

**ACT 537 SEWAGE FACILITIES
PLAN UPDATE
FOR
DOYLESTOWN TOWNSHIP
BUCKS COUNTY, PENNSYLVANIA**

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PREPARED FOR:

**DOYLESTOWN TOWNSHIP
425 WELLS ROAD
DOYLESTOWN, PA 18901-2717**

PREPARED BY:

**CARROLL ENGINEERING CORPORATION
949 EASTON ROAD
WARRINGTON, PA 18976**

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- B. Proof of Submission to Bucks County Health Department for review, Review Comments, Comment Responses
- C. Proof of Submission to Bucks County Planning Commission for review, Review Comments, Comment Responses
- D. Proof of Submission to Doylestown Township Planning Commission for review, Review Comments, Comment Responses
- E. Proof of Public Notice, Public Comments, Comment Responses
- F. Township Ordinance No. 299
- G. Township Resolution of Adoption for Revision to Official Sewage Facilities Plan
- H. Area A (Phase II) Feasibility Study

EXECUTIVE SUMMARY

The Bucks County Water and Sewer Authority, on behalf of Doylestown Township, has prepared this Act 537 Plan Update to address the present and future sewage disposal needs of Doylestown Township, Bucks County. This Report addresses the entire Township and updates the current Act 537 Plan titled, “Act 537 Facilities Plan for Doylestown Township, Bucks County, Pennsylvania” prepared for Bucks County Water and Sewer Authority by Carroll Engineering Corporation dated September 1999 and revised December 1999, and subsequent revisions, amendments, and planning modules. This Report has been prepared in accordance with 25 PA Code, Chapter 71, and the Plan of Study approved by PADEP on June 20, 2019.

During a May 2019 meeting with representatives of PADEP and this office, it was indicated that the Plan Update did not need to include prior background data, and instead only needed to address changes since the prior Plan Update.

The Doylestown Township’s population has been relatively consistent between 2000 and 2020. However, the need for sewer system facilities and treatment capacity has been driven by existing dwellings currently served by on-lot systems. The Township Public Water and Sewer Advisory Board (PWSAB) gathered data on the condition of private water and on-lot systems over the period from 2014 through 2018 in Phase 2 and 3 areas (herein referred to as Area A and Area B) which are in the Castle Valley Interceptor sewer shed. These areas were formerly identified as the Tabor Tower Hill, Route 611 MHP, Sugar Bottom/Furlong/Pebble Hill and Pheasant Run areas.

Population growth and its accompanying development is expected to increase in the future. The sewage disposal needs for failing on-site systems and future growth can be met through an orderly expansion of the Bucks County Water and Sewer Authority’s existing collection system and treatment facilities.

To properly meet the demands in Doylestown Township, this Act 537 Plan recommends implementation of the following:

1. Within five (5) years, provide low-pressure sewer collection facilities for the Chestnut Valley Drive area, and extend and expand existing low-pressure sewer facilities in Pine Valley Road/Shady Grove Circle/Buttonwood Lane areas, which are all tributary to the Harvey Avenue WWTP.
2. Also, within five (5) years, provide for sewer connections in areas already served by public sewer including Tedwill, Burke Tract, Doylestown Hospital and Thompson Toyota, all of which are tributary to the Harvey Avenue WWTP. These projects are indicated on current yearly Chapter 94 Reports.
3. Beyond ten (10) years, provide either low-pressure sewers, gravity sewers or a combination thereof, for sewer collection and conveyance facilities for the remaining areas of the Township tributary to the Harvey Avenue WWTP currently served by On-lot Disposal Systems (OLDS).
4. Within five (5) years, provide low-pressure and gravity sewer collection facilities for the Route 611 Corridor, Tabor Village, Neshaminy Dell Haven, and the Ashbridge at Furlong areas tributary to the Kings Plaza/Green Street Service Area.

5. Within ten (10) years, provide either low-pressure sewers, gravity sewers or a combination thereof, for sewer collection and conveyance facilities for the Area A Drainage Area, and the Edison-Furlong Road parcels tributary to the Kings Plaza/Green Street Service Area. The low-pressure sewer option will be more cost-effective and therefore likely to be the recommended alternative.
6. Beyond 10 years, provide either low-pressure sewers, gravity sewers or a combination thereof, for sewer collection and conveyance facilities for the Area B Service Area and remaining areas of the Township tributary to the Kings Plaza/Green Street Service Area currently served by an OLDS.

Opinions of Probable Construction Costs are included in Section 6.0 – Sewage Disposal Alternatives. Funding of collection and conveyance system improvements will be through the individual property owners. A schedule with major milestones is provided in Section 7.0 – Implementation.

The following can be found in the Appendices:

- A. Pennsylvania Department of Environmental Protection (PADEP) - Approval Letters
- B. Proof of Submission to Bucks County Health Department for review, Review Comments, Comment Responses
- C. Proof of Submission to Bucks County Planning Commission for review, Review Comments, Comment Responses
- D. Proof of Submission to Doylestown Township Planning Commission for review, Review Comments, Comment Responses
- E. Proof of Public Notice, Public Comments, Comment Responses
- F. Township Ordinance No. 299
- G. Township Resolution of Adoption for Revision to Official Sewage Facilities Plan
- H. Area A (Phase II) Feasibility Study Cost Estimates

SECTION 1.0 – PREVIOUS PLANNING

1.1 Sewage Facilities Planning

Since the 1999 Doylestown 537 Plan Update, the following plan updates or revisions have occurred:

A. Castle Valley Diversion Pumping Station Upgrade and Green Street Wastewater Treatment Plant Expansion

On behalf of Doylestown Township, Bucks County Water and Sewer Authority prepared an Amendment to the Township 537 Plan in March 1999, that allowed an increase in the Castle Valley Diversion Pump Station capacity to 0.48 mgd and expansion of the Green Street WWTP from 0.70 mgd to 1.20 mgd. Approval was granted by PADEP on April 18, 2000.

B. Chalfont-New Britain Township Joint Sewer Authority (CNB) - Upgrade and Expansion

Since outstanding connections from BCWSA service areas to the CNB plant were not tied to a specific project and/or municipality and it is unknown when and where these connections will occur, PADEP in a letter to John Schmidt dated May 16, 2011, did not require additional planning associated with the plant upgrade and expansion. Individual connections would be subject to planning on a case-by-case basis.

C. Harvey Avenue Wastewater Treatment Plant Expansion

In 2006, PADEP granted planning approval for a 0.7 mgd plant expansion to a capacity of 1.6 mgd. This approval provided capacity for connections from Doylestown Township, as well as other municipalities that were tributary to the plant directly or via diversion from the Cooks Run Interceptor utilizing a new diversion pump station to the Harvey Avenue WWTP.

D. Pebble Hill III/Wilshire Low Pressure Sewer System

The planning for this sewer system was approved by PADEP with approval of the 1999 Township 537 Plan.

E. Tedwill Low Pressure Sewer System

The planning for this sewer system was approved by PADEP with approval of the 1999 Township 537 Plan.

F. Pine Valley Low Pressure Sewer System

In 2002, PADEP granted a planning exemption for the connection of a 3-lot subdivision to a low-pressure force main which would be owned and maintained by BCWSA. The main was sized to allow additional connections along the force main route to the receiving gravity sewer.

G. Pebble Ridge Gravity Sewer System

In 2013, PADEP approved a planning module for the installation of public sewers in the Pebble Ridge/Woodridge area of Doylestown Township to service 252 residential properties. The sewer system consists of 8 and 10-inch sewer, a pumping station and force main.

H. Castle Valley Diversion Booster Station

On behalf of Doylestown Township, BCWSA prepared a special study to add a booster station that would increase the diversion capacity to the previously approved 0.48 mgd. This was submitted to PADEP in June 2021.

I. Sewage Facilities Planning Modules

Table 1-1 provides the status of projects, which have been developed or are in the process of being developed that used planning modules to amend the current sewage facilities plan in the Green Street/Kings Plaza service area.

Table 1-2 provides the status of projects, which have been developed or are in the process of being developed that used planning modules to amend the current sewage facilities plan in the Chalfont-New Britain/Harvey Avenue service area.

1.2 Municipal and County Planning

The following municipal and county planning documents were utilized in this plan update and are incorporated into this update by reference.

A. Bucks County Comprehensive Plan

B. Doylestown Township Comprehensive Plan amended September 2019

C. Chapter 175 Zoning Code for the Township of Doylestown

D. Subdivision and Land Development Ordinance, Doylestown Township

**TABLE 1-1
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
GREEN STREET/KINGS PLAZA SERVICE AREA
PLANNING MODULE SUMMARY
AS OF AUGUST 2021**

PROJECT NAME	EDUs	CONNECTED STATUS
Doylestown Lea (Phase II)	22	100%
Doylestown Diversion	200	100%
Independence Court at Doylestown	24	100%
Pebble Hill III/Wilshire	109	100%
Bentivegna	30	100%
Wasserkrug (Doylestown Lea Phase III)	16	100%
Duane Road Sewer Extension	25	100%
Central Bucks YMCA	27	100%
Doylestown Station	159	100%
Women's Prison	81	0
995 Almshouse Road	1	100%
83 Buck Road	1	100%
2321 Lower State Road	1	100%
2423 Lower State Road	1	100%
1330 Pebble Hill Road	1	100%
1960 S. Easton Road	1	100%
1576 Turk Road	1	100%
1636 Turk Road	1	100%
118 Willowbrook Drive	1	100%
140 Willowbrook Drive	1	100%
Pebble Ridge	261	Under Construction*
Tabor Village	72	80%
Doylestown Walk	137	Under Construction

*Construction of the public sewer to serve existing dwellings is complete, though the number of properties which connected to the sewer is estimated at 50% as of August 2023.

TABLE 1-2
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
HARVEY AVENUE/CHALFONT-NEW BRITAIN SERVICE AREA
PLANNING MODULE SUMMARY
AS OF MARCH 2021

PROJECT NAME	EDUs	CONNECTED STATUS
Reeves Development (Lot 3)	2	100%
Gibb Tract	3	100%
Irongate (Ash Way)	23	100%
Emerald Hill	24	100%
Cedar Crest Farms	66	100%
Doylestown Ridge	341	100%
154 Ash Way	1	100%
41 Buttonwood Lane	1	100%
33 Chestnut Valley Drive	1	100%
47 Chestnut Valley Drive	1	100%
28 Fox Hill	1	100%
199 Iron Hill Road	1	100%
264 Iron Hill Road	1	100%
23 Pine Circle	1	100%
577 Pine Run Road	1	100%
4 Pine Valley Road	1	100%
20 Pine Valley Road	1	100%
28 Pine Valley Road	1	100%
47 Pine Valley Road	1	100%
53 Pine Valley Road	1	100%
59 Pine Valley Road	1	100%
84 Shady Grove Circle	1	100%
98 Shady Grove Circle	1	100%
24 Twin Oaks	1	100%
559 W. Sandy Ridge Road	1	100%
571 W. Sandy Ridge Road	1	100%
621 W. Sandy Ridge Road	1	100%
Knoell Tract	90	80%
Lantern Ridge	97	Under Construction
Arcadia Development	45	100%

SECTION 2.0 - INTRODUCTION

This Act 537 Plan Update is being undertaken on behalf of Doylestown Township and the Bucks County Water & Sewer Authority. The Plan covers both the Harvey Avenue/Chalfont-New Britain Service Area and the Green Street/Kings Plaza Service Area. The Plan also addresses providing sanitary sewer service for the 5-year, 10-year and ultimate (beyond 10-years) planning periods.

A pre-submission meeting was held with the Pennsylvania Department of Environmental Protection (PADEP) on May 15, 2021, at their offices to review the contents of a Task Activity Report. Subsequent to that meeting, a detailed Task Activity Report was submitted on May 24, 2019, and approved by the PADEP on June 20, 2019.

The plan will address existing sewage disposal needs or problems; account for future land development; and provide for future sewage disposal needs of the entire municipality of Doylestown Township. This includes methods for sewage collection, capacity evaluation at the various treatment facilities, cost estimates for the selected plan, and reviewing the Township's current OLDS management program.

SECTION 3.0 - PHYSICAL AND DEMOGRAPHIC CONDITIONS

3.1 Physical Conditions

A. Regional Setting:

Soils, Topography, Floodplains and Wetlands, Geology and Hydrogeology sections remain unchanged from the Act 537 Plan dated 1999. The Year 1999 Act 537 Sewage Facilities Plan for Doylestown Township, Bucks County, PA, Volumes 1 and 2 are incorporated into this current update by reference. The soils map is shown in Figure 3-1 (see Attachments).

3.2 Demographic Conditions

A. Population:

Doylestown Township experienced a 21% growth between Years 1990 and 2000 but little to no growth between 2000 and 2010. The demographic history of Doylestown Township for the last 40 years is summarized in Table 3-1.

As indicated, the 2010 Township population was 17,565 with approximately 9% population living in group quarters (retirement homes, nursing homes, prisons, and other institutional facilities). This calculates to an average of 2.53 people occupying a dwelling unit. Of the 17,565 people living in Doylestown Township approximately 66% live in the Kings Plaza/Green Street service area and 34% in the Chalfont-New Britain/Harvey Avenue service area.

Population projections for Doylestown Township, prepared by the Bucks County Planning Commission are shown in Table 3-2.

**TABLE 3-1
DEMOGRAPHIC HISTORY OF DOYLESTOWN TOWNSHIP**

Year	Population	No. of Households	Persons in Group Quarters	Persons Per Household
1980	11,824	3,426	1,162	3.11
1990	14,510	4,558	2,203	2.7
2000	17,619	5,999	1,849	2.63
2010	17,565	6,329	1,582	2.53
2020	17,971	6,087	1,621	2.54

TABLE 3-2
POPULATION PROJECTIONS FOR DOYLESTOWN TOWNSHIP

YEAR	POPULATION
2020	18,570
2030	19,830
2040	21,078

Source: U.S. Census and Bucks County Planning Commission

SECTION 4.0 - EXISTING WASTEWATER FACILITIES

The existing wastewater facilities throughout the Township are shown in Figure 4-1 (see Attachments). A description of the facilities follows:

4.1 Wastewater Treatment Facilities

A. Kings Plaza Sewage Treatment Plant (KPSTP):

The KPSTP is located off Almshouse Road approximately 1,000 feet east of the Route 611 intersection. The Plant is permitted under the National Pollutant Discharge Elimination System (NPDES Permit No. PA 0051250) to discharge an average monthly flow of 0.425 million gallons per day (MGD) to the Neshaminy Creek. The Plant provides advanced secondary treatment using two above ground field erected steel tanks that provide flow equalization, extended aeration, secondary clarification, and aerobic digestion. In addition, the Plant contains fluidized beds for denitrification, alum addition, flocculation and plate settling for phosphorus removal, sand filtration and chlorination. The KPSTP was originally built by Concord Development Company. The Plant began operations in the summer of 1986, and was subsequently dedicated and operated by Doylestown Township Municipal Authority until it was purchased by the Bucks County Water & Sewer Authority (BCWSA) in December 1992. In Year 2011, a de-chlorination facility was installed to assure consistent compliance with residual chlorine effluent requirements. In Year 2015, an automated influent screen was installed. In Year 2020, the equalization pump system was upgraded and provided with variable frequency drives.

The 2022 Municipal Wasteload Management Report for the KPSTP states that over the last 5 years, the facility has had an average annual flow of 0.355 MGD and has operated within all the NPDES permitted levels. Projected future flows and projected future organic loads are presented in Section 5.0 – Future Growth and Development.

B. Chalfont - New Britain Township Joint Sewer Authority Wastewater Treatment Plant (CNBTJSA WWTP):

The CNBTJSA WWTP is located in Doylestown Township on Upper State Road adjacent to the Neshaminy Creek. The Plant is permitted under the National Pollutant Discharge Elimination System (NPDES Permit No. PA 0025917) to discharge an average monthly flow of 5.0 MGD and annual average daily flow of 4.0 MGD to the Neshaminy Creek.

The Plant was originally built in the mid-1960's by the newly formed CNBTJSA and sized at 0.7 MGD. In 1969, in accordance with an intermunicipal agreement between CNBTJSA and BCWSA, the plant capacity was doubled to 1.4 MGD and became a regional plant. The Plant was re-rated to 2.0 MGD in 1972 by adding chemical precipitation. In 1981, a 201 Facility Plan was prepared for the Authorities which determined a total plant capacity of 3.8 MGD would be required. The NPDES permit was revised in October 1988, re-rating the capacity from 3.8 MGD to 4.0 MGD. The Plant provides preliminary treatment (grinding, grit removal and flow equalization) to all wastewater. In 2012, the Plant was expanded to a treatment capacity of 4.625 MGD. The Plant is permitted for a maximum hydraulic loading of 7.0 MGD.

The 2020 Municipal Wasteload Management Report for the CNBTJSA WWTP states that over the last 5 years the facility had an average daily flow of 4.20 MGD. The 5-year hydraulic loading is projected to be 4.35 MGD in 2024. In calendar 2020, the annual average daily flow diverted to the Harvey Avenue WWTP was 397,000 GPD (559,000 GPD in 2022).

C. Green Street Wastewater Treatment Plant (GSWWTP):

The GSWWTP is located on four acres on Green Street adjacent to Homestead Street in Doylestown Borough. The Plant is permitted under the National Pollutant Discharge Elimination System (PA Permit No. 8897-5 and NPDES Permit No. PA 0021181). The original Plant consisted of two distinct wastewater treatment facilities. The first was built in 1958 and consisted of primary clarification, two stage biofiltration (trickling filters) including intermediate settling, final clarification, metering, chlorination, and anaerobic digestion. This Plant had a capacity of 0.4 MGD. The second Plant was built in 1977 as a self-contained package treatment plant. Along with the addition of the package facilities, a pump station and grit chamber were added to divert a portion of the flow from the biofiltration plant to the package plant. The package plant utilized an activated sludge contact stabilization process that operated in parallel with the biofilters and was rated for a capacity of 0.3 MGD.

In 1992, construction was completed for an upgrade of the GSWWTP that converted the package activated sludge unit to an aerobic nitrification/denitrification process. The biofilters were retained, new pumping systems were installed to allow series operation of the biofilters and aerobic process, and two new secondary clarifiers were constructed. The anaerobic digester was converted to an aerobic digester, new return and waste sludge pumps were installed, and chemical feed systems (alum, methanol, and polymer) were added to use in meeting more stringent effluent nitrogen and phosphorous limits during summer months. The total permitted capacity of the GSWWTP was 0.7 MGD at that time. In December 1993, the Plant and all associated sewerage facilities were sold to BCWSA. In November 2002, the Plant was expanded to 1.20 MGD.

The 2022 Municipal Wasteload Management Report for the GSWWTP states the facility has an average annual flow of 0.772 MGD, a five (5) year average flow of 0.859 mgd and has operated within all the NPDES permitted effluent limits. Projected future flows and projected future organic loads are presented in Section 5.0 – Future Growth and Development.

D. Harvey Avenue Wastewater Treatment Plant (HAWWTP):

The Harvey Avenue WWTP is located on Harvey Avenue in the vicinity of Doyle Street in Doylestown Borough. The Plant is permitted under the National Pollutant Discharge Elimination System (PA Permit No. 786-5-071 and NPDES Permit No. PA 0021172). The Plant was originally designed to provide secondary treatment using biofilters at an average daily capacity of 0.6 MGD. In 1991, the biofilters were demolished and the plant was expanded to provide secondary treatment using a “Carrousel®” oxidation ditch process for an average daily capacity of 0.9 MGD. In December 1993, the Plant and all associated sewerage facilities were sold to BCWSA. In March 1999, a surge tank was completed and put into operation to reduce wet weather peaks to the Plant. In Year 2012, the Plant was expanded by 0.70 MGD (1.60 MGD) to meet the needs of BCWSA municipal customers in the Chalfont-New Britain and Harvey Avenue sewer shed areas. Flows via the Cooks Run Interceptor are diverted at the Harvey Avenue WWTP for flows from Plumstead Township, Doylestown Township, New Britain Borough and Buckingham Township. Doylestown Borough flows reached the Plant via gravity flow.

The 2022 Municipal Wasteload Management Report for HAWWTP states over the last 5 years the facility had an average annual flow of 1.031 MGD and has operated within the NPDES permitted levels. Projected future flows are presented in Section 5.0 – Future Growth and Development.

E. Single Family Sewage Treatment Plants:

There are 11 single family sewage treatment plants (SFSTP’s) within the Township. Each SFSTP is designed to serve one property and consists of a small package treatment plant with stream discharge. Since the prior 537 Plan, one has been decommissioned (Nover). There are also three new SFSTP’s (Klimaski, Rehm and Taylor). Kelso property at 1942 Lower State Road was removed from this list, as that property was taken as part of the Route 202 Bypass Project. The current list of SFSTP’s in the Township is shown in Table 4-1.

4.2 Wastewater Collection Conveyance Systems

A. Gravity Collection and Interceptors:

The BCWSA owns and operates the collection and interceptor sewers in Doylestown Township which are tributary to CNBTJSA WWTP, KPSTP, GSWWTP and HAWWTP. The CNBTJSA WWTP drainage area, also known as Sub-Region II, serves the area tributary to Pine Run and Cooks Run Interceptors. The Pine Run Interceptor is located adjacent to the Pine Run stream and consists of 17,000 LF 18" to 24" ductile iron pipe (DIP). The Cooks Run Interceptor is located along Cooks Run stream and consists of 18,400 LF 21" to 24" DIP.

The KPSTP drainage area, also known as Sub Region IV, serves the area tributary to the Castle Valley Interceptor. The Castle Valley Interceptor extends from the KPSTP along Neshaminy Creek, through Doylestown Crossing and Valley View developments. The interceptor varies in size from 12" to 30" ductile iron pipe and is approximately 20,000 feet in length.

Effective December 29, 2020, BCWSA purchased the entire Neshaminy Manor water and sanitary sewer system. BCWSA began the necessary repairs and replacements to the sanitary sewer system in 2021 to remove I&I and reduce the overall flows that are sent to the Castle Valley Interceptor. With the Authority's purchase of this system, they now have the ability to perform I&I work on these facilities. It is worth reiterating that the Authority is well into the process of completely replacing the existing sanitary sewer pipes and manholes in the portion of the complex located to the north of Almshouse Road. By replacing the entire collection system in this area in lieu of rehabilitation, there is a much greater likelihood of total removal of excess wet weather flows.

BCWSA is not ruling out I&I work in other areas tributary to the Castle Valley Interceptor, but the focus on Neshaminy Manor's sanitary sewer system seems to be justified based on the flow meter data and results from past sewer CCTV inspections and manhole inspections. The Authority had already reduced flow by 30,000 gallons per day performing minimal tasks in the Neshaminy Manor system. It is anticipated that another 50,000 – 70,000 gallons per day of I/I could be removed when the repair/replacement work is completed.

The details concerning the Neshaminy Manor, and the Castle Valley Interceptor are stated in the Castle Valley Interceptor Corrective Action Plan/Connection Management Plan submitted to the PADEP.

B. Low Pressure Sewer Systems:

Low pressure sewer systems in the existing Pebble Hill/Wilshire and Tedwill developments, originally serviced by OLDS systems, were installed in Year 2002. In 2004, a low-pressure main was installed to service Township residents in the Pine Valley area. These systems were installed to replace failing OLDS.

C. Authority-Owned Pump Stations:

1. Old Dublin Pike Pump Station:

The Old Dublin Pike Pump Station is owned and operated by the BCWSA and is located on Old Dublin Pike. The pump station was constructed in 1996, as a replacement for the Pump Station No. 2 which could not hydraulically process the volume of wastewater tributary to the pump station. The pump station has a pumping capacity of 4,020 gallons per minute (GPM), and the 16" force main discharges into the Cooks Run Interceptor.

2. Cooks Run Diversion Pump Station:

The BCWSA owns and operates the Cooks Run Diversion Pump Station(I) which is located along the Cooks Run Interceptor adjacent to the HAWWTP. The pump station was constructed to divert wastewater from the Cooks Run Interceptor to the HAWWTP utilizing available treatment capacity at the Plant. Constructed in 1996 and upgraded in 2001, the pump station is permitted to divert an average daily flow of up to 263,000 GPD of wastewater via a 6" force main approximately 1,000 linear feet to the inlet structure of the HAWWTP. The volume of flow diverted will vary based upon the average daily reserve capacity available at the Plant. An additional Cooks Run Diversion Pump Station (II) was constructed in 2012, in conjunction with the 0.70 MGD HAWWTP Expansion. This pump station is permitted to divert an average daily flow of up to 700,000 GPD. In order to have sufficient flows for running the expanded portion of the Plant, the original Cooks Run Diversion was shut off and all diversion flows currently run through the expanded Cooks Run Diversion Pump Station II.

