
EXHIBIT P2

WESTERN SERVICE AREAS ACT 537 PLAN



**Delaware County Planning Department
and the
Delaware County Regional Water
Quality Control Authority**



Western Delaware County Act 537 Sewage Facilities Plan Update

Chester-Ridley Creek Service Area

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CHAPTER 1.

DESCRIPTION OF THE STUDY AREA



1.1 GENERAL

This Western Delaware County Act 537 Sewage Facilities Plan Update; Chester-Ridley Creek Service Area addresses sewage facilities planning to direct flow from the existing Southwest Delaware County Municipal Authority (SWDCMA) treatment plant to the Western Regional Treatment Plant (WRTP) owned by the Delaware County Regional Water Quality Control Authority (DELCORA). SWDCMA's Baldwin Run Pollution Control Plant (BRPCP) located in Aston is currently permitted to treat 6 MGD of sewage. According to the 2009 Chapter 94 Report, the facility treated a 5-year average of 4.59 MGD. The maximum three month consecutive average projected for 2014 is 5.63 MGD or 94% of permitted capacity. The plant discharges to a tributary of Chester Creek which has been under study in recent years for not meeting designated use and may be subject to a Total Maximum Daily Load (TMDL) in the near future. TMDLs are issued by the US Environmental Protection Agency for impaired waterways that cannot assimilate pollutant loadings from existing or potential sources. In order to allow continued growth in the BRPCP service area, which includes Aston Township, Brookhaven Borough, Chester Township, Chester Heights Borough, Middletown Township, Upper Chichester Township, Upper Providence Township, and 21 approved planned residences in Edgmont Township, this plan will examine options to address the lack of future capacity as well as the requirement to meet increasingly tighter discharge limitations. Delaware County is located in the southeastern corner of the Commonwealth of Pennsylvania. The County is bounded on the east by the City of Philadelphia, on the southeast by the Delaware River and the State of New Jersey, and on the southwest by the State of Delaware. Figure 1-1 shows Delaware County in its regional setting. Although the County is the third smallest in the state in terms of land area (184.43 square miles), it has the fifth largest population (550,864) according to the 2000 Census. Discussions of Delaware County's environmental setting and governmental structure can be found in the Act 537 Western Plan of Study (DCPD, 2004) Countywide planning is addressed in the 2004 DCPD Act 537 Plan. Figure 1-2 includes the communities serviced by the SWDCMA and included in this plan, "The Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area." The SWDCMA in

FIGURE 1-1
Regional Delaware County



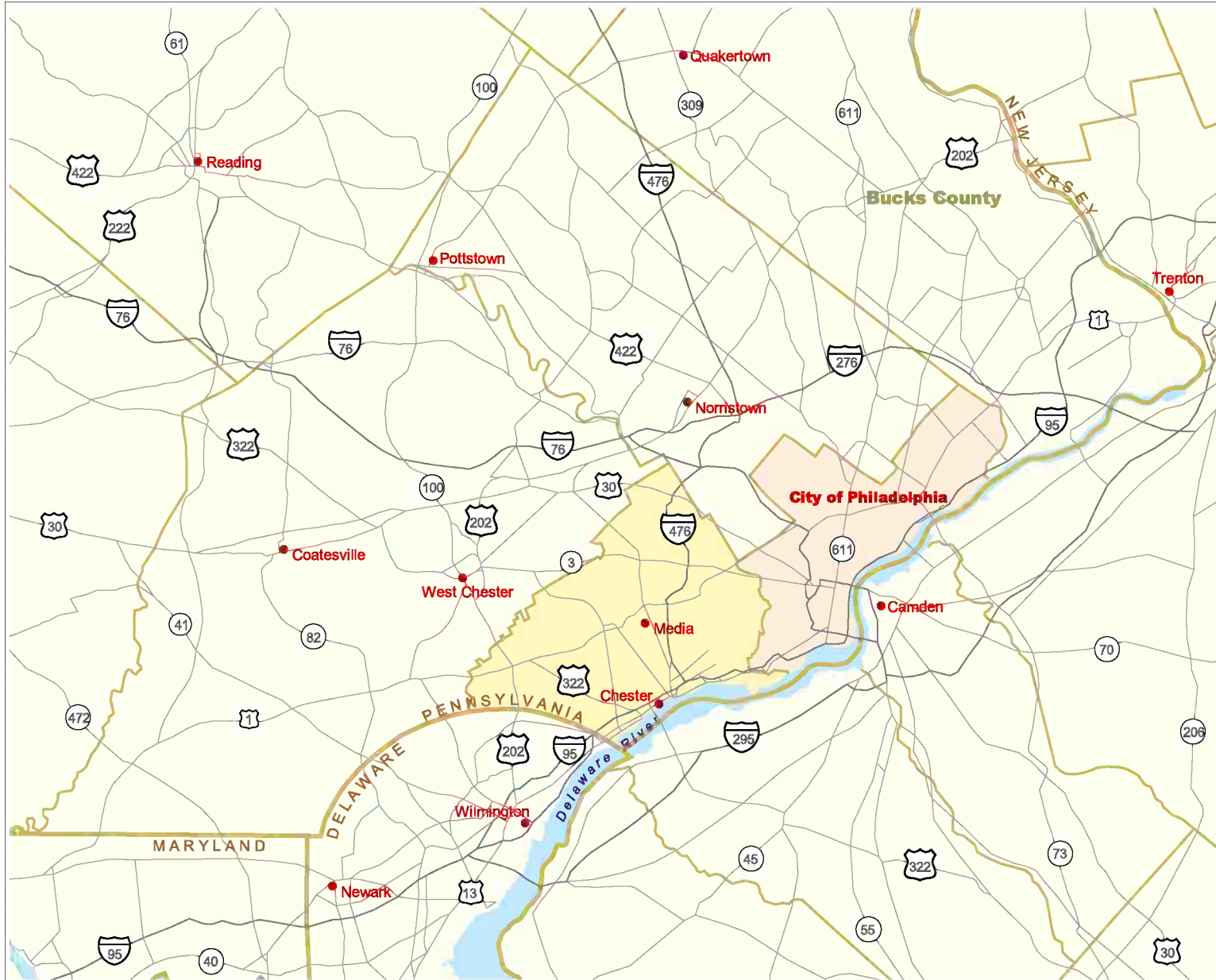
LEGEND

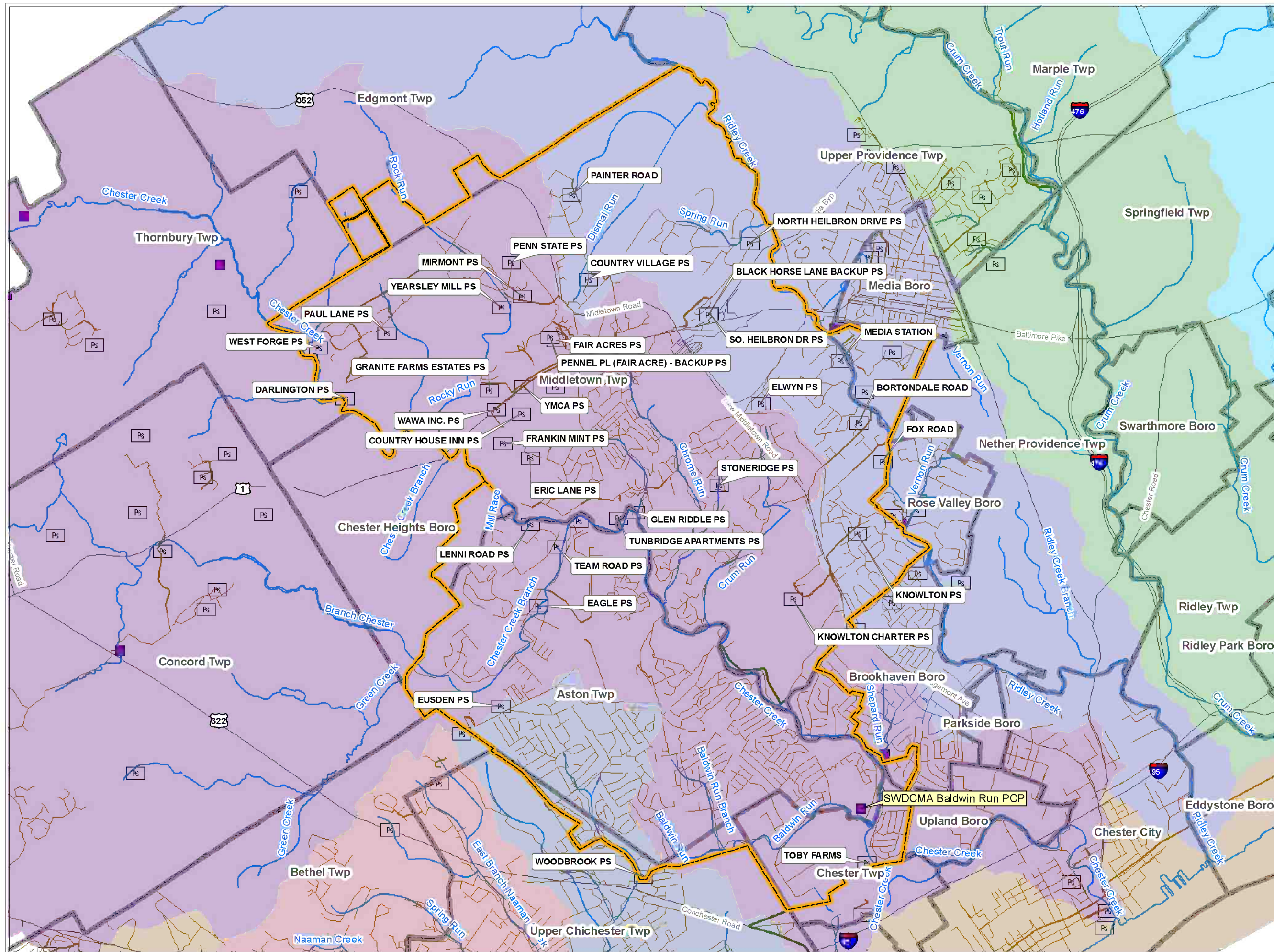
-  Roads
-  County Boundary
-  State Boundary



Scale in Miles
2 0 2 4 6 8

Data Source:
- Pennsylvania Spatial Data
Access (PASDA) Web Site,
<http://www.pasda.psu.edu>
- Delaware County Planning
Department (DCPD)





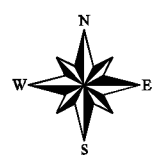



Legend

- Authority Boundary
- Municipal Boundaries
- PS Pump Station
- Treatment Plant
- SWDCMA Service Area
- Chester Creek
- Crum Creek
- Darby Creek
- Delaware River
- Minor Tributaries
- Marcus Hook Creek
- Naamans Creek
- Ridley Creek

Disclaimer: This map is for analytical purposes only. The reliability of this map depends on the accuracy of the underlying data sources which have not been verified.

Data Source:
- Pennsylvania Spatial Data Access (PASDA)
Web Site, <http://www.pasda.psu.edu>

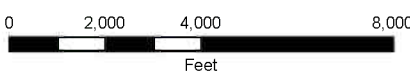


Figure 1-2 Planning Area Map

Delaware County is located in the Delaware River watershed. The SWDCMA serves some portions within the Ridley Creek Watershed; and a small area of Marcus Hook Creek headwaters in Aston and Upper Chichester Townships; however, all flow is directed to the BRPCP and discharged to Chester Creek. Figure 1-2.1 includes the National Wetlands inventory mapped wetlands within the planning area. Land use is a mix of residential, institutional, and industrial use and is shown in Figure 1-2.2. Ridley Creek State Park is a large, preserved open space parcel located in Middletown and Edgmont Townships.

1.1.1 Governmental Structure of Communities Served by SWDCMA

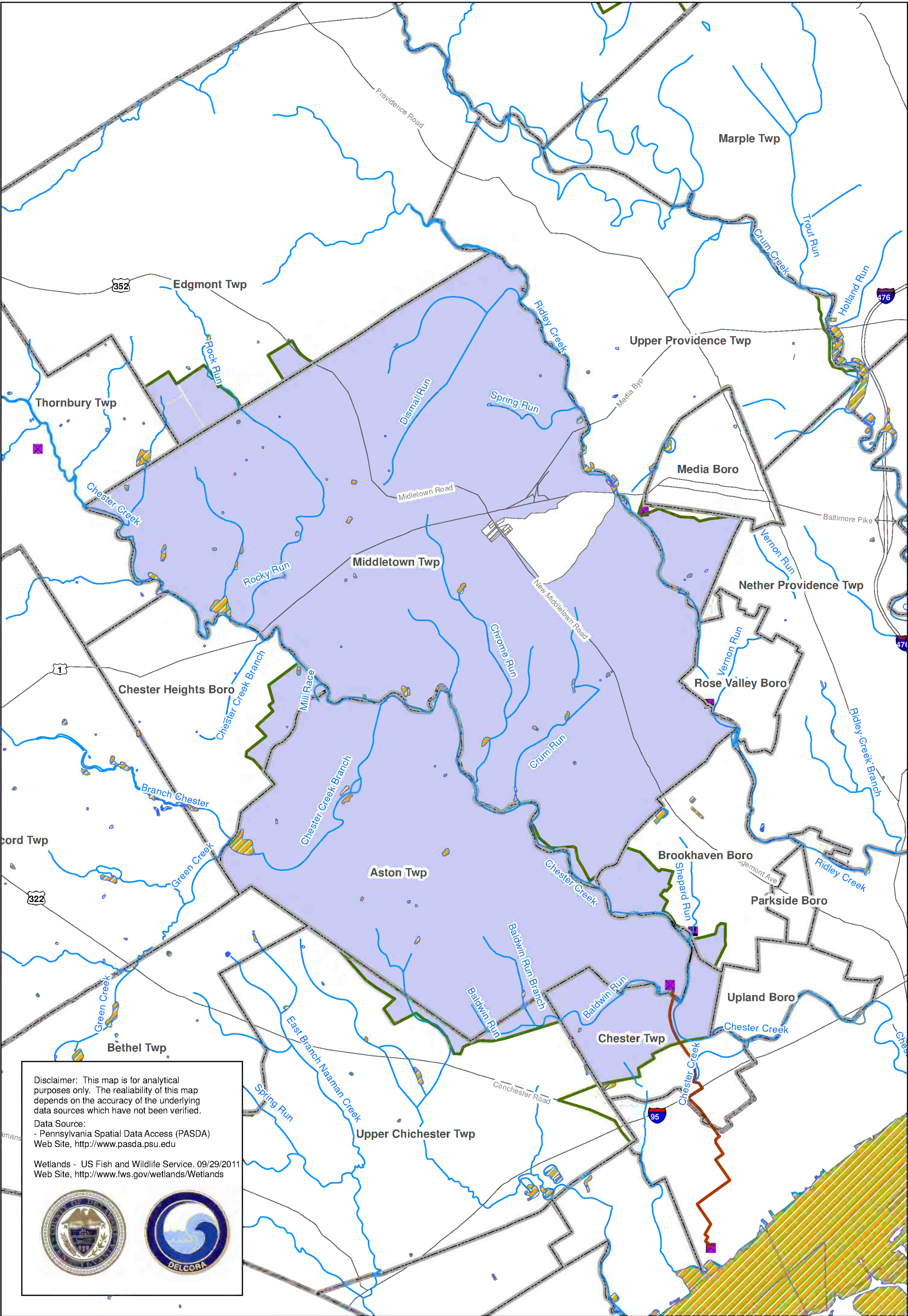
Chester is a city of the third class. Under powers granted by the Home Rule Charter Amendment of 1957, Chester has adopted a Mayor-Council form of government with the number of councilmen set at four.

Aston and Upper Chichester are first class townships. All first class townships not governed by home rule are regulated by the First Class Township Code, which requires government by an elected Board of Commissioners. The number of members on the board can vary from 5 to 15 members, depending on the political subdivision of the township.

Chester Township, Middletown Township, and Upper Providence Township are second class townships that have adopted the Home Rule Charter and are governed by a Council/Manager system. Edgmont is a second class township, regulated by the Second Class Township Code, which requires government by an elected Board of Supervisors. The board is composed of between three and seven members, depending on the population of the township.

Portions of Chester Heights and Brookhaven Boroughs lie within the Chester-Ridley Study Area. All boroughs not governed by home rule are regulated by the Borough Code, which requires government by a Mayor and Borough Council. The number of councilmen is dependent on the number of political subdivisions of the borough, but cannot exceed 15.

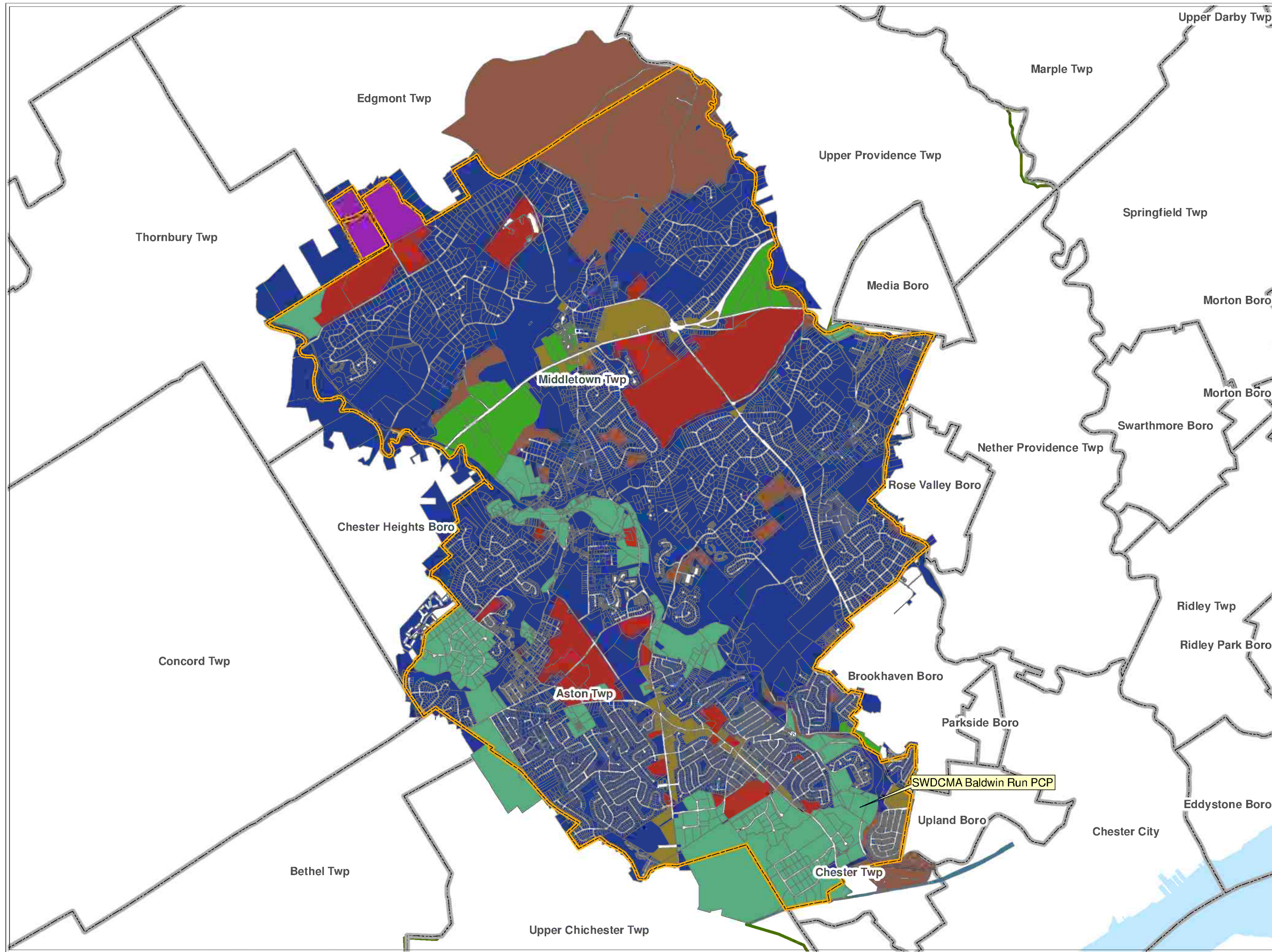
Those municipalities governed by a home rule charter (except for the City of Chester) were granted this option by the Home Rule Charter and Option Plans Law of 1972. This law gives every Pennsylvania municipality the opportunity to either draft a home rule charter or to select an optional plan of government. Delaware County home rule municipalities generally have a council form of government. In these municipalities, the council form of government is





Legend

- Authority Boundary
- Proposed Force Main
- Treatment Plant
- Chester/Ridley Creek Service Area
- Municipal Boundaries
- NWI Wetlands

Figure 1-2.1
National Wetlands Inventory



Legend

- Authority Boundary
- Municipal Boundaries
- SWDCMA Service Area

Land Use

- Agricultural
- Commercial
- Industrial
- Institutional
- Mixed Use
- Office
- Parks/Open Space
- Rail
- Residential

Disclaimer: This map is for analytical purposes only. The reliability of this map depends on the accuracy of the underlying data sources which have not been verified.

Data Source:
 - Pennsylvania Spatial Data Access (PASDA)
 Web Site, <http://www.pasda.psu.edu>



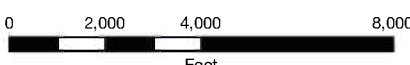




Figure 1-2.2
Land Use Designations

dependent upon and regulated by the charter and generally consists of one councilmember from each political subdivision of the municipality but may also include council members at large. Table 1-1 includes the governmental structure of municipalities served in whole or in part by the SWDCMA.

Table 1-1
Governmental Structure of Municipalities in the
Chester-Ridley Creek Service Area

Third Class City	Number of Council members	Form of Government
Chester	5	Home Rule
First Class Townships	Number of Commissioners/Council Members	Form of Government
Aston	7	1 st Class Twp.
Upper Chichester	5	1 st Class Twp.
Second Class Townships	Number of Supervisors	Form of Government
Chester	5	Home Rule
Edgmont	3	2 nd Class Twp.
Middletown	7	Home Rule
Upper Providence	5	Home Rule
Boroughs	Number of Council members	Form of Government
Brookhaven	7	Borough
Chester Heights	7	Borough

Source: DCPD, 2010

1.1.2 Economic Characteristics

Over the last three decades, Delaware County has experienced a shift from heavy industry concentrated along the Delaware River as the predominant employer to a more decentralized and diverse economy. Currently, the employment character within the Chester-Ridley Creek service area has become more service oriented. Most commercial development to date has been uncoordinated strip development along the radial highways. The prime influence for this development has been, and continues to be, the automobile.

1.1.3 Recent Development Trends in the Chester-Ridley Creek Service Area

The economic recession, which began in 2008, has decreased development within the Chester-Ridley Creek service area, as it has in the rest of the country. The greatest level of new development is occurring in Upper Chichester Township, with 85 residential building permits issued in 2009 alone, despite the recession. Upper Chichester, Middletown and Aston Townships are experiencing the most growth over the last ten years, with 922, 868, and 844 residential building permits issued, respectively.

1.2 PLANNING AND COORDINATION

This Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update is an update to the Delaware County Act 537 Sewage Facilities Plan Revision, Western Plan of Study, published by the Delaware County Planning Department (DCPD) in conjunction with Delaware County Regional Water Quality Control Authority (DELCORA) in 2004. DCPD and DELCORA have developed a Project Plan of Action to expeditiously complete this Western Delaware County Act 537 Plan Update for the Chester-Ridley Creek Service Area following DEP's "Guide for Preparing Act 537 Update Revisions" (Document 362-0300-003, January 7, 2003). This plan will examine options to address future capacity at the BRPCP owned by SWDCMA, as well as the need to meet increasingly tighter discharge requirements to Chester Creek. This plan will also include conceptual design and the construction schedule for the recommended facilities that are necessary to meet the needs of the service area.

1.2.1 Regional Planning and Coordination

Delaware County is a member government of the Delaware Valley Regional Planning Commission (DVRPC). In 1965, DVRPC was established to coordinate planning and development for the Delaware Valley regional area. DVRPC is concerned with regional planning and coordination of land use, transportation, housing, and to a lesser degree, the environment. It is composed of members from Chester, Bucks, Delaware, Montgomery, and Philadelphia Counties and the City of Chester in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer Counties and the Cities of Trenton and Camden in New Jersey.

The Delaware River Basin Commission also exercises authority with regard to all projects having a substantial effect on the water resources of the Delaware River basin. The U.S.

Army Corps of Engineers has jurisdiction over construction along and discharges into navigable waterways. The U.S. Environmental Protection Agency (EPA) and the Pennsylvania Department of Environmental Protection (DEP) are responsible for air and water quality regulation. DEP is specifically responsible for the enforcement of regulations adopted pursuant to Act 537.

Delaware County is also served by a County Conservation District, which has been delegated responsibility for overseeing the State's erosion control regulations under Chapter 102 and general permitting under Chapter 105 for stream and wetland permits. The Conservation District also works on problems of soil use and conservation, runoff, and the protection and proper use of Delaware County's water resources.

1.2.2 County Planning and Coordination

Planning within the County exists on two levels. The Delaware County Planning Department (DCPD), which is an agency of County Government, serves in an advisory capacity, to the County's 49 municipalities. The Pennsylvania Municipalities Planning Code, Act 247, as amended, grants municipalities the power to prepare and enact a comprehensive plan, a zoning ordinance, and a subdivision and land development ordinance to guide their development. As of 2010, all 49 municipalities had prepared a comprehensive plan, and some had already updated their Act 537 Plan or were in the process of doing so. All 49 municipalities have zoning ordinances, and 28 have local subdivision and land development ordinances. The remaining 21 municipalities utilize the Delaware County Subdivision and Land Development Ordinance, as amended, either by adoption or by virtue of the fact that they lack a local ordinance.

As of 2010, Delaware County did not have an adopted comprehensive plan. In 1976, the Delaware County Land Use Plan 2000 was developed; however, it was never officially adopted by County Council. On July 18, 1978, the County adopted the Policies and Recommendations section and the Park and Recreation Facilities Improvements Plan map contained in the Delaware County Open Space, Parks, and Recreation Study. A complete County Comprehensive Plan was never officially adopted.

The County is currently in the process of preparing a plan for adoption as the official County Comprehensive Plan, as provided for under the Municipalities Planning Code. Several specific elements, such as the Bicycle Plan and greenway and energy plans, have been adopted

or are in the development stage. Until that plan is completed, the Delaware County Land Use Plan 2000 is still the basic source of information on the future development of the County. This plan, which was published in January 1976, was based on economic and population trend data available at the time. This plan was an important element in the regional plan for the year 2000 adopted as part of the regional development guide by DVRPC in 1978.

It is expected that the new comprehensive plan, which will be officially adopted, will re-examine existing and potential future development cores, activity centers, and developing residential areas. It will also take a close look at balancing new development in less densely populated areas with opportunities for redevelopment of existing urbanized areas in light of recent trends and infrastructure changes.

1.2.3 Sewage Facilities Coordination

The Pennsylvania Sewage Facilities Act of 1966 (as amended), more commonly referred to as Act 537, is the primary legislation governing sewage facilities planning and regulation. The Act requires municipalities to submit, either individually or jointly, Official Sewage Facilities Plans to DEP. These plans are to contain information concerning existing and future needs of each municipality, as well as alternatives for providing adequate wastewater facilities to serve the needs of the municipality into the future. The Act also calls for municipalities to periodically revise their Act 537 plans as conditions change or as the need arises.

In addition to providing legislation for sewage facilities planning, Act 537 requires permits to be issued for the construction, installation, or alteration of individual and community wastewater systems. Rules and regulations regarding community and individual systems are developed by DEP and adopted by the State Environmental Quality Board. A State Board of Certification of Sewage Enforcement Officers administers the State's sewage enforcement officer (SEO) certification programs. The rules and regulations promulgated by DEP in accordance with the Pennsylvania Sewage Facilities Act are contained within Chapters 71, 72, and 73 of DEP's Title 25: Rules and Regulations. The following list briefly summarizes the provisions of these chapters:

Chapter 71: Administration of Sewage Facilities Program

This program provides a comprehensive sewage planning mechanism to identify and resolve existing sewage disposal problems, to avoid potential sewage problems resulting from new land development, and to provide for the future sewage disposal needs of a municipality.

Chapter 72: Administration of Sewage Facilities Permitting Program

This program establishes requirements for permitting associated with installation of individual and community on-lot wastewater disposal systems and regulates the administration of permitting functions by local agencies and SEOs.

Chapter 73: Standards for Sewage Disposal Facilities

This program establishes requirements for the design, location, and construction of sewage facilities. It is administered locally by the municipal SEO.

1.2.4 Delaware County Regional Water Quality Control Authority (DELCORA)

On November 3, 1971, the Delaware County Board of County Commissioners authorized the formation of the Delaware County Regional Water Quality Control Authority (DELCORA) under the provisions of the Municipalities Act of 1945, as amended and supplemented. DELCORA was incorporated by the Commonwealth of Pennsylvania on November 17, 1971. Under the Articles of Incorporation, DELCORA “shall be organized for the purpose only to acquire, hold, construct, improve, maintain, operate, own and lease, either in the capacity of lessor or lessee, projects of the following kind and character, sewers, sewer systems, or parts thereof, sewerage treatment works, including works for the treating and disposing of industrial waste, in and for the County of Delaware and such other territory, corporations, municipal corporations, authorities, and other governmental bodies or regulatory agencies both within and without the County of Delaware...”

On April 16, 2002, Delaware County Council adopted Ordinance No. 2002-1 which extended DELCORA’s term of existence until January 15, 2052. DELCORA is governed by a 9-member board of directors appointed by the County Council. DELCORA is managed by a full-time executive director and operated by professional engineering, operational, and financial staff.

1.3 DELCORA FACILITIES

DELCORA is responsible for the safe collection, transmission, treatment and disposal of approximately 94 million gallons per day (MGD) of wastewater generated in southeastern Pennsylvania. The permitted treatment capacity of 94 MGD is estimated by adding the current 44 MGD rating for the Western Regional Treatment Plant (WRTP) to the 50 MGD that DELCORA is permitted to divert to the Philadelphia Southwest Regional Water Pollution Control Plant (PSWPCP). It should be noted that PADEP has approved a re-rate to 50 MGD for the WRTP and the Delaware River Basin Commission (DRBC) has recently approved of the re-rate. The boundaries of the area served by DELCORA are shown in Figure 1-3. DELCORA owns and operates an extensive system of pump stations, force mains, and sewers that provide the core infrastructure for the transmission of wastewater to treatment facilities in Delaware County. DELCORA's primary treatment facility is the WRTP, located in Chester, PA. The WRTP treats all wastewater from Marcus Hook Borough, Trainer Borough, Upland Borough, Parkside Borough, Eddystone Borough, parts of Chester Township, parts of Brookhaven Borough, and the City of Chester. Approximately 613 equivalent dwelling units (edus) from Chester Township, which is serviced by the Southern Delaware County Authority (SDCA), flow to the BRPCP. The remaining flow from the SDCA is treated at the WRTP. In addition, the WRTP receives up to 13 MGD from Central Delaware County Authority (CDCA). All wastewater from Muckinipates Authority (MA), Darby Creek Joint Authority (DCJA), and Radnor-Haverford-Marple Authority (RHM) are transported to the City of Philadelphia's Southwest Water Pollution Control Plant (PSWPCP) for treatment and disposal. Ordinary flows from CDCA (up to approximately 13 MGD) can be diverted to the PSWPCP if necessary. In addition to the high flow diversions that occur as required, some flow from CDCA is diverted to PSWPCP on a weekly basis to flush the force main.

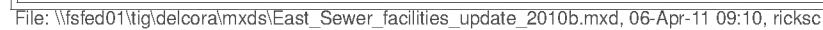
The purpose of this Western Delaware County Act 537 Plan Update for the Chester-Ridley Creek Service Area is to document adequate treatment capacity to connect flows from the BRPCP to the WRTP. DELCORA is planning to assume responsibility for treatment of wastewater currently treated at the BRPCP facility including construction of a new pump station and force main, and treatment of flow at the WRTP. The option to extend the operational life of the existing BRPCP that would continue to be operated by the SWDCMA is evaluated in this plan update. The municipalities will continue to maintain and operate the existing collection

system within the Chester-Ridley Creek Service Area. Table 1-2 includes the area of all municipalities serviced in whole or in part by the BRPCP. All municipalities in Table 1-2 have approved a resolution to adopt this Act 537 Plan.

Table 1-2

Municipalities within the Chester-Ridley Creek Service Area

Municipalities	Chester-Ridley Creek Service Area (square miles)
Aston Township	5.84
Brookhaven Borough	0.31
Chester Township	0.86
Chester Heights Borough	0.22
Edgmont Township (21 approved residences)	0.34
Middletown Township	13.46
Upper Chichester Township	0.30
Upper Providence Township	0.39



CHAPTER 2.

DEMOGRAPHIC CHARACTERISTICS OF THE STUDY AREA

2.1 INTRODUCTION

When assessing the potential to connect flow from the SWDCMA to the WRTP, future increases in flow from growing population should be considered. This chapter presents the current and projected population data for the Chester-Ridley Creek service area.

2.2 EXISTING POPULATION

Generally, municipalities in the western half of Delaware County have experienced significant growth since 1970. This shift can be attributed to a number of factors, some of which include the change from a manufacturing to a service economy (1970s) and the migration of people from urban areas like Chester City and Upper Darby to more suburban settings such as Chester Heights Borough and Bethel, Concord, Edgmont, and Thornbury Townships in the western part of the County. Coinciding with this shift is an emphasis on suburbanization.

Table 2-1

Chester-Ridley Creek Service Area Population, 1970 – 2000

Municipality	1970	1980	1990	2000	% Change 1970 - 2000
Aston Township	13,704	14,530	15,080	16,203	18.20%
Brookhaven Borough	7,370	7,912	8,567	7,985	8.30%
Chester Township	5,708	5,687	5,399	4,604	-19.30%
Chester Heights Borough	597	1,302	2,273	2,481	315.60%
Edgmont Township	1,368	1,410	2,735	3,918	186.40%
Middletown Township	12,878	12,463	14,130	16,064	24.70%
Upper Chichester Township	11,414	14,377	15,004	16,842	47.60%
Upper Providence Township	9,234	9,477	9,727	10,509	13.80%
Chester-Ridley Creek Service Area	62,273	67,158	72,915	78,606	26.23%

Source: U.S. Department of Commerce, Bureau of the Census, prepared by DCPD, 2001

Table 2-1, showing the census figures from 1970, 1980, 1990, and 2000, illustrates that except for Chester Township, all municipalities within the Chester-Ridley Creek service area exhibited some increases in population from 1970 to 2000. Table 2-1 shows that overall; the population within the Chester-Ridley Creek service area has increased by about 27 percent since 1970.

2.3 FUTURE POPULATION

The current population shift from the eastern municipalities to the west is expected to continue. Tables 2-2 and 2-3 present the population and employment forecasts through 2035 as formulated by DVRPC, based on Census 2000 population counts and 2005 estimates for population and employment. Population and employment estimates were prepared by the DRVPC on a county level and then sent to the County Planning Director for confirmation. The county level data were used as a basis to estimate municipal level data based on the 2005 Census population estimates program, which uses birth and death records and federal tax return data.

Populations in all municipalities within the service area except Edgmont Township are expected to experience very moderate increases between 2.1 and 5.8 percent. Edgmont Township is the only municipality where significant population increases are projected. The increase in population will also bring an increase in employment, and increased employment will result in increased sewage disposal needs. Population and employment forecasts for Delaware County are presented in DCPD, 2004.

Table 2-2
Chester-Ridley Creek Service Area Population Forecasts

	CENSUS	DRVPC Estimate	2010- 2035 DVRPC Population Forecasts						
Municipality	2000	2005	2010	2015	2020	2025	2030	2035	% Change 05 - 35
Aston Township	16,205	16,801	16,889	16,972	17,050	17,124	17,194	17,258	2.7%
Brookhaven Borough	7,985	7,843	7,874	7,904	7,932	7,959	7,984	8,007	2.1%
Chester Township	4,605	4,501	4,526	4,549	4,571	4,592	4,611	4,630	2.9%
Chester Heights Borough	2,481	2,477	2,488	2,499	2,509	2,518	2,527	2,536	2.4%
Edgmont Township	3,915	4,148	4,310	4,462	4,607	4,743	4,872	4,990	20.3%
Middletown Township	16,065	16,106	16,254	16,395	16,528	16,653	16,771	16,880	4.8%
Upper Chichester Township	16,845	17,364	17,490	17,610	17,723	17,829	17,930	18,022	3.8%
Upper Providence Township	10,510	11,142	11,266	11,384	11,495	11,600	11,699	11,791	5.8%
Chester-Ridley Creek Service Area	78,611	80,382	81,097	81,775	82,415	83,018	83,588	84,114	4.6%

Source: DVRPC Analytical Data Report No. 14. August, 2007.

Table 2-3 Chester-Ridley Creek Service Area Employment Forecasts

	CENSUS	DRVPC Estimate	2010- 2035 DVRPC Employment Forecasts						
Municipality	2000	2005	2010	2015	2020	2025	2030	2035	% Change 05-35
Aston Township	5,720	5,862	6,075	6,276	6,466	6,645	6,814	6,970	18.9%
Brookhaven Borough	1,953	1,923	1,968	2,011	2,051	2,089	2,125	2,159	12.3%
Chester Township	1,743	1,686	1,752	1,814	1,873	1,928	1,981	2,029	20.3%
Chester Heights Borough	1,746	1,457	1,472	1,487	1,500	1,514	1,526	1,537	5.5%
Edgmont Township	2,026	2,125	2,220	2,311	2,396	2,476	2,552	2,622	23.4%
Middletown Township	11,454	11,434	11,495	11,553	11,607	11,659	11,717	11,752	2.8%
Upper Chichester Township	5,192	5,207	5,257	5,304	5,348	5,389	5,429	5,465	5.0%
Upper Providence Township	3,294	3,334	3,378	3,419	3,458	3,495	3,529	3,561	6.8%
Chester-Ridley Creek Service Area	33,128	33,028	33,617	34,175	34,699	35,195	35,673	36,095	9.3%

Source: DVRPC Analytical Data Report No. 14. August, 2007.

CHAPTER 3.

EXISTING WASTEWATER TREATMENT AND CONVEYANCE SYSTEMS

3.1 WASTEWATER TREATMENT AND CONVEYANCE ORGANIZATIONS SERVING THE CHESTER-RIDLEY CREEK SERVICE AREA

Most of the Chester-Ridley Creek Service Area's domestic sewage is currently conveyed by one of the four public governmental authorities charged with these tasks and treated by the BRPCP, operated by Southwest Delaware County Municipal Authority. Homes and businesses in portions of the Chester-Ridley Creek Service Area not served by these authorities use on-site systems constructed to serve individual homes or businesses. This chapter includes a discussion of municipal wastewater treatment (T) and conveyance systems (C) operating in the planning area. A map of the Chester-Ridley Creek service area including the location of the BRPCP is presented in Figure 1-2 of this report.

Public organizations currently providing sewage treatment or conveyance service within the Chester-Ridley Creek service area are:

- Southwest Delaware County Municipal Authority (SWDCMA) (T, C)
- Middletown Township Sewer Authority (C)
- Southern Delaware County Authority (C)
- Upper Providence Township Sewer Authority (C)

(T) = Treatment and (C) = Conveyance

3.2 PUBLIC ORGANIZATIONS PROVIDING SEWAGE TREATMENT AND CONVEYANCE WITHIN THE CHESTER-RIDLEY CREEK SERVICE AREA

3.2.1 Wastewater Treatment Organizations

Delaware County Regional Water Quality Control Authority (DELCORA)

Organizational Description

DELCORA was established in 1971 by the Delaware County Commissioners, pursuant to the Municipal Authorities Act, and its Board of Directors is appointed by Delaware County Council. DELCORA was authorized to exercise all powers granted under the Act to implement the Countywide wastewater management plan. DELCORA's role as an implementation agency

involves the acquisition, holding, construction, improvement, maintenance, operation, owning, and leasing of sewer systems and sewage treatment facilities. DELCORA is financially self-sufficient; capital funds are raised through bond issues, while operations and maintenance expenses and debt service are covered by user charges. DELCORA owns and maintains the 44 MGD Western Regional Treatment Plant (WRTP) located in Chester, as well as an extensive system of wastewater conveyance facilities, and, in certain municipalities, the collector sewers.

DELCORA's service area is divided into eastern and western regional drainage districts as established in the 1974 Albright and Friel plan. The Eastern and Western Act 537 Plan updates address the needs of their respective DELCORA service areas. Wastewater flows generated in these western areas of Delaware County are conveyed to DELCORA's WRTP in the City of Chester. DELCORA's Western Service Area includes the City of Chester, Upper Chichester and Chester Townships; portions of Nether Providence Township; Marcus Hook; Trainer, Upland, Parkside, and Eddystone Boroughs; and the southern portion of Brookhaven Borough.

As part of its National Pollutant Discharge Elimination System (NPDES) permit for the WRTP, DELCORA was tasked with developing a combined sewer overflow (CSO) program. The fundamental purpose of DELCORA's CSO program is to minimize the impacts of CSOs on the quality of the receiving surface waters by developing a long-term strategy that is both technically viable and financially feasible. To meet this objective, DELCORA has developed a Long-Term CSO Control Plan that meets the regulatory guidelines established by the United States Environmental Protection Agency (EPA) and PADEP as well as DELCORA's financial obligations to its customers in Delaware County. There are no combined sewers within the Chester-Ridley Creek Service Area.

Recent planning efforts focused on the Western Service Area include the Act 537 Sewage Facilities Plan Revision, Re-Rate of the Western Regional Treatment Plant, dated January, 2007, and the *Riverfront Development Study* (WESTON 2005). These studies addressed future development along the riverfront and the consequent generation of additional wastewater flows that would discharge to DELCORA's collection system. The findings of the Act 537 Sewage Facilities Plan Revision, Re-Rate of the Western Regional Treatment Plant demonstrates

adequate capacity at the WRTP to treat potential sewage flows from the Chester-Ridley Creek Service Area.

Treatment Facility Description

The DELCORA WRTP is located at the foot of Booth Street in the City of Chester and serves DELCORA's western service area. The plant, which has a rated treatment capacity of 44 MGD (92.3 MGD maximum with 30 MGD recycled to aeration basins), discharges to the Delaware River under NPDES permit number PA 0027103. An Act 537 Plan application to re-rate the WRTP to 50 MGD has been approved by PADEP. NPDES permit issuance for 50 MGD is pending. In 2010, DELCORA averaged 37.3 MGD of flow through the WRTP with a maximum flow of 81.1 MGD on December 26, 2009. The design organic loading for the plant influent is 108,000 lbs of BOD₅ per day. During 2010, the WRTP averaged 67,501 lbs of BOD₅ per day in the influent and discharged an average of 2,828 lbs per day.

The plant employs an aerated waste activated sludge process that provides primary and secondary treatment levels. The treatment processes include primary clarification, aeration, secondary clarification, post-aeration, and disinfection by chlorination. Sludge is thickened, dewatered, and incinerated. The ash is stored and landfilled. Wastewater flow to the WRTP is first treated in a preaeration basin. Next, solids are settled and removed during primary clarification. Flow is then directed to the aeration tanks where biological action takes place to remove organics. From the aeration tanks, flow is transferred to final clarifiers where more solids are settled and removed. The final step is the chlorine contact tanks, where disinfection to eliminate pathogens and bacteria takes place prior to discharge to the Delaware River.

All industrial waste discharging to the WRTP must have a DELCORA-issued Industrial Waste Permit in accordance with the EPA-approved treatment program. Pretreated industrial wastewater must comply with limits established by DELCORA and approved by EPA.

Previous Upgrades

DELCORA is in a continuous process of implementing contract improvements to maintain and upgrade the treatment at the WRTP. Upgrades that have been completed at the WRTP include:

- Automation of solids handling equipment.
- Chlorine scrubbing system modifications.

- Sludge screen.
- Installation of effluent flow totalizers.
- Primary scum and grease transfer piping.

A complete list of projects that have been completed since 2000 and projects that are currently underway is included in the Chapter 94 Report.

Other Issues

DELCORA has a long-term service contract with the Philadelphia Water Department which provides DELCORA 50 MGD of reserve capacity in the 210 MGD capacity PSWPCP. DELCORA and the City of Philadelphia are in negotiations to update the agreement. The reserve 50 MGD capacity includes the flows generated in DELCORA's eastern service area including the Muckinipates Authority, Darby Creek Joint Authority, Radnor Haverford Marple Sewer Authority, and the Central Delaware County Authority conveyance systems. In 2002, DELCORA completed a force main that connects the Central Delaware Pump Station (CDPS) via a 3.4-mile, 24-inch pipe. This connection allows DELCORA to send up to 27 MGD of flow from the CDPS to the WRTP, however, DELCORA's operating policy limits this flow to 13.3 MGD, with flows above this point directed to the PSWPCP.

Scheduled Upgrades

DELCORA continues to implement its Capital Improvement Plan for the WRTP. It is DELCORA's intention to maximize the utilization of the WRTP. Upgrades currently underway or in progress at the WRTP include:

- Enhanced automation controls for the belt filter press process.
- Outfall extension.
- Conversion to natural gas fuel for the multiple hearth incinerators and update of the control system.
- Replacement of the Dissolved Air Flootation System.
- Return Activated Sludge System pipe lining.

Current Plant Status

According to DELCORA's 2009 Chapter 94 Report, the "...WRTP continued to discharge high quality effluent."

Sludge/Biosolids Generation

Activated sludge is removed from the system based on flow and solids concentration. The sludge is processed in an air flotation system prior to dewatering. The treated waste is then

pumped to the filtration building at about 3-5% solids. The sludge can be directed to one or all three filter belt presses. Sludge cake from the belt presses is conveyed to one or two multiple hearth incinerators. The ash is collected at the bottom of the incinerator and transported by air to two storage silos. One incinerator is normally operated 24 hours a day, seven days a week. The operation is permitted for 96 dry tons, 48 dry tons per incinerator. Sludge reduction by incineration is about 75%. The ash is permitted for disposal in the State of Delaware and all ash generated is disposed of there.

Southwest Delaware County Municipal Authority

Organizational Description

The Aston Board of Commissioners, pursuant to the Municipality Authorities Act, established the SWDCMA on December 16, 1957. The Aston Township Board of Commissioners appoints its seven-member Board of Directors. SWDCMA was authorized to exercise all powers granted under the Act to implement the wastewater management plan for its service area. SWDCMA's role as an implementation agency involves the acquisition, holding, construction, improvement, maintenance, operation, owning, and leasing of the sewer system and the sewer treatment facilities. SWDCMA is financially self-sufficient; capital funds are raised through bond issues while operations and maintenance expenses and debt service are covered by user charges. SWDCMA owns and maintains the 6 MGD BRPCP located in Aston, as well as an extensive system of wastewater conveyance facilities and, in certain municipalities, the collector sewers. The SWDCMA owns the collector sewers in the service area except for those in Middletown Township, proposed facilities in Edgmont Township, and the areas within SDCA that do not flow to the BRPCP. Table 3-1 includes information regarding ownership of the collection facilities in each municipality.

Table 3-1
Collection System Ownership in the Chester-Ridley Service Area

Municipality	Collection System Owner
Aston Township	SWDCMA
Brookhaven Borough	SWDCMA
Chester Township	
Chester Heights Borough	
Edgmont Township	Middletown Township Sewer Authority
Middletown Township	Middletown Township Sewer Authority
Upper Chichester Township	Southern Delaware County Authority
Upper Providence Township	Upper Providence Township Sewer Authority

Treatment Facility Description

The BRPCP is located at the terminus of Gamble Lane and Park Lane in Aston. The plant was built in 1959 with an average design flow of 2.0 MGD. Secondary treatment was originally designed as a trickling filter plant but has since been changed to an aerated bio-filter with attached growth nitrification. The current wastewater treatment processes include screening, primary clarification, biological treatment using activated biofilters, fine and coarse bubble activated sludge, final clarification, and chlorination. Effluent is chlorinated and discharged to Chester Creek. The design BOD₅ of the facility is 12,510 lbs./day. The existing NPDES permit (No. PA0027383) identifies the effluent discharge limitation for the BRPCP as 6 MGD.

Previous Upgrades

Since construction, the treatment plant has undergone a number of upgrades. The most recent upgrade, in 2002, included the improved headworks consisting of the addition of a second fine screen, an aerated grit separator, and a channel reconfiguration. The biofilters' pumping and recirculation systems were also upgraded in 2002.

Scheduled Upgrades

No upgrades are currently scheduled.

Current Plant Status

In 2009, the SWDCMA plant discharged an average of 4.65 MGD. The highest monthly average recorded was 5.88 MGD during December, and the highest 3-month average was 5.13 MGD (October to December).

A Consent Order from the PADEP was filed on February 5, 2009, requiring the SWDCMA to submit a corrective action plan to reduce I/I and terminate all sanitary sewer overflows and bypasses within their collection system. The corrective action plan includes:

1. Televising and grout each of the six main sewer districts on a 10-year cycle;
2. Conduct flow monitoring tributary to the Chester Creek Interceptor upstream of Knowlton Road and capture at least six rainfall events;
3. Conduct manhole inspections;
4. Develop and implement I/I remediation efforts for selected areas; and,
5. Implement post-remediation flow metering.

Conveyance Facilities Description

Conveyance Lines—SWDCMA owns and maintains approximately 63 miles of sanitary sewer lines. This system includes two main delivery interceptors (Chester Creek Interceptor and Baldwin Run Interceptor) and four siphons. SWDCMA also maintains approximately forty individual grinder pumps for single-family homes in its service area. Blockages and system failures resulted in seven reported overflows in 2009. In addition, I&I problems resulted in three reported overflows.

SWDCMA has an infiltration and inflow reduction program in place. During 2009, SWDCMA inspected, cleaned, or repaired 21,939 (approx 7% of the total system) linear feet of sewer mains (approx 7% of the total system).

Pump Stations—SWDCMA owns and operates the following five pump stations:

- District 4/Team Road PS
- Eagle Park PS
- Woodbrook PS
- Toby Farms PS
- Main Lift Station

Sludge/Biosolids Generation

Solids are collected at six locations in the treatment process: the aerated holding tanks, rotomat screens, grit chamber, primary clarifiers, final clarifiers, and filter presses. The screenings and grit from the rotomat screens and the grit chamber are sent to the Pottstown and/or Tullytown Landfills. The solids from the clarification tanks, holding tanks, and the presses are digested in anaerobic digesters to reduce mass. After digestion, the remaining solids pass through a press with the resulting “cake” being sent to the Pottstown and/or Tullytown Landfills for disposal.

3.2.2 Wastewater Conveyance Authorities

There are several conveyance authorities in the region that operate systems in Chester-Ridley Creek Service Area. These authorities include the Middletown Township Sewer Authority, the Southern Delaware County Authority, and the Upper Providence Township Sewer Authority.

Middletown Township Sewer Authority

Middletown Township Sewer Authority (MTSA) was incorporated in July, 1966, and has been historically delegated with the responsibility of developing and implementing all plans for sewage facilities as directed by Township Council. MTSA is currently a “lease back authority” and provides conveyance of wastewater, oversight of alternative disposal facilities, and sewer planning in the Township. MTSA transports most of its wastewater flows to SWDCMA. SWDCMA’s BRPCP currently treats 7,240 EDUs from Middletown Township, with an additional 372 units expected over the next five years. The total flow discharged to the BRPCP by the MTSA in 2009 was 1.48 MGD (MTSA Chapter 94 Report, March, 2010). Elwyn, Inc. is serviced by AQUA’s Media STP along with 15 residential and church EDUs on Middletown Road. The MTSA has a service contract with AQUA, which is assigned to Elwyn, Inc. for administration.

Southern Delaware County Authority

Southern Delaware County Authority (SDCA) was formed by Upper Chichester Township in 1954 and has five Board members. Bethel Township contracts to convey flow through the SDCA system. The Authority’s service area covers portions of the Marcus Hook

Creek, Naamans Creek, and Bezor's Run watersheds. It maintains 65 miles of sewers and five interceptors. Currently, only 613 equivalent dwelling units (EDUs) from SDCA's collection system are treated at SWDCMA's BRPCP. SDCA has no further development planned which would be treated at SWDCMA's BRPCP. Most of the remainder of SDCA's flows are directed to DELCORA's WRTP, with a small portion currently conveyed to New Castle County Department of Special Services for treatment.

Upper Providence Township Sewer Authority

Upper Providence Township Sewer Authority (UPTSA) was formed in 1979. UPTSA does not operate any treatment facilities itself, but acts as a collection and conveyance authority and regulator of on-site disposal systems. Upper Providence Township became a member of the Central Delaware County Sewer Authority in March, 2009.

Wastewater from most of the sewered areas in Upper Providence Township is transported to the Aqua Pennsylvania, Inc. Media WWTP. In the remaining areas of Upper Providence Township, several single residences are individually connected to Central Delaware County Authority's and Rose Valley Borough's sewer systems. One community treatment facility (Tofts Woods Treatment Plant) is operated and maintained by a private contractor. UPTSA is undergoing an aggressive program to provide public sewage collection and treatment to all unsewered areas within the township. No new flows to the BRPCP will result from the program, which is expected to be completed by 2014. Flows coming from 219 EDUs in the small area in Upper Providence Township just south of Media Borough are conveyed via the Middletown Township Sewer Authority to SWDCMA's BRPCP. The UPTSA reported that the only increase in future flows could be from one or two new residences as a result of infill development.

3.2.3 Other Municipal Sewer Systems

Chester Heights Borough

Most wastewater treatment in Chester Heights Borough is by small community treatment systems or on-site disposal systems. The wastewater generated by approximately 25 residences in the Rolling Heights development, four homes on Bodley Road and several homes on Lenni Road in the southeastern portion of the Borough is conveyed via SWDCMA and MTSA lines to the BRPCP for treatment.

Chester Township

Wastewater generated in the southern portion of Chester Township is treated at DELCORA's WRTP. Flows from the northern portion of Chester Township are treated at SWDCMA's BRPCP.

The SWDCMA July, 1999 EDU Summary reported 982 residential, 121.1 commercial, and 206.6 industrial EDUs, resulting in a total of 1310 EDUs flowing to the BRPCP from Chester Township.

Edgmont Township

Most wastewater from Edgmont Township is treated by small community treatment systems or on-site disposal systems. Wastewater from the northeast portion of Edgmont Township is conveyed to DELCORA via the Central Delaware County Authority (CDCA). There are 21 approved dwelling units in the planning stages which would connect to MTSA's conveyance system and be treated at SWDCMA's BRPCP once they are constructed. Wastewater from any future development of the Sleighton Farm School property, located in both Middletown and Edgmont Townships, would also require conveyance via MTSA and treatment at the BRPCP.

CHAPTER 4.

EVALUATION OF WASTEWATER TREATMENT NEEDS

4.1 INTRODUCTION

One of the most important components of a sewage facilities plan is an analysis of sewage treatment needs. While most of the Chester-Ridley Creek Service Area is serviced by the public sewer system, certain areas still rely on individual on-lot subsurface treatment systems.

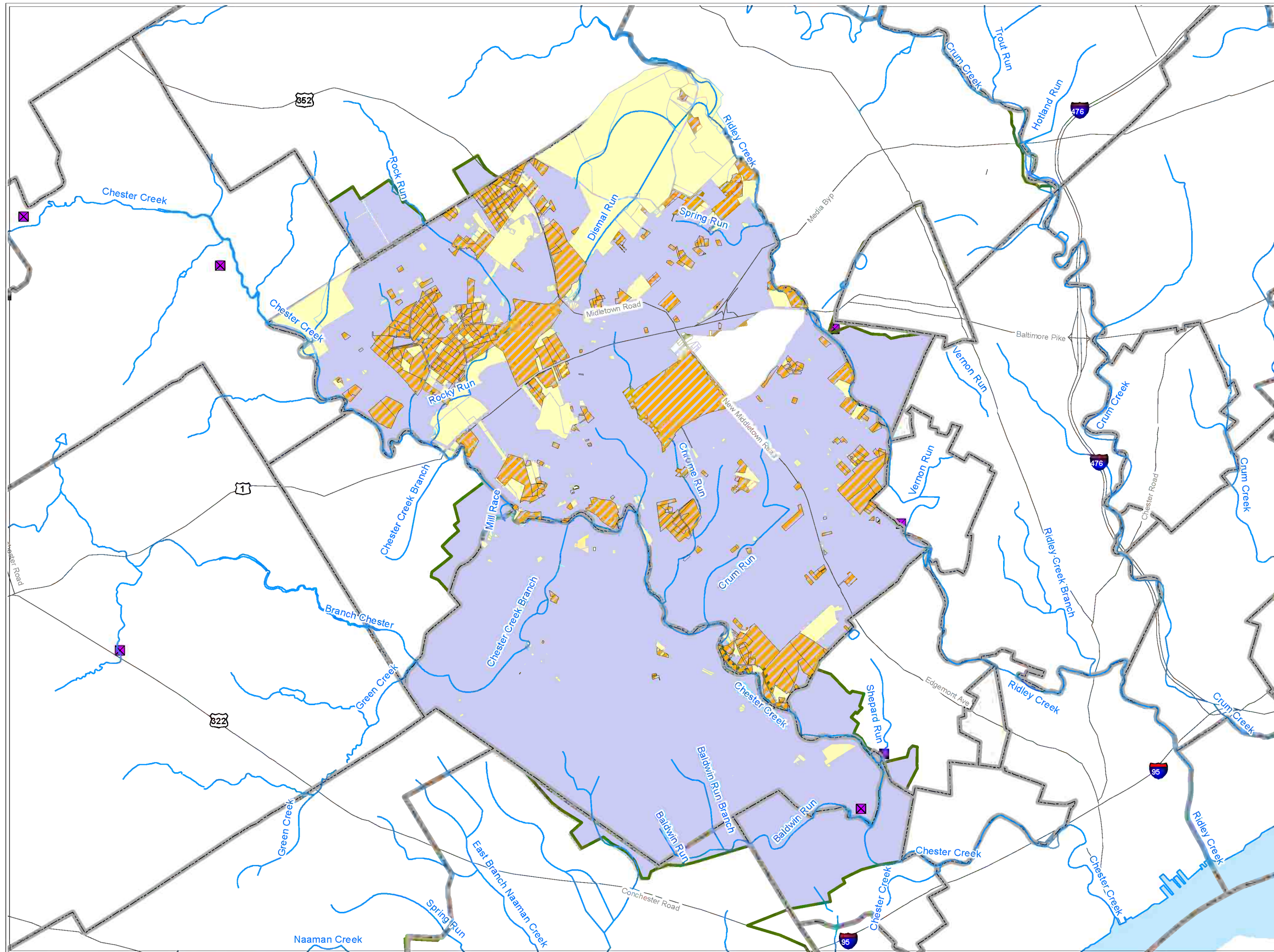
4.2 ON-LOT SUBSURFACE SEWAGE DISPOSAL SYSTEMS

The SWDCMA matched County tax folio numbers with billing and service addresses to identify parcels that are not being serviced by the public system. The results of this evaluation yielded approximately 66 improved properties that are not currently serviced by SWDCMA. A GIS database containing addresses and tax parcels was provided by the Delaware County Planning Department and the addresses were matched to the tax parcel numbers. In most cases the parcels are located too far from a sewer main to make connection practical. There are also undeveloped properties that may connect in the future; however, without knowing if any are able to subdivide, an accurate estimate of potential flows from future development is not available.

The locations of parcels within Middletown Township that are either vacant ground or serviced by OLDS were obtained from the MTSA.

Figure 4-1 presents a map of the parcels within the SWDCMA service area that remain reliant on on-lot systems. Parcels that could be developed and may either connect to the public system or rely on on-lot systems are also shown in Figure 4-1.

The PADEP recommends a sewage management plan to monitor the maintenance and condition of the on-lot systems if they cannot connect to a public treatment system. A sewage management plan includes mandatory inspections and may include mandatory pumping out and disposal on a routine basis.



Legend

- Municipal Boundaries
- Authority Boundary
- Treatment Plant
- SWDCMA Service Area
- Parcels Not Connected to BRPCP
- OLDS

Disclaimer: This map is for analytical purposes only. The reliability of this map depends on the accuracy of the underlying data sources which have not been verified.

Data Source:
- Pennsylvania Spatial Data Access (PASDA)
Web Site, <http://www.pasda.psu.edu>

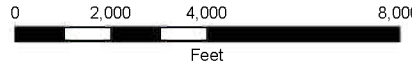
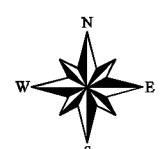


Figure 4-1
On-Lot Disposal Systems

4.2.1 Location of On-Site Systems Within the Chester-Ridley Creek Service Area

Aston Township

Most of Aston Township is serviced by public sewers. Only about 1% of homes and businesses use individual on-lot systems. Community on-lot systems account for another 1% of residences and businesses. Most on-lot facilities are located in the northwestern part of the Township along Mount Road and in the southeastern part along Duttons Mill Road. These facilities do not show any signs of problems at the present time; however, the age of the systems is a concern.

