080	27	152,318
PS 11	9073	L11-002_L11-001	2,837,543	0	2,213	0	8,882	0	2,213	0	8,882
PS 11	9274	L11-003_L11-002	2,208,931	0	2,231	0	8,902	0	2,231	0	8,902
PS 11	9419	L11-004_L11-003	965,340	0	2,220	1	8,891	0	2,220	1	8,891
PS 11	9002	L11-005_L11-004	1,481,796	0	2,223	1	8,891	0	2,223	1	8,891
PS 11	8742	L11-006_L11-001	1,438,932	2	34,189	10	136,756	2	35,858	10	143,418
PS 11	9456	L11-007_L11-006	1,307,102	3	34,194	10	136,749	3	35,854	11	143,428
PS 11	8965	L11-008_L11-007	1,434,743	2	29,470	8	117,850	2	31,134	9	124,521
PS 11	9048	L11-009_L11-008	1,888,596	2	29,462	6	117,848	2	31,124	7	124,515
PS 11	9442	L11-010_L11-009	1,656,698	2	29,456	7	117,858	2	31,129	8	124,517
PS 11	8789	L11-011_L11-010	1,521,128	2	29,464	8	117,857	2	31,137	8	124,520
PS 11	8900	L11-012_L11-011	1,665,877	2	29,469	7	117,861	2	31,135	7	124,524
PS 11	8846	L11-013_L11-012	1,511,928	2	29,467	8	117,855	2	31,131	8	124,522
PS 11	8764	L11-045_L11-007	844,476	1	4,729	2	18,899	1	4,729	2	18,899
PS 11	8823	L11-046_L11-045	4,243,111	0	4,710	0	18,882	0	4,710	0	18,882
PS 11	9075	L11-047_L11-046	2,328,498	0	4,727	1	18,907	0	4,727	1	18,907
PS 11	9243	L11-048_L11-047	732,273	0	3,610	2	14,455	0	3,610	2	14,455
PS 11	9328	L11-049_L11-048	1,118,186	0	3,612	1	14,458	0	3,612	1	14,458
PS 11	9241	L11-050_L11-049	1,076,500	0	3,617	1	14,457	0	3,617	1	14,457
PS 11	8920	L11-051_L11-050	1,619,464	0	3,611	1	14,446	0	3,611	1	14,446
PS 11	8890	L11-052_L11-051	1,746,313	0	3,615	1	14,459	0	3,615	1	14,459
PS 11	8955	L11-053_L11-047	908,531	0	1,108	0	4,452	0	1,108	0	4,452
PS 11	9123	L11-054_L11-053	1,600,523	0	1,104	0	4,449	0	1,104	0	4,449

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 12	9573	CO-12	940,418	1	12,225	5	48,911	4	38,313	16	153,251
PS 12	9128	L12-002_L12-001	1,222,595	1	10,685	3	42,730	2	23,731	8	94,947
PS 12	8976	L12-003_L12-002	1,610,021	1	10,175	3	40,669	1	23,217	6	92,882
PS 12	9277	L12-004_L12-003	493,932	2	9,908	8	39,643	5	22,963	19	91,847
PS 12	9346	L12-005_L12-004	924,062	1	9,786	4	39,125	2	22,834	10	91,334
PS 12	9310	L12-006_L12-005	1,003,743	1	9,014	4	36,034	2	22,062	9	88,239
PS 12	9279	L12-007_L12-006	1,329,953	1	8,498	3	33,980	2	21,545	6	86,168
PS 12	9334	L12-009_L12-007	1,306,821	1	7,985	2	31,913	2	21,027	6	84,107
PS 12	9089	L12-010_L12-009	1,306,821	1	7,331	2	29,351	2	20,386	6	81,533
PS 12	8866	L12-011_L12-001	763,423	0	1,542	1	6,176	2	14,574	8	58,310
PS 12	9499	L12-012_L12-011	1,209,881	0	1,416	0	5,662	1	14,446	5	57,796
PS 12	9408	L12-013_L12-012	1,711,031	0	515	0	2,053	1	13,551	3	54,188

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 13	9716	CO-111	892,257	4	36,440	16	145,759	6	52,786	24	211,188
PS 13	9574	CO-13	8,437,285	4	353,860	17	1,415,355	5	454,263	22	1,817,222
PS 13	9584	CO-23	1,558,955	2	37,602	10	150,392	4	62,436	16	249,776