3. Doylestown Hunt Pump Station:

The Doylestown Hunt Pump Station is owned and operated by the BCWSA and is located off Fox Chase Lane. The pump station serves a portion of the Doylestown Hunt Subdivision. The submersible pump station was sized for future development of an adjacent property and has a capacity of 400 GPM and a 4" force main. The flow is ultimately conveyed to the Castle Valley Interceptor.

4. Doylestown Knoll Pump Station:

The Doylestown Knoll Pump Station is owned and operated by the BCWSA and is located on Brinker Drive. The pump station serves a portion of the Doylestown Knoll Subdivision. The pump station flows are ultimately conveyed to the Castle Valley Interceptor and treated at the KPSTP.

5. Castle Valley Diversion Pump Station:

The Castle Valley Pump Station is owned and operated by the BCWSA. The pump station is located adjacent to Duane Road. The pump station was constructed to divert wastewater from the Castle Valley Interceptor and KPSTP and conveys a portion of these flows to the GSWWTP so as to utilize available treatment capacity at the Plant. The 12,000 linear feet of 6" force main to the GS WWTP was constructed in 1996 and the pump station was completed in 1997. The pump station is permitted to divert up to 288,000 GPD to the GSWWTP. The volume will vary based upon the average daily reserve capacity available at the plant. The pump station was designed to be expanded to a maximum capacity of approximately 480,000 GPD, at such time as may be required by growth in the Kings Plaza service area. The expansion of the Castle Valley Pump Station was awarded in August 2023 and is scheduled to be completed in spring of 2024.

6. Kelly Road Pump Station:

The Kelly Road Pump Station and 8" DIP collection sewer was constructed in 1993 to serve a small portion of Warrington. In 2005, the pump station owned and operated by the Warrington Township Water and Sewer Department was upgraded and redirected to the Warminster WWTP.

7. Doylestown Commerce Center Pump Station:

The Doylestown Commerce Center Pump Station is owned and operated by the BCWSA and is located off of S. Easton Road near New Britain Road. The pump station serves the Doylestown Commerce Park development. The ultimate capacity of the station is 148,320 GPD. The flow is conveyed to the Green Street WWTP.

D. Privately Owned Pump Stations:

The 1776 Shopping Center located on Route 611 approximately 1/4 mile north of the Bucks County Complex has its own collection system and pump station. The facilities are owned and operated by Edgar Waite, Jr. and consist of a small submersible grinder pump station with a capacity of 32 GPM and a 1½" force main. The flows are transmitted to the Castle Valley Interceptor and via the Castle Valley Diversion Pump Station. This flow is treated at either the KPSTP or the GSWWTP.

4.3 On-Lot Disposal Systems

A. Individual Systems:

In Pennsylvania, a permit is necessary to install an on-lot disposal system (OLDS). The Bucks County Health Department (BCHD) has responsibility for permitting, inspection, compliance, and enforcement with respect to OLDS in Doylestown Township.

Within Doylestown Township, there are approximately 2,500 individual OLDS in use. The 2,500 OLDS represent 41% of the existing dwelling units in the Township. The principal types of OLDS are cesspools and seepage pits for old farmhouses, conventional septic tank systems for older housing (greater than 10 years old), and sand mound systems for new housing (less than 10 years old). Approximately 90% of all new houses utilizing OLDS have sand mound systems.

Plans and studies over the last 30 to 40 years show Doylestown Township has a well-documented history of OLDS failures. Based on this historical data, BCHD records, other sources, and the limitations of the existing soils, there is no reason to believe the rate of malfunctions will not continue in Doylestown Township. Continued use of failing OLDS is considered both an environmental and public health problem and should be addressed accordingly. If allowed to degrade further, contamination of the ground water will increase, and potentially damage the private well system.

In 2001, Township Ordinance No. 299 "Doylestown Township On-Lot Disposal System (OLDS) Management Ordinance" was passed, adopting a septage management program for the Township. This ordinance is shown in Appendix F. The Township continues to proactively evaluate the Septage Management Program and identify areas of the Township that are in need of public sewers. The Pebble Ridge area recently had public sewers installed. Other areas in the Kings Plaza/Castle Valley Interceptor drainage basin are being evaluated for public sewers in this 537 Plan Update, referred to as Area A and Area B.

On April 30, 2021, the Township changed the inspection requirement from a geographically based system to a mail notification system. Based on the permit status of the OLDS, homeowners will be receiving a notification card from the Township reminding them of their upcoming inspection requirement.

B. Community Systems:

The Edison Mobile Home Park was a community OLDS which was designed to serve 15 mobile homes. It was the only community on-lot system in Doylestown Township. In 2005, the mobile home park was decommissioned, and replaced with the Heritage Gateway Center Office Building that is connected to public sewer. Hence, there is no longer a community OLDS within the Township.

TABLE 4-1
SINGLE FAMILY SEWAGE TREATMENT PLANTS

NAME	LOCATION
Adler	Poplar Lane
Swartz	Valley Green Drive
Flynn	Turk Road
Elliot	Valley Drive
Flanigan	Militia Hill Road
Murphy	Chestnut Valley Drive
Occhi	Lower State Road
Kelso	Lower State Road
Klimaski	Foxcroft Drive
Rehm	Pebble Woods Drive
Taylor	Theodore Way
Valmore	Theodore Way

Source: Doylestown Township and Bucks County Department of Health

Note: Kelso property was removed from this list, at 1942 Lower State Road, since this property was taken as part of the Route 202 Bypass Project.

SECTION 5.0 - FUTURE GROWTH AND DEVELOPMENT

5.1 Existing Development

Existing wastewater flow generated within the Township is treated and disposed of at four wastewater treatment facilities; the Green Street WWTP, and Harvey Avenue WWTP, the Kings Plaza WWTP, and the Chalfont-New Britain WWTP. The existing development is serviced by gravity sewer mains, low-pressure sewer systems and on-lot disposal systems (OLDS). Several public and private pumping stations are located throughout the Township to convey wastewater to one of the four treatment facilities listed above.

The existing wastewater facilities throughout the Township are shown in Figure 4-1 (see Attachments).

5.2 Land Use

The majority of the Township's commercial, industrial, and trade services are provided by their immediate neighbor, Doylestown Borough. The Borough serves as the community hub and as a result, the density of the Township is greatest surrounding the Borough and the main highways (Routes 611, 313 and 202).

The largest land use in Doylestown Township is residential single-family dwellings. Vacant and agricultural land combined are the second largest percentage of land use. The Delaware Valley University owns and/or occupies much of the agricultural and vacant land. Park lands, recreational lands and protected open space generally surround the Neshaminy Creek in scattered locations. There are two large Township parks, Central Park, and Turk Park. Central Park is located on Wells Road at the Township Building and contains a large playground as well as playing fields. Turk Park is located on Almshouse and Turk Roads and provides playing fields and recreation facilities for the growing community. The Doylestown Country Club golf course on Route 202 also provides a large area of open space. The Neshaminy Manor is a large parcel of institutional/government land use located on Route 611 at Almshouse Road, and provides buildings for many County offices, housing for the elderly as well as the County prison and a juvenile detention center.

Future land use is anticipated to continue with an emphasis on residential housing growth. The number of single-family residences is projected to increase in addition to the single family attached and multi-family residences.

5.3 Zoning

The current zoning districts in Doylestown Township, as last amended in 2013, are shown in Figure 5-1 (see Attachments). As shown, the majority of land is zoned residential with institutional representing the second largest zoned land area. Commercial zoning follows as the third largest zoned land area in the Township.

As with most Township zoning ordinances, the minimum lot size for properties in zoning districts varies dependent upon the available public facilities. For more information regarding the Township's zoning ordinances, the reader should visit their website at www.doylestownpa.org.

5.4 Proposed Development

As part of this Act 537 Update, a flow analysis was completed for the Green Street/Kings Plaza and the Harvey Avenue/Chalfont-New Britain drainage areas for the 5-year, 10-year, and Ultimate build-out scenarios. The flow analysis was completed utilizing parcel data from the Bucks County Board of Assessment and the number of equivalent dwelling units (EDUs) was estimated based upon zoning, lot area, building size, land use, and the current Chapter 94 reports. The results are shown in Tables 5-1 and 5-2 for the Green Street/Kings Plaza and the Harvey Avenue/Chalfont-New Britain drainage areas, respectively.

To determine the amount of treatment capacity required in the Township, wastewater flow projections were determined for the CNBTJSA, Kings Plaza, Harvey Avenue, and Green Street service areas. The flow projections are separated into three categories: 5-Year, 10-Year, and ultimate. Within each category, the maximum development of residential, multi-family, institutional and commercial properties were reviewed. The 5-year projections were based mainly on the current Chapter 94 reports for the above wastewater facilities. The 10-year and ultimate projections were based on land area and zoning density factors, as well as parcel data from the Bucks County Tax Parcel Atlas. The 10-year and Ultimate projections were determined by taking lots deemed to be subdividable based on the current lot size obtained from the parcel data and then divided by the minimum lot size based on current zoning requirements. This produced the number of potential lots that could be developed. That number of lots was reduced by 25% to account for floodplains /open space, and a further reduction of 15% was done to consider roads, driveways, and parking. Thus, providing the maximum number of EDU's possible for each undeveloped parcel of land. Zoning districts and maximum net density factors were based on the most recent Chapter 175 Zoning Code of Doylestown Township. Multi-family, institutional, and commercial flows were based on past billing records and Township projections.

Figure 5-2 (see Attachments) indicates the proposed 5-year, 10-year, and ultimate sewage facilities service areas for Doylestown Township

The existing flows with 5-year, 10-year, and ultimate projected wastewater flows for the Green Street/KPSTP service areas and Harvey Avenue/CNBTJSA service areas are provided in Table 5-3 and 5-4, respectively. Since the Harvey Avenue and Green Street WWTPs receive flows from the Township via diversion pumping stations, they were also included in the evaluation.

For the Harvey Avenue/CNBTJSA service area, the collection and conveyance systems in New Britain Borough are owned by the Bucks County Water & Sewer Authority. The Chalfont-New Britain WWTP is owned by the Chalfont-New Britain Township Joint Sewage Authority.

5.4.1 Green Street/Kings Plaza Service Area

Current flows and the projected 5-year, 10-year and ultimate flows are shown on Table 5-3. The current flows are based on the actual flow meter readings at each of the treatment facilities.

A. 5-Year Projections

EDU projections for the 5-year plan consist of the 611 Corridor, Tabor Village, and the Pebble Ridge Area. A description of these areas is provided below.

1. The 611 Corridor is an area bounded by Easton Road, Quarry Road and Turk Road. The corridor is to be served by a low-pressure public sewer system and consists of approximately 52 lots. Flow from the proposed low pressure sanitary sewer system will connect to the existing sanitary sewer located in Turk Road near Kutz Elementary School and be conveyed to the Castle Valley Interceptor and the Green Street/Kings Plaza wastewater treatment facilities for treatment and disposal. Figure 5-3 shows the 611 Corridor area.
2. Tabor Village is situated at the intersection of New Britain Road and South Easton Road in Doylestown Township. The sanitary sewer improvements include the extension of the Authority's existing collection sewer to serve a new Office Building and Community Center (13 EDUs), and Senior Care Facility, and expanding an existing office building (59 EDUs) for a total of 72 EDUs. The sewer extension has been constructed and flows will be sent to the existing Doylestown Commerce Pump Station for treatment at Green Street WWTP.

3. Pebble Ridge Area:

- a. Pebble Ridge is generally located to the northwest of the intersection of Turk and Bristol Roads and consists of approximately 261 new connections to replace existing OLDS. A new pumping station, the Pebble Ridge Pump Station, will pump a portion of the sanitary flow to the Castle Valley Interceptor for conveyance to the Green Street/Kings Plaza wastewater treatment facilities for treatment and disposal. As of this writing, this project has been completed, though not all properties are connected to the public sewer.
- b. Doylestown Walk is generally located to the northwest of the intersection of Lower State and Bristol Roads and consists of approximately 137 residential units to be served by public sewer, with connection to the Pebble Ridge Pump Station. As of this writing, the development is currently under construction. Flow will be conveyed to the Castle Valley Interceptor for conveyance to the Green Street/Kings Plaza wastewater treatment facilities for treatment and disposal.
- c. The Neshaminy-Dell Haven area is located at the intersections of Neshaminy Dell Drive and Bristol Road and consists of 17 parcels in accordance with the Bucks County Planning Commission Parcel map. Flow would be conveyed to the Castle Valley Interceptor for conveyance to the Green Street/Kings Plaza wastewater treatment facilities for treatment and disposal.

4. Ashbridge at Furlong Development

The Ashbridge at Furlong Development is located near the intersection of Rodgers and York Roads in Doylestown Township. It consists of 52 new EDU connections and will be served by a pump station. The station will convey wastewater to the gravity sewer in Juniper Drive just west of Route 202. Wastewater will be treated at the Green Street WWTP.

5. Women's Correctional Facility

The new Women's Correctional building located at 1730 S. Easton Road will connect to the existing corrections complex sewer system tributary to the BCWSA collection system. There will be 81 EDU connections and it will be sewered by the Kings Plaza WWTP.

6. YMCA

An additional 1 EDU will be required for the Central Bucks YMCA expansion.

7. Mental Health Facility

The County of Bucks is proposing to construct a new 28-bed Mental Health Facility over the existing Woman's Prison. Sanitary sewer service for the new building will be provided via a connection to the prison's existing sanitary sewer system, tributary to the BCWSA collection system. There will be 13 EDU connections and it will be sewerred by the Kings Plaza WWTP.

B. 10-Year Projections

Area A Drainage Area consists of existing OLDS and was identified by the Township as an area in need of public sewer. It could be served by gravity sewer and a centrally located pump station near Sauerman Road. Conversely, a low-pressure sewer option may be of benefit due to lower anticipated construction costs concerning rock excavation. Area A flow will be conveyed to the Green Street Wastewater Treatment Plant for treatment and disposal.

C. Ultimate Projections

The remainder of the Green Street/Kings Plaza Service area fall into the Ultimate sewer service area which is beyond the 10-year projections. Those areas are shown on Figure 5-2 and are located throughout the service area. The largest area is the Area B drainage area. Area B flow would have to be pumped to the Green Street wastewater treatment facility. Preliminarily, the ideal location for a pump station is along St. Lawrence Way at the southern tip of the Township. Any flow directed to the Kings Plaza wastewater facility would be off-set by increasing pumping capacity through the Castle Valley Interceptor Diversion Pump Station to the Green Street facility so as not to increase the flow to the Kings Plaza facility. However, the chosen public sewer system and ultimate treatment and disposal location will be determined by the location and topography of the area being studied at the time.

5.4.2 Harvey Avenue/CNBTJSA Service Area

Current flows and the projected 5-year, 10-year and ultimate flows are shown on Table 5-4. The current flows are based on the actual flow meter readings at each of the treatment facilities.

A. 5-Year Projections

1. EDU projections for the 5-year plan consist of the Pine Valley Road/Shady Grove Circle/Buttonwood Lane/Chestnut Valley Drive areas of the Township. There are approximately 26 EDUs currently served by a low-pressure sewer system originally installed in 2004. There are 122 additional EDUs, some that would connect to the existing low-pressure system. Additional low-pressure piping would have to be installed in other roads to complete this project. Sanitary sewer flow will be conveyed to the Harvey Avenue wastewater treatment facility for treatment and disposal. Figure 5-4 shows these areas.
2. The Tedwill area is located in the northern most corner of the Township and is mostly served by a low-pressure sewer system. There are 3 additional EDUs that would connect to the existing low-pressure system. Sanitary sewer flow will be conveyed to the Harvey Avenue wastewater treatment facility for treatment and disposal
3. There are 25 additional EDUs throughout the Township included in the 5-year projections. These are new connection to the existing sanitary sewers, gravity and low-pressure, in the areas. These connections are mostly lateral installations on private property and not considered major extensions. Therefore, cost estimates for these connections are not provided. The projects are as listed below:
 - a. Shady Retreat (4 EDUs)
 - b. Thompson Toyota (4 EDUs)
 - c. Doylestown Hospital (17 EDUs) - Completed in 2022

B. 10-Year Projections

There are no projections between 5 and 10 years within the Township.

C. Ultimate Projections

The remainder of the Harvey Avenue/CNBTJSA Service Area fall into the Ultimate sewer service area which is beyond the 10-year projections. Those areas are shown on Figure 5-2 and are located throughout the service area. These areas would be served by either all-gravity sewer system, a gravity/pump station sewer system, or a low-pressure sewer

system. The chosen public sewer system will be determined by the location and topography of the area being studied at the time. Any flow directed to the Chalfont-New Britain wastewater facility would be off-set by increasing pumping capacity through the East Side Diversion Pump Station to the Harvey Avenue facility so as not to increase the flow to the Chalfont-New Britain facility.

5.5 Organic Loading

A. King's Plaza WWTP:

The organic loading to the Kings Plaza Plant in Year 2020 was higher than anticipated based on Year 2016 to 2019 levels as contained in the Year 2020 Chapter 94 report as shown on Table 5-5. The peak organic loading in 2020 was less than the previous two years, but still slightly higher than the design capacity of the Plant (maximum month of 715 lbs./day versus design capacity of 709 lbs./day). The historic trend does not suggest that new connections are the issue, meaning existing connections are providing an unusually high loading. The projected average organic load for the Kings Plaza Plant is below the design capacity of 709 lbs./day for the Plant. However, the maximum organic loading exceeds the design capacity of the Plant.

Although the Plant effluent limits for BOD have not been exceeded, the following steps in the Kings Plaza Corrective Action Plan were taken to reduce organic loadings to the Plant and/or evaluate Plant improvements to provide additional organic loading capacity at the Plant:

1. Continue to investigate restaurant and food preparation businesses in the two (2) nearby shopping centers for improper maintenance of grease traps with Township Code Enforcement representatives. Inspections were completed in early 2022. Several businesses were contacted to increase their pumping schedule to one month in lieu of every three months, as the condition of the grease interceptors was unacceptable as witnessed during the inspection. One other business indicated they have to clean their grease trap every week, indicating their trap is undersized for the facility (this has since closed). It was recommended that this business submit an application to have a larger grease trap installed. For the remaining food preparation businesses in these shopping centers, it was again requested that receipts of quarterly grease trap/interceptor pumping and maintenance visits by a qualified professional be provided as proof of continued maintenance.
2. Monitor loading at several intermediate locations in the collection/conveyance system downstream of potential high BOD sources and eliminate excessive loading.

3. Implementation of a Food Establishment Wastewater Discharge permit program is underway.
4. Evaluate possible improvements to increase the organic loading capability of the Plant.

Results for King's Plaza WWTP

The Year 2022 Chapter 94 Report shows an organic loading of 405 and 383 lbs/day for 2021 and 2022, respectively, with a maximum month loading of 525 and 552 lbs/day. This is a noticeable decrease from prior years, which appears to suggest improvements likely from the grease trap maintenance program.

B. Green Street WWTP:

The organic loading to the Green Street Plant has been trending upward as shown on Table 5-6. This information is based on the Year 2020 Chapter 94 report. The peak organic loading in 2020 was higher than the previous years, but still below the design capacity of 1,900 lbs./day for the Plant. The projected organic loading average and maximum for the Green Street Plant is below the design capacity of 1,900 lbs./day. This remains true based on the Year 2022 Chapter 94 Report.

**TABLE 5-1
GREEN STREET/KINGS PLAZA SERVICE AREAS
PROJECTED EDUs**

BLOCK NO.	PROJECTED FLOWS (EDUs)		
	5 Year EDUs	10 Year EDUs	Ultimate EDUs
7	189	0	167
9	73	100	48
11	0	6	0
12	0	18	29
13	0	0	0
14	94	62	29
15	40	0	0
16	12	0	0
17	52	2	0
18	0	0	0
19	0	12	9
20	0	0	0
21	0	0	3
22	45	44	366
23	0	104	0
24	0	0	0
25	0	107	25
26	0	58	122
27	0	0	8
28	7	0	20
29	0	0	19
32	0	0	7
33	0	20	0
34	0	104	10
35	0	0	56
36	0	0	115
37	0	0	31
38	0	0	11
39	35	0	0
40	33	0	0
41	0	0	92
42	100	0	0
43	6	0	0
45	0	0	0
49	0	0	4
50	0	0	0
53	0	0	0
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
61	0	0	0
62	0	0	0
63	0	0	1
66	0	0	0
68	0	0	0
Totals	686	637	1,172

**TABLE 5-2
HARVEY AVENUE/CHALFONT-NEW BRITAIN SERVICE AREAS
PROJECTED EDUs**

BLOCK NO.	PROJECTED EDUs		
	5 Year EDUs	10 Year EDUs	Ultimate EDUs
1	0	0	21
2	0	0	0
3	0	0	0
4	0	0	204
5	0	0	2
6	3	0	9
7	0	0	12
8	0	0	0
9	33	0	66
10	0	0	12
11	0	0	0
12	0	0	0
21	0	0	0
23	0	0	0
24	0	0	0
26	0	0	0
27	0	0	0
29	0	0	0
30	10	0	113
31	38	0	53
32	0	0	0
35	0	0	0
36	0	0	0
37	0	0	0
38	0	0	0
39	0	0	0
41	0	0	0
44	38	0	39
45	36	0	38
46	0	0	0
47	0	0	8
48	0	0	38
49	0	0	0
50	0	0	3
51	0	0	0
52	0	0	45
60	0	0	0
63	0	0	0
64	0	0	0
65	0	0	1
69	0	0	0
Totals	158	0	664

TABLE 5 - 3

DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE

PROJECTED WASTEWATER FLOWS - GREEN STREET/KINGS PLAZA SERVICE AREA

	Existing Flow (1)		Projected Flows									Treatment Capacity (1)
	FLOW	NOTES	5 Years			10 Years			Ultimate			
			EDUS	FLOW (1, 3)	NOTES	EDUS	FLOW (1, 3)	NOTES	EDUS	FLOW (1, 3)	NOTES	
Green Street WWTP Total Flow	0.861	(2)										
Doylestown Borough			30	0.008	(5)							
Doylestown Township												
Castle Valley Diversion PS Flow	0.226	(2)	297	0.074	(5) (7)							
Doylestown Commerce PS	0.013		72	0.018	(5) (8)							
Township			134	0.034	(6)	637	0.159		1,172	0.293		
Sub-total	0.239		503	0.126		637	0.159		1,172	0.293		
Green Street WWTP Cumulative Total Flow	0.861			0.994			1.154			1.447		1.200 (10)
Kings Plaza	0.355	(2)	183	0.046	(5) (9)							
Kings Plaza WWTP Cumulative Total Flow	0.355			0.401			0.401			0.401		0.425
Cumulative Township EDU Totals			686	0.172	(5)	637	0.159		1,172	0.293		
Green Street/Kings Plaza Service Area Totals (4)	1.216		716	1.395		1,353	1.554		2,525	1.847		1.625

NOTES:

1. Flow in MGD
2. Year 2018 through 2022 five-year average flow
3. Based on 250 GPD/EDU
4. Includes Township and Borough flows
5. Based on 2020 Chapter 94 reports
6. Additional EDUs subsequent to Chapter 94 report (611 Corridor Area, Dell Haven Area, Ashbridge Development, Mental Health Facility additional beds at Neshaminy Manor)
7. Pebble Ridge (portion) and Doylestown Walk projects.
8. Tabor Farms project.
9. Pebble Ridge (portion), Women's Correctional Facility, and CB YMCA projects.
10. The Green St WWTP has an average annual design flow of 1.20 MGD, with a hydraulic design capacity of 1.50 MGD used for purposes of Chapter 94 preparation to determine if the 3 month maximum flow is reached.