Brookhaven Borough

There are no on-lot disposal systems (OLDS) within the Chester Ridley Service Area in Brookhaven Borough.

Chester Heights Borough

Large parcels within the Chester-Ridley Creek Service Area in Chester Heights Borough use OLDS. There are five smaller, older properties within the service area that use OLDS and may have limited ability to locate a replacement site in the event of failure due to the small lot size. There have been no complaints and there are no known failing OLDS within the Chester-Ridley Creek Service Area.

Edgmont Township

The Chester-Ridley Service Area within Edgmont Township includes an approved subdivision that will connect to the MTSA collection system when it is built. The area is currently serviced by OLDS. There have been no complaints regarding malfunctioning OLDS within the Chester-Ridley Service area in Edgmont Township.

Middletown Township

Most of Middletown Township is sewerred, with only about 2% (about 350 homes) using on-lot systems. Areas within Middletown Township where OLDS still exist are shown on Figure 4-1. There are no community on-lot systems. Problems with existing OLDS include an office building opposite Elwyn Road that is having wet-weather problems. The owner is currently designing a Low Pressure System (LPS) for connection to the Williamson School gravity system.

Linvilla Orchards has installed an LPS as part of a new Land Development Plan which will phase out existing OLDS. A known malfunction is an unoccupied house on W. Forge Road. The house is in foreclosure. The proposed project in Edgmont that is supposed to connect 21 lots to MTSA's system will provide a LPS connection to the house on W. Forge along with 36 other parcels.

Tie-in of all residences located within 150 feet of public sewer connection is mandatory in conformance with the Mandatory Connection Ordinance (Section 180-2 of the Code of the Township of Middletown). LPS, in conjunction with directional drilling provides options to some property owners with OLDS. Force mains can now be installed for approximately 1000 feet without open trenching; making it easier for neighbors to work together to obtain rights-of-way to access public sewer lines.

Upper Chichester Township

Upper Chichester is practically built out. Less than 1% of all residences and businesses are served by on-lot sewer systems, and there are no known community on-lot systems. Whenever existing on-lot systems are found to experience problems due to their age, poor soils, or lack of maintenance, they are connected to nearby public sewer where available. Very limited, isolated areas along the U.S. Route 322 corridor do not have direct access to public sewer. Many of these sections could connect if required through the use of grinder pumps with long lines, long gravity extensions, or extensive work within the state highway. However, this could prove costly for isolated single residences.

Upper Providence Township

An area of approximately 0.39 square miles within Upper Providence Township is within the Chester-Ridley Creek Service Area. Upper Providence Township is actively developing its public sewer system to provide public wastewater treatment to the entire township by the year 2014. No flows from the public sewer expansion program will be directed to the Chester-Ridley Creek Service Area. There may be one or two additional residential connections in the future as a result of infill development.

4.2.2 On-Site System Management and Maintenance

Septic tank cleaning and septage hauling services are privately contracted by homeowners. Sewage sludge in western Delaware County is generally hauled to SWDCMA, DELCORA, or other permitted WWTPs for disposal. However, municipalities have no requirements for disposal destinations or hauling records. In the near future, PADEP may require municipalities to take a more active role in monitoring on-lot septic systems or require that septic systems be routinely inspected. Also, many townships do not require homeowners to perform any maintenance on their on-lot system or keep track of maintenance records. PADEP has been working for the last five years on revising regulations that govern on-lot septic systems. The new regulations, if they are approved, will go beyond encouraging municipalities to have a septage management plan. Municipalities will need to know the elements of newer septic systems and ensure they are working properly.

Existing regulations governing septage haulers and competition among the haulers have created an industry of environmentally responsible service providers. The haulers have to report their loads to DEP in the licensing process.

Middletown Township sends a ‘welcome basket’ of information to new residents which includes educational material on OLDS. The Middletown Township building inspectors, fire marshal, zoning officer, sewage enforcement officer and sewer authority personnel are always on the lookout for problem systems and spend time working with residents on how protect, maintain, correct, or eliminate OLDS. Many real estate transactions include the installation of a new septic system, since it is difficult to certify the performance of the expected life of an existing system.

4.3 ON-SITE SYSTEM PROBLEM AREAS

There are only three malfunctioning OLDS reported within the Chester-Ridley Creek Service Area. The reported malfunctioning OLDS are being resolved as described in Section 4.2.1 of this report. Due to stricter on-lot guidelines, many of the older systems will likely be replaced by modern facilities during the resale of residential properties.

4.4 ILLEGAL SEWAGE DISPOSAL SYSTEMS

None of the municipalities surveyed indicated that they were aware of any wildcat sewers in their municipalities. Aston Township investigates illegal sewage connections at the time of issuance of the Certificate of Occupancy. Middletown Township has an ordinance prohibiting the connection of roof leaders, foundation drains, and sump pumps to a building sewer connected to the public sewer system. The MTSA requires a signed Sewer Drain Report prior to any real estate transfer. Any illegal pumps or drains must be removed from the system prior to issuance of an account status letter to the title company. This program has been in place for approximately 15 years, with an average of 110 properties surveyed per year.

CHAPTER 5.

PLANNING OBJECTIVES AND NEEDS

5.1 INTRODUCTION

This Chester-Ridley Creek Service Area Sewerage Facilities Plan follows a long history of wastewater facilities planning in the Chester-Ridley Creek Service Area. Planning efforts have continued since each of Delaware County's 49 municipalities adopted the *Delaware County Sewerage Facilities Plan* as their Official Act 537 Sewage Facilities Plan in 1971.

Land use, water supply, and stormwater plans with potential for impacting wastewater planning have also been prepared over nearly forty years, and municipalities have enacted zoning and subdivision/land development ordinances to carry out local planning objectives. Therefore, the purpose of this section is to identify, describe, and compare the planning that has taken place, report progress in implementation, compare various planning efforts to determine consistency or conflict, and define planning needs.

The wastewater planning documents discussed below are presented in historical context only. While many of the recommendations were implemented or are still valid, some are currently considered out of date due to changes in conditions unforeseen during development of those documents.

5.1.1 Wastewater Planning Previously Undertaken

Considerable wastewater planning has taken place since the approval of the 1971 *Delaware County Sewerage Facilities Plan*. This planning has occurred at all levels of government including federal, regional, county, and local municipal levels. Table 5-1 provides a brief history of wastewater planning from 1928 to 2010 affecting the Chester-Ridley Creek Service Area.

Table 5-1
History of Wastewater Planning in Delaware County

1928 - 2010

Year	Event
1928	Delaware County Board of Engineers formed to evaluate the County's sewage facility needs.
1931	Board of Engineers' report recommends construction of six sewage systems: Darby Creek Joint, Muckinipates, Central Delaware County, Eddystone, City of Chester, and Marcus Hook. All recommendations were implemented by 1960.
1931-1967	Planning by individual municipalities leads to construction of the Radnor-Haverford-Marple (RHM), Tinicum, Media, Rose Valley, Brookhaven, and Southwest Delaware County systems.
1967	Passage of Act 537, the Pennsylvania Sewage Facilities Act. Requires all municipalities to prepare a ten-year sewage facilities plan to address their needs. Following a Pennsylvania Department of Health (PDH) recommendation, all 49 municipalities in Delaware County pass resolutions authorizing the Delaware County Planning Commission (DCPC) to prepare a County sewage facilities plan.
1971 (Jul)	Delaware County Sewerage Facilities Plan identifies needs and recommends a regionalized sewer system for as much of the County as possible.
1971 (Oct)	Delaware County Regional Water Quality Control Authority (DELCORA) is created by the Delaware County Commissioners to implement the recommended plan and is given the authority to finance, construct, and operate all interceptor systems, pumping stations, and treatment plants in the County except (1) the Upper Darby-Haverford system (which discharges directly to the City of Philadelphia network) and (2) the Bethel Township Sewer Authority system (which discharges to New Castle County). Municipal agencies retain control of local collection systems except for the Chester City, Parkside, and Upland collection systems operated by DELCORA.
1972 (Nov)	<i>Delaware County Regional Sewerage Project</i> report by Albright and Friel, division of Betz Environmental Engineers (analysis performed in 1971).
1972	Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act) Extensive regulatory and grants program for planning, design, and construction of wastewater control facilities. Section 303 of this Act established water quality standards and the calculation of total maximum daily loads (TMDLs) that a water body can receive and still meet water quality standards.
1974	In response to the Pennsylvania Clean Streams Law, the Pennsylvania Department of Environmental Resources (DER) begins to develop the Comprehensive Water Quality Management Plan for Southeastern Pennsylvania (COWAMP).
1975	Governor designates the Pennsylvania portion of the Philadelphia SMSA as a 208 study area, making the region eligible for a federal area-wide waste treatment management planning grant. With receipt of federal funds, the COWAMP and 208 programs are merged to become the COWAMP/208 Plan, with a goal of comprehensive evaluation of water quality. Existing plans already being implemented for the Regional Sewerage Project were accepted as part of the COWAMP program.
1977	Clean Water Act: 1977 Amendments to the Federal Water Pollution Control Act. Provides additional funding authorization, institutional changes, and a shift in technical emphasis to favor new waste treatment technology and control of toxic pollutants.
1978	Draft <i>COWAMP/208 Water Quality Management Plan</i> completed. Suggests alternatives for addressing sewerage needs of the upper Ridley Creek and Crum Creek watersheds and the Chester Creek watershed, but no single alternative is selected.
1979	<i>Supplement No. 1 to COWAMP/208 Water Quality Management Plan for Southeastern Pennsylvania</i> . Contains post-publication additions and corrections to the COWAMP/208 plan, including several major changes in recommendations for Delaware County.
1985	EPA issued regulations that implemented Section 303(d) of the Clean Water Act.
1987	Water Quality Act of 1987: amends Federal Water Pollution Control Act. For Delaware County, some of the more significant provisions include creation of (1) a program providing grants to states for establishing water pollution control revolving funds, and 2) the National Estuary Program, with Delaware Bay given priority consideration.

Year	Event
1988	PENNVEST. State legislation creating a revolving fund to provide loans and grants for water and wastewater facilities. Referendum approved to provide funding.
1989	National Combined Sewer Overflow (CSO) Control Strategy was published by EPA as a first step in controlling CSOs.
1990	EPA Phase I of the NPDES Stormwater Program addressed the negative impact of stormwater runoff on water quality. Municipal separate storm sewer systems that serve populations of 100,000 or more, eleven categories of industrial activities, and construction activities disturbing 5 acres or more were required to obtain NPDES permit coverage.
1992	EPA issues current TMDL regulations that included a 2-year listing cycle for states to list impaired and threatened waters, a TMDL must include point and nonpoint sources, TMDLs are subject to public review, etc.
1994	CSO Control Policy issued by EPA to provide guidance that would coordinate the planning, selection, design, and implementation of CSO management practices and controls to meet the requirements of the Clean Water Act.
1999	Phase II of the NPDES Stormwater Program was published by EPA requiring permit coverage for certain small municipal separate storm sewer systems and construction activities between 1 and 5 acres.
2000	EPA published revised regulations for the implementation of TMDLs. In 2001, began to reexamine the published rule and after consulting with stakeholders, began to redraft the rule. On March 19, 2003, EPA withdrew "Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation" or what was referred to as the "July 2000" rule.
2004	Municipalities adopted the updated Act 537 Plan for the Western Region
2009	PADEP approved Act 537 Sewage Facilities Plan Revision for Rerate of the Western Regional Treatment Plant.
1971-2010	Municipalities within the Chester-Ridley Creek Service Area continue to update individual Act 537 Plans as detailed in Section 5.2 of this report.

Source: Adapted from DCPD, 2002; Weston Solutions, Inc., 2003

5.1.2 Federal Wastewater Planning

At the federal level, EPA has provided incentives for regional and area-wide planning. The Construction Grants Program (Federal Water Pollution Control Act, P.L. 95-500, and its implementing regulations) provided funds for required area-wide facilities or "201" plans (Step 1) prior to funding wastewater facilities design (Step 2) and construction (Step 3). This program was subsequently delegated to the Pennsylvania Department of Environmental Resources (DER), now DEP. The program, with its related planning requirements, continued through amendments contained in the Clean Water Act (1977) and the Water Quality Act of 1987, although at lower funding levels than in previous years. The 1987 Act cut construction grant funding back even further, but at the same time added a new Section 601, "Grants to States for Establishment of Revolving Funds," which provides for loans to finance facility planning (and design and construction) and limited funds for area-wide planning. Today this state-level program is known as the Pennsylvania Infrastructure Investment Authority (PENNVEST). Table 5-2 lists recent PENNVEST loans and grants in the Chester-Ridley Creek Service Area.

Table 5-2**PENNVEST Loans to Southwest Delaware County Municipal Authority (1993-2009)**

Project Name	Project Type	Date of Approval	Amount	Project Description
Southwest Delaware County Municipal Authority	Municipal Authority-Sewer	3/24/99	\$758,733	Rehabilitation and replacement of approximately 8,500 feet of sanitary sewer lines subject to I&I in various locations
Southwest Delaware County Municipal Authority	Municipal Authority-Sewer	11/10/93	\$2,548,750	Extension of collection system into the Northwest portion of Aston Township.

Source: PENNVEST website, <http://www.pennvestportal.state.pa.us/projectsearch/projectmap.aspx>, 2010

In 1974, DER began work on a Comprehensive Water Quality Management Plan for Southeast Pennsylvania (COWAMP) under Pennsylvania's Clean Streams Law. This work and federally initiated planning under Section 208 of the Water Pollution Control Act were merged, and the combined COWAMP/208 Plan was published in draft form in 1978 and supplemented in 1979. The plan was intended to serve as a guide to wastewater planning in southeastern Pennsylvania. While the plan was unable to reach consensus on recommended actions for specific geographic areas in Delaware County, other than to recommend additional "201" facilities planning studies, it did provide policy guidance. Although the plan recognized that public sewers would continue to be a viable solution for wastewater problems in many areas, its emphasis was also focused on alternative "non-sewer" methods of wastewater disposal. Land application and the maintenance and management of on-lot sewage disposal systems (OLDS) were stressed as considerations for future planning.

Section 303 of P. L. 92-500 provided for planning for an even larger area, and the *Delaware River Basin Comprehensive Study* was partially funded by that program. With the 1987 amendments to the Act, the Delaware Estuary was given special attention, and planning efforts began to identify the full spectrum of needs related to this major water resource.

5.1.3 State/County Wastewater Planning

On January 24, 1966, the Pennsylvania Sewage Facilities Act (Act 537, as amended) was enacted to correct existing sewage disposal problems and prevent future problems. Act 537 requires municipalities to prepare 10-year plans to address their sewage facilities needs. As recommended by the Pennsylvania Department of Health (PDH), all 49 municipalities in Delaware County passed resolutions authorizing DCPC to prepare a County sewage facilities plan on their behalf. The resulting 1971 *Delaware County Sewerage Facilities Plan* identified needs and recommended a regionalized sewer system for as much of the County as possible.

5.1.4 Delaware County Regional Sewerage Project

As a follow-up to the 1971 *Delaware County Sewerage Facilities Plan*, detailed engineering studies were undertaken for the County by Albright and Friel, a division of Betz Environmental Engineers, resulting in the 1972 report, *Delaware County Regional Sewerage Project*. The report divides the County into two service areas: the predominantly sewered area east of Crum Creek and the western area that includes the Chester and Ridley Creek watersheds

and the upper Crum Creek watershed above the Geist (Springton) Reservoir. While the lower portions of the watersheds were largely sewerred and included major wastewater producing industries, the upper portions were largely unsewered, with high growth potential.

The Plan recommended conveying wastewater from Radnor-Haverford-Marple Sewer Authority (RHM), Darby Creek Joint Authority (DCJA), Muckinipates, Tinicum, and Central Delaware County Authorities (CDCA) to an expanded and upgraded Philadelphia Southwest Water Pollution Control Plant (PSWPCP) for treatment. For the remaining portions of the County, it recommended conveying all wastewater to an existing upgraded and expanded plant in Chester City for treatment, as well as gradual phase out all other treatment facilities, including nineteen institutional plants. Implementation was to occur by 2020, in four stages. It recommended creation of a County-level sewer authority in Phase I to implement the recommended plan and to assume responsibility for its continued operation. The resulting County-level authority was the Delaware County Regional Water Quality Control Authority (DELCORA). Following approval by the Delaware County Commissioners at a public hearing, the PA Department of Environmental Resources (DER, now PADEP) accepted this report as a guide to the design of wastewater facilities in the study area. [Note: This Chester-Ridley Creek Watershed Plan Update fulfills the plan requirement by phasing out the Baldwin Run Pollution Control Plant (BRPCP)].

Municipalities in the western portion of the County have prepared, adopted, and received DEP approval for complete updates or major revisions to their Act 537 Plans. Since 1972, the single most significant Countywide sewage facility planning effort has been the *Delaware County Act 537 Sewage Facilities Plan, Western Plan of Study*, which was approved in 2004 by the following municipalities:

- Aston Township
- Bethel Township
- Brookhaven Borough
- Chadds Ford Township
- Chester Heights Borough
- Concord Township
- Edgmont Township
- Media Borough
- Middletown Township
- Rose Valley Borough

- Newtown Township
- Thornbury Township
- Upper Chichester Township
- Upper Providence Township

The 2004 Western Plan of Study recommended regional balancing of treatment facilities capacity to transfer flows to facilities with adequate capacity. The study concluded that, due to high costs, increasing treatment capacity through the development of new facilities should be considered as a last alternative. Phasing out the BRPCP is in line with the recommendations in the 2004 Western Plan of Study.

5.1.5 Municipal Wastewater Planning

Since the preparation of the 1971 *Delaware County Sewerage Facilities Plan*, numerous municipal sewerage feasibility studies and facilities plans have been prepared. The recommendations of these studies and plans and the responses of various local regional, state, and even federal agencies to those recommendations have shaped the specific components of the County's sewage facilities network over the past thirty years.

The following section summarizes local planning efforts in the Chester – Ridley Creek Service Area municipalities in the context of County and regional plans and in accordance with state and federal regulatory requirements.

5.2 WASTEWATER PLANNING IN THE CHESTER – RIDLEY CREEK SERVICE AREA

5.2.1 Details of Individual Municipal Wastewater Planning Documents in the Chester – Ridley Creek Service Area

The following is a brief description of previous and current planning documents created by municipalities in the Chester – Ridley Creek Service Area.

Aston Township

Aston Township is almost entirely served by sewers owned by SWDCMA. The Township's Act 537 Plan (along with Upper Chichester Township and Chester Heights Borough) was prepared by SWDCMA and approved by DEP in 1997. The plan addressed a new conveyance system in northwestern Aston Township. Intermunicipal cooperation among Aston, Chester Heights, and Upper Chichester and implementation of "sub-regional" public sewage

facilities planning are also discussed. The most recent Act 537 Plan is dated October 11, 2006 and lists no future planning considerations. A corrective action plan for the Baldwin Run Pollution Control Plant was prepared in 2002 to alleviate overloading problems. The plan calls for general maintenance, a grouting program, and plant upgrades to help maintain the plant's flows within the permitted capacity of 6 MGD.

Brookhaven Borough

Several formal Act 537 Plans were adopted in Brookhaven Borough in the past thirty years, including one prepared in 1989 and submitted in 1990 as an appendix to the SWDCMA plan. An update to the Brookhaven Borough Act 537 Plan was approved by DEP in 1998. This update evaluated upgrading the Brookhaven WWTP as well as the possibility of treatment of additional flows by SWDCMA as possible alternatives for the improvement of wastewater management. Upgrade of the Brookhaven WWTP was selected as the most viable and beneficial solution to Borough residents and the environment. The most recent Act 537 plan was approved on October 11, 2006.

Chester Township

According to the PADEP website, the latest Act 537 Plan for Chester Township was approved on 26 March 1991. Chester Township is included in the Act 537 Plan Sewage Facilities Plan Update Eastern Plan of Study (DCPD, 2002). It was adopted by Chester Township on March 7, 2002.

Chester Heights Borough

The first Chester Heights Borough Act 537 Plan was, in fact, the 1972 *Delaware County Regional Sewerage Project*, adopted in 1976. This plan called for most of the Borough to be sewerred following trunk lines along Chester Creek and the West Branch of Chester Creek. A majority of the recommendations of this plan were not implemented. A later Act 537 Plan Update was prepared for Chester Heights Borough (along with Upper Chichester and Aston) by SWDCMA and approved by PADEP in 1997. The Plan recommended the extension of the SWDCMA service area to accommodate additional Chester Heights sanitary flow and to reduce the potential for future public health concerns that are sometimes related to aging on-lot disposal systems. The most recent Act 537 Plan was approved on May 2, 2003.

Edgmont Township

Edgmont Township's official Act 537 Sewage Facilities Plan was approved by PADEP on February 25, 2004. An Act 537 Special Study Plan for the Crum Creek Watershed was approved by PADEP on February 6, 2009. Under this approved Plan, Edgmont Township became a member of the Central Delaware County Authority (CDCA). DELCORA will be working with the township to design and construct collection and conveyance facilities to convey up to a total of 350,000 gpd through CDCA's sewage conveyance system to the WRTP. Flows from the CDCA Crum Creek Interceptor can be diverted to the PSWPCP in Philadelphia. Edgmont Township has prepared a 2010 Special Study to further develop and evaluate methods for collection and conveyance to the CDCA system.

The only proposed flows from Edgmont Township in the Chester-Ridley Service Area originate in an approved 21-lot residential subdivision located near the Middletown Township boundary. A projected flow of 60,000 gpd from possible development of the Sleighton Farms property has been included in the planning design of alternative sewage facilities in this plan. All other flow from Edgmont will eventually be directed to the CDCA conveyance system.

Middletown Township

In May 2000, Middletown Township Council authorized MTSA to update the Township's Act 537 Plan with special attention paid to the future demands on the interceptor sewers. The plan addressed growing sewer needs due to increasing population, I/I issues, and the unsuitability of many areas for OLDS. The Plan also questions the compatibility of the SWDCMA treatment facility with population forecasts for the area. Proposed alternatives include public sewer service where financially feasible and environmentally necessary, while continuing use of OLDS for single dwellings in remote low-density locations. The Plan also addresses measures for inflow and infiltration (I/I) reduction. An Act 537 Plan Update was approved on 11 October 2006 and includes recommendations for installation of a low pressure collection system and extension of the public sewer system along Valley Road, Darlington Road, and New Darlington Road.

Upper Chichester Township

An Act 537 Plan prepared by SWDCMA in 1997 that discusses additional flow and I&I issues and recommends extension of the SWDCMA Woodbrook PS service area in Upper

Chichester Township. The plan also addresses inter-municipal cooperation in the area and recommends that it be continued and strengthened.

SDCA was faced with service expansion constraints in 2001 due to DEP imposed new connection limitations at SWDCMA's Baldwin Run Pollution Control Facility. The SDCA evaluated its sewage planning on behalf of Upper Chichester Township in 2002. In October 2002, an Act 537 Plan Update that recommended bypassing additional SDCA flows from SWDCMA to DELCORA by means of existing infrastructure that allows for opposite direction flows was implemented. The pump and force main serving this function was constructed and is operational. The most recent Act 537 Plan was approved by PADEP on 11 October 2006.

Upper Providence Township

Upper Providence Township's Act 537 Plan was approved by PADEP on February 6, 2009. In 2009, the Sewer Authority approved a project to provide public sewers to the entire township. No flows from the sewer extension project will be directed to the BRPCP.

5.2.2 Other Related Planning

In the last few decades, government and public organizations in the planning area prepared numerous reports that directly or collaterally address wastewater issues in the last several decades. Some reports were prepared pursuant to state regulations while others were dedicated to specific projects.

Stormwater management planning under Pennsylvania Act 167 has either been completed or is underway in many of Delaware County's watersheds. An Act 167 stormwater management plan (SWMP) for the Ridley Creek watershed was prepared in 1988, and a plan for the Chester Creek watershed was completed in 2003. Act 167 SWMPs for Darby-Cobbs Creek watershed was completed in 2005 and the Crum Creek Watershed Act 167 study will be completed in 2010. All of the SWMPs with the exception of Ridley Creek, which was prepared before stormwater quality requirements took effect, require municipal adoption of a model ordinance that includes criteria for determining pre- and post-development runoff rates, performance standards for managing stormwater runoff, criteria for stormwater management system design, water quality control criteria, and groundwater recharge requirements.

5.3 LAND USE PLANNING AND REGULATION

To ensure proper development and alleviate growth pressures, municipalities are “enabled” to adopt planning documents pursuant to the MPC, Act 247 of 1968, as amended. These planning documents include comprehensive land use plans, zoning ordinances, and subdivision/land development regulations.

One of the main reasons for examining these documents while preparing the sewage facilities plan is to establish the interrelationships between the need for sewers and the existing and proposed land uses within each municipality. Conversely, one might expect that many of the proposed land uses within a municipality would be predicated upon the availability of sewage collection and treatment facilities. While this was once the case in remote areas, it now appears that a lack of existing public infrastructure can be overcome through both innovative technology as well as private funding for new sewage facilities.

As previously discussed, Act 537 requires municipalities to adopt sewage facilities plans for the provision of adequate sewage facilities as well as to protect water supplies. These plans should allow for a variety of treatment techniques based upon their availability, efficiency, and cost. Therefore, the task in this section is to analyze the correlation between documents adopted under Act 247 and Act 537.

5.3.1 County Planning

Act 247 requires all counties to prepare and adopt a comprehensive plan within three years of the effective date of the Act and that adopted municipal comprehensive plans be generally consistent with an adopted county plan. The existing unofficial County comprehensive plan, *Delaware County Land Use Plan 2000* (originally issued January 1976), was largely a compilation of municipal comprehensive plans and is, therefore, consistent with those plans. Only the policies section of the *Open Space, Parks, and Recreation Study* (1978), which was developed pursuant to the plan, was ever officially adopted by the County. DCPD is currently in the process of preparing a County comprehensive plan that will meet state requirements and provide the necessary guidance to both County agencies and municipalities regarding future growth, development, and redevelopment in the County. To date, the County Bicycle Plan (2009) is the only element currently adopted. The plan will recommend maintaining the existing

public sewer network and providing capacity for extension to areas in need of connection. The need for viable wastewater treatment alternatives in the developing parts of the County will be emphasized. The plan will take into account that these goals should be approached while encouraging sustainable development practices and preserving and enhancing the environment.

5.3.2 Municipal Planning

All of the municipalities within the Chester-Ridley Creek Service Area have an adopted comprehensive plan. The land uses and densities recommended in these plans were based, to a great extent, on soil suitability for OLDS and the availability of public sewers. Plans prepared in the early 1970s tend to be consistent with the County's 1971 Act 537 Plan, while some of the later plans either advocate additional sewerage studies or refer to studies already in progress. Municipal planning documents are listed in Table 5-3.

Municipal Zoning

In developing areas, municipal zoning has a great impact on density, ultimate build-out, and need for sewers to serve development that occurs in accordance with the zoning. Needed facilities to serve the various types of development depend on a number of factors, only one of which is zoning.

In developed areas of western Delaware County, such as Brookhaven Borough, Chester Township, and Upper Chichester Township, zoning is not a driving force in sewage facilities decision-making since most of these areas are already publicly sewered. Therefore, any infill, redevelopment, or even new development in these municipalities is within a relatively short distance of a public sewer system and is expected to connect to the nearest system.

**Table 5-3
Land Use Planning Documents**

Municipality	Date (Status)	Summary	Min lot size dependent on sewerage?	Inconsistencies
Aston Township	Ordinance – October 17, 1990 as amended through 1997 Map – May 19, 1997 Comprehensive Plan – November 2005 Act 537 Plan – 10/11/2006	All homes served by public sewer with exception of 66 that are scattered throughout the Township. Planning and zoning code requires installation of capped sewers where plans for public sewers are approved and a permit has been secured to provide connection within a 5-year period. Mobile home parks are required to be served by public sewer.	R1 minimum = 20,000 sq.ft. Increases to 30,000 if no public sewer and water. R2 minimum = 10,000 sq.ft., 30,000 if no public sewer and water, 15,000 if no public sewer <u>or</u> water.	June 1987 comprehensive plan contains outdated statements about increasing minimum lot sizes from 20,000 sq. ft. to 1 acre. The minimum lot size has been increased to 30,000 sq.ft. in the planning and zoning code. The August 2000 Act 537 Survey Plan shows that the only unsewered roads are sections of Pennell Road and Mount Road in the northeastern portion of the Township.
Brookhaven Borough	Comprehensive Plan – 1991 Planning and Zoning Code as amended through 2007.	Comprehensive plan calls for revision of the zoning ordinance to increase the minimum lot size of 3,500 sq.ft.	No – All of Borough is served by public sewer.	Comprehensive plan recommends closing the Brookhaven STP (Brookhaven and Bridgewater Roads). This has not yet occurred.
Chester Township	Comprehensive Plan, 2002. Subdivision and Land Development Ordinance, February, 1993.			
Chester Heights Borough	Comprehensive Plan – 1971 Comprehensive Plan – Currently in progress Subdivision and Land Development Ordinance, 1997.	PRDs must be served by community or public sewers. Mobile home parks are required to be consistent with Act 537 Plan and to connect to public sewer “if available.” PRDs must have approval of Borough Engineer for sewage treatment system.	No	

Municipality	Date (Status)	Summary	Min lot size dependent on sewerage?	Inconsistencies
Edgmont Township	Comprehensive Plan – September 20, 2000 Zoning Ordinance and Subdivision and Land Development Ordinance – December 17, 1997 The ZO and SLDO have been amended and updated every subsequent year.	Requires connection to sewers when they are available. Zoning requires PRDs to be served by public sewer.	Yes	The comprehensive plan recommends the continued use of the existing community STPs. Recommends evaluation of providing community STPs to areas of future development as part of the Act 537 Plan Update.
Middletown Township	Comprehensive Plan – March 26, 2001 Zoning Ordinance – 8/1/2009 Subdivision and Land Development Ordinance – 8/1/2009	Comp plan says 98% of dwellings serviced by public sewer. Comp plan has zoning strategies to guide development to areas of existing infrastructure. Developments required to connect to public sewers if available. OLDS must have DEP approval. PRDs must be served by public sewer.	R-2, R-3, R-4 minimum lot size is 1 acre if not served by public sewer, 0.25 acre if served by both public sewer <u>and</u> water, and 0.5 acre if served by public water <u>or</u> sewer.	
Upper Chichester Township	Comprehensive Plan – April, 2005 Zoning Ordinance – 1991 Zoning Ordinance – 1991 Subdivision and Land Development Ordinance – 1994	PRDs must be served by public sewer. SL&D ordinance requires community systems if public sewers are not available and OLDS are not feasible.	R-1 minimum area increased from 20,000 to 30,000 sq.ft if public sewer and water are not available. R-2 minimum area increased from 11,250 to 15,000 sq.ft. if public sewer <u>or</u> water are not available, and 30,000 sq.ft. if neither is available.	Comprehensive plan says that areas not presently serviced are planned to be sewer within five years.

Municipality	Date (Status)	Summary	Min lot size dependent on sewerage?	Inconsistencies
Upper Providence Township	Comprehensive Plan – October 2005. Planning and Zoning Code June, 2009	Comp plan notes problems with many failing OLDS. Requires connection to public sewer if accessible. Requires installation of sewers in conformance with Act 537 Plan. Ch. 1052 regulates community on-lot systems.	No	

Source: Municipal zoning ordinances, 2010

Generally, zoning regulations have a significant effect on development patterns, thus influencing the development of sewage systems. Many zoning ordinances include restrictions on lot sizes based on availability of public utilities (Aston, Middletown, and Upper Chichester Townships). Although Middletown Township has lot size restrictions based on zoning, large tracts of land including the Franklin Mint property and the Sleighton Farms property are currently undergoing development planning that depends on obtaining variances to the zoning ordinance. A town center concept is in the early planning stages for the Franklin Mint property. If a zoning variance can be obtained, there is potential for a hotel, commercial district, and residential development that would produce significant (greater than 700,000 gpd) additional sewage treatment demand. A zoning variance is also being sought for the Sleighton Farms property for the purposes of developing a 55+ senior living community. These zoning variances would produce sewage treatment demands that are significantly greater than estimates developed on build-out potential for existing zoning districts within Middletown Township. Chester Heights Borough also has the potential for additional residential or commercial development.

5.3.3 Details of Individual Municipal Planning Documents in the Chester-Ridley Service Area

The following is a brief description of the zoning/build-out potential as well as the sewage facility-related zoning provisions of the municipalities within the Chester-Ridley Creek Service Area.

Aston Township

Aston Township's zoning ordinance allows for a number of land uses including residential, commercial, planned business campus, shopping center, limited industrial, institutional, and open space. Residential zoning includes low-density, medium-density, high-density, townhouse, apartment, and mobile home districts. Lot sizes range from 5,000 sq. ft. to 20,000 sq. ft. for detached residential dwellings. Densities for townhouses, apartments, and mobile homes range from 6 to 12 units per acre.

The Township's subdivision and land development ordinance requires that "the developer shall provide the most effective type of sanitary sewage disposal consistent with the natural features, location, and proposed development of the site." Connection to a public sewer is listed as a preferred method of disposal, followed by the provision for a community disposal system or

treatment facility by the developer, followed by capped sewers with approved OLDS. On-lot sewage disposal is listed as acceptable but the least desirable method of disposal.

Aston Township updated its Comprehensive plan on 4 April 2005 in a joint effort with Upper Chichester and Lower Chichester Townships. The comprehensive plan includes the recommendations from the DCPD Act 537 Western Plan of Study regarding inter-municipal cooperation to effectively convey and treat wastewater. The Comprehensive Plan reports only 1% of homes in Aston Township rely on OLDS. If an OLDS fails, it is connected to the public sewer if feasible.

Brookhaven Borough

Brookhaven Borough's zoning ordinance allows for a wide range of zoning districts and associated residential and nonresidential densities. Single dwelling residential districts allow for lots ranging from 10,800 sq. ft. to 3,500 sq. ft. Residential zoning also includes several types of apartment, special, and townhouse districts with densities ranging from 4 to 17 units per acre. Other districts recognized by zoning ordinances are commercial districts of various densities, a special use district, a park-recreation district, and a floodplain district.

The Borough's comprehensive plan was prepared by DCPD in 1991. The plan indicated that as of 1990, the Borough of Brookhaven was almost entirely developed. Therefore, there was no anticipated increase in sewer volumes conveyed to three facilities: the Borough's own Brookhaven STP, the SWDCMA plant in Aston, and DELCORA's plant in Chester City. The plan recommended formalizing plans for bypassing the Brookhaven STP due to possible future problems resulting from the age of the facility. The plan also recommended that Brookhaven Borough apply for a PENNVEST loan to correct defects and problems in the existing sanitary sewer system. The Borough is currently upgrading its treatment plant.

Brookhaven Borough updated their Comprehensive plan in August 2009 in a joint effort with Parkside Borough, and Upland Borough.

Chester Heights Borough

Chester Heights Borough's zoning ordinance allows for a wide range of zoning districts and associated residential and nonresidential densities. Single dwelling residential districts allow for lots ranging from 1.5 acres to 0.75 acre. Residential zoning also includes apartment, mobile

home, and Planned Residential Districts (PRD) districts. Mobile home parks are required to have a maximum of 4 units per acre. Other districts recognized by the zoning ordinance are business, laboratory/light office use, church, school, cemetery, and communications facility overlay.

The Borough's comprehensive plan was adopted in 1971. The plan recommended utilization of small package plants for apartment and PRD zones (i.e., multi-family dwellings) until public sewage treatment becomes available. Single-family zoning was to be based on no less than 1-acre lot size to meet state objectives for proper on-lot disposal. The DCPD is currently in the process of assisting Chester Heights Borough in development of a new comprehensive plan that will address the need to undertake a municipality-level feasibility study to investigate long-term sewage facilities needs.

The Chester Heights Borough subdivision and land development ordinance of 2009 requires developers to provide connection to sanitary sewer where available and accessible.

Chester Township

Chester Township has a Comprehensive Plan dated 2002.

Edgmont Township

Edgmont Township's zoning ordinance of 1997 distinguishes several types of residential districts including rural/agricultural, rural, suburban, retirement, and planned. Lot sizes vary from 4 acres for the rural/agricultural district R-1 to 20,000 sq. ft. in the suburban residential district R-4. Retirement district R-5 is no more than 3.5 units per acre. PRD areas allow for lot sizes as small as 7,500 sq. ft. for the PRD-3 district, designed for single-family detached, duplex, or twin units. Other uses permitted by the zoning ordinance are neighborhood commercial, highway commercial, planned commercial/light industrial, planned office center, light industrial, and outdoor recreation.

The Township's subdivision ordinance of 2009 requires "dwellings and/or lots within a subdivision or land development [to be] connected with a public sanitary sewer system where accessible and available." Where sewage facilities are planned but not yet available, the developer must install facilities including laterals, force mains, capped sewers, etc. to each lot. When sanitary sewers are not to be constructed, OLDS are permitted, provided that they are

installed in accordance with state and local regulations. The landowner or developer is required to provide evidence of feasibility and satisfactory operation of the system to be utilized.

Edgmont Township's comprehensive plan of 2000 states that public sewer service areas in relation to existing needs and planned growth areas as one of its objectives. However, the plan also affirms the Township's determination to continue relying primarily on on-lot or other alternative systems for domestic waste disposal, especially in the western areas. Edgmont Township's strategy for reaching the latter goal is to "minimize infrastructure expansion on the western side of Ridley Creek State Park by relying primarily on "... on-site and other approved alternative systems for domestic waste disposal," which in turn helps to "promote groundwater recharge." The plan's recommendations are consistent with the objectives and strategies stated above and promote utilization of existing sewage systems or alternative OLDS.

Middletown Township

Middletown Township's zoning ordinance (August 1, 2009) allows for a wide range of zoning districts including a variety of single-family residential, planned retirement community, and PRD. Lot sizes range from 0.25 acre to 1 acre. Minimum lot size in the same zoning district can vary depending on availability of public sewer and water. Other districts recognized by zoning ordinances are institutional, outdoor recreation, special use, business, neighborhood shopping center, major shopping center, planned business center, office, office campus, and manufacturing/industrial. Zoning also allows for transferable development rights (TDR), a program that directs growth to preferred locations by the sale and purchase of a property's development rights.

The Township's subdivision and land development ordinance, revised August 1, 2009, requires that all subdivisions or land developments be connected to public sewers where available and accessible. If public sewers are not available immediately but are planned in the future, all necessary sewer mains and laterals shall be installed and capped. In areas with no plans for public sewer systems, a separate on-site sewage disposal facility shall be provided for each lot.

Middletown Township's comprehensive plan of 2001 notes that the Township's public sewer system is tied into an intermunicipal system with shared facilities. The plan's

recommendations proposed studies of current and future demands on the major interceptors and pump stations, implementation of an I/I elimination plan, assistance to neighborhoods in extending public sewer service to areas where it is currently lacking, and extension of the treatment agreement with SWDCMA. The comprehensive plan outlines strategies to promote a balance of developed and open areas. A low-intensity residential development category assigned to vacant parcels within areas of residential development is intended to guide housing development to areas where lots and infrastructure already exist.

Upper Chichester Township

The zoning ordinance of Upper Chichester Township distinguishes several types of residential developments, such as low-density, medium-density, high-density, townhouse, apartment, mobile home, and planned retirement community. Minimum lot sizes are 20,000 sq. ft. in the R-1 district, 11,250 sq. ft. in the R-2 district, and 5,000 sq. ft. in the R-3 and mobile home districts. Density for the townhouse district and apartment district is not to exceed 7 units and 12 units per acre, respectively. Zoning maps also show neighborhood and highway commercial districts, an industrial commercial district, and an industrial district.

The Township's subdivision and land development ordinance requires developers to provide the "most effective type of sanitary sewage disposal consistent with the natural features, location, and proposed development of the site." The preferred method of disposal is a connection to a public sewer system, followed in order of preference by provision of a community treatment facility, capped sewers with temporary on-lot facilities, and OLDS. The Township requires the connection of failed OLDS within 250 feet of public sewer.

The comprehensive plan for Upper Chichester Township was prepared in April 2005, includes the recommendations contained in the DCPD Act 537 Western Plan of Study for inter-municipal cooperation to effectively convey and treat wastewater. The Comprehensive Plan reports only 1% of homes in Upper Chichester Township rely on OLDS. If an OLDS fails, it is connected to the public sewer if feasible.

Upper Providence Township

Minimum residential lot sizes specified in Upper Providence Township's zoning ordinance range from 43,560 sq. ft. in the R-1 district to 5,000 sq. ft. for single-family residences

and 2,000 sq. ft. for apartments in the R-6 district. Lot sizes are not predicated on the availability of public water or sewer. Nonresidential districts include business, limited industrial, planned office campus, recreational, and open space.

Upper Providence Township's subdivision ordinance requires each property to be "connected to a public sewer system, if accessible." When sewers are not available but are planned for extension, the developer is required to install capped sewer laterals.

The Upper Providence Township comprehensive plan was developed in 2005. It recommended limited extension of public sewers into existing developments. It also recommended securing membership in the CDCA. In 2009, the Sewer Authority approved a project to provide public sewers to the entire Township. No flows from the sewer extension project will be directed to the BRPCP.

5.3.4 Major Inconsistencies

During the review of the existing municipal ordinances, inconsistencies noted are included in Table 5-3.

5.4 OTHER ENVIRONMENTAL PLANS

5.4.1 Water Quality Requirements

Pennsylvania regulations specifically address water quality standards in 25 Pa. Code § 93. Chapter 93 sets statewide water uses for all surface waters. The lower main stem portions of Chester Creek and Ridley Creeks are designated as Warm Water Fisheries. Higher tributaries are designated as Trout Stocking Fisheries.

Chapter 93 water quality criteria are associated with the statewide water uses listed previously and apply to all surface waters unless otherwise indicated. The criteria specify such parameters as pH, temperature, dissolved oxygen, color, bacteria count, nutrients, priority pollutants, and others.

Clean Water Act Section 305(b) requires a report on all impaired waters of the Commonwealth. Section 303(d) further evaluates these findings to determine which waters still would not support specified uses even after the appropriate required water pollution technology has been applied. Section 303(d) also establishes the total maximum daily load (TMDL)

program. In Pennsylvania, the 305 (b) report is now known as the Integrated Water Quality Monitoring and Assessment Report. The 303 (d) category is now referred to as Category 5 Waterbodies. Category 5 Waterbodies are impaired due to pollutants and require a TMDL. The 2010 Category 5 list includes portions of Chester Creek. Causes of impairment include municipal point sources and organic enrichment/low DO, nutrients, and suspended solids from package STP plants. Portions of Ridley Creek are also listed as impaired from urban runoff. Three tributaries of Chester Creek and West Branch Chester Creek that had been listed as impaired for priority organics and suspended solids were removed from the Category 5 waterbodies list in 2010.

5.4.2 State Water Plan

The Pennsylvania State Water Plan was originally developed in the 1970s and divided the state's major river basins into twenty smaller units (subbasins) for planning purposes. Most of these subbasins were further divided into watershed areas that range in size from 100 to 1000 square miles. Delaware County is located in Subbasin 3 (Lower Delaware River). Watershed Area G (Darby-Crum Creeks) covers all of the study area.

The State Water Plan was updated in March, 2009. It addressed a general understanding of water resources and examined problems and viable solutions. The plan consists of inventories of water availability, an assessment of current and future water use demands and trends, assessments of resource management alternatives and proposed methods of implementing recommended actions. The plan includes an interactive map on-line, enabling display of watershed characteristics including impaired streams, special protection waters, public water supply areas, and impervious land cover.

Watershed G, known as the Darby-Crum Creeks watershed, has an approximate drainage area of 231 square miles and also includes Ridley Creek, Chester Creek, and other tributaries flowing directly into the Delaware River Estuary from Tinicum to Marcus Hook. The watershed is characterized by a combination of point and nonpoint pollution sources, including urban runoff, stormwater management, streambank erosion, hydromodification, combined sewer overflows (CSOs), heavy industry, and commercial development. Many developments in this watershed are encroaching on floodplains, creating a flooding hazard during storm events. For

example, severe flooding occurred in the lower portions of the watershed during record rainfall from Hurricane Floyd in 1999.

5.5 CHESTER-RIDLEY CREEK SERVICE AREA SEWAGE FACILITY PLANNING NEEDS

5.5.1 General Sewage Facilities Needs

The sewage facilities needs of the Chester-Ridley Creek Service Area are to complete the phase out of the BRPCP to accommodate growth within the service area before more restrictive effluent limitations are imposed by PADEP. Upgrading existing treatment capability to meet effluent limit requirements and concurrently expanding the hydraulic capacity of the plant would be cost prohibitive and may not be possible considering the assimilative capacity of Baldwin Run.

5.5.2 Municipality Specific Sewage Facilities Needs

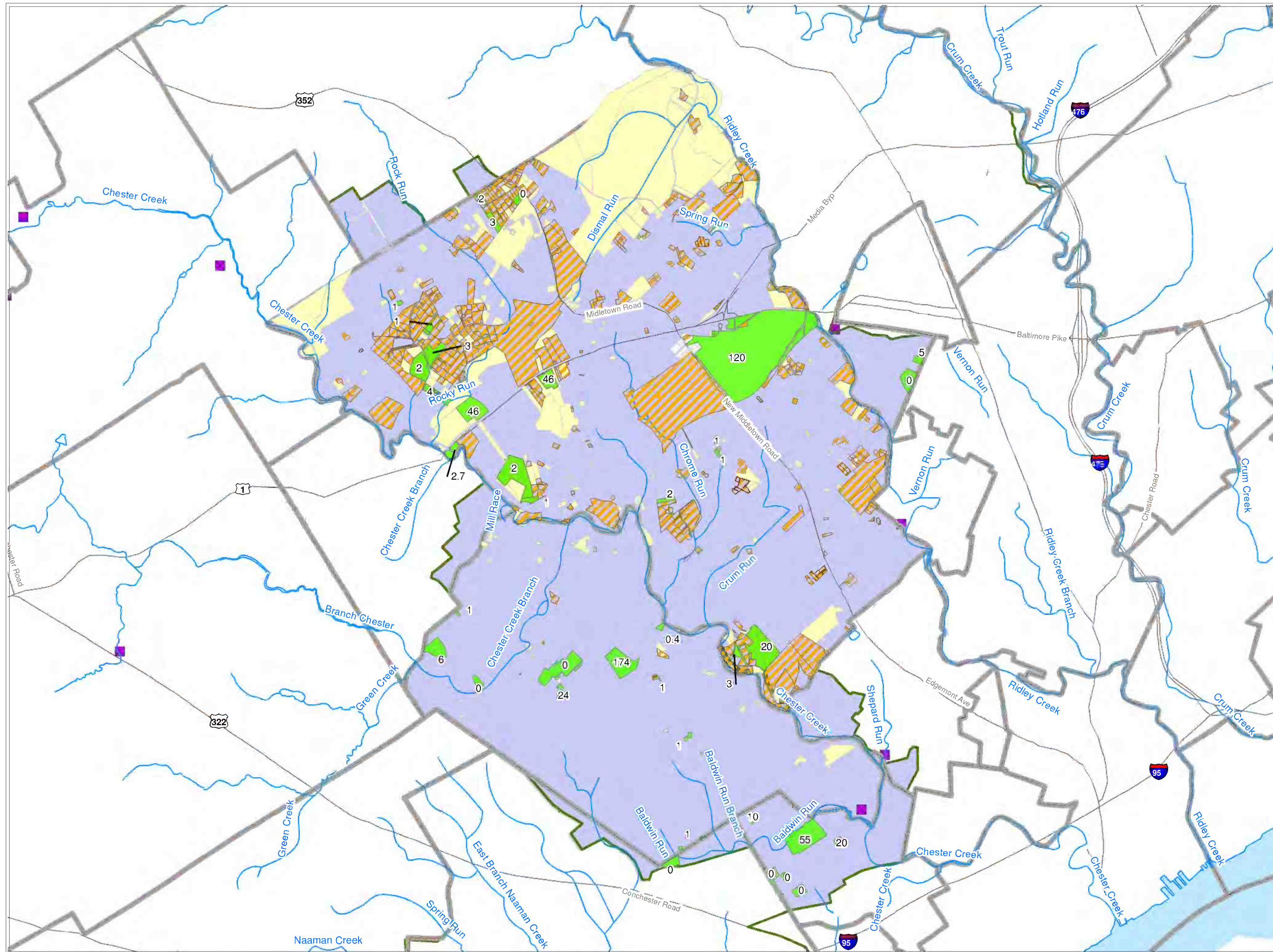
Sewage needs based upon anticipated residential population and employment growth have been projected by Delaware Valley Regional Planning Commission (DVRPC) from the Census 2000. Table 5-4 estimates the increase in sewage demand generated by the projected increases in population and employment. Areas of planned development are shown in Figure 5-1. The planning scenario presented in Table 5-4 includes the Franklin Mint property developed under the Town Center Concept and the Sleighton Farms property developed as a Senior Living Community. The 2009 and 2009 -14 Residential Sewage Demand columns were estimated from the Chapter 94 Reports for SDCA, SWCDMA, and MTSA. Where flow values were not reported for the contributing municipalities (eg. Brookhaven Borough), sewage demand was estimated by multiplying existing and future potential equivalent dwelling units (EDUs) by 262.5 gpd/edu for residential and 200 gpd for each 10 employees for commercial/industrial. An estimate of 500,000 gpd was provided for the Cintas Laundry in Chester Township.

The 2014-2035 planning scenario was extrapolated from the 2014 estimates by applying the increase in population and employment from 2015 to 2035 as a percent of the existing flows plus the projected 2014 flows derived from the Chapter 94 reports. The 2009-14 and 2014-35 columns in Table 5-4 include the incremental projected increases in sewage flows for those periods of time.

Table 5-4

Chester-Ridley Service Area Sewage Demand Growth Projection

Municipality (Authority)	2009 Residential Sewage Demand ² (ADF gpd)	2009 Com/Lt. Ind. Sewage Demand ³ (ADF gpd)	2009-14 Additional Residential Demand (ADF gpd)	2009-14 Additional Com/Lt. Ind. Demand (ADF gpd)	2014-35 Additional Residential Demand ⁷ (ADF gpd)	2014-35 Additional Com/Lt. Ind. Demand ⁸ (ADF gpd)	2035 Total Projected Sewage Demand (ADF gpd)
Aston Township ¹	1,431,251	641,824	533,688	199,325	33,404	93,368	2,932,860
Brookhaven Borough ²	162,750	0	28,613	0	2,488	0	193,850
Chester Heights Borough ³	10,238	0	3,675	0	209	0	14,121
Chester Township ⁴	263,025	500,000	0	0	4,734	59,500	827,259
Edgmont Township	Included in MTSA flow						
Middletown Township Sewer Authority (MTSA) ⁵	1,370,824	109,176	924,388	50,000	73,439	2,706	2,530,533
Upper Chichester Township (SDCA) ⁶	160,913	0	0	0	3,701	0	164,613
Upper Providence Township	Included in MTSA flow						
Chester/Ridley Service Area	3,399,000	1,251,000	1,490,364	249,325	117,975	155,574	6,663,237
Notes: ¹ Flows based on subtraction of all other municipal contributions from SWDCMA Chapter 94 report for 2009. ² Residential Demand based on 262.5 gpd/edu. EDU data obtained from Brookhaven Borough. ³ Residential Demand based on 262.5 gpd/edu. EDU data obtained by counting residences on aerial image based on Twp. Engineer's description of service area. ⁴ Residential Demand based on 262.5 gpd/edu. EDU data obtained from Charles Catania Sr. Commercial flow based on estimate by George Crum for Cintas Laundry. ⁵ Flow values from MTSA Chapter 94 Report for 2009 and correspondence with Mike Majeski. ⁶ Flows based on 262.5 gpd/edu. EDUs obtained from SDCA Chapter 94 Report for 2009, Feb. 1, 2010. ⁷ 2035 additional flows based on DRVPC projected population increase as percent of 2014 flows obtained from Chapter 94 Reports. ⁸ 2035 additional commercial flows based on DRVPC projected employment increases as a percent of 2014 flows from Chapter 94 Reports.							



Legend

- Municipal Boundaries
- Authority Boundary
- Treatment Plant
- SWDCMA Service Area
- Parcels Not Connected to BRPCP
- OLDS
- 10 Proposed Development Showing Number of EDU's

Disclaimer: This map is for analytical purposes only. The reliability of this map depends on the accuracy of the underlying data sources which have not been verified.

Data Source:
- Pennsylvania Spatial Data Access (PASDA)
Web Site, <http://www.pasda.psu.edu>

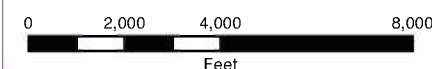
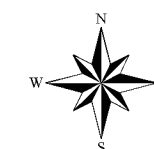


Figure 5-1
Planned Connections to the BRPCP

CHAPTER 6.

FACILITIES ALTERNATIVES AND EVALUATIONS

6.1 INTRODUCTION

This chapter presents feasible alternatives for addressing long-term sewage disposal needs in the Chester-Ridley Creek Service Area. Feasible alternatives for sewage treatment within the Chester-Ridley Creek Service Area include:

1. Upgrading treatment processes at the BRPCP to meet potential stringent effluent limitations for nutrients.
2. Construction of a pump station and force main to direct existing and future potential flows to the DELCORA's Western Regional Treatment Plant (WRTP) in the City of Chester. Three alternatives for the force main corridor between the existing treatment plant site and the WRTP are evaluated in this plan.
3. No Action. The consent order from PADEP and impending changes to effluent limits for nutrients preclude No Action as a viable option for sewage treatment in the Chester-Ridley Creek Service Area.

6.2 ALTERNATIVE 1 – UPGRADE EXISTING TREATMENT PLANT

Upgrading the existing treatment processes to meet more stringent effluent criteria for nutrients is considered an alternative solution. This section includes descriptions of the three main components that would need to be implemented for keeping the existing treatment plant as a viable long term solution.

6.2.1 Upgrade Treatment Processes

The current wastewater treatment processes include screening, primary clarification, biological treatment using activated biofilters, final clarification, and chlorination. Upgrading the existing treatment processes to include tertiary treatment for nutrient removal is the main component of this alternative. Process upgrades may include treatment with lime or chemicals to remove phosphorus, ammonia stripping to remove nitrogen, and/or activated carbon adsorption.

6.2.2 Correct Inflow and Infiltration Problems

Inflow and infiltration (I/I) has been identified as a major problem for the existing treatment plant with plant flows becoming excessive immediately after a storm event. Excessive

storm flows can reach 12 MGD or higher. An I/I abatement program is required under the consent agreement with PADEP.

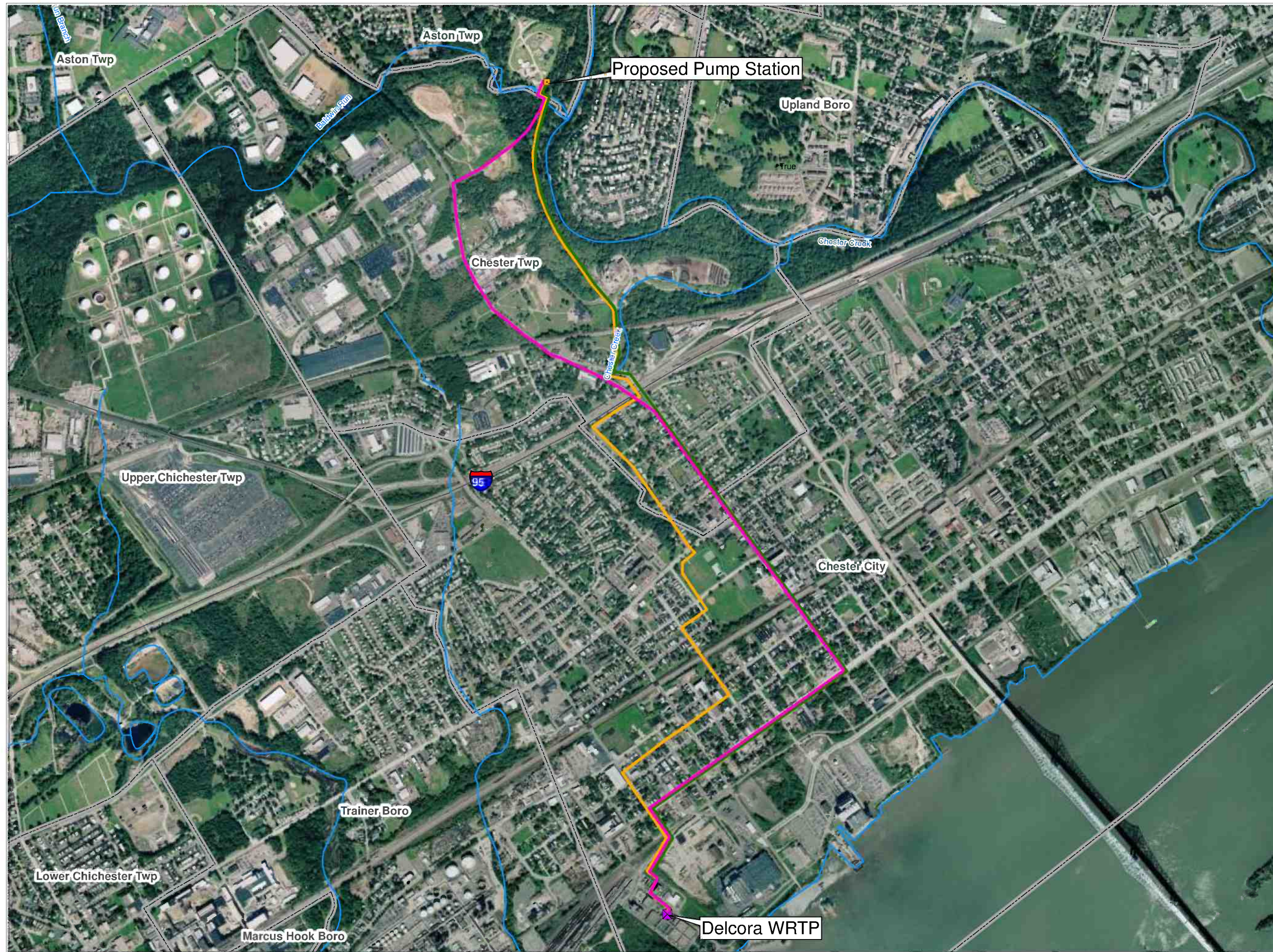
6.2.3 Maintenance Program

An on-going maintenance program for the existing facility and collection system is recommended under this alternative to maximize treatment efficiency and minimize problems associated with an aging collection system. The collection system maintenance program is required under the consent agreement with PADEP.

6.3 ALTERNATIVE 2 – CONSTRUCT NEW PUMP STATION AND FORCE MAIN TO DELCORA’S WRTP

Construction of new conveyance and treatment facilities was included in the 2004 Act 537 Western Plan of Study as an alternative to meeting Western Delaware County’s sewage treatment needs. Construction of a new pump station at the site of the existing BRPCP with a new force main directing flows from the Chester-Ridley Creek Service Area to DELCORA’s WRTP is an alternative to upgrading the existing plant. DELCORA entered into an agreement of service with SWDCMA on 21 December 2009. The agreement is included as Appendix G of this Plan.

BCM Engineers performed a Feasibility Study in 2004 that estimated pumping and force main needs for the project. The 2004 Feasibility Study presented two alternative routes for the force main. These routes and an additional alternative route are evaluated in this Act 537 Plan. The three alternative routes are shown in Figure 6-1 and detailed in the following sections.



Legend

- Alternative No. 2A
- Alternative No. 2B
- Alternative No. 2C
- Municipal Boundaries

Chester Ridley
Creek Service
Area Act 537 Plan

Disclaimer: This map is for analytical purposes only. The reliability of this map depends on the accuracy of the underlying data sources which have not been verified.

Data Source:
- Pennsylvania Spatial Data Access (PASDA)
Web Site, <http://www.pasda.psu.edu>
Imagery Source: ESRI Bing Mapping Service, 2009

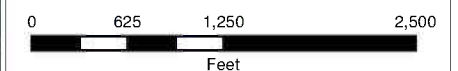
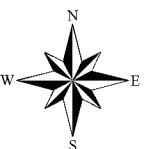


Figure 6-1
Alternative
Force Main Alignments

6.3.1 Alternative 2A Sunfield to Engle Street

Alternative 2A – Sunfield to Engle would require approximately 15,403 feet of pipe and is proposed to run along the following route:

- From the pump station, the main would cross Baldwin Run and run southwest through the Sunfield Business Center toward Concord Road.
- The main would then turn southeast and follow Concord Road down to the intersection of Concord and Bethel Roads, crossing under a railroad overpass just southeast of Greenlawn Cemetery.
- The force main would be bored under I-95 in the area just northeast of the Engle Street Bridge.
- The force main would continue along Engle Street and extend through the City of Chester for approximately thirteen blocks.
- It would then cross under the Amtrak overpass at 5th Street. At Second (2nd) Street, the main would turn southwest onto 2nd street and continue for approximately thirteen blocks to Booth Street where it would then turn south onto Booth Street and cross the railroad grade at the end of Booth Street.
- The force main would then continue along the entrance road to the DELCORA W RTP and run down the main access road, discharging into the grit tanks.