PS 13	9001	L13-002_L13-001	2,529,462	14	353,846	56	1,415,386	18	454,241	72	1,817,241
PS 13	9300	L13-003_L13-002	2,215,732	15	337,234	61	1,348,893	20	437,607	79	1,750,761
PS 13	8720	L13-024_L13-003	3,603,371	9	337,239	37	1,348,886	12	437,593	49	1,750,770
PS 13	9441	L13-025_L13-024	2,778,257	12	321,694	46	1,286,777	15	422,073	61	1,688,625
PS 13	9509	L13-026_L13-025	1,985,283	16	316,256	64	1,264,982	21	416,631	84	1,666,823
PS 13	9506	L13-027_L13-026	1,305,290	21	270,469	83	1,081,903	23	296,353	91	1,185,647
PS 13	9225	L13-028_L13-027	1,456,557	19	270,468	74	1,081,901	20	296,351	81	1,185,652
PS 13	9221	L13-029_L13-028	1,461,822	19	270,481	74	1,081,894	20	296,355	81	1,185,654
PS 13	9325	L13-030_L13-029	1,183,315	23	270,470	91	1,081,893	25	296,361	100	1,185,646
PS 13	9291	L13-031_L13-030	1,010,359	27	270,473	107	1,081,903	29	296,359	117	1,185,647
PS 13	9673	L13-032_L13-031	630,135	10	61,848	39	247,385	11	71,382	45	285,577
PS 13	9672	L13-037_L13-032	1,386,085	4	61,847	18	247,389	5	71,383	21	285,575
PS 13	9380	L13-042_L13-037	543,250	11	61,844	46	247,385	13	71,383	53	285,581
PS 13	8776	L13-098_L13-031	2,633,096	8	208,620	32	834,507	9	224,972	34	900,071
PS 13	8743	L13-099_L13-098	4,257,076	5	208,639	20	834,515	5	224,986	21	900,074
PS 13	9268	L13-100_L13-099	895,558	10	90,389	40	361,537	12	106,733	48	427,011
PS 13	9546	L13-101_L13-100	1,752,213	5	90,379	21	361,534	6	106,727	24	427,014
PS 13	9318	L13-102_L13-101	2,115,558	4	90,377	17	361,549	5	106,730	20	427,004
PS 13	9364	L13-103_L13-102	2,493,129	4	90,376	15	361,554	4	106,731	17	426,998
PS 13	9486	L13-104_L13-103	2,452,587	4	90,378	15	361,536	4	106,737	17	426,995
PS 13	9200	L13-105_L13-104	1,705,092	5	90,387	21	361,548	6	106,739	25	427,006
PS 13	9526	L13-106_L13-105	1,185,871	8	90,387	30	361,536	9	106,728	36	427,008
PS 13	9350	L13-108_L13-106	1,266,511	7	90,391	29	361,538	8	106,729	34	427,004
PS 13	9371	L13-109_L13-108	2,493,949	4	90,381	14	361,548	4	106,741	17	427,014
PS 13	9198	L13-110_L13-109	2,649,097	1	32,531	5	130,177	2	47,154	7	188,616
PS 13	8770	L13-111_L13-110	3,166,277	1	36,444	5	145,775	2	52,782	7	211,191
PS 13	9559	L13-112_L13-111	3,967,333	1	36,460	4	145,760	1	52,805	5	211,181
PS 13	9545	L13-113_L13-112	4,005,058	1	36,446	4	145,744	1	52,787	5	211,187
PS 13	8993	L13-114_L13-113	1,959,148	2	36,440	7	145,761	3	52,779	11	211,196
PS 13	9417	L13-117_L13-114	2,076,638	1	28,325	5	113,301	2	41,034	8	164,158
PS 13	9332	L13-118_L13-117	895,558	4	36,440	16	145,761	6	52,784	24	211,191
PS 13	9715	L13-120_L13-119	1,406,398	2	27,987	8	111,977	3	44,344	13	177,403
PS 13	9177	L13-130_L13-026	2,711,536	2	45,771	7	183,083	4	120,284	18	481,189
PS 13	9040	L13-131_L13-130	2,181,076	2	45,781	8	183,080	6	120,265	22	481,189
PS 13	8810	L13-132_L13-131	2,776,747	2	45,761	7	183,099	4	120,261	17	481,183