TABLE 5 - 4
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
PROJECTED WASTEWATER FLOWS - HARVEY AVENUE/CNBTJSA SERVICE AREA

	Existing Flows (1)		Projected Flows									Treatment Capacity (10)
			5 Years			10 Years			Ultimate			
	FLOW (1)	NOTES	EDUS	FLOW (1, 3)	NOTES	EDUS	FLOW (1, 3)	NOTES	EDUS	FLOW (1, 3)	NOTES	MGD
Doylestown Borough			324	0.081	(4)	29	0.007	(4)	0	0.000		
Cooks Run Diversion (see below)												
Doylestown Township			158	0.040	(6)	0	0.000		664	0.166		
Plumstead Township			250	0.063	(8)	0	0.000	(9)	0	0.000	(9)	
New Britain Borough			253	0.063	(5)	110	0.028	(5)	80	0.020	(5)	
Buckingham Township			7	0.002	(8)	0	0.000	(9)	0	0.000	(9)	
Sub-Total Cooks Run Diversion	0.449	(2)	668	0.167		110	0.028		744	0.186		
Cumulative Diversion Total				0.616			0.644			0.830		0.964 (11)
Harvey Avenue WWTP Cumulative Flow	1.031	(2) (7)		1.279			1.314			1.500		1.600

NOTES:

1. Flow in MGD
2. Year 2018 through 2022 Five-Year Average Flow
3. Based on 250 GPD/EDU
4. BCWSA Capacity Management Tracking
5. Current Year 2019 Draft 537 Plan Update for New Britain Borough (by others)
6. Doylestown Township 2020 Chapter 94 Report
7. Includes Diversion and Borough flows
8. BCWSA Service Area Tributary to the Chalfont-New Britain and Harvey Avenue WWTPs Year 2020 Chapter 94 Report
9. The 10-year and Ultimate EDU and flow projections are not available for the identified municipalities at the time of this report.
10. Flow to the CNBTJSA WWTP will not be increased because of the above projections. Therefore, the CNB plant capacity is not factored into treatment capacity.
11. Permitted Diversion Limit of the Expanded Harvey Ave. WWTP Diversion Pump Station

**TABLE 5-5
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
KINGS PLAZA STP
ORGANIC LOAD**

HISTORICAL ORGANIC LOAD (1)									PROJECTED ORGANIC LOAD (1)		
	2016	2017	2018	2019	2020	2021	2022	AVG		5 - YEAR	10 - YEAR
Annual Average Flow, MGD	0.241	0.304	0.357	0.394	0.384	0.364	0.276	0.331	Annual Average Organic Load (3)	515	515
Average Organic Load	314	408	467	503	489	405	383	436	Max Load/Avg Load Ratio	1.69	1.69
Max Month Organic Load	628	678	740	1,182	715	525	552	-----	Max Month Organic Load (4)	869	869
Concentration, mg/l	156	161	157	153	153	133	166	154			

Notes

1. Organic Load is in Lbs/day
2. Permit Limit is 709 lbs/day
3. Based on projected flows and the average organic load concentration.
4. The recommendations based on the food preparation business inspections in this tributary area are expected to continue to keep the organic loading at a lower level than what was seen prior to 2021, and eliminate this projected overload.

**TABLE 5-6
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
GREEN STREET WWTP
ORGANIC LOAD**

HISTORICAL ORGANIC LOAD (1)									PROJECTED ORGANIC LOAD (1)		
	2016	2017	2018	2019	2020	2021	2022	AVG		5 - YEAR	10 - YEAR
Annual Average Flow, MGD	0.740	0.774	1.045	0.910	0.836	0.734	0.772	0.830	Annual Average Organic Load (3)	1,225	1,421
Average Organic Load	787	967	1,130	945	1,141	898	1,240	1015	Max Load/Avg Load Ratio	1.31	1.31
Max Month Organic Load	1,018	1,147	1,320	1,480	1,593	1,198	1,535	1327	Max Month Organic Load	1,602	1,858
Concentration, mg/l	127	150	130	125	164	147	193	148			

NOTES

1. Organic Load is in Lbs/day
2. Permit Limit is 1,900 lbs/day
3. Based on projected flows and the average organic load concentration.

SECTION 6.0 - SEWAGE DISPOSAL ALTERNATIVES

Alternatives for sewage disposal must be investigated to determine the most cost-effective solution for Doylestown Township.

6.1 Expand Kings Plaza Sewage Treatment Plant

The Kings Plaza facility has a current hydraulic capacity of 0.425 MGD. An examination of existing and projected wastewater in the Kings Plaza STP service area indicates that adequate treatment capacity exists at the Kings Plaza facility to accommodate the Township's projected 5 and 10-year flows (see Table 5-3). Improvements continue to be made to reduce the organic loading at the Plant by way of improvements to the grease trap pumping and maintenance from nearby shopping center businesses. The relatively small site (1.9 acres) proves to be very limiting in how the Plant could be expanded. Therefore, expanding the Plant is not a viable alternative.

6.2 Harvey Avenue WWTP/Green Street WWTP Interconnection

Carroll Engineering Corporation prepared for BCWSA a preliminary analysis for the possibility of connecting the Green Street and Harvey Avenue Treatment Plants. Each Plant is located on opposite ends of the Borough boundary line and is separated by a large hill in the center of the town. The only potential route to interconnect the Plants would be through the narrow historic roadways of the heart of the Borough. Based on the considerable elevation change and the extensive roadway disturbance/restoration, the cost of interconnecting the two Plants would be prohibitive.

6.3 Expand Green Street Wastewater Treatment Plant

In 2001/2002, the Green Street facility was expanded to its current average daily capacity of 1.20 MGD. An examination of current existing and projected wastewater flows in the Green Street facility's service area indicates that adequate treatment capacity exists at the Green Street facility to accommodate the Township's projected 5-year flow as well as the 10-year flow projections. (see Table 5-3). The ultimate projections would require an upgrade to the Plant, but that would be beyond the 10-year timeframe. The flow projections included the diversion of flow from the Castle Valley Diversion Pump Station. With population growth being a dynamic parameter, the 10-year and Ultimate projections within the Township may be re-evaluated as necessary. However, based on current projections, expanding the Green Street facility is not necessary at this time and is not considered a viable alternative.

6.4 Expand Harvey Avenue Wastewater Treatment Plant

The Harvey Avenue facility was expanded to its current hydraulic capacity of 1.6 MGD in 2011/2012. An examination of current existing and projected wastewater flows in the Harvey Avenue facility's service area indicates that adequate treatment capacity exists at the Harvey Avenue facility to accommodate the Township's projected 5-year flow as well as the Township's Ultimate flow projections (see Table 5-4). The flow projections included the diversion of flow from the Cooks Run Diversion Pump Station. With population growth being a dynamic parameter, the Ultimate projections within the Township may be re-evaluated as necessary. However, based on current projections, expanding the Harvey Avenue facility is not necessary at this time and is not considered a viable alternative. It should be noted that the projections for the Harvey Ave WWTP do not necessarily include 10-Year and Ultimate projections for other municipalities in this drainage area. This information was inserted where available. For example, Table 5-4 includes 5-Year projections for Plumstead, New Britain and Buckingham even though they are not the focus of this 537 Update. However, only a 10-Year Projection for New Britain Borough was available at the time of this Report.

6.5 Expand Chalfont-New Britain Wastewater Treatment Plant

As indicated in Section 4.0 (Existing Wastewater Facilities), in 2012 the Plant was expanded to a treatment capacity of 4.625 MGD. The Plant is permitted for a maximum hydraulic loading of 7.0 MGD. By agreement between the CNBTJSA and BCWSA, flow from BCWSA connections to the Chalfont-New Britain facility is limited to an average of 2.414 MGD. If flows exceed that value, an equivalent amount of flow is to be diverted from the Cooks Run Interceptor to the Harvey Avenue facility. As indicated above, the flow projections for Harvey Avenue included the diversion of flow from the Cooks Run Diversion Pump Station. Considering there is adequate capacity at Harvey Avenue for this flow, there is no need to expand the Chalfont-New Britain Plant for any new Township related flows. Therefore, expanding the Chalfont-New Britain Plant to accommodate new Township related flows is not considered a viable alternative.

6.6 Sanitary Sewer Extensions

The next step was to determine the most cost-effective method of wastewater collection for each area. Each drainage area was reviewed independently, proposing the following alternative types of collection systems: gravity sewer system, low-pressure sewer systems (LPSS), or a combination of the two. The low-pressure sewer system is a low-pressure system where all properties utilize individual grinder pumps, and shallow force mains convey wastewater rather than gravity mains. However, it should be noted that gravity interceptors must sometimes be constructed as part of LPSS to receive and convey pumped flows. The gravity sewers would be designed to eliminate as many individual grinder pumps as possible by constructing a gravity main at the required elevations. A combination of the two types utilizes both gravity laterals and

individual grinder pumps, dependent upon site conditions. Complete elimination of the need for grinder pumps is not practical and therefore some grinder pump connections will be required.

6.6.1 Harvey Avenue Service Area

A. 5-Year Projections:

Within the northern portion of the Township, two areas are recommended to receive public sanitary sewers. Parts areas are currently served by a low-pressure sewer system.

1. Tedwill Area:

The Tedwill Area is located in the northern most corner of the Township, bordered by Swamp Road (Route 313) and Ferry Road. A low-pressure sewer system was installed in this area in 2002, though not all of the properties connected at that time. Three (3) EDUs are projected to connect to the existing low-pressure system. Considering there is an existing collection system in the area, connecting the new EDUs to the existing low-pressure system is the alternative of choice for these connections. An opinion of probable construction costs for this area is shown on Table 6-1.

2. Pine Valley Road/Shady Grove Circle/Buttonwood Lane/Chestnut Valley Drive Area:

This area is generally located south of the Pine Run waterway and north of the Route 611 Bypass. A low-pressure sewer system was installed in parts of this area in 2004, with only approximately 24 homes connecting. There are 122 EDUs projected to connect to the existing low-pressure system. While some properties may be able to connect directly to the existing low-pressure main if passing directly in front of the property, additional low-pressure mains will need to be installed. Considering there is an existing collection system in the area, connecting the new EDUs to the existing low-pressure system and installing additional new low-pressure systems for the remainder of this area is the alternative of choice for these connections. An opinion of probable construction costs for the Pine Valley Road/Shady Grove Circle/Buttonwood Lane area and the Chestnut Valley Drive area is shown on Table 6-2 and 6-3, respectively.

B. 10-Year Projections:

There are no current 10-year projections for sewer service within the Township in this drainage area.

C. Ultimate Projections:

The areas slated as Ultimate EDU projections within the Township lay in mostly developed areas and are currently served by an OLDS. Some parcels are located in close proximity to an existing sewer system. However, the method of providing sewer service to these areas has yet to be determined and will be affected by topography, citizen requests for service, and OLDS failures. While citizen requests and OLDS failures cannot be accurately predicted, the topographic features remain constant, and a detailed analysis of these feature will be necessary to determine the chosen method for sewer service. This may include a gravity system, a gravity system and pump station, a low-pressure system, or combinations of all these systems.

6.6.2 Green Street WWTP and Kings Plaza STP Service Area

A. 5-Year Projections:

EDU projections for the 5-year plan consist of the following:

1. The 611 Corridor is an area bounded by Easton Road, Quarry Road and Turk Road. The corridor is to be served by a low-pressure public sewer system and consists of approximately 52 lots. Flow will be conveyed to the Castle Valley Interceptor for conveyance to the Green Street/Kings Plaza wastewater treatment facilities for treatment and disposal. An opinion of probable construction costs for this area is shown on Table 6-4.
2. Tabor Village is situated at the intersection of New Britain Road and South Easton Road in Doylestown Township. The sanitary sewer improvements include expanding an existing office building and Senior Care Facility (59 EDUs) on Lot 1 and extending the Authority's existing collection sewer to serve a new Office Building and Community Center (13 EDUs) on Lot 2 for a total of 72 EDUs. Funding is being provided by the project's developer; therefore, no cost estimates are provided. This is currently under construction near completion.
3. The Pebble Ridge development is generally located to the northwest of the intersection of Turk and Bristol Roads and consists of approximately 261 new connections to replace existing OLDS. A new pumping station, the Pebble Ridge Pump Station, will pump the sanitary flow to the Castle Valley Interceptor for conveyance to the Green Street/Kings Plaza wastewater treatment facilities for treatment and disposal. As of this writing, the construction is complete though it is estimated that roughly 50% of the homes have connected.

4. Doylestown Walk is generally located to the northwest of the intersection of Lower State and Bristol Roads and consists of approximately 137 residential units to be served by public sewer, with connection to the Pebble Ridge Pump Station. As of this writing, this development is currently under construction with completion scheduled for 2023. Flow will be conveyed to the Castle Valley Interceptor for conveyance to the Green Street/Kings Plaza wastewater treatment facilities for treatment and disposal. Funding is being provided by the project's developer. Therefore, no cost estimate is provided.
5. The Neshaminy-Dell Haven area is located at the intersections of Neshaminy Dell Drive and Bristol Road and consists of 17 parcels in accordance with the Bucks County Planning Commission Parcel map. It is anticipated that a low-pressure sewer system will be utilized for this area. Flow will be conveyed to the Castle Valley Interceptor for conveyance to the Green Street/Kings Plaza wastewater treatment facilities for treatment and disposal. An opinion of probable construction costs for this area is shown on Table 6-5.
6. The Ashbridge at Furlong Development is located near the intersection of Rodgers and York Roads in Doylestown Township. It proposed 52 new EDU connections and will be served by a new pump station. The station will convey wastewater to the gravity sewer in Juniper Drive just west of Route 202. Wastewater will be treated at the Green Street WWTP. Funding is being provided by the project's developer. Therefore, no cost estimate is provided.

B. 10-Year Projections:

EDU projections are shown as the Area A Drainage Area on Figure 5-1 (see Attachments). The area is currently serviced by OLDS. It is anticipated that this area can be served by gravity sewer and a centrally located pump station within the 10-year time frame. Flow will be pumped to the Green Street WWTP for treatment and disposal. As a lower cost option, a low-pressure system could be utilized. The specifics will be developed as the Township proceeds with plans to provide sewer service to the area. However, should there be citizen requests for sewer service and/or OLDS failures, the 10-year projections may be re-evaluated to address these issues.

On behalf of the Township, BCWSA conducted a feasibility study in the Area A Drainage Area of the Township to determine possible options for providing public sewer within the area. Although providing public sewer to the Area A Drainage Area is part of the 10-year plan, the planning phase for this is most likely to begin within the next five (5) years. Therefore, the Township thought it prudent to include the study and cost estimates in this update.

An opinion of probable costs for the gravity option for the Area A area is shown on Table 6-6, which trends the cost estimate originally prepared for this area as part of the Feasibility Study done in January 2019 (copy provided in Appendix H). This Feasibility Study included a proposed central pump station, as well as portions that would require individual grinder pumps with a small low-pressure sewer system, and options to reconfigure the Area A and Area B boundaries should the gravity sewer be the selected alternative to sewer this area.

Also, for Area A area, the opinion of probable costs to provide sewer to this area as one large low-pressure system (all lots connected by individual grinder pumps) is provided in Table 6-7.

C. Ultimate Projections:

The areas slated as “Ultimate Projections” within the Township are located in mostly developed areas and are currently served by OLDS and includes the Area B Drainage Area shown on Figure 5-1. It is anticipated that Area B can be served by gravity sewer, and another centrally located pump station. As a lower cost option, a low-pressure system could be utilized. The method of providing sewer service to the remaining Ultimate areas has yet to be determined and will be affected by topography, citizen requests for service, and OLDS failures. While citizen requests and OLDS failures cannot be accurately predicted, the topographic features remain constant, and a detailed analysis of these feature will be necessary to determine the chosen method for sewer service. This may include a gravity system, a gravity system and pump station, a low-pressure system, and a combination of all these systems.

6.7 OLDS Management Plan

An On-Lot Sewage Disposal (OLDS) management program has been in place since Year 2001 when the Township adopted Ordinance No. 299 (Appendix F) which established regulations for the management and maintenance of OLDS systems. The details of the program are listed in “Section 4.0 – Existing Wastewater Facilities”.

The ordinance requires periodic inspections and if an inspection of the system determines there are malfunctions, then system cleaning, repairs, etc. may be required to correct the problem. Use and compliance with an OLDS management plan can extend the life of on-lot systems by enforcing proper maintenance and requiring repairs when necessary. While an OLDS management plan may not be the final or ultimate solution to on-lot problems, it can extend the timeframe in which a community can utilize on-lot systems.

6.8 No Action

One of the alternatives for facilities planning is the option of doing nothing to alter the present wastewater facilities. The “no-action” alternative provides two indicators. First, it identifies the impacts to the area and its residents if no action is taken. Secondly, it provides a baseline from which other alternatives can be judged.

For the Chalfont-New Britain/Harvey Avenue WWTP service areas, the “no-action” alternative would involve use of the remaining reserve BCWSA capacity in the CNBTJSA WWTP for those properties with previously purchased flow allocations, use of Harvey Avenue WWTP and the continued use of on-lot systems that presently serve the existing residents/businesses.

For the Kings Plaza/Green Street WWTP service areas, the “no-action” alternative would involve the continued use of the Kings Plaza STP and the Green Street WWTP and continue using on-lot systems that presently serve the existing residents/businesses.

The continued use of on-lot systems is undesirable for portions of the Township presently utilizing this method of wastewater treatment and disposal. Continuing the existing use of on-lot systems could be expected to lead to increased incidents of system failures. For an area-wide basis, this practice will continue to contribute to further deterioration of local ground and surface water, as well as the creation of undesirable public health conditions.

The “no-action” alternative places restrictions on replacing on-lot systems with a public sewer system and limits future growth in the service areas. It also does not address Doylestown Township’s existing or future sewage disposal needs. In fact, the no action alternative could result in degradation of sewage disposal in the Township, as well as the groundwater quality being compromised. The “no action” alternative does not address the failing OLDS in the Township, nor does it provide for orderly development and expansion of the sewer system.

For all these reasons, the “no action” alternative is not a viable alternative.

6.9 Alternative Analysis

Each alternative presented must be analyzed individually or in groups to determine the most effective alternative(s) to address the municipality’s sewage disposal needs. The “no action” alternative has been eliminated because it does not meet current demands or future growth needs of Doylestown Township.

As stated previously, active development projects, proposed development projects from the annual Chapter 94 Reporting, and input from the Township determined which service areas are expected to be served in the 5-Year time frame. The decisions were based upon resident requests and the severity and concentration of the OLDS malfunctions. The remaining service areas of the

Township were designated to be located in the 10-year and ultimate service areas. These service areas were created to allow for a comprehensive OLDS Septage Management Program to be initiated and put into practice. This will provide sufficient time to determine which of the service areas can remain utilizing OLDS under proper care and maintenance and which areas will require further measures.

6.10 Selected Alternatives

A. Selected Alternative Plan for the 5-Year Projections

The final phase of the alternative analysis is selection of the sewage disposal alternatives. The recommended alternatives are called the Selected Plan. The Selected Plan includes:

1. Use of low-pressure sewer systems to provide the new connections to:
 - a. Tedwill (3 connections to existing LPSS)
 - b. Pine Valley Road/Shady Grove Circle/Buttonwood Lane/Chestnut Valley Drive areas.
 - c. 611 Corridor
 - d. Neshaminy Dell Haven Area
2. Completion of ongoing projects such as Tabor Village, Pebble Ridge, Doylestown Walk, Ashbridge at Furlong (in planning stage).
3. Continued use of the current OLDS Management Program adopted by the Township.
4. For the Area A Drainage Area, it is recommended that the low-pressure sewer system option be utilized due to the lower projected costs and the fact that the depth to bedrock in the majority of this area is expected to be fairly shallow, meaning the installation of low-pressure piping at 4-foot depths will be much more feasible than the installation of gravity sewers at 8- to 10-foot depths (or deeper). Though not in the 5-Year projections, the Township desires to be proactive and take initial steps to progress the planning to provide public sewers to this area.

B. Financial Requirements

Either Developers or the individual property owners will be responsible for financing the capital expenditures of the indicated sewer extensions, while BCWSA would be responsible for the public portion of the operating and maintenance cost of the proposed sanitary sewer collection systems for those systems outlined herein. Doylestown

Township will be responsible for the administrative costs for the OLDS Management Program.

The funding methods available to the property owners for the construction of proposed sewage facilities includes PENNVEST loans.

1. PENNVEST:

The Pennsylvania Infrastructure Investment Authority issues loans/grants to those which meet the financial criteria for assistance. The proposed facilities must protect human health and promote economic development with the construction or upgrade of sewage facilities. Those requesting financial assistance must meet certain criteria in order to obtain the PENNVEST loans.

The PENNVEST program has a project rating criteria by which all projects are reviewed, rated, and ranked. The rating process is based upon the following items:

- Public Health and Safety Factor: This rating factor includes the direct human impact due to on-lot malfunctions and inadequately treated sewage, severity of individual or public water supply contamination, and severity of safety hazards from deteriorated facilities.
- Environmental Impact Factor: This rating factor includes the damage to fish and aquatic life, loss of boating and recreation opportunity, impact on industrial water supply uses, impact on crop irrigation, and degradation of streams used for stock watering.
- Compliance Factor: This rating factor includes the enforcement status of project and existence of overload conditions.
- Adequacy and Efficiency and Social Impact Factor: This rating factor includes the extent that regionalization or consolidation of facilities will be accomplished, and the median household income in comparison to statewide median.
- Economic Development Factor: This rating factor includes the development activity and job creation/retention resulting directly or indirectly from the project, the opportunity to use other State programs such as Business Infrastructure Development, Site Development and Community Facilities programs to fund the project, and degree of local distress in the county where the project is located.

An important item which should be noted is that the Act 537 Plan must be approved by PADEP prior to the PENNVEST application being submitted for review and rating. This could involve significant time delays if the timing does not coincide with the board's meeting schedule.

2. Bank Loans:

Most financial institutions may offer commercial bank loans to finance a wide variety of capital purchases. Interest rates and payback periods are based on market conditions. Commercial bank loans require security collateral. Applying for a commercial bank loan is not as involved and does not require the same administrative fees as PENNVEST, making bank loans either a practicable short term financing option or longer-term option if the principal amount is not too large.

Home equity loans may also be an available option. An advantage of a home equity loan is that they typically come with a lower interest rate than either personal or commercial loans.

A home equity line of credit (HELOC) can be possible financing method. The feasibility of home equity loan and a HELOC depends on the available equity in the home and the spending limits available.

Cash out financing can also be an available funding option. With this option, the home is refinanced for more than what is owed on the mortgage. How much extra funds depends on the equity in the home.

TABLE 6-1
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
OPINION OF PROBABLE COSTS
TEDWILL SANITARY SEWER

NO.	ITEM	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	60	\$47.00	\$2,820.00
2	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	240	\$37.00	\$8,880.00
3	Cleanout Fittings	EA	3	\$419.00	\$1,260.00
4	Rock Excavation (estimated quantity)	CY	10	\$175.00	\$1,750.00
5	Temporary Pavement Trench Restoration	LF	60	\$13.00	\$780.00
6	Permanent Pavement Trench Restoration	LF	60	\$36.00	\$2,160.00
7	Grass Restoration	LF	240	\$8.00	\$1,920.00
8	Erosion and Sediment Control	LF	300	\$4.00	\$1,200.00
9	Sewer Testing	LF	300	\$4.00	\$1,200.00
10	Mobilization/Bonds/Insurance	LS	4%		\$880.00
11	Grinder Pumps (see Note C)	EA	3	\$10,200.00	\$30,600.00
	Subtotal				\$53,450.00
	5-year Escalation Factor	1.115			
	Escalated Costs				\$59,600.00
	Construction Contingency, %	10			\$6,000.00
	Engineering, Legal and Administration, %	10			\$6,000.00
	Total Construction Cost				\$71,600.00
	Tapping Fee	EA	3	\$6,200.00	\$18,600.00
	Total Project Costs				\$90,200.00
	Cost per EDU				\$30,100.00

Notes:

- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Majority of low pressure pipe installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- C. Price includes pump station, valves, electrical, control panel, restoration, 1.5" service piping (length of piping estimated at 100' per lot).

TABLE 6-2
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
OPINION OF PROBABLE COSTS
PINE VALLEY ROAD/SHADY GROVE CIRCLE/BUTTONWOOD LANE SANITARY SEWER

NO.	ITEM	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	4" PVC Low Pressure Mains - in roads	LF	1,230	\$64.00	\$78,720.00
2	3" PVC Low Pressure Mains - in roads	LF	8,361	\$58.00	\$484,940.00
3	2.5" PVC Low Pressure Mains - in roads	LF	1,050	\$51.00	\$53,550.00
4	2" PVC Low Pressure Mains - in roads	LF	800	\$48.00	\$38,400.00
5	1.5" PVC Low Pressure Mains - in roads	LF	440	\$43.00	\$18,920.00
6	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	1,230	\$43.00	\$52,890.00
7	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	410	\$37.00	\$15,170.00
8	Cleanout Fittings	EA	82	\$422.00	\$34,600.00
9	Low Pressure Fittings (estimated quantity)	EA	120	\$147.00	\$17,640.00
10	Rock Excavation (estimated quantity)	CY	340	\$176.00	\$59,840.00
11	Temporary Pavement Trench Restoration	LF	11,881	\$13.00	\$154,450.00
12	Permanent Pavement Trench Restoration	LF	11,881	\$36.00	\$427,720.00
13	Grass Restoration	LF	410	\$8.00	\$3,280.00
14	Erosion and Sediment Control	LF	11,881	\$4.00	\$47,520.00
15	Sewer Testing	LF	11,881	\$4.00	\$47,520.00
16	Air Release Chambers (approx. quantity)	EA	5	\$8,800.00	\$41,820.00
17	Cleanout Chambers (approx. quantity)	EA	2	\$3,600.00	\$7,200.00
18	Grinder Pumps (see Note C)	EA	82	\$10,200.00	\$836,400.00
19	Mobilization/Bonds/Insurance	LS	4%		\$96,820.00
	Subtotal				\$2,517,400.00
	5 year Escalation Factor	1.115			
	Escalated Costs				\$2,806,900.00
	Construction Contingency, %	10			\$280,700.00
	Engineering, Legal and Administration, %	20			\$561,400.00
	Total Construction Cost				\$3,649,000.00
	Tapping Fee	EA	82	\$6,200.00	\$508,400.00
	Total Project Costs				\$4,157,400.00
	Cost per EDU (round)				\$50,700.00

Notes:

- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Majority of low pressure pipe installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- C. Price includes pump station, valves, electrical, control panel, restoration, 1.5" service piping (length of piping estimated at 100' per lot).