6.3.2 Alternative 2B – Baldwin Run to Engle Street

Alternative 2B – Baldwin Run to Engle Street is similar to Alternative 2A except that, after crossing Baldwin Run, the force main would follow an abandoned rail line along the Chester Creek to a point adjacent to the County solid waste Transfer Station #1. The main would then run cross Concord and Bethel Roads where it would cross I-95 and follow Engle Street to 2nd Street (Route 291). The force main would turn west and follow 2nd Street to the intersection with Booth Street. It would turn south and follow Booth Street crossing the railroad grade at the end of Booth Street, following the Alternative 2A alignment to the W RTP.

Alternative 2B would require approximately 14,055 linear feet of pipe.

6.3.3 Alternative 2C – Baldwin Run to Union Street

Alternative 2C – Baldwin Run to Union Street follows the abandoned rail line after crossing Baldwin Run, but diverges to follow less busy streets after crossing I-95. Alternative

2C would require approximately 14,061 feet of pipe and is proposed to run along the following route:

- From the pump station, the force main would cross Baldwin Run and follow an abandoned rail line along the Chester Creek to a point adjacent to the County solid waste Transfer Station #1.
- The main would then cross under Concord and Bethel Roads and then cross under I-95 via boring under the highway.
- The force main would turn west and follow 15th Street to Palmer Street. It would then turn south and follow Palmer Street and cross State Route 13 (9th Street).
- The force main would follow 9th Street in a westerly direction until turning south at Ward Street, and follow Ward Street to its intersection with Wilson Street.
- The force main would follow Wilson Street southward, passing through the Wilson Street underpass for the Amtrak Railroad, and travel two blocks farther south to the intersection with Union Street.
- The force main would turn west and run along Union Street until the intersection with Booth Street.
- It would turn south and follow Booth Street crossing the railroad grade at the end of Booth Street, following the Alternative 2A alignment to the W RTP. Alternative 2C would require approximately 14,061 linear feet of pipe.

The Alternative 2C Route was selected to minimize construction costs by following a less busy route and avoiding the newly re-constructed 2nd Street (Route 291). This route avoids pumping over the hill on Concord Road and avoids a high area along Engle Street. Several permits, easements, and agreements with the railroad owner will be necessary under any of the proposed alternatives.

6.4 TECHNICAL AND ECONOMIC EVALUATION OF ALTERNATIVES

6.4.1 Alternative 1 – Upgrade Existing Treatment Plant

Upgrading the treatment processes to provide nutrient removal could be combined with the required I/I abatement and system maintenance programs described in Section 6.2 to achieve an acceptable level of discharge water quality and quantity in compliance with PADEP permitted effluent limits. If the facility effluent could be brought into compliance with PADEP standards, it is unknown how long the condition could be maintained and how long the upgrades and maintenance would extend the life of the facility. The BRPCP would have to be re-rated to treat

additional flows if zoning changes are approved for projects including the Franklin Mint and Sleighton Farm properties. Re-rating the plant may be required under current zoning depending on the effectiveness of the I/I abatement efforts. This section provides technical evaluations of the components of this alternative and a preliminary cost estimate.

Install Tertiary Treatment Processes

Process upgrades may include treatment with lime or chemicals to remove phosphorus, ammonia stripping to remove nitrogen, and/or activated carbon adsorption.

The benefits to this alternative include continued use of an existing facility. The primary disadvantage to this alternative is that continued increases in demand for sewage treatment are likely to require a discharge limit of greater than 6.0 MGD, and will likely be greater than the permitted wasteload allocation for Chester Creek, even with process upgrades.

Correct Inflow and Infiltration Problems and Perform Collection System Maintenance

These programs are mandated by the PADEP consent agreement and will be performed under all of the alternative scenarios for sewage treatment.

Economic Evaluation for Alternative 1

SWDCMA has performed cost estimates of several alternatives for upgrading the plant to provide adequate treatment through the year 2019. A 2008 study estimated costs to maintain existing levels of treatment at 6.0 MGD through 2019 at approximately \$9.0 million dollars (2010 value). Weston performed a preliminary cost estimate to add system upgrades to improve effluent quality including Phosphorus and Nitrogen removal to meet proposed TMDL effluent limits. The system upgrade costs were based on a design flow of 6.66 MGD. The preliminary tertiary treatment system includes:

- A pump to feed the denitrification system from the existing nitrification system
- Chemical feed for phosphorus precipitation (assume sodium aluminate)
- Denitrifying filter system with methanol feed (assume Dynasand system or similar)
- Reaeration system for provide DO in effluent

It is assumed that the existing system is adequate to nitrify 6.66 MGD design average flow. No expansion/upgrade for BOD/nitrification is included in this estimate. Additional

assumptions are that no new power feed to the site or changes to the outfall structure will be necessary for the system upgrade. Table 6-1 presents a preliminary cost estimate for upgrading the existing treatment plan processes to tertiary treatment to meet the proposed TMDL effluent requirements. The costs in table 6-1 are in addition to the maintenance costs estimated by the SWDCMA. The upgraded system would incur additional operation and maintenance costs that are not included in the estimated costs of this alternative.

Overall Evaluation for Alternative 1

Upgrading the treatment processes at the plant and increasing the treatment capacity of the BRPCP to provide a level of treatment that would be in compliance with PADEP effluent limits would require significant rate increases. Moreover, in a letter dated July, 29, 2008, the SWDCMA notified Middletown Township that the existing agreement between MTSA and SWDCMA would terminate on October 24, 2019. A new agreement would have to be negotiated between MTSA and SWDCMA for treatment after expiration of the existing agreement. Under a new agreement, the rates for Middletown users would most likely increase to triple the existing rates.

Table 6-1
Preliminary Cost Estimate for Alternative 1

Description	Cost
Denitrification Pump Station	\$ 575,000
Denitrifying filters FRP Option	\$ 13,856,000
Methanol Feed system	\$ 146,000
Aluminate feed system	\$ 152,000
Reaeration blowers, diffusers and control panel	\$ 201,000
SUBTOTAL INSTALLED EQUIPMENT	\$ 14,930,000
Reaeration tank	\$ 221,000
Control Building	\$ 54,000
SUBTOTAL	\$ 15,205,000
Mob/Demob	\$ 100,000
Facility & Yard Piping (10% of installed equipment)	\$ 1,493,000
Facility & Yard Elect. (10% of installed equipment)	\$ 1,493,000
Instrumentation (8% of installed equipment)	\$ 1,194,400
Site Work (5% of installed equipment)	\$ 746,500
SUBTOTAL	\$ 20,231,900
<i>Preliminary and Detailed Engineering (7.5%)</i>	\$ 1,517,393
<i>Administration / Legal (5%)</i>	\$ 1,011,595
<i>Construction Engineering (2%)</i>	\$ 404,638
<i>Contingency (20%)</i>	\$ 4,046,380
<i>Insurance (1%)</i>	\$ 202,319
<i>Bond (3%)</i>	\$ 606,957
PROJECT TOTAL	\$ 28,021,182

If the facility effluent could be brought into compliance with PADEP standards, it is unknown how long the condition could be maintained and how long the upgrades and maintenance would extend the life of the facility. The capital costs to users to finance the estimated cost of Alternative 1 over a 20-year period are approximately \$125 per year per edu. The overall assessment for this alternative is that the short term benefits do not justify the cost of treatment plant upgrades, considering the potential additional future expenditures necessary to maintain compliance with PADEP effluent limits. All current users would experience a significant economic impact under this alternative.

6.4.2 Economic Evaluations for New Force Main and Pump Station Scenarios (Alternative 2)

The Preliminary Cost Estimates presented in this section include capital costs to construct the pump station and force main only and do not include costs to decommission the BRPCP. The SWDCMA estimates an initial cost of \$400,000 to \$500,000 to clean the digesters and provide odor control and sludge handling. The facility would be decommissioned incrementally using operating funds, without borrowing capital. Some components could be sold for salvage. Under the Alternative 2 scenario to divert flow to DELCORA for treatment at the WRTP, the SWDCMA will still continue to function and provide bills to customers for sewage treatment. It is assumed that the existing SWDCMA debt service and costs to comply with the consent agreement will remain equal for all scenarios and they are not quantified herein. This Act 537 Plan analysis compares the capital costs to implement each alternative.

6.4.2.1 *Alternative 2A – Sunfield to Engle Street*

The proposed pump station and force main corridor from Sunfield Business Park to Engle Street would require approximately 15,403 linear feet of pipe. The proposed force main route for this alternative consists of an elevation gain of approximately 93 feet from the pump station to a high point located approximately 6,600 feet along the route. From this high point, the force main descends in elevation to the WRTP. For this alternative, a 30-inch diameter HDPE (PE4710 DR 13.5) force main and four pumps, three operating and one spare, are proposed to convey flow from the pump station to the WRTP. Ductile iron pipe may be used within Chester City to avoid utility conflicts. Variable frequency drives and their associated controls are proposed to run each pump. Operation of this system involves pumping flows to the high point along the force main

route and subsequently allowing gravity flow to convey flows the remainder of the way to the W RTP.

The existing average flow at the BRPCP is approximately 4.7 MGD. With growth, the average flow becomes 6.66 MGD. The design range of flows (approximately 3.1 million gallons per day (MGD) to 16.65 MGD) are based on reported average and projected future flows from the BRPCP and a standard design peaking factor of 2.5. Design flow velocities through the force main range from 2.08 feet per second (fps) at average flows to 7.39 fps at peak flows. These velocities meet design criteria, which specify a minimum flow velocity of 2.0 fps to maintain solids suspension and maximum flow velocities ranging from 6.0 to 10.0 fps. The total dynamic head (TDH) for the specified flow range is approximately 97 ft. to 148 ft. with a static head component of 93 ft. Four pumps, each fitted with 280 horsepower (hp) motors, are proposed to accommodate the range of flows for the given TDH values. One pump would operate under low and average flow conditions. Two and three pumps would operate in parallel to accommodate current and future peak flows, respectively. One pump would be reserved as a spare.

Economic Evaluation of Alternative 2A

A preliminary cost estimate for Alternative 2A is presented in Table 6-2. The pump costs and force main costs for Alternative 2A are greater than for the two other alignments due to length of the force main route and larger pumps required to pump this distance and over the hill on Concord Road. The capital cost to users to finance the estimated cost of Alternative 2A over a 20-year period are approximately \$60 per year per edu. An option to hang the force main from the Engle Street Bridge was evaluated and found to cost approximately \$300,000 more than boring under I-95.

Table 6-2**Preliminary Cost Estimate for Alternative 2A – Sunfield to Engle Street**

Description	Construction Work	Equipment	Total
Pump Station Buildings - Site Work	\$64,100	\$ -	\$64,100
Control Building (including Underground Electrical Power)	\$140,793	\$163,974	\$304,767
Valve Vault	\$126,104	\$37,830	\$163,934
Wet well	\$651,983	\$38,246	\$690,229
Wet well & Valve Vault Concrete Roofing	\$26,117	\$ -	\$26,117
Force Main	\$5,965,942	\$ -	\$5,965,942
Pumps, VFDs, and Station Piping	\$509,589	\$916,240	\$1,425,829
Bar Screen, Controls, Mag Meters	\$ -	\$746,550	\$746,550
Generator	\$ -	\$810,000	\$810,000
SUBTOTAL			\$10,197,468
Preliminary and Detailed Engineering- 8.5%			\$866,785
Utility Conflicts- 200 Test Borings- Set Price			\$115,000
Administration / Legal- 2%			\$203,949
Construction Engineering- 2%			\$203,949
Contingency- 15%			\$1,529,620
Insurance- 1%			\$101,975
Bond- 3%			\$254,937
PROJECT TOTAL			\$13,473,683

6.4.2.2 Alternative 2B – Baldwin Run to Engle Street

The new force main Alternative 2B – Baldwin Run to Engle Street is similar to Alternative 2A except that, after crossing Baldwin Run, the force main would follow an abandoned rail line along the Chester Creek to a point adjacent to the abandoned County Incinerator. The main would then run to the intersection of Concord and Bethel Roads where it would cross under I-95 and follow the Alternative 2A Route down to the WRTP.

Alternative 2B would require approximately 14,055 linear feet of pipe. This route is shorter and avoids some of the elevation gain, which would save in capital and operational costs of the pumps. However, this route may have potential problems with the location adjacent to the stream. The proposed force main route for this alternative consists of an elevation gain of

approximately 88 feet from the pump station to a high point located approximately 5,400 feet along the route. From this high point, the force main descends in elevation to the WRTP. For this alternative, a 30-inch diameter HDPE (PE4710 DR 13.5) and/or ductile iron force main and four pumps, three operating and one spare, are proposed to convey flow from the pump station to the WRTP. Variable frequency drives and their associated controls are proposed to run each pump. Operation of this system involves pumping flows to the high point along the force main route and subsequently allowing gravity flow to convey flows the remainder of the way to the WRTP.

The existing average flow at the BRPCP is approximately 4.7 MGD. With growth, the average flow becomes 6.66 MGD. The design range of flows (approximately 3.1 million gallons per day (MGD) to 16.65 MGD) are based on reported average and projected future flows from the BRPCP and a standard design peaking factor of 2.5. Design flow velocities through the force main range from 2.08 feet per second (fps) at average flows to 7.39 fps at peak flows. These velocities meet design criteria, which specify a minimum flow velocity of 2.0 fps to maintain solids suspension and maximum flow velocities ranging from 6.0 to 10.0 fps.

The total dynamic head (TDH) for the specified flow range is approximately 92 ft. to 127 ft. with a static head component of 88 ft. Four pumps, each fitted with 215 horsepower (hp) motors, are proposed to accommodate the range of flows for the given TDH values. One pump would operate under low and average flow conditions. Two and three pumps would operate in parallel to accommodate current and future peak flows, respectively. One pump would be reserved as a spare.

Economic Evaluation of Alternative 2B

A preliminary cost estimate for Alternative 2B is presented in Table 6-3. Capital and operational cost savings over Alternative 2A is a benefit for this alternative. There may be additional wetlands impacts along the route adjacent to Chester Creek that would have to be mitigated. Additional environmental permitting costs associated with constructing the force main within the Chester Creek floodplain, involving small stream crossings, may off-set construction cost savings that could be realized by the route; however, operational benefits will continue for the life of the pump station. The capital cost to users to finance the estimated cost of Alternative 2B over a 20-year period are approximately \$58 per year per edu.

Table 6-3**Preliminary Cost Estimate for Alternate 2B – Baldwin Run to Engle Street**

Description	Construction Work	Equipment	Total
Pump Station Buildings - Site Work	\$64,100	\$ -	\$64,100
Control Building (including Underground Electrical Power)	\$140,793	\$163,974	\$304,767
Valve Vault	\$126,104	\$37,830	\$163,934
Wet well	\$651,983	\$38,246	\$690,229
Wet well & Valve Vault Concrete Roofing	\$26,117	\$ -	\$26,117
Force Main	\$5,590,230	\$ -	\$5,590,230
Pumps, VFDs, and Station Piping	\$509,589	\$882,561	\$1,392,150
Bar Screen, Controls, Mag Meters	\$ -	\$746,550	\$746,550
Generator	\$ -	\$810,000	\$810,000
SUBTOTAL			\$9,788,077
<i>Preliminary and Detailed Engineering- 8.5%</i>			\$831,987
<i>Utility Conflicts- 200 Test Borings- Set Price</i>			\$115,000
<i>Administration / Legal- 2%</i>			\$195,762
<i>Construction Engineering- 2%</i>			\$195,762
<i>Contingency- 15%</i>			\$1,468,212
<i>Insurance- 1%</i>			\$97,881
<i>Bond- 3%</i>			\$244,702
PROJECT TOTAL			\$12,937,381

6.4.2.3 *Alternative 2C – Baldwin Run to Union Street*

Alternative 2C – Baldwin Run to Union Street is similar to Alternative 2B in the beginning, but diverges to follow less busy streets. Alternative 2C would require approximately 14,061 feet of force main. The Alternative 2C Route was selected to minimize construction costs by following a less busy route and avoiding the newly re-constructed 2nd Street.

Several permits, easements, and agreements with the railroad owner will be necessary under any of the proposed alternatives. Additionally, environmental permits for stream encroachments and wetlands impacts will be necessary for construction of the proposed force main.

For Alternative 2C, the proposed force main route consists of an elevation gain of approximately 83 feet from the pump station to a high point located approximately 5,600 feet along the route. From this high point, the force main descends in elevation to the WRTP. For this alternative, a 30-inch diameter HDPE (PE4710 DR 13.5) and/or force main and four pumps, three operating and one spare, are proposed to convey flow from the pump station to the WRTP. Variable frequency drives and their associated controls are proposed to run each pump. Operation of this system involves pumping flows to the high point along the force main route and subsequently allowing gravity flow to convey flows the remainder of the way to the WRTP.

The existing average flow at the BRPCP is approximately 4.7 MGD. With growth, the average flow becomes 6.66 MGD. The design range of flows (approximately 3.1 million gallons per day (MGD) to 16.65 MGD) are based on reported average and projected future flows from the BRPCP and a standard design peaking factor of 2.5. Design flow velocities through the force main range from 2.08 feet per second (fps) at average flows to 7.39 fps at peak flows. These velocities meet design criteria, which specify a minimum flow velocity of 2.0 fps to maintain solids suspension and maximum flow velocities ranging from 6.0 to 10.0 fps.

The total dynamic head (TDH) for the specified flow range is approximately 87 ft. to 123 ft. with a static head component of 83 ft. Four pumps, each fitted with 185 horsepower (hp) motors, are proposed to accommodate the range of flows for the given TDH values. One pump would operate under low and average flow conditions. Two and three pumps would operate in

parallel to accommodate current and future peak flows, respectively. One pump would be reserved as a spare.

Economic Evaluation of Alternative 2C

A preliminary cost estimate for Alternative 2C is presented in Table 6-4. Capital and operational cost savings over Alternatives 2A and 2B is a benefit for this alternative.

Alternative 2C is the least expensive of the three routes that were evaluated. The cost of the force main is less than the other two alternatives because it avoids the hill on Concord Road and pavement restoration is less expensive along this route. There may be additional wetlands impacts along the route adjacent to Baldwin Run that would need to be mitigated. Additional environmental permitting costs associated with constructing the force main within the Baldwin Run floodplain, including two small stream crossings, may off-set construction cost savings that could be realized by the route; however, operational benefits will continue for the life of the pump station. The capital cost to users to finance the estimated cost of Alternative 2C over a 20-year period are approximately \$53 per year per edu.

Table 6-4
Preliminary Cost Estimate for Alternate 2C – Baldwin Run to Union Street

Description	Construction Work	MEP Or Equipment	Total
Pump Station Buildings - Site Work	\$64,100	\$ -	\$64,100
Control Building (including Underground Electrical Power)	\$140,793	\$163,974	\$304,767
Valve Vault	\$126,104	\$37,830	\$163,934
Wet well	\$651,983	\$38,246	\$690,229
Wet well & Valve Vault Concrete Roofing	\$26,117	\$ -	\$26,117
Force Main	\$4,731,723	\$ -	\$4,731,723
Pumps, VFDs, and Station Piping	\$509,589	\$848,882	\$1,358,471
Bar Screen, Controls, Mag Meters	\$ -	\$746,550	\$746,550
Generator	\$ -	\$810,000	\$810,000
SUBTOTAL			\$8,895,891
Preliminary and Detailed Engineering- 8.5%			\$756,151
Utility Conflicts- 200 Test Borings- Set Price			\$115,000
Administration / Legal- 2%			\$177,918
Construction Engineering- 2%			\$177,918
Contingency- 15%			\$1,334,384
Insurance- 1%			\$88,959
Bond- 3%			\$222,397
PROJECT TOTAL			\$11,768,618

6.4.3 Institutional Considerations

The SWDCMA currently administers an industrial pre-treatment program regulated by Region III of the Environmental Protection Agency and is in compliance with the EPA regulations. All industrial users of the wastewater system are permitted and required to self-monitor discharges to comply with local limits established. Industrial dischargers must report monitoring results for parameters to the SWDCMA. The industrial pre-treatment agreements will have to be transferred to DELCORA under this alternative, or a pretreatment agreement between the parties can be executed to enable the SWDCMA to continue to administer the program and report activities to DELCORA.

6.5 CONSISTENCY WITH EXISTING ENVIRONMENTAL REGULATIONS AND POLICIES

Selected alternatives to construct a new pump station and force main have been evaluated for consistency with respect to the following plans and policies:

- A Consent Order and Agreement between the Pennsylvania Department of Environmental Protection (PADEP) and the Southwest Delaware County Municipal Authority (SWDCMA) (February 5, 2009) requires inflow and infiltration (I/I) studies and abatement procedures to terminate all sanitary sewer overflows within the collection system. All corrective actions mandated by the consent agreement are required programs. These programs are currently being implemented and are not alternatives requiring evaluation for this Act 537 Plan. These required corrective actions include:
 - Infiltration/Inflow Abatement programs including televising and grouting the collection system, flow monitoring, manhole inspections, developing and implementing I/I remediation for sections of the system that are found to convey extraneous wet weather flows, and post-remediation flow metering.
 - Documentation of contributing municipalities efforts to abate I/I in their respective collection systems including adoption and enforcement of municipal ordinances to prevent sump pump and roof leader connections to the sanitary sewer system.
- Section 208 of the Clean Water Act Comprehensive Water Quality Management Plan (COWAMP) – Consistency with this plan could not be verified because it is out of print. It is unlikely that the proposed conveyance system upgrades are inconsistent with the COWAMP Plan.
- Annual Chapter 94 Report – The Draft 2010 Wasteload Management (Chapter 94) Report for the WRTP was examined to determine if there is adequate capacity at the

WRTP to treat the proposed additional flows from the Chester-Ridley Service Area. The projected hydraulic loading for the WRTP is included as Table 6-5. The highest projected flow scenario of 6.66 MGD from the Chester-Ridley Creek Service Area can be accepted by the WRTP under Average Daily Flow conditions. The WRTP is currently rated to treat 44 MGD. Upon construction of an extended outfall, the WRTP will be rated to treat 50 MGD.

Act 537 potential future wastewater flows developed for the WRTP re-rate to 50 MGD included a contingency of 1.8 MGD. Considering this contingency, the projected flow to the WRTP exceeds 50 MGD for the three consecutive month maximum flows under the 6.66 MGD maximum projected flow from the Chester-Ridley Creek Service Area scenario. However, flow from the CDPS can be redirected to the PSWPCP during wet-weather months.

Table 6-5

**Western Regional Treatment Plant
Projected Hydraulic Loading – Influent Flow**

	Average	3-Month Maximum
Base Flow	37.6	
2011	38.0	41.9
2012	38.3	42.2
2013	38.7	42.8
2014	39.0	43.0
2015	45.8	50.4
Notes: 1. Base flow is the average flow for 2006-2009 and includes Central Delaware Pump Station Diversion. 2. 2010-2015 flows assume a growth of 0.1 MGD per year for the WRTP service area plus 0.25 MGD additional growth for tie-ins in CDCA. This conservative estimate of flow projections is based on previous Act 537 planning for various projects in the Service Area.		

- Previous plans developed under Title II of the CWA or Titles II and VI of the Water Quality Act of 1987 – Title II of the Clean Water Act contains provisions for federal construction grants for treatment works. The Water Quality Act of 1987 authorized the stormwater NPDES program and encouraged states to implement non-point source pollution controls (under Section 319). Municipal wastewater construction is addressed under Titles II and VI of this Act. Title II is the federal construction grants program that was replaced by Title VI, the state revolving funds loan program. DELCORA received a Penn Vest loan for the Central Delaware County Pump Station (CDPS) force main diversion project. The WRTP was funded by a federal construction grant in the 1970's.
- Comprehensive Plans – This Act 537 Plan Update is consistent with municipal comprehensive plans within the WRTP service area.

- Antidegradation Requirements in PA Code, Title 25, Chapters 93, 95, and 102. Contractors constructing the pump station and force main will be required to obtain a Chapter 102 Erosion and Sedimentation Control Permit for the construction activity.
- State Water Plan – The improvements to the collection system that are proposed in this Act 537 Plan Update will not affect flooding problems identified in the 1983 State Water Plan. The State Water Plan is currently being re-written, however conflicts due to the proposed upgrades are not anticipated.
- Pennsylvania Prime Agricultural Land Policy – There is no opportunity for agricultural use of the urban and suburban land locations of the proposed force main corridors.
- County Stormwater Management Plans – Chester Creek has an approved Stormwater Management Plan that covers a portion of the Chester-Ridley Creek service area. The proposed pump station and force main do not involve any land development or changes to stormwater management.
- Wetland Protection – The proposed pump station and force main alternatives will not involve any impacts to wetlands identified on the National Wetland Inventory (NWI) map of the service area. Field evaluations of each proposed alternative alignment will be necessary to quantify the potential impacts to wetlands and waters of the commonwealth.
- Protection of rare, endangered, or threatened plant and animal species. Pennsylvania Natural Diversity Index (PNDI) requests have been submitted for the pump station and the three alternative alignments for the proposed force main. Copies of the PNDI search documents and the response letters from the Department of Conservation and Natural Resources Bureau of Forestry are contained in Appendix A of this Act 537 plan revision. There are no conflicts regarding the PNDI searches.
- Historical and Archaeological resources protection – Cultural Resources Notices were submitted to the Bureau of Historic Preservation for the submitted for the pump station and the three alternative alignments for the proposed force main. The response letter from the Bureau of Historic Preservation is attached to Appendix A of this plan update.

CHAPTER 7.

INSTITUTIONAL ALTERNATIVES AND EVALUATIONS

7.1 PERFORMANCE OF EXISTING WASTEWATER TREATMENT AUTHORITIES

Chapter 3 includes a discussion of the two existing municipal authorities providing wastewater treatment to the Chester-Ridley Creek Service Area. The Southwest Delaware County Municipal Authority (SWDCMA) is the existing collection and treatment authority. DELCORA is proposed to take responsibility for conveyance and treatment of wastewater from the service area via the proposed pump station and force main to the WRTP. The SWDCMA will remain in existence and maintain responsibility for the operation and maintenance of the collection system to the proposed pump station.

7.1.1 Delaware County Regional Water Quality Control Authority

The Delaware County Regional Water Quality Control Authority (DELCORA) owns and operates the Western Regional Treatment Plant located in Chester. DELCORA will own and operate the proposed pumping station and force main.

7.1.2 Southwest Delaware County Municipal Authority

The SWDCMA owns and operates the Baldwin Run Pollution Control Plant located at Gamble and Park Lanes in Aston. Aston Township, Brookhaven Borough, Chester Township, Chester Heights Borough, Concord Township, Middletown Township, Upper Chichester Township, and Upper Providence Township contribute flow to SWDCMA's plant. In 2009, the plant's annual average flow was 78% of its 6.0 MGD permitted capacity, and its maximum 3-month average was 5.13 MGD. On October 5, 2001, SWDCMA was notified by DEP that it was to prohibit new connections and was directed to begin planning, design, financing, and construction of measures to meet anticipated demand. SWDCMA entered into a consent agreement with PADEP on February 5, 2009, that requires measures to reduce infiltration and inflow (I/I) that was found to be causing hydraulic overloading of treatment units at the plant, the collection system, and/or the pump stations.

7.2 EXISTING LOCAL AGENCY PROGRAM EVALUATION

7.2.1 Feasibility of a Regional Local Agency Program at the Multimunicipal or County Level

Local and a regional agency programs are already established in the Chester-Ridley Creek Service Area. The SWDCMA is the local municipal authority that will continue to operate and maintain the collection system. DELCORA is the regional authority that is proposed to assume responsibility for installation and operation of a new pump station and force main to treat the wastewater at the WRTP. The proposed agreements and engineering projects will demonstrate cooperation in wastewater collection and treatment.

7.2.2 Technical and Administrative Training Needs

Both the SWDCMA and DELCORA are well established agencies that employ engineers and professional staff trained in operation and maintenance of sewage treatment facilities. Administrative staff are experienced in creating community awareness and public education programs in line with state requirements.

7.2.3 Joint Municipal Management of Municipal Sewage Programs

Joint municipal management of municipal sewage programs can be beneficial to municipalities, communities, the environment, and public health. Standardized requirements for on-lot sewage treatment facilities are applied in all municipalities within the Chester-Ridley Creek Service Area. Joint educational programs can help create public awareness and encourage cooperation.

7.3 ALTERNATIVES TO ADDRESS THE CONDITION OF EXISTING PRIVATE INFRASTRUCTURE

This section is not applicable for the Chester-Ridley Creek Service Area because the existing and proposed collection, conveyance and treatment systems are already owned by municipal authorities. Public ownership is advantageous over smaller, privately owned treatment systems because of the increased control over compliance with permit requirements as well as state and federal regulations. Public ownership also includes the annual planning requirements of the Chapter 94 reporting process. Inspection and maintenance programs are required for the SWDCMA-owned collection system by the consent agreement with PADEP dated February 5, 2009.

7.4 ALTERNATIVES FOR PROTECTION OF THE ENVIRONMENT FROM OVERLOADED OR MALFUNCTIONING ON-LOT DISPOSAL FACILITIES

A small number of on-lot disposal systems (OLDS) remain in use within the Chester-Ridley Creek Service Area and are discussed in Chapter 4 of this report. No overloaded or failing OLDS have been reported in Aston Township and only three lots with malfunctioning OLDS have been reported in Middletown Township. The small portions of the remaining municipalities within the Chester-Ridley Creek Service Area are included because they are serviced by the public collection and treatment system. This report does not include a comprehensive evaluation of OLDS outside of the Chester-Ridley Creek Service Area.

OLDS must be installed in compliance with state laws and regulations. PA Code Chapter 73, Standards for On-lot Sewage Treatment Facilities, addresses issues ranging from site suitability to mechanical details for various types of OLDS. The Sewage Enforcement Officer (SEO), an individual trained and certified by DEP, verifies site suitability tests, inspects installation, and issues permits for new or replacement OLDS. Operation of OLDS is minimally regulated. DEP does not require permitting (with flow limitations or constituent concentration limitations in wastewater discharged into the subsurface) as it does with surface discharge. However, evidence exists that individual and community OLDS can have impact on groundwater quality.

While large community subsurface disposal systems are generally well maintained, regular upkeep of individual systems is left to homeowners. As a result, many individual systems are not maintained properly, problems are not detected in the timely manner, and they can become a threat to public health and the environment. Septage disposal is performed by private parties contracted by individual homeowners. Municipalities do not regulate destinations for this waste or require hauling frequency records. Few municipalities have educational programs regarding OLDS suitability and maintenance. Aston Township inspects OLDS during real estate transfers and if they are failing, requires repair or connection to the public treatment system. Middletown Township provides educational materials and works with OLDS owners as discussed in Section 4.2.2 of this Plan.

7.4.1 Mandatory System Requirements

Currently available soil surveys indicate that all Delaware County soils have either moderate or high limitations to on-site wastewater disposal systems use. Installation of new OLDS should be allowed on a case-by-case basis, and only after successful soils evaluation and percolation tests are approved by the municipal SEO. Alternative systems should be considered for new or replacement systems in problem areas. Legislatively, municipalities should adopt and strictly enforce ordinances authorizing inspections, requiring maintenance, and prohibiting malfunctioning systems. A program to provide public wastewater treatment for all development is currently being implemented in Upper Providence Township. Middletown Township has a mandatory connection ordinance that requires all owners of property situated within 150 feet of a sanitary sewer line to connect to the public system. Aston Township inspects OLDS during real estate transfers and if they are failing, requires repair or connection to the public treatment system.

7.4.2 Management Programs

A key to consistent and sound OLDS performance is inspection and maintenance. In order to effectively administer a program that addresses all the OLDS in a municipality, a management program can be developed that requires regular inspections, maintenance, and provides public awareness education. These key functions are needed to reduce the potential for threats to public health and the environment from private OLDS in the Chester-Ridley Creek Service Area. Aston and Middletown Townships perform inspections prior to real estate transfers.

7.4.3 Public Ownership of Community On-Lot Facilities

There are no community OLDS within the Chester-Ridley Creek Service Area. Municipal ownership of community OLDS can assure the public that these facilities are properly operated and maintained.

7.4.4 No Action

The final option addressing the issues of OLDS is to do nothing.

7.5 TECHNICAL AND ECONOMIC EVALUATION OF ALTERNATIVES TO ADDRESS THE CONDITION OF EXISTING PUBLIC INFRASTRUCTURE

7.5.1 Inspection and Maintenance Program for Existing Infrastructure

Inspection and maintenance programs are required for the SWDCMA-owned collection system by the consent agreement with PADEP dated February 5, 2009. The inspection and maintenance requirements include televising and grouting of each of the main sewer districts on a 10-year cycle, conducting flow monitoring and performing manhole inspections. SWDCMA is required to develop and implement an I/I remediation efforts for those areas that have been determined to convey extraneous wet weather flows. The results of the inspection and maintenance program must be reported to PADEP on a biannual basis.

7.5.2 No Action

Although a prescribed alternative, the no action alternative is not a viable option given the existing and proposed regulatory requirements of DEP and EPA. While doing nothing requires no decision making or funding, deteriorating sewage facilities will need to be repaired to meet regulatory commitments. With respect to economics, the no action alternative will be more expensive in the long term because of increased costs of repair, the more extensive nature of the repairs due to further deterioration, and incurring fines from DEP for permit violations.

7.6 TECHNICAL AND ECONOMIC EVALUATION OF ALTERNATIVES FOR THE PROTECTION OF THE ENVIRONMENT FROM OVERLOADED OR MALFUNCTIONING ON-LOT DISPOSAL FACILITIES

7.6.1 Mandatory System Requirements

While system design requirements (issued by DEP) are already in place for new OLDS, it will be beneficial to introduce consistent maintenance standards for new systems as well as existing systems. Advantages will include more efficient, environmentally safe, easier to maintain, and easier to inspect/manage systems.

Disadvantages include increased cost to the owners, when system repair or replacement is required. Low-cost financing through loans is available from Pennsylvania Infrastructure Investment Authority (PENNVEST). See Appendix B for more information.

7.6.2 Management Programs

Advantages of this alternative include efficient and well-functioning OLDS, septage disposal reporting, and decreased incidence of malfunctions. All of the advantages decrease the threat to human health and the environment and limit the public nuisance caused by overflowing septic systems. There are internet-based data tracking systems that provide maintenance information management. The type of information collected can include owner, occupant, type of system, date of service, name of service provider, any deficiencies noted, any repairs made, date of inspection, date for next service, etc. These systems make it possible for a private septage hauler to enter the information for residents it services, thus eliminating data entry tasks for the municipality.

The main disadvantage is the cost of implementing the program. Financial incentives should be put in place for those municipalities taking the initiative in implementing such programs. These programs can be funded by homeowner registration fees for OLDS and/or a private septage hauler registration fee. The dual fee structure helps remind homeowners that they need to perform regular maintenance on their systems and ensures that only reputable haulers are allowed to operate in the municipality. Intermunicipal programs, operated by municipal employees, a contractor, or regional authority, are eligible for higher DEP reimbursement levels than those that serve a single municipality.

The implementation of a management system similar to that described has been recommended in previous planning documents. For example, the Chester Creek Conservation Plan prepared by the Chester-Ridley-Crum Watersheds Association and the Pennsylvania Natural Lands Trust recommended “septic system registration and maintenance programs” be implemented along with “fines or other approaches” to ensure proper maintenance is conducted. The plan also recommended that educational materials be made available to homeowners with OLDS so they may understand their systems and the impact on neighbors if the system fails. Examples of available public education and information documents from DEP and EPA are provided in Appendix C.

7.6.3 No Action

Taking no action will ignore existing problems with OLDS in the Chester-Ridley Creek Service Area. Even though only three systems are currently reported as malfunctioning,

overflowing systems and threats to groundwater quality and public health are problems that have potential to continue from other OLDS if no action is taken.

CHAPTER 8.

RECOMMENDED ALTERNATIVES

8.1 INTRODUCTION

The potential alternatives for public facilities discussed in Chapters 6 and 7 cover a wide range of options and costs. Considering the corrective actions required by PADEP and the pending revisions to discharge effluent limits for the BRPCP, the No Action Alternative is not viable. The recommended solution for the Chester-Ridley Service Area is for DELCORA to take responsibility for sewage treatment by constructing a pump station and force main to convey sewage from the existing BRPCP location to the WRTP. The SWDCMA will continue to be responsible for the operation and maintenance of the collection system to the new pump station.

8.2 RECOMMENDED SEWAGE FACILITIES ALTERNATIVES

8.2.1 Continue to Repair and Maintain Existing Collection System

The I/I abatement program specified in the PADEP Consent Agreement to address I&I issues in the collection system will continue to be implemented by SWDCMA. This program includes the following measures to correct I&I problems in the collection system:

- Televising and grout each of the six main sewer districts on a 10-year cycle and report results to PADEP on a biannual basis;
- Conduct flow monitoring tributary to the Chester Creek Interceptor upstream of Knowlton Road and capture at least six rainfall events;
- Conduct manhole inspections along Chester Creek from Glen Riddle Road to Knowlton Road during rainfall events. A copy of a monthly log documenting the inspections must be submitted to PADEP along with the Monthly DMR;
- Develop and implement I/I remediation efforts for those areas that have been determined to convey extraneous wet weather flows; and,
- Implement post-remediation flow metering in order to document the success of the I/I abatement activities. The reports shall describe the sources of I/I found by the televising and the remedial methods undertaken to eliminate the I/I, especially in the King's Mill Area and tributary to the Chester Creek Interceptor. An estimate of the amount of I/I removed should be included in the report.

Additional information specifying documentation of flow metering data collection, contributing municipalities' efforts to remediate I/I in their respective collection systems, overall system conditions, and implemented remedial measures is detailed in the Consent Agreement.

Adoption and enforcement of municipal ordinances to prevent sump pump and roof leader connections to the sanitary sewer system is recommended for all municipalities within the Chester-Ridley Creek Service Area.

The manhole inspection program outlined in Consent Agreement item number 3 above will most likely be completed by the time the BRPCP is decommissioned and flow is diverted to the WRTP. Therefore, there will be no need to continue to submit a monthly log of the inspections to PADEP with the BRPCP DMRs (that will discontinue when flow is diverted to the WRTP). The manhole inspection documentation should be submitted by SWDCMA with the biannual status report of in compliance with the Consent Agreement after the BRPCP is decommissioned.

8.2.2 Convey Wastewater to DELCORA WRTP for Treatment

Continuing to treat wastewater from the Chester-Ridley Service Area at the BRPCP on a long-term basis has been determined to be inadequate due to the limited assimilative capacity of Chester Creek and on-going problems with I/I in the collection system. The recommended sewage facilities upgrade for addressing the existing condition and treating projected flows is to convey wastewater to the DELCORA WRTP in Chester via a new pump station and force main.

Alternative 2C, Baldwin Run to Union Street has been selected based on the cost estimates presented in Chapter 6, coupled with the ease of construction of this alignment. Factors that supported the selection of the Baldwin Run to Union Street route include:

- Less utility interference;
- Less traffic impacts during construction, and;
- Lower restoration costs.

8.3 RECOMMENDED PLANNING ALTERNATIVES

The revised municipal comprehensive plans and Subdivision and Land Development Ordinances should be consistent with updated municipal Act 537 Plans. Subdivision and Land Development Ordinances should include restrictions on connecting roof leaders or foundation

drains to the sanitary collection system. Mandatory connection to the public collection system should be required for all new development within a reasonable distance of existing sanitary sewers. Middletown Township has an ordinance restricting connection of roof leaders and foundation drains to the sanitary sewer (see Section 4.4 of this Plan Update).

Comprehensive plan revisions need to reflect the current and future vision of the municipality. Zoning and subdivision and land development ordinances or other municipal ordinances that are not consistent with the comprehensive plan and Act 537 plan should modify to remove outdated statements and reflect current planning. If the existing comprehensive plan is so outdated as to be of little or no value to existing municipal planning efforts, then a new plan should be developed entirely. Consideration should be given to instituting a private property lateral I/I elimination project.

8.4 RECOMMENDED INSTITUTIONAL ALTERNATIVES

8.4.1 Management of On-Lot Disposal Facilities

OLDS are in widespread use in western Delaware County and the marginal soils in the County can cause these systems to fail. OLDS management is the responsibility of the individual municipalities in the service area and will be addressed in their Act 537 Plans. An OLDS management program could be shared by several municipalities and should include registration of all OLDS, annual submission of maintenance records, and periodic inspections to ensure compliance. Early detection of problems in an area can provide the municipality with valuable time in which to develop a cost-effective long-term solution to failing systems.

An important facet of this program will be a public information/education program. This program will focus on providing the homeowners with clear guidelines on the proper operation and maintenance of their OLDS. Examples of available public education and information documents from DEP and EPA are provided in Appendix C.

CHAPTER 9.

IMPLEMENTATION OF RECOMMENDED ALTERNATIVES

9.1 INTRODUCTION

The purpose of this chapter is to provide a framework and schedule for the implementation of the recommended alternative to construct a pump station at the location of the existing BRPCP and convey wastewater from the Chester-Ridley Creek Service Area to the WRTP via force main. Alternative Route 2C, Baldwin Run to Union Street is selected in Chapters 6 and 8 for implementation. This chapter includes a schedule of the institutional, engineering design, and construction requirements to implement the selected alternative prior to expiration of the existing agreement between SWDCMA and MTSA.

9.2 IMPLEMENTATION SCHEDULE

9.2.1 Overall Project Schedule

Table 9-1 includes milestone dates for the major elements required to construct the pump station and force main.

Table 9-1

**Implementation Schedule for Pump Station and Force Main Alternative 2C,
Baldwin Run to Union Street Alignment**

Date	Milestone
March 30, 2012	All municipal resolutions adopted
April 4, 2012	Submit final plan and approved resolutions to PADEP
May 31, 2012	PADEP Act 537 Plan approval.
June 20, 2012	Begin final engineering designs for pump station and force main
January 4, 2013	Complete 60% design and submit E&S and NPDES Construction Activity Permit applications to PADEP
January 4, 2013	Submit Water Quality Management Permit Application
April 12, 2013	Advertise for bids
June 18, 2013	Bid selection and construction contract award
December 15, 2014	Complete construction and divert flow to WRTP

9.2.2 Individual Municipal Schedule

A critical step in this process is for each municipality within the Chester-Ridley Service Area to pass a resolution adopting this Act 537 Plan Update as an amendment to their Act 537 Sewage facilities Plans.

9.3 SAMPLE RESOLUTION FOR PLAN ADOPTION

The following is a model resolution for municipal adoption of this Act 537 Sewage Facilities Plan Update.

**RESOLUTION ADOPTING THE WESTERN DELAWARE COUNTY ACT 537
SEWAGE FACILITIES PLAN UPDATE – CHESTER-RIDLEY CREEK SERVICE AREA**

RESOLUTION OF THE (Superv./Comm./Council) OF _____

(City/Township/Borough), DELAWARE 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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the (City/Township/Borough) of _____ did by formal resolution dated _____, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, The Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area recommends implementation of the alternative to treat wastewater generated within the service area by discontinuing operation of the Baldwin Run Pollution Control Plant after constructing a pump station and force main and directing sewage flows to the Western Regional Treatment Plant, located in the City of Chester, and owned and operated by the Delaware County Regional Water Pollution Control Authority (DELCORA).

WHEREAS, the appropriate municipal officials, including the planning commission, of the (City/Township/Borough) have reviewed the findings and recommendations of that plan and find it to conform to applicable 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 (Super./Comm./Council) of (City/Township/Borough) hereby accepts and adopts the “Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area” prepared by the Delaware County Planning Department, January, 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966. The (City/Township/Borough) hereby assures the Department that it will implement the said plan within the time limits established in the implementation schedule found on page 9-1 of the plan, as required by law. (Section 5, Pennsylvania Sewage Facilities Act, as amended).

I, _____, Secretary, _____

(City/Township/Borough) (Super./Comm./Council) hereby certify that the foregoing is a true copy of the (Township's/Borough's) Resolution No. _____, adopted _____, 2012.

AUTHORIZED SIGNATURE

CITY/TOWNSHIP/BOROUGH SEAL

REFERENCES

Albright and Friel, division of Betz Environmental Engineers, Delaware County Regional Sewerage Project, 1972.

BCM Engineers, SWDCMA Feasibility Study, Baldwin Run Pumping Station and Force Main, March 2004.

Bradford Engineering, Edgmont Township Act 537 Special Study, Aston, PA, August 2010

Catania Engineering Associates, Inc., Chester Township Municipal 2009 Chapter 94 Report to Pennsylvania Department of Environmental Protection and U.S. Environmental Protection Agency, Wasteload Management Report Data, Milmont, Park, PA, February 8, 2010.

Thomas Comitta Associates, Inc. Middletown 2020: A Smart Growth Initiative, The Comprehensive Plan: Middletown Township, Delaware County, PA, March 26, 2001.

Delaware Valley Regional Planning Commission, Regional, County, and Municipal Population and Employment Forecasts, 2005 – 2035. August, 2007

Delaware County Regional Water Quality Control Authority, Municipal 2009 Chapter 94 Report to Pennsylvania Department of Environmental Protection and U.S. Environmental Protection Agency, Wasteload Management Report, Western Regional Drainage District – 2009, Chester, PA, submitted to PADEP March 24, 2010.

Delaware County Regional Water Quality Control Authority, Act 537 Sewage Facilities Plan Revision, Re-Rate of the Western Regional Treatment Plant, Chester, PA, January, 2007.

Kelly Engineers, Official Act 537 Sewerage Facilities Plan Update for Newtown Township and Upper Providence Township CDCA Membership, February 18, 2002.

Peter Krasas, Jr. & Associates, Inc., Act 537 Sewage Facilities Plan, Newtown Township, Delaware County, March 20, 2002.

Middletown Township, Delaware County Sewer Authority, 2009 Wasteload Management Report, March 2010.

Southwest Delaware County Municipal Authority, Municipal 2009 Chapter 94 Report, Aston, PA, March 31, 2010.

Appendix A

Environmental Report



**Delaware County Planning Department
and the
Delaware County Regional Water
Quality Control Authority**



FINAL

**Uniform Environmental Review Process Environmental Report for
The Chester-Ridley Creek Service Area Pump Station and Force Main**

Revised
11 May 2011

Prepared by:
The Delaware County Planning Department
And
Weston Solutions, Inc
1400 Weston Way
West Chester, PA 19380

Introduction

This Environmental Report has been prepared as a requirement of the Sewage Facilities Act (Act 537) Planning process to upgrade wastewater treatment for the Chester-Ridley Creek Service Area in Delaware County, PA. This report appears as Appendix A to the Western Delaware County Act 537 Plan Update for the Chester-Ridley Creek Service Area and incorporates references to text and figures presented in the Act 537 Plan. This Environmental Report is being submitted to PADEP to demonstrate conformance with environmental regulations administered by the following agencies:

- PA Department of Environmental Protection
- PA Department of Community and Economic Development
- USDA Rural Development, Rural Utilities Service
- U.S. Environmental Protection Agency, Region III

Project Description

The project consists of a pump station constructed on the site of the existing Baldwin Run Pollution Control Plant and a force main to convey wastewater from the Chester-Ridley Creek Service Area to the DELCORA Western Regional Treatment Plant (WRTP).

Project Purpose and Need

The plant discharges to a tributary of Chester Creek which has been under study in recent years for not meeting designated use and may be subject to a Total Maximum Daily Load (TMDL) in the near future. TMDLs are issued by the US Environmental Protection Agency for impaired waterways that cannot assimilate pollutant loadings from existing or potential sources. In order to allow continued growth in the BRPCP service area, which includes Aston Township, Brookhaven Borough, Chester Township, Chester Heights Borough, Middletown Township, Upper Chichester Township, Upper Providence Township, and 21 approved planned residences in Edgmont Township. The Chester-Ridley Creek Service Area is shown in Figure 1-2 of the Act 537 Plan Update. In addition to addressing the lack of future capacity and the requirement to meet increasingly tighter discharge limitations, this project is also necessitated by the impending expiration of an agreement between the current owner/operator of the BRPCP (Southwest Delaware County Municipal Authority (SWDCMA)) and the Middletown Township Sewer Authority (MTSA).

Summary of Reasonable Alternatives Considered

The alternatives considered during the sewage facilities planning process were:

1. Upgrade treatment processes and capacity at the existing BRPCP.
2. DELCORA assumed responsibility for construction and operation of new pump station and force main to convey and treat flow at the WRTP. Three force main alignments were evaluated under this alternative and are presented in Chapter 6 of the Act 537 Plan Update.
3. No Action

Comparison of Alternatives

The No Action alternative is not viable. A Consent Order and Agreement between the Pennsylvania Department of Environmental Protection (PADEP) and the Southwest Delaware County Municipal Authority (SWDCMA) (February 5, 2009) requires inflow and infiltration (I/I) studies and abatement procedures to terminate all sanitary sewer overflows within the collection system. The consent order and Agreement combined with the impending implementation of a TMDL for the Chester Creek necessitates some type of action to upgrade the treatment plant or send flow to the WRTP for treatment.

Environmental Consequences of the Selected Alternative

The selected alternative is to construct the pump station and force main. The force main alignment 2C (Baldwin Run to Union Street) was chosen as the optimum alignment. Pumping wastewater from the existing BRPCP location to the WRTP will produce local environmental benefits by eliminating the BRPCP discharge to Chester Creek and providing a higher level of wastewater treatment at the WRTP.

Land Use/Important Farmland/Formally Classified Lands

This project is located on existing parcels currently zoned and used for municipal wastewater treatment. The proposed force main will produce no permanent impacts to land uses. There are no important farmlands, state or national parks, or national monuments or landmarks associated with the project location.

Floodplains

Preliminary design lay out and field views of the force main alignment, a PADEP BDWM GP-5 (General Permit for Utility Line Stream Crossings) is anticipated to be used for stream and wetlands crossings. A Joint PADEP Chapter 105 Stream Encroachment/ USACE Section 404 Permit may be required for construction activities within the floodplain of Chester Creek, and at minor stream crossings along the force main alignment if the project is found not to conform to

the conditions for permitting under the BDWM GP-5. No permanent fill is proposed within the floodplain.

Wetlands

A Joint PADEP Chapter 105 Stream Encroachment/ USACE Section 404 Permit may be required for temporary impacts to wetlands during construction of the force main. A BDWM GP-5 General Permit is anticipated to be obtained for utility line construction. The NWI map does not indicate wetlands along the proposed force main alignment. There will be no permanent impacts to wetlands associated with this project.

Historic Resources

A Cultural Resources Notice form was submitted to the Pennsylvania Historical and Museum Commission. No impacts to Historic Resources are anticipated to be associated with this project. The PHMC response letter is included with this report as Appendix A. John Milner Associates has been contracted by DELCORA and the DCPD and is currently performing the Phase I Archaeological Study required by the PHMC.

Biological Resources

The location of the proposed pump station and the selected force main alignment were submitted to the Pennsylvania Natural Diversity Inventory for determination of potential impacts to sensitive biological resources. The responses from the PA Game Commission, The PA Department of Conservation and Natural Resources, the PA Fish and Boat Commission, and the U.S. Fish and Wildlife Service indicate no known impacts to sensitive biological resources. The responses are attached as Appendix B of this report.

Water Quality Issues

The purpose of this project is to address existing and potential water quality issues in Chester Creek. The recommended sewage facilities alternative will discontinue a wastewater treatment plant discharge to Chester Creek and send the wastewater to DELCORA's regional WRTP for treatment and discharge to the Delaware River. The WRTP provides a higher level of treatment than is currently available at the existing BRPCP and will move the discharge to a receiving water with a greater assimilative capacity than Chester Creek.

Coastal Resources

DELCORA's WRTP is located within the coastal zone management area. The response from the PADEP Coastal Zone Management Program indicated that no review under this program was necessary for this project.

Socio-Economic Issues

This project does not impose any disproportionate impacts on minority and disadvantaged populations. Economic considerations were evaluated to choose the most affordable option for sewage treatment for residents of the Chester-Ridley Creek Service Area.

Air Quality

This project does not impact air quality.

Transportation

This project will not affect transportation patterns in the surrounding communities, aside from temporary impacts during construction of the force main. Detour plans will be implemented to route traffic around construction zones.

Noise Abatement and Control

There are no activities that will generate additional noise as a result of this project, aside from temporary impacts from construction activities.

Wild and Scenic Rivers

This project does not affect any wild and scenic rivers.

Summary of Mitigation

This project is proposed to benefit the surrounding communities by providing improved and sustainable wastewater treatment. Temporary construction impacts will be mitigated through implementation of approved erosion and sedimentation control plans and post construction stabilization measures. The project itself provides water quality enhancement for Chester Creek.

Public Participation

Representatives of Aston and Middletown Townships have worked with DELCORA and the DCPD to create the Act 537 Sewage Facilities Plan Update for the Chester-Ridley Service Area. The plan update is being distributed to all affected municipalities for review and approval. It was advertised in the Delaware County Times on Monday, January 31st 2011. The public is encouraged to provide comments that will be addressed in the plan prior to submission to PADEP for approval. In addition, DELCORA invited the community to a public information session on November 17, 2010, where the Chester-Ridley Creek Service project was presented and DELCORA representatives were available to answer questions. The presentation is included in Appendix C of the Act 537 Plan Update report.

Appendix A

Cultural Resources Notice and PHMC Approval Letter

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CULTURAL RESOURCE NOTICE

Read the instructions before completing this form.

SECTION A. APPLICANT IDENTIFIER

Applicant Name Ms. Christine Volkay-Hilditch, DELCORA

Street Address 100 E. 5th Street, P.O. Box 999

City Chester State PA Zip 19016

Telephone Number (610) 876-5523 x116

Project Title Chester-Ridley Service Area Pump Station and Force Main**SECTION B. LOCATION OF PROJECT**

Chester City and Aston and
Municipality Chester Townships County Name Delaware DEP County Code 23

SECTION C. PERMITS OR APPROVALSName of Specific DEP Permit or Approval Requested: Act 537 Plan Approval

Anticipated federal permits:

- ☐ Surface Mining ☒ 404 Water Quality Permit
- ☐ Army Corps of Engineers ☐ Federal Energy Regulatory Commission
- ☐ 401 Water Quality Certification ☐ Other:

SECTION D. GOVERNMENT FUNDING SOURCES

- ☒ State: (Name) PENNVEST loans, grants ☒ Local: (Name) DELCORA Revenue Bonds
- ☐ Federal: (Name) ☐ Other: (Name)

SECTION E. RESPONSIBLE DEP REGIONAL, CENTRAL, DISTRICT MINING or OIL & GAS MGMT OFFICE

- DEP Regional Office Responsible for Review of Permit Application ☐ Central Office (Harrisburg)
- ☒ Southeast Regional Office (Conshohocken) ☐ Northeast Regional Office (Wilkes-Barre)
- ☐ Southcentral Regional Office (Harrisburg) ☐ Northcentral Regional Office (Williamsport)
- ☐ Southwest Regional Office (Pittsburgh) ☐ Northwest Regional Office (Meadville)
- ☐ District Mining Office: ☐ Oil & Gas Office:

SECTION F. RESPONSIBLE COUNTY CONSERVATION DISTRICT, if applicable.

County Conservation District Delaware County Telephone Number, if known (610) 892-9484

SECTION G. CONSULTANT

Consultant, if applicable Weston Solutions, Inc.

Street Address 1400 Weston Way P.O. Box 2653

City West Chester State PA Zip 19380

Telephone Number Beth Bolt 610-701-3132

SECTION H. PROJECT BOUNDARIES AND DESCRIPTION**REQUIRED**

Indicate the total acres in the property under review. Of this acreage, indicate the total acres of earth disturbance for the proposed activity.

Attach a 7.5' U.S.G.S. Map indicating the defined boundary of the proposed activity.

Attach photographs of any building over 50 years old. Indicate what is to be done to all buildings in the project area.

Attach a narrative description of the proposed activity.

Attach the return receipt of delivery of this notice to the Pennsylvania Historical and Museum Commission.

REQUESTED

Attach photographs of any building over 40 years old.

Attach site map, if available.

SECTION I. SIGNATURE BLOCK

2/14/11

Applicant's Signature

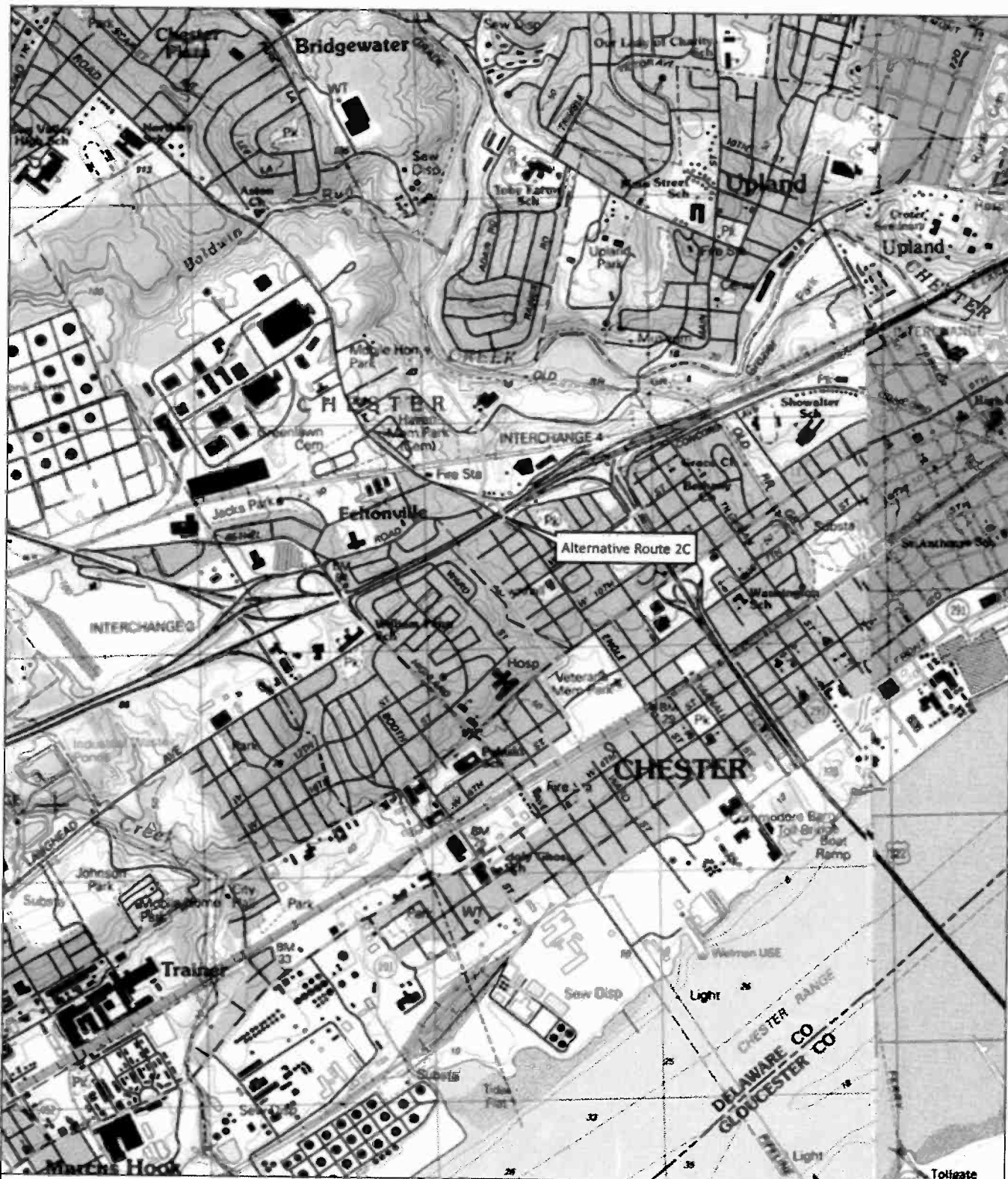
Date of Submission of Notice to PHMC

Cultural Resources Notice
Section H – Narrative Description of Project Activity
DELCORA Pump Station and Force Main for Chester-Ridley Service Area

14 February 2011

DELCORA and the Delaware County Planning Department have directed WESTON to revise the Western Plan of Study to evaluate replacing the existing Baldwin Run Pollution Control Plant, located in Aston, with pump station and force main. The pump station and force main is proposed to convey wastewater from the Chester-Ridley Creek Service Area to the Western Regional Treatment Plant in the City of Chester. The recommended force main alignment requires 14,061 linear feet of 30-inch pipe. Using a traditional trench installation method at 14,061 feet long and 6 feet wide will disturb approximately 1.94 acres. The estimated 1.94 acres of disturbance is calculated based on open trench installation. Directional drilling is under evaluation for sections of the force main, which would decrease the total acres of disturbance. The pump station control building and wet well will disturb an additional 0.5 acre. The total area of disturbance is approximately 2.44 acres. Most of the project will be located under paved road surface and all land along the force main alignment will be returned to existing condition upon project completion. It should be noted that the project will be constructed in phases and each phase will be completely stabilized, with existing land cover restored, prior to commencing the next phase.