PS 13	9260	L13-133_L13-132	1,983,658	2	45,763	9	183,092	6	120,269	24	481,176
PS 13	8798	L13-149_L13-133	2,523,020	2	45,768	7	183,096	5	120,272	19	481,190
PS 13	9427	L13-150_L13-149	2,928,117	2	45,766	6	183,095	4	120,287	16	481,177
PS 13	8807	L13-161_L13-150	1,730,715	3	45,777	11	183,092	6	95,432	22	381,830
PS 13	9531	L13-162_L13-161	1,905,848	2	45,778	10	183,095	5	95,445	20	381,818
PS 13	9261	L13-163_L13-162	1,790,922	3	45,776	10	183,086	5	95,438	21	381,825
PS 13	9351	L13-164_L13-163	2,364,379	2	45,774	8	183,098	4	95,450	16	381,824
PS 13	9436	L13-165_L13-164	1,100,388	4	45,776	17	183,083	9	95,437	35	381,824
PS 13	9090	L13-166_L13-165	2,322,887	2	37,608	6	150,384	3	62,439	11	249,780
PS 13	9492	L13-167_L13-166	1,812,732	2	37,596	8	150,384	3	62,430	14	249,776
PS 13	9511	L13-168_L13-167	1,887,747	2	37,604	8	150,397	3	62,428	13	249,768
PS 13	9583	L13-170_L13-169	1,952,398	2	37,603	8	150,393	3	62,438	13	249,770
PS 13	9106	L13-171_L13-170	1,209,510	3	37,604	12	150,391	5	62,435	21	249,776
PS 13	9159	L13-172_L13-171	2,370,266	2	37,592	6	150,393	3	62,433	11	249,779
PS 13	8876	L13-173_L13-172	2,686,598	1	37,586	6	150,396	2	62,437	9	249,773
PS 13	9059	L13-174_L13-173	2,181,678	2	37,590	7	150,383	3	62,440	11	249,780
PS 13	9428	L13-175_L13-174	2,418,526	2	37,608	6	150,384	3	62,422	10	249,785
PS 13	8907	L13-246_L13-165	3,416,627	0	8,166	1	32,697	1	33,005	4	132,053
PS 13	9152	L13-247_L13-246	2,155,696	0	8,170	2	32,702	2	33,004	6	132,058
PS 13	8980	L13-250_L13-247	604,941	1	8,173	5	32,691	5	33,006	22	132,052
PS 13	8981	L13-251_L13-250	604,941	1	8,173	5	32,691	5	33,006	22	132,052
PS 13	9448	L13-252_L13-251	868,005	1	8,177	4	32,698	4	33,010	15	132,050
PS 13	9016	L13-253_L13-252	1,852,245	0	8,168	2	32,692	2	33,007	7	132,047

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 14	9575	CO-14	1,601,850	2	37,884	9	151,503	2	37,884	9	151,503
PS 14	9161	L14-002_L14-001	1,744,612	0	3,908	1	15,649	0	3,908	1	15,649
PS 14	8785	L14-003_L14-002	1,459,100	0	3,531	1	14,139	0	3,531	1	14,139
PS 14	9582	L14-004_L14-003	1,536,402	0	3,534	1	14,135	0	3,534	1	14,135
PS 14	8878	L14-005_L14-004	675,918	0	2,400	1	9,598	0	2,400	1	9,598
PS 14	9525	L14-006_L14-005	1,223,078	0	1,896	1	7,571	0	1,896	1	7,571
PS 14	8934	L14-016_L14-001	431,673	8	33,839	31	135,347	8	33,839	31	135,347
PS 14	9349	L14-017_L14-016	833,288	0	1,008	0	4,041	0	1,008	0	4,041
PS 14	9382	L14-018_L14-017	818,954	0	762	0	3,030	0	762	0	3,030
PS 14	8958	L14-019_L14-016	557,430	6	32,827	24	131,308	6	32,827	24	131,308
PS 14	8973	L14-020_L14-019	976,658	3	25,002	10	100,000	3	25,002	10	100,000
PS 14	8831	L14-021_L14-020	373,592	7	24,747	26	98,987	7	24,747	26	98,987
PS 14	8956	L14-022_L14-021	459,374	5	24,494	21	97,975	5	24,494	21	97,975