**TABLE 6-3
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
OPINION OF PROBABLE COSTS
CHESTNUT VALLEY DRIVE SANITARY SEWER**

NO.	ITEM	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	2" PVC Low Pressure Mains - in roads	LF	3,775	\$48.00	\$181,200.00
2	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	600	\$43.00	\$25,800.00
3	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	90	\$37.00	\$3,330.00
4	Cleanout Fittings	EA	40	\$422.00	\$16,880.00
5	Low Pressure Fittings (estimated quantity)	EA	40	\$147.00	\$5,880.00
6	Rock Excavation (estimated quantity)	CY	110	\$176.00	\$19,360.00
7	Temporary Pavement Trench Restoration	LF	3,775	\$13.00	\$49,080.00
8	Permanent Pavement Trench Restoration	LF	3,775	\$36.00	\$135,900.00
9	Grass Restoration	LF	90	\$8.00	\$720.00
10	Erosion and Sediment Control	LF	3,775	\$4.00	\$15,100.00
11	Sewer Testing	LF	3,775	\$4.00	\$15,100.00
12	Air Release Chambers (approx. quantity)	EA	2	\$8,770.00	\$13,240.00
13	Cleanout Chambers (approx. quantity)	EA	1	\$3,510.00	\$3,510.00
14	Creek Crossing	LS	2	\$11,700.00	\$23,400.00
15	Grinder Pumps (see Note C)	EA	40	\$10,180.00	\$407,200.00
16	Mobilization/Bonds/Insurance	LS	4%		\$36,630.00
	Subtotal				\$952,330.00
	5 year Escalation Factor	1.115			
	Escalated Costs				\$1,061,800.00
	Construction Contingency, %	10			\$106,200.00
	Engineering, Legal and Administration, %	20			\$190,500.00
	Total Construction Cost				\$1,358,500.00
	Tapping Fee	EA	40	\$6,200.00	\$248,000.00
	Total Project Costs				\$1,606,500.00
	Cost per EDU (round)				\$40,200.00

Notes:

- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Majority of low pressure pipe installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- C. Price includes pump station, valves, electrical, control panel, restoration, 1.5" service piping (length of piping estimated at 100' per lot).

TABLE 6-4
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
OPINION OF PROBABLE COSTS
611 CORRIDOR SANITARY SEWER

NO.	ITEM	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	3" PVC Low Pressure Mains - in roads	LF	2,860	\$58.00	\$165,880.00
2	2.5" PVC Low Pressure Mains - in roads	LF	340	\$51.00	\$17,340.00
3	2" PVC Low Pressure Mains - in roads	LF	665	\$48.00	\$31,920.00
4	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	780	\$43.00	\$33,540.00
5	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	240	\$37.00	\$8,880.00
6	Cleanout Fittings	EA	52	\$423.00	\$22,000.00
7	Low Pressure Fittings (estimated quantity)	EA	40	\$147.00	\$5,880.00
8	Rock Excavation (estimated quantity)	CY	110	\$176.00	\$19,360.00
9	Temporary Pavement Trench Restoration	LF	3,865	\$13.00	\$50,250.00
10	Permanent Pavement Trench Restoration	LF	3,865	\$36.00	\$139,140.00
11	State Road - Full Road Mill and Overlay (see Note B)	SY	6,356	\$18.00	\$114,400.00
12	Grass Restoration	LF	240	\$8.00	\$1,920.00
13	Erosion and Sediment Control	LF	3,865	\$4.00	\$15,460.00
14	Sewer Testing	LF	3,865	\$4.00	\$15,460.00
15	Traffic Control (see Note C)	LF	6,356	\$3.00	\$19,070.00
16	Air Release Chambers (approx. quantity)	EA	2	\$8,770.00	\$13,560.00
17	Cleanout Chambers (approx. quantity)	EA	1	\$3,510.00	\$3,510.00
18	Creek Crossing	LS	2	\$11,700.00	\$23,400.00
19	Grinder Pumps (see Note D)	EA	52	\$10,180.00	\$529,360.00
20	Mobilization/Bonds/Insurance	LS	4%		\$49,210.00
	Subtotal				\$1,279,500.00
	5 year Escalation Factor	1.115			
	Escalated Costs				\$1,426,600.00
	Construction Contingency,%	10			\$128,000.00
	Engineering, Legal and Administration, %	20			\$255,900.00
	Total Construction Cost				\$1,810,500.00
	Tapping Fee	EA	52	\$6,200.00	\$322,400.00
	Total Project Costs				\$2,132,900.00
	Cost per EDU (round)				\$41,100.00

Notes:

- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Presumed full road overlay will be required, based on estimated average road width of 20 feet in this area (State Roads only).
- C. Majority of low pressure pipe installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- D. Price includes pump station, valves, electrical, control panel, restoration, 1.5" service piping (length of piping estimated at 100' per lot).

TABLE 6-5
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
OPINION OF PROBABLE COSTS
NESHAMINY DELL HAVEN SANITARY SEWER

NO.	ITEM	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	2.5" PVC Low Pressure Mains - in roads	LF	700	\$51.00	\$35,700.00
2	2" PVC Low Pressure Mains - in roads	LF	1,450	\$48.00	\$69,600.00
3	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	255	\$43.00	\$10,970.00
4	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	85	\$37.00	\$3,150.00
5	Cleanout Fittings	EA	17	\$422.00	\$7,170.00
6	Low Pressure Fittings (estimated quantity)	EA	20	\$147.00	\$2,940.00
7	Rock Excavation (estimated quantity)	CY	60	\$176.00	\$10,560.00
8	Temporary Pavement Trench Restoration	LF	2,150	\$13.00	\$27,950.00
9	Permanent Pavement Trench Restoration	LF	2,150	\$36.00	\$77,400.00
10	Traffic Control (see Note C)	LF	2,150	\$3.00	\$6,450.00
11	Grass Restoration	LF	85	\$8.00	\$680.00
12	Erosion and Sediment Control	LF	2,150	\$4.00	\$8,600.00
13	Sewer Testing	LF	2,150	\$4.00	\$8,600.00
14	Air Release Chambers (approx. quantity)	EA	1	\$8,770.00	\$7,540.00
15	Cleanout Chambers (approx. quantity)	EA	1	\$3,510.00	\$3,510.00
16	Grinder Pumps (see Note D)	EA	17	\$10,180.00	\$173,060.00
17	Mobilization/Bonds/Insurance	LS	4%		\$18,160.00
	Subtotal				\$472,000.00
	5 year Escalation Factor	1.115			
	Escalated Costs				\$526,300.00
	Construction Contingency, %	10			\$52,600.00
	Engineering, Legal and Administration, %	20			\$105,300.00
	Total Construction Cost				\$684,200.00
	Tapping Fee	EA	17	\$6,200.00	\$105,400.00
	Total Project Costs				\$789,600.00
	Cost per EDU				\$46,400.00

Notes:

- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Presumed full road overlay will be required, based on estimated average road width of 20 feet in this area (State Roads only).
- C. Majority of low pressure pipe installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- D. Price includes pump station, valves, electrical, control panel, restoration, 1.5" service piping (length of piping estimated at 100' per lot).

**TABLE 6-6
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
OPINION OF PROBABLE COSTS
AREA A (GRAVITY OPTION)**

NO.	ITEM	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
A. Collection System					
1	12" PVC Sanitary Sewer (w/suitable backfill, 12 to 14 feet deep)	LF	2,600	\$133.00	\$345,800.00
2	10" PVC Sanitary Sewer (w/suitable backfill, 8 to 10 feet deep)	LF	6,100	\$95.00	\$579,500.00
3	8" PVC Sanitary Sewer (w/stone backfill, 6 to 8 feet deep)	LF	35,700	\$102.00	\$3,641,400.00
4	8" PVC Sanitary Sewer (w/suitable backfill, 6 to 8 feet deep)	LF	1,300	\$70.00	\$91,000.00
5	Rock Excavation (estimated quantity)	CY	10,696	\$182.00	\$1,946,672.00
6	Sanitary Manholes	EA	131	\$3,608.00	\$472,648.00
7	6" PVC Lateral - in roads (see Note A)	LF	5,640	\$48.00	\$270,720.00
8	6" PVC Lateral - in grass (see Note A)	LF	1,880	\$38.00	\$71,440.00
9	Cleanout Fittings (Gravity)	EA	376	\$350.00	\$131,600.00
10	2" PVC Low Pressure Mains - in roads	LF	1,870	\$36.00	\$67,320.00
11	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	150	\$25.00	\$3,750.00
12	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	50	\$16.00	\$800.00
13	Cleanout Fittings (Low Pressure System)	EA	10	\$433.00	\$4,330.00
14	Low Pressure Fittings (estimated quantity)	EA	20	\$62.00	\$1,240.00
15	Concrete Encasement (estimated quantity)	LF	1,500	\$73.00	\$109,500.00
16	Temporary Pavement Trench Restoration	LF	43,360	\$13.00	\$563,680.00
17	Permanent Pavement Trench Restoration	LF	43,360	\$37.00	\$1,604,320.00
18	State Road - Full Road Mill and Overlay (see Note B)	SY	14,067	\$19.00	\$267,273.00
19	Grass Restoration	LF	11,930	\$8.00	\$95,440.00
20	Erosion and Sediment Control	LF	47,570	\$4.00	\$190,280.00
21	Sewer Testing	LF	55,290	\$4.00	\$221,160.00
22	Traffic Control (see Note C)	LF	37,570	\$3.00	\$112,710.00
23	Tree Clearing	LF	5,200	\$31.00	\$161,200.00
24	Creek Crossings	EA	5	\$12,100.00	\$60,500.00
25	Mobilization/Bonds/Insurance	LS	4%		\$440,570.00
					\$11,454,853.00
B. Pump Station					
1	Sauerman Road Pump Station	LS	1	\$1,471,600.00	\$1,471,600.00
2	8" DIP Force Main (w/stone backfill) - (see Note D)	LF	1,450	\$109.00	\$158,050.00
3	8" DIP Force Main (w/suitable backfill)	LF	7,450	\$95.00	\$707,750.00
4	Temporary Pavement Trench Restoration	LF	1,450	\$13.00	\$18,850.00
5	Permanent Pavement Trench Restoration	LF	1,450	\$37.00	\$53,650.00
6	State Road - Full Road Mill and Overlay (see Note B)	SY	4,030	\$19.00	\$76,570.00
7	Force Main Testing	LF	8,900	\$4.00	\$35,600.00
8	Traffic Control	LS	1	\$12,030.00	\$12,030.00
9	Air Release Manholes	EA	6	\$9,620.00	\$57,720.00
10	Fittings	LBS	2,200	\$8.00	\$17,600.00
11	Creek Crossing	EA	3	\$12,100.00	\$36,300.00
12	Mobilization/Bonds/Insurance	LS	4%		\$105,830.00
					\$2,751,550.00
C. Low Pressure Sewer Area (90 Connections)					
1	2.5" PVC Low Pressure Mains - in roads	LF	11,810	\$39.00	\$460,590.00
2	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	1,350	\$25.00	\$33,750.00
3	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	450	\$16.00	\$7,200.00
4	Cleanout Fittings	EA	90	\$433.00	\$38,970.00
5	Low Pressure Fittings (estimated quantity)	EA	143	\$62.00	\$8,866.00
6	Rock Excavation (estimated quantity)	CY	330	\$182.00	\$60,060.00
7	Temporary Pavement Trench Restoration	LF	13,160	\$13.00	\$171,080.00
8	Permanent Pavement Trench Restoration	LF	13,160	\$37.00	\$486,920.00
9	State Road - Full Road Mill and Overlay (see Note B)	SY	14,300	\$19.00	\$271,700.00
10	Grass Restoration	LF	450	\$8.00	\$3,600.00
11	Erosion and Sediment Control	LF	11,810	\$4.00	\$47,240.00
12	Sewer Testing	LF	13,610	\$4.00	\$54,440.00
13	Traffic Control (see Note C)	LF	11,810	\$3.00	\$35,430.00
14	Mobilization/Bonds/Insurance	LS	4%		\$67,190.00
					\$1,747,036.00
					Subtotal All (Rounded) \$15,953,400.00
					Construction Contingency (10%) \$1,595,300.00
					Engineering, Legal, Administration and Easements (20%) \$3,190,700.00
					Total Public Cost \$20,739,400.00
Private Costs					
	Grinder Pumps (see Note E)	EA	100	\$10,500.00	\$1,050,000.00
	Gravity Laterals (see Note F)	EA	376	\$3,800.00	\$1,428,800.00
	Tapping Fees	EA	476	\$6,200.00	\$2,951,200.00
					Total Private Costs \$5,430,000.00
					Total Cost \$ 26,169,400.00
					Cost per EDU (rounded) \$ 55,000.00

Notes:

- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Presumed full road overlay will be required, based on estimated average road width of 25 feet in this area (State Roads only).
- C. Majority of sewer installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- D. Grass restoration and clearing would be done under the gravity sewer work, as this force main would be installed along side the gravity sewer. There would be some additional pavement restoration required, as the force main must continue to the WWTP along Pebble Hill Road.
- E. Price includes pump station, valves, electrical, control panel, restoration, and 1.25" service piping (length of piping estimated at 100' per lot).
- F. Price is based on estimated distance from house to right-of-way of 75 feet.

TABLE 6-7
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
OPINION OF PROBABLE COSTS
AREA A (LPSS LOW PRESSURE OPTION)

NO.	ITEM	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	6" PVC Low Pressure Mains - in roads	LF	2,596	\$77.00	\$199,890.00
2	4" PVC Low Pressure Mains - in roads	LF	9,141	\$66.00	\$603,310.00
3	3" PVC Low Pressure Mains - in roads	LF	25,538	\$59.00	\$1,506,740.00
4	2.5" PVC Low Pressure Mains - in roads	LF	15,666	\$57.00	\$892,960.00
5	2" PVC Low Pressure Mains - in roads	LF	4,167	\$54.00	\$225,020.00
6	1.5" PVC Low Pressure Mains - in roads	LF	1,089	\$48.00	\$52,270.00
7	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	7,140	\$48.00	\$342,720.00
8	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	2,380	\$48.00	\$114,240.00
9	Cleanout Fittings	EA	476	\$433.00	\$206,110.00
10	Low Pressure Fittings (estimated quantity)	EA	580	\$151.00	\$87,580.00
11	Rock Excavation (estimated quantity)	CY	1,620	\$182.00	\$294,840.00
12	Temporary Pavement Trench Restoration	LF	65,337	\$13.00	\$849,380.00
13	Permanent Pavement Trench Restoration	LF	65,337	\$37.00	\$2,417,470.00
14	State Road - Full Road Mill and Overlay (see Note B)	SY	45,389	\$19.00	\$862,390.00
15	Grass Restoration	LF	2,380	\$8.00	\$19,040.00
16	Erosion and Sediment Control	LF	58,197	\$4.00	\$232,790.00
17	Sewer Testing	LF	67,717	\$4.00	\$270,870.00
18	Traffic Control (see Note C)	LF	20,425	\$3.00	\$61,280.00
19	Air Release Chambers (approx. quantity)	EA	23	\$9,020.00	\$209,970.00
20	Cleanout Chambers (approx. quantity)	EA	30	\$3,610.00	\$108,300.00
21	Creek Crossing	LS	11	\$12,020.00	\$132,220.00
22	Mobilization/Bonds/Insurance	LS	4%		\$387,580.00
				Subtotal	\$10,076,970.00
				Construction Contingency (10%)	\$1,007,700.00
				Engineering, Legal and Administration (20%)	\$2,015,400.00
				Total Public Cost	\$13,100,070.00
Private Costs					
	Grinder Pumps (see Note D)	EA	476	\$10,460.00	\$4,978,960.00
	Tapping Fees	EA	476	\$6,200.00	\$2,951,200.00
				Total Private Costs	\$7,930,160.00
				Total Cost	\$21,030,230.00
				Cost per EDU	\$44,200.00

Notes:

- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Presumed full road overlay will be required, based on estimated average road width of 20 feet in this area (State Roads only).
- C. Majority of low pressure pipe installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- D. Price includes pump station, valves, electrical, control panel, restoration, and 1.25" service piping (length of piping estimated at 100' per lot).

TABLE 6-8
DOYLESTOWN TOWNSHIP ACT 537 PLAN UPDATE
OPINION OF PROBABLE COSTS
PROJECT COST SUMMARY OF SELECTED PLAN

Project Name	Project Total Cost	Cost per EDU
Tedwill Sanitary Sewer	\$90,200	\$30,100
Pine Valley Road Sanitary Sewer*	\$4,157,400	\$50,700
Chestnut Valley Drive Sanitary Sewer	\$1,606,500	\$40,200
611 Corridor	\$2,132,900	\$41,100
Neshaminy Dell-Haven	\$789,600	\$46,400
Total Project Costs	\$8,776,600.00	
Total No. of EDUs	196	
Average Cost per EDU		\$44,800.00

Notes:

- 1) Area A tributary to the Green St. WWTP is not shown on this table because it is not in the 5-Year Planning Period.
- 2) The 5-Year projects are expected to be low pressure sewer system extensions, and proposed mains are anticipated to be installed in paved areas. Therefore, no PNDI or PHMC clearances have been obtained for these projects at this time. If this changes as those projects are in the design stage, the appropriate clearances will be obtained.

* Includes Shady Grove Circle and Buttonwood Lane as well.

SECTION 7.0 – IMPLEMENTATION

7.1 Implementation Steps

The following list and corresponding dates outline the steps to be performed in implementing the Selected Plan:

- A. BCWSA/Township review Draft Act 537 Plan Update – September 2023
- B. Public Notification of Act 537 Plan Update – 30 days from Twp Approval of Draft
- C. Planning Agency review of Act 537 Plan Update – 30 days from Twp Approval of Draft
- D. Address Public and Planning Agency comments – 60 days from Twp Approval of Draft
- E. Township adopts Act 537 Plan Update – 90 days from Twp Approval of Draft
- F. Act 537 Plan Update submitted to DEP for review – 100 days from Twp Approval of Draft
- G. DEP approval of Act 537 Plan Update – 220 days from Twp Approval of Draft
- H. Arrange financing for design and construction phases of the Selected Plan – After Approval of Act 537 Plan Update.

7.2 Implementation Schedule

- A. Complete 611 Corridor design phase engineering services – within 360 days of DEP Approval (** all number of days below are from DEP approval of the Act 537 Plan Update*)
 - 1. Advertise for bids for construction – 390 Days*
 - 2. Award contract and notice to proceed – 450 Days*
 - 3. Place facilities into operation – 630 Days*

- B. Complete Pine Valley/Shady Grove Circle/Buttonwood Lane/Chestnut Valley design phase engineering services – within 660 days of DEP Approval
 - 1. Advertise for bids for construction – 690 Days*
 - 2. Award contract and notice to proceed – 750 Days*
 - 3. Place facilities into operation – 930 Days*

- C. Complete Neshaminy Dell Haven design phase engineering services – 960 Days
 - 1. Advertise for bids for construction – 990 Days*
 - 2. Award contract and notice to proceed – 1,050 Days*
 - 3. Place facilities into operation – 1,170 Days*

D. Tedwill Area will be individual connections to existing low-pressure sewer system, timing to be dictated by those individual property owners.

E. Area A Drainage Area:

1. Begin Planning Phase – within 1,200** days of DEP Approval
2. Completed design phase engineering services – within 1,560** days
3. Place facilities into operation – within 2,600** days

**To be determined by Township

F. OLDS Management Program:

1. Ongoing annual program with participation from all on-lot disposal utilizing property owners in the Township

7.3 Consistency of Selected Alternatives

Prior to implementation, the selected sewage disposal alternative must be evaluated for its consistency with existing plans and programs governing the same study area. The selected alternative must be shown to be consistent with the following objectives and policies identified in Chapter 71, Section 71.21(a)(5)(i):

A. Comprehensive Water Quality Management Plans (COWAMP):

In 1978, the Delaware Valley Regional Planning Commission prepared the COWAMP/208 Water Quality Management Plan for southeastern Pennsylvania. The purpose of the COWAMP/208 is to develop an area-wide waste treatment management plan to protect surface and groundwater from pollution. The COWAMP/208 identifies Doylestown Township as being part of the Neshaminy sub-basin and identifies an area of known septic tank malfunctions.

The selected alternative of constructing public sanitary sewer extensions is consistent with the COWAMP/208. The sanitary sewer extensions will provide sewage disposal to the area identified in the COWAMP/208 as having malfunctioning on-site systems.

B. Chapter 94 Reports:

Chapter 94, Municipal Wasteload Management, was promulgated under 25 PA Code to require that owners and operators of sewage facilities manage waste loads discharged to the sewerage facilities in order to prevent overloading of sewerage facilities, limit extensions to overloaded sewer systems or treatment plants, and to prevent the introduction of pollutants into sewage treatment plants that will interfere with treatment plant operation or pass through the plant.

This is accomplished each year by the treatment plant owner preparing a comprehensive report evaluating the status of the treatment plant and pump stations, interceptors, and collector sewers tributary to the treatment plant. The selected alternative is consistent with Chapter 94 since the extension of the public sanitary sewer collection system will serve an area with failing OLDS. Additionally, the wastewater flows will not exceed the treatment plant capacity.

C. Plans Developed Under Title II of the Clean Water Act or Titles II and VI of the Water Quality Act of 1987:

Plans developed under Title II of the Clean Water Act contain information on waste treatment management plans and practices which shall provide for: the application of the best practicable waste treatment technology before discharging into receiving water, including reclaiming and recycling of water, the confined disposal of pollutants so they will not migrate to cause water or other environmental pollution, and the consideration of advanced waste treatment techniques. Since the BCW&SA treatment plants meet the NPDES parameters established by PADEP, the selected alternative is consistent with Title II of the Clean Water Act. In addition, the elimination of failing OLDS will improve both ground and surface water quality.

D. Township and County Comprehensive Planning:

Pennsylvania Act 247, the Municipalities Planning Code, requires municipalities to prepare a Comprehensive Plan for the Township. The latest Comprehensive Plan Update for Doylestown Township was prepared by Lynn Froehlich, AICP in 1989. The report reiterated the Hugh Plan and mentions the “problems with the existing on-site septic systems” as well as the expansion of the Kings Plaza STP and the construction of another plant somewhere along the Neshaminy. Additionally, in the “Policies and Implementation Strategies” portion of the Plan recommends public sewerage be extended to portions of the Township which are experiencing problems with the on-lot systems. The Plan also states the continued need to provide on-lot system maintenance information to Township residents. The 537 Plan is consistent with the Township Plan by continuing the use of

educational materials of on-lot system maintenance and by extending public sewerage to developed areas of the Township experiencing malfunctions with the on-lot systems.

The Bucks County Comprehensive Plan was prepared in 1993 by the Bucks County Planning Commission. The Plan does not specifically deal with each Township individually, but clusters Townships into regions. Doylestown, Warrington, and New Britain Townships were grouped to form Region IV named “Doylestown”. The Plan discusses growth economy, community facilities, recreation, and infrastructure. Within the report the wastewater facilities were mentioned briefly on a county wide basis. Specific regions were not mentioned, general recommendations were made suggesting use of spray irrigation systems or other alternate systems and minimizing sewer extensions. For the already developed areas of the region, spray irrigation systems are not plausible. Considerable amounts of land are required for spray irrigation and as stated in the Plan “year-round use is not possible.” Generally, previously developed areas in the Township do not have the available open land to build a spray irrigation system as well as an alternate system to handle year-round flows from the area.

This 537 Plan is consistent with the County Plan by providing planning and solutions to existing malfunctioning OLDS within the Township. Additionally, the County Plan recommends utilizing alternative systems such as the previously installed and proposed low pressure sewers and grinder systems.