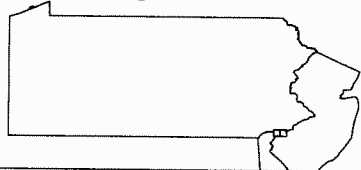
In areas adjacent to potentially historic structures, the project will be limited to existing street alignments and no impacts to existing buildings are anticipated.



Data Sources: USGS 7.5-Minute Series Topographic Quadrangles: Bridgeport, Pennsylvania, New Jersey, 1967, Revised 1970; Marcus Hook, Pennsylvania, New Jersey, Delaware, 1967, Revised 1970

Chester Ridley Creek Service Area
Act 537 Plan

Quadrangle Location = ☐



Coordinate System:
NAD_1983_StatePlane_Pennsylvania_South_FIPS_3702_Feet
Projection: Lambert_Conformal_Conic

GCS_North_American_1983
Datum: D_North_American_1983



0 1,000 2,000
Feet

PHMC Application





Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

February 25, 2011

Weston Solutions, Inc.
1400 Weston Way
P.O. Box 2653
West Chester, PA 19380

NO RESPONSE ALLOWED
ONLY REFERENCE NUMBER

4 PDF
Drug: File Copy
RECEIVED
MAR 4 2011
By 2011-0279
cc: CVH, JLS,
Bothwell, RAP
Beth Bolt, Weston
Solutions

Re: File No. ER 2011-1048-045-A
PV Act 537 Plan Approval: Chester-
Ridley Service Area Pump Station &
Force Main Alignment, Aston &
Chester Twps., Chester City
Delaware Co.

Dear Sir:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation. These requirements include consideration of the project's potential effect upon both historic and archaeological resources.

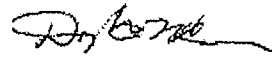
Based on an evaluation by our staff, there is a high probability that significant archaeological sites are located in this project area and could be adversely affected by project activities. Although there are no recorded archaeological sites within the project boundaries, the soil type, topographic setting, slope direction, and distance to water of the project area are similar to the settings of known archaeological sites in the vicinity. A Phase I archaeological survey of the project area is required to locate potentially significant archaeological resources. Guidelines and instructions for conducting Phase I surveys are available on our web site at <http://www.phmc.state.pa.us/bhp/Inventories/ArchaeologyGuidelines.pdf> or from our office upon request.

There may be historic buildings/structures/districts/objects eligible for the National Register of Historic Places located in the project area. However, due to the nature of the activity, it is our opinion that there will be no effect on these properties. Should the scope and/or nature of the project activities change, the Bureau for Historic Preservation should be contacted immediately.

Page 2
February 25, 2011
ER No. 2011-1048-045-A

If you need further information in this matter please consult Mark Shaffer
at (717) 783-9900.

Sincerely,



Douglas C. McLearn, Chief
Division of Archaeology &
Protection

cc: Ms. Christine Volkay-Hilditch, DELCORA, 100 E. 5th Street, P.O. Box 999,
Chester, PA 19016
DEP, Southeast Regional Office

DCM/tmw

Appendix B

Pennsylvania Natural Diversity Index Search Results

1. PROJECT INFORMATION

Project Name: **Chester-Ridley Force Main**

Date of review: **1/19/2011 9:30:35 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewer line (new - construction in new location)**

Project Length: **5253.3 feet**

County: **Delaware Township/Municipality: Chester City**

Quadrangle Name: **MARCUS HOOK ~ ZIP Code: 19013**

Decimal Degrees: **39.826335 N, -75.390715 W**

Degrees Minutes Seconds: **39° 49' 34.8" N, -75° 23' 26.6" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	Conservation Measure	No Further Review Required, See Agency Comments
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: "Accurately describe what is known about wetland presence in the project area or on the land parcel by selecting ONE of the following. "Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur."

Your answer is: **"1. The entire project and associated discharge, plus a 300 feet buffer around the project area, all occur in or on an existing building, parking lot, driveway, road, road shoulder, street, runway, paved area, railroad bed, or crop agriculture field."**

Q2: Accurately describe what is known about wetland presence in the project area or on the land parcel.

"Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur.

Your answer is: **2. The project area (or land parcel) has not been investigated by someone qualified to identify and delineate wetlands, or it is currently unknown if the project or project activities will affect wetlands.**

Q3: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats

Your answer is: **2. No**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Conservation Measure: Please avoid the introduction of invasive species in order to protect the integrity of nearby plant species of special concern. Voluntary cleaning of equipment/vehicles, using clean fill and mulch, and avoiding planting invasive species (<http://www.dcnr.state.pa.us/forestry/invasivetutorial/index.htm>) will help to conserve sensitive plant habitats.

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: *Zizania aquatica*

Common Name: Indian Wild Rice

Current Status: Special Concern Species*

Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Sensitive Species**

Common Name:

Current Status: Threatened

Proposed Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum Materials to be submitted*:

- ☐ **SIGNED** copy of this Project Environmental Review Receipt
- ☐ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- ☐ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- ☐ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- ☐ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- ☐ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- ☐ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams
- ☐ The DEP permit(s) required for this project

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax: (717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax: (717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone: (____) _____ Fax: (____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date

1. PROJECT INFORMATION

Project Name: **Baldwin Run to Union St**

Date of review: **1/19/2011 8:53:48 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewer line (new - construction in new location)**

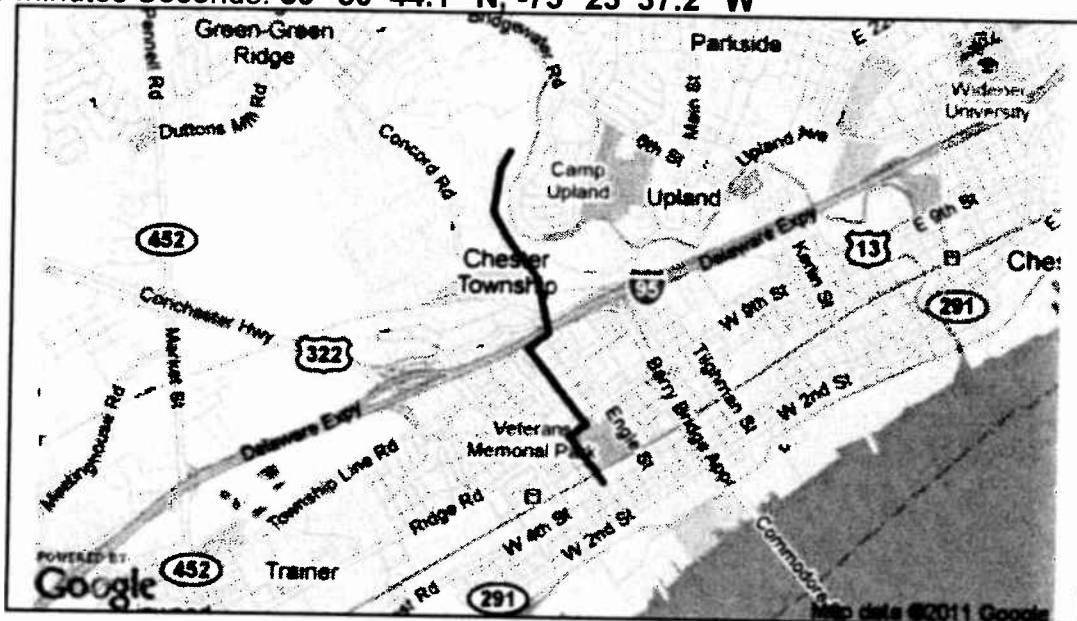
Project Length: **9494.7 feet**

County: **Delaware Township/Municipality: Chester City, Aston, Chester Twp**

Quadrangle Name: **MARCUS HOOK ~ ZIP Code: 19013, 19014**

Decimal Degrees: **39.845581 N, -75.393676 W**

Degrees Minutes Seconds: **39° 50' 44.1" N, -75° 23' 37.2" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

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Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA.
17105-8552
Fax: (717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA.
16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
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PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax: (717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone: (____) _____ Fax: (____) _____
Email: _____

8. CERTIFICATION

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applicant/project proponent signature

date

1. PROJECT INFORMATION

Project Name: **Sunfield to Engle Street**

Date of review: **1/19/2011 9:09:59 AM**

Project Category: **Waste Transfer, Treatment, and Disposal, Liquid waste/Effluent, Sewer line (new - construction in new location)**

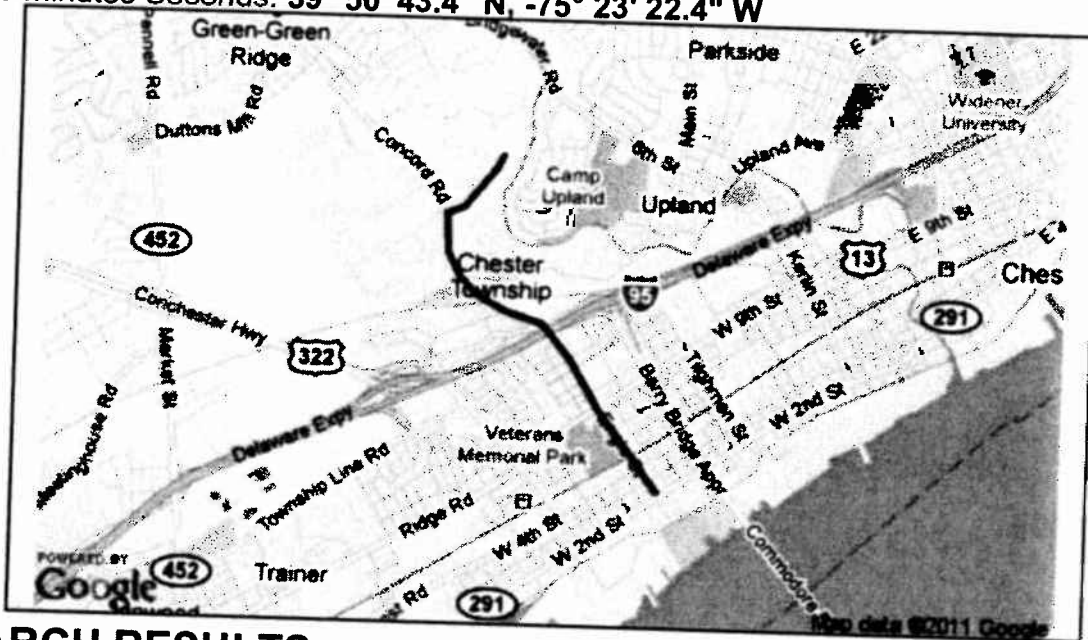
Project Length: **10702.3 feet**

County: **Delaware Township/Municipality: Aston, Chester City, Chester Twp**

Quadrangle Name: **MARCUS HOOK ~ ZIP Code: 19013, 19014**

Decimal Degrees: **39.845383 N, -75.389556 W**

Degrees Minutes Seconds: **39° 50' 43.4" N, -75° 23' 22.4" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

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Fax: (717) 772-0271

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NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
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NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax: (717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone: (____) _____ Fax: (____) _____
Email: _____

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applicant/project proponent signature

date



BUREAU OF FORESTRY

October 27, 2011

PNDI Number: 20110915315934

Elizabeth Bolt
Weston Solutions, Inc.
1400 Weston Way
P.O. Box 2653
West Chester, PA 19380
FAX: 610-701-3186 (hard copy will not follow)

Re: **Chester Ridley FM at DELCORA Plant**
Chester City; Delaware County

Dear Ms. Bolt,

Thank you for your submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **20110915315934** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources of concern under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, and our detailed resource information, DCNR has determined that no impact is likely to occur to species of special concern under our jurisdiction. No further coordination with our agency is needed for this project.

This response represents the most up-to-date summary of the PNDI data files and is valid for one (1) year from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on-site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map).

This finding applies to impacts to DCNR only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure the U.S. Fish and Wildlife Service, PA Game Commission, and the Pennsylvania Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,

A handwritten signature in black ink that reads "Rebecca H. Bowen". The signature is written in a cursive style with a large, looped "B" at the end.

Rebecca H. Bowen, Environmental Review Manager FOR Chris Firestone, Wild Plant Program Mgr.
Ph: 717-772-0258 ~ c-rbowen@state.pa.us

Appendix C

Coastal Zone Management Program Comments

Bolt, Elizabeth

From: Houck, Donovan [dohouck@state.pa.us]
Sent: Thursday, February 24, 2011 12:40 PM
To: Bolt, Elizabeth
Subject: RE: Coastal Resources Management Program Review

Do to the fact that you are using a GP review from CRMP is not required.

Thank you,

-----Original Message-----

From: Bolt, Elizabeth [mailto:Elizabeth.Bolt@WestonSolutions.com]
Sent: Thursday, February 24, 2011 12:31 PM
To: Houck, Donovan
Subject: RE: Coastal Resources Management Program Review

Hi Donovan – Thanks for calling me and trying to address our project review prior to your move. I've reviewed the requirements of BDWM-GP-5 (Utility Line Stream Crossings) and our project can be covered under the General Permit. None of the exclusions in Item 5. (Specific Areas Where General Permit Does Not Apply) pertain to our project and the project meets or will comply with all of the conditions in Item 12. Thank you very much for your assistance with the Coastal Resources Management Program requirements. Please contact me if you need additional information.

Beth

Elizabeth Bolt, P.E.
Weston Solutions, Inc.
610-701-3132

From: Houck, Donovan [mailto:dohouck@state.pa.us]
Sent: Friday, February 18, 2011 8:06 AM
To: Bolt, Elizabeth
Subject: RE: Coastal Resources Management Program Review

Hello Beth,

I did get your email & phone message. I will review the information and get in contact with you if I have any questions. Otherwise I will be sending out the consistency letter next week.

Thanks.

-----Original Message-----

From: Bolt, Elizabeth [mailto:Elizabeth.Bolt@WestonSolutions.com]
Sent: Thursday, February 17, 2011 12:04 PM
To: Houck, Donovan
Subject: Coastal Resources Management Program Review

Dear Mr. Houck,

Randy Brown in the SERO gave me your name as the PADEP contact to review a proposed project for consistency with the Coastal Resources Management Program. I've attached some files describing the proposed project, which is installation of a sewage force main from Aston Township in Delaware County to DELCORA's Western Regional Treatment Plant in Chester City, Delaware County.

I am submitting the attached project materials to you for review as part of the PADEP approval process for the Western Delaware County Act 537 Sewage Facilities Plan Update for the Chester-Ridley Creek Service Area. Randy told me that you are transferring to another office. Please forward the contact information for your successor to me and I will make a more formal submission for review if you will no longer be responsible for the review. There will be no fill or major construction within the Coastal Zone. The project involves installation of a 30-inch sanitary sewage force main to an existing facility.

Thank you in advance,

Beth Bolt

Elizabeth Bolt, P.E.
Weston Solutions, Inc.
610-701-3132

CONFIDENTIALITY: This email and attachments may contain information which is confidential and proprietary. Disclosure or use of any such confidential or proprietary information without the written permission of Weston Solutions, Inc. is strictly prohibited. If you received this email in error, please notify the sender by return e-mail and delete this email from your system. Thank you.

Appendix B
PENNVEST Loan Information

PENNSYLVANIA HOUSING FINANCE AGENCY
PENNVEST Individual On-Lot Sewage Disposal System Loan Program
Participating Lender List (as of 1/1/09)

Allegheny Mortgage Corporation
Terry Johnston
Oak Park Mall
2001 Lincoln Way
White Oak, PA 15131
800-728-3505

Colonial American Bank
David W. Eglin
300 Conshohocken State Road
Suite 160
West Conshohocken, PA 19428
610-941-1266
610-941-4655 fax

Jersey Shore State Bank
Mortgage Department
300 Market Street
Williamsport, PA 17701
888-412-5772

Liberty Mortgage Corporation
Debbie Gilmour
3818 Liberty Street
Erie, PA 16509
814-868-8564
814-868-0381 fax

John E. Mariner (Greene County)
First Federal Savings and Loan
Association of Greene County
25 East High Street
P.O. Box 190
Waynesburg, PA 15370
724-627-6616

Joseph Abraham (Fayette County)
First Federal Savings and Loan
Association of Greene County
Main and Beeson Streets
P.O. Box 1246
Uniontown, PA 15401
724-437-2861

**Please call 1-800-822-1174 for an updated list of lenders
or check the following website: www.phfa.org.**



Individual On-Lot Sewage Disposal System

Funding Program

Pennsylvania Infrastructure Investment Authority (PENNVEST)
Pennsylvania Housing Finance Agency
Department of Environmental Protection

**Edward G. Rendell, Governor
Commonwealth of Pennsylvania**

PENNSYLVANIA HOUSING FINANCE AGENCY

PENNVEST Individual On-Lot Sewage Disposal System Loan Program

Participating Lender List (as of 1/1/2010)

Allegheny Mortgage Corporation
Terry Johnston
Oak Park Mall
2001 Lincoln Way
White Oak, PA 15131
800-728-3505

Liberty Mortgage Corporation
Debbie Gilmour
3818 Liberty Street
Erie, PA 16509
814-868-8564
814-868-0381 fax

Colonial American Bank
David W. Eglin
300 Welsh Road
Building Four
Horsham, PA 19044
215-657-4343
215-657-4388 fax

John E. Mariner (Greene County)
First Federal Savings and Loan
Association of Greene County
25 East High Street
P.O. Box 190
Waynesburg, PA 15370
724-627-6616

Jersey Shore State Bank
Mortgage Department
300 Market Street
Williamsport, PA 17701
888-412-5772

Joseph Abraham (Fayette County)
First Federal Savings and Loan
Association of Greene County
Main and Beeson Streets
P.O. Box 1246
Uniontown, PA 15401
724-437-2861

**Please call 1-800-822-1174 for an updated list of lenders
or check the following website: www.phfa.org.**

The Pennsylvania Infrastructure Investment Authority (PENNVEST) provides low cost financing for wastewater systems across the Commonwealth. These systems typically serve an entire community with many users who are able to tie into the central system.

In some parts of the Commonwealth, particularly rural areas, it may be more cost-effective for individual homeowners to use their own on-lot sewage disposal systems rather than incur the high costs of constructing long collection lines to service widely scattered properties. As with larger systems, however, these individual on-lot sewage disposal systems may require improvement, repair or replacement to meet public health and environmental standards.

In order to provide access to the same low cost financing available to larger systems, PENNVEST teamed with the Pennsylvania Housing Finance Agency (PHFA) and the Department of Environmental Protection (DEP) to develop a special funding program to meet these needs. This collaborative effort resulted in the Individual On-lot Sewage Disposal System Funding Program (the “On-lot Funding Program”).

■ ELIGIBILITY

Loans offered under the On-lot Funding Program are available to all citizens of the Commonwealth, with limited exceptions. Detailed information on eligibility requirements can be obtained from any of the agencies involved in the program by either sending in the detachable information request, or by calling the numbers listed in this brochure. Alternatively, eligibility information can be obtained from a participating local lending institution or your local Sewage Enforcement Officer.

It is critical to remember, however, that you must not begin construction on your repair or replacement project before you receive approval of your loan. If you do begin construction too soon, your project will be ineligible for funding from this program!

THE GENERAL ELIGIBILITY REQUIREMENTS ARE:

- **family income** — must not exceed 150 percent of the statewide median household income, adjusted annually for inflation. The applicable maximum through December 31, 2010 is \$75,800
- **credit worthiness** — financial ability to repay the loan
- **loan amount** — maximum - \$25,000
- **project type** — rehabilitation, improvement, repair or replacement of an existing system located on a single family, owner occupied property which is the primary residence of the owner
- **project location** — all areas are eligible unless a community wastewater collection and treatment system is either in place or will be constructed in the next five years
- **project costs** — construction fees and costs, permit fees, loan origination fees and legal fees
- **documentation** — all applicable permits, verification from your local municipality that a community wastewater disposal system neither exists nor is planned in the next five years, income and other credit information
- **lien position** — the PENNVEST loan must be in a 2nd lien position unless the loan amount is not greater than \$7,500, in which case a 3rd lien position would be allowed

■ FINANCIAL ASSISTANCE AVAILABLE

All assistance to homeowners under the On-lot Funding Program is in the form of loans at an interest rate of 1.0 percent plus a servicing fee of .75 percent per annum. Loans will be secured by a mortgage on the borrower's home. The maximum term of a loan is 20 years and loan repayment commences within 60 days after the date of loan disbursement. A loan must be immediately repaid in full if the property on which the project is located is either sold or transferred. Loan origination fees will also be charged in connection with a loan.

■ HOW TO APPLY

Your first step should be to contact a participating local lending institution to see if you qualify for credit approval of a loan. See the inside front cover of this brochure or contact PHFA at 1-800-822-1174 for an updated list of participating lenders.

An application fee of \$65 will be collected, but it is a reimbursable fee if your loan is closed and disbursed.

If credit approval is given, you should then contact your municipal officials and have them sign a standard form certifying that your proposed project is not in an area which is currently served by public sewers and will not be served by public sewers within five years. If the municipal officials concur, contact the sewage enforcement officer (SEO) serving your municipality to determine if a repair or replacement of your on-lot system is permissible under all applicable Commonwealth regulations.

If a repair or replacement is permissible, the system must then be designed, and the designing SEO or professional engineer (PE) must certify that the system proposed is the most cost-effective system available for your property. Your municipal SEO then reviews the design and, if acceptable, issues a permit for the system. Where conditions are not suitable for a standard or alternative

subsurface disposal system, small flow treatment systems with a discharge may also be eligible. In these cases a PE must design the system and it must be permitted by DEP.

Your next step is to obtain bids from contractors who could do the work you are considering. Where possible, a minimum of three responsible bids is recommended. Have each contractor provide you with a written copy of his/her bid.

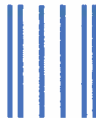
Once these steps are completed, take the permit application, permit, bids, and the certifications from both the designer and municipal officials to the participating local lending institution you contacted in the first step to complete your application for funding. That institution may request additional information and documentation.

■ **YOUR CONTINUING RESPONSIBILITY**

A basic requirement of the program is that you keep your upgraded or new on-lot system in good repair, have it pumped out regularly and ensure that it does not malfunction and fail to adequately treat wastewater or cause a public health hazard. DEP will help you comply with these requirements. Simple common sense and reasonable, regular upkeep should be sufficient to avoid any problems. A pumping frequency schedule and reporting requirements will be included in your loan agreement.

■ **BENEFITS TO YOU**

The low cost financing available to you under the On-Lot Funding Program can provide you with an adequate on-lot sewage disposal system and save money at the same time. For example, the interest cost savings on a 15 year, \$10,000 loan under this program, compared with a conventional loan, could range from \$3,000 to \$6,000. At the same time, you will be contributing to a cleaner environment for all of Pennsylvania.



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PHFA - 1-800-822-1174

DEP - (717) 787-3481 or your local DEP office.

*Look in the blue pages of your telephone directory for the local number.
Or, detach and send in the following information card.*

www.pennvest.state.pa.us

www.phfa.org

REQUEST FOR ADDITIONAL INFORMATION

If you would like additional information on the On-Lot Funding Program, just fill out the information below and mail in the card. No postage is necessary.

Name _____

Address _____

Phone: () _____

Appendix C

Public Education Materials

ACT 537 - SEWAGE MANAGEMENT PROGRAMS - PART I

Ensuring Long-Term Use of Onlot Systems Through Proper Operation and Maintenance

The Pennsylvania Sewage Facilities Act (Act 537) requires all municipalities to develop and maintain an up-to-date sewage facilities official plan to protect public health from diseases, prevent future sewage treatment problems and protect the quality of the state's surface water and groundwater. As part of an official plan update, the municipality should consider developing a sewage management program. Such a program to ensure the operation and maintenance of onlot sewage systems should be established before malfunctions are widespread in an area. Malfunctioning onlot treatment systems can endanger public health, degrade the environment and reduce property and community value by discharging onto public areas, private property or contaminating receiving waters including drinking water supplies.

Properly designed and installed onlot treatment systems function better and longer with regular maintenance. Sewage management programs ensure that onlot sewage treatment systems are properly operated and maintained. If operation and maintenance activities are neglected, systems can either fail completely or may function well below their capabilities. This can quickly negate the efforts of a municipality in assuring public health protection through requirements for proper design and installation of these systems.

Municipal sewage management programs can be as simple or as comprehensive as needed and may be based on each municipality's particular needs and resources. This fact sheet explains the importance of municipal sewage management programs and how they are developed by municipalities to meet their needs for individual and community onlot sewage systems.

Why should my municipality manage onlot systems?

Most municipalities have areas that can never be physically or cost-effectively served by public sewer facilities. Areas may contain suitable soils but have scattered malfunctioning onlot treatment systems that can cause public health and other hazards. Malfunctioning individual onlot systems will also often be found in areas that have poor soils and/or small lot sizes. It may become impossible to repair or replace these systems on an individual lot-by-lot basis. If your municipality is faced with this latter situation, you can assess your options for using community onlot systems to meet your long-term needs. In any case, repairing onlot systems as they malfunction typically will not solve the problem permanently until regular management and maintenance of onlot systems is established to help keep the problems that lead to malfunctions from recurring.

What options are available for establishing a Sewage Management Program?

Municipalities have established numerous approaches to sewage management in Pennsylvania. While existing management programs range from simple pumping or maintenance permit programs to more complex municipal inspection programs, you should base your sewage management program on the specific needs and resources in your municipality.

In developing a sewage management program for your municipality, you may choose from a variety of possible management service options and administrative alternatives. Management options for onlot systems may include such services as:

- Public and homeowner education;
- Regular pumping of tanks;
- Operation and maintenance activities tailored to specific onlot systems or treatment components;
- Testing and monitoring procedures to assess the quality of effluent treatment; and/or
- Periodic inspections to determine system integrity and operational performance and more.

Administrative alternatives for delivering or ensuring your program's management services can range from:

- Maintenance contracts established between a homeowner and the manufacturer or a third-party maintenance provider;
- Operating permits issued by the municipality based on the system's compliance with particular quality or operating standards;

- Direct provision of management services by the municipality or an established service utility; or
- Direct ownership and management of onlot systems by the municipality or an established utility.

There are many examples and variations of these management service options and administrative alternatives in use in municipalities across Pennsylvania. Your local DEP representative can help you learn more about existing sewage management programs.

Are there minimum requirements for Sewage Management Programs?

There are minimum requirements only if a sewage management program is required by regulation. Maintenance standards are listed in Title 25 of the Pennsylvania Code, Chapter 71 §71.73 to make sure that management programs carry out at least the minimum activities necessary to maintain onlot systems (this DEP regulation, as well as others, can be found on-line at www.pacode.com).

Some of the minimum requirements include:

- Removal of septage from the treatment tanks once every three years or following a tank inspection that reveals the need for septage removal (when the tank is determined to be more than 1/3 full);
- Operation and maintenance of the treatment components and appurtenances that make up the system;
- Maintenance of surface contouring around the system to divert stormwater and to protect the system from damage;
- Water conservation requirements;
- Provisions for septage pumping and disposal; and
- Requirements for holding tank maintenance.

Additional details on how and why to establish a sewage management program can be found in Part II of this fact sheet.

For more information, visit www.depweb.state.pa.us, keyword: Sewage or contact the DEP regional office in your area.

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24-Hour Emergency: 570-826-2511

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Northcentral Region

208 W. Third St., Suite 101
Williamsport, PA 17701
Main Telephone: 570-327-3636
24-Hour Emergency: 570-327-3636

Counties: Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union

ACT 537; UNDERSTANDING SEPTIC SYSTEMS

What is a septic system?

Septic systems (also called “onlot” disposal systems or OLDS) are sewage systems located on the property of the homeowner. They treat and dispose of domestic sewage through natural processes. Liquid waste from a treatment tank percolates through the soil, where it is neutralized and broken down further. Septic system operation and maintenance is the responsibility of the homeowner. In contrast, a centralized sewage system collects and treats sewage from many homes and/or businesses and disposes it off site. Centralized systems often use complex mechanical and chemical treatment methods.

Who uses septic systems?

For many Pennsylvanians, centralized sewage disposal is not an option. In fact, one-quarter of Pennsylvania residents currently depend on septic systems to treat their sewage.

How do I obtain a septic system permit?

Anyone who intends to install an onlot system with a flow of less than 10,000 gallons per day must use the following generalized process:

1. The lot owner or an agent for the owner applies for a permit through the local agency* Sewage Enforcement Officer (SEO);
2. The SEO for the local agency conducts soil profile examination and percolation tests to determine site suitability;
3. The lot owner or agent completes the permit application by including an onlot system design based upon the results of the site suitability testing;
4. The SEO approves or denies the permit within seven days of receipt of a completed application; and
5. If approved, the SEO issues a permit. Installation of a system may begin. If denied, the SEO notifies the applicant and provides opportunity for an appeal hearing.
6. The SEO may oversee any step of installation and must inspect the completed system before coverage and use.

What is an SEO and what are his/her duties?

Certified SEO's working for local governing bodies handle the septic system permitting process. This includes the review of soil profiles (deep probes) and percolation tests and the issuance of permits.

What is DEP's role in the permitting process?

DEP can review, monitor and assist a local agency's administration of the permitting process.

What is a deep probe test?

The first test on the site is a deep probe test. In this test, a backhoe pit is dug as deep as eight feet. The SEO enters this pit to examine the make-up of the soil (soil profile). From this, the SEO will determine the suitability of the soil for a septic system. If the soil is determined suitable for a type of system (standard or alternate), then a percolation test will be performed. If the soil is determined unsuitable, no permit will be issued.

What is a percolation test?

A percolation (“perc”) test measures the rate at which water moves through soil. The test is to determine if the soil will allow water to drain quickly enough to support a properly working septic system. The following process is used to perform a percolation test:

1. A minimum of six holes are dug in the area of the proposed absorption field;
2. the soil is soaked before the actual test to reproduce wet season operation;
3. The day of the test, a final soaking is completed for one hour; and
4. The actual test then begins with a series of measurements of water level drop done at 10 or 30 minute intervals. This test may take as long as four hours or as little as 40 minutes, depending upon the type of soil. (Very sandy soils usually take less time to test than soils with a lot of clay).

It is very important to realize that although the effluent from a septic or aerobic tank is partially treated, it still contains substances that can affect the groundwater, such as viruses, pathogens and nitrates. The soil is a critical component of an efficiently running system. Regular maintenance of the system also is necessary to ensure long-term operation.

There are many variations to onlot system design depending on soil, site and operational conditions. A few examples are:

1. Standard trench
2. Seepage bed system
3. Subsurface sand filter
4. Elevated sand mound
5. Individual residential spray irrigation system (IRSIS)

For more information on these variations, please contact your local SEO (obtain address/phone number from your municipality's government office).

How does a septic system function?

1. Sewage, both human waste and water used for bathing and washing, flows to the **septic tank**. Here, primary treatment of the sewage takes place. The heaviest matter falls to the bottom of the tank forming **sludge**. Lighter matter (**scum**) floats on top of the liquid (**effluent**). Sludge and scum must be pumped out regularly.

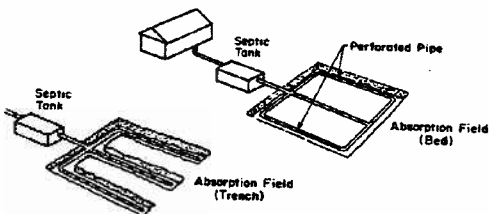


Figure A: Gravity Distribution Systems

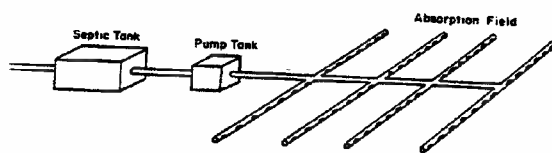


Figure B: Pressure Distribution Systems

2. Septic tank effluent then flows to a **distribution box** or a **solid header** in gravity flow distribution systems (see Figure A) or to a **pump tank** in pressurized distribution systems (see Figure B).
3. In both types of distribution systems, the septic tank effluent is then directed to an **absorption area** constructed of pipe placed within a layer of gravel, and percolates through the soil for additional treatment. The soil neutralizes many of the contents of the wastewater and converts other contents to different forms.

How often must my septic tank be pumped?

Up to 50 percent of the solids retained in the tank decompose; the remainder accumulate in the tank. A septic tank should be pumped out at least every three to five years, or according to your local sewage management program which may require more frequent pumping.

Under current Pennsylvania law, a 900-gallon septic tank must be used for a home with three bedrooms or fewer. If six people reside in a three-bedroom house, the tank should be pumped every 1.3 years. If the same system serves a family of two, the tank would be pumped every 5.2 years. Systems installed before 1971 may have septic tanks smaller than 900 gallons. These tanks may need to be pumped more than once a year.

What if my lot conditions do not meet the requirements for a standard septic system?

If your particular lot conditions do not allow the installation of a standard septic system, some alternates may be available. Your local SEO can help find the best system for you depending on your specific site, soil and operational conditions.

How do state and local actions protect Pennsylvania's public health and water quality?

The Pennsylvania Sewage Facilities Act (Act 537) was enacted in 1966 to set uniform standards for the construction or repair of any sewage disposal facility. The two main goals of Act 537 are to correct existing disposal system problems and to prevent future problems. To reach this goal, Act 537 requires the planning of all sewage facilities and the permitting of onlot sewage disposal systems.

Provisions of Act 537 administered by DEP include:

1. Training and certifying SEOs;
2. Providing technical assistance;
3. Reviewing official sewage plans and revisions;
4. Awarding planning grants to local agencies; and
5. Reimbursing local agencies for permitting expenses.

Where can I obtain more information on septic-related questions?

For more information on onlot sewage disposal systems, contact your local SEO or the DEP regional office serving your county.

For more information, visit www.depweb.state.pa.us, keyword: Sewage or contact your local DEP office.

ACT 537 - SEWAGE MANAGEMENT PROGRAMS - PART II

Ensuring Long-Term Use of Onlot Systems Through Proper Operation and Maintenance

This Part II fact sheet continues the overview and discussion of minimum requirements, benefits and steps for establishing a successful sewage management program that was begun in Part I.

How can my municipality begin managing onlot systems?

The first step in the process is for your municipality to assess available administrative, technical, financial and management options by preparing an update revision to its Act 537 official plan. The update revision should provide for identification of all onlot systems and a determination of their operational status. Such factors as the suitability of soils, underlying geology and any peculiar environmental conditions that could impact the continued long-term use of onlot systems are also examined.

Using this information, the various options to ensure performance of routine operation and maintenance for new and existing onlot systems are identified and compared.

Ultimately, the specific options and alternatives for a sewage management program that best fits with your municipality's resources and needs are selected for implementation. In connection with the management program, the plan should also evaluate required needs for septage handling (septage haulers, septage disposal options, etc.) and develop appropriate administrative and legal procedures.

Finally, to allow implementation, your official plan must establish an ordinance that legally authorizes the municipality's program to manage onlot systems.

What other steps are there to developing a Sewage Management Program?

There are several additional steps that should occur together with sewage facilities planning in considering and developing the service options, administrative alternatives, legal procedures, ordinances and other pieces that will make up your municipality's sewage management program. These steps primarily involve gaining understanding and consensus from the residents in your municipality who will be impacted by the proposed management program.

It is important that opportunities be afforded for homeowners and the public to learn what onlot systems are, how they work and why management and maintenance of these systems is so important. Public education meetings, civic events or programs provided at local schools can be excellent ways to get the word out.

The citizens in your municipality will better accept the management program if they have a voice in its planning and development. Surveys or questionnaires, public forums for exchanging questions and opinions, as well as citizen representation on advisory or planning groups can all be very helpful.

Residents need to be informed about the details of the proposed program, how it will affect them and what actions they need to take. Mailings, newsletters, articles or announcements in the local media, websites and public information sessions are just some of the ways Pennsylvania municipalities have educated and involved their citizens.

Can municipalities work together through Sewage Management Programs?

Yes. Municipalities in many parts of the state have banded together to form "joint local agencies." These agencies then implement sewage management programs consistently throughout the service areas of their member municipalities.

Can sewage management be administered through existing municipal structures?

Yes. Some municipal governments are already involved in the permitting of onlot sewage systems through programs administered by agencies such as joint sewage committees, county health departments, etc. These existing onlot permitting programs involve testing proposed sites, reviewing designs and addressing adequate system construction through final inspections of installed onlot systems. Unfortunately, in many cases, system installation marks the boundary of the permitting program.

Sewage management programs, administered by joint local agencies, or even municipal sewer authorities, can extend municipal oversight for these permitted systems to include regular operation, maintenance, testing and/or

inspection. Such actions assure that the special care and attention taken to properly design and install onlot systems is not negated by the lack of system management and oversight.

Is management of onlot treatment systems cost-effective?

Yes. Maintaining properly installed sewage systems can extend the life of these systems and may save the homeowner the cost of repairing or replacing an abused, malfunctioning onlot system. Sewage management programs can also help prevent future problems from occurring with systems that have been repaired following malfunction.

Municipalities confronting areas with numerous malfunctioning systems often opt to extend sewer lines for great distances. This action may solve the problem, but can be very costly to the municipality and the affected property owners. Sewer lines can inadvertently promote unwanted development. Municipalities might also attempt to deal with areas of malfunctioning individual onlot systems by connecting the affected homes to a single larger system to address the immediate problem; however, there is still the potential for future malfunctioning of the resulting community systems unless the municipality has a management program that commits it to oversee proper operation and maintenance of these larger systems.

Is financial and technical assistance available for my municipality to develop or update its sewage facilities official plan?

Yes. Municipalities can apply to DEP for a planning grant to reimburse up to 50 percent of the cost of preparing a sewage facilities official plan.

Additionally, to assist municipalities in the development of their sewage management programs, DEP has several model ordinances that reflect the requirements typical of the different programs. The “pump” model ordinance reflects the simplest approach to a sewage management program, while the ordinance for a municipal inspection program is the most complex approach. You should keep your municipality’s management program as simple and effective as possible to meet your special needs.

Is there financial assistance available to my municipality to establish and administer a Sewage Management Program?

Yes. Sewage management program costs of staffing and administration are eligible costs of the sewage enforcement reimbursement program. Your management program is expected to charge reasonable fees to cover the costs of the activities you conduct. If revenue does not adequately cover all these costs, your municipality may recover monies from the state to eliminate this deficit amount, up to 50 percent of the total cost of the enforcement program. Local agencies qualifying for 85 percent sewage permitting enforcement reimbursement also qualify for the same method of calculating reimbursement for their sewage management program’s activities.

For more information, visit www.depweb.state.pa.us, keyword: Sewage or contact the DEP regional office in your area.

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Appendix D
Approved Municipal Resolutions

2012-05

A RESOLUTION OF BROOKHAVEN BOROUGH, DELAWARE COUNTY, PENNSYLVANIA ADOPTING AN IMPLEMENTATION SCHEDULE FOR THE WESTERN DELAWARE COUNTY ACT 537 SEWAGE FACILITIES PLAN UPDATE – CHESTER-RIDLEY CREEK SERVICE AREA AND REPEALING ALL RESOLUTIONS AND PARTS THEREOF INCONSISTENT HERewith.

WHEREAS, the Council of Brookhaven Borough did by formal Resolution Number 2012-02, dated February 6, 2012, accept and adopt the Act 537 Plan prepared by the Delaware County Planning Department, dated January 2011 (the "Plan"), as a amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966; and

WHEREAS, as part of that Resolution, Council declined to adopt the implementation schedule included in the Plan, which it observed to be outdated; and

WHEREAS, the Delaware County Planning Department has amended said implementation schedule, and requested that this Council adopt same.

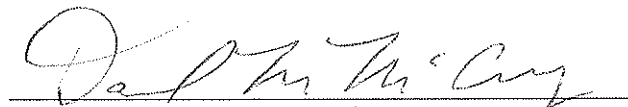
NOW, THEREFORE, BE IT RESOLVED THAT:


1. Adoption of Revised Implementation Schedule. The Borough hereby accepts and adopts the Implementation Schedule attached hereto as Exhibit "A" and the Borough hereby assures the Department that, where it has responsibility to do so, it will implement the said plan within the time limits established in the implementation schedule found on page 9-1, as amended, of the plan, as required by law.

2. Repealer. All Resolutions or parts thereof directly inconsistent herewith are hereby repealed to the extent of such inconsistencies.

RESOLVED, this 2nd day of April 2012

BROOKHAVEN BOROUGH COUNCIL


Daniel M. McCray, Council President


Michael S. Hess, Mayor

I hereby certify that the foregoing is a true copy of Brookhaven Borough Resolution No.
2012-05, adopted April 2, 2012.

[SEAL]

Mary Ellen McKinley
Mary Ellen McKinley
Borough Secretary

CHAPTER 9.

IMPLEMENTATION OF RECOMMENDED ALTERNATIVES

9.1 INTRODUCTION

The purpose of this chapter is to provide a framework and schedule for the implementation of the recommended alternative to construct a pump station at the location of the existing BRPCP and convey wastewater from the Chester-Ridley Creek Service Area to the WRTP via force main. Alternative Route 2C, Baldwin Run to Union Street is selected in Chapters 6 and 8 for implementation. This chapter includes a schedule of the institutional, engineering design, and construction requirements to implement the selected alternative prior to expiration of the existing agreement between SWDCMA and MTSA.

9.2 IMPLEMENTATION SCHEDULE

9.2.1 Overall Project Schedule

Table 9-1 includes milestone dates for the major elements required to construct the pump station and force main.

Table 9-1

**Implementation Schedule for Pump Station and Force Main Alternative 2C,
Baldwin Run to Union Street Alignment**

Date	Milestone
March 30, 2012	All municipal resolutions adopted
April 4, 2012	Submit final plan and approved resolutions to PADEP
May 31, 2012	PADEP Act 537 Plan approval.
June 20, 2012	Begin final engineering designs for pump station and force main
January 4, 2013	Complete 60% design and submit E&S and NPDES Construction Activity Permit applications to PADEP
January 4, 2013	Submit Water Quality Management Permit Application
April 12, 2013	Advertise for bids
June 18, 2013	Bid selection and construction contract award
December 15, 2014	Complete construction and divert flow to WRTP

RESOLUTION ADOPTING THE WESTERN DELAWARE COUNTY ACT 537 SEWAGE
FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK SERVICE AREA

RESOLUTION OF THE BOARD OF COMMISSIONERS ASTON TOWNSHIP,
DELAWARE 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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Aston did by formal resolution number 2010-83 dated June 16, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Township of Aston did by formal Resolution Number 2011-78, dated July 20, 2011, accept and adopt the Act 537 Plan prepared by the Delaware County Planning Department, dated January 2011, as a amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966 but the formal resolution reflected an inaccurate plan title. A true and correct copy of Resolution Number 2011-78 is attached hereto as Exhibit "A."

WHEREAS, the Township of Aston hereby desires to amend Resolution Number 2011-78 as follows:

NOW, THEREFORE, BE IT RESOLVED THAT THE BOARD OF COMMISSIONERS OF ASTON TOWNSHIP hereby amends Resolution Number 2011-78 by Deleting all references to "the Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update" and Adding the proper Plan title "**Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area**" prepared by the Delaware County Planning Department, January, 2011.

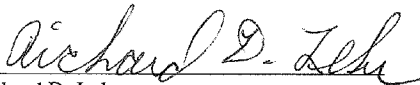
I, Richard D. Lehr, Secretary/Manager for Aston Township, Board of Commissioners hereby certify that the foregoing is a true copy of Aston Township Resolution No. 2012-21, adopted February 15, 2012.

ASTON TOWNSHIP
BOARD OF COMMISSIONERS

By: 

James M. Stigale, President
Board of Commissioners

ATTEST:


Richard D. Lehr
Township Secretary/Manager

Resolution No. 2012-8
RESOLUTION ADOPTING THE WESTERN DELAWARE COUNTY ACT 537 SEWAGE
FACILITIES PLAN UPDATE – CHESTER-RIDLEY CREEK SERVICE AREA

RESOLUTION OF THE COUNCIL OF UPPER PROVIDENCE TOWNSHIP, DELAWARE
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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Upper Providence did by formal resolution dated February 10, 2011, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Township of Upper Providence did by formal Resolution Number 2011-16, dated July 14, 2011, accept and adopt the Act 537 Plan prepared by the Delaware County Planning Department, dated January 2011, as a amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966 but the formal resolution reflected an inaccurate plan title and an inaccurate date in the third Whereas clause. A true and correct copy of Resolution Number 2011-16 is attached hereto as Exhibit “A.”

WHEREAS, the Township of Upper Providence hereby desires to amend Resolution Number 2011-16 as follows:

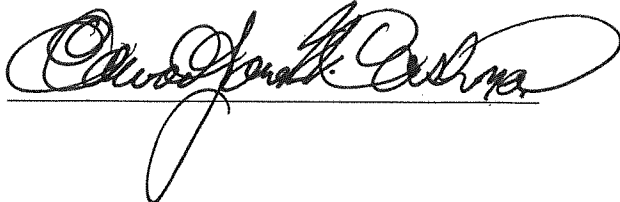
NOW, THEREFORE, BE IT RESOLVED THAT THE COUNCIL OF THE TOWNSHIP OF UPPER PROVIDENCE hereby amends Resolution Number 2011-16 by Deleting all references to “the Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update” and Adding the proper Plan title “**Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area**” prepared by the Delaware County Planning Department, January, 2011.

BE FURTHER RESOLVED THAT THE COUNCIL OF THE TOWNSHIP OF UPPER PROVIDENCE hereby amend the third WHEREAS clause of Resolution Number 2011-16 by Deleting the date “February 11, 2010” and inserting the date “**February 10, 2010.**”

I, Edward Cashman, Secretary, Upper Providence Township Council hereby certify that the foregoing is a true copy of the Township’s Resolution No. 2012-8, adopted February 9, 2012.

AUTHORIZED SIGNATURE

TOWNSHIP SEAL



RESOLUTION NO. 12-13
RESOLUTION ADOPTING THE WESTERN DELAWARE COUNTY ACT 537 SEWAGE FACILITIES
PLAN UPDATE – CHESTER-RIDLEY CREEK SERVICE AREA

RESOLUTION OF THE BOARD OF COMMISSIONERS OF UPPER CHICHESTER TOWNSHIP,
DELAWARE 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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Upper Chichester did by formal resolution dated July 8, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Township of Upper Chichester did by formal Resolution Number 11-23, dated August 11, 2011, accept and adopt the Act 537 Plan prepared by the Delaware County Planning Department, dated January 2011, as a amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966 but the formal resolution reflected an inaccurate plan title and an inaccurate date in the third “Whereas” clause. A true and correct copy of Resolution Number 11-23 is attached hereto as Exhibit “A.”

WHEREAS, the Township of Upper Chichester hereby desires to amend Resolution Number 11-23 as follows:

NOW, THEREFORE, BE IT RESOLVED THAT THE BOARD OF COMMISSIONERS OF UPPER CHICHESTER TOWNSHIP hereby amends Resolution Number 11-23 by Deleting all references to “the Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update” and Adding the proper Plan title “**Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area**” prepared by the Delaware County Planning Department, January, 2011.

BE FURTHER RESOLVED THAT THE BOARD OF COMMISSIONERS OF UPPER CHICHESTER TOWNSHIP hereby amend the third WHEREAS clause of Resolution Number 11-23 by Deleting the date “August 11, 2011” and inserting the date “**July 8, 2010.**”

I, Dora Coleman, Secretary, of the Township of Upper Chichester Board of Commissioners hereby certify that the foregoing is a true copy of the Township’s Resolution No. 12-13, adopted February 9, 2012.

TOWNSHIP OF UPPER CHICHESTER

BY:


Nicole A. Whitaker

President- Board of Commissioners

ATTEST:



Dora A. Coleman

Township Secretary

TOWNSHIP OF UPPER CHICHESTER
RESOLUTION NO. 11-23

RESOLUTION ADOPTING THE DELAWARE COUNTY SEWAGE FACILITIES PLAN UPDATE – WESTERN
PLAN OF STUDY: CHESTER-RIDLEY CREEK SERVICE AREA

RESOLUTION OF THE BOARD OF COMMISSIONERS OF UPPER CHICHESTER TOWNSHIP, DELAWARE
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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Upper Chichester did by formal resolution dated August 11, 2011, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, The Delaware County Act 537 Western Plan of Study: Chester-Ridley Creek Service Area Update recommends implementation of the alternative to treat wastewater generated within the service area by discontinuing operation of the Baldwin Run Pollution Control Plant after constructing a pump station and force main and directing sewage flows to the Western Regional Treatment Plant, located in the City of Chester, and owned and operated by the Delaware County Regional Water Pollution Control Authority (DELCORA).

WHEREAS, the appropriate municipal officials, including the planning commission, of the Township of Upper Chichester have reviewed the findings and recommendations of that plan and find it to conform to applicable zoning, subdivision, other municipal ordinances and plans, and to a comprehensive program of pollution control and water quality management.

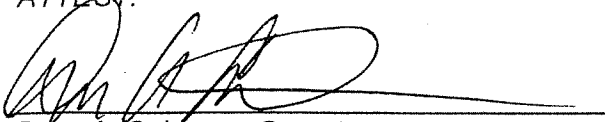
NOW, THEREFORE, BE IT RESOLVED THAT THE Board of Commissioners of the Township of Upper Chichester hereby accepts and adopts the "Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update" prepared by the Delaware County Planning Department, January, 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966. The Township of Upper Chichester hereby assures the Department that it will implement the said plan within the time limits established in the implementation schedule found on page 9-1 of the plan, as required by law. (Section 5, Pennsylvania Sewage Facilities Act, as amended).

DULY adopted this 11th day of August, 2011.

TOWNSHIP OF UPPER CHICHESTER


James R. Stewart, President

ATTEST:


Dora A. Coleman, Secretary

RESOLUTION 2 0 1 2 - 2 9

RESOLUTION ADOPTING THE WESTERN DELAWARE COUNTY ACT 537 SEWAGE
FACILITIES PLAN UPDATE — CHESTER-RIDLEY CREEK SERVICE AREA

RESOLUTION OF THE TOWNSHIP COUNCIL OF MIDDLETOWN TOWNSHIP,
DELAWARE 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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Middletown did, by Resolution 2010-62 dated June 14, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Township of Middletown did, by Resolution Number 2011-69, dated July 25, 2011, accept and adopt the Act 537 Plan prepared by the Delaware County Planning Department, dated January 2011, as a amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966 but the formal resolution reflected an inaccurate plan title. A true and correct copy of Resolution Number 2011-69 is attached hereto as Exhibit "A."

WHEREAS, the Township of Middletown hereby desires to amend Resolution Number 2011-69 as follows:

NOW, THEREFORE, BE IT RESOLVED THAT THE TOWNSHIP COUNCIL OF MIDDLETOWN TOWNSHIP hereby amends Resolution Number 2011-69 by Deleting all references to "the Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update" and Adding the proper Plan title "Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area" prepared by the Delaware County Planning Department, January, 2011.

Resolved this 13th day of February, 2012.

SIGNED: _____

SCOTT D. GALLOWAY
COUNCIL CHAIRMAN

ATTEST: _____

MEREDITH F. MERINO
ACTING TOWNSHIP MANAGER

**MIDDLETOWN TOWNSHIP
DELAWARE COUNTY, PENNSYLVANIA**

RESOLUTION 2011 - 69

RESOLUTION OF THE TOWNSHIP COUNCIL OF MIDDLETOWN TOWNSHIP, DELAWARE 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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Middletown did, by Resolution 2010-62 dated June 14, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, The Delaware County Act 537 Western Plan of Study: Chester-Ridley Creek Service Area Update recommends implementation of the alternative to treat wastewater generated within the service area by discontinuing operation of the Baldwin Run Pollution Control Plant after constructing a pump station and force main and directing sewage flows to the Western Regional Treatment Plant, located in the City of Chester, and owned and operated by the Delaware County Regional Water Pollution Control Authority (DELCORA).

WHEREAS, the appropriate municipal officials, including the planning commission, of the Middletown Township have reviewed the findings and recommendations of that plan and find it to conform to applicable 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 Township Council of Middletown Township hereby accepts and adopts the "Delaware County Act 537 Western Plan of Study: Chester-Ridley Creek Service Area Update" prepared by the Delaware County Planning Department, January, 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966. The Township hereby assures the Department that it will implement the said plan within the time limits established in the implementation schedule found on page 9-1 of the plan, as required by law. (Section 5, Pennsylvania Sewage Facilities Act, as amended).

Resolved this 25th day of JULY, 2011

SIGNED: _____

SCOTT D. GALLOWAY
COUNCIL CHAIRMAN

ATTEST: _____

W. BRUCE CLARK
TOWNSHIP MANAGER

I, W. BRUCE CLARK Secretary, Middletown Township hereby certify that the foregoing is a true copy of Middletown Township's Resolution 2011 - 69 adopted JULY 25, 2011.

W. Bruce Clark
Township Manager

Township Seal

**EDGMONT TOWNSHIP
DELAWARE COUNTY, PENNSYLVANIA**

RESOLUTION NO. 2012 – 12

**A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE TOWNSHIP OF
EDGMONT, DELAWARE COUNTY, PENNSYLVANIA (hereinafter “the municipality”)
ADOPTING THE WESTERN DELAWARE COUNTY ACT 537 SEWAGE FACILITIES
PLAN UPDATE – CHESTER-RIDLEY CREEK SERVICE AREA**

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 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Edgmont did by formal resolution dated May 19, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Township of Edgmont did by formal Resolution Number 2011-18, dated July 20, 2011, accept and adopt the Act 537 Plan prepared by the Delaware County Planning Department, dated January 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966 but the formal resolution reflected an inaccurate plan title. A true and correct copy of Resolution Number 2011-18 is attached hereto as Exhibit “A.”

WHEREAS, the Township of Edgmont hereby desires to amend Resolution Number 2011-18 as follows:

NOW, THEREFORE, BE IT RESOLVED THAT THE BOARD OF SUPERVISORS OF THE TOWNSHIP OF EDGMONT hereby amends Resolution Number 2011-18 by deleting all references to “the Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update” and adding the proper Plan title “Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area” prepared by the Delaware County Planning Department, January, 2011.

BE IT FURTHER RESOLVED THAT THE BOARD OF SUPPERVISORS OF THE TOWNSHIP OF EDGMONT hereby amends the third WHEREAS clause of Resolution Number 2011-18 by deleting the date “May 16, 2010” and inserting the date “May 19, 2010.”

**EDGMONT TOWNSHIP
DELAWARE COUNTY, PENNSYLVANIA**

RESOLUTION NO. 2011 - 18

**A RESOLUTION ADOPTING THE DELAWARE COUNTY SEWAGE FACILITIES PLAN
UPDATE - WESTERN PLAN OF STUDY:
CHESTER-RIDLEY CREEK SERVICE AREA**

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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Edgmont did by formal resolution dated May 16, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, The Delaware County Act 537 Western Plan of Study: Chester-Ridley Creek Service Area Update recommends implementation of the alternative to treat wastewater generated within the service area by discontinuing operation of the Baldwin Run Pollution Control Plant after constructing a pump station and force main and directing sewage flows to the Western Regional Treatment Plant, located in the City of Chester, and owned and operated by the Delaware County Regional Water Pollution Control Authority (DELCORA).

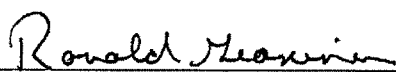
WHEREAS, the appropriate municipal officials, including the planning commission, of the Township of Edgmont have reviewed the findings and recommendations of that plan and find it to conform to applicable zoning, subdivision, other municipal ordinances and plans, and to a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED THAT, the Board of Supervisors of the Township of Edgmont hereby accepts and adopts the "Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update" prepared by the Delaware County Planning Department, January, 2011, as an amendment to the 2004 "Delaware County Act 537 Sewage Facilities Plan Revision: Western Area of Study"

official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966. The Township of Edgmont hereby assures the Department that it will implement the "Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update" within the time limits established in the implementation schedule found on page 9-1 of the plan, as required by law (Section 5, Pennsylvania Sewage Facilities Act, as amended).

RESOLVED this 20th day of July, 2011.

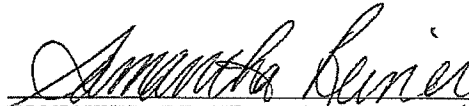
BOARD OF SUPERVISORS OF
EDGMONT TOWNSHIP


RONALD GRAVINA, CHAIRMAN


JOSEPH CONAN, VICE CHAIRMAN


WILLIAM "CHIP" MACKRIDES, MEMBER

I, Samantha Reiner, Secretary to The Township of Edgmont Board of Supervisors hereby certify that the foregoing is a true copy of the Township's Resolution No. 2011 - 18, adopted July 20th, 2011.


SAMANTHA REINER, SECRETARY/MANAGER

(TOWNSHIP SEAL)
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**TOWNSHIP OF CHESTER
DELAWARE COUNTY, PENNSYLVANIA**

RESOLUTION NO. 24- 2012

**RESOLUTION AMENDING RESOLUTION NO. 28-2011
CORRECTING THE REFERENCE TO THE ACT 537
SEWAGE FACILITIES PLAN UPDATE BY ADDING
THE PROPER PLAN TITLE "WESTERN DELAWARE
COUNTY ACT 537 SEWAGE FACILITIES PLAN
UPDATE – CHESTER-RIDLEY CREEK SERVICE AREA"
AND REAFFIRMING THE ADOPTION OF
RESOLUTION NO. 28-2011 IN ALL OTHER RESPECTS**

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, require the Township of Chester to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of water 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, the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Township of Chester did by formal resolution dated June 3, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Township of Chester did by formal Resolution No. 28-2011, dated July 7, 2011, accept and adopt the Act 537 Plan prepared by Delaware County Planning Department, dated January 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966 but the formal resolution reflected an inaccurate plan title. A true and correct copy of Resolution No. 28-2011 is attached hereto as Exhibit "A".

WHEREAS, the Township of Chester hereby desires to amend Resolution Number 28-2011 as follows:

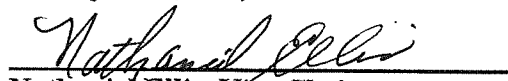
NOW, THEREFORE, BE IT RESOLVED, THAT Council of the Township of Chester hereby amends Resolution No. 28-2011 by deleting all references to the "Delaware County Act 537 Western Plan of Study: Chester-Ridley Creek Service Area Update" and adding the proper Plan title: "Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area" prepared by the Delaware County Planning Department, January, 2011.

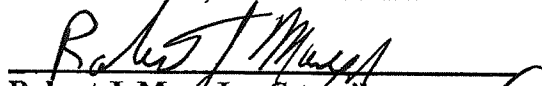
BE IT FURTHER RESOLVED, THAT Council of the Township of Chester reaffirms the adoption of Resolution No. 28-2011 in all other respects.

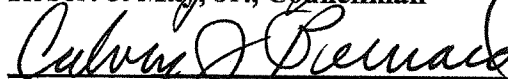
ADOPTED by Council of the Township of Chester this 2ND day
of FEBRUARY, 2012.

TOWNSHIP OF CHESTER



Stanley R. Kester, Chairman


Nathaniel Ellis, Vice Chairman



Robert J. Max, Jr., Councilman


Calvin J. Bernard, Councilman


James D. Carter, Councilman

Attest: 
William P. Pisarek, Secretary
(Municipality Seal)

I, William P. Pisarek, Secretary, Township of Chester,
hereby certify that the foregoing is a true copy of the
Township of Chester's Resolution No. 24 -2012, adopted
February 2, 2012.


William P. Pisarek, Secretary
(Municipality Seal)

**Township of Chester
Delaware County, Pennsylvania**

Resolution No.28-2011

**RESOLUTION ADOPTING THE DELAWARE COUNTY SEWAGE
FACILITIES PLAN UPDATE- WESTERN PLAN OF STUDY: CHESTER-
RIDLEY CREEK SERVICE AREA.**

Resolution of the Township of Chester, Delaware 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, require the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of water 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, the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and


WHEREAS, the Township of Chester did by formal resolution dated June 3, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Delaware County Act 537 Western Plan of Study: Chester-Ridley Creek Service Area Update recommends implementation of the alternative to treat wastewater generated within the service area by discontinuing operation of the Baldwin Run Pollution Control Plant after constructing a pump station and force main directing sewage flow to the Western Regional Treatment Plant, located in the City of Chester, and owned and operated by the Delaware County Regional Water Pollution Control Authority (DELCORA).