PS 14	9386	L14-023_L14-022	537,436	5	24,244	18	96,964	5	24,244	18	96,964
PS 14	9041	L14-024_L14-023	427,848	6	23,609	22	94,439	6	23,609	22	94,439
PS 14	8880	L14-025_L14-024	2,000,455	0	500	0	2,020	0	500	0	2,020
PS 14	8891	L14-026_L14-025	1,339,779	0	509	0	2,023	0	509	0	2,023
PS 14	9000	L14-027_L14-024	386,361	6	21,462	22	85,853	6	21,462	22	85,853
PS 14	9104	L14-028_L14-027	540,084	4	21,209	16	84,847	4	21,209	16	84,847
PS 14	8767	L14-029_L14-028	970,395	2	16,662	7	66,666	2	16,662	7	66,666
PS 14	9141	L14-030_L14-029	1,413,776	0	4,171	1	16,668	0	4,171	1	16,668
PS 14	9212	L14-031_L14-030	636,815	1	3,916	2	15,653	1	3,916	2	15,653
PS 14	9301	L14-032_L14-031	704,713	1	3,538	2	14,144	1	3,538	2	14,144
PS 14	9211	L14-033_L14-032	1,457,486	0	2,521	1	10,100	0	2,521	1	10,100
PS 14	9405	L14-034_L14-033	877,991	0	1,765	1	7,068	0	1,765	1	7,068
PS 14	8865	L14-035_L14-034	585,921	0	885	1	3,533	0	885	1	3,533
PS 14	9308	L14-036_L14-035	1,014,287	0	761	0	3,033	0	761	0	3,033
PS 14	9554	L14-037_L14-029	740,185	2	12,502	7	49,999	2	12,502	7	49,999
PS 14	9551	L14-038_L14-037	1,059,416	0	2,649	1	10,605	0	2,649	1	10,605
PS 14	9469	L14-039_L14-038	767,383	0	1,895	1	7,574	0	1,895	1	7,574
PS 14	9358	L14-040_L14-039	1,397,593	0	1,006	0	4,039	0	1,006	0	4,039
PS 14	8825	L14-041_L14-040	1,186,921	0	380	0	1,519	0	380	0	1,519
PS 14	9533	L14-042_L14-037	1,308,478	0	3,415	1	13,634	0	3,415	1	13,634
PS 14	9464	L14-043_L14-042	466,781	1	2,399	2	9,597	1	2,399	2	9,597
PS 14	9544	L14-044_L14-043	803,841	0	2,018	1	8,079	0	2,018	1	8,079
PS 14	9461	L14-045_L14-044	629,108	0	1,516	1	6,058	0	1,516	1	6,058
PS 14	9463	L14-046_L14-045	880,117	0	880	0	3,538	0	880	0	3,538
PS 14	9519	L14-056_L14-042	828,848	0	506	0	2,022	0	506	0	2,022
PS 14	9523	L14-057_L14-037	596,634	1	6,062	4	24,241	1	6,062	4	24,241
PS 14	9445	L14-058_L14-057	416,080	1	5,430	5	21,715	1	5,430	5	21,715
PS 14	9437	L14-059_L14-058	455,977	1	4,546	4	18,180	1	4,546	4	18,180
PS 14	9193	L14-060_L14-059	316,127	1	3,408	4	13,635	1	3,408	4	13,635
PS 14	9288	L14-061_L14-060	775,813	0	3,033	2	12,118	0	3,033	2	12,118
PS 14	8927	L14-062_L14-061	399,837	1	2,399	2	9,596	1	2,399	2	9,596
PS 14	9402	L14-063_L14-062	502,529	0	2,020	2	8,081	0	2,020	2	8,081
PS 14	9421	L14-064_L14-063	446,748	0	1,514	1	6,062	0	1,514	1	6,062
PS 14	9534	L14-065_L14-064	505,712	0	1,138	1	4,546	0	1,138	1	4,546
PS 14	9542	L14-066_L14-065	695,753	0	633	0	2,526	0	633	0	2,526
PS 14	9194	L14-067_L14-059	529,906	0	503	0	2,019	0	503	0	2,019
PS 14	9006	L14-068_L14-028	1,067,169	0	4,290	2	17,171	0	4,290	2	17,171
PS 14	9148	L14-069_L14-068	907,284	0	4,164	2	16,667	0	4,164	2	16,667
PS 14	8929	L14-070_L14-069	1,571,305	0	3,535	1	14,142	0	3,535	1	14,142
PS 14	9538	L14-071_L14-070	822,503	0	3,282	2	13,127	0	3,282	2	13,127
PS 14	9023	L14-072_L14-071	547,506	0	2,146	2	8,585	0	2,146	2	8,585