E. Anti-Degradation Requirements of Chapters 93, 95 and 102:

Chapters 93, 95, and 102 cover Water Quality Standards, Wastewater Treatment requirements, and Sedimentation Pollution Control respectively. The Green Street, Harvey Avenue and Kings Plaza treatment plants are existing permitted treatment facilities providing wastewater treatment, which discharges treated effluent into surface waters of the Commonwealth. The plants’ effluent complies with the NPDES permitting and are therefore consistent with Chapters 93 and 95.

The proposed sewer extensions are consistent with Chapters 93 and 95 because existing and new sources of water pollution which are attributable in sewage disposal will be eliminated. Sewer extensions to areas of failing on-site systems will eliminate these sources of pollution.

Construction associated with the selected sewage disposal alternatives will include measures to control erosion and the resulting sedimentation pollution of surface waters of the Commonwealth consistent with Chapter 102.

F. State Water Plans:

State Water Plans have been developed for use as a management tool to guide in the conservation, development, and administration to the Commonwealth's water and related land resources on a comprehensive and coordinated basis. Doylestown Township is covered under State Water Plan 3 (SWP-3), Sub-basin 2, Central Delaware River.

The proposed Act 537 Plan Update is consistent with the objectives of the State Water Plan through existing Doylestown Township ordinances and zoning, and the NPDES Permits for the treatment plants. Doylestown Township Ordinance Chapter 170 Article II Sections 170-8 to 170-12 require water saving plumbing devices to be installed as part of all new construction, thus reducing the consumptive burden on groundwater resources.

As part of its zoning ordinance, Doylestown Township has a Floodplain Conservation District. The purpose of this zoning district is to protect areas of floodplain subject to and necessary for the containment of flood waters. Expansion of the sanitary sewer system and other construction related to the selected alternative will comply with the Township's zoning ordinance with respect to floodplain encroachment.

The NPDES permits for the treatment plants control the effluent discharge of the plants, limiting pollution from sewage disposal in the areas containing on-lot failures and malfunctions. This is consistent with the environmental quality goals of the State Water Plan.

G. Prime Agricultural Land Policy:

Pennsylvania's Prime Agricultural Land Policy orders and directs the prevention of the irreversible conversion of prime agricultural land to uses that result in its loss as an environmental or essential food production resource.

Upon review, the prime agricultural soils found in the Doylestown Township service area BeA, BeB, (Bedington channery silt loam, 0-3%, and 3-8% slopes), DuA, DuB (Duncannon silt loam 0-3% and 3-8% slopes), LgA (Lawrenceville silt loam 0-3% slope), LhB (Lehigh channery silt loam, 2-8% slopes), PeB, (Penn channery silt loam 3 8% slopes), PnB, (Penn-Lansdale complex 3-8% slopes), and Ro (Rowland silt loam). The majority of the soils are located along stream and creeks with a few scattered throughout developed portions of the Township. It is important to note the lands adjacent to the stream and creeks are already protected by the Township zoning ordinance and floodplain regulations. As for the scattered parcels not immediately adjacent to bodies of water; they are generally located in areas currently developed. The selected alternatives do not involve the conversion of any prime agricultural land to a new use. Therefore, the selected alternatives are consistent with Pennsylvania Prime Agricultural Policy.

H. County Wide Stormwater Management Plans:

Bucks County is divided into eight areas for which several have prepared stormwater management plans. Doylestown Township is located within the Neshaminy Creek Stormwater Management Plan area. The Plan consists of four volumes approved by PA DEP in May, 1992. The Neshaminy Creek watershed covers 232 square miles and 26 municipalities in Bucks County and seven in Montgomery County. The Plan is comprehensive and strives to set objectives and establish criteria to manage stormwater runoff caused by land development, maintain, or improve water quality and provide for proper maintenance of stormwater management facilities. The items most applicable to wastewater facilities planning include water quality criteria, non-point source pollutants, and floodplain management issues. The NPDES permitting enforces the water quality aspect of public treatment facilities. A failing OLDS can be a non-point source pollutant at times of rainfall events. Elimination of malfunctioning OLDS will reduce non-point source pollutants from the area. As previously stated, the floodplains are protected by both Township and State regulations, and any disturbance to floodplains will be temporary as well as protected by erosion control measures. Additionally, all construction facilities and land disturbance involved with the selected alternatives will be consistent with the stormwater management plans and requirements of Doylestown Township. The selected alternatives are consistent with the Neshaminy Creek Stormwater Management Plan.

I. Wetland Protection Under Chapter 105:

For each sanitary sewer extension and construction project, the National Wetland Inventory Maps are reviewed for any conflict or disturbance of existing wetlands. Although sewage treatment plants are normally constructed near streams, disturbances caused by earth moving is temporary. Permits from the Bureau of Drains and Waterways have been obtained in the past for this type of construction and will be obtained in the future if the construction of the sewage disposal alternative impacts wetlands in any way. The same applies to construction associated with new development. The selected sewage disposal alternatives are consistent with Chapter 105 for wetland protection.

J. Pennsylvania Natural Diversity Inventory (PNDI):

A PNDI search for individual projects will be conducted during the design phases for the projects. Furthermore, the majority of pipe installations would be in paved roadways and maintained lawn areas.

The selected sewage disposal alternative will be consistent with Pennsylvania National Diversity Inventory.

K. Pennsylvania Historic Preservation Act:

The Pennsylvania Historical Preservation Act of 1978 requires that Commonwealth agencies and political subdivision (municipalities) cooperate fully with the Pennsylvania Historical and Museum Commission in the presentation, protection, and investigation of archaeological resources. The areas where sanitary sewer extensions are proposed will be addressed individually. The selected sewage disposal alternative will be consistent with the Pennsylvania Historic Preservation Act.

SECTION 8.0 - INSTITUTIONAL EVALUATION

8.1 Institutional Responsibility And Authority

One of the integral steps of a wastewater facilities planning study is the duty of the responsible entities to ensure an orderly and economical implementation of the plan. This includes, but is not limited to, setting the groundwork for ownership, operations, implementation, and maintenance of the proposed wastewater facilities.

The Bucks County Water & Sewer Authority is able to control and administer the design, construction and operation of the wastewater facilities recommended in this plan update. An agreement between the Township and Authority would be required to work out such details and terms of payment. The Bucks County Water & Sewer Authority is responsible for the daily operation and maintenance of the existing Harvey Avenue WWTP, Green Street WWTP, and Kings Plaza WWTP. The Chalfont-New Britain Township Joint Sewer Authority is responsible for the daily operation and maintenance of the existing CNBTJSA Treatment Plant.

The Bucks County Water & Sewer Authority has been an acting Authority under the “Municipality Authority’s Act of 1945” since 1962. The Authority has the power to finance projects, negotiate agreements, set rates, administer operational and maintenance programs and has proven its ability to manage Authority operations efficiently.

Doylestown Township will control and administer the OLDS Septage Management program. The Township has proven its ability to manage and administer this program, as confirmed by its ability to manage, and operate the sanitary sewer system and the Kings Plaza Treatment Plant prior to the sale of the system to Bucks County Water & Sewer Authority in 1992.

ATTACHMENTS

FIGURES

FIGURE 3-1

DOYLESTOWN TOWNSHIP SOILS MAP

DOYLESTOWN TOWNSHIP ACT 537

SOILS

DOYLESTOWN TOWNSHIP, PENNSYLVANIA

Carroll Engineering Corporation



Phone: (215)-343-5700 | Website: www.carrollengineering.com

Project Number: 19-2150.99

September 29, 2021



1 in = 1,200 feet

FIGURE 3-1

Legend

- Township Boundary
- Parcels
- Roads
- Soil Boundaries With Type Label

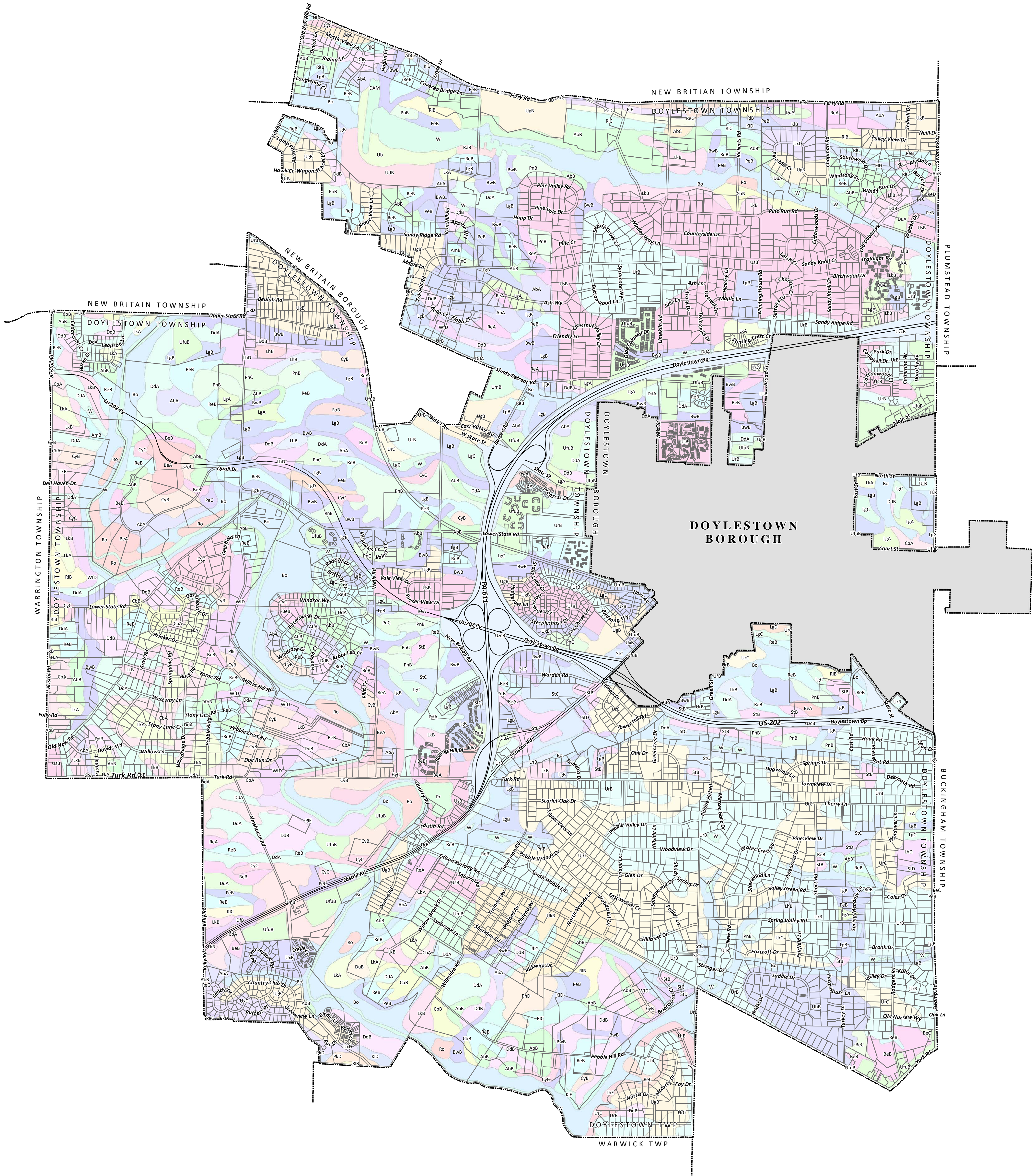
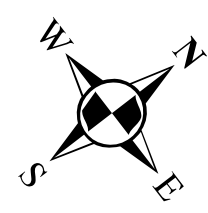


FIGURE 4-1

DOYLESTOWN TOWNSHIP EXISTING WASTEWATER FACILITIES

DOYLESTOWN TOWNSHIP ACT 537 PLAN EXISTING FACILITIES

DOYLESTOWN TOWNSHIP, PENNSYLVANIA

Carroll Engineering Corporation



Phone: (215)-343-5700 | Website: www.carrolleengineering.com

Project Number: 19-2150.99 | Date: September 29, 2021

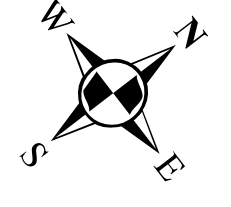
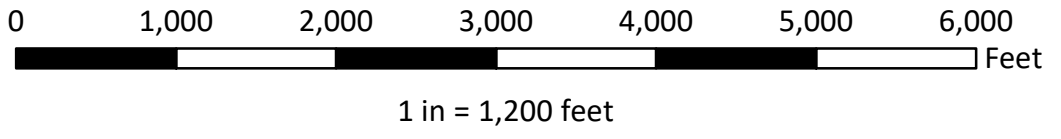


FIGURE 4-1

Legend

- Township Boundary
- Parcels
- Sewer Service Area Boundary
- Pump Stations
- Treatment Plants
- Sanitary Manholes
- Gravity Main
- Force Main
- Low Pressure Main

Notes: Pump station, force main, and sewers for Pebble Ridge Development to be completed August 2021

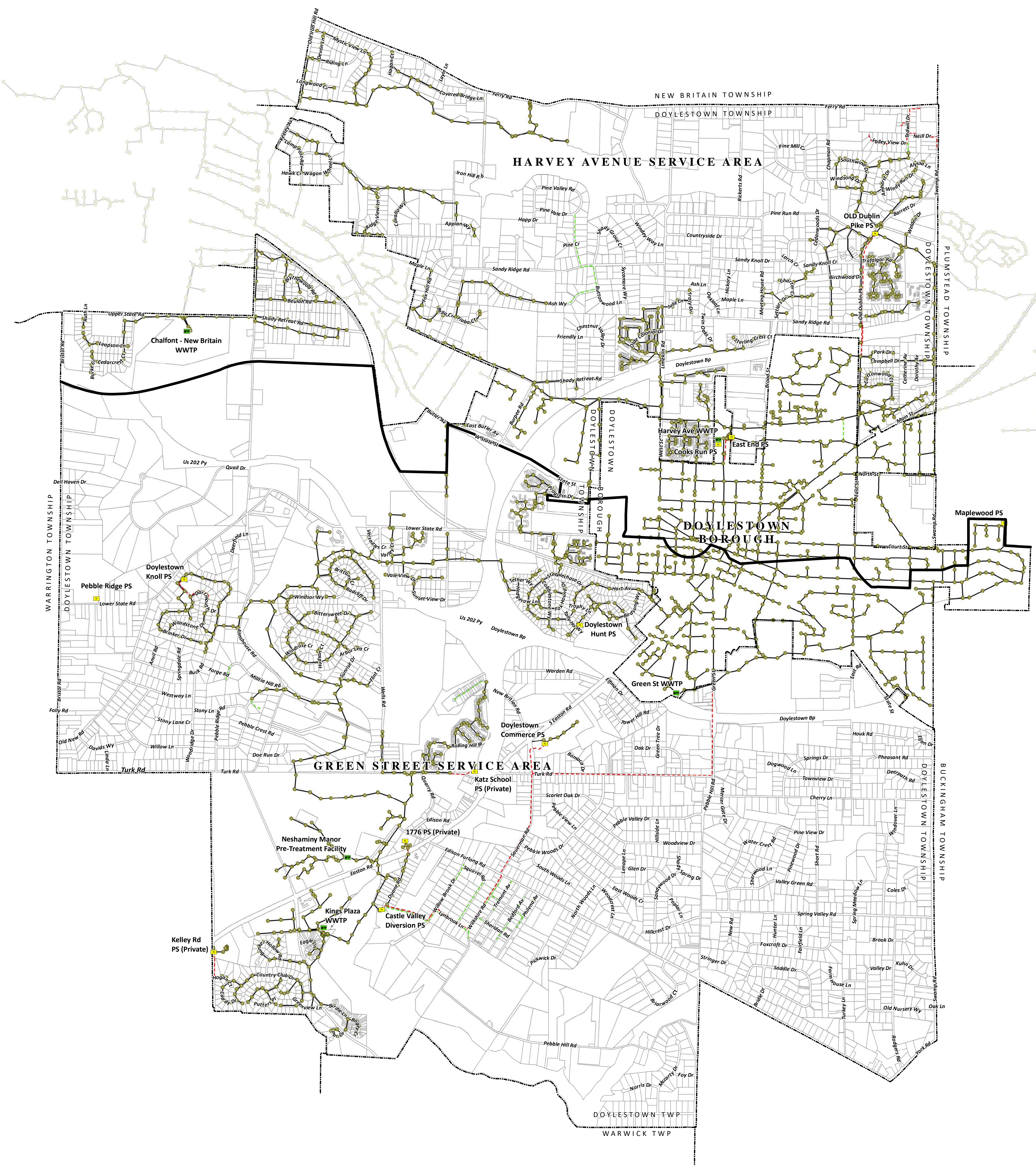


FIGURE 5-1

WASTEWATER FACILITIES ZONING DISTRICTS MAP

DOYLESTOWN TOWNSHIP ACT 537 ZONING DISTRICTS

DOYLESTOWN TOWNSHIP, PENNSYLVANIA

Carroll Engineering Corporation



Phone: (215)-343-5700 | Website: www.carrolleengineering.com

Project Number: 19-2150.99

October 27, 2021

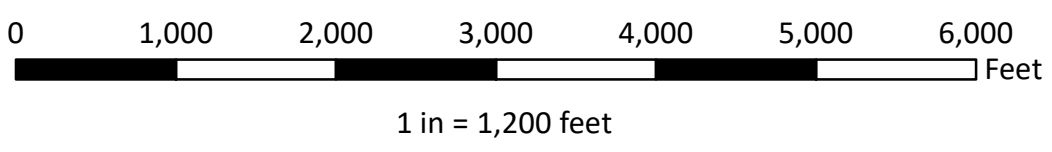


FIGURE 5-1

Legend

- Township Boundary
- Municipal Overlay District
- Parcels

Zoning

- C1** Commercial District
- C2** Commercial District

- C3** Commercial District
- C4** Commercial District
- CR** Commercial District
- I** Institutional District
- I2** Institutional District
- LI** Limited Industrial District
- Q** Quarry

- R1** Residential District
- R1-A** Residential District
- R2** Residential District
- R2-A** Residential District
- R2-B** Residential District
- R4** Residential District
- VC** Village Center

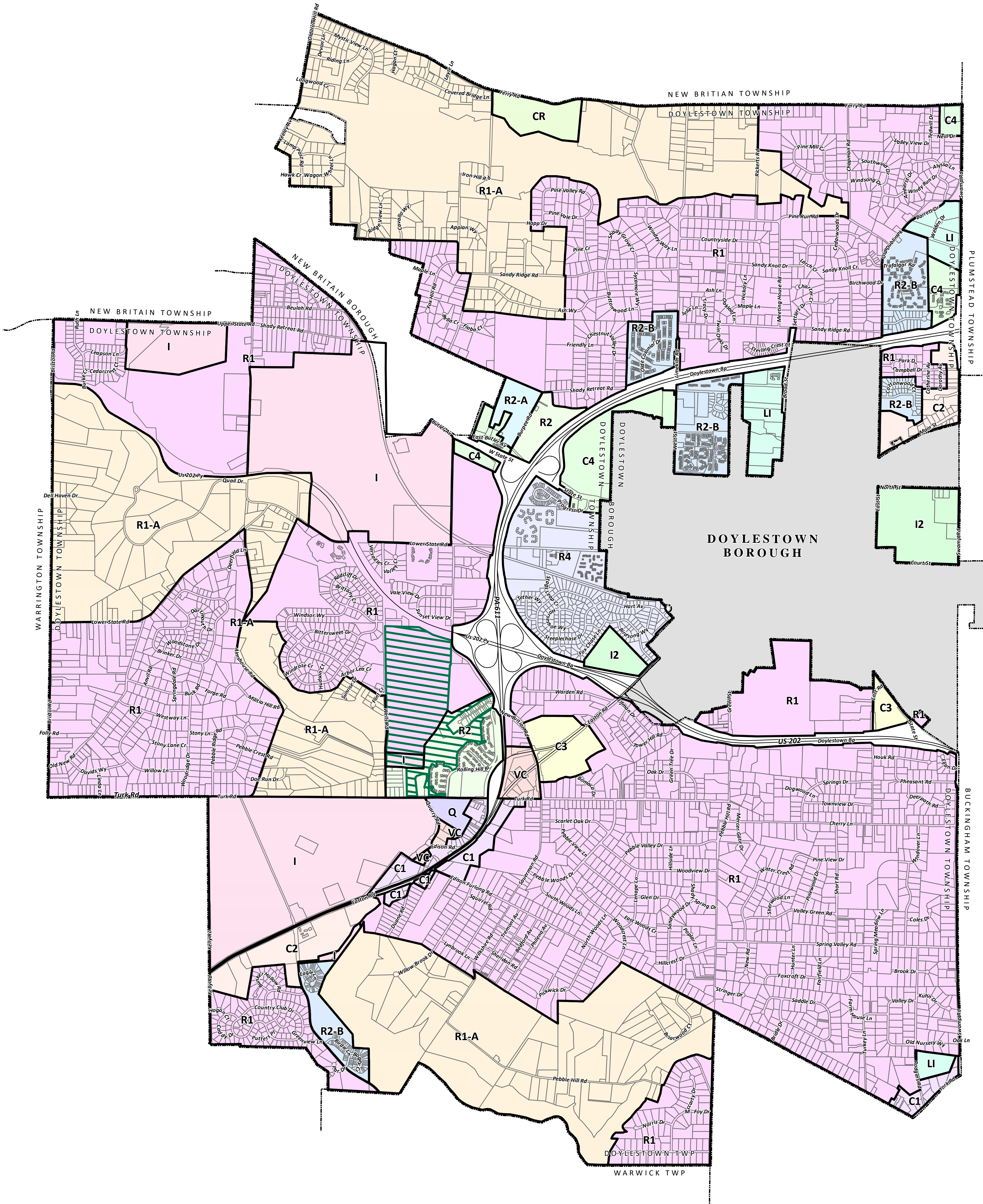


FIGURE 5-2

DOYLESTOWN PROPOSED SERVICE AREA

DOYLESTOWN TOWNSHIP ACT 537 PLAN PROPOSED SERVICE AREA

DOYLESTOWN TOWNSHIP, PENNSYLVANIA

Carroll Engineering Corporation



Phone: (215)-343-5700 | Website: www.carrollengineering.com

Project Number: 19-2150.99

Date: 9/7/2023

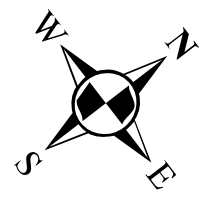
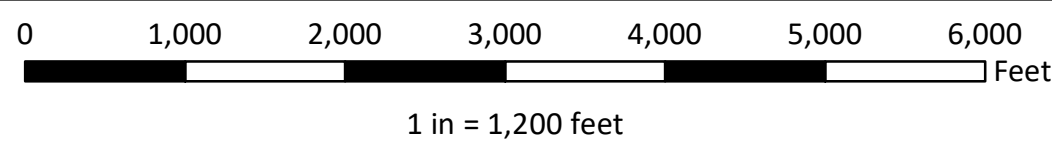


FIGURE 5-2

Legend

- Township Boundary
- Parcels
- BCWSA Serviced Parcels
- Service Areas
- Drainage Areas
- Doylestown Borough

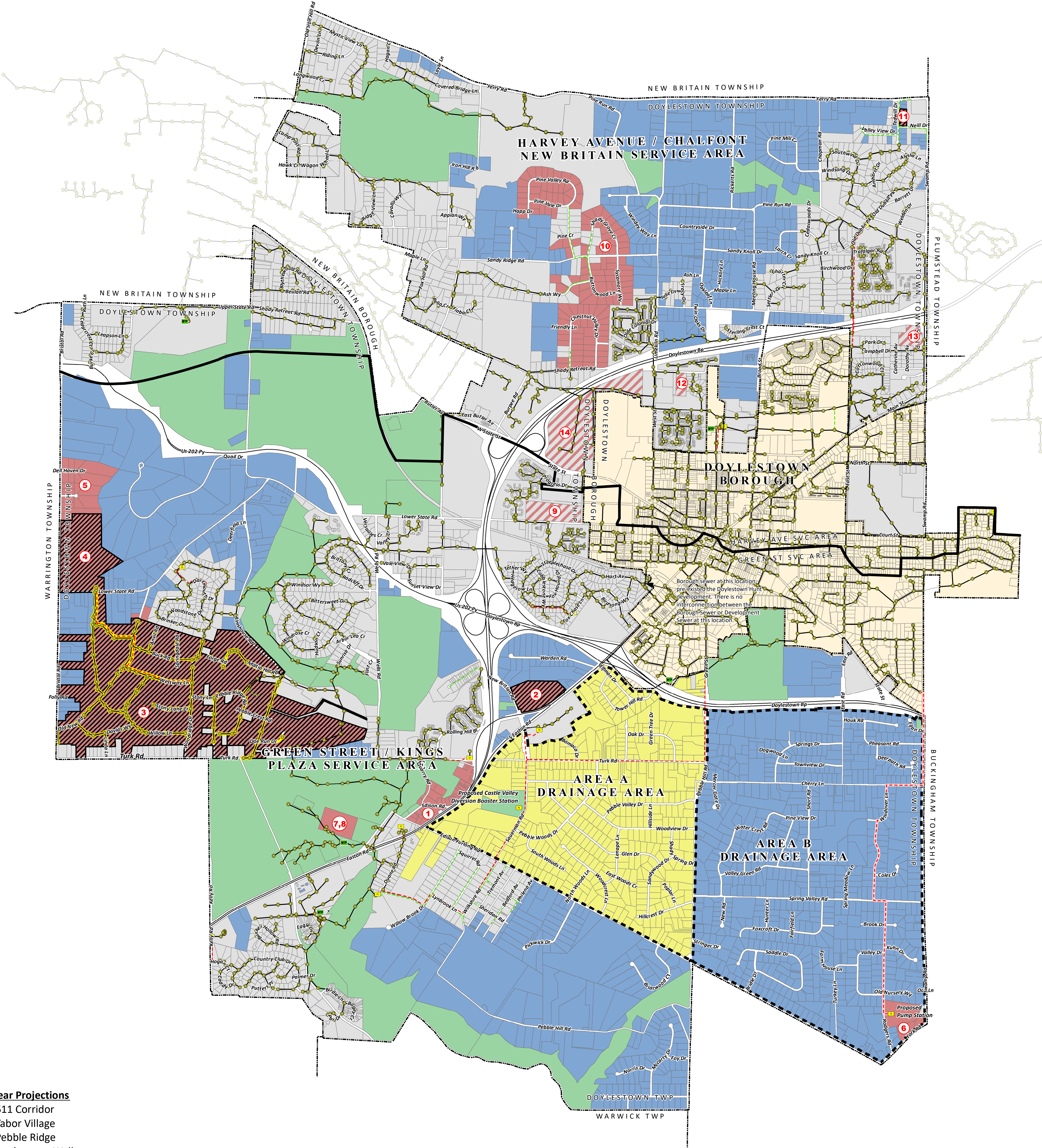
EDU Projections

- 5 Year
- 5 Year With Public Sewer (Not Yet Connected)
- 10 Year
- Ultimate
- Additional Future EDUs (See Note 2)
- Open Space/Institutional/Utility

- Pump Stations
- Treatment Plants
- Sanitary Manholes
- Gravity Main
- Force Main
- Proposed Force Main
- Low Pressure Main
- Proposed Manholes (Under Construction)
- Proposed Gravity Main (Under Construction)
- Proposed Low Pressure Main (Under Construction)

Note 1 - Area A and Area B are also known as the Sewer Board's study areas which were designated as Phase II and Phase III, respectively.