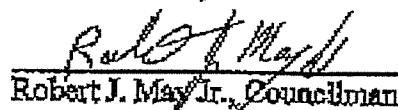
WHEREAS, the appropriate municipal officials, including the planning commission, of the Township of Chester have reviewed the findings and recommendations of that plan and find it to conform to applicable zoning, subdivision, and other municipal ordinances and plans, and to a comprehensive program of pollution control and water quality management.

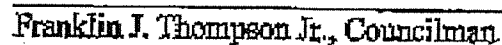
NOW, THEREFORE, BE IT RESOLVED THAT THE Council of the Township of Chester hereby accepts and adopts the 'Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update' prepared by the Delaware County Planning Department, January, 2011 as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities' Act of 1966. The Township of Chester hereby assures the Department that it will implement the said plan within the time limits established in the implementation schedule found on page 9-1 of the plan, as required by law. (Section 5, Pennsylvania Sewage Facilities Act, as amended).

TOWNSHIP OF CHESTER:


Stanley R. Kester, Chairman


Nathaniel Ellis, Vice Chairman


Robert J. May Jr., Councilman

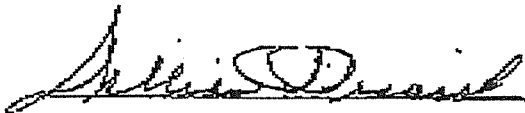

Franklin J. Thompson Jr., Councilman

Attest: 
William P. Pisarek, Secretary

I, William P. Pisarek, Secretary Township of Chester, Council hereby certify that the foregoing is a true copy of the Township of Chester's Resolution No.28-2011, adopted July 7, 2011

Authorized Signature

Township of Chester Seal



RESOLUTION ADOPTING THE WESTERN DELAWARE COUNTY ACT 537 SEWAGE
FACILITIES PLAN UPDATE – CHESTER-RIDLEY CREEK SERVICE AREA

RESOLUTION #02-12-B

RESOLUTION OF THE COUNCIL OF THE BOROUGH OF CHESTER HEIGHTS,
DELAWARE 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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Borough of Chester Heights did by formal resolution dated June 7, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Borough of Chester Heights did by formal resolution, Resolution Number 09-11-A, dated July 11, 2011, accept and adopt the Act 537 Plan prepared by the Delaware County Planning Department, dated January 2011, as a amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966 but the formal resolution reflected an inaccurate plan title. A true and correct copy of Resolution Number 09-11-A is attached hereto as Exhibit “A.”

WHEREAS, the Borough of Chester Heights hereby desires to amend Resolution Number 09-11-A Resolution as follows:

NOW, THEREFORE, BE IT RESOLVED THAT THE COUNCIL OF THE BOROUGH OF CHESTER HEIGHTS hereby amends its Resolution Number 09-11-A, adopted July 11, 2011, by Deleting all references to “the Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update” and Adding the proper Plan title “**Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area**” prepared by the Delaware County Planning Department, January, 2011.

I, Susan Timmis, Secretary for Council of the Borough of Chester Heights, hereby certify that the foregoing is a true copy of the Borough’s Resolution No. 02-12-B, adopted February 6, 2012.

AUTHORIZED SIGNATURE

BOROUGH OF CHESTER HEIGHTS

Susan Timmis
Secretary

Frederick L. Wood
Frederick L. Wood, Vice President

RESOLUTION ADOPTING THE DELAWARE COUNTY SEWAGE FACILITIES PLAN UPDATE –
WESTERN PLAN OF STUDY: CHESTER-RIDLEY CREEK SERVICE AREA

RESOLUTION OF THE Council for Borough of Chester Heights, DELAWARE 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, require the municipality to adopt an Official Sewage 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 the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Borough of Chester Heights did by formal resolution dated June, 7, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, The Delaware County Act 537 Western Plan of Study: Chester-Ridley Creek Service Area Update recommends implementation of the alternative to treat wastewater generated within the service area by discontinuing operation of the Baldwin Run Pollution Control Plant after constructing a pump station and force main and directing sewage flows to the Western Regional Treatment Plant, located in the City of Chester, and owned and operated by the Delaware County Regional Water Pollution Control Authority (DELCORA).

WHEREAS, the appropriate municipal officials, including the planning commission, of the Borough of Chester Heights have reviewed the findings and recommendations of that plan and find it to conform to applicable 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 Council of the Borough of Chester Heights hereby accepts and adopts the "Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update" prepared by the Delaware County Planning Department, January, 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966. The Borough of Chester Heights hereby assures the Department that it will implement the said plan within the time limits established in the implementation schedule found on page 9-1 of the plan, as required by law. (Section 5, Pennsylvania Sewage Facilities Act, as amended).

I, Susan Timmins, Secretary, Borough of Chester Heights hereby certify that the foregoing is a true copy of the (Township's/Borough's) Resolution No. 09-11-A, adopted July 11, 2011.

AUTHORIZED SIGNATURE

Susan Timmins

BOROUGH of CHESTER HEIGHTS

[Signature]
President

**RESOLUTION ADOPTING THE WESTERN DELAWARE COUNTY ACT 537 SEWAGE
FACILITIES PLAN UPDATE – CHESTER-RIDLEY CREEK SERVICE AREA**

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, require the municipality to adopt an Official Sewage 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, the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the City of Chester did by formal resolution dated May 26, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the City of Chester did by formal resolution dated August 10, 2011, did accept and adopt the Act 537 Plan prepared by the Delaware County Planning Department, dated January 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966, but the formal resolution reflected an inaccurate plan title and reference date of August 24, 2010.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF CHESTER DOES RESOLVE:

The Resolution adopted August 10, 2011, shall be amended by deleting all reference to “the Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area 0Update” and adding the proper Plan title “**Western Delaware County Act 537 Sewage Facilities Plan Update - Chester-Ridley Creek Service Area**” prepared by the Delaware County Planning Department, January, 2011.

BE IT FURTHER RESOLVED, the date in the third WHEREAS clause of the Resolution adopted August 10, 2011, the date “August 24, 2010” shall be deleted and inserting the date May 26, 2010.


MAYOR

Attest:


CITY CLERK

I, Candice L. Jefferson, City Clerk, of the City of Chester do hereby certify that the foregoing is a true copy of the City of Chester Resolution, adopted March 28, 2012.

AUTHORIZED SIGNATURE

CITY OF CHESTER SEAL



RESOLUTION

THE COUNCIL OF THE CITY OF CHESTER DOES RESOLVE:

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, require the municipality to adopt an Official Sewage Facility 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, the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Chester City Council did by formal resolution dated August 24, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update recommends implementation of the alternative to treat wastewater generated within the service area by discontinuing operation of the Baldwin Run Pollution Control Plant after constructing a pump station and force main and directing sewage flows to the Western Regional Treatment Plant, located in the City of Chester, and owned and operated by the Delaware County Regional Water Pollution Control Authority (DELCORA).

WHEREAS, the appropriate municipal official, including the planning commission, of the City have reviewed the findings and recommendations of that plan and find it to conform to applicable 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 Council of Chester City hereby accepts and adopts the "Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update" prepared by the Delaware County Planning Department, January 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966. The City of Chester hereby assures the Department that it will implement the said plan with the time

limits established in the implementation schedule found on page 9-1 of the plan, as required by law Section 5, Pennsylvania Sewage Facilities Act, as amended.

William R. Bell
MAYOR

Attest: Janeil Brown
ACTING CITY CLERK

I, Janeil Brown, Acting Clerk, Chester City Council hereby certify that the foregoing is a true copy of the Resolution adopted August 10, 2011.

Janeil Brown
ACTING CITY CLERK

Appendix E

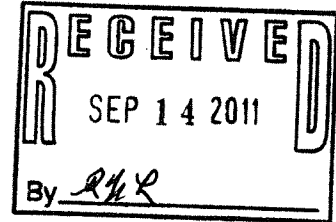
Municipal Comments



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE



September 7, 2011

Mr. Roger W. Lehman, P.E.
Senior Technical Manager
Weston Solutions, Inc.
1400 Weston Way
P.O. Box 2653
West Chester, PA 19380

Re: Act 537 Plan Update
Western Delaware County Act 537 Plan Update
for the Chester-Ridley Creek Service Area
Aston, Chester, Edgmont, Middletown, Upper Chichester,
and Upper Providence Townships;
Brookhaven and Chester Heights Boroughs;
and City of Chester
Delaware County

Dear Mr. Lehman:

In an August 2, 2011, meeting with representatives of Southwest Delaware County Municipal Authority (SWDCMA) and Brookhaven Borough (Brookhaven), the Department of Environmental Protection (Department) offered to complete a preliminary technical review of the above-referenced Act 537 Official Plan Update (Plan). In addition to addressing the June 21, 2011, administrative review comments that the Department provided, information that addresses the following technical deficiencies must be submitted to the Department so that we may complete our review. Please be advised that additional comments may be generated, following our review of your submission of information that addresses the administrative comments and the following technical comments:

1. Mapping that identifies the physical characteristics of the sewer service area, including streams, lakes, impoundments, natural conveyance, channels, and drainage basins must be submitted as required by Chapter 71, Section 71.21(a)(1)(ii).
2. Provide mapping of the service area, which identifies wetlands, as defined in Title 25, Chapter 105. Proposed collection, conveyance, and treatment facilities and lines must be located and labeled, along with the identified wetlands, on the map. This information is required under Chapter 71, Section 71.21(a)(1)(v).

3. Delineate and describe through map, text, and analysis, the areas of proposed development and existing development that have not been completed. Include the name, location, total number of equivalent dwelling units (EDUs) in the development, total number of EDUs currently developed, and total number of EDUs remaining to be developed, including a time schedule for EDUs remaining to be developed, for the service area. This information is required under Chapter 71, Section 71.21(a)(3)(i).
4. Delineate and describe through map, text, and analysis, the land use designations established under the Pennsylvania Municipalities Planning Code, including residential, commercial, and industrial areas, as required by Chapter 71, Section 71.21(a)(3)(iv).
5. Provide the estimated user fees for the alternatives considered, as required by Chapter 71, Section 71.21(a)(5)(iv). For the alternative which proposes to decommission the existing SWDCMA Baldwin Run Pollution Control Facility (BRPCP), a cost estimate for the plant's decommissioning must be included.
6. Identify the funding method chosen to finance the decommissioning of the existing BRPCP and the construction of the new pumping station and force main. Identify the contingency financing plan to be used if the preferred method of financing cannot be implemented.
7. Consistent with Chapter 71, Section 71.61(d)(2), describe all necessary administrative and legal activities to be completed and adopted to ensure the implementation of the recommended alternative, including: the incorporation of authorities or agencies; the development of all required ordinances, regulations, standards and intermunicipal agreements; the activities to provide rights-of-way, easements and land transfers; adoption of other municipal sewage facilities plans; any other legal documents; and include the dates or time frames on the project's implementation schedule.
8. The Plan states that the Delaware County Regional Water Control Authority (DELCORA) is responsible for the safe collection, transmission, treatment, and disposal of approximately 94 million gallons per day (MGD) of wastewater generated in southeastern Pennsylvania (1-10). Please explain how the 94 MGD figure was calculated.
9. The Plan states that DELCORA's Western Regional Treatment Plant (WRTP) treats all wastewater from Southern Delaware County Authority (1-10). It is our understanding that the BRPCP accepts wastewater from a portion of the Southern Delaware County Authority service area. Please clarify.

10. The Plan states, "As noted in the Chapter 94 Report, organic capacity is not applicable since the NPDES permit for the plant addresses effluent" (3-3). Although the NPDES permit addresses limitations for effluent quality, the plant's Water Quality Management/Part 2 permit addresses influent parameters. Any exceedance of the design influent organic load constitutes an organic overload. Any projected exceedance of the design influent organic load constitutes a projected organic overload. The Plan must be corrected.
11. The Plan states that DELCORA has a contract with the City of Philadelphia which provides 50 MGD of capacity in the City of Philadelphia Southwest Wastewater Treatment Facility (3-4). Please clarify if the 50 MGD capacity includes the flows being sent to the City of Philadelphia Southwest Wastewater Treatment Facility via the Muckinipates Authority, Darby Creek Joint Authority, Radnor Haverford Marple Sewer Authority, and the Central Delaware County Authority conveyance systems. Provide the current flow being conveyed from these systems to the City of Philadelphia Southwest Wastewater Treatment Facility.
12. The Plan indicates that the SWDCMA owns the collector sewers in the service area, except for those in Middletown Township and those owned by the Southern Delaware County Authority (3-5). According to our records, the following table identifies the permittees of the collection and conveyance systems in the portions of the identified municipalities which are tributary to the BRPCP:

Aston Township	SWDCMA
Brookhaven Borough	SWDCMA
Chester Township	
Chester Heights Borough	
Edgmont Township	
Middletown Township	Middletown Township Sewer Authority
Upper Chichester Township	Southern Delaware County Authority
Upper Providence Township	Upper Providence Township Sewer Authority

Please clarify who currently owns and operates the collection and conveyance systems in Chester Township and Chester Heights Borough. Please clarify who will own and operate the proposed collection and conveyance system in Edgmont Township. Please revise the Plan so that it correctly identifies the entities who own and/or operate collection and conveyance systems tributary to the BRPCP.

13. The Plan indicates that there are undeveloped parcels in the sewer service area that may connect to the sewer system and further states that "without knowing if any are able to subdivide, an accurate estimate of potential flows from future development is now available" (4-1). SWDCMA, DELCORA, and the Delaware County Planning Department must coordinate with the municipalities in which undeveloped parcels are located to review lot sizes, zoning requirements, etc., in order to assure that accurate flows projections are included in the Plan.
14. The Plan indicates that a very small percentage of properties in Aston Township, Middletown Township, and Upper Chichester Township are served by on-lot sewage disposal systems (4-3). Please indicate if capacity has been included for the future connection of these properties.
15. The Plan indicates that there are 5 smaller, older properties in Chester Heights Borough that are served by on-lot sewage disposal systems (4-3). Please indicate if capacity has been included for the future connection of these properties.
16. Please indicate if there are any on-lot sewage disposal systems in Upper Providence Township that are located within the sewer service area. If so, indicate if capacity has been included for the future connection of these properties.
17. The Plan states that permits, easements, and agreements with the railroad owner will be necessary to construct the force main from the proposed pumping station to the WRTP (6-5). Please explain what permits and agreements will be required and provide a map showing the location of the required easements. If any permits, easements, and agreements will be required with parties other than the railroad owner, please provide the information for those parties as well. Provide documentation that the easements have been acquired and the agreements have been executed.
18. The Plan states that the preliminary cost estimates presented for Alternative 2 include only those costs to construct the pumping station and force main and do not include costs to decommission the BRPCP (6-8). Since the Plan proposes to decommission the BRPCP and divert flows to the WRTP, the costs to decommission the BRPCP must be included in the Plan.
19. Please indicate if the industrial pretreatment agreements have been transferred to DELCORA or if a new agreement to allow SWDCMA to administer the program has been prepared. Provide copies of the signed agreements.

20. Page 3-3 of the Plan states that the WRTP has a rated treatment capacity of 44 MGD. Page 6-16 of the Plan states that the WRTP is rated to treat 50 MGD. According to our records, the WRTP is permitted to accept 44 MGD. Sewage facilities planning has been approved to expand the plant to 50 MGD; however, a permit for the expansion has not been issued by the Department. Please revise the Plan so that it is consistent throughout and with the actual permitted capacities.
21. Sewage facilities planning was approved on February 3, 2009, to expand the WRTP from 44 MGD to 50 MGD. The additional 6 MGD that was realized as a result of the expansion was allocated to the City of Chester, Chester Township, Bethel Township, Newtown Township, Edgmont Township, and Upper Providence Township, as indicated in the Department's February 3, 2009, letter (copy attached). In addition, 3,618,730 gpd was reserved for "Unallocated Future Needs." There does not appear to be adequate capacity in the WRTP to allow for the diversion of 6.66 MGD of annual average flow from the BRPCP. Please explain how the 6.66 MGD from the BRPCP can be accommodated without exceeding the permitted flow at the WRTP or reallocating capacity from those municipalities to which capacity was already allocated.
22. The Pennsylvania Historical and Museum Commission (PHMC) indicated in their review of this project that there is a high probability that significant archaeological sites are located in the project area and could be adversely affected by the project activities. PHMC required that a Phase 1 archaeological survey be completed of the project area. Submit documentation that the Phase 1 survey has been completed and that the potential conflicts with resources under the purview of PHMC have been resolved.
23. The PNDI Project Environmental Review Receipt for Project Search ID 20110119278906 identified a potential conflict with species under the purview of the Pennsylvania Department of Conservation and Natural Resources (DCNR). Documentation from DCNR that indicates that the potential conflict has been resolved must be submitted to the Department.
24. Sections 7 and 8 of the PNDI Project Environmental Review Receipt for Project Search ID 20110119278906 must be completed.
25. Sections 7 and 8 of the PNDI Project Environmental Review Receipt for Project Search ID 20110119278891 must be completed.

26. Comments provided by or on behalf of Brookhaven have not been adequately addressed. Responses to the comments below must be provided to Brookhaven. Please include a copy of your response with your resubmission of this project.
- a. The following comments relate to upgrading the existing BRPCP:
 - i. Brookhaven asked that the size of various tanks at the BRPCP be provided to determine if the tanks can meet the desired performance criteria. This has not been addressed.
 - ii. Brookhaven notes that the cost evaluations for keeping the BRPCP in operation and diverting the flow to DELCORA are inadequate and overly-conservative. The response to Brookhaven indicates that it will cost \$28 million to upgrade the BRPCP for nutrient removal and an additional \$9 million to operate the plant for the next 10 years. It will cost \$12 million to divert the flow to DELCORA. Explain how these figures were calculated.
 - iii. Brookhaven indicated that they estimated the cost of upgrading the BRPCP. Their estimate is \$7 million. Brookhaven must explain how they calculated this figure. The response to this comment notes that the \$7 million to upgrade the plant and the \$9 million to operate it for the next 10 years is still more than the \$12 million needed to divert the flow to DELCORA's plant. The significant discrepancies in the estimates (\$28 million vs. \$7 million) needs to be explained.
 - b. The following comments relate to diverting sewage flows from the existing BRPCP to the WRTP:
 - i. Brookhaven asked that a plan showing the footprint of the BRPCP and a plan showing the expected improvements be provided. The response indicates that the Department specifically informed them that such plans were not required. The Department questions whether this is an accurate representation of guidance provided by the Department. It is typical that a plot plan showing the location of the proposed facilities be provided during the review of the Plan. A plot plan should be provided to Brookhaven and to the Department.

- ii. Brookhaven is concerned that the estimates for the construction of a new pump station and force main are too low. They have asked for plans showing the project so that they can evaluate the cost estimates. The response indicates that only conceptual engineering has been done. If preliminary plans are available, they need to be provided to Brookhaven and to the Department.
- iii. Brookhaven asked that a breakdown of the force main cost by section be provided. This was not provided.
- iv. Brookhaven is concerned that there will be constraints and obstacles met during the construction of the force main that have not been considered. No response has been provided to this concern.
- v. Brookhaven asked if the proposed force main will affect any buildings located near the roadway. This comment was not addressed.
- vi. Brookhaven asked if required easements have been evaluated. The response indicates that they are currently working on obtaining all required easements. Identify all easements that will be required to implement this Plan. Please note that easements must be obtained before the Plan will be approved.
- vii. Brookhaven asked if estimates for easements have been included in the total cost. The response indicates that the cost of easements is included in the 15 percent contingency costs. DELCORA must explain why these costs have not been separated from contingency costs.
- viii. Brookhaven asked if bridge structures have affected the proposed routing of the force main. This comment was not addressed.
- ix. Brookhaven indicated that if Alternative 2 is chosen, the BRPCP will close and a reduced customer base will pay for the operation and maintenance of the collection and conveyance lines. Brookhaven needs to explain why they feel the customer base will be reduced as a result of the decommissioning of the BRPCP.
- x. Brookhaven asked if the effects of removing 4.5 MGD of flow to the aquatic life in Chester Creek were considered. The response indicates that this was not evaluated. An evaluation showing the effects of removing this flow from the Chester Creek needs to be provided.

- xi. Brookhaven is concerned with the estimates for the construction of the pump station and force main. The response indicates that recent bids for other projects were used as the basis of estimates. Brookhaven asked that the projects' locations and utility interferences faced as part of these projects be provided so that they can determine if the projects are similar to the proposed diversion project. This information was not provided. Brookhaven does not believe that the force main installation on Route 291 is comparable to the proposed force main installation from BRPCP to DELCORA's plant. If DELCORA is using this project as a basis for its estimates, they must show that the projects are comparable.
 - xii. Brookhaven asked how utility relocations will be paid for and if the owner will be responsible for relocations. Brookhaven asked for cost estimates for relocating utilities. They have not been provided.
 - xiii. Brookhaven does not believe that costs have been included for crossing Baldwin Run, clearing the railway area and revegetating the railway area. There was no response to this comment.
 - xiv. Brookhaven noted that no estimates have been provided for wetland mitigation. The response indicates that there will be only temporary impacts to wetlands. DELCORA needs to describe these temporary impacts, explain why they believe that they are only temporary and explain if there are costs associated with these temporary impacts.
- c. The following comments relate to available capacity at the W RTP:
 - i. Brookhaven asked how the new flow from new CDCA members was considered in determining if there is capacity for the proposed diversion. Was the additional flow from CDCA included in existing DELCORA flow or has it been considered separately?
 - ii. Brookhaven commented that the DELCORA plant was rerated to 50 MGD to account for additional flows from new CDCA members and to reduce the amount of flow being sent to Philadelphia. They note that they believe the same rerate is being used to justify capacity for the SWDCMA flows being diverted to the DELCORA plant and asked if flows can be diverted back to Philadelphia when the previous plan called for a decrease in the flows being sent to Philadelphia. This was not addressed.

- iii. Brookhaven asked if any upgrades to the DELCORA plant would be required if both additional CDCA flows from their new members and SWDCMA flows were sent to DELCORA. The response only indicates that there is available capacity. According to our records, all of the additional capacity in the expansion (6 MGD) has been allocated to other projects and municipalities and there is no capacity included in the 50 MGD plant for the SWDCMA flows. Please explain how DELCORA has determined that there is adequate capacity in the W RTP for the SWDCMA flows.
- d. The following comments relate to the costs of implementing the Plan:
 - i. Brookhaven asked if PennVEST loans were available to individuals. The response indicates that PennVEST loans are available to individuals for the repair or replacement of their malfunctioning on-lot sewage disposal system. It is not clear if this adequately addresses Brookhaven's concern.
 - ii. Brookhaven asked for the phase-out cost of the BRPCP. The response indicates that this information is not included in the Plan, since this is a responsibility of SWDCMA. This information should be included, since the affected municipalities need to evaluate their total costs. SWDCMA indicates that \$500,000 will be required to clean the digesters. All other work to decommission the plant will be done over time using operating funds, not borrowing capital. Will the cost to phase-out the plant be passed onto the SWDCMA members or is SWDCMA paying for it directly through money already budgeted for the project? If the members are going to be responsible for paying for the phase-out, will the cost be shared by existing users or all users?
 - iii. The letters indicate that Brookhaven will be assessed a fee of \$54 per EDU per year for 20 years. Explain the basis for this fee. Also, Brookhaven notes that this fee does not include financing to cover the cost of the decommissioning of the BRPCP. Please confirm this statement. Provide the estimated total annual costs to Brookhaven residents to implement this Plan.
 - iv. Brookhaven has repeatedly questioned the fees associated with closing the BRPCP and diverting flow to the DELCORA plant. DELCORA and SWDCMA need to clearly address this issue.

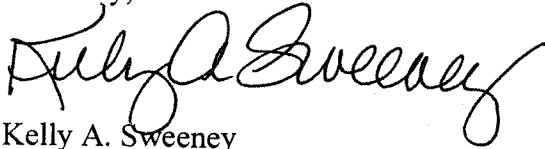
- v. Brookhaven notes that Chester Township will become a part of the DELCORA collection system and SWDCMA will therefore lose approximately 2,000 users. The revenue they are losing from losing those customers will then be split among the remaining users. Brookhaven needs to explain why they believe Chester Township will become part of the DELCORA system. SWDCMA needs to explain what will happen in this situation. Will costs be reallocated among the remaining customers?
 - e. The following are additional comments related to the proposed Plan:
 - i. Brookhaven disagrees with DELCORA's statement that the proposed Eastern Plan has no bearing on the current plant. It has been the Department's practice to accept multiple plans, each of which cover particular sections of the municipality that cumulatively address the sewage disposal concerns for the entire municipality. DELCORA's service area covers a significant portion of Delaware County and it is feasible to separate the planning documents into specific portions of the service area. DELCORA should respond to Brookhaven that the concept of an Eastern Plan is acceptable to the Department and that any effects that the Eastern Plan may have on any other portion of the DELCORA service area will be addressed adequately in the Eastern Plan.
 - ii. Brookhaven has indicated that they will be willing to adopt the proposed Plan, provided SWDCMA conveys the sewer lines located in Brookhaven to the Borough. Brookhaven will then do planning to send all flows originating in the Borough to their own plant. Please indicate if this option has been considered.
27. As we previously indicated in our June 21, 2011, administrative review letter, the proposed Plan may not be approved unless Brookhaven adopts an Act 537 Plan Update to divert sewage flows generated within Brookhaven from the BRPCP or until Brookhaven adopts the proposed Plan. If Brookhaven elects to adopt the proposed Plan, the Plan must be revised to include information pertaining to Brookhaven, comments from the Brookhaven Borough Planning Commission must be submitted to the Department, along with evidence that the comments received were considered by the municipality, and Brookhaven must adopt the Plan by resolution.

In the Department's approval of the proposed Plan of Study for this project, the Department informed you that the Plan was to be formatted as suggested in "A Guide for Preparing Act 537 Update Revisions." The format of the Plan must be revised so as to be consistent with the above-referenced guide.

When the required information has been submitted, the Department will complete a review in accordance with the provisions of Chapter 71, Administration of the Sewage Facilities Program.

If there are any questions concerning the information required, please contact me at 484.250.5182.

Sincerely,



Kelly A. Sweeney
Sewage Planning Specialist 2
Water Management

cc: Mr. Pickett – Delaware County Planning Department (via e-mail)
Ms. Holm – Delaware County Planning Department (via e-mail)
Ms. Volkay-Hilditch – DELCORA (via e-mail)
Mr. Salvucci – DELCORA (via e-mail)
Mr. Crum – SWDCMA (via e-mail)
Mr. Catania – SDCA
Mr. Lehr – Aston Township (via e-mail)
Ms. McKinley – Brookhaven Borough (via e-mail)
Ms. Mulvena – Walton, Mulvena & Associates (via e-mail)
Mr. Pisarek – Chester Township
Ms. Timmins – Chester Heights Borough (via e-mail)
Ms. Reiner – Edgmont Township (via e-mail)
Mr. Clark – Middletown Township (via e-mail)
Mr. Majeski – Middletown Township Sewer Authority (via e-mail)
Mr. Fazler – Bradford Engineering Associates, Inc. (via e-mail)
Ms. Coleman – Upper Chichester Township (via e-mail)
Mr. Cashman – Upper Providence Township (via e-mail)
Mr. Donze – Upper Providence Township Sewer Authority
Mr. Kelly – Kelly & Close Engineers
Mr. Butler – City of Chester (via e-mail)
Mr. Bram – Office of Chief Counsel (via e-mail)
Mr. Feola – DEP (via e-mail)
Ms. Fields – DEP (via e-mail)
Ms. Mahoney – DEP (via e-mail)
Planning Section
Re 30 (GJS11WQM)250-3



Weston Solutions, Inc.
1400 Weston Way
P.O. Box 2653
West Chester, Pennsylvania 19380
610-701-3000 Fax 610-701-3186
www.westonsolutions.com

8 December 2011

Ms. Kelly A. Sweeney
Municipal Planning and Finance Section
PADEP Southeast Regional Office
2 East Main Street
Norristown, PA 19401

Re: DELCORA Act 537 Plan Update Chester-Ridley Service Area

Dear Ms. Sweeney:

Weston Solutions, Inc. (WESTON®) is submitting the enclosed responses to your letter dated November 16, 2011 containing administrative completeness and technical comments for the Act 537 Plan Update for the Chester-Ridley Service Area, on behalf of The Delaware Regional Water Quality Control Authority (DELCORA) and the Delaware County Planning Department (DCPD).

This Plan Update has been prepared to evaluate alternatives for sewage treatment for customers of the Southwest Delaware County Municipal Authority (SWDCMA). The Study Area is known as the Chester-Ridley Creek Service Area. The Act 537 Plan Update for the Chester-Ridley Creek Service Area has been prepared to address a serious problem at the Baldwin Run Pollution Control Facility (BRPCF) by evaluating alternatives to either upgrade the existing facility or divert flow to DELCORA via a new pump station and force main.

Comment 1: The resubmitted information indicates that the title of the plan has been changed to the Delaware County Sewage Facilities Plan Update – Western Plan of Study: Chester-Ridley Creek Service Area to match the resolutions. A Plan of study is a separate document under sewage facilities planning and an Act 537 Plan Update should not be referred to as a plan of study. RESPONSE: DELCORA and DCPD will restore the title of the Western Delaware County Act 537 Sewage Facilities Plan Update: Chester-Ridley Creek Service Area to the plan. A request has been made to PADEP to allow the existing municipal resolutions to stand because the municipalities clearly intended to adopt the Western Delaware County Act 537 Sewage Facilities Plan Update: Chester-Ridley Creek Service Area, even though the resolutions refer to the Delaware County Sewage Facilities Plan Update – Western Plan of Study: Chester-Ridley Creek Service Area. The resolutions have already been re-done once to add language specifying planning commission review and describing the selected alternative. It will be a hardship to obtain municipal resolutions a third time because of time delays and it will create confusion at the municipal level because the plan content has not changed. PADEP has stated that their counsel and supervisory personnel will be consulted to provide confirmation that the existing resolutions are acceptable.



Kelly Sweeney
PADEP

12/30/2011

Comment 2: Provide a map showing the location of required easements for the new force main. Provide documentation that the easements for the new force main either have been or can be obtained. RESPONSE: During a telephone conference on 22 November 2011, PADEP stated that only maps from the BRPCP to I-95 are required. Mapping of the proposed force main is attached to this response as Comment No. 2 Attachment. The force main can be placed within public rights-of-way on the South side of I-95. Maps showing the proposed force main alignment are attached to this response. DELCORA has the authority to condemn property and obtain easements under Sections 5615 and 5607 (d) (15) of the Municipal Authorities Act (Act 22 of 2001).

DELCORA has submitted information to SEPTA to initiate acquisition of an easement to locate the proposed force main within the Chester Creek Branch right-of-way. SEPTA has indicated that an easement within the Chester Creek Line right-of-way can be obtained upon board approval. A copy of e-mail correspondence with SEPTA discussing acquisition of an easement for the force main is attached to this response in the Comment No. 2 Attachment. Where the alignment leaves the easement (Sheet 19 of 22) it crosses private property including an unused portion of the mobile home development and unused portions of private land held by one owner. It then crosses onto municipally-held land owned by the Delaware County Solid Waste Authority (DCSWA) (established originally as the Delaware County Incinerator Authority in 1954).

Comment 3: DELCORA should provide documentation that Sunoco has accepted any plan to reduce its permitted discharge or explain how the additional 6.66 MGD of flow from SWDCMA will be accommodated at DELCORA's Western Regional Treatment Plant. RESPONSE: During a telephone conference on 22 November 2011 WESTON clarified the comparison between peak flows and average daily flows. The 6.66 MGD is an average daily total projected demand through the year 2035 from SWDCMA. The 15 MGD is the peak daily flow that Sunoco is allowed to discharge to the WRTP without incurring a surcharge. The Agreement of Sales and Service between DELCORA and Sunoco is attached to this response as Comment No. 3 Attachment. The second page of this agreement documents that SUNOCO is allowed to discharge up to 10 MGD average daily flow to the WRTP, based on a monthly average. However, Sunoco's average daily flow for the past five (5) years has not exceeded 6.224 MGD, and is not expected to increase due to the recent announcement that the company is ceasing refining operations effective March 1, 2012. The average daily flow discharged to the WRTP by SEPTA for the years 2007 through 2011 are listed below:

2007	6.01 MGD
2008	5.85 MGD
2009	5.79 MGD
2010	5.73 MGD
2011	6.224 MGD thru September



Kelly Sweeney
PADEP

12/30/2011

The WRTP is rated to discharge an average daily flow of 50 MGD, but can operate safely at discharge rates up to 108 MGD. There is no maximum day flow limit in the NPDES permit for the WRTP. If conditions at the plant indicate the potential for hydraulic overload, more flow can be directed to the Philadelphia Southwest Pollution Control Plant (PSWPCP). Adequate capacity at the WRTP to accept the future projected average daily flow of 6.66 MGD from the Chester-Ridley Service Area can be documented if average daily flow values are compared consistently. Considering the 3.6 MGD reserved for unallocated needs in the Act 537 Re-rate Plan for the WRTP, and considering the Average Daily Flow value of 10 MGD from the SUNOCO facility, there is 8.6 MGD available capacity, without considering planned developments contained in the Act 537 Re-rate Plan (prepared in 2006) that did not progress as scheduled due to the economic downturn. Furthermore, with Sunoco consistently discharging around MGD,

Comment 4: Documentation that the potential conflicts with PHMC have been resolved must be submitted to the Department. RESPONSE: The final Phase 1 and Phase 2 Archeological Study is attached to this response as Comment 4 Attachment. This study has been submitted to the PHMC for review and contains a recommendation that no further consideration of archeological resources is necessary within the forced sewer main right-of-way. The force main alignment does not encroach on the location of the former Edward Carter pottery building, which was located on the opposite side of Concord Road from the proposed alignment. The PHMC review letter will be forwarded to PADEP upon receipt.

Comment 5: Copies of all updated pages must be submitted to the Department. Copies of the pages that were edited in response to PADEP comments in the 7 September 2011 review letter are attached to this response as Comment No. 5 Attachment.

Comment 6: A response to Item 26 of the Department's September 7, 2011 letter is required. RESPONSE: The following comprehensive response to the Item 26 in PADEP's September 7th technical comment letter is provided:

- a. The following comments relate to upgrading the existing BRPCP:
 - i. Brookhaven asked that the size of various tanks at the BRPCP be provided to determine if the tanks can meet the desired performance criteria. This has not been addressed.

Response: SWDCMA provided the tank sizes. The schedule of tank sizes is included in this response as Comment 6.a.i Attachment. A sketch plan of the BRPCP dated February 2009 is showing the tank identifications is attached as Comment 6.a.i Attachment.



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- ii. Brookhaven notes that the cost evaluations for keeping the BRPCP in operation and diverting the flow to DELCORA are inadequate and overly-conservative. The response to Brookhaven indicates that it will cost \$28 million to upgrade the BRPCP for nutrient removal and an additional \$9 million to operate the plant for the next 10 years. It will cost \$12 million to divert the flow to DELCORA. Explain how these figures were calculated.

Response: The detailed cost estimates prepared by WESTON for this project are attached to this response as Comment 6.a.ii Attachment. The \$9 million are funds required for currently identified facility and pump station deficiencies by SWDCMA. SWDCMA reported these costs in 2009 dollars to be \$8.766M, which was rounded up to \$9.0M. These are projects that SWDCMA has been unable to fund given their current revenue sources but will be necessary if the plant is required to continue long-term operations. These cost estimates were compiled into the summary cost estimates found in Section 6 of the report.

- iii. Brookhaven indicated that they estimated the cost of upgrading the BRPCP. Their estimate is \$7 million. Brookhaven must explain how they calculated this figure. The response to this comment notes that the \$7 million to upgrade the plant and the \$9 million to operate it for the next 10 years is still more than the \$12 million needed to divert the flow to DELCORA's plant. The significant discrepancies in the estimates (\$28 million vs. \$7 million) needs to be explained.

Response: Weston Solutions, Inc. prepared a rough order of magnitude cost estimate to upgrade the BRPCP to provide tertiary treatment (nitrogen removal). The rough order of magnitude estimate is attached to this response in Comment 6.a.iii Attachment, and is based on addition of denitrifying filters to the existing treatment train. Costs for the denitrifying filters were based on budgetary estimates from similar applications (i.e. the addition of tertiary filtration to an existing process train).

The Brookhaven cost estimate of \$7.18M to upgrade the plant is attached as Comment No. 6.a.iii Attachment. Additional information would be needed to perform a detailed comparison of the two estimates, however, based on available information the following initial observations are offered:

- The Brookhaven analysis (page 2) indicates that membrane biofiltration would be used after the secondary clarifiers. Tertiary filtration is not currently provided at the plant and the cost of the membrane biofiltration system does not appear as a line item in the estimate. The cost for



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membrane (or other tertiary) filtration is likely to be significant. It is noted that page 4 of the letter states that the plant can be retrofitted to meet the nitrogen limit without the filter, while page 2 indicates that it is needed. It is likely that filtration may be needed to meet a low total phosphorus limit regardless of the nitrogen performance.

- The Brookhaven estimates appear to assume the trickling filter tanks are available for conversion. One trickling filter has been converted to a clarifier and the other is being used to house the activated biofilters.

It should be noted that neither estimate includes improvements to existing systems and facilities. Additional costs (not included in the maintenance spreadsheet attached to this response in Comment No. 6.a.ii Attachment) include repairs and upgrades to the nitrification tanks, improvements to the headworks, and additional costs to upgrade the primary clarifiers and aeration system estimated by SWDCMA to be approximately \$2.46M.

- b. The following comments relate to diverting sewage flows from the existing BRPCP to the WRTP:
 - i. Brookhaven asked that a plan showing the footprint of the BRPCP and a plan showing the expected improvements be provided. The response indicates that the Department specifically informed them that such plans were not required. The Department questions whether this is an accurate representation of guidance provided by the Department. It is typical that a plot plan showing the location of the proposed facilities be provided during the review of the Plan. A plot plan should be provided to Brookhaven and to the Department.

Response: The Yard Piping Plan produced by Catania Engineering Associates, dated 1/31/1992 is attached as Comment 6.b.i Attachment. A sketch plan of the BRPCP dated February 2009 is attached as Comment 6.a.i Attachment. The location of the proposed pump station is indicated on Sheet 22 of 22 in the Comment No. 2 Attachment.

- ii. Brookhaven is concerned that the estimates for the construction of a new pump station and force main are too low. They have asked for plans showing the project so that they can evaluate the cost estimates. The response indicates that only conceptual engineering has been done. If preliminary plans are available, they need to be provided to Brookhaven and to the Department.



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Response: Only conceptual engineering has been performed. There are no preliminary engineering plans. The proposed pump station location is shown on Sheet 22 of 22 in the Comment No. 2 Attachment.

- iii. Brookhaven asked that a breakdown of the force main cost by section be provided. This was not provided.

Response: Please see the Comment 6.a.ii Attachment for cost estimate detail. The force main estimate was not compiled by section; this type of detailed estimate is performed after the design is finalized.

- iv. Brookhaven is concerned that there will be constraints and obstacles met during the construction of the force main that have not been considered. No response has been provided to this concern.

Response: Contingencies have been built into the cost estimate to cover unforeseen obstacles. Obstacles that have been considered include natural resources and cultural resources, structural limitations of crossing I-95 near the Engle Street Bridge, avoiding private property and existing buildings, structural limitations crossing active rail lines, engineering and cost optimization, and utility conflicts. Any obstacles will be clearly identified during detailed engineering design and will be addressed by the final design.

- v. Brookhaven asked if the proposed force main will affect any buildings located near the roadway. This comment was not addressed.

Response: No existing structures will be impacted by the proposed project.

- vi. Brookhaven asked if required easements have been evaluated. The response indicates that they are currently working on obtaining all required easements. Identify all easements that will be required to implement this Plan. Please note that easements must be obtained before the Plan will be approved.

Response: Please see response to Comment 2 and Comment No. 2 Attachment.

- vii. Brookhaven asked if estimates for easements have been included in the total cost. The response indicates that the cost of easements is included in the 15 percent contingency costs. DELCORA must explain why these costs have not been separated from contingency costs.



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Response: The cost of easement cannot be determined until preliminary engineering is completed and a final route alignment is selected. At that time, the extent of non-public parcels that will require easements will be known and costs can be assigned. The conceptual alignment has few non-public parcels so the cost of easements should be covered by the funds identified for contingencies.

viii. Brookhaven asked if bridge structures have affected the proposed routing of the force main. This comment was not addressed.

Response: Attaching to the existing PADOT bridge at Engle Street was considered by the plan. After discussions with PADOT, the current structure crossing I-95 is not suitable to allow this modification. Therefore the bridge structure will be avoided.

ix. Brookhaven indicated that if Alternative 2 is chosen, the BRPCP will close and a reduced customer base will pay for the operation and maintenance of the collection and conveyance lines. Brookhaven needs to explain why they feel the customer base will be reduced as a result of the decommissioning of the BRPCP.

Response: The response from Brookhaven Borough appears on the fourth page of the 17 October 2011 letter from Walton, Mulvena & Associates, attached to this response as Comment No. 6.a.iii Attachment.

x. Brookhaven asked if the effects of removing 4.5 MGD of flow to the aquatic life in Chester Creek were considered. The response indicates that this was not evaluated. An evaluation showing the effects of removing this flow from the Chester Creek needs to be provided.

Response: WESTON analyzed USGS observed average daily flow data and average annual flow data recorded at USGS Station 01477000, located above the outfall, just downstream from the Dutton Mill Road Bridge. The period of record for this gage is 1932 to the present. The minimum annual average flow at this location is 24.6 MGD (38 cubic feet per second) for the year 2002. Terminating the additional average discharge from the BRPCP is equal to a 15.5 percent reduction in average stream flow rate below the plant, in the driest year occurring during the 79-year period of recorded observations. The average daily flow during the period of record is 60.9 MGD (the gage is located upstream of the plant discharge). Removing 4.5 MGD from the average stream flow equates to a 6.9% flow reduction in the stream.



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- xi. Brookhaven is concerned with the estimates for the construction of the pump station and force main. The response indicates that recent bids for other projects were used as the basis of estimates. Brookhaven asked that the projects' locations and utility interferences faced as part of these projects be provided so that they can determine if the projects are similar to the proposed diversion project. This information was not provided. Brookhaven does not believe that the force main installation on Route 291 is comparable to the proposed force main installation from BRPCP to DELCORA's plant. If DELCORA is using this project as a basis for its estimates, they must show that the projects are comparable.

Response: An independent estimate for the cost of the proposed force main and pump station was performed. The detailed cost estimate for the selected alternative is included in this response as Comment 6.a.ii Attachment.

- xii. Brookhaven asked how utility relocations will be paid for and if the owner will be responsible for relocations. Brookhaven asked for cost estimates for relocating utilities. They have not been provided.

Response: Typically designs are engineered to avoid the relocation of existing utilities. There are instances when it is less expensive to relocate a utility than to construct around. Utility relocations are done in full cooperation with the utility. DELCORA will be responsible for costs of any necessary utility relocation.

- xiii. Brookhaven does not believe that costs have been included for crossing Baldwin Run, clearing the railway area and revegetating the railway area. There was no response to this comment.

Response: Costs for these project elements is included in the detailed cost estimate attached to this letter as Comment No. 6.a.ii Attachment.

- xiv. Brookhaven noted that no estimates have been provided for wetland mitigation. The response indicates that there will be only temporary impacts to wetlands. DELCORA needs to describe these temporary impacts, explain why they believe that they are only temporary and explain if there are costs associated with these temporary impacts.

Response: If wetlands are identified along the proposed force main alignment, impacts can be avoided by boring under the wetlands, or by seeking appropriate



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permits to disturb and re-establish the wetlands. If trenching is used to install the force main, the area will be restored to existing conditions. Any wetland impacts will be addressed during the detailed design phase.

- c. The following comments relate to available capacity at the WRTP:
- i. Brookhaven asked how the new flow from new CDCA members was considered in determining if there is capacity for the proposed diversion. Was the additional flow from CDCA included in existing DELCORA flow or has it been considered separately?

Response: Additional flow from CDCA was included in the previously approved Act 537 for the rerating of the WRTP to 50 MGD. Additionally, DELCORA's system was specifically designed to allow flexibility in how much of the daily flow from CDCA is sent to the WRTP and how much is sent to Philadelphia. Please see also the response to Comment No. 3 above.

- ii. Brookhaven commented that the DELCORA plant was rerated to 50 MGD to account for additional flows from new CDCA members and to reduce the amount of flow being sent to Philadelphia. They note that they believe the same rerate is being used to justify capacity for the SWDCMA flows being diverted to the DELCORA plant and asked if flows can be diverted back to Philadelphia when the previous plan called for a decrease in the flows being sent to Philadelphia. This was not addressed.

Response: Please see the response to Comment No. 3 above.

- iii. Brookhaven asked if any upgrades to the DELCORA plant would be required if both additional CDCA flows from their new members and SWDCMA flows were sent to DELCORA. The response only indicates that there is available capacity. According to our records, all of the additional capacity in the expansion (6 MGD) has been allocated to other projects and municipalities and there is no capacity included in the 50 MGD plant for the SWDCMA flows. Please explain how DELCORA has determined that there is adequate capacity in the WRTP for the SWDCMA flows.

Response: Please see the response to Comment No. 3 above.



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- d. The following comments relate to the costs of implementing the Plan:
- i. Brookhaven asked if PennVEST loans were available to individuals. The response indicates that PennVEST loans are available to individuals for the repair or replacement of their malfunctioning on-lot sewage disposal system. It is not clear if this adequately addresses Brookhaven's concern.

Response: PennVest funding is available for on-lot system owners. Brookhaven has indicated that this question has been answered adequately.

- ii. Brookhaven asked for the phase-out cost of the BRPCP. The response indicates that this information is not included in the Plan, since this is a responsibility of SWDCMA. This information should be included, since the affected municipalities need to evaluate their total costs. SWDCMA indicates that \$500,000 will be required to clean the digesters. All other work to decommission the plant will be done over time using operating funds, not borrowing capital. Will the cost to phase-out the plant be passed onto the SWDCMA members or is SWDCMA paying for it directly through money already budgeted for the project? If the members are going to be responsible for paying for the phase-out, will the cost be shared by existing users or all users?

Response: Costs to phase out the BRPCP have been estimated at \$3 Million by SWDCMA and amortized over 20 years to an annual cost of \$230,697. This value has been divided by 7,327 SWDCMA customers excluding MTSA flows to calculate a conservative per customer estimate of \$32 per year over 20 years for decommissioning the BRPCP. If MTSA agrees to participate in decommissioning costs, the cost per customer will decrease.

- iii. The letters indicate that Brookhaven will be assessed a fee of \$54 per EDU per year for 20 years. Explain the basis for this fee. Also, Brookhaven notes that this fee does not include financing to cover the cost of the decommissioning of the BRPCP. Please confirm this statement. Provide the estimated total annual costs to Brookhaven residents to implement this Plan.

Response: The total annual costs over 20 years to Brookhaven Residents to implement this plan are \$54 to construct the proposed force main and \$32 to decommission the BRPCP. The cost per customer to construct the pump station and force main were calculated by assuming a 5% interest rate over a period of 20



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years to finance the \$12 Million cost of Alternative 2C. This payment was divided equally among 18,000 total SWDCMA customers to arrive at \$54 annual cost per customer, reported in Chapter 6 of the Act 537 Plan.

- iv. Brookhaven has repeatedly questioned the fees associated with closing the BRPCP and diverting flow to the DELCORA plant. DELCORA and SWDCMA need to clearly address this issue.

Response: Please see response to d.iii above.

- v. Brookhaven notes that Chester Township will become a part of the DELCORA collection system and SWDCMA will therefore lose approximately 2,000 users. The revenue they are losing from losing those customers will then be split among the remaining users. Brookhaven needs to explain why they believe Chester Township will become part of the DELCORA system. SWDCMA needs to explain what will happen in this situation. Will costs be reallocated among the remaining customers?

Response: SWDCMA will not lose customers that currently flow to the BRPCP in any of the contributing municipalities unless they prepare revisions to their Act 537 Plans and construct pump stations connecting existing infrastructure to a treatment option, or construct new infrastructure. Changes to the collection system or the customer base are not anticipated or included in this Act 537 Plan Update for the Chester-Ridley Service Area. The limits of the Chester-Ridley Service Area are clearly shown in Figure 1-2 of the Plan.

- e. The following are additional comments related to the proposed Plan:
 - i. Brookhaven disagrees with DELCORA's statement that the proposed Eastern Plan has no bearing on the current plant. It has been the Department's practice to accept multiple plans, each of which cover particular sections of the municipality that cumulatively address the sewage disposal concerns for the entire municipality. DELCORA's service area covers a significant portion of Delaware County and it is feasible to separate the planning documents into specific portions of the service area. DELCORA should respond to Brookhaven that the concept of an Eastern Plan is acceptable to the Department and that any effects that the Eastern Plan may have on any other portion of the DELCORA service area will be addressed adequately in the Eastern Plan.



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Response: The concept of an Eastern Service Area Plan is acceptable to PADEP and any effects that the Eastern Plan may have on any other portion of the DELCORA service area will be addressed adequately in the Eastern Plan.

- ii. Brookhaven has indicated that they will be willing to adopt the proposed Plan, provided SWDCMA conveys the sewer lines located in Brookhaven to the Borough. Brookhaven will then do planning to send all flows originating in the Borough to their own plant. Please indicate if this option has been considered.

Response: Brookhaven has considered this option. SWDCMA has provided a cost estimate for Brookhaven's consideration to purchase portions of the collection system located within the Borough boundaries. Brookhaven Borough stated at their 25 October 2011 planning commission meeting that getting the collection system at no cost is their hope. This is a negotiation between Brookhaven Borough and SWDCMA and is outside of DELCORA's ability for intercession or influence.

If you have any questions or require additional information, please do not hesitate to contact me at (610) 701-3708. Thank you for your attention,

Very truly yours,

WESTON SOLUTIONS, INC.

A handwritten signature in black ink, appearing to read "Roger W. Lehman".

Roger W. Lehman, P.E.
Senior Technical Manager

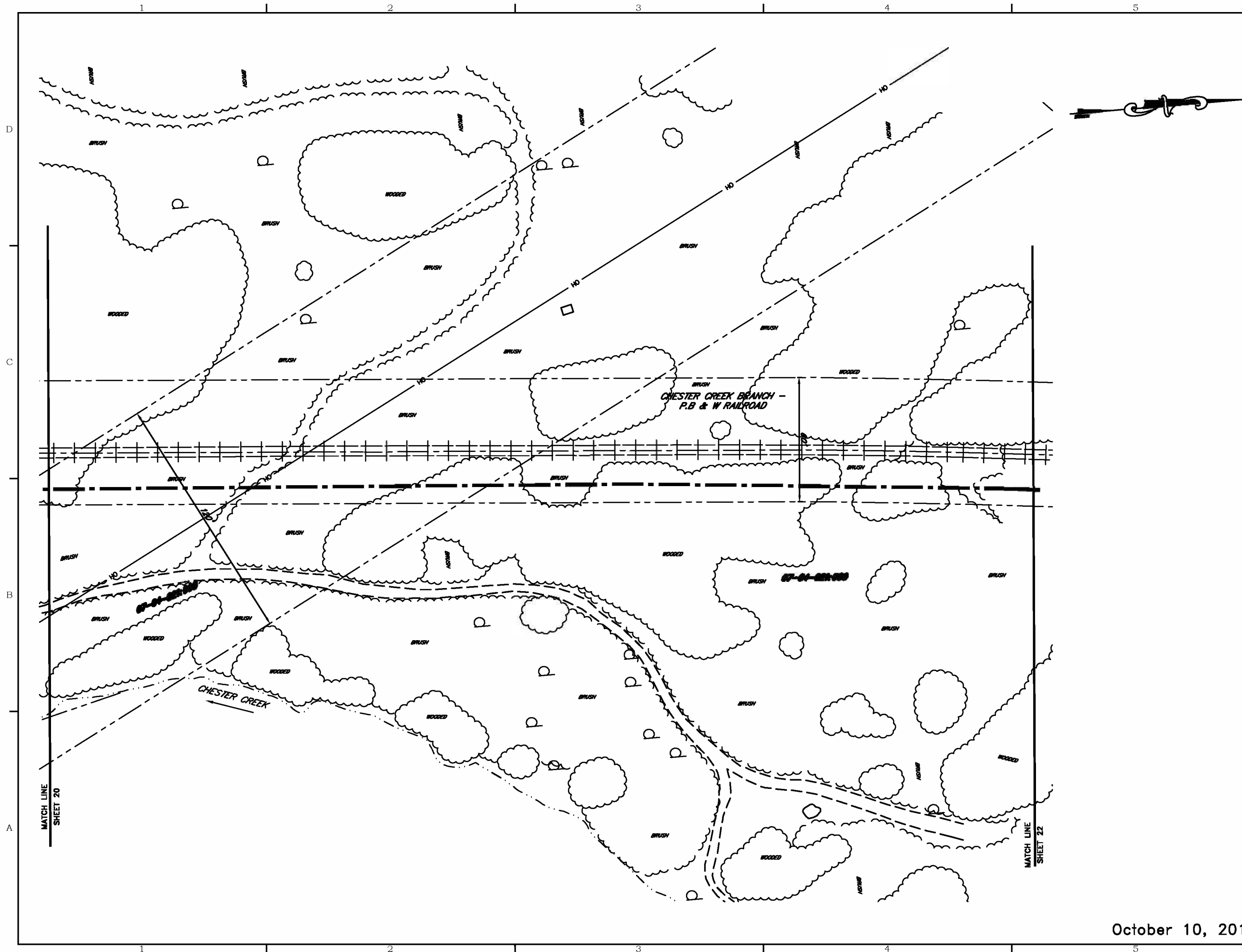
Attachments

cc: C. Volkay-Hilditch (DELCORA)
K. Holm (DCPD)