PS 14	9315	L14-073_L14-072	499,076	0	1,642	1	6,568	0	1,642	1	6,568
PS 14	8863	L14-074_L14-073	538,460	0	1,136	1	4,545	0	1,136	1	4,545
PS 14	9510	L14-075_L14-074	644,383	0	883	1	3,538	0	883	1	3,538
PS 14	9309	L14-078_L14-024	1,545,854	0	1,391	0	5,550	0	1,391	0	5,550
PS 14	9296	L14-079_L14-078	766,340	0	1,134	1	4,544	0	1,134	1	4,544
PS 14	9149	L14-080_L14-079	1,454,587	0	378	0	1,513	0	378	0	1,513
PS 14	9013	L14-085_L14-019	855,209	1	7,705	4	30,805	1	7,705	4	30,805
PS 14	9254	L14-086_L14-085	552,138	1	7,702	6	30,809	1	7,702	6	30,809
PS 14	9344	L14-087_L14-086	640,493	1	6,943	4	27,778	1	6,943	4	27,778
PS 14	9359	L14-088_L14-087	1,039,664	1	6,571	3	26,262	1	6,571	3	26,262
PS 14	9348	L14-089_L14-088	1,033,837	1	5,934	2	23,737	1	5,934	2	23,737
PS 14	9208	L14-090_L14-086	860,386	0	379	0	1,514	0	379	0	1,514

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 15	9579	CO-15	3,756,401	0	-	0	-	0	-	0	-
PS 15	8836	L15-005_L15-004	1,845,941	0	4,799	1	19,198	0	4,799	1	19,198
PS 15	8985	L15-006_L15-005	2,260,807	0	4,635	1	18,561	0	4,635	1	18,561
PS 15	9293	L15-007_L15-006	1,305,277	0	4,490	1	17,935	0	4,490	1	17,935
PS 15	8950	L15-008_L15-007	1,329,229	0	4,174	1	16,682	0	4,174	1	16,682
PS 15	8936	L15-009_L15-008	1,316,110	0	3,540	1	14,161	0	3,540	1	14,161
PS 15	9406	L15-010_L15-009	1,399,754	0	3,387	1	13,536	0	3,387	1	13,536
PS 15	8821	L15-011_L15-010	1,399,754	0	2,828	1	11,324	0	2,828	1	11,324
PS 15	9004	L15-012_L15-008	1,305,277	0	548	0	2,206	0	548	0	2,206
PS 15	9250	L15-013_L15-012	1,305,277	0	392	0	1,579	0	392	0	1,579
PS 15	9576	L15-026_L15-025	583,738	0	864	1	3,462	0	864	1	3,462
PS 15	8940	L15-027_L15-026	1,459,344	0	715	0	2,831	0	715	0	2,831
PS 15	9024	L15-028_L15-025	1,052,348	0	1,179	0	4,725	0	1,179	0	4,725
PS 15	8917	L15-029_L15-028	1,158,319	0	394	0	1,575	0	394	0	1,575
PS 15	9064	L15-030_L15-029	2,664,386	0	320	0	1,252	0	320	0	1,252
PS 15	8851	L15-031_L15-028	583,738	0	630	0	2,516	0	630	0	2,516
PS 15	9162	L15-032_L15-031	1,167,476	0	467	0	1,891	0	467	0	1,891
PS 15	9173	L15-033_L15-032	994,070	0	239	0	944	0	239	0	944

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 16	9580	CO-16	772,501	4	31,649	16	126,590	4	31,649	16	126,590
PS 16	8737	L16-002_L16-001	604,941	5	31,644	21	126,590	5	31,644	21	126,590
PS 16	9032	L16-003_L16-002	821,417	2	19,887	10	79,554	2	19,887	10	79,554
PS 16	8921	L16-004_L16-003	950,097	2	16,836	7	67,362	2	16,836	7	67,362
PS 16	9331	L16-005_L16-004	1,042,483	1	6,682	3	26,708	1	6,682	3	26,708
PS 16	9471	L16-006_L16-005	1,864,506	0	4,363	1	17,414	0	4,363	1	17,414
PS 16	9113	L16-007_L16-006	1,352,688	0	1,447	0	5,803	0	1,447	0	5,803
PS 16	9182	L16-008_L16-004	552,233	2	9,438	7	37,745	2	9,438	7	37,745
PS 16	9156	L16-009_L16-008	676,344	1	7,697	5	30,780	1	7,697	5	30,780