Note 2 - New 5-year EDU projections in areas already sewered by public sewer



5 Year Projections

1. 611 Corridor
2. Tabor Village
3. Pebble Ridge
4. Doylestown Walk
5. Neshaminy Dell Haven
6. Ashbridge at Furlong
7. Womens Correctional Facility
8. Mental Health Facility
9. CB YMCA
10. Pine Valley / Chestnut Valley
11. Tedwill
12. Shady Retreat
13. Thompson Toyota
14. Doylestown Hospital

FIGURE 5-3

611 CORRIDOR SANITARY SEWER

611 CORRIDOR PROPOSED SEWER

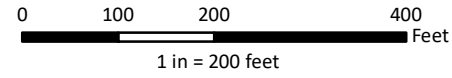
DOYLESTOWN TOWNSHIP, PENNSYLVANIA

Carroll Engineering
Corporation



Phone: (215)-343-5700 | Website: www.carrollengineering.com





Project Number: 192199 | Date: June 02, 2022



**FIGURE
5-3**




Legend

Existing Sanitary Sewer

-  Pump Stations
-  Sanitary Manholes
-  Gravity Main
-  Force Main

Proposed Low Pressure Main (In)

-  1.5
-  2
-  2.5
-  3
-  4

-  Parcels
-  Neshaminy Creek
-  Proposed 5 Year Connections

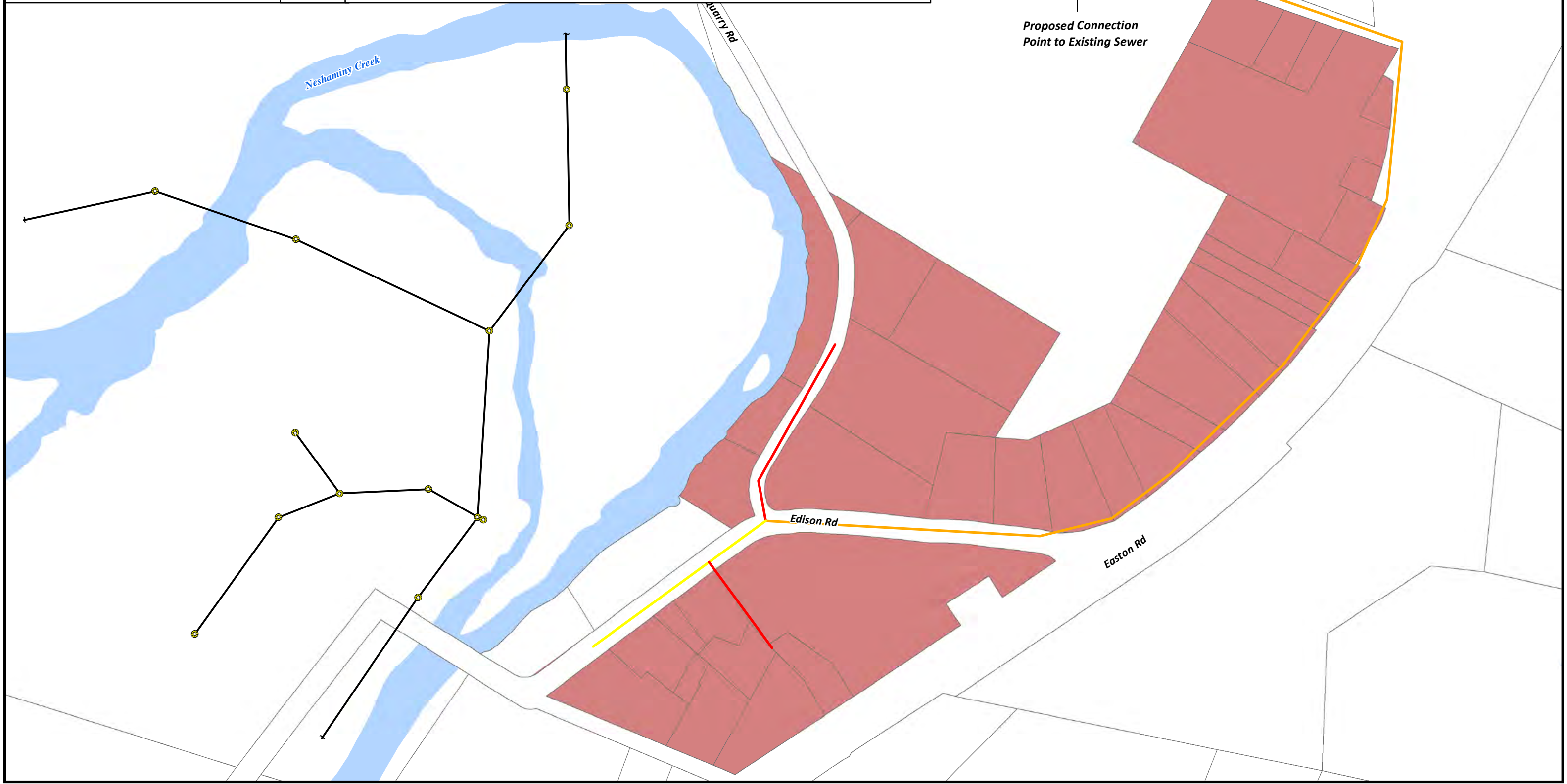


FIGURE 5-4

PINE VALLEY / CHESTNUT VALLEY AREA SANITARY SEWER

PINE VALLEY / CHESTNUT VALLEY PROPOSED SEWER

DOYLESTOWN TOWNSHIP, PENNSYLVANIA

Carroll Engineering Corporation



Phone: (215)-343-5700 | Website: www.carrollengineering.com

Project Number: 191299

June 02, 2022

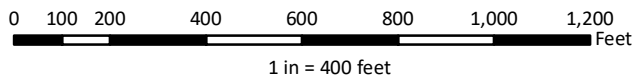


FIGURE 5-4

Legend

Existing Sanitary Sewer

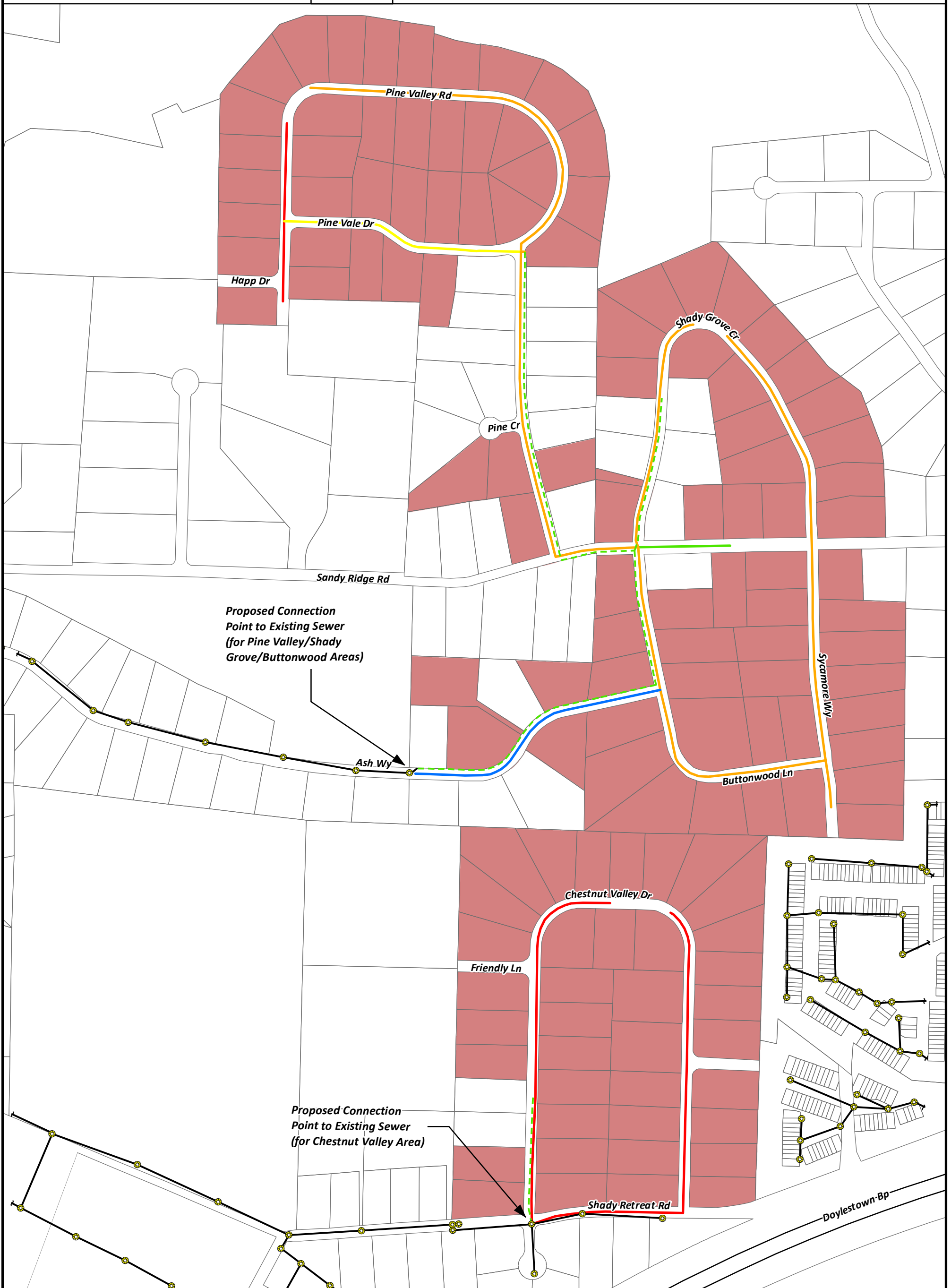
- Sanitary Manholes
- Gravity Main
- Force Main
- Low Pressure Main

Proposed Low Pressure Main (In)

- 1.5
- 2
- 2.5
- 3
- 4

Parcels

Proposed 5 Year Connections



**Proposed Connection
Point to Existing Sewer
(for Pine Valley/Shady
Grove/Buttonswood
Areas)**

**Proposed Connection
Point to Existing Sewer
(for Chestnut Valley Area)**

APPENDIX A

Pennsylvania Department of Environmental Protection (PADEP) - Approval Letters

APPENDIX B

Proof of Submission to Bucks County Health Department for review,
Review Comments, Comment Responses

APPENDIX C

Proof of Submission to Bucks County Planning Commission for review,
Review Comments, Comment Responses

APPENDIX D

Proof of Submission to Doylestown Township Planning Commission for review,
Review Comments, Comment Responses

APPENDIX E

Proof of Public Notice, Public Comments, Comment Responses

**PUBLIC NOTICE
DOYLESTOWN TOWNSHIP, BUCKS COUNTY**

REVISIONS TO DOYLESTOWN TOWNSHIP SEWAGE FACILITIES PLAN

ACT 537 SEWAGE FACILITIES PLAN Section 5 of Act 537 of January 24, 1966, P.L. 1535, known as the “Pennsylvania Sewage Facilities Act”, as amended, and Chapter 71.31 of Title 25 of the Pennsylvania Code of the Pennsylvania Department of Environmental Protection Rules and Regulations, requires that this Public Notice be published as a service to the public.

Notice is hereby given that the Board of Supervisors of Doylestown Township (Township), Bucks County, has prepared this Update to its Act 537 Sewage Facilities Plan (Act 537 Plan) for the Township with the stated purpose of providing sewage disposal needs for failing on-site disposal systems, protecting public health, preventing sewage disposal problems, protecting groundwater and surface waters of the Commonwealth, and providing sewage collection and disposal needs for future growth throughout the Township.

This Act 537 Plan Update addresses the management of sewage facilities in the Township including plans to maintain on-lot systems, to identify, and repair or replace malfunctioning systems through the use of a Sewage Management Plan. Additionally, the extension of public sewer facilities to (planned as separate projects in the following order) the 611 Corridor area, the Pine Valley Road/Shady Grove Road/Buttonwood Lane area, the Chestnut Valley Drive area, and the Dell Haven area of the Township are proposed at a cost of approximately \$8,776,600 (see Table 6-8 for individual project costs). This includes connections to the Tedwill area sewer system for which public sewer is already installed. This Update also covers areas of Doylestown Township which are already served by public sanitary sewer.

A copy of the “Act 537 Sewage Facilities Plan Update” is available for review at the offices of Doylestown Township, 425 Wells Road, Doylestown PA 18901, between the hours of ____ A.M. to ____P.M. Written comments will be accepted by Doylestown Township for a thirty (30) day period between _____ and _____.

DOYLESTOWN TOWNSHIP

Stephanie J. Mason, Township Manager

APPENDIX F

Township Ordinance 299

DOYLESTOWN TOWNSHIP

ORDINANCE NO. 299

AN ORDINANCE OF THE TOWNSHIP OF DOYLESTOWN, BUCKS COUNTY, PENNSYLVANIA, REGULATING THE MANAGEMENT AND MAINTENANCE OF ON-LOT SANITARY SEWAGE DISPOSAL FACILITIES WITHIN THE TOWNSHIP OF DOYLESTOWN.

WHEREAS, the Board of Supervisors of Doylestown Township, as a result of a public hearing conducted on this Ordinance, as well as other information made available to it during the study of sanitary sewer problems in Doylestown Township, has determined that it is in the best interest of the residents of Doylestown Township that the Township adopt an On-Lot Sanitary Sewage Disposal (OLDS) Management Program.

NOW, THEREFORE, be it ORDAINED and ENACTED by the Board of Supervisors of Doylestown Township, as follows:

Section 1. Short Title; Introduction; Purpose

A. This ordinance shall be known and may be cited as the "Doylestown Township On-Lot Sewage Disposal System (OLDS) Management Ordinance."

B. This Ordinance is adopted pursuant to the authority set forth in the Second Class Township Code, the Pennsylvania Clean Streams Law (35 P.S. §§699.1 - 699.1001), and the Pennsylvania Sewage Facilities Act (Act of January 24, 1966), P.L. 1535, as amended, 35 P.S. §750.1, *et seq.*, also known as Act 537. This Ordinance is also adopted pursuant to the official Sewage Facilities Plan adopted for Doylestown Township pursuant to Act 537.

C. This Ordinance is intended to prevent and abate water pollution and the hazards to the public health caused by the improper treatment and disposal of sanitary sewage. This Ordinance is further intended to provide for the inventory and inspection of on-lot sanitary sewage disposal systems within the Township, which said inventory and inspections are designed to provide for the adequate maintenance, management, rehabilitation/repair/replacement and construction of on-lot sewage disposal systems; to permit the Township to intervene in events which are public

nuisances or hazards to the public health; to license wastewater management persons that engage in the repair, inspection, and/or installation of on-lot sanitary sewage disposal systems, as well as the removal and disposal of septage; and, to establish penalties and appeal procedures necessary for the appropriate administration of the Doylestown Township On-Lot Sanitary Sewage Disposal System (OLDS) Management Program.

D. All ordinances or parts of ordinances inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency including but not limited to Ordinance No. 259 adopted on February 18, 1997 which was identified as the Maintenance of On-Lot Septic Systems Ordinance.

Section 2. Definitions.

A. Act 537: The Act of January 24, 1966, P.L. 1535 as amended, 35 P.S. Section 750.1 et. seq. known as the Pennsylvania Sewage Facilities Act.

B. Evidence of Malfunction: Wet, murky conditions (not resulting from surface water runoff or ponding) in areas designated as the absorption area of an OLDS. These conditions are typically accompanied by high grass and/or increased growth in the warmer months. In the winter, these areas generally do not freeze and the area is typically spongy and soft. Snow does not normally accumulate in these areas. Information received from Property Owners concerning frequent septic tank pumping or difficulty in pumping a septic tank due to backflow from the absorption area is also evidence of malfunction. Other factors considered as evidence of malfunctions are indications of previous repairs and/or extensions of the system not permitted by the Bucks County Health Department, and/or evidence of recently placed soil and/or dirt in the vicinity where the absorption area is located. The installation of a garden, shrubs and/or trees in the vicinity of the absorption area, as well as the inability to distinguish "gray water" discharge, is also evidence of a malfunction.

C. Authority: Bucks County Water and Sewer Authority.

D. Authorized Agent: Any representative of the Township authorized by the Board of Supervisors to carry out the provisions of this Ordinance.

E. Board: The Board of Supervisors of Doylestown Township.

F. Board of Sewer Appeals. A board which may be created by Resolution of the Board of Supervisors who shall be residents of Doylestown Township.

G. Cesspool: A covered pit with open jointed lining which receives the sanitary sewage or other organic wastes directly from a building drain or building sanitary sewer. It retains and allows liquid waste to pass through the bottom and sides. This is an antiquated system which predates the standards (Chapter 73, Title 25 Pa. Code).

H. Code Enforcement Officer (CEO): An individual employed by the Township to administer and enforce ordinances in the Township.

I. Community Sanitary Sewage System: Any system, whether publicly or privately owned, for the collection of sanitary sewage from two or more lots or structures, and the treatment and/or disposal of the sewage on one or more lots or at any other site.

J. Gray Water: Domestically generated liquid wastes, including kitchen and laundry wastes and water softener backwash.

K. Health Department: Bucks County Health Department (BCHD).

L. Holding Tank: A watertight receptacle that receives and retains sewage and is designed and constructed to facilitate ultimate disposal of the sewage at another site.

M. Maintenance: Those actions required to provide for the long-term proper functioning of an on-lot sanitary sewage disposal system, including, but not limited to the pumping of septage from a septic tank, cesspool, or dry well and pump tank; the cleaning, pumping and/or leveling of a distribution box; the removal of trees or growth affecting the operation of an on-lot sanitary sewage disposal system; the diversion of surface water away from an on-lot sanitary sewage disposal system; and, the reduction of flow from the structure being served (*i.e.*, the installation of water conservation devices).

N. Malfunction: The condition which occurs when an on-lot sanitary sewage disposal system discharges untreated or inadequately treated sewage onto the surface of the ground, into the ground water, or into the surface waters of the Commonwealth. Malfunction also occurs when sanitary sewage backs-up into the building connected to the system, or otherwise causes a nuisance

or hazard to the public health or pollution of the ground or surface water or contamination of any public and/or private drinking water wells.

O. Municipality: Doylestown Township, Bucks County, Pennsylvania.

P. New System: The installation of an on-lot sewage disposal system on a property where a system has not previously existed, or, the installation of a larger on-lot sewage disposal system in conjunction with the expanded use of an existing structure. A New System does not include replacement systems installed on properties with existing on-lot sewage disposal systems where rehabilitation/repair efforts are required to correct an existing malfunction.

Q. Official Sewage Facilities Act 537 Plan: The plan adopted by the Township and approved by the Pennsylvania Department of Environmental Protection in furtherance of the requirements as set forth in the Pennsylvania Sewage Facilities Act.

R. On-Lot Sanitary Sewage Disposal System (OLDS): Any system for disposal of sanitary sewage involving pretreatment and subsequent disposal of the clarified sewage into the soil for final treatment and disposal; including both individual sanitary sewage systems and community sanitary sewage systems.

S. PADEP: The Department of Environmental Protection of the Commonwealth of Pennsylvania.

T. Person: Any individual, company, association, public or private corporation for profit or not for profit, partnership, firm, trust, estate, department, board, bureau or agency of the Commonwealth, political subdivision, municipality, district, authority, or any other legal entity whatsoever which is recognized by law as having rights and duties. Whenever used in any clause prescribing and imposing a penalty or imposing a fine, the term person shall include the members of an association, partnership or firm and the officers of any local agency or municipal, public or private corporation for profit or not for profit.

U. Pumper/Hauler, Designer and Installer of On-Lot Septic Systems: Any person, as that term is defined in this Ordinance, who engages in the design, installation, and/or cleaning of community or individual sanitary sewage systems and/or transports the septage removed from these

systems for disposal, and, is licensed by the Bucks County Health Department and the Township. For the purposes of this Ordinance, persons identified herein shall be hereinafter referred to as "Pumper/Hauler".

V. Pumper's Report: Form which shall be used by all licensed Pumper/Haulers to report each pumping of an on-lot sanitary sewage disposal system in the Township.

W. Registration and Pumper/Hauler Selection Form: Form which shall be made available by the Township. It is the means for property owners to register their on-lot sanitary sewage disposal system with the Township, and to select a Township licensed Pumper/Hauler of their choice.

X. Rehabilitation or Repair: Work done to modify, alter or repair an existing on-lot sanitary sewage disposal system or individual components thereof, including the enlargement of the total absorption area, provided the flows from the structure being served are unchanged or reduced.

Y. Replacement Area: A portion of a lot, or property, sized to allow the installation of a subsurface sanitary sewage disposal area, which is reserved to allow for the installation of a replacement sanitary sewage system in the event of the malfunction of the originally installed on-lot sanitary sewage disposal system.

Z. Replacement System: An on-lot sanitary sewage disposal system which replaces a previously installed on-lot sanitary sewage disposal system which cannot be repaired or rehabilitated to a condition acceptable to the Bucks County Health Department.

AA. Septage: The residual scum and sludge pumped from septic systems.

BB. Sewage: Any substance that contains any of the waste products or excrement or other discharge from the bodies of human beings or animals, and any noxious or deleterious substance being harmful or inimical to the public health, or to animal or aquatic life, or to the use of water for domestic water supply, or for recreation, or which constitutes pollution under the Act of June 22, 1937 (P.L. 1987, No. 394), known as "The Clean Streams Law," as amended.

CC. Sewage Enforcement Officer (SEO): A person certified by the Pennsylvania Department of Environmental Protection who issues and reviews permit applications and/or

conducts such investigations and inspections as are necessary to implement the Sewage Facilities Act (Act 537), and the rules and regulations promulgated thereunder and this or any other ordinance adopted by the Township.

DD. Sewage Management Program: A comprehensive set of legal and administrative requirements encompassing the requirements of this ordinance and other administrative requirements adopted by the Township to effectively enforce and administer the ordinance.