Comment 2 Attachment

Proposed Force Main Mapping: BRPCP to I-95

e-mail correspondence with SEPTA regarding easement



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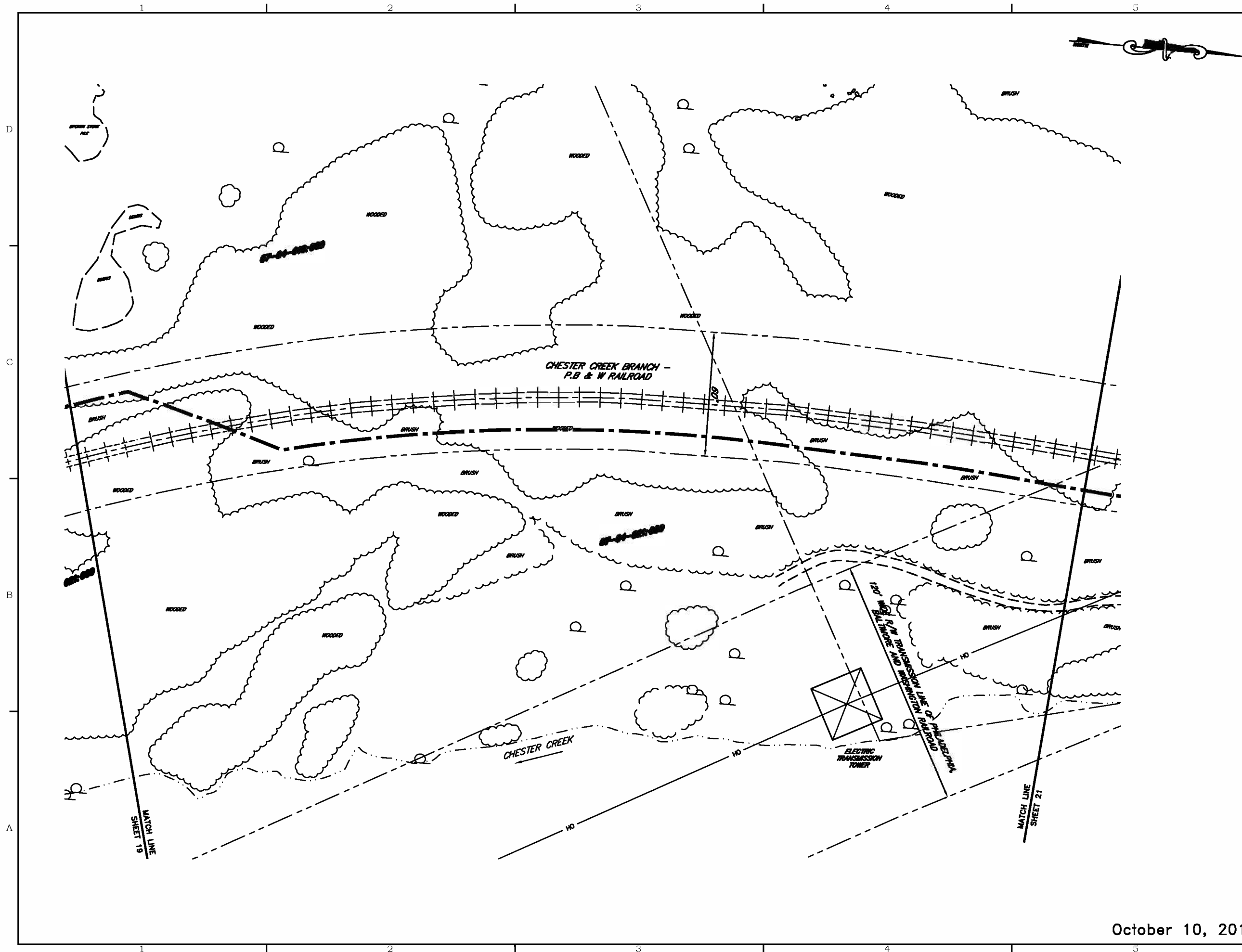
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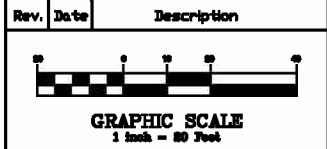
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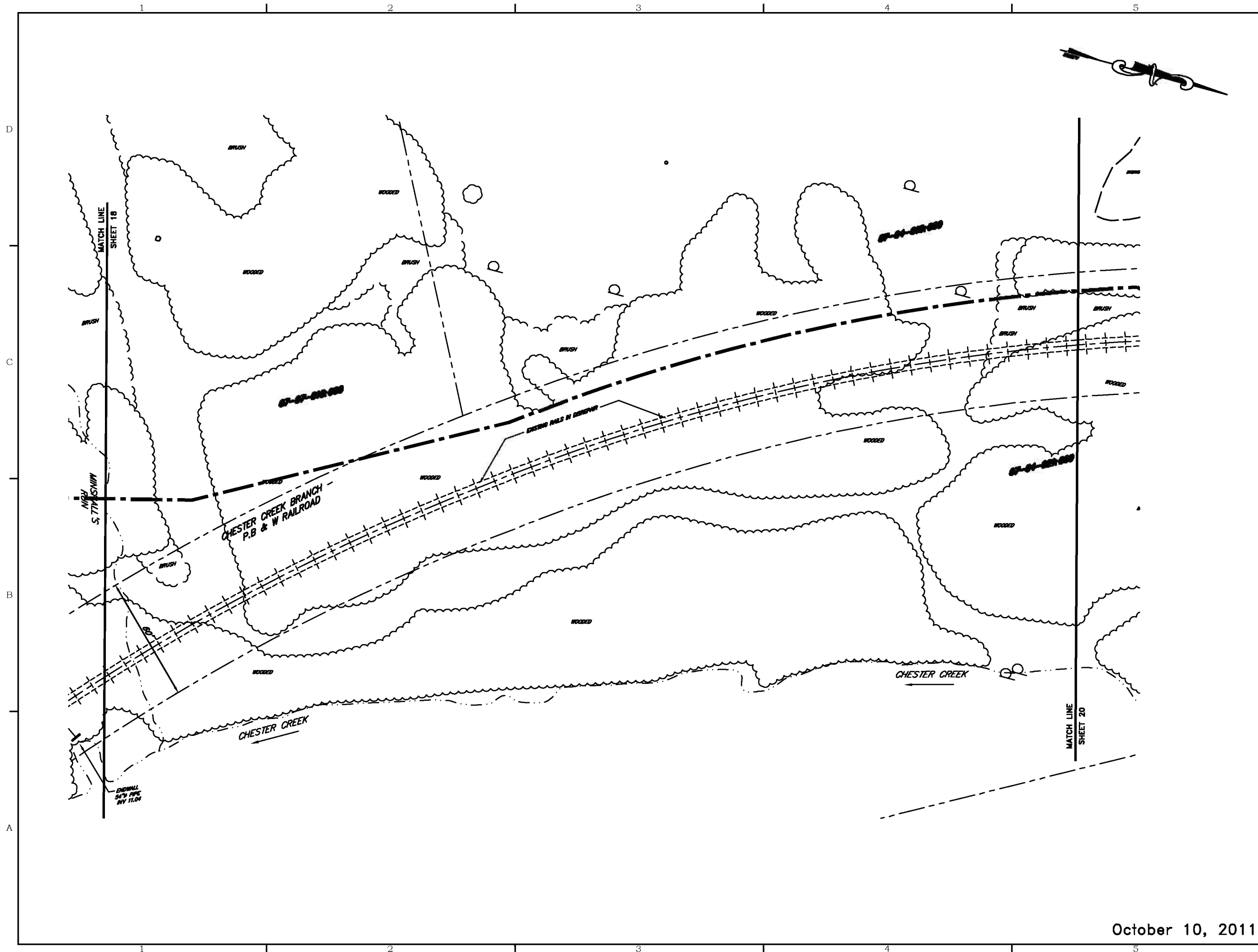
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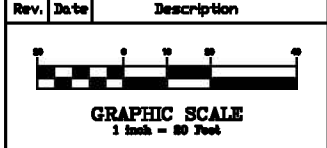
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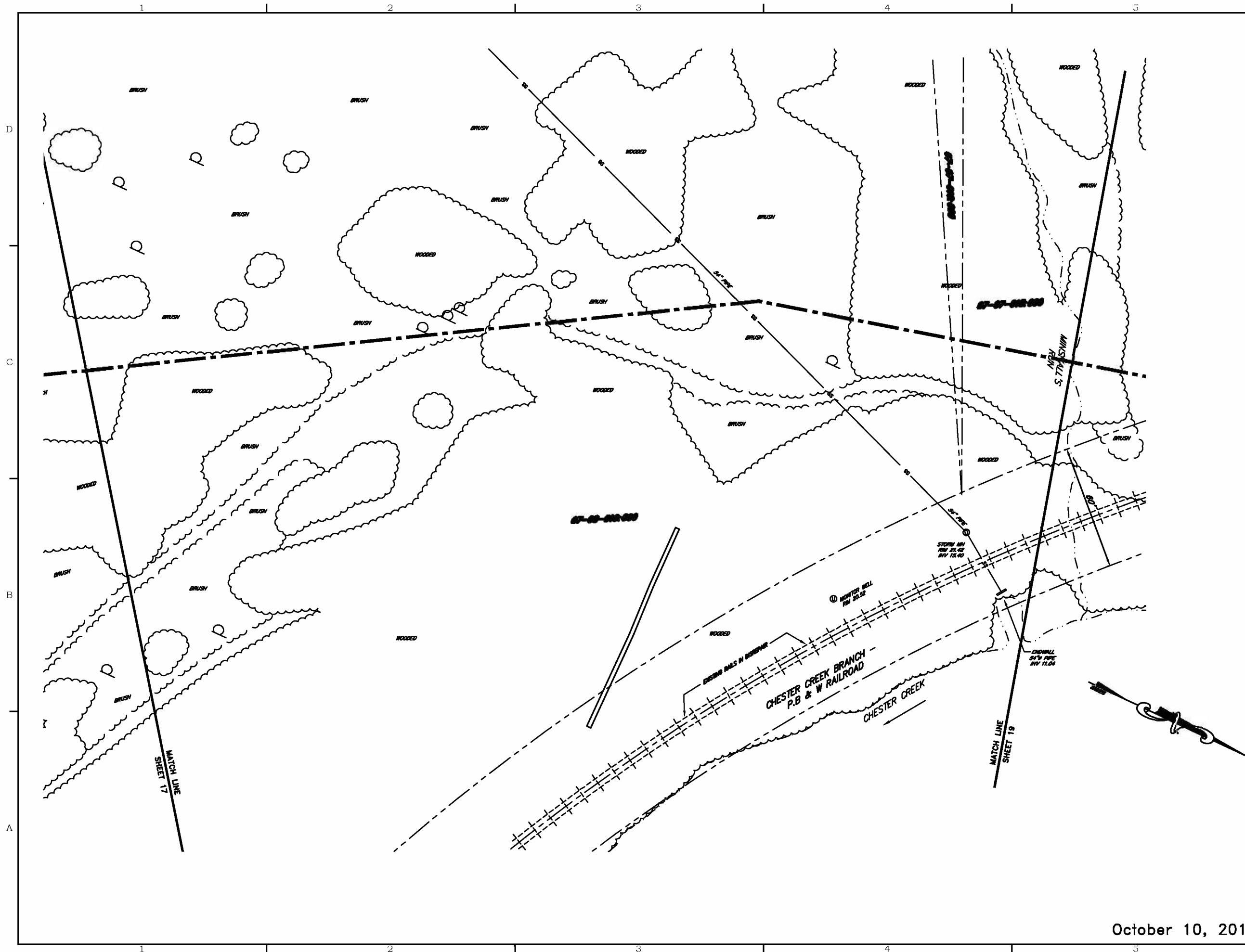
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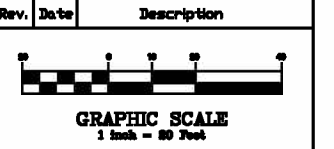
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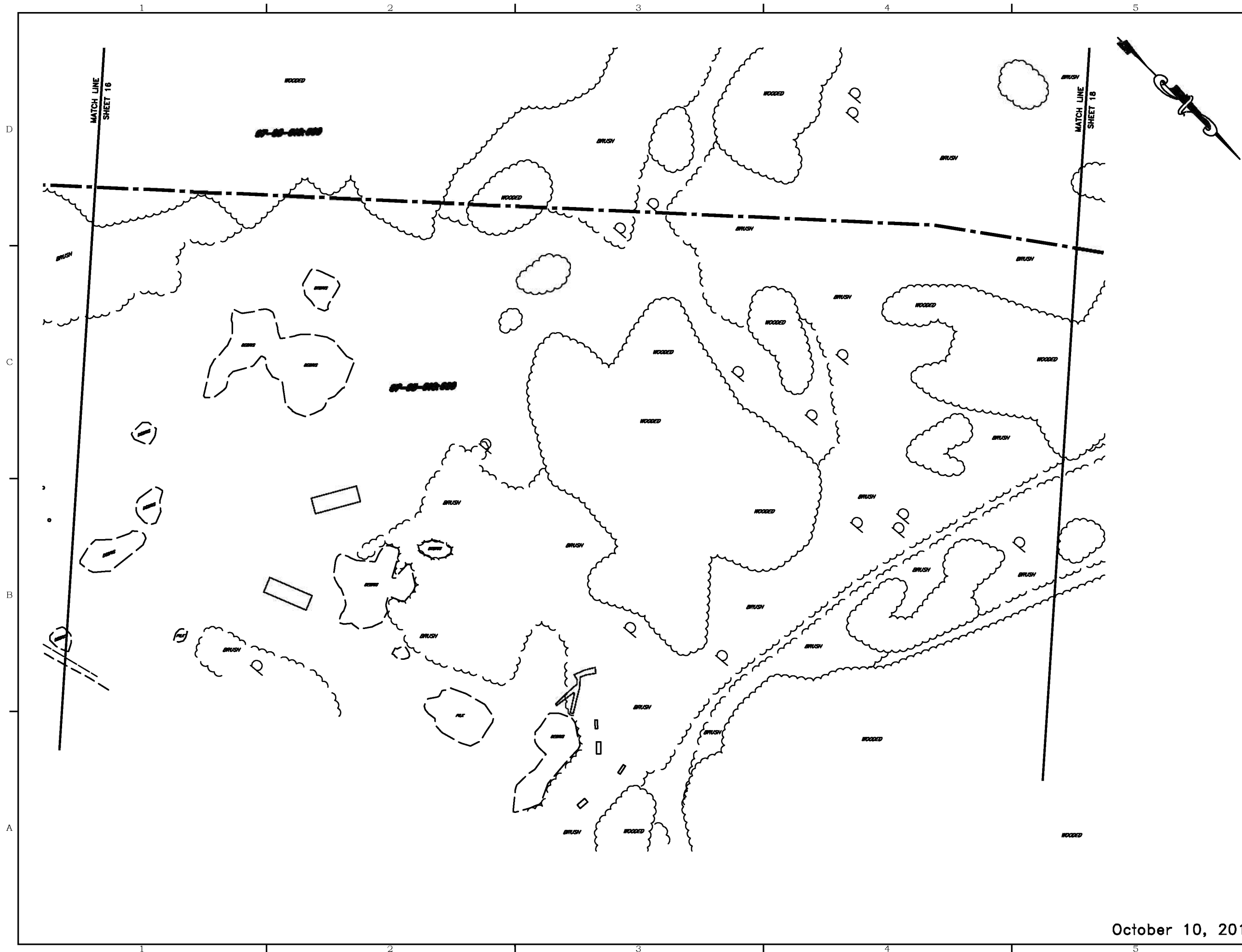
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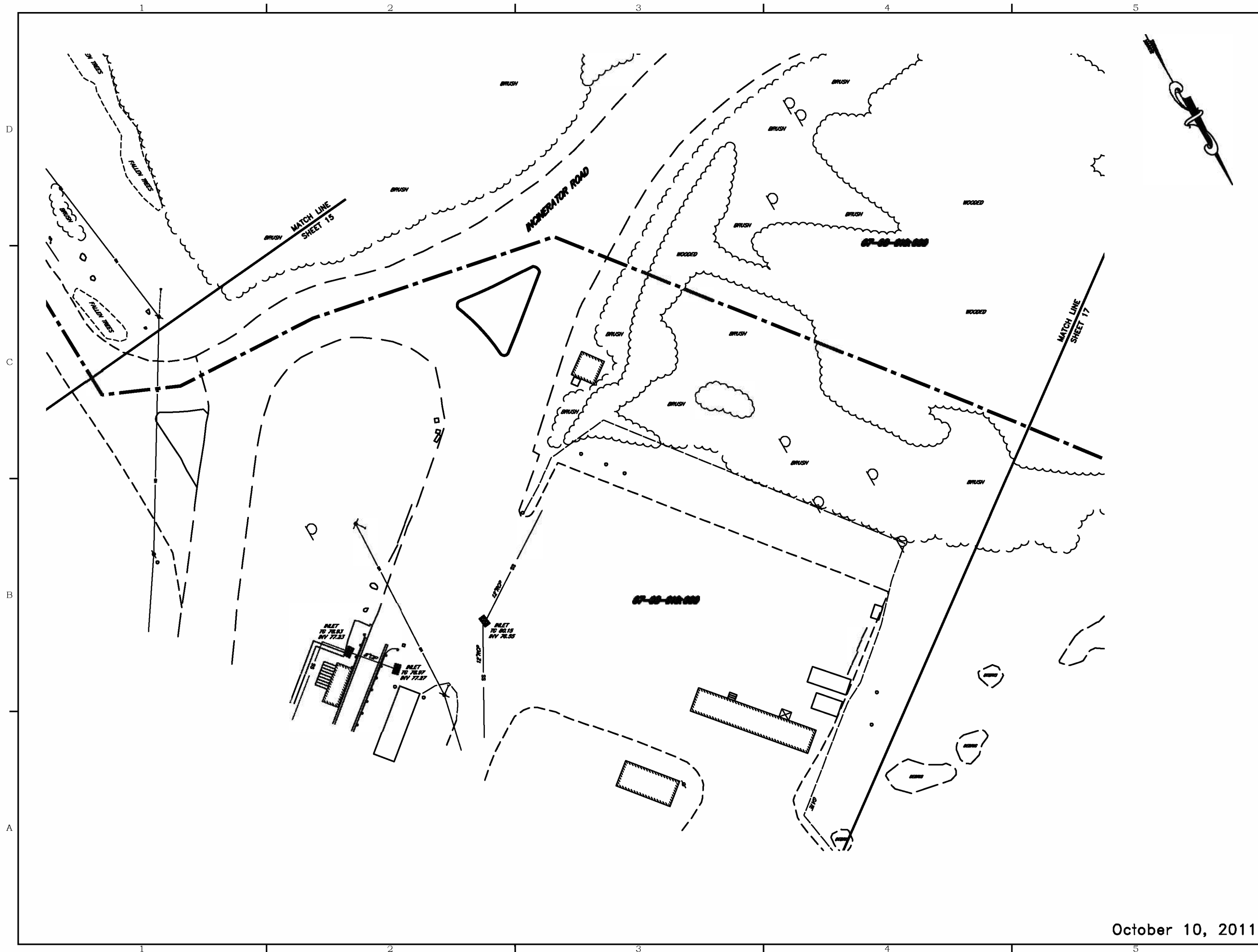
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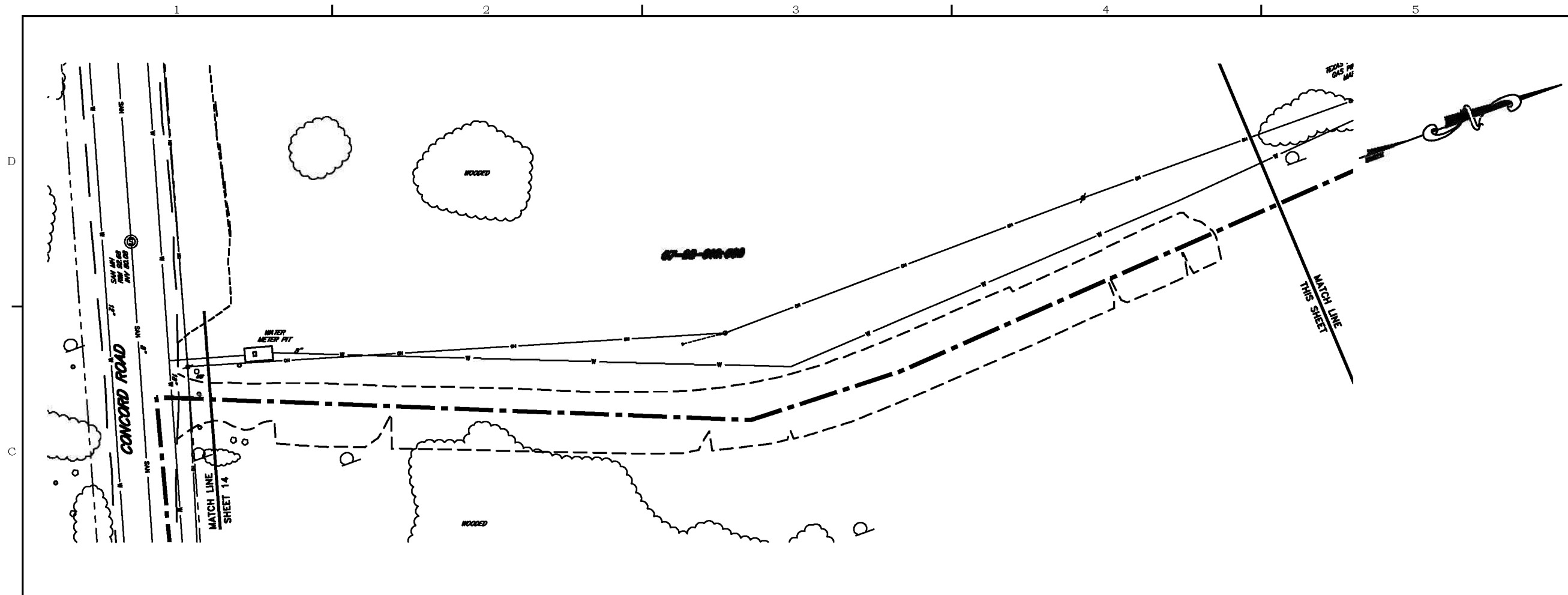
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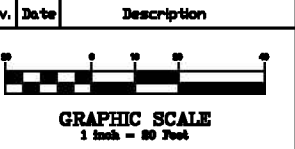


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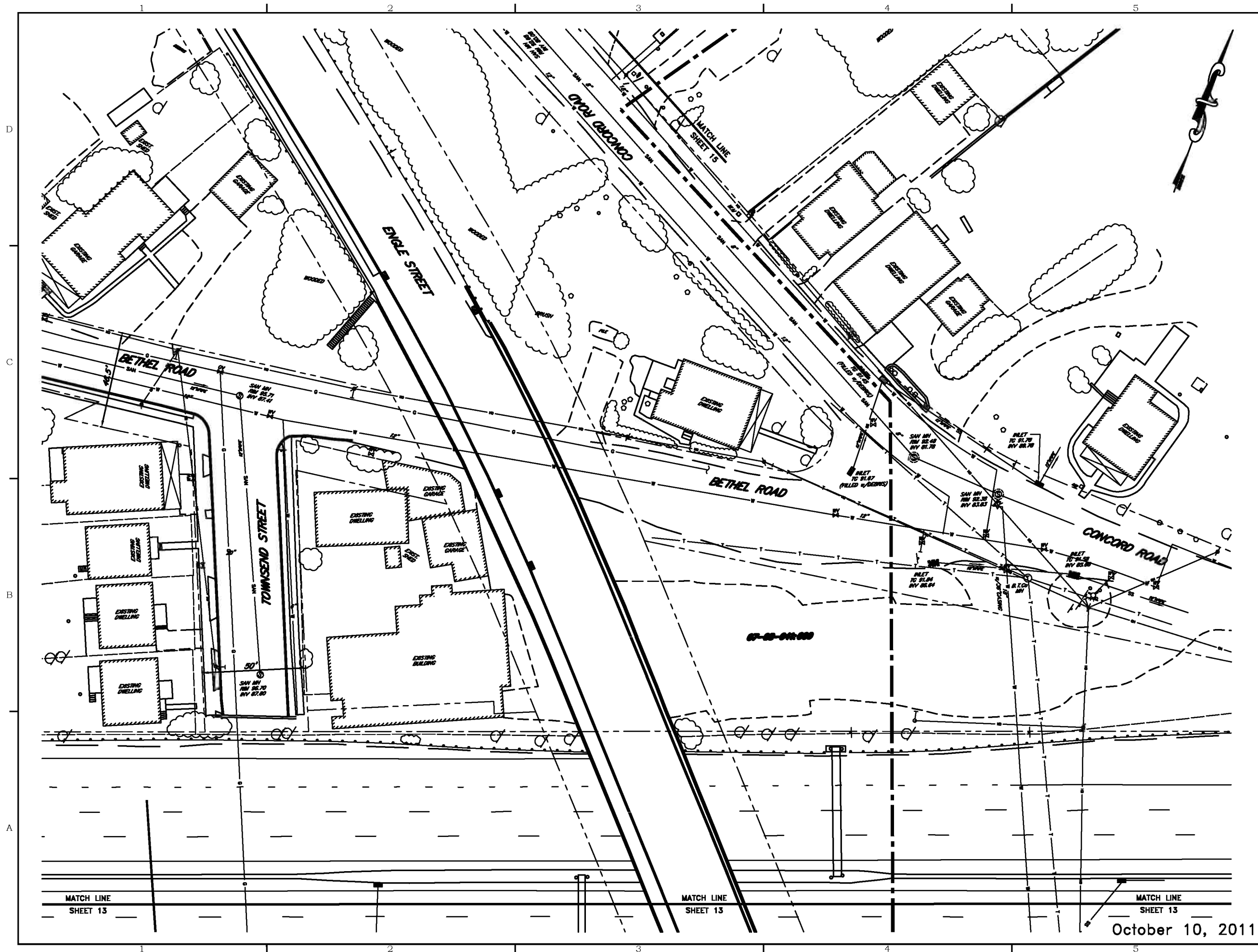
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FOR CHESTER-RIDLEY
SERVICE AREA

Surveyor
CATANIA ENGINEERING ASSOCIATES, INC.
Consulting Engineers
520 WEST MODADE BOULEVARD
WILMONT PARK, PA. 19053-3311
TEL. (610) 532-2804
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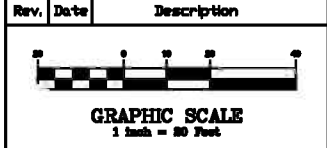
PROPERTY LINES AND
TAX PARCEL NUMBERS
ADDED BY WESTON
SOLUTIONS, INC.
11/29/11

DRAWN BY	P.H.M
CHECKED BY	W.R.C
C.E.A FILE #	81309-7
SCALE	1" = 20'
DATE	-

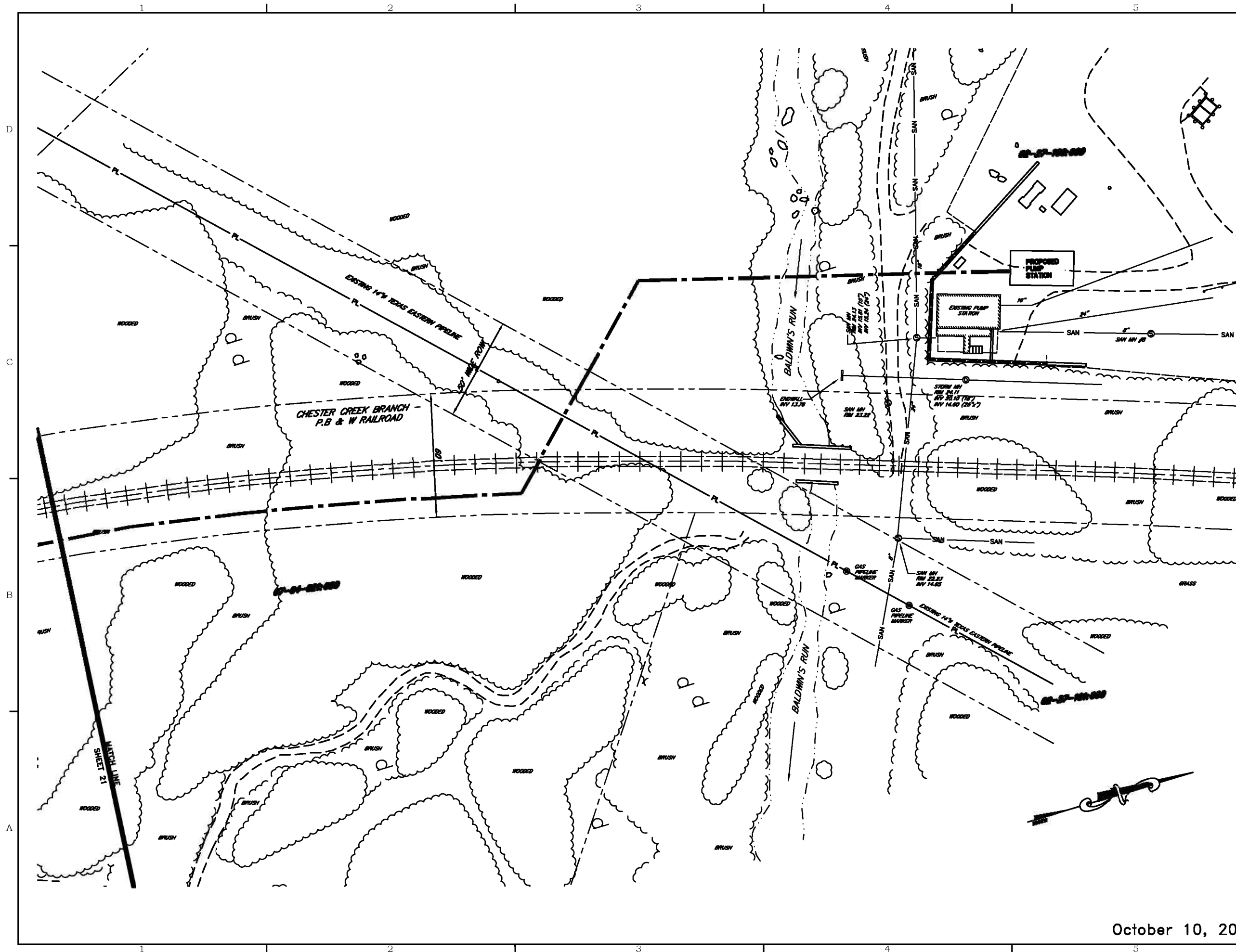
TOPOGRAPHIC
SURVEY PLAN

PROPOSED
CHESTER-RIDLEY
SANITARY SEWER
FORCE MAIN

Rev.	Date	Description



October 10, 2011



Delaware County
Regional Water
Quality Control
Authority
100 East Fifth Street
P.O. Box 999
Chester, PA 19016-0999

CONCEPTUAL FORCE MAIN ALIGNMENT FROM ACT 537 PLAN UPDATE FOR CHESTER-RIDLEY SERVICE AREA

Surveyor
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820 WEST MODADE BOULEVARD
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PROPERTY LINES AND
TAX PARCEL NUMBERS
ADDED BY WESTON
SOLUTIONS, INC.
11/29/11

DRAWN BY	P.H.M
CHECKED BY	W.R.C
C.E.A FILE #	81309-7
SCALE	1" = 20'
DATE	-

TOPOGRAPHIC SURVEY PLAN

PROPOSED CHESTER-RIDLEY SANITARY SEWER FORCE MAIN

Rev.	Date	Description
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October 10, 2011

Comment 3 Attachment

Agreement of Sales and Service between Sunoco and DELCORA

AGREEMENT OF SALES AND SERVICE

COPY

THIS AGREEMENT is made as of the 1st day of January, 2005 by Delaware County Regional Water Quality Control Authority ("DELCORA"), a Pennsylvania Municipal Authority and Sunoco, Inc. (R&M) ("SUNOCO"), a Pennsylvania Corporation.

RECITALS

- A. DELCORA owns and operates (i) a wastewater treatment plant (the "Western Regional Plant") located in the City of Chester, Pennsylvania and (ii) a related conveyance system consisting of interceptors, sewers, pump stations and other equipment (together with the Western Regional Plant, the "Western Regional System").
- B. DELCORA and SUNOCO entered into an Agreement dated as of December 1, 1973 (the "Original Agreement") pursuant to which the Authority has been treating SUNOCO wastewater since the Western Regional System began commercial operation.
- C. The Original Agreement will terminate on December 1 2004, and the parties are replacing the Original Agreement with this Agreement to set forth the terms under which the Authority will continue to treat SUNOCO wastewater.
- D. For purposes of this Agreement, SUNOCO shall be classified as a "Wholesale Industrial User."
- E. SUNOCO is authorized to discharge certain wastewaters into the Western Regional System (i) under an Industrial Discharge Permit No. 10T-03-02, which was issued to SUNOCO by the Authority on December 10, 2003 (the "Permit"), and (ii) subject to the conditions of the Permit and the Authority's Resolution 91-03, as first adopted May 22, 1991, and as amended from time to time (the "Rules and Regulations"). Such wastewater is referred to herein as "Permitted Wastewater."

AGREEMENT

Now, therefore, in consideration of the foregoing and intending to be legally bound hereby, the parties agree as follows:

ARTICLE I DELIVERY AND ACCEPTANCE OF WASTEWATER

1.01 Point of Connection and Metering. Permitted Wastewater shall be delivered by SUNOCO to the Western Regional System at a point of connection at the boundary of SUNOCO's property as described in Exhibit A. SUNOCO's metering station located as shown on Exhibit A shall measure and record all flows from SUNOCO to the Western Regional System.

1.02 Acceptance of Wastewater. DELCORA shall accept Permitted Wastewater from the SUNOCO conveyance facilities in an amount not to exceed ten million gallons per day (average daily flow) based on a monthly average, consistent with the Permit. SUNOCO's daily peak flow shall not exceed 15.0 million gallons per day. In the event that SUNOCO's daily peak flow exceeds 15 million gallons per day, SUNOCO shall pay a surchargesurcharge equal to \$5,000.00 per million gallons in excess of 15.0 million gallons per day. Said surchargesurcharge shall be billed to SUNOCO as part of the regular quarterly billing as set forth in Section 2.04.

ARTICLE II SERVICE CHARGES AND PAYMENTS

2.01 Service Charges. SUNOCO shall pay DELCORA in each calendar year or portion thereof during which this Agreement is in effect, subject to the other provisions hereof, a service charge for the wastewater treatment and conveyance services rendered by DELCORA to SUNOCO for Permitted Wastewater. The service charge shall be based upon rates which are uniform for all users categorized as "Wholesale Industrial Users" in the Western region and

DELCORA, in its sole and reasonable discretion, shall allocate the costs of the system among classes of users based upon the respective burdens placed on the system by each class. The service charge for the Wholesale Industrial Users class shall be determined by annual resolution passed by the DELCORA Board of Directors.

Charges will be reconciled at year end based on actual flows and loadings. DELCORA's good faith determinations as to the elements of costs, classifications of its customers, size of reasonable reserves and like matters shall be conclusive.

Notwithstanding the above provisions, DELCORA may, within DELCORA's sole discretion, make improvements that will more closely quantify components of treatment costs should DELCORA determine that said improvements would be more equitable.

2.02 Estimates of Service Payments to be Made by SUNOCO.

(a) **Preliminary Estimate.** On or before October 31st of each year commencing in 2005, DELCORA will prepare and submit to SUNOCO a preliminary statement for the next succeeding calendar year showing the estimated amounts to be paid by SUNOCO during such year.

(b) **Final Estimate.** On or before December 1st of each year commencing in 2005, DELCORA will prepare and submit to SUNOCO a statement approved by the DELCORA Board of Directors showing, in reasonable detail, for the next succeeding calendar year: the estimated amounts to be paid by SUNOCO during such year determined in accordance with the provisions hereof, hereafter "Final Estimate." The amounts to be paid by SUNOCO contained within the Final Estimate shall be hereafter referred to as the "Estimated Service Payments to be Made by SUNOCO."

2.03 Amended Estimates. In the event of unusual contingencies requiring an upward revision in the current budget adopted by DELCORA, or in the event of a material change in the quantity or quality of SUNOCO'S wastewater flow, DELCORA may amend the Estimated Service Charges to reflect such changed conditions. A statement showing the amended estimated payments, hereafter "Amended Estimate," in reasonable detail, and the reasons therefore shall be submitted to SUNOCO, thereafter, commencing with the next quarterly payment, the payments made by SUNOCO shall be based upon the Amended Estimate.

2.04 Payments on Estimates. DELCORA shall submit to SUNOCO quarterly invoices reflecting the amount due and owing to DELCORA. SUNOCO agrees to pay said Estimated Service Charges for the next succeeding calendar year in four (4) equal installments to be paid within thirty (30) days of the receipt of each correct quarterly invoice. Actual usage of DELCORA's sewer system will be reconciled with the estimates utilized in calculating quarterly billings and adjustments made pursuant to 2.05 below.

2.05 Audited Statements. DELCORA shall cause to be prepared and certified by an independent Certified Public Accountant on or before May 31st of each year, a report setting forth in reasonable detail (a) the Operating and Capital Costs of the Western Regional System for the preceding calendar year, and (b) the final service charge chargeable to SUNOCO for such year determined in accordance with the provisions of Sections 2.01 through 2.04 above. Such report shall contain statements setting forth the payments theretofore made by SUNOCO as estimated payments of service charges and the amount by which the final service charge to SUNOCO exceeds or is less than the aggregate of the payments and credits theretofore made by or allowed to SUNOCO on account of such service charge. Said final service charge shall be added to or subtracted from the third quarterly billing of the succeeding year.

2.06 Penalty on Late Payments. If SUNOCO does not make full payment of any such quarterly installments or additional charges, except as specified in 2.03, on or before the specified payment date, there shall be added to the amount thereof interest at the rate of 10% per annum from the due date of such charge to the date on which DELCORA shall receive payment thereof.

2.07 State and Federal Regulations to be Followed. Notwithstanding any provision set forth in this Article, the service charges payable by SUNOCO under this Agreement shall be calculated in such manner as will comply with the applicable regulations of the Federal Environmental Protection Agency and the Pennsylvania Department of Environmental Protection, or any successor agencies having jurisdiction thereof.

ARTICLE III MEASUREMENT OF WASTEWATER FLOWS

3.01 Metering. The quantity of wastewater emanating from SUNOCO's facilities and discharged into the Sun Force Main shall be based upon readings of SUNOCO's meter as referenced in Section 1.1 above.

3.02 Access to Meters. DELCORA shall have the right of access to the meter for the purpose of reading and checking in place for accuracy, at its expense.

3.03 Missing or Inaccurate Flow Records. In the case of missing or inaccurate flow records due to faulty meter operation or otherwise, an estimate of flows shall be made by DELCORA based upon DELCORA's consideration of DELCORA and/or SUNOCO records of past flow or similar flows as applied to the current conditions, for use in place of meter readings.

ARTICLE IV WASTEWATER QUALITY RESTRICTIONS

4.01 Uniform Standards. DELCORA has adopted uniform wastewater quality standards known as the "DELCORA Standards, Rules and Regulation of 1991", Resolution 91-03, as amended, which comply with the requirements of Federal, State and Local regulatory authorities. SUNOCO will refrain from discharging or permitting the discharge of wastewater from SUNOCO's facilities into DELCORA's System that would violate any of such standards as they now exist or as they may be modified from time to time. Wastewater which does not meet the standards set forth in the DELCORA Standards, Rules and Regulations of 1991, as amended, is hereinafter referred to as "improper wastewater" or "improper discharge".

4.02 Reimbursement for Damages from Improper Discharge. SUNOCO will assist DELCORA in determining the source of any improper wastewater. Upon notice from and at the direction of DELCORA, SUNOCO will assist DELCORA in terminating the flow of any improper discharge. All damages caused to DELCORA's and SUNOCO's property as the result of improper discharge shall be recoverable from the person or entity which is the source of the improper discharge. If DELCORA is unable to recover its damages after pursuing a civil action against the source, the excess damages shall be recovered through the general rate structure in succeeding years. SUNOCO shall indemnify and hold harmless DELCORA with respect to any damages or losses suffered by DELCORA on any other person or entity resulting from an improper discharge or improper wastewater originating from SUNOCO.

ARTICLE V OPERATION AND MAINTENANCE OF FACILITIES

5.01 DELCORA Facilities. DELCORA will exercise best efforts to continuously operate, maintain and repair the Western Regional System or cause it to be maintained and

repaired so that it will be at all times in efficient operating condition and in compliance with the standards prescribed by all appropriate regulatory agencies for the purpose of this Agreement

5.02 Hold Harmless. DELCORA shall own the pipeline from the point of connection referred to in Section 1.1 , but will not hold SUNOCO harmless for any damages or losses to the Western Regional System or the person or property of third parties directly resulting from (a) SUNOCO's breach of this Agreement; (b) SUNOCO's non-compliance with the DELCORA Standards, Rules and Regulations then in effect; (c) SUNOCO's violation of federal, state or local statutes, ordinances, regulations or procedures applicable wastewater transportation, treatment and/or disposal; and/or (d) illegal, intentional and/or negligent act(s) of SUNOCO.

ARTICLE VI **MISCELLANEOUS**

6.01 Insurance. DELCORA will insure, or cause to be insured, the Western Regional System, or such parts thereof as are usually insured by the Owners and/or operators of wastewater systems in the Commonwealth of Pennsylvania. Such insurance policies shall be non-assessable. DELCORA will also maintain liability insurance consistent with similar wastewater systems.

6.02 Inspection. Each party shall provide each other from time to time all information relevant to the proper administration of their responsibilities under this Agreement, or in respect to the interpretation hereof, as, and in such form and detail as, may be reasonably requested and each shall at all reasonable times and from time to time permit their representative to examine and inspect their respective records and physical facilities relevant to the subject matter of this Agreement.

6.03 Force Majeure. Notwithstanding any other provision of this Agreement, neither party hereto shall be responsible in damages to the other for any failure to comply with this

Agreement resulting from an act of God or riot, sabotage, public calamity, flood, strike, breakdown of conveyance or treatment facilities due to circumstances beyond the party's control, or other event beyond its reasonable control. If a force majeure event occurs: (a) the non-performing party shall give the other party prompt written notice describing the particulars of the force majeure event and the potential duration thereof; and (b) the non-performing party shall resume performance at the earliest practicable time after the end of the force majeure event.

6.04 Indemnity. To the extent permitted by law, each party agrees to indemnify, defend and save harmless the other party against all costs, claims, losses, damages or legal actions of any nature on account of any injury to persons or property occurring in the performance of this Agreement due to the negligence of such party or its agents, employees, contractors or subcontractors, notwithstanding the provisions of Section 5.02.

6.05 No Joint Ownership. No provision of this Agreement shall be construed to create any type of ownership of any property, any partnership or joint venture, or create any other rights or liabilities except as expressly set forth herein.

6.06 Severability. Should any provision hereof, for any reason, be held illegal or invalid, no other provision of this Agreement shall be affected, and this Agreement shall then be construed and enforced as if such illegal or invalid provision had not been contained herein.

6.07 Headings. The headings in this Agreement are solely for convenience and shall have no affect in the legal interpretation of any provision hereof.

6.08 Effective Date, Term and Termination. This Agreement shall become effective as of January 1, 2005 and shall remain in force and effect for a period of twenty years from such date. The term of the Original Agreement is hereby extended until and through December 31, 2004.

6.09 Notice of Termination. Either party may elect to terminate this Agreement, after this Agreement has been in effect for a period of fifteen years, with the provision of five years written notice to the other party delivered at any time ten or more years after the effective date of this Agreement.

6.10. Waiver. The failure of SUNOCO or DELCORA to insist upon strict performance of any of the terms contained herein shall not be construed as a waiver of any rights hereunder.

6.11 Counterparts. This Agreement has been executed in five (5) counterparts, each of which shall be regarded for all purposes as an original, but such counterparts shall together constitute but one and the same instrument.

6.12. Successors and Assigns. This Agreement shall bind and inure to the benefit of the respective successors and assigns of the parties hereto.

6.13. Assignment of Service Charges. DELCORA's right to receive payments hereunder may be assigned and pledged to Commerce Bank , as Trustee under Indenture dated July 1, 2001, or any subsequent Indenture to secure DELCORA'S Sewer Revenue Bonds currently outstanding or hereafter issued to cover any Project Costs to DELCORA.

ARTICLE VII **DEFINITIONS**

7.01 Definitions Incorporated Herein. The definitions set forth in the DELCORA Standards, Rules and Regulations of 1991, Resolution 91-03, as amended, are incorporated herein by reference thereto as though set forth in full herein. Wherever used herein, the said

terms shall have the meanings as so defined except in those instances where the context clearly indicates otherwise.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement of Sales and Service to be executed as of the date and year first written above by their respective duly authorized officers and their respective seals to be hereunto affixed.

DELAWARE COUNTY REGIONAL
WATER QUALITY CONTROL AUTHORITY

(CORPORATE SEAL)

By: Stanley A. Koster
Chairman

Attest: Daniel H. Hodge
Secretary

SUNOCO, INC. (R&M)

AK 4/28/95
NAR

(CORPORATE SEAL)

By: Kevin Robles



Attest: Eric O'Hara
Secretary
VICE President and Assistant
ERIC C. GERNER

Bolt, Elizabeth

From: Maier, Gerald M [GMaier@septa.org]
Sent: Tuesday, December 06, 2011 3:08 PM
To: Bolt, Elizabeth
Cc: Kadish, Stanley A; Byrne, Leo F; Kuhn, Eugene J; Sechrist, DeRenee F
Subject: RE: DELCORA easement in Chester Creek Line ROW

Elizabeth It was nice talking to you about your project for DELCORA. Please note that Septa intends to enter into a Master Agrmt. w/the MTSA for the length of the Chester Creek Branch. Thereafter sub-agrmts. would be entered into between entities such as WVA, DELCORA, etc. In all cases plans, means & methods would be subject to Septa approval. The Master agrmt. Would require Septa Board approval. Call if any questions. Jerry #215 580 7476

From: Bolt, Elizabeth [<mailto:Elizabeth.Bolt@WestonSolutions.com>]
Sent: Tuesday, December 06, 2011 8:50 AM
To: Maier, Gerald M
Subject: DELCORA easement in Chester Creek Line ROW

Hi Gerry – Thank you very much for your time on the phone this morning. I understand that there are procedures that DELCORA must undertake to obtain an easement to install a sewage force main within SEPTA's right-of-way for the Chester Creek Line. SEPTA has been in discussions with the Middletown Sewer Authority (MTSA) to provide a force main easement for wastewater from the Franklin Mint development and MTSA. DELCORA should coordinate with MTSA and send a letter to SEPTA requesting the easement. The letter should account for the interests of the Friends of Chester Creek and the rails to trails project. The letter should provide the conceptual design layout and diameter of the force main, and a proposed schedule of construction.

The conceptual design and request for the easement must be presented to SEPTA's board. The easement must have SEPTA board approval before it is granted and terms are negotiated.

Thank you again for describing the procedures to me on the phone. I appreciate your responding to this e-mail confirming that obtaining an easement is feasible. I can include your response in DELCORA's Act 537 Sewage Facilities Planning document to obtain approval from the Pennsylvania Department of Environmental Protection (PADEP).

Please don't hesitate to call me if you have any questions regarding the project. I'll follow up with Mike Majeski and arrange a meeting in January. – Beth Bolt

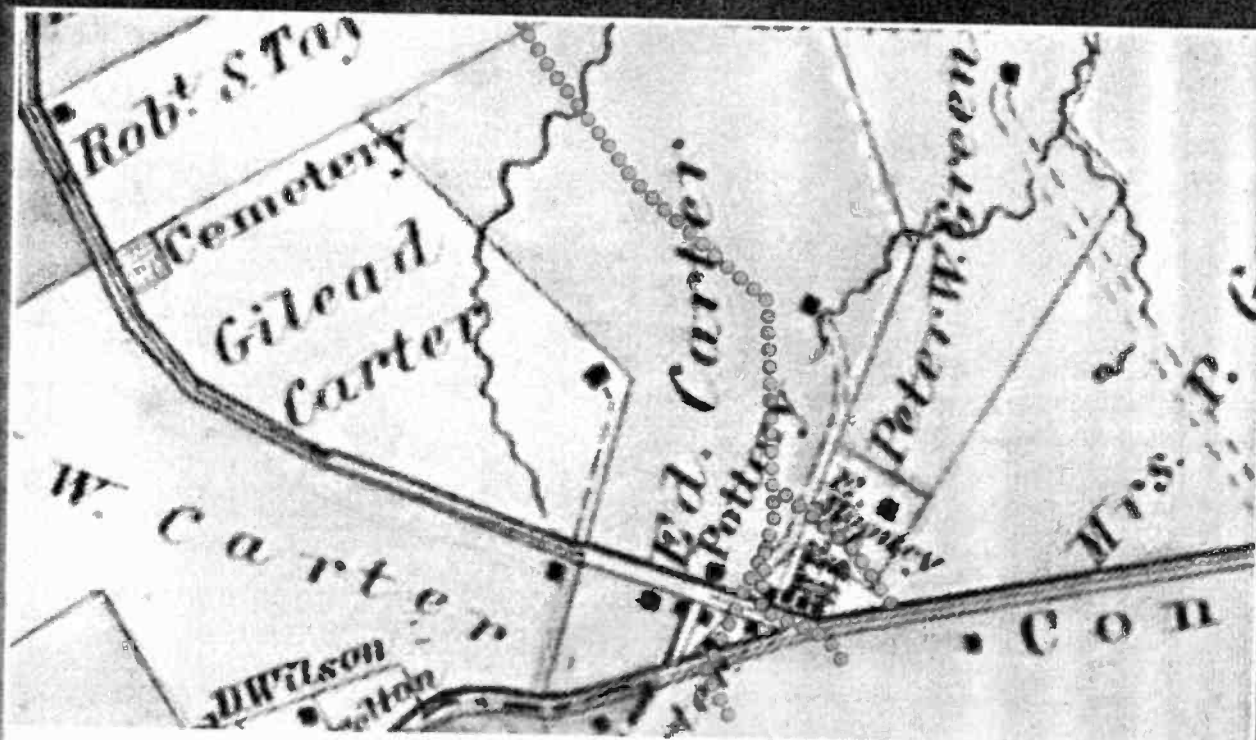
Elizabeth Bolt, P.E.
Weston Solutions, Inc.
610-701-3132

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Comment 4 Attachment

Phase 1 and Phase 2 Archeological Report

PHMC Review Letter (Pending)



**PHASE I ARCHEOLOGICAL SURVEY
AND PHASE II EVALUATION
of the
CHESTER-RIDLEY AREA FORCE MAIN,
DELAWARE COUNTY, PENNSYLVANIA**

ER 2011-1048-045A

prepared for
DELCORA
Chester, Pennsylvania

by
John Milner Associates, Inc.
West Chester, Pennsylvania

2011

5.0 INTERPRETATIONS AND RECOMMENDATIONS

5.1 PHASE I INTERPRETATIONS

Excavations along the northern section resulted in stratigraphic sequences and the recovery of artifacts consistent with the construction, use, and continued presence of the bed of the Chester Creek Railroad. The exceptions to this were the STUs that fell along a terrace that sat above the rail bed. A natural soil stratigraphy terrace was found on the landform. While a few historic-period artifacts and single piece of debitage were recovered, their quantities were insufficient to define the presence of an archeological site. As for the rail bed, it retains the materials and manner of construction common to the nineteenth century, with its integrity being unusual in the region for an abandoned line, as it still holds rails and ties.

Evidence from aerial photographs and excavations demonstrate extensive disturbance along the central section, primarily from construction and operation of the incinerator plant (see Figures 4 and 5). Recent aerials depict the extent of disturbance from the dumping of soils and construction debris that is not evident on earlier images. While it appears that the wooded strip was not disturbed by the dumping, excavations demonstrated the presence of such debris. Since it was not possible to get through the fill with a shovel, it was not possible to confirm the absence or presence of an intact ground surface. However, the fill covered a portion of the slope leading down to a stream; therefore, it is unlikely that earlier archeological deposits would exist in this area.

Likewise, it was not possible to confirm through shovel testing the absence or presence of an intact ground surface on the hill leading up the transfer station, or across its yard. However, evidence from the aerial photographs suggested extensive disturbance and filling. The 1971 aerial (Figure 5), moreover, shows partial filling of the quarry whose remains are immediately north and west of the incinerator plant. It is unlikely for intact archeological deposits to remain in this section because of the extent of ground disturbance.

Testing within the southern section consisted of STUs placed along three alternative routes for the forced sewer main, referred to in this report as the eastern, central, and western alternatives. Testing along the eastern alternative was limited because the route was removed from consideration early in the process of testing. Both STUs that were excavated along the eastern alternative illustrated that the area adjacent to the concrete road has been disturbed through extensive modifications to the landscape.

Testing along the central branch traversed the location of a house depicted at the location in 1870, but absent in 1898. Another house appeared in the same location in 1937, and was demolished some time after 1971. Excavation showed what appears to be an intact parking area to the rear of the house; however, demolition appears to have caused extensive disturbance of the yard area. No intact ground surface was noted, but a redeposition of subsoil was evident.

Results similar to the house location along the central alternative were obtained from excavations along the western alternative at the former house location southwest of the overpass in that extensive disturbance of the yard area was evident. Excavation along the western alternative at the house location between Concord Road and the overpass again produced similar results, with the exception that the deposits were not compact, and a foundation was visible. The persistence of the foundation suggests the possibility of additional intact features remaining at the location. In contrast, it is unlikely that intact features remain at the other two house locations because of the extent of ground disturbance.

5.2 PHASE I RECOMMENDATIONS

JMA recommends Phase II archeological evaluation of the portion of the Carter Residences site (36DE0146) within the project area. As found through historic research and excavation of STU 88, the location held a house dating from the late nineteenth to roughly the mid-twentieth century. While the stratigraphy of the STU suggests a post-demolition deposit, there is a potential for undisturbed deep shaft features, such as a well or privy, to remain. In addition, there being a visible foundation suggests the potential for an intact ground surface, even if a portion of the yard had been disturbed during demolition. Given this potential, the location may qualify for inclusion on the National Register of Historic Places under Criterion D, a site likely to yield information important in history.

JMA also recommends treating the Chester Creek Railroad rail bed as eligible for inclusion on the National Register of Historic Places under Criterion A as a structure associated with events that have made a significant contribution to the broad patterns of regional and national history; and under Criterion C as a structure that embodies the distinctive characteristics of type, period, and method of construction. As currently planned, construction of the forced sewer main will have an adverse affect on the rail bed. Treating the rail bed as if it were eligible means constructing the forced main line without causing damage to any of its rail bed elements. Taking such an approach will result in avoiding the time and cost of conducting a formal determination of eligibility.

Lastly, JMA recommends that further consideration for archeological or above-ground resources is not warranted for the remainder of the project area.

5.3 PHASE II INTERPRETATIONS

The character of the historic landscape is illustrated by the stratigraphy of the excavation units and bucket auger tests. The side yard of the house that once stood along the western edge of the project area had been relatively level before its construction. In the later part of the nineteenth century, fill was introduced into the area to lessen any topographic variation, and by the early twentieth century gravel and commercial or industrial slag were deposited, likely to create a driveway along the east side of the house, which is visible on the 1937 aerial of the project area (see Figure 4).

Data from the bucket auger tests indicate suggest that a cut was made along the western edge of the project area, as indicated by the absence of what elsewhere within the project area was the penultimate soil layers, and the greater depth to subsoil. The cut could represent the installation of utilities (water or sewerage) from the street to the house.

Excavation along the remains of the house foundation resulted in the discovery of a concrete basin that likely served as a coal chute. While there was not evidence of a cover for the basin, which would be typical of a coal chute, the top of the concrete was truncated, which could have resulted in removal of evidence that a cover had once existed. Interpreting the basin as a coal chute is supported by the findings of A.D. Marble, who conducted excavations on the interior of the foundation immediately adjacent to EU 5. Near the base of the floor they noted a layer of coal and coal dust (A.D. Marble, personal communication, October 2011). At some point in time, the house was likely converted to an alternative heating source, as suggested by the placement of the screen in the opening into the basement, which would have provided ventilation.

Of the 1,310 artifacts recovered during the Phase II testing, only those within EU 5 could be positively associated with occupation of the house. The remainder were contained in fill introduced to the site. Eighty-four percent of the artifacts collected were redware (n=676) recovered from soils brought in as fill that almost certainly originated from the site of Edward Carter's pottery. The redware assemblage consisted of the following categories:

- Manganese glazed (252)
- Clear lead glazed or mottled (174)
- Unglazed (152)
- Slipware (98)

The majority (548 or 82%) of the redware sherds, saggers, kiln furniture, and wasters were concentrated in Levels 4 and 5 of EU 1. Many of the redware sherds were overfired (Plate 16) and some were underfired, i.e. unfinished. Sixteen sherds were identified as wasters, fragments of vessels which were overfired or misshapen as a result of overfiring in the kiln to the point of being unusable (Plate 17). Additionally, 31 pieces of kiln furniture were identified: 16 sagger fragments and 15 objects used as pads, spacers, balancers, and testers (Plates 18 and 19). Sixty brick fragments, many burnt or showing evidence of reheating, were likely used in kiln construction (Plate 20). Altogether this concentration of material is representative of kiln debris.

The predominance of plain glazed redware sherds in the sample suggests that the majority of vessels produced at this kiln site were utilitarian, mostly butter pots or crocks, bowls, and chamber pots. In addition, one possible tile fragment was identified (Plate 21). The unglazed sherds represent flower pots, many with decorative coggled bands around the body and rims, while those with brown washes were most likely drainage pipes. The slip-decorated sherds represent pie dishes or pans and deep bowls that were used for making and serving puddings, often called pudding pans (Plates 22 and 23). Fourteen partially reconstructible vessels were identified in Lots 13 and 14. None were reconstructible to more than 25 percent, which indicates they were wasters. The vessel forms represented include four deep bowls or

pudding pans, three pie dishes or pans, two bowls, two chamber pots, one crock, one flower pot tray, and one unidentified hollowware.

The redware sherds, vessel fragments, and kiln debris recovered from the project area deposits are representative of a waster dump associated with the adjacent Edward Carter Pottery. Analysis of this concentration of material indicates that Carter was making a variety of plain-glazed and slip-decorated utilitarian vessels for the kitchen and table, as well as flower pots and drain pipes. This assemblage represents a sample of redware made at this pottery from roughly 1830 to 1870. Despite the fact that the middle of the nineteenth century was a boom period in the production of redware pottery in southeastern Pennsylvania, only a few redware potters are known from this period and no kiln sites have been systematically investigated (e.g. James 1978:iv-v). While the kiln site was not within the project area, and therefore information on operations is limited, the sample of mostly wasters from the Carter Pottery nevertheless demonstrates that a fairly traditional range of redware household goods were being made for the market. However, this conclusion is subject to modification pending the results of Phase II testing being conducted on the remainder of the site by A.D. Marble on behalf of PennDOT.

5.4 PHASE II RECOMMENDATIONS

JMA recommends that no further consideration of archeological resources is necessary within the forced sewer main right-of-way within the Carter Residences site (36DE0146). Phase II testing did not result in the discovery of deposits that would make a significant contribution to understanding activities at the site. In addition, while the deposits of redware vessels and kiln furniture provided information on activities at Edward Carter's pottery, it is highly unlikely that additional excavations would result in obtaining data that would contribute to a better understanding of its operations. Nonetheless, JMA does recommend avoiding disturbance of the foundation remains until such a time as the findings are reported and recommendations made for the portion of the site being evaluated by A.D. Marble for PennDOT.

Comment 5 Attachment

Revised Plan Pages as per PADEP 7 September 2011 Review

1.3 DELCORA FACILITIES

DELCORA is responsible for the safe collection, transmission, treatment and disposal of approximately 94 million gallons per day (MGD) of wastewater generated in southeastern Pennsylvania. The permitted treatment capacity of 94 MGD is estimated by adding the current 44 MGD rating for the Western Regional Treatment Plant (WRTP) to the 50 MGD that DELCORA is permitted to divert to the Philadelphia Southwest Regional Water Pollution Control Plant (PSWPCP). It should be noted that PADEP has approved a re-rate to 50 MGD for the WRTP and the Delaware River Basin Commission (DRBC) has recently approved of the re-rate. The boundaries of the area served by DELCORA are shown in Figure 1-3. DELCORA owns and operates an extensive system of pump stations, force mains, and sewers that provide the core infrastructure for the transmission of wastewater to treatment facilities in Delaware County. DELCORA's primary treatment facility is the WRTP, located in Chester, PA. The WRTP treats all wastewater from Marcus Hook Borough, Trainer Borough, Upland Borough, Parkside Borough, Eddystone Borough, parts of Chester Township, parts of Brookhaven Borough, and the City of Chester. Approximately 613 equivalent dwelling units (edus) from Chester Township, which is serviced by the Southern Delaware County Authority (SDCA), flow to the BRPCP. The remaining flow from the SDCA is treated at the WRTP. In addition, the WRTP receives up to 13 MGD from Central Delaware County Authority (CDCA). All wastewater from Muckinipates Authority (MA), Darby Creek Joint Authority (DCJA), and Radnor-Haverford-Marple Authority (RHM) are transported to the City of Philadelphia's Southwest Water Pollution Control Plant (PSWPCP) for treatment and disposal. Ordinary flows from CDCA (up to approximately 13 MGD) can be diverted to the PSWPCP if necessary. In addition to the high flow diversions that occur as required, some flow from CDCA is diverted to PSWPCP on a weekly basis to flush the force main.

The purpose of this Western Delaware County Act 537 Plan Update for the Chester-Ridley Creek Service Area is to document adequate treatment capacity to connect flows from the BRPCP to the WRTP. DELCORA is planning to assume responsibility for treatment of wastewater currently treated at the BRPCP facility including construction of a new pump station and force main, and treatment of flow at the WRTP. The option to extend the operational life of the existing BRPCP that would continue to be operated by the SWDCMA is evaluated in this plan update. The municipalities will continue to maintain and operate the existing collection

adequate capacity at the WRTP to treat potential sewage flows from the Chester-Ridley Creek Service Area.

Treatment Facility Description

The DELCORA WRTP is located at the foot of Booth Street in the City of Chester and serves DELCORA's western service area. The plant, which has a rated treatment capacity of 44 MGD (92.3 MGD maximum with 30 MGD recycled to aeration basins), discharges to the Delaware River under NPDES permit number PA 0027103. An Act 537 Plan application to re-rate the WRTP to 50 MGD has been approved by PADEP. NPDES permit issuance for 50 MGD is pending. In 2010, DELCORA averaged 37.3 MGD of flow through the WRTP with a maximum flow of 81.1 MGD on December 26, 2009. The design organic loading for the plant influent is 108,000 lbs of BOD₅ per day. During 2010, the WRTP averaged 67,501 lbs of BOD₅ per day in the influent and discharged an average of 2,828 lbs per day.

The plant employs an aerated waste activated sludge process that provides primary and secondary treatment levels. The treatment processes include primary clarification, aeration, secondary clarification, post-aeration, and disinfection by chlorination. Sludge is thickened, dewatered, and incinerated. The ash is stored and landfilled. Wastewater flow to the WRTP is first treated in a preaeration basin. Next, solids are settled and removed during primary clarification. Flow is then directed to the aeration tanks where biological action takes place to remove organics. From the aeration tanks, flow is transferred to final clarifiers where more solids are settled and removed. The final step is the chlorine contact tanks, where disinfection to eliminate pathogens and bacteria takes place prior to discharge to the Delaware River.

All industrial waste discharging to the WRTP must have a DELCORA-issued Industrial Waste Permit in accordance with the EPA-approved treatment program. Pretreated industrial wastewater must comply with limits established by DELCORA and approved by EPA.

Previous Upgrades

DELCORA is in a continuous process of implementing contract improvements to maintain and upgrade the treatment at the WRTP. Upgrades that have been completed at the WRTP include:

- Automation of solids handling equipment.

pumped to the filtration building at about 3-5% solids. The sludge can be directed to one or all three filter belt presses. Sludge cake from the belt presses is conveyed to one or two multiple hearth incinerators. The ash is collected at the bottom of the incinerator and transported by air to two storage silos. One incinerator is normally operated 24 hours a day, seven days a week. The operation is permitted for 96 dry tons, 48 dry tons per incinerator. Sludge reduction by incineration is about 75%. The ash is permitted for disposal in the State of Delaware and all ash generated is disposed of there.

Southwest Delaware County Municipal Authority

Organizational Description

The Aston Board of Commissioners, pursuant to the Municipality Authorities Act, established the SWDCMA on December 16, 1957. The Aston Township Board of Commissioners appoints its seven-member Board of Directors. SWDCMA was authorized to exercise all powers granted under the Act to implement the wastewater management plan for its service area. SWDCMA's role as an implementation agency involves the acquisition, holding, construction, improvement, maintenance, operation, owning, and leasing of the sewer system and the sewer treatment facilities. SWDCMA is financially self-sufficient; capital funds are raised through bond issues while operations and maintenance expenses and debt service are covered by user charges. SWDCMA owns and maintains the 6 MGD BRPCP located in Aston, as well as an extensive system of wastewater conveyance facilities and, in certain municipalities, the collector sewers. The SWDCMA owns the collector sewers in the service area except for those in Middletown Township, proposed facilities in Edgmont Township, and the areas within SDCA that do not flow to the BRPCP. Table 3-1 includes information regarding ownership of the collection facilities in each municipality.

Table 3-1
Collection System Ownership in the Chester-Ridley Service Area

Municipality	Collection System Owner
Aston Township	SWDCMA
Brookhaven Borough	SWDCMA
Chester Township	
Chester Heights Borough	
Edgmont Township	Middletown Township Sewer Authority
Middletown Township	Middletown Township Sewer Authority
Upper Chichester Township	Southern Delaware County Authority
Upper Providence Township	Upper Providence Township Sewer Authority

Treatment Facility Description

The BRPCP is located at the terminus of Gamble Lane and Park Lane in Aston. The plant was built in 1959 with an average design flow of 2.0 MGD. Secondary treatment was originally designed as a trickling filter plant but has since been changed to an aerated bio-filter with attached growth nitrification. The current wastewater treatment processes include screening, primary clarification, biological treatment using activated biofilters, fine and coarse bubble activated sludge, final clarification, and chlorination. Effluent is chlorinated and discharged to Chester Creek. The design BOD₅ of the facility is 12,510 lbs./day. The existing NPDES permit (No. PA0027383) identifies the effluent discharge limitation for the BRPCP as 6 MGD.

Previous Upgrades

Since construction, the treatment plant has undergone a number of upgrades. The most recent upgrade, in 2002, included the improved headworks consisting of the addition of a second fine screen, an aerated grit separator, and a channel reconfiguration. The biofilters' pumping and recirculation systems were also upgraded in 2002.

Scheduled Upgrades

No upgrades are currently scheduled.

WRTP to treat the proposed additional flows from the Chester-Ridley Service Area. The projected hydraulic loading for the WRTP is included as Table 6-5. The highest projected flow scenario of 6.66 MGD from the Chester-Ridley Creek Service Area can be accepted by the WRTP under Average Daily Flow conditions. The WRTP is currently rated to treat 44 MGD. Upon construction of an extended outfall, the WRTP will be rated to treat 50 MGD.

Act 537 potential future wastewater flows developed for the WRTP re-rate to 50 MGD included a contingency of 1.8 MGD. Considering this contingency, the projected flow to the WRTP exceeds 50 MGD for the three consecutive month maximum flows under the 6.66 MGD maximum projected flow from the Chester-Ridley Creek Service Area scenario. However, flow from the CDPS can be redirected to the PSWPCP during wet-weather months.