PS 16	8875	L16-010_L16-009	293,691	2	5,516	8	22,068	2	5,516	8	22,068
PS 16	9202	L16-011_L16-010	292,134	2	4,937	7	19,742	2	4,937	7	19,742
PS 16	9178	L16-012_L16-011	1,038,710	0	1,890	1	7,551	0	1,890	1	7,551
PS 16	8923	L16-013_L16-011	256,420	1	1,741	3	6,970	1	1,741	3	6,970
PS 16	8754	L16-014_L16-013	358,670	0	1,162	1	4,645	0	1,162	1	4,645
PS 16	8756	L16-015_L16-009	358,670	0	1,015	1	4,064	0	1,015	1	4,064
PS 16	9204	L16-016_L16-003	362,633	1	2,031	2	8,130	1	2,031	2	8,130
PS 16	9294	L16-017_L16-002	551,149	2	11,762	9	47,035	2	11,762	9	47,035

SewerGEMS Compiled Output				Present AAF		Present PF		Future AAF		Future PF	
Model	ID	Label	Theoretical Capacity, Flowing Full (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)	Flow / Capacity (%)	Flow (gpd)
PS 18	9581	CO-18	1,787,061	1	17,692	4	70,732	2	28,021	6	112,067
PS 18	8961	R18-002_R18-001	523,300	3	17,682	14	70,734	4	20,069	15	80,274
PS 18	9314	R18-003_R18-002	950,573	2	17,681	7	70,732	2	20,067	8	80,276
PS 18	8809	R18-004_R18-003	2,232,818	1	17,684	3	70,736	1	20,073	4	80,270
PS 18	8944	R18-005_R18-004	2,229,543	0	8,138	1	32,596	0	10,523	2	42,116
PS 18	8872	R18-006_R18-005	749,989	1	8,145	4	32,587	1	10,530	6	42,127
PS 18	9140	R18-007_R18-006	788,594	1	8,146	4	32,585	1	10,528	5	42,127
PS 18	8964	R18-008_R18-007	550,184	1	8,148	6	32,587	2	10,531	8	42,122
PS 18	8899	R18-009_R18-008	562,830	1	7,750	6	30,995	2	10,131	7	40,535
PS 18	8867	R18-010_R18-009	686,896	1	4,767	3	19,075	1	7,151	4	28,609
PS 18	9037	R18-011_R18-010	1,319,878	0	4,567	1	18,280	1	6,956	2	27,823
PS 18	9363	R18-012_R18-011	2,369,659	0	3,981	1	15,900	0	6,351	1	25,426
PS 18	9503	R18-013_R18-012	2,240,039	0	2,778	0	11,133	0	2,778	0	11,133
PS 18	8860	R18-014_R18-013	2,258,576	0	1,197	0	4,766	0	1,197	0	4,766
PS 18	9062	R18-015_R18-014	834,897	0	199	0	793	0	200	0	793
PS 18	8996	R18-016_R18-014	1,489,261	0	789	0	3,172	0	789	0	3,172
PS 18	8879	R18-017_R18-009	1,267,028	0	2,787	1	11,125	0	2,787	1	11,125
PS 18	8948	R18-018_R18-017	1,634,378	0	2,778	1	11,130	0	2,778	1	11,130
PS 18	8990	R18-019_R18-018	894,048	0	2,387	1	9,539	0	2,387	1	9,539
PS 18	9029	R18-020_R18-019	1,484,768	0	1,990	1	7,944	0	1,990	1	7,944
PS 18	8928	R18-021_R18-020	1,826,338	0	1,388	0	5,570	0	1,388	0	5,570
PS 18	8908	R18-022_R18-021	2,283,201	0	596	0	3,174	0	799	0	3,174
PS 18	9603	R18-023_R18-004	1,432,911	1	9,543	3	38,144	1	9,543	3	38,144
PS 18	9298	R18-024_R18-023	2,272,948	0	8,933	2	35,776	0	8,933	2	35,776
PS 18	9312	R18-025_R18-024	1,168,000	1	7,545	3	30,204	1	7,545	3	30,204
PS 18	9303	R18-026_R18-025	558,335	1	6,555	5	26,231	1	6,555	5	26,231
PS 18	9100	R18-027_R18-026	612,849	1	4,370	3	17,485	1	4,370	3	17,485
PS 18	8895	R18-028_R18-027	468,585	1	3,575	3	14,306	1	3,575	3	14,306
PS 18	9157	R18-029_R18-026	673,235	0	1,192	1	4,767	0	1,192	1	4,767