EE. Subdivision: The definition of Subdivision shall be the definition as set forth in the Doylestown Township Subdivision and Land Development Ordinance.

FF. Township: Doylestown Township, Bucks County, Pennsylvania.

GG. Water Test: The bacteriological water test supplied by the Pennsylvania Department of Environmental Protection which analyzes the presence of bacteriological contamination including coliform organisms in drinking water.

HH. Waters of the Commonwealth: All streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through or border upon the state or any portion thereof, and as defined by the Pennsylvania Clean Streams Act.

II. Zoning Officer: An individual employed by the municipality to administer and enforce the Township Zoning Ordinance.

All definitions included in Act 537 and the Clean Streams Act, as amended, are hereby incorporated by reference into this Ordinance.

Section 3. Applicability.

A. The provisions of this Ordinance shall apply to all existing on-lot sewage disposal systems, as well as all new systems proposed within the Township.

B. A Registration Form shall be filed with the Township for all new systems prior to the issuance of a Use and Occupancy Permit for the use of the structure being served by the on-lot sanitary sewage disposal system.

Section 4. Permit Requirements.

A. No person shall install, rehabilitate, construct, or solicit proposals for the construction or alteration of an on-lot sanitary sewage disposal system, or construct or request proposals for the construction, installation, or occupancy of any building or structure for which an on-lot sanitary sewage disposal system is to be installed without first obtaining the appropriate permit from the Health Department confirming that the system complies with the provisions of the Pennsylvania Sewage Facilities Act, and any and all regulations adopted pursuant to said Act.

B. No system or structure designed for on-lot sanitary sewage disposal or for a rehabilitation, repair and/or replacement to or of an existing on-lot sewage disposal system shall be covered from view until a final inspection and approval of same has been provided by the Health Department.

C. Applicants for on-lot sanitary sewage disposal system permits shall notify the Health Department of the schedule for construction or rehabilitation, repair and/or replacement of the permitted on-lot sanitary sewage disposal system so the appropriate inspection(s) shall be scheduled and performed by the Health Department.

D. No building or occupancy permit shall be issued by the Township for a new building which will utilize an on-lot sanitary sewage disposal system, until such time as a valid sanitary sewage permit has been obtained from the Health Department, and a Registration Form is filed with the Township.

E. No building permit shall be issued by the Township, and, no work shall begin on any new building, addition, alteration or the change of use of any existing building until the Health Department has informed the Township that the existing sanitary sewage system has been completed, operating, and has had a final inspection or that no such certification is necessary. Furthermore, no occupancy permit shall be issued by the Township until such time as the proposed sanitary sewage system has been completed, operating, and has had a final inspection or that no such certification of same is necessary. The Health Department shall determine whether the proposed addition, alteration or change of use of the existing structure will result in increased sewage flows. The Township should be notified by the Health Department of all permits issued and final inspections performed

in Doylestown Township. A system registration and Pumper Hauler Selection Form from the property owner must be on file with the Township.

F. Sanitary sewage permits may only be issued by the Health Department.

G. No contractor shall install, construct, rehabilitate or alter an on-lot sanitary sewage disposal system without verifying that the property owner has complied with the provisions of this Ordinance.

H. All structures served by New Sanitary Sewer Systems shall be required to install water conservation devices and fixtures, in compliance with the provisions of the Doylestown Township Water Conservation Ordinance adopted on November 19, 1991, and identified as Ordinance No. 209.

I. The Township shall provide a copy of this Ordinance and any other relevant material related to the management and maintenance of on-lot sanitary sewage disposal facilities to all Property Owners who are issued a move-in permit by the Township, where the move-in permit is issued by the Township for a property that makes use of on-lot sanitary sewage disposal facilities.

Section 5. Right of Entry.

A. Authorized persons acting on behalf the Township shall, upon presentation of the proper credentials and identification, be permitted to enter upon the outside of the property that contains an on-lot sanitary sewage disposal system for the purpose of inspecting, observing, photographing, and sampling the on-lot sanitary sewage disposal system or alternate system, in accordance with the provisions of this Ordinance.

B. The Township shall provide advance notice to the property owner of the on-lot sewage disposal system and/or alternative system prior to a regularly scheduled inspection or maintenance.

Section 6. Inspections.

A. All on-lot sanitary sewage disposal systems will be inspected by a Township approved pumper/hauler, as set forth previously in this Ordinance, which said inspection shall include a physical tour of the outside of the property, inspection and pumping of the system. The inspection may also include the taking of samples from surface water, or other ground water sources,

and/or the sampling of the contents of the sanitary sewage disposal system. It shall, however, be mandatory that a water test shall be performed on any well where the water from the well is consumed by any person. The water test to be performed shall be in accordance with the provisions of this Ordinance. The report of the inspection of the on-site sanitary sewage disposal system shall be furnished to the property owner of each property at the conclusion of the pump-out and inspection, and a copy of the report furnished by the pumper/hauler shall be provided to the Township. The property owner shall also provide a copy of the water test to the Township.

B. In the event inspection is denied by the property owner, the Township shall be authorized to take such steps as are appropriate to secure access to the property for the purpose of determining compliance with the terms and conditions of this Ordinance. Said steps shall include, but not be limited to, the seeking of an administrative search warrant from the appropriate judicial official.

C. All on-lot sanitary sewage disposal systems, in the Township, shall be inspected and pumped-out by a Township licensed Pumper/Hauler selected by the property owner, at least, once every three (3) years. The three (3) year time period shall begin when the Township has completed the first three (3) year cycle.

D. Property owners of all on-lot sanitary sewage disposal systems making use of a septic tank, cesspool and/or dry well, if same receives solids from the structures served, and pump tank, if present, shall have their system inspected and pumped. Said inspection and pumping shall occur once every three (3) years. Furthermore, the baffles of the septic tank shall be inspected by the Township approved pumper/hauler in order to determine if the baffles are functioning properly. All costs of excavation shall be borne by the property owner. All pumping scheduled on the three (3) year cycle pursuant to the provisions of this Ordinance.

E. The Township approved pumper/hauler shall generate a report after completing each inspection and pump-out, and will provide a copy of the report to the owner of the property inspected. The report shall include the findings of the inspection and any recommendations for the maintenance of the on-lot sanitary sewage system. Such recommendations may include but not be limited to, the property owner securing professional advice related to a further evaluation of the

system and a program to correct any malfunctions. The Health Department shall be notified of any potential malfunctions by the Township.

F. All owners of on-lot sanitary sewage systems with gray water discharges to the ground surface shall correct such discharges and route the gray water into the treatment tank (i.e., septic tank, cesspool, etc.). All rerouting and connections of gray water discharge to the on-lot sanitary sewage disposal systems shall require a permit from the BCHD. Gray water discharges are a violation of Section 73.11 of the Pennsylvania Code, Title 25, Environmental Protection; and, may also may be a violation of Sections 202 and 207 of the Pennsylvania Clean Streams Law, if the discharge is to any Waters of the Commonwealth (as defined herein). All violations shall be referred to the Health Department.

G. The Township will periodically review the number and location of malfunctioning on-lot sewage disposal systems to determine if alternate sewage disposal solutions may be necessary. A resolution of the area wide problems may necessitate detailed planning and a Township revision to the Township's Act 537 Official Sewage Facilities Plan related to that area.

Section 7. Operation.

A. No Property Owner shall operate and maintain an on-lot sanitary sewage disposal system in such a manner that it malfunctions. No system shall discharge untreated or partially treated sanitary sewage to the surface of the ground or into the Waters of the Commonwealth, as defined herein.

B. Sewage, which contains any of the following, shall not be discharged into any on-lot sanitary sewage disposal system:

- 1) Industrial waste.
- 2) Automobile oil and other non-domestic oil.
- 3) Toxic or hazardous substances or chemicals, including but not limited to, pesticides, disinfectants, acids, paints, paint thinners, herbicides, gasoline and other solvents.
- 4) Clean surface or ground water, including water from roof or cellar drains, springs, basement sump pumps and French drains.
- 5) Any non-biodegradable materials.
- 6) Radioactive waste materials.

C. The Township may require the installation of water conservation devices, and other operation or maintenance procedures, to improve on-lot sanitary sewage system operation.

Section 8. Maintenance.

A. Any Property Owner owning a building served by an on-lot sanitary sewage disposal system shall have that system inspected by an approved pumper/hauler and pumped by a Township licensed Pumper/Hauler selected by the Property Owner. Following the initial inspection, every Property Owner shall have the system inspected and pumped, at least, once every three (3) years thereafter. A Pumper's Report from the Pumper/Hauler shall be submitted to the Property Owner and the Township immediately after each pump-out.

B. If excavation is necessary to accomplish the pump-out, the excavation is the responsibility of the Property Owner prior to the scheduled pumping. The cost for this excavation will be borne by the Property Owner. Any tank pumping shall include an inspection of the baffles within the septic tank by the Pumper/Hauler selected by the Property Owner. If the baffles are in a deteriorated condition, the property owner selected Pumper/Hauler shall be responsible for replacing the baffles with the cost for this baffle(s) replacement borne by the Property Owner. A permit from the BCHD is not currently required to replace deteriorated or missing baffles. All tank pumping on the three (3) year cycle shall be done in the presence of the Township's approved pumper/hauler. If deemed necessary by the authorized agent, the distribution box, if one is present, shall be excavated and remain excavated until inspection has been completed by the Township's approved pumper/hauler. Thereafter, all tanks shall be pumped, at least, once every three (3) years. A Township approved pumper/hauler must be present at all subsequent pumping during the normally scheduled triennial pumping and inspections. If tanks are pumped at a greater frequency than every three years, the Pumper/Hauler shall supply a Pumper's Report to the Township within fourteen (14) days after the pumping.

C. The required pumping frequency may be increased at the discretion of the OLDS Property Owner if the septic tank is undersized; if solids buildup in the tank is above average; if the hydraulic load on the system increases significantly above average; if a garbage disposal is used in the building; if the system malfunctions, or, for other good cause shown.

D. Any Property Owner owning a building served by an on-lot sanitary sewage disposal system which contains an aerobic treatment tank shall follow the operation and maintenance recommendations of the equipment manufacturer. In no case may the service or pumping intervals for aerobic treatment tanks exceed those required for septic tanks (three years).

E. Any Property Owner owning a building utilizing a cesspool or dry well, which is the receiving unit for solids, shall have that system pumped according to the schedule prescribed for septic tanks (three years). As an alternative to this scheduled pumping of the cesspool or dry well, the property owner may secure a sewage permit from the Health Department for a septic tank to be installed preceding the cesspool or dry well. For a system consisting of a cesspool or dry well preceded by an approved septic tank, only the septic tank must be pumped at the prescribed interval (three years).

F. The Township and/or Health Department may require additional maintenance activity as needed including, but not limited to, cleaning and unclogging of piping, servicing and the repair of mechanical equipment, leveling of distribution boxes, tanks and lines, removal of obstructing roots or trees and the diversion of surface water away from the disposal area, etc. None of these maintenance activities require a permit from the Health Department. However, if repair to a pump requires removal and replacement, a permit from BCHD is needed to ensure that an appropriate replacement pump is provided.

G. Initial and periodic pumping shall be performed to these minimum standards unless other standards are specified by an equipment manufacturer:

- 1) At all times, the pumper truck operator's personal safety, as well as protection of the environment and the landowner's property, shall receive the highest priority.
- 2) Tanks shall ONLY be pumped from / through the manhole / access port (i.e., the largest tank opening).
- 3) Tanks shall NOT be pumped from / through the observation port.
- 4) When necessary to break up solids, back-washing with clean water or material of a similar nature already on board the pumper truck may be employed. Mechanical means (scraping, raking, etc.) are NOT necessary, but may be employed provided that appropriate safeguards are taken to prevent injury.

- 5) When back-washing, care shall be taken NOT to fill / refill the tank to a level greater than twelve inches (12") below the elevation of the outlet pipe.
- 6) No liquids or solids are to be discharged into / through the outlet pipe.
- 7) Tanks shall be deemed to be cleaned when all organic solids are removed and the total average liquid depth remaining in the tank is less than one inch (1").
- 8) Every pump-out shall include a visual inspection, by the Pumper/Hauler, of the tank's interior. The inspection shall include a determination regarding the presence of baffles and their condition, as well as the physical condition of the treatment tank. Presence and condition of observation port(s) shall also be reported.
- 9) At all times, and in all phases of operations, Pumper/Hauler businesses, and equipment operators shall comply with all laws and regulations regarding the activities associated with on-lot wastewater system maintenance and disposal of materials removed therefrom.
- 10) When the Township requires documentation of pump-out and tank and site conditions, the Property Owner may not prevent the Pumper from complying with this Ordinance or any other applicable Township, County, State or Federal requirements. A copy of any report given to the Township shall also be provided to the property owner.

H. In addition to the requirements for initial tank pumping, periodic tank pumping shall include an inspection of and a Pumper's Report submitted to the Township on forms provided by the Township regarding the presence of any or all of the following:

- 1) Defective tank components (lids, baffles, dividers, etc.).
- 2) Before pumping, water level above outlet pipe elevation.
- 3) Following or during pumping, backflow from the absorption area.
- 4) When possible, inflow from building(s) served, to verify connection to the building(s).
- 5) Surface discharge, ponding or other signs of malfunction in the vicinity of the absorption area.

Section 9. System Rehabilitation/Repair/Replacement.

A. If the BCHD determines that any on-lot sewage disposal system is malfunctioning and, further, if that property abuts or fronts an existing public sewer, then the BCHD shall require that property be connected to said public sewer, at the property owner's sole cost and expense.

Under those circumstances, the BCHD will not issue a permit for the repair of a malfunctioning on-lot sewage disposal system.

B. If any on-lot sewage disposal system is observed to be malfunctioning, the Township will notify the BCHD. The Township should be notified by the Health Department of all permits issued, and final inspections performed, in Doylestown Township.

C. Should the Health Department indicate that it is not possible to repair or modify the system to comply with PADEP's standards for on-lot sewage disposal systems, then the Property Owner shall be required to have a replacement on-lot sewage disposal system designed for the property. Said design shall conform to current regulations as promulgated by the PADEP.

D. The Health Department may require the repairs/rehabilitation/replacement of any malfunction by the following methods: cleaning, repair or replacement of components of the existing system, adding capacity or otherwise altering or replacing the system's treatment tank, expanding the existing disposal area, replacing the existing disposal area, replacing a gravity distribution system with a pressurized system, and such other alternatives as appropriate for the specific site, including use of reservation areas as required for New Systems in Section 4 (I.) of this Ordinance.

Section 10. Liens.

The Township, upon written notice from the Health Department that an imminent health hazard exists, due to failure of a Property Owner to maintain, repair/rehabilitate or replace any on-lot systems, as provided under the terms of this Ordinance, shall have the authority to perform or contract to have performed, the work required by the Health Department. The Property Owner shall be charged for the work performed and, if necessary, a lien shall be recorded therefore in accordance with law.

The Township shall not, however, be obligated to perform or contract to have performed any work required to maintain, repair, rehabilitate or replace any on-lot sanitary sewage system.

Section 11. Disposal of Septage

A. All septage Pumper/Haulers operating within the Township shall be licensed by the Township, and shall comply with all reporting requirements established by the Township.

B. All septage originating within the Township shall be disposed of at sites or facilities approved by the PADEP.

C. The Septage secured by Pumper/Haulers operating within the Township shall be handled consistent with the provisions of the Pennsylvania Solid Waste Management Act (Act 97 of 1980, 35 P.S., Sections 6018.101-6018.1003), and Regulations adopted pursuant to such ACT.

D. The requirements to obtain a license shall be in compliance with the provisions of this Ordinance and the Township may, by resolution of its Board of Supervisors, establish a fee for said license.

Section 12. Wastewater Management Business Licensing (Pumping/Hauling).

A. Before offering pump and haul services to Property Owners in Doylestown Township, all Pumper/Hauler businesses shall:

- 1) Obtain a license from the Township and comply with all reporting requirements established herein.
- 2) Identify all employees / owners and vehicles that will provide services in the Township.
- 3) Operate in a matter consistent with the provisions of the Pennsylvania Solid Waste Management Act (Act 97 of 1980, 35 P.S., Sections 6018.101 – 6018.1003).
- 4) Provide documentation that all septage pumped from properties in this Township will be delivered to a PADEP approved site or facility.
- 5) Be licensed by the Bucks County Health Department.

B. The requirements to obtain a license shall be in compliance with the provisions of this Ordinance and the Township may, by resolution of its Board of Supervisors, establish a fee for said license.

C. When there is a change in the personnel/employees or vehicles that provide services in accordance with this Ordinance, it shall be the obligation of the business owner to notify the Township of the changes within seven (7) days of the effective date of the change.

Section 13. Administration.

A. The Township shall be authorized to exercise the powers conferred upon it pursuant to the terms and conditions of this Ordinance or any other applicable laws of the County, State and Federal government.

B. The Township Board of Supervisors may establish a fee, by resolution, the purpose of which is to defray the cost of the inspections and other aspects of the on-lot sanitary sewage management plan as set forth in this Ordinance.

Section 14. Appeals.

A. Any Property Owner aggrieved by the decision of a Township employee or other authorized agent of the Township pursuant to this Ordinance may appeal said decision by sending the appropriate appeal form to the Board of Supervisors or its designees, provided that said Appeal shall be filed within thirty (30) days from the date of the decision at issue.

B. The Property Owner and/or person filing said Appeal shall be entitled to a hearing before the Board of Supervisors, or its designee, within fourteen (14) days of receipt of the Appeal. Either party, by good cause shown, may extend the time for a hearing but said decision shall be left to the discretion of the Board of Supervisors, or its designee. A hearing shall be conducted in accordance with the provisions of the Pennsylvania Local Agency Act and a decision shall be rendered, in writing, within forty-five (45) days of the conclusion of the hearing and all proceedings related thereto. If the Board of Supervisors or its designee shall fail to render a decision within forty-five (45) days following the conclusion of all proceedings related to the hearing, then the relief sought by the Property Owner and/or person filing the appeal shall be deemed granted. Any Property Owner and/or person aggrieved by a decision of the Board of Supervisors or its designee may, within thirty (30) days after such decision of the Board, file an appeal to the Court of Common Pleas of Bucks County.

Section 15. Penalties.

A. Any Property Owner and/or person who has violated or permitted the violation of the provisions of this Ordinance, upon being found liable therefore in a civil enforcement proceeding commenced by the Township, shall pay a judgment within \$1,000.00 plus all court costs, including reasonable attorney's fees incurred by the Township as a result thereof. No judgment shall commence or be imposed, levied or payable until the date of the determination of the violation by

the District Justice. If the responsible party neither pays judgment nor files a timely appeal, the Township may enforce the judgment pursuant to the applicable Rules of Civil Procedure. Each day that a violation continues shall constitute a separate violation. All judgments, costs and reasonable attorney's fees collected for the violation of this Ordinance shall be paid over to the Township.

B. In addition to the rights as set forth in this paragraph, the Township may take such other rights as are available to it to enforce the provisions of this Ordinance including resort to the courts of equity to seek compliance with the provisions of this Ordinance.

Section 16. Severability.

Should any section of this Ordinance or part thereof be declared invalid by a court of competent jurisdiction, such invalidity shall not affect the balance of the Ordinance since it was the intent of the Board of Supervisors that said Ordinance would have been adopted even if such invalid provision had not been included.

This Ordinance was duly ORDAINED and ENACTED this 14th day of January, 2001.

DOYLESTOWN TOWNSHIP BOARD OF SUPERVISORS

By: Walter C. Berry
Walter C. Berry, Chairman

By: E. Thomas Scarborough
E. Thomas Scarborough, Vice Chairman

By: _____
John T. Carson, Jr., Member

By: Barbara Eisenhardt
Barbara Eisenhardt, Member

By: Richard K. Gaver
Richard K. Gaver, Member

APPENDIX G

Township Resolution for Revision to Official Sewage Facilities Plan

**TOWNSHIP OF DOYLESTOWN
RESOLUTION NO. _____**

RESOLUTION FOR REVISION TO OFFICIAL SEWAGE FACILITIES PLAN

RESOLUTION OF THE SUPERVISORS OF DOYLESTOWN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA (hereinafter “the municipality”).

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, No. 537, known as the “Pennsylvania Sewage Facilities Act” as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, requires the Municipality to adopt an Official Sewage Facilities Plan (Facilities Plan), providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said Plan, whenever it is necessary to meet the sewage disposal needs of the municipality; and

WHEREAS, Doylestown Township has prepared a report titled, “Act 537 Sewage Facilities Plan Update” which provides for the sewage facilities in portions of Doylestown Township, and the sewage disposal alternative to be implemented is:

- Proceed with the design and construction of public sewers to the 5-Year Projected areas of the 611 Corridor area, the Pine Valley Road/Shady Grove Circle/Buttonwood Lane area, the Chestnut Valley Drive area and the Neshaminy-Dell Haven area. The Tedwill area is also listed as a 5-Year Project, though this is only individual connections to an already installed public sewer.
- Take initial steps for the progression of planning to provide public sewers for the area designated as “Area A Drainage Area”. While this is a 10-Year projected area, and the Township is only required to implement schedules for 5-Year projections in this 537 Plan Update, the Township wishes to be proactive in forecasting the need for public sewer in this area.

WHEREAS Doylestown Township finds that the Act 537 Sewage Facilities Plan Amendment described above conforms to zoning, subdivision, other municipal ordinances and plans and to a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED that the Supervisors of Doylestown Township hereby adopts and submits to the Department of Environmental Protection for its approval as a revision to the “Official Facilities Plan” of the Municipality, the above referenced Facilities Plan. The Municipality hereby assures the Department of the complete and timely implementation of the said Plan, as required by law. (Section 5, Pennsylvania Sewage Facilities Act as amended).

RESOLVED, this _____ day of _____, 2023, at a public meeting of the Supervisors of Doylestown Township.

I, _____, Secretary/Township Manager, Doylestown Township Board of Supervisors, hereby certify that the foregoing is a true copy of the Municipality’s Resolution No. _____, adopted _____, 2023.

**TOWNSHIP SUPERVISORS
TOWNSHIP OF DOYLESTOWN**

By: _____
Chairperson

ATTEST:

Secretary

APPENDIX H

Area A Feasibility Study



Carroll Engineering Corporation

MAIL AND EMAIL

January 4, 2019

Stephanie J. Mason, Township Manager
Doylestown Township
425 Wells Road
Doylestown, PA 18901

Dear Ms. Mason:

Subject: Feasibility Study - Doylestown Township Phase 2

The Authority asked that we forward you the feasibility study requested in your letter dated September 20, 2018 (copy enclosed), regarding the sanitary sewer needs for the Township's designated "Phase 2" area. After reviewing the enclosed, please verify that you would like the Authority to proceed with updating the Township's 537 Plan.

Enclosed please find Exhibit A, which is a highlighted map showing the "Phase 2" study area outlined in green. For informational purposes, we included the future "Phase 3" area outlined in red. Due to the topography of the "Phase 2" and "Phase 3" areas, we feel it is appropriate to bring several items to your attention.

- The eastern corner of "Phase 2" (highlighted in gray on Exhibit A) slopes away from the proposed "Phase 2" Pump Station along Sauerman Road (pump station discussed later in this letter). This area consists of ninety (90) existing lots. To serve this area as part of "Phase 2", a low pressure sewer system would be required, with each property having a private grinder pump system. If this is not desired, the area could be served by gravity sewers flowing to the future "Phase 3" area.
- The northwestern portion of the future "Phase 3" area (highlighted in light green on Exhibit A) would be best served by connecting it via gravity sewer to the sewers proposed for "Phase 2". For this reason, it is proposed that the "Phase 2" pump station and trunk line sewer be upsized to handle the additional flow from this area, consisting of 214 existing lots. The sewers for this area could be installed in conjunction with "Phase 2", or postponed until "Phase 3". If postponed till "Phase 3", some additional engineering may be required during "Phase 2" to ensure the trunk line sewer is installed at the proper depth.
- This does not affect "Phase 2" in any way, but when "Phase 3" is being considered, the ideal location for that area's pump station is at the southern tip of the Township, along St. Lawrence Way (area highlighted in purple on Exhibit A). Though this area was not indicated to be part of "Phase 3", the Township may want to consider its inclusion at some point in the future.