Table 6-5

**Western Regional Treatment Plant
Projected Hydraulic Loading – Influent Flow**

	Average	3-Month Maximum
Base Flow	37.6	
2011	38.0	41.9
2012	38.3	42.2
2013	38.7	42.8
2014	39.0	43.0
2015	45.8	50.4
Notes: 1. Base flow is the average flow for 2006-2009 and includes Central Delaware Pump Station Diversion. 2. 2010-2015 flows assume a growth of 0.1 MGD per year for the WRTP service area plus 0.25 MGD additional growth for tie-ins in CDCA. This conservative estimate of flow projections is based on previous Act 537 planning for various projects in the Service Area.		

- Previous plans developed under Title II of the CWA or Titles II and VI of the Water Quality Act of 1987 – Title II of the Clean Water Act contains provisions for federal construction grants for treatment works. The Water Quality Act of 1987 authorized the stormwater NPDES program and encouraged states to implement non-point source pollution controls (under Section 319). Municipal wastewater construction is addressed under Titles II and VI of this Act. Title II is the federal construction grants program that was replaced by Title VI, the state revolving funds loan program. DELCORA received a Penn Vest loan for the Central Delaware County Pump Station (CDPS) force main diversion project. The WRTP was funded by a federal construction grant in the 1970's.
- Comprehensive Plans – This Act 537 Plan Update is consistent with municipal comprehensive plans within the WRTP service area.

Comment 6.a.i Attachment

BRPCP Sketch Plan

Schedule of Tank Sizes



Southwest Delaware County Municipal Authority

Project #: 176710204
Subject : Schedule of Tanks and Volumes at Baldwin Run
Pollution Control Facility

Prepared By: SSG
Checked By:
Date: 12/7/2011

Description	Size	Volumes Gallons	
Main Lift Station	1 x 33Ft x 7.5Ft x 6.5FT	12,000	
Grit Chamber	1 x 12Ft Dia, 2Ft SWD	1,700	
Primary Clarifier 1 & 2	2 x 55Ft Dia, 8.75Ft SWD	312,000	
Primary Clarifier 3	1 x 107Ft Dia, 8.75Ft SWD	590,000	
Activated Biofilter Towers	2 x 24Ft x 52Ft x 14Ft	12,424	Max GPM
Nitrification Tanks	4 x 103Ft x 38Ft x 18.5Ft	2,200,000	
Final Clarifiers	3 x 80Ft Dia, 12Ft SWD	1,355,000	
Holding Tanks	2 x 55Ft Dia, 7Ft SWD	250,000	
Chlorine Contact Tanks	2 x 118Ft x 3.33Ft x 7Ft SWD	41,200	
Flushing Water Clear Well	2 x 61Ft x 5Ft	4,600	
Primary Digester 1	1 x 50Ft Dia, 22.67Ft SWD	333,200	
Primary Digester 2	1 x 65Ft Dia, 14Ft SWD	350,000	
Secondary Digester	1 x 50Ft Dia, 14.75Ft SWD	218,000	

Changes/Upgrades to the Plant since 1992 Design Plans are

2004 Upgrades to ABF Towers - Structural changes, Flow Pattern Changes. No Increase in Volumes.

2004 Upgrades to Headworks - Structural Changes, Addition of Rotomat Screen, Updating the Parshall Flume, Addition of Distribution Box for better Flow Controls between the three PCs.

Comment 6.a.ii Attachment

Cost Estimate Details for Alternative 2C

4N - SWDCMA UPGRADE - INITIAL COST ESTIMATE

18-Jan-11			
Data			
Flow	6800000	gpd	
Scope			
1 System to include Pump state to feed denitrification system from existing nitrification system Chemical feed for phosphorus precipitation (assume sodium aluminate) Denitrifying filter system with methanol feed (assume Dynasand system or similar) Reaeration system for provide DO on effluent			
Assumptions			
1 existing system is adequate to			
Exclusions			
1 land acquisition 2 no new power feed to site; assume existing power is adequate for additional load 3 no change to outfall; assume Reaeration tank effluent is discharged directly to outfall			
Sources			
1 see detail sheets			

Capital Cost	
Item	COST Rounded
Denitrification Pump Station	\$ 575,000
Denitrifying filters FRP Option	\$ 13,856,000
Methanol Feed system	\$ 146,000
Aluminate feed system	\$ 152,000
Reaeration blowers, diffusers and control panel	\$ 201,000
Subtotal installed equipment	\$ 14,930,000
Reaeration tank	\$ 221,000
Control Building	\$ 54,000
Subtotal	\$ 15,206,000
Mob/Demob	\$ 100,000
Facility & Yard Piping (10% of installed equipment)	\$ 1,493,000
Facility & Yard Elect. (10% of installed equipment)	\$ 1,493,000
Instrumentation (8% of installed equipment)	\$ 1,194,000
Site Work	\$ 747,000
Subtotal	\$ 20,233,000
Engineering and Legal	\$ 4,046,600
Contingency	\$ 6,069,900
Total	\$ 30,349,500

DELCORA Alt-C (orange route)
rev 1-19-2011

Project name	DELCORA - Alt C (orange line) Chester City PA USA
Estimator	Ray Young
Labor rate table	FACL2010
Equipment rate table	FACL2010
Job size	14061 LF
Bid date	1/19/2011
Notes	Rev 1/19/2011 Change Pipe from 24" Ductile Iron to 30" HDPE DR13.5 Alt "C" (Orange Line) 14,061 lf. Open Trench excavating = 13,771 lf Jack and Bore = 290 lf Clearing of trees and brush Hydro Seeding of disturbed green areas - includes Veterans Memorial Park Sawcut asphalt trench wide at 3' then recut 12" wider on each side prior to paving Demo and removal of asphalt and base courses for trench and boring activities Demo and removal of asphalt and base courses for additional 24" after backfill work. Trenching to be 3' wide by minimum of 5' deep - to allow for 24" of pipe cover Sand bedding around all sidea of the piping Piping to be 24" ductile iron pipe - concrete lined and mechanical joints. Casings at borings to be 42" - including pipe spacers Minor Streets and Alleys - Paving section of 1-1/2" AC over 2" AC over 6" Base Course Major Street - Paving Section of 3" AC over 9" RCC (roller compacted concrete) base course



Notes

Bitimous Seal Coating 12" wide at sawcut joints.
Restiping of Street Center Line or Edge line.

Unusable spoils from clearing, demolition and trenching to be hauled
offsite to local landfill or recycling center.

Subcontractor Markups:
GC 15% + Overhead 10% + Profit 10%

Report format

Sorted by 'Location/Task'
'Detail' summary
Allocate addons
Paginate

Cost Index

Pennsylvania-Westchester

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
C - Orange Line							
Clearing Site Clearing of Trees and Brush							
0200	Selective demolition, dump charges, typical urban city, trees, brush, lumber, includes tipping fees only *** ALLOWANCE \$25 / ton ***	2,812.00 ton	-	0	-	<u>94,905</u>	94,905
0200	Clearing & grubbing, medium trees, to 12" diameter, cut and chip	2.00 acre	8,247	-	5,433	-	13,680
0250	Clearing & grubbing, trees to 12" diameter, grub stumps and remove	2.00 acre	2,997	-	6,352	-	9,349
1255	Hauling, excavated material, lcy, 20 mile round trip, 20 C.Y., highway haulers, no loading (export tree cuttings)	1,406.00 lcy	6,195	-	17,695	-	23,891
	Clearing Site Clearing of Trees and Brush		17,439		29,481	94,905	141,825
	183.06 Labor hours						
	183.06 Equipment hours						
Demo Demolition of AC & Base for Open Cut Trenching							
0100	Mobilization or demobilization, sweeper, above 150 H.P., up to 50 miles	2.00 ea	303	-	829	-	1,133
0100	Mobilization or demobilization, asphalt miller, above 150 H.P., up to 50 miles	2.00 ea	303	-	829	-	1,133
0100	Mobilization or demobilization, loader, above 150 H.P., up to 50 miles	2.00 ea	303	-	829	-	1,133
0500	Selective demolition, dump charges, typical urban city, reclamation station, usual charge, includes tipping fees only *** ALLOWANCE \$25 / ton ***	3,274.00 ton	-	0	-	<u>110,498</u>	110,498
0015	Selective demolition, saw cutting, asphalt, up to 3" deep (1st cut)	14,112.00 lf	10,325	7,830	8,635	-	26,790
0015	Selective demolition, saw cutting, asphalt, up to 3" deep (2nd cut)	14,112.00 lf	10,325	7,830	8,635	-	26,790
0020	Selective demolition, saw cutting, each additional inch of depth over 3" (1st cut)	14,112.00 lf	6,016	1,715	5,031	-	12,762
0020	Selective demolition, saw cutting, each additional inch of depth over 3" (2nd cut)	14,112.00 lf	6,016	1,715	5,031	-	12,762
3800	Excavating, bulk bank measure, 1 C.Y. capacity = 120 C.Y./hour, shovel, excluding truck loading (demo base course & AC)	1,637.00 bcy	1,370	-	2,885	-	4,255
1255	Hauling, excavated material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (export base spoils)	1,018.00 lcy	4,486	-	12,812	-	17,298

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Demo	Demolition of AC & Base for Open Cut Trenching						
1255	Hauling, excavated material, lcy, 20 mile round trip, 20 C.Y., highway haulers, no loading (export AC spoils)	519.00 lcy	2,287	-	6,532	-	8,819
5360	Cold milling asphalt paving, profile grooving, asphalt pavement, 6" deep, load and sweep	2,352.00 sy	1,698	-	4,523	-	6,221
	Demo Demolition of AC & Base for Open Cut Trenching		43,432	19,089	56,573	110,498	229,591
	531.42 Labor hours						
	531.42 Equipment hours						
Demo-RR	Demo of Railroad Spur (50 lf)						
0100	Forklift crew, all-terrain forklift, 45' lift, 35' reach, 9000 lb. capacity, weekly use	1.00 week	2,832	-	3,228	-	6,060
0100	Mobilization or demobilization, loader, above 150 H.P., up to 50 miles	2.00 ea	303	-	829	-	1,133
0500	Selective demolition, dump charges, typical urban city, reclamation station, usual charge, includes tipping fees only *** ALLOWANCE \$25/ton***	150.00 ton	-	-	-	5,063	5,063
3800	Excavating, bulk bank measure, 1 C.Y. capacity = 120 C.Y./hour, shovel, excluding truck loading (demo ballast)	25.00 bcy	21	-	44	-	65
1255	Hauling, excavated material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (export ballast-ties-spurs)	55.00 lcy	242	-	692	-	935
	Demo-RR Demo of Railroad Spur (50 lf)		3,399		4,794	5,063	13,255
	51.183 Labor hours						
	51.184 Equipment hours						
Excavation	Excavation & Backfilling for open trench pipe work (13,761 lf)						
0100	Mobilization or demobilization, excavator, above 150 H.P., up to 50 miles	2.00 ea	303	-	829	-	1,133
0100	Mobilization or demobilization, excavator, above 150 H.P., up to 50 miles	2.00 ea	303	-	829	-	1,133
1362	Excavating, trench or continuous footing, common earth, 3/4 C.Y. excavator, 6' to 10' deep, includes trench box, excludes dewatering	10,932.00 bcy	41,439	-	55,085	-	96,524
3060	Excavating, trench backfill, 1 C.Y. bucket, 200' haul, front end loader, wheel mounted, excludes dewatering	2,909.00 lcy	17,946	-	10,580	-	28,525
0500	Fill by borrow and utility bedding, for pipe and conduit, compacting bedding in trench (labor & equip)	2,909.00 ecy	11,093	-	1,492	-	12,585
1255	Hauling, excavated material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (export spoils)	8,022.00 lcy	35,347	-	100,962	-	136,309

Item	Description	Takeoff Qty		Labor	Material	Equipment	Other	Total	
				Amount	Amount	Amount	Amount	Amount	
Excavation	Excavation & Backfilling for open trench pipe work (13,761 lf)								
	1255	Hauling, borrow material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (import backfill from stockpile)	2,909.00	lcy	12,818	-	36,612	-	49,429
	7600	Compaction, 2 passes, 24" wide, 12" lifts, walk behind, vibrating roller	2,909.00	ecy	2,136	-	699	-	2,835
					121,383		207,089		328,472
		Excavation Excavation & Backfilling for open trench pipe work (13,761 lf)							
	2,063.32 Labor hours								
	2,063.321 Equipment hours								
H-Boring	Horizontal Boring & Piping								
	0100	Forklift crew, all-terrain forklift, 45' lift, 35' reach, 9000 lb. capacity, weekly use	2.00	week	5,665	-	6,456	-	12,120
	0100	Mobilization or demobilization, fork lift, above 150 H.P., up to 50 miles	12.00	ea	1,819	-	4,977	-	6,795
	0100	Mobilization or demobilization, boring machine, above 150 H.P., up to 50 miles	12.00	ea	1,819	-	4,977	-	6,795
	0100	Mobilization or demobilization, excavator, above 150 H.P., up to 50 miles	12.00	ea	1,819	-	4,977	-	6,795
	0300	Subsurface investigation, boring and exploratory drilling, mobilization and demobilization, minimum (pot hole utilities)	100.00	totl	33,759	-	35,296	-	69,054
	3060	Excavating, trench backfill, 1 C.Y. bucket, 200' haul, front end loader, wheel mounted, excludes dewatering (back fill pits)	60.00	lcy	370	-	218	-	588
	0310	Excavating, bulk bank measure, 1/2 C.Y. capacity = 30 C.Y./hour, backhoe, hydraulic, wheel mounted, (dig bore pits)	64.00	bcy	161	-	104	-	265
	0200	Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, excludes compaction	4.00	lcy	30	63	12	-	105
	1255	Hauling, excavated material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (export spoils)	10.00	lcy	44	-	126	-	170
	1255	Hauling, borrow material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (import backfill from stockpile)	6.00	lcy	26	-	76	-	102
	1255	Hauling, borrow material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (import sand)	4.00	lcy	18	-	50	-	68
	7600	Compaction, 2 passes, 24" wide, 12" lifts, walk behind, vibrating roller	6.00	ecy	4	-	1	-	6
	0600	Horizontal boring, railroad work, 42" diameter, includes casing only, 100' minimum, excludes jacking pits or dewatering	300.00	lf	87,322	72,618	39,534	-	199,474

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
H-Boring Horizontal Boring & Piping							
0400	Utility Line Signs, Markers, and Flags, underground tape, detectable, reinforced, aluminum foil core, 2", excludes excavation and backfill	3.00 clf	9	9	-	-	18
0900	Waste water force main, piping, HDPE, butt fusion joints, 40' lengths, 30" dia, SDR 13.5 (mat'l, fusion +s&f = \$102.20lf)+equip \$48.44lf = \$150.64lf	300.00 lf	0	0	0	61,009	61,009
	H-Boring Horizontal Boring & Piping		132,864	72,691	96,803	61,009	363,367
	580.310 Labor hours						
	580.151 Equipment hours						
Landscaping Reseeding of distrubed areas							
0100	Mobilization or demobilization, crew above 150 H.P., up to 50 miles	4.00 ea	606	-	1,659	-	2,265
5400	Seeding athletic fields, seeding utility mix with mulch and fertilizer, 7 lb. per M.S.F., hydro or air seeding	97.00 msf	1,456	5,927	1,133	-	8,516
	Landscaping Reseeding of distrubed areas		2,062	5,927	2,792		10,781
	20.37 Labor hours						
	20.37 Equipment hours						
Major Paving Major Street Repaving, Incl Base Course (7,056 lf)							
0100	Mobilization or demobilization, crane above 150 H.P., up to 50 miles	6.00 ea	909	-	2,488	-	3,398
5020	Structural concrete, in place, slab on grade (3000 psi), 9" thick, includes concrete and placing, excludes forms and reinforcing (RCC base course)	35,280.00 sf	56,672	109,544	624	-	166,840
5100	Compaction, riding, vibrating roller, 4 passes, 12" lifts (compact RCC base)	525.00 ecy	125	-	141	-	266
3270	Asphalt surface treatment, tack coat, emulsion, 0.10 gallons per S.Y., 1,000 S.Y. (at paving)	3,920.00 sy	1,637	4,593	1,904	-	8,134
3270	Asphalt surface treatment, tack coat, emulsion, 0.10 gallons per S.Y., 1,000 S.Y. (at edges)	1,568.00 sy	655	1,837	762	-	3,254
0854	Plant-mix asphalt paving, for highways and large paved areas, wearing course, alternate method for developing paving costs, 3" thick, hauling included	718.00 ton	4,519	58,596	3,394	-	66,510
	Major Paving Major Street Repaving, Incl Base Course (7,056 lf)		64,516	174,571	9,314		248,401
	164.08 Labor hours						
	164.08 Equipment hours						

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Minor Paving Repaving of Minor Streets or Alleyways (3,944 lf)							
0100	Mobilization or demobilization, crane above 150 H.P., up to 50 miles	6.00 ea	909	-	2,488	-	3,398
1255	Hauling, borrow material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (import base course)	402.00 lcy	1,771	-	5,059	-	6,831
3270	Asphalt surface treatment, tack coat, emulsion, 0.10 gallons per S.Y., 1,000 S.Y. (at paving 2 layers)	4,382.00 sy	1,830	5,135	2,128	-	9,093
3270	Asphalt surface treatment, tack coat, emulsion, 0.10 gallons per S.Y., 1,000 S.Y. (at edges)	877.00 sy	366	1,028	426	-	1,820
0100	Base course drainage layers, aggregate base course for roadways and large paved areas, stone base, compacted, 3/4" stone base, to 6" deep	2,191.00 sy	992	17,880	2,190	-	21,062
n	0811 Plant-mix asphalt paving, for highways and large paved areas, binder course, alternate method for developing paving costs, 2" thick, hauling included	300.00 ton	1,974	23,403	1,506	-	26,883
n	0851 Plant-mix asphalt paving,for highways and large paved areas,wearing course,alternate method for developing paving costs,1-1/2"thick,hauling included	200.00 ton	1,599	16,322	1,201	-	19,122
Minor Paving Repaving of Minor Streets or Alleyways (3,944 lf)			9,441	63,768	14,999		88,208
83.582 Labor hours							
83.582 Equipment hours							
Misc Paving Repaving of Bore Pits							
0100	Mobilization or demobilization, crane above 150 H.P., up to 50 miles	12.00 ea	1,819	-	4,977	-	6,795
5020	Structural concrete, in place, slab on grade (3000 psi), 9" thick, includes concrete and placing, excludes forms and reinforcing (RCC base course)	207.00 sf	333	643	4	-	979
1255	Hauling, borrow material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (import base rock)	10.00 lcy	44	-	126	-	170
5100	Compaction, riding, vibrating roller, 4 passes, 12" lifts (compact RCC base)	6.00 ecy	1	-	2	-	3
3270	Asphalt surface treatment, tack coat, emulsion, 0.10 gallons per S.Y., 1,000 S.Y. (at paving)	46.00 sy	19	54	22	-	95
3270	Asphalt surface treatment, tack coat, emulsion, 0.10 gallons per S.Y., 1,000 S.Y. (at edges)	67.00 sy	28	79	33	-	139

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Misc Paving							
Repaving of Bore Pits							
n	0854 Plant-mix asphalt paving, for highways and large paved areas, wearing course, alternate method for developing paving costs, 3" thick, hauling included	4.00 ton	25	326	19	-	371
	Misc Paving Repaving of Bore Pits		2,269	1,102	5,182		8,552
	34.161 Labor hours						
	34.161 Equipment hours						
Pavement Markings							
Restriping of Center Lines							
	0730 Painted pavement markings, thermoplastic, white or yellow, 6" wide	7,056.00 lf	962	10,926	936	-	12,823
	0784 Painted pavement markings, glass beads, add	7.00 mlf	-	78	-	-	78
	1600 Painted pavement markings, mobilization for pavement markings, each	12.00 ea	2,636	-	1,465	-	4,101
	Pavement Markings Restriping of Center Lines		3,597	11,004	2,401		17,002
	28.022 Labor hours						
	28.022 Equipment hours						
Piping							
Open Trench Pipe Installation and Bedding (13,761 lf)							
	0100 Mobilization or demobilization, crane above 150 H.P., up to 50 miles	12.00 ea	1,819	-	4,977	-	6,795
	3825 Structural concrete, in place, footing (3000 psi), 1 C.Y. to 5 C.Y., incl forms, reinforcing steel, concrete, placing and finishing (thrust blocks)	23.00 cy	4,279	4,808	22	-	9,108
	9000 Structural concrete, in place, minimum labor/equipment charge, includes forms, reinforcing steel (thrust blocks)	12.00 job	14,281	-	-	-	14,281
	2100 Excavating, trench or continuous footing, common earth, trim sides and bottom for concrete pours, excludes sheeting or dewatering	42,183.00 sf	29,517	-	1,654	-	31,172
	3060 Excavating, trench backfill, 1 C.Y. bucket, 200' haul, front end loader, wheel mounted, excludes dewatering	2,639.00 lcy	16,280	-	9,598	-	25,878
	0050 Fill by borrow and utility bedding, for pipe and conduit, screened bank run gravel, excludes compaction	2,639.00 lcy	19,608	99,220	8,023	-	126,850
	0500 Fill by borrow and utility bedding, for pipe and conduit, compacting bedding in trench (labor & equip)	2,639.00 ecy	10,063	-	1,354	-	11,417
	1255 Hauling, import material, lcy, 20 mile round trip, 20 C.Y. highway haulers, no loading (import sand)	2,639.00 lcy	11,628	-	33,214	-	44,842

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Piping							
	Open Trench Pipe Installation and Bedding (13,761 lf)						
0400	Utility Line Signs, Markers, and Flags, underground tape, detectable, reinforced, aluminum foil core, 2", excludes excavation and backfill	14.00 clf	42	43	-	-	85
0900	Waste water force main, piping, HDPE, butt fusion joints, 40' lengths, 30" dia, SDR 13.5 (mat'l, fusion +s&f = \$102.20lf)+equip \$48.44lf = \$150.64lf	13,790.00 lf	0	0	0	<u>2,804,390</u>	2,804,390
2000	Waste water force main, piping, piping HDPE, butt fusion joints, fittings, elbows, 90 degree, 30" diameter, SDR 13.5 (mat'l = \$2,200 ea)	17.00 ea	6,051	50,490	754	-	57,295
3000	Waste water force main, piping HDPE, butt fusion joints, fittings, elbows, 45 degree 30" diameter, SDR 13.5	6.00 ea	3,203	15,926	399	-	19,529
	Piping Open Trench Pipe Installation and Bedding (13,761 lf)		116,770	170,487	59,994	2,804,390	3,151,640
	2,387.49 Labor hours						
	2,290.743 Equipment hours						
Temp Facilities							
	Traffic Controls						
0160	Field Personnel, general purpose laborer, average (sweeper operator)	10.00 week	22,289	-	-	-	22,289
3400	Highway equip rental;road sweeper,self-propelled,8'wide,90 H.P.	60.00 day	-	-	52,682	-	52,682
5400	Roadway plate, steel, 1"x8'x20' (5 pieces)	140.00 day	-	-	1,427	-	1,427
0500	Barricades, plywood with steel legs, 32" wide	100.00 ea	-	9,370	-	-	9,370
0600	Barricades, telescoping Christmas tree, buy, 9' high, with 5 flags	4.00 ea	-	635	-	-	635
----	Flagmen **ALLOWANCE** (2 men - 65 days @ \$ 31.50/Hr Burdened)	1.00 LS	-	-	-	44,226	44,226
	Temp Facilities Traffic Controls		22,289	10,005	54,109	44,226	130,629
	400.00 Labor hours						
	1,600.00 Equipment hours						
	C - Orange Line		539,461	528,643	543,529	3,120,090	4,731,723
	6,526.982 Labor hours						
	7,630.08 Equipment hours						

Estimate Totals

Description	Amount	Totals	Hours	Rate	Percent of Total	
Labor	539,461		6,526.982	ch	11.40%	
Material	528,643				11.17%	
Subcontract						
Equipment	543,529		7,630.078	ch	11.49%	
Other	3,120,090				65.94%	
	4,731,723	4,731,723			100.00	100.00%
Total		4,731,723				

DELCORA - Building Utilities**MEP to Buildings****Rev 1-20-2011**

Project name	DELCORA Wet Building Chester PA
Estimator	Mike Kirchner
Labor rate table	FACL2010
Equipment rate table	FACL2010
Bid date	1/20/2011
Notes	Revision 1/20/2011 Added Underground trenching and electric to bring existing onsite power up to pump building. Markups: G&A 15% + Overhead 10% + Profit 10%
Report format	Sorted by 'BID ITEM /WBS Lv1' 'Detail' summary Allocate addons Paginate
Cost index	Pennsylvania-Philadelphia

Item	Description	Takeoff Qty		Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Controll Bldg	Control Building							
Communication	Communication							
0220	Electric metallic tubing, 3/4" diameter, to 15' high, incl couplings only	200.00	lf	604	197	-	-	801
0152	Outlet boxes, pressed steel, 4" square	2.00	ea	85	7	-	-	91
2300	Telephone cable, telephone twisted, PVC insulation, #22-4 conductor	2.00	clf	191	36	-	-	227
7100	Unshielded twisted pair (UTP) cable, solid, plenum, #24, 4 pair, category 5	2.00	clf	218	117	-	-	335
7312	Unshielded twisted pair (UTP) jack, RJ-45, category 5	2.00	ea	24	12	-	-	36
	Communication Communication			1,122	368			1,490
	11.745 Labor hours							
Controls	Controls							
0130	Control Components/DDC Systems, analog inputs, sensors (avg. 50' run in 1/2" EMT), space temperature	1.00	ea	-	-	-	779	779
3214	Control cmpnts/ systems,sbcntr' quote incl materl&labor,ddc cntrllr (avg 50'run cond),mechncl room,16 point controller,incl 120v/1 phase power supply	1.00	ea	-	-	-	2,616	2,616
5010	Control Components/DDC Systems, communications bus (data transmission cable), #18 twisted shielded pair in 1/2" EMT conduit	2.00	clf	-	-	-	894	894
0220	Electric metallic tubing, 1/2" diameter, to 15' high, incl couplings only	200.00	lf	604	197	-	-	801
0152	Outlet boxes, pressed steel, 4" square	2.00	ea	85	7	-	-	91
	Controls Controls			689	203		4,288	5,180
	7.213 Labor hours							
Electrical	Electrical							
0030	Wire, copper solid, 600 volt, #12, type THW, in raceway	32.00	clf	2,223	489	-	-	2,712
0140	Wire, copper, stranded, 600 volt, #8, type THW, in raceway	8.00	clf	764	346	-	-	1,110
2600	Wire, copper, stranded, 600 volt, 350 kcmil, type THWN-THHN, in raceway	10.00	clf	4,245	9,110	-	-	13,356
0030	Grounding rod, copper clad, 8' long, 1/2" diameter	1.00	LS	2,780	13,500	-	-	16,280
0220	Electric metallic tubing, 3/4" diameter, to 15' high, incl couplings only	800.00	lf	2,416	786	-	-	3,203

Item	Description	Takeoff Qty		Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Electrical		Electrical						
0260	Electric metallic tubing, 1-1/4" diameter, to 15' high, incl couplings only	200.00	lf	883	566	-	-	1,450
0152	Outlet boxes, pressed steel, 4" square	10.00	ea	425	33	-	-	457
1550	Outlet boxes, cast, weatherproof switch cover, 1 gang	10.00	ea	119	126	-	-	245
2280	Switch devices, single pole, #12/2, EMT & wire, 20', 20 amp, incl box & cover plate	2.00	ea	315	108	-	-	423
4630	Exhaust & Supply Fans wire connection at 20' away	2.00	ea	382	233	-	-	615
6080	Lighting outlets, wire only (for fixture), EMT & wire, 20'	4.00	ea	306	108	-	-	413
1500	Switchboards, no main disconnect, 4 wire, 277/480 V, 1200 amp, incl CT compartment, excl CT's or PT's	1.00	ea	2,123	7,242	-	-	9,365
1350	Panelboards, 3 phase 4 wire, main lugs, 277/480 V, 225 amp, 24 circuits, NEHB, incl 20 A 1 pole plug-in breakers	1.00	ea	1,698	2,458	-	-	4,156
0120	Motor starter, size 1, FVNR, type A, circuit breaker, NEMA 1	1.00	ea	283	2,425	-	-	2,708
3170	Switch cover, weatherproof, 1 gang	2.00	ea	25	23	-	-	49
4980	Receptacle cover plate, weatherproof, NEMA 7-23	8.00	ea	102	341	-	-	443
5530	Safety switches, heavy duty, 3 pole, 3 ph, fusible, 600 volt, 100 amp, NEMA 3R	6.00	ea	2,547	7,472	-	-	10,019
5550	Safety switches, heavy duty, 3 pole, 3 ph, fusible, 600 volt, 400 amp, NEMA 3R	2.00	ea	1,910	8,062	-	-	9,972
6010	Incandescent fixture, interior, vapor tight, ceiling mounted, 200 W, incl lamps, mounting hardware and connections	4.00	ea	493	370	-	-	863
2500	Incandescent fixture, exterior, lamp holder, weatherproof w/PAR, 150 Watt	2.00	ea	96	80	-	-	175
0360	Fixture whips, 3/8" greenfield, 2 connectors, THHN wire, three #12, 6' long	4.00	ea	96	70	-	-	165
Electrical Electrical				24,231	53,947			78,179
194.05 Labor hours								
Fire Alarm		Fire Alarm						
1550	Fire alarm cable, FEP teflon, 150 volt, to 200 Deg.C, #22, 1 pair	2.00	clf	153	165	-	-	318
0220	Electric metallic tubing, 1/2" diameter, to 15' high, incl couplings only	200.00	lf	604	197	-	-	801
0152	Outlet boxes, pressed steel, 4" square	2.00	ea	85	7	-	-	91
7080	Smoke detectors, box, #14/3, type EMT & wire, 20'	2.00	ea	306	130	-	-	435
0100	Detection Systems, burglar alarm, battery operated, mechanical trigger, excl. wires & conduit	1.00	ea	162	367	-	-	529

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Fire Alarm	Fire Alarm						
3400	Detection Systems, glass break alarm switch, excl. wires & conduit	1.00 ea	81	124	-	-	204
3480	Detection Systems, telephone dialer, excl. wires & conduit	1.00 ea	122	506	-	-	628
3600	Detection Systems, fire alarm control panel, 4 zone, excluding wires & conduits	1.00 ea	646	986	-	-	1,632
5010	Detection Systems, fire alarm, detector, heat (addressable type), excl. wires & conduit	1.00 ea	89	333	-	-	423
	Fire Alarm Fire Alarm		2,247	2,814			5,061
	21.63 Labor hours						
Mechical	Mechanical						
4700	Fans, corrosive fume resistant, plastic roof ventilator, centrifugal, V belt drive, motor, 1/4" S.P., 3810 CFM, 2 H.P.	2.00 ea	1,631	15,525	-	-	17,156
n 7230	Fans, roof exhauster, centrifugal, aluminum housing, bird screen, back draft damper, v belt drive, 1/4" sp, 3500 cfm, 12" galvanized curb, 21" sq damper	2.00 ea	725	3,915	-	-	4,640
6980	Electric heating, unit heater, vertical discharge, three phase, 208-240 volt, 30 kW, includes fan	2.00 ea	3,540	5,805	-	-	9,345
	Mechical Mechanical		5,896	25,245			31,141
	51.56 Labor hours						
	Controll Bldg Control Building		34,186	82,577	0	4,288	121,052
	286.19 Labor hours						

Item	Description	Takeoff Qty		Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Underground Power		Underground Electrical Power						
Conduit & Cable		Conduit & Cable						
	0490 Wire, copper, stranded, 600 volt, 500 kcmil, type THW, in raceway	10.00	cl	4,776	12,584	-	-	17,360
----	Testing & Commissioning	1.00	LS	0		-	3,780	3,780
	0680 Rigid galvanized steel conduit, 4" diameter, to 15' high, incl couplings only	80.00	lf	2,351	2,034	-	-	4,386
	7400 Trench duct, riser, and cabinet connector, depths to 4", 12" wide	1.00	ea	332	262	-	-	594
	0800 Switchboards, distribution section, aluminum bus bars, 4 W, 120/208 or 277/480 V, 2500 amp, excl breakers	1.00	ea	2,547	7,406	-	-	9,954
	1070 Electrical Underground Ducts and Manholes, PVC, conduit with coupling, 4" diameter, schedule 40, installed by direct burial in slab or duct bank	120.00	lf	1,065	869	-	-	1,935
	Conduit & Cable			11,072	23,156		3,780	38,008
	50.05 Labor hours							
Trenching		Trenching						
	4950 Soil testing, Proctor compaction, 6" modified mold	4.00	ea	-	-	-	367	367
n	0150 Struct concrete, ready mix, normal wt, 3000 psi, includes local aggregate, sand, portland cement and water, delivered, excludes all additives and treatments	3.00	cy	-	390	-	-	390
	1900 Structural concrete, placing, continuous footing, shallow, direct chute, includes strike off & consolidation, excludes material	3.00	cy	75	-	2	-	77
	9000 Structural concrete, placing, minimum equipment/labor charge, includes strike off & consolidation	1.00	job	1,490	-	41	-	1,531
	0012 Fine grading, finish grading, small area, to be paved with grader	120.00	sy	240	-	252	-	492
	0750 Excavating, chain trencher, utility trench, common earth, 12 H.P., 8" wide, 36" deep, chain trencher, operator walking	120.00	lf	174	-	36	-	210
	1750 Excavating, chain trencher, utility trench, common earth, 8" wide, 36" deep, backfill by hand, add	120.00	lf	310	-	62	-	372
	0800 Backfill, 12" layers, compaction in layers, hand tamp, add to above	4.00	ecy	41	-	-	-	41
	0200 Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, excludes compaction	3.00	lcy	23	45	9	-	77

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Trenching	Trenching						
0500	Utility Line Signs, Markers, and Flags, underground tape, detectable, reinforced, aluminum foil core, 6", excludes excavation and backfill	1.20 clf	4	12	-	-	16
n 0600	Electrc'l undrgrnd ducts and manholes, hand holes, precast concrete, with concrete cover, 2'x2'x3'deep, excludes excavation, backfill and cast place concrete	1.00 ea	729	535	78	-	1,341
	Trenching Trenching		3,086	982	480	367	4,914
	21.414 Labor hours						
	20.41 Equipment hours						
	Underground Power Underground Electrical Power		14,158	24,138	480	4,147	42,923
	71.462 Labor hours						
	20.41 Equipment hours						

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Vault Bldg	Vault Building						
Electrical	Electrical						
0030	Wire, copper solid, 600 volt, #12, type THW, in raceway	6.00 clf	417	92	-	-	508
0140	Wire, copper, stranded, 600 volt, #8, type THW, in raceway	3.00 clf	287	130	-	-	416
0030	Grounding rod, copper clad, 8' long, 1/2" diameter	1.00 LS	2,780	13,500	-	-	16,280
0220	Electric metallic tubing, 3/4" diameter, to 15' high, incl couplings only	200.00 lf	604	197	-	-	801
0260	Electric metallic tubing, 1-1/4" diameter, to 15' high, incl couplings only	50.00 lf	221	142	-	-	362
0152	Outlet boxes, pressed steel, 4" square	10.00 ea	425	33	-	-	457
1550	Outlet boxes, cast, weatherproof switch cover, 1 gang	10.00 ea	119	126	-	-	245
2280	Switch devices, single pole, #12/2, EMT & wire, 20', 20 amp, incl box & cover plate	2.00 ea	315	107	-	-	423
6080	Lighting outlets, wire only (for fixture), EMT & wire, 20'	4.00 ea	306	107	-	-	413
1500	Switchboards, no main disconnect, 4 wire, 277/480 V, 1200 amp, incl CT compartment, excl CT's or PT's	1.00 ea	2,123	7,242	-	-	9,365
1350	Panelboards, 3 phase 4 wire, main lugs, 277/480 V, 225 amp, 24 circuits, NEHB, incl 20 A 1 pole plug-in breakers	1.00 ea	1,698	2,458	-	-	4,156
0120	Motor starter, size 1, FVNR, type A, circuit breaker, NEMA 1	1.00 ea	283	2,425	-	-	2,708
3170	Switch cover, weatherproof, 1 gang	2.00 ea	25	23	-	-	49
4980	Receptacle cover plate, weatherproof, NEMA 7-23	8.00 ea	102	341	-	-	443
6010	Incandescent fixture, interior, vapor tight, ceiling mounted, 200 W, incl lamps, mounting hardware and connections	4.00 ea	493	370	-	-	863
2500	Incandescent fixture, exterior, lamp holder, weatherproof w/PAR, 150 Watt	2.00 ea	96	80	-	-	175
0360	Fixture whips, 3/8" greenfield, 2 connectors, THHN wire, three #12, 6' long	4.00 ea	96	70	-	-	165
	Electrical Electrical		10,388	27,442			37,830
	88.751 Labor hours						
Vault Bldg	Vault Building		10,388	27,442	0	0	37,830
	88.751 Labor hours						

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Equipment Amount	Other Amount	Total Amount
Wet Building							
Wet Building							
Electrical	Electrical						
0030	Wire, copper solid, 600 volt, #12, type THW, in raceway	6.00 clf	417	92	-	-	508
0140	Wire, copper, stranded, 600 volt, #8, type THW, in raceway	6.00 clf	573	260	-	-	833
0030	Grounding rod, copper clad, 8' long, 1/2" diameter	1.00 LS	2,780	13,500	-	-	16,280
0220	Electric metallic tubing, 3/4" diameter, to 15' high, incl couplings only	200.00 lf	604	197	-	-	801
0260	Electric metallic tubing, 1-1/4" diameter, to 15' high, incl couplings only	50.00 lf	221	142	-	-	362
0152	Outlet boxes, pressed steel, 4" square	10.00 ea	425	33	-	-	457
1550	Outlet boxes, cast, weatherproof switch cover, 1 gang	10.00 ea	119	126	-	-	245
2280	Switch devices, single pole, #12/2, EMT & wire, 20', 20 amp, incl box & cover plate	2.00 ea	315	107	-	-	423
6080	Lighting outlets, wire only (for fixture), EMT & wire, 20'	4.00 ea	306	108	-	-	413
1500	Switchboards, no main disconnect, 4 wire, 277/480 V, 1200 amp, incl CT compartment, excl CT's or PT's	1.00 ea	2,123	7,242	-	-	9,365
1350	Panelboards, 3 phase 4 wire, main lugs, 277/480 V, 225 amp, 24 circuits, NEHB, incl 20 A 1 pole plug-in breakers	1.00 ea	1,698	2,458	-	-	4,156
0120	Motor starter, size 1, FVNR, type A, circuit breaker, NEMA 1	1.00 ea	283	2,425	-	-	2,708
3170	Switch cover, weatherproof, 1 gang	2.00 ea	25	23	-	-	49
4980	Receptacle cover plate, weatherproof, NEMA 7-23	8.00 ea	102	341	-	-	443
6010	Incandescent fixture, interior, vapor tight, ceiling mounted, 200 W, incl lamps, mounting hardware and connections	4.00 ea	493	370	-	-	863
2500	Incandescent fixture, exterior, lamp holder, weatherproof w/PAR, 150 Watt	2.00 ea	96	80	-	-	175
0360	Fixture whips, 3/8" greenfield, 2 connectors, THHN wire, three #12, 6' long	4.00 ea	96	70	-	-	165
	Electrical Electrical		10,674	27,572			38,246
	91.751 Labor hours						
Wet Building Wet Building			10,674	27,572	0	0	38,246
	91.751 Labor hours						

Estimate Totals

Description	Amount	Totals	Hours	Rate	Percent of Total
Labor	69,406		538.152	ch	28.91%
Material	161,729				67.37%
Subcontract					
Equipment	480		20.406	ch	0.20%
Other	8,436				3.51%
	<u>240,051</u>	<u>240,051</u>			<u>100.00</u> 100.00%
Total		240,051			

SOUTHWEST DELAWARE COUNTY MUNICIPAL AUTHORITY
WISH LIST
ESTIMATED COST AND REPLACEMENT YEAR

To: Operations Committee
From: Fred Tasker
Date: Monday, April 27, 2009
Subject: Wish List

Item No.	Description	ESTIMATED COST			ESTIMATED REPLACEMENT YEARS				Plant Upgrade
		2009	% Per Year	0.03	2010	2014	2019	2024	
		Quote Year	Quote Price	Adjusted Price	One Year	Five Years	10 Years	15 Years	
1-1	Main Lift Station (M.L.S.) (1960-1974)								
1	Upgrade all four pumps to VFD type variable speed drives. It has been determined that this pumping station is the second largest usage of electricity in the plant. An upgrade of this station would increase power efficiency and better control storm events. Price to purchase and install one VFD \$14,000.00 (9-2008)	2008	\$ 56,000	\$ 57,680	\$ 59,360	\$ 66,080	\$ 74,480	\$ 82,880	
2	Replace influent sampler that was damage during Hurricane Floyd. We are presently using a portable sampler to take 24hr. composites 7 days a week. A refrigerated sampler relocated to			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	Installation of a backup generator to supply power to the station if power is ever lost. PECO supplies two sources of power to the plant at the present time. If one source or grid goes down then the other would automatically switch over. There is a 90% chance that we would have power at all times. This service has been available since 1994 to the authority, we have never lost power to the plant. But if we ever did lose power, the M.L.S. would be the minimum power needed to stay up and running. PECO gave us a proposal in April 2002 for stand-by generation at this location. The cost for this installation would be \$123,900. *	2002	\$ 123,000	\$ 148,830	\$ 152,520	\$ 167,280	\$ 185,730	\$ 204,180	\$ 204,180
4	Pump replacement All three variable speed pumps are reaching the end of their life expectancy. All three pumps were replaced from 1987-1989 and have each been rebuilt at least once. Estimated replacement cost of one pump \$35,000.00. (9-2008)	2008	\$ 105,000	\$ 108,150	\$ 111,300	\$ 123,900	\$ 139,650	\$ 155,400	
1-6	Headworks								
5	Install an adjustable weir on No.3 primary clarifier weir wall in new headworks d-box so flows can be disturbed properly.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6	Come up with another way to meter flows to No.3 primary clarifier. Stilling well keeps clogging up with grease.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7	grit-polishing unit for new grit classifier.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
8	Reconnect headworks drain line that was relocated and capped when new headworks d-box was built.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9	Install new flowmeter in Parshall flume to meter flows from grit classifier.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	Raise outer walls of old headworks area to contain flows from storm events.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1-7	Primary Clarifiers								
11	Replacement of collectors and drives on No.1&2 clarifiers.	2002	\$ 73,350	\$ 88,754	\$ 90,954	\$ 99,756	\$ 110,759	\$ 121,761	
12	Both of theses units are 1960 vintage and are due for replacement. (\$36,675 (in 2002 \$) each to replace drive units only.) *			\$ -	\$ -	\$ -	\$ -	\$ -	
13	Weir replacement on No.1&2 clarifiers.			\$ -	\$ -	\$ -	\$ -	\$ -	
14	Walkways replaced on No.1 clarifiers.			\$ -	\$ -	\$ -	\$ -	\$ -	

SOUTHWEST DELAWARE COUNTY MUNICIPAL AUTHORITY

WISH LIST

ESTIMATED COST AND REPLACEMENT YEAR

15	Sandblasting & painting No. 3 primary clarifier. \$70,000.00 in 2004.	2004	\$ 70,000	\$ 80,500	\$ 82,600	\$ 91,000	\$ 101,500	\$ 112,000	
1-9	Aerobic Biological Filters (ABF Towers) (1992)								
16	Repair corrosion of ABF towers outer sheet metal.	2006	\$ 435,480	\$ 474,673	\$ 487,738	\$ 539,995	\$ 605,317	\$ 670,639	\$ 670,639
	Labor and equipment to do the repairs \$166250 each tower.								
	304 stainless steel wire rope and hardware \$9495 each tower								
	Galvanized Z & C girts with hardware to attach interior siding to girts. \$8942 each tower								
	Painted, galvanized steel 22 gage exterior siding Option \$29693 each tower								
17	FIBERGLASS SIDING FOR REPAIR OF LOUVER AREAS \$3360 each tower								
	Combining No.3 final and ABF tower drain lines, to No.1&2 finals existing drain line.								
18	ABF towers do not have a dedicated drain to the headworks. It has a roundabout way that is not effective during daily high flow periods.	2008	\$ 61,592	\$ 63,440	\$ 65,288	\$ 72,679	\$ 81,917	\$ 91,156	
	Replacement of 2 of the three ABF Tower pumps								
	5/27/2008 Rebuilt No.3 ABF tower pump at a cost of \$29,365.00.								
1-5	Replacement cost for one new pump 30,796.00 as of 7/31/2008.								
	Blower Room (1974)								
19	in tanks 11, 12 &13. \$25,000 to \$100,000 (depending on what plan is used.)*	2000	\$ 300,000	\$ 381,000	\$ 390,000	\$ 426,000	\$ 471,000	\$ 516,000	
20	The replacement of No. 1, 2&3 blower Motor Control Centers, install VFD variable speed drives, and automate nitrification process.								
	The blower MCC's were never up graded during the 1992 plant expansion. They were installed in the 1974 expansion.								
21	It has been determined that the nitrification process is our largest usage of electricity. The above two upgrades would increase process and power efficiency dramatically.								
22	Look into bypass problem of 24" bypass.								
	The bypass was designed to handle 100% of the nitrification tank flows. It presently can handle only 1/3 due to the lack of head pressure on the tank.								
23	Getting all return activated sludge (RAS) to the head end of nitrification tank.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24	system.			\$ -	\$ -	\$ -	\$ -	\$ -	
25	Repair damaged walls under walkways of tanks 10 and 13. \$8955	2007	\$ 17,910	\$ 18,985	\$ 19,522	\$ 21,671	\$ 24,358	\$ 27,044	
	RAS Pumping Station			\$ -					
26	Up grade of pumps, motors and force main to handle RAS from all three clarifiers and pump to the head end of the nitrification tanks.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1-7	Final Clarifiers			\$ -					
27	Sandblasting & painting No. 3 final clarifier. \$70,000.00 in 2004.	2004	\$ 70,000	\$ 80,500	\$ 82,600	\$ 91,000	\$ 101,500	\$ 112,000	
28	Combining No.3 final and ABF tower drain lines to No.1&2 finals existing drain line.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

SOUTHWEST DELAWARE COUNTY MUNICIPAL AUTHORITY
WISH LIST
ESTIMATED COST AND REPLACEMENT YEAR

1-11	Chlorination / De-chlorination Feed System (1999)								
29	Chlorine residual analyzer.								
	matching bases, which is an open loop system. Adding a Cl2 analyzer into the loop with flow pacing (close loop system) will better monitor dosages and signal operations personnel of problems quicker.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
30	Look into replacing hypo pumps with Hose pump system	2008	\$ 12,400	\$ 12,772	\$ 13,144	\$ 14,632	\$ 16,492	\$ 18,352	
31	Replace or repair chemical system sheds. Estimated cost \$11,000.00 (9-2008)	2009	\$ 15,000	\$ 15,000	\$ 15,450	\$ 17,250	\$ 19,500	\$ 21,750	
1-1	Operations Building (1960)								
32	Replacing old incandescent lights with florescent lights.								
	Presently about 1/3 of the building has been changed over to florescent lights.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
33	No.1 gas compressor noise problem. (110dbs.) \$3703 was the quote from 1995. *	1995	\$ 3,703	\$ 5,258	\$ 5,369	\$ 5,814	\$ 6,369	\$ 6,925	\$ 6,925
34	Replacing No.1 digester roof.								
	Roof is presently leaking gas around its seam since 1999.								
	Clean digester and replace roof. Estimate \$1,500,000.00 (7-2006)	2006	\$ 1,500,000	\$ 1,635,000	\$ 1,680,000	\$ 1,860,000	\$ 2,085,000	\$ 2,310,000	
35	Drain, clean and inspect No.2 digester.								
	No.2 digester roof was replaced in 1987 after being in service for 21 years. As a rule the roof should be inspected every ten years or so to make sure there is no deterioration.	2006	\$ 429,113	\$ 467,733	\$ 480,607	\$ 532,100	\$ 596,467	\$ 660,834	
	Clean digester and Paint Roof. 429,113.00. (7-2006)								
36	Clean digester and replace roof. \$716,113.00 (7-2006)	2006	\$ 716,113	\$ 780,563	\$ 802,047	\$ 887,980	\$ 995,397	\$ 1,102,814	
37	Ventilate boiler room.								
	During the summer months that room can get as hot as 130 deg. For safety reasons boiler room doors should be closed at all times, but due to the heat build up in that room we have to keep the doors open.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
38	Upgrade last two flushing water pump. \$1176.47 ea.(2005)								
	In 1992 the flushing water piping system was replaced. That solved our pressure drop problem through out the plant. But over the years as we added more equipment to the system our pumps cannot keep up with the demand.	2005	\$ 2,353	\$ 2,635	\$ 2,706	\$ 2,988	\$ 3,341	\$ 3,694	
39	Repair sludge can storage area, repave sludge can storage area, and install rails for all sludge cans.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
40	Replace both beltpresses	1988	\$ 550,000	\$ 896,500	\$ 913,000	\$ 979,000	\$ 1,061,500	\$ 1,144,000	
	Plant Miscellaneous								
41	Look into converting one of the Septage holding tanks into sludge thicken tank. \$1,000,000.00. (2005)	2005	\$ 1,000,000	\$ 1,120,000	\$ 1,150,000	\$ 1,270,000	\$ 1,420,000	\$ 1,570,000	\$ 1,570,000
42	Repair of fence around plant property and barbwire on top. \$2895.00 quote dated 1-2003. Not including clearing 6' r.o.w. around fence line.	2003	\$ 2,895	\$ 3,416	\$ 3,503	\$ 3,850	\$ 4,285	\$ 4,719	\$ 4,719
43	Replace walkways around plant.				\$ -	\$ -	\$ -	\$ -	\$ -
44	Repair potholes on Catania Way and in plant.				\$ -	\$ -	\$ -	\$ -	\$ -
	Installation of a single backup generator to supply power to the whole plant if power is ever lost.								

SOUTHWEST DELAWARE COUNTY MUNICIPAL AUTHORITY

WISH LIST

ESTIMATED COST AND REPLACEMENT YEAR

45	PECO supplies two source of power to the plant at the present time. If one source or grid goes down the other would automatically switch over. There is a 90% chance that we would have power at all times. In the ten years since this service has been available to the authority, we have never lost power to the plant. But, if we ever did lose power, the plant would be down and the M.L.S. would start to flood. PECO gave us a proposal in April 2002 for stand-by generation at this location. The cost for this installation would be \$353,500 *	2002	\$ 353,500	\$ 427,735	\$ 438,340	\$ 480,760	\$ 533,785	\$ 586,810	\$ 586,810
46	Correcting treatment plant hydraulic thru-put issues. (Hydraulic Study (10-2005)			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Collection System Department								
47	Another full time employee.				\$ -	\$ -	\$ -	\$ -	
48	Data Cap 3.0 system for TV truck. \$14,000.00 in 2002	2002	\$ 14,000	\$ 16,940	\$ 17,360	\$ 19,040	\$ 21,140	\$ 23,240	
49	Lateral and main line inspection system.				\$ -	\$ -	\$ -	\$ -	
50	Lateral seal unit.				\$ -	\$ -	\$ -	\$ -	
51	1000 feet of TV cable for seal truck.				\$ -	\$ -	\$ -	\$ -	
52	New sewer cleaning truck to replace our 1994 truck. \$96,000 (1994)	1994	\$ 96,000	\$ 139,200	\$ 142,080	\$ 153,600	\$ 168,000	\$ 182,400	
53	New TV seal truck to replace our 1996 Truck. \$126,000 (1996)	1996	\$ 126,000	\$ 175,140	\$ 178,920	\$ 194,040	\$ 212,940	\$ 231,840	
	Toby Farms Pumping Station								
54	Upgrade of pumps and station. This is our oldest pumping station. Built in 1963, the pumps were upgraded to its present configuration in 1971.	2008	\$ 500,000	\$ 171,360	\$ 530,000	\$ 590,000	\$ 665,000	\$ 740,000	
55	Automate station for remote monitoring from plant Scada system. equipment we can have real time monitoring of station status from the plant. Also all alarms could be tied into our Scada alarm system.			\$ -	\$ -	\$ -	\$ -	\$ -	
	Team Road Pumping Station (District 4)								
56	Install a three-phase monitor on generator transfer switch. *			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
57	The automatic transfer switch only monitors one phase coming in. If we lose only one phase to the station and it happens to be the one that isn't being monitor, of the generator will not start.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
58	Automate station for remote monitoring from plant Scada system.								\$ -
59	This can be done over a phone at the station. With the proper equipment we can have real time monitoring of station status from the plant. Also all alarms could be tied into our Scada alarm system.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
60	Install flow meter and chart recorder.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
61	Exhaust Fan for wet well.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
62	Pump replacement 15,834.00. (8-2008)	2008	\$ 15,834	\$ 16,309	\$ 16,784	\$ 18,684	\$ 21,059	\$ 23,434	
	Eagle Pumping Station								
63	Replacement of plug valves with gate valves on pumps.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
64	Basement heater not working.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
65	Leaking basement floor.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Install a three-phase monitor on generator transfer switch. *								\$ -

SOUTHWEST DELAWARE COUNTY MUNICIPAL AUTHORITY

WISH LIST

ESTIMATED COST AND REPLACEMENT YEAR

66	The automatic transfer switch only monitors one phase coming in. If we lose one phase to the station and it happens to be the one that isn't being monitored, the generator will not start.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
67	Automate station for remote monitoring from plant Scada system.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
68	This can be done over a phone at the station. With the proper equipment we can have real time monitoring of station status from the plant. Also all alarms could be tied into our Scada alarm system.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
69	Install flow meter and chart recorder.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
70	Force main failures. Install new larger force main			\$ -	\$ -	\$ -	\$ -	\$ -	
	Concord Hills Pumping Station				\$ -	\$ -	\$ -	\$ -	
71	Bring this station up to the same standards that we have for Northwest Aston grinder pump specification. The contractors installed these pumps in a manhole and brace them to the walls. There is no easy way to get to them. No alarm panel was ever installed and no phone line was ever run to station.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Woodbrook Pumping Station								
72	Up grade stations electrical service. Station is presently rated for 225 amps at 240 volts three-phase. When the storm pump and one regular pump runs together we are drawing 200 amps.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
73	Upgrade storm pump to handle peak flows.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
74	During heavy rains the station has and will continue to flood.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
75	Install electric motors on all three 10" pump discharge valves.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
76	These valves can not be turned by one person and are extremely difficult to turn with two people. Someone could get hurt turning these valves.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
77	Install a three-phase monitor on generator transfer switch. *								
78	The automatic transfer switch only monitors one phase coming in. If we lose only one phase to the station and it happens to be the one that isn't being monitored then the generator will not start.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
79	Repair stone driveway where storm runoff washed out area.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
80	Upgrade lighting in basement of station.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
81	Automate station for remote monitoring from plant Scada system. equipment we can have real time monitoring of station status from the plant. Also all alarms could be tied into our Scada alarm system.			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
82	Up grade all three pumps to VFD. and replace existing motors	2008	\$ 8,860	\$ 9,126	\$ 9,392	\$ 10,455	\$ 11,784	\$ 13,113	
83	One 20HP VFD purchased and installed (motor not included) \$4,430.00. (9-2008)								
84	One 25 HP motor to replace wound rotor motor.\$7,670.00 (10-2008)	2008	\$ 15,340	\$ 15,800	\$ 16,260	\$ 18,101	\$ 20,402	\$ 22,703	
	Replace one (1) Fairbanks-Morse Model B5400, Type B-5412, S/N K3W1-070813-1, GPM 700 @ 70' TDH, Size 4" (discharge), Suction 6",	2009	\$ 7,018	\$ 7,018	\$ 7,229	\$ 8,071	\$ 9,123	\$ 10,176	
	Interceptor								

SOUTHWEST DELAWARE COUNTY MUNICIPAL AUTHORITY

WISH LIST

ESTIMATED COST AND REPLACEMENT YEAR

85	Upgrade Chester Creek Interceptor from Ballinahinch Siphon to Knowlton Road siphon		\$ -	\$ -	\$ -	\$ -	\$ -	
			\$ -	\$ -	\$ -	\$ -	\$ -	
			\$ 7,420,017		\$ 8,765,726	\$ 9,767,795	\$ 10,769,864	

Comment 6.a.iii Attachment

Brookhaven Cost Estimate to Upgrade BRPCP

Eileen W. Mulvena, P.E.

F. Clark "Sande" Walton, P.E.

17 October 2011

Department of Environmental Protection
Southeast Regional Office
2 East Main Street
Norristown, PA 19401

Attn: Kelly A. Sweeney

RE: Act 537 Plan Update for Western Delaware County, Chester-Ridley Creek Review Letter Dated
September 7, 2011

Dear Kelly:

On behalf of Brookhaven Borough, we provide the following information/responses to the referenced letter

Item 26.a.iii:

The types and sizes of the existing facilities were determined from reading the Act 537 Plan description of the existing treatment facilities and scaling from a Google aerial photo of the plant. The Borough retained the services of Dutchland, Inc., a sewage facilities design/build firm, to perform modeling and estimating services to evaluate the existing capacity of the SWDCMA plant and any upgrades that may be required.

The Plan indicates that the current wastewater treatment processes include screening, primary clarification, biological treatment using activated biofilters, fine and coarse bubble activated sludge, final clarification, and chlorination. It appears that a trickling filter tank remains available on-site. In 2002, the headworks were improved with a second fine screen, an aerated grit separator, and a channel reconfiguration. The biofilters' pumping and recirculation systems were also upgraded.

The Plan also indicated that the design BOD5 = 12,510#/day and that the current NPDES discharge limit is 6MGD.

With this information and the aerial view of the plant, a model was developed, in Biowin 3.1, which assigned a use for each of the tanks present in the aerial view and based on the treatment process utilized at the plant. A depth was assigned to each of the tanks based on the hydraulic limits of the plant. Please note that the Model used is based on assumed data and as such is only a guide to how the plant can be configured to achieve the effluent limits required. A more accurate model can be created if the actual tank dimensions and volumes are used, of course, but we believe this model represents a reasonable estimate of performance based on the information available.

Setting the plant flow at 7MGD, the model predicts the plant capability was for BOD5 = .68mg/l; TSS=0.0; TKN=2.47mg/l, TN=11.28mg/l and TP=5.01mg/l. Please refer to the copy of the Biowin analysis report attached with this letter. Since we do not know the actual pipe connections running between the tanks we just selected the tanks based on their assumed sizes and allowed for any pipe changes to connect the flow sequence to occur during construction. Obtaining a copy of the process plan for the site will determine what piping changes will be necessary to configure the plant according to our assumptions.

The two 60ft diameter tanks west of the aeration basin were modeled as anoxic tanks. The membrane reactor was modeled after the clarifiers. The parameters of the membrane reactor were assumed.

The modeled process is as follows: Influent flows to the primary settling tank; then it would go to two anaerobic tanks (which were the two 60' clarifiers); then to the aeration tank; then to the anoxic tanks (the two circular 62' tanks near the digester); then to the clarifiers; then to the membrane biofilter; to disinfection and then discharge. Sludge would be drawn from the primary settling tank and passed through the anaerobic digester and the resultant sludge would be disposed as it is currently being handled.

Based on the model as it was run, the plant is able to handle the 16.65MGD peak flow indicated in the Plan. However, it resulted in TP = 3mg/l.

Further modifications to the model to provide for phosphorus and nitrogen removal were made to achieve TN<3mg/l and TP<1mg/l.

The \$7M estimate was derived based on the modeling and the improvements that would be needed to meet the limits we anticipated:

Phosphorus removal: shed; pumps; storage totes, concrete pads	\$100,000
Nitrogen removal: shed; pumps; hoists; totes, concrete pads	\$125,000
Control System, Design, Manufacture, Installation, T-Box?	\$250,000
6MGD EQ tank	\$4,300,000

Repiping throughout plant, conversion of trickling filters	\$350,000
Miscellaneous Electrical Modifications:	\$250,000

Subtotal:	\$5,375,000
Contingencies (25%)	\$1,343,750
Engineering/Inspection (8.5%)	\$456,875
Total:	\$7,175,625

Recent information received regarding the condition of some of the existing tanks at SWDCMA indicates that some new tanks may be required. In addition, Dutchland just completed construction of a 7.5MGD circular digester for \$1,127,000 which indicates that the \$4.3M estimate is excessive. Therefore, a modified estimate is provided below:

New anaerobic & anoxic tanks (if necessary)	\$2,800,000
Phosphorus removal: shed; pumps; storage totes, concrete pads	\$100,000
Nitrogen removal: shed; pumps; hoists; totes, concrete pads	\$125,000
Control System, Design, Manufacture, Installation, T-Box?	\$250,000
6MGD EQ tank	\$1,500,000
Repiping throughout plant, conversion of trickling filters	\$350,000
Miscellaneous Electrical Modifications:	\$250,000

Subtotal:	\$5,375,000
Contingencies (25%)	\$1,343,750
Engineering/Inspection (8.5%)	\$456,875
Total:	\$7,175,625

The Plan indicates that tertiary treatment for nutrient removal is the main component of alternative evaluating an upgrade of the SWDCMA plant. "The process upgrades suggested may include treatment with lime or

chemicals to remove phosphorus, ammonia stripping to remove nitrogen, and /or activated carbon adsorption."