Today's Commitment to Tomorrow's Challenges

Corporate Office:
949 Easton Road
Warrington, PA 18976
215.343.5700

630 Freedom Business Center
Third Floor
King of Prussia, PA 19406
610.489.5100

101 Lindenwood Drive
Suite 225
Malvern, PA 19355
484.875.3075

105 Raider Boulevard
Suite 206
Hillsborough, NJ 08844
908.874.7500

The “Phase 2” area will require a new pump station and force main to convey all flows to the Green Street Wastewater Treatment Plant. The ideal location for this pump station is on or adjacent to Doylestown Township park property along Sauerman Road. The enclosed Exhibit B is an aerial showing the property. The majority of “Phase 2” can flow by gravity sewer to this location, and all surrounding properties appear to be smaller in size and privately owned, making this the ideal location for the pump station.

The Township’s park property is listed on the Bucks County Agriculture & Open Space mapping as a “municipal park and open space”. As an alternative, there is a parcel immediately adjacent to the park consisting of 13 acres, which would also be sufficient as a pump station site. However, it is privately owned and there is a residence on the property. An easement would have to be negotiated with the property owner. Also, additional field investigations would be required as there are indications of wetlands in the area, though it appears they can be avoided.

The Green Street Wastewater Treatment Plant has adequate capacity at this time to accept the proposed flows from “Phase 2”, which would be:

	Number of Existing Lots ⁽¹⁾	Ultimate EDU's ⁽²⁾	Gallons/Day per EDU	Ultimate Average Flow (GPD)
“Phase 2” Gravity	386	466	250	116,500
“Phase 2” Low Pressure Area	90	97	250	24,250
Total ⁽³⁾	476	563		140,750

- (1) Total number of existing Tax ID’s in “Phase 2” area based on information provided by the Township (476).
- (2) Number of ultimate EDU’s are based on the Year 1999 Act 537 Plan, for the parcels within the “Phase 2” area.
- (3) Should the “Phase 3” area that can flow by gravity to “Phase 2” be included, that would add 239 ultimate EDU’s or 59,750 GPD of average flow to the WWTP. This would still be within the WWTP’s capacity at the present time.

The enclosed Figure 1 summarizes the project costs with and without the Phase 2 Low Pressure area. This figure breaks out the total public and private project costs for each alternative. The public costs consist of the Sauerman Road Pump Station, its force main, and all gravity and low pressure sewer up to the right-of-way lines. The private costs consist of the gravity laterals and low pressure grinder pumps from the right-of-way lines to the residence or building to be served.

The cost to the homeowners range from \$47,800 per EDU to \$50,800 per EDU (not including mill and overlay of Township Roads). This includes the Authority’s standard tapping fee (conveyance portion) for this sewer service area of \$6,200 per EDU. The public costs also include a 10% construction contingency plus another 30% for engineering, legal administration and easement acquisition costs. Detailed cost estimates can be found in the enclosed Figure No.’s 2, 3 and 4.

Stephanie J. Mason, Township Manager
Page Three
January 4, 2019

There are three (3) items not included in the cost estimate at this time, and they are:

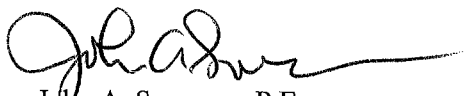
1. Full width mill and pavement overlay of Township Roads is not included in the cost estimates. Only pavement trench restoration is included at this time. The majority of proposed sewer would be located in Township Roads.
2. As "Phase 3" will require its own pump station and force main, it may be beneficial to lay a parallel force main alongside the proposed "Phase 2" force main in Pebble Hill Road as it is installed under the Route 202 overpasses and up to the existing sewer leading into the Green Street WWTP.
3. The existing peak flows in the 18" gravity sewer leading into the Green Street WWTP is unknown. A flow meter would be required in this 18" sewer to evaluate peak flows so it can be determined if that sewer has sufficient capacity to convey the proposed "Phase 2" flows, or if it needs to be upgraded.

For the purposes of completing this feasibility study, we estimated the depth of bedrock using County Soil Mapping, which is very approximate. This allowed us to include rock excavation in the cost estimates. A large number of test borings would be required as part of the design to confirm depth to bedrock along the proposed sewer alignments.

If you have any questions, please do not hesitate to call.

Very truly yours,

CARROLL ENGINEERING CORPORATION



John A. Swenson, P.E.
Vice President

JAS:lms

Enclosures

cc: Benjamin W. Jones, Chief Executive Officer (w/enclosures)
John Butler, Chief Operating Officer, BCWSA (w/enclosures)
Steven Hartman, P.E., CEC

BOARD OF SUPERVISORS
Barbara N. Lyons, Chairman
Richard F. Colello, Vice Chairman
Ryan Manion
Ken Snyder
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Renu Dalal
Dr. Vail Garvin
John Arnold
Alvin Clark
Barbara N. Lyons, Liaison
Stu Abramson
Mary Lou Parry
David Hansen
Anne Woodbury
Christopher Maddish

September 20, 2018

Benjamin Jones, Executive Director
Bucks County Water and Sewer Authority
1275 Almshouse Road
Warrington, PA 18967

9/24/18
C: - Sean Buttle
- Jen Sweeney
- Jeff Biele
- 2 O'Brien
- Alvin Clark
- Barbara N. Lyons
Start 537
& phase 2
ASAP
RECEIVED
SEP 24 2018
BY: _____

Dear Mr. Jones;

On September 18, 2018 at the Doylestown Township Board of Supervisors meeting, the Chairman of our Public Water and Sewer Advisory Board (PWSAB), Joseph Van Houten, presented an update on the data that the Committee has gathered over the past few years. You will recall this is the same data that the PWSAB shared with you at their meeting you attended on August 1st. The data leaves the PWSAB with conclusion that there may be a need for sewers in "Phase 2" of the Township. I have enclosed a copy of Mr. Van Houten's presentation for your information

As you may recall, in August when you met with members of our Public Water and Sewer Advisory Board and discussed the possible need for a feasibility study for the Phase 2 portion of the Township and the need to update our 537 Plan. You indicated that the BCWSA was able to assist the Township with both of these items. The PWSAB was pleased to know that this assistance was available at no charge to the Township.

After Mr. Van Houten's presentation, the Doylestown Township Board of Supervisors unanimously approved going forward and concurred that Bucks County Water and Sewer Authority should begin the Feasibility Study for the "Phase 2" area of the Township as outlined in the attached document. The Board also authorized Bucks County Water and Sewer Authority to begin working with the Township to update our 537 Plan.

If you have any questions concerning this matter or if I can be of any assistance, please feel free to contact me. In the meantime, Doylestown Township looks forward once more to working with you.

Sincerely,

Stephanie J. Mason
Township Manager

SJM/Jr

Enclosure

CC: Board of Supervisors
Public Water & Sewer Advisory Board



**FIGURE 1
COMPARISON MATRIX**

**DOYLESTOWN PHASE 2 SANITARY SEWER
FEASIBILITY STUDY
(prepared January 2019)**

	Without 90-Lot Low Pressure Area			With 90-Lot Low Pressure Area		
	# Existing EDU's ⁽²⁾	Total Cost	Cost per EDU	# Existing EDU's ⁽²⁾	Total Cost	Cost per EDU
Total Public Costs	386	\$ 15,994,490.00	\$ 41,400.00	476	\$ 17,760,300.00	\$ 37,300.00
Tapping Fee ⁽¹⁾	386	\$ 2,393,200.00	\$ 6,200.00	476	\$ 2,951,200.00	\$ 6,200.00
Private Costs	386	\$ 1,252,600.00	\$ 3,200.00	476	\$ 2,035,600.00	\$ 4,300.00
Total Cost per EDU ⁽³⁾	386	\$ 19,640,290.00	\$ 50,800.00	476	\$ 22,747,100.00	\$ 47,800.00

Footnotes:

- ⁽¹⁾ Tapping Fee is the current BCWSA Collection System Tapping Fee for Conveyance Portion only. The Collection Portion was omitted.
- ⁽²⁾ This is based on the number of Tax ID Records noted in the Public Water & Sewer Advisory Board's Phase 2 Feasibility Study dated September 18, 2018, which accompanied the Township's letter to BCWSA dated September 20, 2018.
- ⁽³⁾ If the Phase 3 "Gravity Area" was to be included in the costs above, there would only be a very minimal decrease in Property Owner Cost per EDU. Even though the denominator would increase by the number of EDU's in that area, the additional construction costs would offset any financial benefit.

General Notes:

- A. Costs per EDU in tables above are rounded for presentation purposes.
- B. Costs above do not include any mill/overlay of Township Roads; only pavement trench restoration.

FIGURE 2
PHASE 2 COLLECTION SYSTEM AND PUMP STATION
OPINION OF PROBABLE COSTS

DOYLESTOWN PHASE 2 SANITARY SEWER
FEASIBILITY STUDY
(prepared January 2019)

<u>NO.</u>	<u>ITEM</u>	<u>UNITS</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
A. Collection System					
1	12" PVC Sanitary Sewer (w/suitable backfill, 12 to 14 feet deep)	LF	2,600	\$ 110.00	\$ 286,000.00
2	10" PVC Sanitary Sewer (w/suitable backfill, 8 to 10 feet deep)	LF	6,100	\$ 78.00	\$ 475,800.00
3	8" PVC Sanitary Sewer (w/stone backfill, 6 to 8 feet deep)	LF	35,700	\$ 84.00	\$ 2,998,800.00
4	8" PVC Sanitary Sewer (w/suitable backfill, 6 to 8 feet deep)	LF	1,300	\$ 57.00	\$ 74,100.00
5	Rock Excavation (estimated quantity)	CY	10,696	\$ 150.00	\$ 1,604,400.00
6	Sanitary Manholes	EA	131	\$ 3,000.00	\$ 393,000.00
7	6" PVC Lateral - in roads (see Note A)	LF	5,640	\$ 39.00	\$ 219,960.00
8	6" PVC Lateral - in grass (see Note A)	LF	1,880	\$ 31.00	\$ 58,280.00
9	Cleanout Fittings (Gravity)	EA	376	\$ 290.00	\$ 109,040.00
10	2" PVC Low Pressure Mains - in roads	LF	1,870	\$ 29.00	\$ 54,230.00
11	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	150	\$ 20.00	\$ 3,000.00
12	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	50	\$ 13.00	\$ 650.00
13	Cleanout Fittings (Low Pressure System)	EA	10	\$ 360.00	\$ 3,600.00
14	Low Pressure Fittings (estimated quantity)	EA	20	\$ 50.00	\$ 1,000.00
15	Concrete Encasement (estimated quantity)	LF	1,500	\$ 60.00	\$ 90,000.00
16	Temporary Pavement Trench Restoration	LF	43,360	\$ 10.00	\$ 433,600.00
17	Permanent Pavement Trench Restoration	LF	43,360	\$ 30.00	\$ 1,300,800.00
18	State Road - Full Road Mill and Overlay (see Note B)	SY	14,067	\$ 15.00	\$ 211,000.00
19	Grass Restoration	LF	11,930	\$ 6.00	\$ 71,580.00
20	Erosion and Sediment Control	LF	47,570	\$ 2.00	\$ 95,140.00
21	Sewer Testing	LF	55,290	\$ 2.00	\$ 110,580.00
22	Traffic Control (see Note C)	LF	37,570	\$ 1.00	\$ 37,570.00
23	Tree Clearing	LF	5,200	\$ 25.00	\$ 130,000.00
24	Creek Crossings	EA	5	\$ 10,000.00	\$ 50,000.00
25	Mobilization/Bonds/Insurance	LS	4%		\$ 352,490.00
Subtotal Collection System					\$ 9,164,620.00
B. Pump Station					
1	Sauerman Road Pump Station	LS	1	\$ 1,224,000.00	\$ 1,224,000.00
2	8" DIP Force Main (w/stone backfill) - (see Note D)	LF	1,450	\$ 90.00	\$ 130,500.00
3	8" DIP Force Main (w/suitable backfill)	LF	7,450	\$ 78.00	\$ 581,100.00
4	Temporary Pavement Trench Restoration	LF	1,450	\$ 10.00	\$ 14,500.00
5	Permanent Pavement Trench Restoration	LF	1,450	\$ 30.00	\$ 43,500.00
6	State Road - Full Road Mill and Overlay (see Note B)	SY	4,030	\$ 15.00	\$ 60,450.00
7	Force Main Testing	LF	8,900	\$ 2.00	\$ 17,800.00
8	Traffic Control	LS	1	\$ 10,000.00	\$ 10,000.00
9	Air Release Manholes	EA	6	\$ 8,000.00	\$ 48,000.00
10	Fittings	LBS	2,200	\$ 6.00	\$ 13,200.00
11	Creek Crossing	EA	3	\$ 10,000.00	\$ 30,000.00
12	Mobilization/Bonds/Insurance	LS	4%		\$ 86,920.00
Subtotal Pump Station					\$ 2,259,970.00
Construction Contingency (10%)					\$ 1,142,500.00
Engineering, Legal, Administration and Easements (30%)					\$ 3,427,400.00
Total Public Cost					\$ 15,994,490.00
Private Costs					
	Grinder Pumps (see Note E)	EA	10	\$ 8,700.00	\$ 87,000.00
	Gravity Laterals (see Note F)	EA	376	\$ 3,100.00	\$ 1,165,600.00
Total Private Costs					\$ 1,252,600.00
Total Cost					\$ 17,247,090.00

Notes:

- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Presumed full road overlay will be required, based on estimated average road width of 25 feet in this area (State Roads only).
- C. Majority of sewer installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- D. Grass restoration and clearing would be done under the gravity sewer work, as this force main would be installed along side the gravity sewer. There would be some additional pavement restoration required, as the force main must continue to the WWTP along Pebble Hill Road.
- E. Price includes pump station, valves, electrical, control panel, restoration, and 1.25" service piping (length of piping estimated at 100' per lot).
- F. Price is based on estimated distance from house to right-of-way of 75 feet.

FIGURE 3
PHASE 2 LOW PRESSURE AREA (90 LOTS)
OPINION OF PROBABLE COSTS

DOYLESTOWN PHASE 2 SANITARY SEWER
FEASIBILITY STUDY
(prepared January 2019)

<u>NO.</u>	<u>ITEM</u>	<u>UNITS</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
1	2.5" PVC Low Pressure Mains - in roads	LF	11,810	\$ 32.00	\$ 377,920.00
2	1.5" PVC Grinder Laterals - in roads (see Note A)	LF	1,350	\$ 20.00	\$ 27,000.00
3	1.5" PVC Grinder Laterals - in grass (see Note A)	LF	450	\$ 13.00	\$ 5,850.00
4	Cleanout Fittings	EA	90	\$ 360.00	\$ 32,400.00
5	Low Pressure Fittings (estimated quantity)	EA	143	\$ 50.00	\$ 7,150.00
6	Rock Excavation (estimated quantity)	CY	330	\$ 150.00	\$ 49,500.00
7	Temporary Pavement Trench Restoration	LF	13,160	\$ 10.00	\$ 131,600.00
8	Permanent Pavement Trench Restoration	LF	13,160	\$ 30.00	\$ 394,800.00
9	State Road - Full Road Mill and Overlay (see Note B)	SY	14,300	\$ 15.00	\$ 214,500.00
10	Grass Restoration	LF	450	\$ 6.00	\$ 2,700.00
11	Erosion and Sediment Control	LF	11,810	\$ 2.00	\$ 23,620.00
12	Sewer Testing	LF	13,610	\$ 2.00	\$ 27,220.00
13	Traffic Control (see Note C)	LF	11,810	\$ 1.00	\$ 11,810.00
14	Mobilization/Bonds/Insurance	LS	4%		\$ 52,240.00
Subtotal					\$ 1,358,310.00
Construction Contingency (10%)					\$ 135,800.00
Engineering, Legal and Administration (20%)					\$ 271,700.00
Total Public Cost					\$ 1,765,810.00
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Private Costs					
	Grinder Pumps (see Note D)	EA	90	\$ 8,700.00	\$ 783,000.00
Total Private Costs					\$ 783,000.00
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Total Cost					\$ 2,548,810.00

Notes:

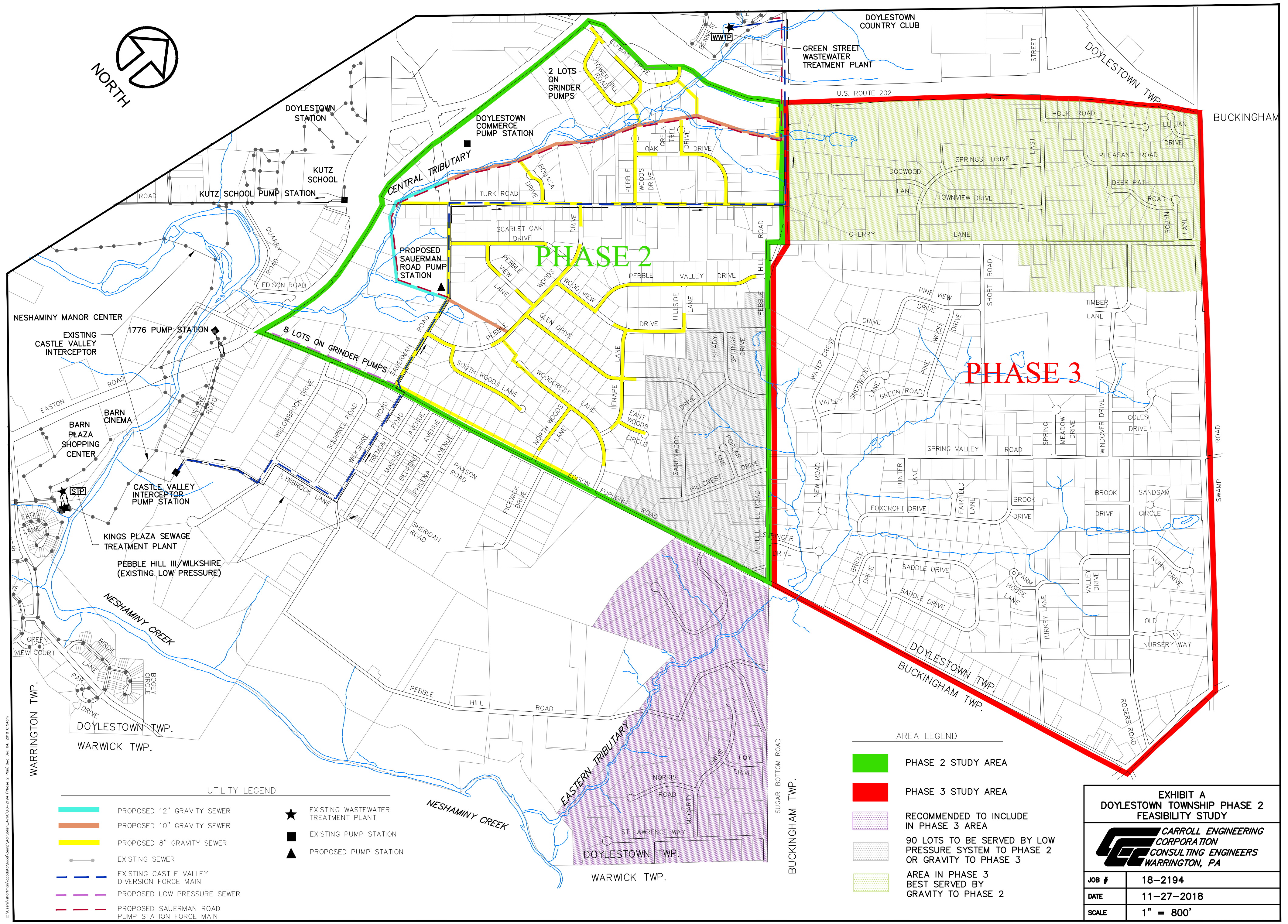
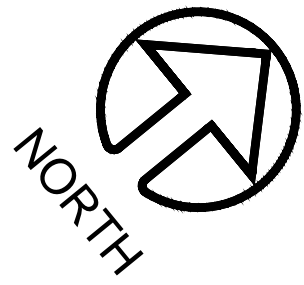
- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
- B. Presumed full road overlay will be required, based on estimated average road width of 20 feet in this area (State Roads only).
- C. Majority of low pressure pipe installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
- D. Price includes pump station, valves, electrical, control panel, restoration, and 1.25" service piping (length of piping estimated at 100' per lot).

FIGURE 4
PHASE 3 "GRAVITY" AREA TO PHASE 2 SEWER
OPINION OF PROBABLE COSTS
(FOR INFORMATIONAL PURPOSES ONLY - NOT PART OF PHASE 2 STUDY AREA)

DOYLESTOWN PHASE 2 SANITARY SEWER
FEASIBILITY STUDY
 (prepared January 2019)

<u>NO.</u>	<u>ITEM</u>	<u>UNITS</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
1	10" PVC Sanitary Sewer (w/suitable backfill, 8 to 10 feet deep)	LF	3,600	\$ 78.00	\$ 280,800.00
2	8" PVC Sanitary Sewer (w/stone backfill, 6 to 8 feet deep)	LF	25,300	\$ 84.00	\$ 2,125,200.00
3	8" PVC Sanitary Sewer (w/suitable backfill, 6 to 8 feet deep)	LF	1,450	\$ 57.00	\$ 82,650.00
4	Rock Excavation (estimated quantity)	CY	5,820	\$ 150.00	\$ 873,000.00
5	Sanitary Manholes	EA	87	\$ 3,000.00	\$ 261,000.00
6	6" PVC Lateral - in roads (see Note A)	LF	3,210	\$ 39.00	\$ 125,190.00
7	6" PVC Lateral - in grass (see Note A)	LF	1,070	\$ 31.00	\$ 33,170.00
8	Cleanout Fittings (Gravity)	EA	214	\$ 290.00	\$ 62,060.00
9	Concrete Encasement (estimated quantity)	LF	1,000	\$ 60.00	\$ 60,000.00
10	Temporary Pavement Trench Restoration	LF	28,510	\$ 10.00	\$ 285,100.00
11	Permanent Pavement Trench Restoration	LF	28,510	\$ 30.00	\$ 855,300.00
12	State Road - Full Road Mill and Overlay (see Note B)	SY	2,220	\$ 15.00	\$ 33,300.00
13	Grass Restoration	LF	6,120	\$ 6.00	\$ 36,720.00
14	Erosion and Sediment Control	LF	30,350	\$ 2.00	\$ 60,700.00
15	Sewer Testing	LF	34,630	\$ 2.00	\$ 69,260.00
16	Traffic Control (see Note C)	LF	25,300	\$ 1.00	\$ 25,300.00
17	Tree Clearing	LF	3,600	\$ 25.00	\$ 90,000.00
18	Creek Crossings	EA	3	\$ 10,000.00	\$ 30,000.00
19	Mobilization/Bonds/Insurance	LS	4%		\$ 215,550.00
Subtotal					\$ 5,604,300.00
Construction Contingency (10%)					\$ 560,400.00
Engineering, Legal, Administration and Easements (30%)					\$ 1,681,300.00
Total Public Cost					\$ 7,846,000.00
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Private Costs					
	Gravity Laterals (see Note D)	EA	214	\$ 3,100.00	\$ 663,400.00
Total Private Costs					\$ 663,400.00
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Total Cost					\$ 8,509,400.00

- Notes:
- A. Used an estimated 20' for lateral length (between sewer main and Right-of-Way).
 - B. Presumed full road overlay will be required, based on estimated average road width of 20 feet in this area (State Roads only).
 - C. Majority of sewer installation in roadways involve local roads; it is assumed full time flagging will not be required on those roads, and that traffic will be detoured to other local roads.
 - D. Price is based on estimated distance from house to right-of-way of 75 feet.



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- UTILITY LEGEND**
- PROPOSED 12" GRAVITY SEWER
 - PROPOSED 10" GRAVITY SEWER
 - PROPOSED 8" GRAVITY SEWER
 - EXISTING SEWER
 - EXISTING CASTLE VALLEY DIVERSION FORCE MAIN
 - PROPOSED LOW PRESSURE SEWER
 - PROPOSED SAUERMAN ROAD PUMP STATION FORCE MAIN
 - EXISTING WASTEWATER TREATMENT PLANT
 - EXISTING PUMP STATION
 - PROPOSED PUMP STATION

- AREA LEGEND**
- PHASE 2 STUDY AREA
 - PHASE 3 STUDY AREA
 - RECOMMENDED TO INCLUDE IN PHASE 3 AREA
 - 90 LOTS TO BE SERVED BY LOW PRESSURE SYSTEM TO PHASE 2 OR GRAVITY TO PHASE 3
 - AREA IN PHASE 3 BEST SERVED BY GRAVITY TO PHASE 2

**EXHIBIT A
DOYLESTOWN TOWNSHIP PHASE 2
FEASIBILITY STUDY**

**CARROLL ENGINEERING CORPORATION
CONSULTING ENGINEERS
WARRINGTON, PA**

JOB #	18-2194
DATE	11-27-2018
SCALE	1" = 800'

EXHIBIT B

(LOCATION OF PROPOSED SAUERMAN ROAD PUMP STATION)