It appears that the denitrifying filters is the significant variation in the pricing. The Plan calls for \$13.856M to be spent on denitrifying filters FRP Option and \$221,000 for a reaeration tank.

The cost for a denitrification filter is out of line with current costs. At a plant which was just recently bid in July of this year, the price for a 450,000 GPD filter was \$318,000. This is \$0.71 per GPD. At that price a filter for a 6MGD plant should cost approximately \$4,241,000 and that does not consider any economies of scale. At \$14M the denitrifying filter appears to be over 3 times more costly than it has to be. If the assumptions in the model developed by Dutchland are correct, the plant can be retrofitted to meet the nitrogen limits without that filter. The open question is; "are the assumptions correct?" Even with the denitrification filter, the project is less costly than the chosen Alternative 2. A more thorough investigation is warranted before concluding it is absolutely needed.

In response to 26.b.ix. Brookhaven has been told that the Chester Township collection system is being transferred to DELCORA. When this question was asked by Brookhaven as part of the Plan review, the response was that no decision had been made and it had not yet been seriously considered. The agreement executed between SWDCMA and DELCORA states that the Chester Township units "would become direct customers of DELCORA, as long as the diversion is determined by DELCORA's engineer to be feasible." (Article II, 2.01.e) . In reviewing the Eastern Plan of Study dated 2002 , pg. 7-4, DELCORA indicates that municipalities who own their collections system are billed directly by DELCORA. For those *customers* in Upland and Parkside Borough and Chester Township, it is stated that DELCORA bills them directly. DELCORA also owns and operates the collection system in these municipalities. The conclusion drawn was that the intent is for the balance of the Chester Township collection system to be transferred to DELCORA.

If those units are transferred to DELCORA, then the SWDCMA customer base will be reduced.

With that being said, the follow-up question to that becomes does the DELCORA Engineer have the authority to make the determination or is this something that will require Planning? As indicated previously, this decision will have an impact on the SWDCMA service area if the balance of the Chester Township units (1,300) are transferred. And, what will be the cost of this transfer? We take the position that this decision should not be made without a thorough and complete cost-benefit analysis for all users in the system and that Planning should be required. The SWDCMA Engineer indicated in a meeting held on August 2, 2011(at DEP) that the Chester Township pump station requires significant repair/maintenance/upgrade and that transferring the

units to DELCORA makes sense as the work at the station could be done when the new force main from that station to the proposed DELCORA main force main is constructed.

In response to 26.d.i. – the question has been answered satisfactorily by DELCORA. Clarification was provided that indicated the PennVest funding was available for on-lot system owners. The original statement did not indicate it was for on-lot system owners.

In response to 26.d.v - Please refer to the response provided under 26.b.ix.

As related to 26.e.i – Brookhaven provides the following clarification: the concern is that transferring eastern units to DELCORA's Chester Plant will require capital expenditures and whether the western service area municipalities will be assessed any portion of the upgrade costs. This would further increase the annual fee to the Brookhaven residents if the diversion to DELCORA were to occur.

If you require additional information, please contact the undersigned.

Sincerely,

Walton, Mulvena & Associates
A Division of NDI ENGINEERING COMPANY

A handwritten signature in black ink, appearing to read 'Eileen W. Mulvena', written in a cursive style.

Eileen W. Mulvena, P.E.

Program Manager

Brookhaven Borough Engineer

Comment 6.b.i Attachment

1992 BRPCP Site Plan



DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY
P.O. Box 999 • Chester, PA 19016-0999

September 7, 2011

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Elizabeth Mahoney
Sewage Planning Supervisor
Water Management
PADEP, SERO
2 East Main Street
Norristown, PA 19401

RE: Chester-Ridley Creek Act 537 Plan
Public Comment Period

Dear Ms. Mahoney:

This letter serves to certify that the Delaware County Regional Water Quality Control Authority (DELCORA) did not receive any comments on the Chester-Ridley Creek Act 537 Plan during the most recent public comment period (August 6, 2011 through September 6, 2011).

Please contact me at 610-876-5523, ext. 116, if you have any questions.
Thank you for your attention.

Sincerely,

Christine Volkay-Hilditch, P.E., BCEE
Director of Engineering

CVH:bab

cc: E. Bolt, Weston Solutions
R. Powell, DELCORA
File

ADMINISTRATION

☐ 610-876-5523
☐ FAX: 610-876-2728

CUSTOMER SERVICE/BILLING

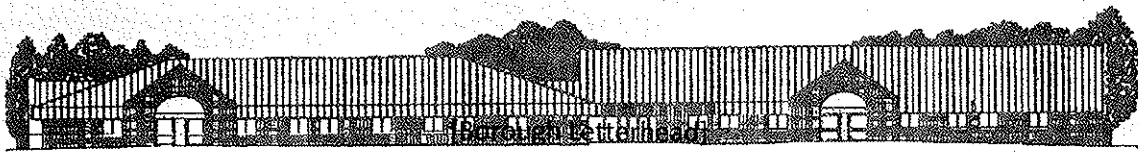
☐ 610-876-5526
☐ FAX: 610-876-1460

PURCHASING & STORES

☐ 610-876-5523
☐ FAX: 610-497-7959

PLANT & MAINTENANCE

☐ 610-876-5523
☐ FAX: 610-497-7950



BROOKHAVEN BOROUGH

PHONE
(610) 874-2557

2 Cambridge Road, Suite 100 ~ Brookhaven, PA 19015-1708

FAX
(610) 874-2612

May 12, 2011

Delaware County Regional
Water Control Authority
100 E. 5th Street
PO Box 999
Chester, PA 19016-0999

Attn: Joseph Salvucci, Executive Director

Re: **Western Delaware County Act 537 Sewage Facilities Plan Update Chester-Ridley Creek Service Area, April 15, 2011 (Revised Draft)**

Dear Mr. Salvucci:

Enclosed please find Brookhaven Borough's Comments regarding the above-referenced proposed Plan.

Very truly yours,

John W. Wilwert, Jr.
Council President

Enclosure

cc: Elizabeth Mahoney, P.E., DEP
Nelson Shaffer, Chairman, SWDCMA
John E. Pickett, AICP, Director, Delaware County Planning Department

RECEIVED
MAY 13 2011
BY
HANS DELU
Orig: 1:30pm
File

**BOROUGH OF BROOKHAVEN'S COMMENTS TO WESTERN DELAWARE COUNTY ACT 537 SEWAGE
FACILITIES PLAN UPDATE CHESTER-RIDLEY CREEK SERVICE AREA APRIL 15, 2011**

Background

The Southwest Delaware County Municipal Authority ("SWDCMA") currently provides sewage conveyance and treatment to 620 residential dwellings located in the Borough of Brookhaven. These homes were connected to the SWDCMA system pursuant to agreements between the developers of the homes and SWDCMA in the 1960s. SWDCMA also serves the following additional municipalities in Delaware County: Aston Township, Chester Township, Chester Heights Borough, Edgmont Township, Middletown Township, Upper Chichester Township and Upper Providence Township.

In February of 2011, Brookhaven Borough was furnished with a proposed plan revision prepared by the Delaware County Planning Department and The Delaware County Regional Water Quality Control Authority ("DELCORA") in connection with the proposed future of the SWDCMA treatment plant. The proposed plan revision outlined three (3) proposed alternatives in connection with the SWDCMA treatment facility and requested that the Borough adopt a resolution approving the submission of the plan to DEP. See Exhibit "A". The preferred alternative under the proposed plan was Alternative 2(c) which involves the decommissioning of the existing SWDCMA facility, the construction of a pump station and the connection of all users of the SWDCMA facility to DELCORA's treatment plant located in the City of Chester.

Brookhaven Borough's Engineer generated a list of questions and comments which were provided to the County, DELCORA and SWDCMA on March 7, 2011. See Exhibit "B". A response was received from the County on March 16, 2011. See Exhibit "C". The Borough Engineer generated a memo to Borough Council dated March 24, 2011 which was forwarded to the County, DELCORA and SWDCMA. See Exhibit "D".

In response, representatives of DELCORA, the Delaware County Planning Office and Weston Solutions, Inc., DELCORA's engineer, appeared at the Borough Council's workshop meeting on March 28, 2011 to discuss the Borough Engineer's questions and subsequently provided an undated written response via email. See Exhibit "E".

The Borough Council remained dissatisfied with the information presented because it did not provide any information as to the cost of the proposed alternative to the Brookhaven Borough ratepayers. During the March 28th Council meeting, DELCORA's representative informed the Borough Council that the advertisement for public comment in connection with the application would be submitted to DEP with or without Brookhaven Borough's approval.

Because Brookhaven Borough declined to adopt the proposed resolution without the requested additional information, an advertisement revising the proposed plan to remove Brookhaven Borough was thereafter submitted to DEP and was published on March 14, 2011.

On April 19, 2011, representatives of Brookhaven Borough attended a workshop meeting of the SWDCMA Board and discussed the Borough's concerns regarding the proposed plan. SWDCMA subsequently provided the Borough with a written response dated April 27, 2011 which still did not address the Borough's concerns regarding the financial impact upon its residents. See Exhibit "F". The Borough subsequently submitted an open records request to SWDCMA in order to attempt to obtain the necessary information for the Borough to determine the financial impact. See Exhibit "G". No response has been received by the Borough to date.

Comments

1. Under Section 5 of the Sewage Facilities Act, every municipality is required to adopt an official plan that provides for sewage services for areas within its jurisdiction. 35 Pa. Stat. § 750.5. Under Section 5(d)(3), an official plan must provide for "adequate sewage treatment facilities" which includes the "system for sewage collection, conveyance, treatment and disposal". 35 Pa. Stat. § 750(d)(3); 25 Pa. Code 71.1.
2. Because sewage from Brookhaven Borough is currently being collected and conveyed to the SWDCMA sewerage system for treatment and disposal, and the plan revision will affect the manner in which the Borough's sewage is treated and disposed of, the Department may not approve the plan revision until Brookhaven Borough revises its official plan to reflect these proposed changes.
3. The regulations promulgated under the Sewage Facilities Act and the Clean Streams Law require an official plan to provide "cost estimates for construction, financing, ongoing administration, operation and maintenance". 25 Pa. Code § 71.21(a)(5)(iv).
4. The proposed plan fails to adequately consider and estimate the costs associated with the decommissioning of the SWDCMA Plant and the connection of the SWDCMA users to DELCORA and the costs of ongoing administration, operation and maintenance of the remaining SWDCMA collection and conveyance facilities.
5. The applicant has failed to demonstrate that the official plan revision is able to be implemented in a fiscally responsible manner.
6. The applicants have no legal authority to unilaterally remove the Brookhaven Borough ratepayers from the SWDCMA Plant. The unilateral removal of these ratepayers is a violation of various developer agreements with SWDCMA for these homes, which require SWDCMA to provide collection, conveyance and treatment without any right of termination and which are specifically binding upon the successors and assigns of SWDCMA.
7. Section 5 of the Clean Streams Law identifies "the immediate and long-range economic impact upon the Commonwealth and its citizens" as an issue the Department must consider when taking action pursuant to the Clean Streams Law, 35 Pa. Stat. § 6915(a).
8. The regulations promulgated under the Sewage Facilities Act and the Clean Streams Law require that the Department consider "whether the municipality has adequately considered questions raised in comments, if any, of the appropriate areawide planning agency, the county or joint county department of health, and the general public" and "whether the official plan or official plan revision is able to be implemented". 25 Pa. Code §§ 71.32(d)(2) and (d)(4).

9. The regulations further require the approval of official plans and revisions to be based upon both “the technical feasibility of the selected alternative in relation to applicable regulations and standards” and “the feasibility for implementation of the selected alternative in relation to applicable administrative and institutional requirements”. 25 Pa. Code § 71.61.
10. The proposed revised plan indicates that the one reason that the SWDCMA plant should cease operations is the potential impact of TMDLs for Chester Creek. The Borough has been in contact with both the Department and the EPA, and has been told that there is no plan to develop a TMDL for this section of Chester Creek.
11. The other reason offered was insufficient capacity to handle future development of the Franklin Mint site in Middletown Township and other potential growth in member municipalities.
12. The Borough believes that Alternative 2(c) in the proposed revised plan fails to address the following project costs and therefore the estimated project costs have been understated:
 - (a) the budget fails to estimate the full cost of installation of the force main because it is believed that the installation will result in numerous conflicts with utilities and private utility services/laterals; i.e., sewer laterals, water and gas services. While the estimate includes the cost of test borings to be done during the design phase, it does not include any estimated costs for the actual relocation of the services or re-routing of the force main due to utility conflicts that cannot be re-routed.
 - (b) DELCORA has advised the Borough that the recent force main installation along Rt. 291 served as the basis for the estimate. The Borough does not believe that the Rt. 291 installation is an appropriate comparison. Rt. 291 is an industrial area with significantly fewer utility conflicts, and far more open space for staging of equipment and materials. In contrast, areas involved in the connection to the Chester Plant consist of a congested, urban environment where issues such as employee parking, equipment mobilization, stockpiling, flagging, excavating around and beneath other services or relocating them will be encountered. Additionally, crossing Baldwin Run and clearing for access to the rail line and then re-vegetating will need to be addressed. Thus, the Borough believes that the price per foot will more likely to be \$700.00 per square foot and not \$400.00 per square foot. This modification alone would increase the estimated cost from \$13 million to \$17 million.
 - (c) The proposed revised plan acknowledges that wetlands may be impacted but no estimate is provided for mitigation.
 - (d) Easements are identified as being needed, however, no cost of acquisition is estimated in the budget.
13. SWDCMA has indicated that the estimated cost per EDU over a 20 year period for this alternative is \$54 per year. However, this figure does not include any costs associated with the closure of the SWDCMA plant or any charges which will continue to be imposed upon the ratepayers by SWDCMA. From the FY 2011 budget provided by SWDCMA, there appears to be significant debt service and corrective action to reduce I/I in the collection system which is unfunded. These items will certainly have an impact on Brookhaven residents as SWDCMA has a responsibility for maintaining pump stations, force mains, gravity mains, laterals, and manholes. The budget does not provide sufficient separation in how revenues for collection and treatment are distributed. Is the fixed portion of the sewer fee for the collection system and the variable

for the treatment system? In order to evaluate the impact of the proposed closure of the treatment plant, it is necessary to know how the fee is distributed.

14. The Borough further believes that the cost information contained in the proposed revised plan for Alternative 1, which would include the upgrade to the SWDCMA plant, is too high. It appears that there are two principal reasons for the high estimate for upgrading the existing plant: 1) capacity issues with handling additional flows from undeveloped member communities and I/I; and 2) upcoming potential EPA mandate for more stringent water quality discharge requirements to the impacted section of the Chester Creek. As stated previously, there is no indication that a TMDL is pending.
15. The Borough requested that DELCORA and SWDCMA provide more detailed information on the development of the estimate for Alternative 1 included in the 537 Plan Revision including process changes proposed, new tanks that would be needed, etc. and the estimate for the same. SWDCMA responded that a study was not done and that the estimate was based on "experience".
16. Because the estimate for Alternative 1 does not seem realistic, and no study was performed as part of the Planning process, the Borough ran its own model based on the information available in the proposed plan and an aerial view of the plant to estimate the cost to upgrade the plant to meet the potential TN = 3mg/l and TP = 1mg/l and 2mg/l dependent upon time of year. The estimate is \$7 million, as opposed to the \$28 million plus \$9 million for operations estimated by SWDCMA.
17. It is suggested that there is a serious disconnect between what is proposed in the Plan and what is required. If SWDCMA simply wants out of the treatment business, then this statement needs to be made and paint a realistic cost picture. If SWDCMA merely is interested in saving \$5M in subsidy to Middletown Township, then this should be stated. The members of the service area should be given an opportunity to comment on the alternatives selected believing that due diligence was performed. The SWDCMA collection system members should be told what the proposed SWDCMA overhead to be added to the DELCORA treatment cost will be. And, furthermore, they should be told what the projected collection system charges will be to address system maintenance and I/I removal in accordance with the consent order as well as debt service. Since Chester Township will become part of the DELCORA collection system, and no information has been provided as to the specifics of this transfer, these units may no longer be contributing to the payment of debt service. If this is the case, this removes over 2000 units from the available pool to pay the debt service.
18. The Act 537 Planning process has been compromised with this Plan as insufficient data has been included to adequately evaluate both the decommissioning and administrative/operations costs of SWDCMA and diversion costs to DELCORA in Alternative 2c. Additionally, no apparent effort has been made to quantify the upgrades required in Alternative 1.
19. While DELCORA purports that the recent announcement of upcoming Act 537 Planning for the Eastern Service Area has no bearing on this Plan, Brookhaven Borough believes that it is very relevant. DELCORA indicates that when the diversion from SWDCMA goes on-line, the average daily flow through the W RTP will be 45MGD. With a rating of 50MGD, the plant will be operating at 90%. If the outcome of the eastern study is to divert flow from Philadelphia to

Chester, it is unclear how will this be accomplished without an upgrade to the WRTP. Removing flow from the Philadelphia treatment plant sounds like a very good idea. The eastern communities are burdened by high treatment costs with low household incomes. It was suggested in the letter from DCPD that the eastern service area communities could realize a threefold increase in fees. A priority should be to minimize any increases. It seems that if the SWDCMA diversion did not occur, the WRTP could handle an additional average daily flow of 6.7MGD from the eastern service area. What is the benefit to the eastern service area members if this were to occur?

BROOKHAVEN BOROUGH
DELAWARE COUNTY, PENNSYLVANIA
RESOLUTION 2011-_____

A RESOLUTION OF BROOKHAVEN BOROUGH COUNCIL,
DELAWARE COUNTY, PENNSYLVANIA ADOPTING THE
DELAWARE COUNTY SEWAGE FACILITIES PLAN – WESTERN
PLAN OF STUDY

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 5535, 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, require the municipality to adopt an Official Sewage 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, the Delaware County Planning Department, acting upon authorization from the Pennsylvania Department of Environmental Protection, did offer assistance to the municipalities in meeting their Act 537 requirements on a sub-County basis; and

WHEREAS, the Borough of Brookhaven did by formal resolution dated June 7, 2010, authorize the County of Delaware to prepare the sewage facilities plan on its behalf; and

WHEREAS, the appropriate municipal officials of the Borough of Brookhaven have reviewed the findings and recommendations of that plan and find it to conform to applicable 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 Council of the Borough of Brookhaven hereby accepts and adopts the “Delaware County Act 537 Western Plan of Study; Chester-Ridley Creek Service Area Update” prepared by the Delaware County Planning Department, January, 2011, as an amendment to the official plan for sewage facilities in compliance with the Pennsylvania Sewage Facilities Act of 1966. The Borough of Brookhaven 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 4TH DAY OF APRIL, 2011.

BROOKHAVEN BOROUGH COUNCIL

John J. Wilwert, Jr., Council President

Michael S. Hess, Mayor

I, Mary Ellen McKinley, Brookhaven Borough Secretary, hereby certify that the foregoing is a true copy of the Borough’s Resolution 2011-____, adopted on April 4, 2011.

Mary Ellen McKinley, Borough Secretary

BOROUGH SEAL

MEMORANDUM**WALTON, MULVENA & ASSOCIATES**

100 Grove Rd. PO Box 518 Thorofare, NJ 08086

Phone: (856) 848-0033 Fax: (856) 848-0277

Division of NDI ENGINEERING COMPANY



DATE: 7 March 2011
TO: Brookhaven Borough Council
FROM: Eileen Mulvena, P.E., F. Clark Walton, P.E.
RE: Review of Western Delaware County Act 537 Plan Update for the Chester-Ridley Creek Service Area dated Final Draft 20 January 2011

The referenced document has been reviewed and while there are several statements that require correction in the beginning chapters, the substantive comments are relevant to Chapter 6. The various alternatives have been identified. The upgrade option is vague as it identifies various types of improvements but stresses the difficulties in maintaining the upgrades or the expected life to be realized. It is suggested that the life of the various pieces of equipment/tankage can be estimated and that the lifecycle costs for each to achieve a 50-yr life can be estimated in more detail than has been provided. It is likely that additional pre-design effort was done to at least size the various tanks in order to meet the desired/required performance criteria; it would be very helpful to have them added to the report to provide a feel for the changes needed. A plan showing the footprint of the existing plant and the expected improvements would also be helpful to envision the difficulties that perhaps they envision in incorporating these improvements.

For the construction of the force main and pump station, the pricing is unclear as to how the existing plant will be addressed. What is the phase out cost associated with removal of this use? How is this to be assessed? Is the cost to be shared only by existing users or all users? Shouldn't some attempt to quantify this be made so that communities affected by the phase-out will be aware of the costs associated with the pump station as well as the phase-out?

For all of the proposed alternatives, is the existing interceptor/conveyance system feeding the plant and/or proposed station adequate to handle all of the anticipated flow? Will any improvements be required at any section of the system to accommodate the proposed increases now or is this something that will be determined on a case-by-case basis as applicants come

forward? It is suggested that having an idea of that figure would be very helpful to those communities anticipating growth as they will likely be responsible for payment of those improvements in full. Or is the intent to have all the communities share in any interceptor upgrades? I think we should know if Brookhaven residents are going to be assessed for upgrades to the interceptor that may become mandatory due to others' connections. It is understood that all lines require maintenance; but, how much is maintenance and how much is due to new member flows? Does Council want this quantified more clearly?

As for the estimate for the pump station, it does appear to be low. The site pricing seems especially low. Of course, it is such a low part of the whole that even increasing it from \$64,000 to \$100,000 makes virtually no difference to the total cost. Have preliminary design drawings been prepared? It would be very helpful to see what the scale and scope of the pump station design is as it will help in evaluating the estimate provided.

For the force main pricing, I suggest that it is underpriced. The price per foot for Alternate 2A as presented is \$400. It is likely that the price to install such a large pipe (30") in developed areas on a state road could be nearly double. The work hours will be limited to 9AM-3PM. Traffic control will be costly. Existing utilities are in place and many changes in direction may be required. We are getting pricing over \$200/LF for local roads with 8" standard thickness pipe. I would suggest that this pricing be revisited and that the estimate be broken down by section, traditional trench versus boring. As for the boring, what process is involved in going under an interstate? What permits, what jurisdictions are involved? It would be helpful to understand the process, or if there are any additional requirements.

For Alternatives 2B and 2C, it is suggested that the price/foot will be much higher than estimated. Has any preliminary engineering been done to evaluate the constraints that will be realized? Again, it is suggested that unit pricing estimates be prepared that reflect the different areas of work. Also, if it is thought that some wetland mitigation is required, some value should be assigned at this time.

Have easements been addressed already? The main purpose for this is if owner(s) wish to be compensated, legal and easement costs will rise. It is suggested that it may be appropriate to put some estimate in there for that.

As for the engineering costs, this project will require substantial amounts of engineering if the design is to reflect the existing conditions/constraints to be encountered. Permitting alone can be time-consuming and can add up in cost. It is suggested that in addition to the permits, the design of the potential wetland mitigation, pump station design, interceptor evaluation, force main design, utility conflict analysis, and preparation of the plans and specs suitable for construction will be in excess of 8.5% of the construction cost. Perhaps there will be some cost savings due to the sheer size of the project; but, there appear to be many obstacles that are not found during smaller pipe installation projects.

Although the wetland issue is raised, it does not appear that direction has been given. It is recommended that the DEP and ACOE be contacted and some idea of a scope be developed. A field visit and discussions should yield valuable assistance to the applicant in estimating these costs or whether they are relevant.

I think the most helpful information to understand the variables involved in this proposal would be to have drawings that reflect the proposed plan in greater detail. Is the pipe to be installed in the cartway in some areas, under sidewalk in others? Does it affect any structures that are at the curbline? Are there areas where there are bridge structures that will require the force main to be routed some distance from the structure? Even if tax maps are used and the proposed routes are indicated along with any known obstacles/structures/ROW issues.

In Section 6.5, is this addressing all of the current flow going to the Chester plant? Does it include the approved flows being added to the CDCA from the new members? Have these connections been made yet? If not, are they part of the .25MGD estimated for new connections in 2010-2015? That number seems light for the new member communities if that hasn't already occurred. It is possible that this flow has already been added to the system. I do not know the current status of the new member connections.

What is the peak factor used for the Chester plant? It is stated that a rerating has occurred. What is the total anticipated average flow and what is the proposed anticipated peak flow following the phase-out of the SWDCMA plant?

One point that is not substantive; but, would be helpful to get clarification on is Section 7.6.1 seems to indicate Pennvest loans are available to individuals. Is this the case? If it is addressing municipalities, it should be noted that it is difficult for Delaware County communities to qualify.

Several times it is mentioned that Chester Creek has limited assimilative capacity. It would be helpful to have this quantified for both existing conditions and what would be anticipated. This seems to be the crux of the decision to close SWDCMA and therefore, additional quantitative information would be helpful in understanding this concern.

In summary, it is likely that some level of design engineering has been done to determine the estimates provided. It would be appropriate to have additional information/clarification of these line items included them in the Plan so that the estimates could be reviewed/compared to the various plans. In addition, a greater breakdown of the pricing would be helpful and if the easement issues have been investigated and resolved, knowing that there is some cost or no cost for the easements is helpful. If this information is not available, I would suggest that some value be assigned as easements can be costly. Condemnation proceedings hopefully will not be required as these may extend the timeline of the project.

There is no discussion of how the project costs will be assessed to the users. The checklist identifying the line items required to be addressed in this Act 537 has not been included. Therefore, it is unknown if any consideration as to how this is expected to be paid for is required to be provided. If it is not required under the scope of work approved by DEP, it is suggested that the Borough ask for this information as this will be of great interest to those Borough residents affected by this proposal. The cumulative cost to the affected residents could be steep depending upon how the improvements are to be assessed and over what period of time.



DELAWARE COUNTY PLANNING DEPARTMENT

COURT HOUSE/GOVERNMENT CENTER
201 W. Front St. Media, PA 19063

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JOHN E. PICKETT, AICP
DIRECTOR

March 16, 2011

Mary Ellen McKinley, Secretary
Brookhaven Borough
2 Cambridge Road, Suite 100
Brookhaven, PA 19015

RE: Western Delaware County Act 537 Plan
Update – Chester-Ridley Creek Service
Area

Dear Ms McKinley:

Enclosed is a response to the comments that Walton, Mulvena & Associates prepared for Brookhaven Borough regarding the Chester-Ridley Creek Service Area Act 537 Plan Update. I trust that they adequately address your concerns.

Also, thank you in advance for allowing Karen Holm of my staff an opportunity to attend your March 28 workshop meeting. She will be bringing with her Christine Volkay-Hilditch from DELCORA and Elizabeth Bolt from Weston Solutions, Inc. to answer any technical questions that you may have.

If you have any further questions or comments, please feel free to contact me at 610-891-5200 or Karen Holm at 610-891-5213.

Very truly yours,



John E. Pickett, AICP
Director

Cc: John J. Wilert Jr., Council President
Eileen Mulvena, Walton, Mulvena & Associates



**RESPONSE TO COMMENTS FROM BROOKHAVEN BOROUGH PREPARED BY
WALTON, MULVENA & ASSOCIATES**

This plan was advertised for public comment on 31 January 2011, and transmitted to Brookhaven Borough on 2 February 2011. The plan was then forwarded by the Borough to Walton, Mulvena, and Associates (WMA) for review shortly thereafter. The Borough Secretary transmitted the engineer's review to the Delaware County Planning Department on 3 March 2011. Therefore, the engineer's review memorandum was not submitted within the 30-day comment period, and it was not submitted in at a time that allowed for informed discussion with Brookhaven Borough. The review memorandum states there are several statements that require correction in the beginning chapters, but no requested changes appear in the document. Please submit specific requests for language changes or provide accurate information to improve estimates or calculations in the plan. Please transmit by close of business on 18 March 2011 to facilitate production of the final document for submission to PADEP.

DELCORA, DCPD, and WESTON met with PADEP during development of the Plan of Action for this Act 537 Study Update. PADEP specifically stated that a schematic drawing of the BRPCP was not required to be included in the Plan Update. This response document provides answers to the questions included in the review memorandum by WMA dated 7 March 2011 and is organized by paragraph as numbered in the attached version of the WMA memorandum.

1. The improvements and upgrades detailed in the discussion of Alternative 1 (Sections 6.2 and 6.41) were provided by SWDCMA and a desk top analysis of the process improvements necessary to meet future permit limits for nutrients was performed by WESTON. The \$28 million cost opinion in Table 6-1 is for the nutrient removal upgrade only. Additional improvements estimated at \$9 million are also required to maintain the existing treatment facilities as detailed in a 10-year maintenance plan prepared in 2008 by SWDCMA.
2. Decommissioning of the existing treatment plant is the responsibility of SWDCMA. The extent of the decommission will be determined during detailed design but is anticipated to cost significantly less than the \$16 million difference between Alternative 1 and Alternative 2C (selected alternative).
3. The plan includes growth projections for the service area (See Section 5.5). The only significant growth is anticipated in the area served by MTSA. Providing interceptor capacity for this developing area is the responsibility of MTSA.
4. Only conceptual engineering has been done to date. The cost estimate includes contingency to cover those areas that have yet to be engineered. The conceptual engineering focused on the force main and pump station. The wide range of flows expected over the life of the pump station provided a challenge that necessitated the use of HDPE pipe to manage dynamic head at future peak flow and accommodate minimum velocities at current low flow.
5. In addition to cost, local traffic disruption is one of the factors against Alternative 2A. The reason Alternative 2C was formulated was to minimize disruption on heavily travelled streets. The cost of Alternatives 2A and 2B are \$60-\$70 more per linear foot to accommodate increased restoration and construction costs. The estimated costs for installation of the force

main are in line with actual costs to construct force mains within the City of Chester, currently being performed by DELCORA. Compliance with all federal and state permits and design requirements will be addressed during the detailed design phase. A current force main under construction includes two jack and bore sections under the new ramps for the Commodore Barry Bridge and one under the railroad near the W RTP. The method for crossing I-95 is currently envisioned as a similar jack and bore or a directional drill installation, and this will be addressed during detailed design. Any crossing will meet all Penn DOT requirements. As shown in Figure 6-1, the pump station will be located in the corner of Aston Township. The force main will run through Aston Township, Chester Township, and the City of Chester. All three of these communities have approved this plan.

6. As stated above, only conceptual engineering has been conducted to date. This work included an evaluation of the anticipated flows, sizing of the force main, and sizing of pumps to meet the system configuration. DELCORA and WESTON have experience with the level of difficulty in installing a force main in the area. Currently, construction is underway for a 54-inch diameter, ductile iron force main running approximately 13,000 feet from the Chester Pump Station to the W RTP.

The impacts to wetlands and any mitigation will be addressed during the detailed design. The techniques to be employed to minimize wetland impacts may include: alignment shift, trenchless construction, mitigation/restoration of disturbed areas. Detailed topography and an engineering survey to locate utilities in the field are under development at this time. WESTON has contacted DEP regarding permitting issues and has submitted the PNDI search results to PADEP. WESTON will meet with PADEP to present the alignment including topography, stream crossings, and wetlands areas prior to commencing final design. PADEP a U.S. Army Corps of Engineers will issue necessary permits for the final design.

7. The acquisition of easements will commence shortly. Most of the properties that will be transited are either public roads or County owned property.

8. The cost of engineering is based upon both WESTON's and DELCORA's recent experiences with the design of pump stations and force mains of similar extent in DELCORA's service area.

9. A BDWM GP-5 is anticipated to be used for stream crossings and wetlands crossings. There will be no permanent impacts to wetlands associated with this project; therefore, no wetlands mitigation is anticipated.

10. It is difficult to specify the exact location within the cartway until the survey for detailed engineering has been completed. Unless there is no other alternative, the proposed route will be located between the curbs on public streets. The exception to this is in the park in Chester. The current alignment concept is to place it under an existing sidewalk that will be replaced after installation of the force main or to place it across the parkland. The design engineer will work with PennDOT and all utilities to ensure the location/design meets all requirements. Aerial photos such as Figure 6-1 and field reconnaissance were used to select/verify route locations that minimize resident impacts.

11. The flows presented in Table 6-5 include all flow currently being treated by the WRTP. As stated in the note in Table 6-5, *"2010-2015 flows assume a growth of 0.1 MGD per year for the WRTP service area plus 0.25 MGD additional growth for tie-ins in CDCA. This conservative estimate of flow projections is based on previous Act 537 planning for various projects in the City of Chester, Chester Township and Bethel Township."* The WRTP has adequate capacity to handle the flows from the Chester-Ridley Creek Service Area (CRSA) as well as the flow from the expansion of the Central Delaware County Authority (CDCA) service area.

12. The maximum peaking factor for the WRTP based upon actual data is 2.35. The 99th percentile peaking factor is 1.74. As indicated in Table 6-5, a conservative estimate of the WRTP average flow in 2015 is 45.8 MGD. Given the historic peaking factor of the WRTP, the anticipated peak flow will be in the range of 107-117 MGD.

13. According to PENNVEST's website, low interest loans are available to individuals to finance repair or replacement of their malfunctioning on-lot system for their primary residence. In recent years, DELCORA was able to qualify for a significant loan to replace a 54-inch diameter force main in the City of Chester. The Southern Delaware County Authority also received a loan for the upgrade of the Beech Street Pump Station, and Chadd's Ford Township Sewer Authority obtained a loan for the Turner's Mill Sewer Plant and collection facilities.

14. In the case of *American Littoral Society, et al. v. EPA*, No. 96-489 (E.D. Pa.), (filed January 1996), the plaintiffs and EPA signed a consent decree which the district court entered on April 9, 1997. The consent decree set out a 12-year schedule for establishment of TMDLs for all WQLS on Pennsylvania's 1996 303(d) list. The decree provides that EPA will establish TMDLs if Pennsylvania does not. The decree also requires EPA to develop regional guidance on 303(d) listing, to review Pennsylvania's continuing planning process under section 303(e) of the Clean Water Act, and to provide future lists and TMDLs to the Fish and Wildlife Service and the National Marine Fisheries Service. The parties also signed a settlement agreement that includes additional commitments by EPA Region III related to listing guidance and assistance to Pennsylvania in implementing the TMDL program. In accordance with the Consent Decree, a DRAFT TMDL Report was completed for the Chester Creek Watershed in February, 2008. The TMDL was not promulgated due to questions regarding the scientific method used to develop the proposed effluent limits. It is anticipated that the report will be revised and accepted eventually because the Chester Creek Watershed is one of the subject watersheds requiring a TMDL under the consent decree. According to the February 2008 TMDL report (Louis Berger Group, Inc.), the current permitted wasteload allocation for total nitrogen from the BRPCP is 1447.4 pounds per day. The allocated wasteload under the proposed TMDL was 363.44 pounds per day, or a 75% reduction. Even if the revised TMDL report includes a higher proposed wasteload allocation for total nitrogen, it is evident that process upgrades will be necessary to meet the effluent limitation. Adding the anticipated nutrient removal capability to the SWDCMA plant will be costly and ignoring this is not sound planning. In addition, the PADEP is also projecting nutrient criteria development by 2014. Nutrient TMDLs are on hold pending those criteria, which will trump the need for TMDLs.

15. As indicated previously, conceptual engineering was conducted to assess potential force main route alignments, develop future flow conditions, and size the pump station. Vendors were contacted for pricing on major pieces of equipment. The engineer's cost estimate was developed

using sound engineering judgment and cost estimating principles. Condemnation is not anticipated as the selected route is primarily on County property and municipal streets. However, as a municipal authority, DELCORA does have the power of condemnation.

16. The Act 537 Checklist will be submitted to PADEP. In recent communications with PADEP, they have stated that they will not review any Act 537 Plans that are not final, and municipal approvals must be included. The checklist is currently under preparation. WESTON interviewed George Crum, Director of the SWDCMA, regarding financial implications to users. The SWDCMA will realize cost savings upon the expiration of the agreement with Middletown Township. Costs to decommission the BRPCP are the responsibility of the SWDCMA. Some existing tanks and other features may be designated to provide equalization for the proposed pump station during final design; therefore, the proposed decommissioning schedule and costs are yet to be evaluated. Costs to construct the new pump station and force main have been preliminarily estimated at approximately \$54/edu per year, based on the preliminary cost estimates. It is not known at this time how much the savings from Middletown will off-set the anticipated costs of decommissioning the BRPCP and constructing the new force main. Mr. Crum anticipates that rates will not change drastically and rates for users will stabilize upon completion of the proposed pump station and force main.

WALTON, MULVENA & ASSOCIATES

Eileen W. Mulvena, P.E.

F. Clark "Sande" Walton, P.E.

March 24, 2011

Council of Brookhaven Borough
2 Cambridge Road
Brookhaven, PA 19015

As background, Brookhaven Borough has been provided a copy of the Weston-prepared Act 537 Plan Revision that considers three alternatives: 1) keep the SWDCMA plant open and perform upgrades to have it meet present and anticipated permit effluent requirements 2) close the plant and construct a pump station and force main that will convey the flow to the Chester DELCORA plant and 3) do nothing. While "do nothing" is always an alternative we are required to consider, I don't know that it has ever been determined to be the best alternative. Therefore, this Plan considers the first two alternatives. Brookhaven Borough has been provided a copy of the Plan as we have residents in the SWDCMA service area who will be impacted by the alternative selected.

I presented Council with a review memo earlier this month at the Council meeting. These comments were forwarded to the County and also to Weston, the engineering company that authored the Plan. A response was received. Based on the limited additional information provided, I suspect that the detailed information I requested simply isn't available as only conceptual design appears to have been completed. Therefore, many of the same concerns remain and with the receipt of the response letter, additional questions/concerns have arisen. I think it is safe to state that the effort that was put into the Plan is considered to be sufficient by the design firm and that to provide us with more detailed information will require time that does not seem to fall within their desired timeframe for submission to DEP. Frankly, unless Council wishes to withhold approval of the Resolution, or DEP returns the Plan to the applicant stating they want additional Planning performed, the level of effort and estimates resulting from the conceptual design will stand.

When one reviews the 537 Plan from the vantage point of Brookhaven, and how Brookhaven residents will be impacted, it is incomplete. There simply isn't enough data to substantiate the estimates for any of the alternatives included in the Plan, nor is there any attempt to quantify the cost to close the SWDCMA plant and what impact that would have on Brookhaven residents which would be part of Alternative 1. I did ask what the cost to close the plant was estimated to be and the response was that it was not included in the Plan as it would be handled by SWDCMA and when the consultant asked SWDCMA for the figures, they do not appear to be available. I would suggest that the development of costs for each of the Alternatives requires costing to be provided for all aspects of the alternative. If something has to happen in order for any particular alternative to occur, then that item should be estimated and included in the total cost. We are at an advantage in that we

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have just recently gone through this same analysis. If you recall, the cost to close the Brookhaven WWTP and the impact on the rate payers was one of the deciding factors in moving forward with the upgrade. Council was very concerned about the cost of keeping the plant open versus closing the plant, and the primary concern was related to the rate that the users would pay. I reviewed this Plan with those sentiments fresh in my mind, and, unfortunately, the question just cannot be answered based on the information presented in the Plan.

There was an earlier 537 Plan approval that permitted a significant diversion of flow from SWDCMA to DELCORA as well as the loss of new business to the SWDCMA plant. Our residents realized increases of several hundred dollars in their annual fee. When that Plan was being considered, it was considered to be the least expensive construction approach. However, the Plan did not address user fees for the users remaining at SWDCMA, of which we would be included. It is noted that if SWDCMA had been operating the plant and collection system in a fashion that satisfied DEP, the idea for the diversion may never have been conceived or implemented. The result is that SWDCMA has continued to struggle with operation and maintenance issues and has many fewer members to share the cost.

So, if Alternative 2 is chosen, SWDCMA will be closed and a reduced customer base will pay and this is an area of concern and one that I think is important to the people of Brookhaven. I'm fairly confident that putting a more detailed effort into developing the estimate for Alternative 1, which is the upgrade of the SWDCMA plant, would result in a lower cost estimate. If you recall, we were told that DELCORA thought the recent upgrade at the Brookhaven plant was underestimated and that it was more on the order of a \$3M project. I had estimated \$1.8M for the full plant upgrade; we will come in at just about \$1.5M. Therefore, I suspect that the conceptual estimate they have prepared is conservative as was the conceptual estimate they prepared for our plant upgrades. This is true of estimates – the more crude the details, the more conservative the estimate.

To a more technical point, if the SWDCMA plant was upgraded as proposed in Alternate 1, it was stated that there was concern over whether the Chester Creek could handle the flows from SWDCMA, with the expected growth in the member communities. Since the objective of Alternate 1 was to identify and estimate necessary upgrades at SWDCMA so that the plant could be compliant and environmentally sound, I do not understand why a statement was made that there is uncertainty that Chester Creek could assimilate the discharge. No response to this question was provided. If it is strictly a flow based concern, then was equalization considered? And this leads to the opposing concern of what is the potential impact to the Chester Creek aquatic life if 4.5MGD are removed? Has this situation been considered?

A statement was made that Middletown Township residents would not accept a threefold increase in their sewer fee so that was another reason to not upgrade the plant as identified in Alternate 1. Our residents' fees are two to two-and-one-half times greater than the fees paid by Middletown residents, who have been the recipients of a well-negotiated agreement for many years. Ultimately, however, they will pay higher fees once the existing contract between Middletown and SWDCMA expires. The average Middletown household pays \$250. In contrast, the cost to a Brookhaven household in the SWDCMA service area is in the range of \$500-600, according to a few Brookhaven residents I've spoken to. And, this is before we include the costs related to the proposed alternatives.

To restate the primary issue with Alternate 1, the estimate has been presented as conceptual and therefore it is likely too conservative.

Moving to the second alternative, which is the closure of SWDCMA and the diversion of flow to DELCORA, again detailed engineering estimates were not provided for the new construction and as previously stated, none was provided for the closure of the SWDCMA plant. I suspect that the unit pricing used for installation of 30" HDPE pipe is low at \$400/LF. As stated in my earlier review, we pay over \$200/LF for 8" HDPE pipe replacement at the depths they will need to be and with utility conflicts. The response letter indicated that recent bid results were used to prepare the estimate; it would be helpful to know what project location and the extent of the utility interferences they were experiencing. The estimate does not address how utility relocations will be paid, both for public utility relocations and private relocations. It would not be a surprise to find that many water, gas, and sewer service laterals will require relocation. Will the property owners pay these costs and if so, have they been informed of this? This should be a line item in the estimate. It doesn't appear that the affected property owners will benefit from this alternative so I think they will be interested in knowing if they will have any fiscal responsibility. And, if not, the cost for relocations should be a line item in the estimate. Contradictory statements are made regarding wetland mitigation. Clarification and an estimate for some level of mitigation should be included.

I am convinced that both Alternate 1 and Alternate 2 can be physically achieved, given sufficient capital expense. But, which one will be less expensive is unclear to me.

A critical question is whether the DELCORA plant can handle all the flow that it can potentially receive under the current Planning approvals and this proposed Plan. The current Plan in front of us indicates that a rerating to 50MGD was approved by DEP. I thought this rerating was included in the "Act 537 Sewage Facilities Plan for the Treatment and Disposal of Wastewater from the Central Delaware County Authority Service Area" to provide for diversion of flow from the central part of the county that currently is treated in Philadelphia to the Chester DELCORA plant. It was also to address new member flows from Upper Providence, Edgmont, and Newtown Townships. In that Plan, which I believe is still considered an active Plan, the alternative to construct a new pump station and force main from the old CDCA plant to DELCORA in Chester was selected because it would reduce the flows going to the Philadelphia plant for treatment and therefore result in much lower fees for those communities in the eastern part of the County. Significant savings were to be realized by reducing the flows sent to Philadelphia for treatment both on the average day as well as wet weather periods as there are high penalties imposed during the wet weather events.

In the Plan in front of us, this same rerating is being utilized to handle the flows proposed to be diverted from SWDCMA. In this Plan, it is stated that the flows from CDCA can be sent to Philadelphia if need be. Can flows be diverted from Chester back to Philadelphia without Planning being required? And, more to the point, should the diversion that is currently approved from CDCA to Chester be done at all if the savings projected during that Plan analysis can't be realized? Should millions of dollars be spent to divert flows from CDCA from the Philadelphia treatment plant to DELCORA, only to send the flows back again when the SWDCMA flows require such action? The whole premise of the CDCA Plan may be in question. There are agreements in place in the CDCA system, and work has actually begun to bring the selected Alternative to being. I would suggest that this requires additional Planning and that the CDCA membership should be informed of the potential reduction or loss of any

savings. These savings were to be shared to the Muckinipates and Darby Creek Joint Authority members as well, so perhaps they need to be informed as well.

And, if both Plans get executed, are any upgrades required at the Chester treatment plant? If any are required, then they should be identified in the Plan and included as part of the cost for that alternative.

In summary, please clarify how the total flow distribution is envisioned to occur and provide revised projected savings and costs for the CDCA Plan if it is affected by the SWDCMA diversion.

I would suggest that the potential viability of having both Plans successfully implemented warrants a closer look at the SWDCMA upgrade alternative. I think the CDCA membership has moved far enough along that there is a commitment to that approach.

What we do know now for the Plan in front of us is that the projected cost to the Brookhaven residents to construct the selected alternative of closing SWDCMA and diverting the flow to DELCORA is \$54/EDU. It was not indicated over what period that fee would be charged. Is this a one-time surcharge, or is it to be an annual fee for some number of years? While the \$54/EDU sounds very reasonable, it does not include the impact of the closure of the plant.

In summary, if Council wishes to have more information, the Resolution should not be adopted at this time. I had planned on suggesting some protective measures to be added to the Resolution and these included:

1. The Borough will investigate alternative treatment options, namely the diversion of some if not all of our residents' flow from SWDCMA to the Brookhaven WWTP; and
2. Require the upgrade to the SWDCMA plant be reevaluated at the detail design level if the construction bids for the diversion come in at 20% higher than the construction estimate included in the Plan.

Unfortunately, in speaking with DEP, I was told that if we attach conditions to the Resolution, the Plan will be returned to the applicant for resolution with Brookhaven prior to DEP review. If Council approves the Resolution, the Plan will be presented to DEP as is. DEP thought it would be helpful to have my initial comments, the Weston response, and this memo so I will be forwarding these.

As stated in my initial review memo, I am not concerned about non-substantive statements and do not feel there is value in paying to have me itemize each one. I would ask Council to let the document remain as it is as it relates to those items.

Sincerely,

Walton, Mulvena & Associates
Division of NDI ENGINEERING COMPANY



Eileen W. Mulvena, P.E.
Program Manager

**RESPONSE TO COMMENTS FROM BROOKHAVEN BOROUGH PREPARED BY
WALTON, MULVENA & ASSOCIATES 24 MARCH 2011**

DELCORA received a second set of comments from WMA on Friday, 25 March 2011. The comments were discussed at a Brookhaven Council Workshop Meeting on Monday, 28 March 2011. The comments are attached to this plan with paragraph numbers added to facilitate response in this document.

Paragraphs 1 and 2: Introductory statements that require no changes to the plan.

Paragraph 3: Paragraph 3 contains a request to quantify the cost to close the SWDCMA plant and quantify the impact of the BRPCP closure costs on Brookhaven Borough residents. By way of background, there is a current disparity in fees paid by customers of the SWDCMA. As noted in Brookhaven Borough's review, residents of Middletown Township benefit from a well-negotiated agreement that is currently valid until October, 2019, and holds down the rates that they pay for sewage treatment. Residents of the other municipalities in the service area, including Brookhaven Borough, essentially subsidize sewage treatment for residents of Middletown Township.

Response: George Crum, Executive Director of the SWDCMA provided the following information by phone: Upon diversion of flow to DELCORA, approximately \$400,000 to \$500,000 will be required to clean the digesters to provide odor control and perform sludge handling. SWDCMA plans on decommissioning the plant slowly over time, paying from operating funds instead of borrowing capital. Disposition of all of the existing facilities at the BRPCP is unknown at this time. Some components may be able to be sold for salvage value, some components (tanks) may be able to be reused. There is no planned use for the property other than the pump station, so there is no urgency to demolish the existing structures. SWDCMA projects no increases in fees to Brookhaven Township users. Rates are currently \$475 to \$530 per year for Brookhaven users including the subsidy for Middletown Township. The advantage of diverting flow to DELCORA is that the agreement with Middletown Township will end 5 years earlier than if the BRPCP stays in operation. The SWDCMA reported that diversion to DELCORA will bring rate stability to their customers.

A description of the plant closing cost has been added to the plan. Descriptions of the capital costs for each alternative amortized over a 20-year period and divided by the number of SWDCMA customers have been added to the plan.

Paragraph 4: Paragraph 4 discusses an historic diversion of a portion of the SWDCMA service area to DELCORA. This has no bearing on this plan and no changes to the Draft Plan have been made. Historically, the BRPCP was hydraulically overloaded, necessitating the diversion. The current plan does not include diversion of a portion of the customer base or continued operation of the plant. No changes were made to the plan in response to this comment.

Paragraph 5: Paragraph 5 discusses the cost estimates and suggests that the cost estimate for Alternative 1 is high since it is based on a conceptual design.

Response: Concept level engineering was performed for Alternative 1 (upgrade the BRPCP) and the three alternative force main alignments in Alternative 2 (diversion to DELCORA). If the cost estimates are high because they're based on concept-level designs, then they are high across the board. (The estimates were done at the same time using the same source data). The SWDCMA provided a spreadsheet containing cost estimates to operate and maintain the BRPCP through 2019, totaling \$9 Million in 2010 dollars. WESTON estimated an additional \$28 Million to upgrade the plant to provide denitrification. The total for keeping the plant open and meeting future effluent limits is estimated to be \$35 Million. The cost estimated for the selected force main alignment is \$11.8 Million.

Paragraph 6: Paragraph 6 restates the question of assimilative capacity in Chester Creek and questions why the concern is presented in the plan. This paragraph also asks whether equalization was considered and what will happen when 4.5 MGD is removed from Chester Creek.

Response: Clarification was added to the plan on p. 6-6 referring to a permitted wasteload allocation. This Act 537 Plan presents a long-range strategy for the service area to be prepared for likely reductions in the permitted effluent limits for Nitrogen and Phosphorus. The activated sludge process at the W RTP currently allows for the discharge of higher quality effluent. The total Nitrogen discharge concentration over the past 3 years has been 21 mg/L from the BRPCP. Significant upgrades to the BRPCP will be necessary to meet the likely effluent limit of 3 mg/L for total Nitrogen. DELCORA's process (highly aerated) produces a current average total Nitrogen effluent concentration of 1 mg/L.

Equalization is not currently provided at the BRPCP. The current practice is to drain tanks if a major rainstorm (more than one inch in 24 hours) is predicted with approximately 36 hours advance notice. SWDCMA has reported that a very large tank with a 3 to 6 MGD capacity would be necessary to provide equalization if the plant were to remain in operation. Costs for providing equalization that the BRPCP have not been estimated and would be in addition to the \$9 million estimate for operation and maintenance upgrades through the year 2019; and additional to the estimated costs to upgrade the existing treatment to provide denitrification.

Removal of the existing discharge from Chester Creek has not been studied. No edits to the plan have been made in response to Paragraph 6.

Paragraph 7: Paragraph 7 states that, "A statement was made that Middletown Township residents would not accept a threefold increase.....". It describes the disparity between the rates paid by Middletown and by the customers residing in other municipalities.

Response: After 2019, sewage treatment costs for all customers can be assessed evenly. The review comment inaccurately transcribes the text from the draft plan. The text says that under a new agreement, Middletown users would most likely increase to triple the existing rates. The statement that they would not accept a threefold increase in their sewer fees does not appear in the text. No change to the draft plan was made in response to Paragraph 7.

Paragraph 8: Paragraph 8 restates the author's opinion that the cost estimate for Alternative 1 is too high. No change has been made to the draft plan in response to Paragraph 8.

Paragraph 9: Reviewer presents opinion that costs for 30-inch HDPE force main are too low. Paragraph 9 also questions whether owners will pay to relocate sewer service laterals. A reference is also made to contradictory statements appearing in the plan regarding wetlands mitigation.

Response: At the workshop meeting, WESTON presented a comparison to costs for an existing project to install a 54-inch ductile iron force main along Route 291 in Chester City (\$545 per linear foot). WESTON's cost estimate for this project was almost exactly equal to the average bid. The PNDI search resulted in no conflicts. A general permit will be used for the stream crossings. No wetlands mitigation is anticipated as part of this project. No edits to the plan were made in response to Paragraph 9.

Paragraph 10: Reviewer's statement that, based on costs presented in the plan, which alternative is less expensive is unclear.

Response: No edits made to the plan in response to Paragraph 10.

Paragraph 11: Paragraph 11 questions the capacity at the DELCORA WRTP to accept flow from SWDCMA. CDCA flows were included in the capacity calculations. At the workshop meeting, DELCORA reported that there is adequate capacity at the WRTP to treat flows from SWDCMA. No edits to the plan were made in response to Paragraph 11.

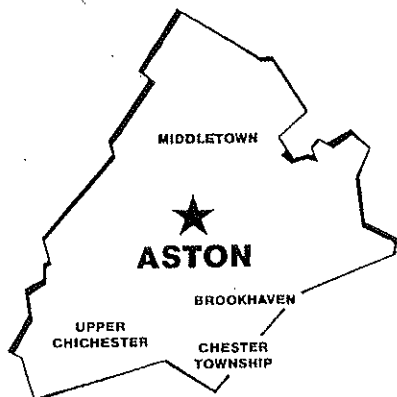
Paragraphs 12, 13, 14, and 15: These paragraphs expresses concern about the competing interests of the CDCA and other authorities, and the SWDCMA regarding treatment capacity at the WRTP. At the workshop meeting, DELCORA reported that there is adequate capacity at the WRTP to treat flows from SWDCMA. No edits to the plan were made in response to Paragraphs 12, 13, 14, and 15.

Paragraph 16: Paragraph 16 discusses the capital costs that have been estimated for Alternative 2c.

Response: The capital costs have been estimated based on a financing period of 20 years to be \$54 per year per edu. This information was presented at the workshop meeting. A statement of the annual capital cost for each alternative, financed over a 20 year period has been added to the economic evaluation in Chapter 6 of the draft plan.

Paragraphs 17 and 18: Paragraphs 17 and 18 discuss adding conditions to the municipal resolution. No edits have been made to the draft plan in response to Paragraphs 17 and 18.

Paragraph 19: In Paragraph 19, the reviewer did not provide to correct any erroneous statements made in the beginning of the plan. At the workshop meeting, WESTON stated that the municipalities are relied upon to provide correct information for inclusion in the Act 537 Plan. Neither the Delaware County Planning Department, DELCORA, nor WESTON wishes to produce a document containing statements that require correction. A request was made to submit corrections in any format for inclusion in the final version of the Act 537 Plan.



Southwest Delaware County Municipal Authority

April 27, 2011

Brookhaven Borough Council
#2 Cambridge Road
Brookhaven, PA 19015

Attention: John Wilwert Jr., Council President

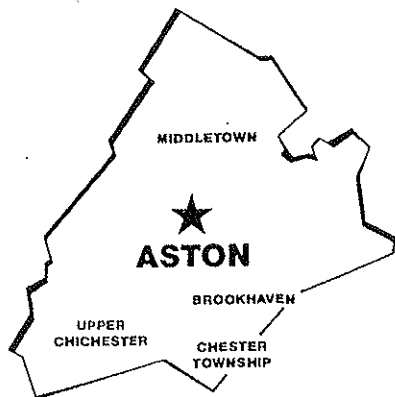
Dear Council Members,

Thank you for attending our April 19th 2011 Board workshop and advising us of your concerns that caused Brookhaven to not except the Delaware County Planning Department and Delaware County Regional Water Quality Control Authority (Delcora) latest draft 537 Plan that included a section of Brookhaven Borough presently serviced by the Southwest Delaware County Municipal Authority (SWDCMA). Although a number of items were discussed, we gathered that your questions and concerns can be consolidated into the following:

1. What is SWDCMA basis for making this decision to go to Delcora and is this approach the most cost effective approach for Brookhaven's residents being serviced by SWDCMA?
2. How will this change affect Brookhaven's present service & flow status to SWDCMA? Since SWDCMA owns the sewer system, will Brookhaven need to find alternative service since they have rejected the 537 Plan?
3. What will the cost impact be to the effected residents of Brookhaven now and in the future?

We are confident that our responses below will satisfy your concerns without burdening you with a lot of details. The detailed information for this decision was carefully evaluated by the SWDCMA Board and a decision made to transfer flow to Delcora.

There were a number of factors considered prior to SWDCMA deciding to send the flows to Delcora for treatment. In 2004 SWDCMA had converted to a water usage approach so as to provide their customers with a fair and equitable rate schedule. However, the Middletown (MTSA) customers did not contribute to this new rate as they enforced a 1968 agreement that limited their contribution as they have any prior rate adjustment and therefore all other ratepayers and municipalities were contributing to the shortfall due to MTSA's lack of participation. The diversion to Delcora as presently scheduled will end this subsidy of MTSA five (5) years earlier than the expiration of the contract in 2019.



Southwest Delaware County Municipal Authority

The cost to treat the wastewater was escalating annually and the cost to treat a single gallon of wastewater at the existing SWDCMA Baldwin Run Facility had already exceeded the cost to treat at Delcora's facilities. Consideration of delaying the transfer of flows to Delcora introduced the possibility from Delcora for connection fees. Although no specific designs were done, experience and knowledge of the condition of the Baldwin Run Plant indicated that operation and maintenance requirements over the next 10 years will escalate the rate of increase in rates to SWDCMA customers. In addition the cost to treat was anticipated to increase substantially as the Total Maximum Daily Load (TMDL) to the receiving stream was lowered by regulators. The SWDCMA Board could only see rate increase requirements escalating and the offer provided by Delcora was deemed to provide the present SWDCMA customers a much slower escalation in rates for the foreseeable future.

It is SWDCMA's intention that the Brookhaven customers presently serviced by SWDCMA will continue to be serviced with a transfer to Delcora's treatment when that happens (scheduled in 2014). The Brookhaven customers will continue to receive their bills from SWDCMA. The sewers within Brookhaven will continue to be maintained by SWDCMA and there is no direct relationship planned between Brookhaven and Delcora for these Brookhaven customers.

Since there is a record of a rejection of Delcora's recent 537 plan update, the Brookhaven Council will need to withdraw that objection (or submit a new letter of acceptance) and inform the Delaware County Planning Department, Delcora and PADEP so that the final version of the 537 plan update submitted will include the relevant Brookhaven Borough sewer flows to SWDCMA if the Council so chooses..

The SWDCMA board does not anticipate a change in the rates due to transfer of flow to Delcora. The cost of the Delcora Pump station and force main to facilitate this transfer will be included in a capital rate that will be spread over the term of the loan for these facilities. Since the agreement with Middletown expires when flow is diverted to Delcora, SWDCMA anticipates that this shared rate will be equitably distributed between all the participants being serviced by these new facilities. SWDCMA will continue to maintain and manage the collection system after diverting flow to Delcora.

Although we have a consent order that requires that we reduce the inflow and infiltration (I&I) into the collection system, the cost of such remedies would have to continue as is, SWDCMA anticipates a more focused effort as any reduction in I&I can achieve a savings to all our customers in treatment costs. Our estimates, based on Delcora's present rates, indicate that the projected rates will be below what SWDCMA's projected rates would be considering all the upgrades we would have to complete at the Baldwin Run Treatment Facility.



Southwest Delaware County Municipal Authority

In addition to the above, SWDCMA is also looking into converting the Baldwin Run Treatment Facility Site into a beneficial use. Plans for this use and/or decommissioning of the plant are presently being investigated with the intention of minimizing any further cost to the customers.

Please contact us for any further questions you may have. We look forward to your cooperation and moving forward as one of SWDCMA's valued customers.

Respectfully,

George Crum
Authority Director
Southwest Delaware County Municipal Authority

SOUTHWEST DELAWARE COUNTY MUNICIPAL AUTHORITY

STANDARD RIGHT-TO-KNOW REQUEST FORM

DATE REQUESTED: 5/4/11

REQUEST SUBMITTED BY: E-MAIL U.S. MAIL (FAX) IN-PERSON

NAME OF REQUESTOR: Borough of Brookhaven

STREET ADDRESS: 2 Cambridge Road

CITY/STATE/COUNTY (Required): Brookhaven, Pa 19015

TELEPHONE (Optional): 610-874-2557

RECORDS REQUESTED:

*Provide as much specific detail as possible so the Authority Official can identify the information.

please see attached

DO YOU WANT COPIES? (YES) or NO

DO YOU WANT TO INSPECT THE RECORDS? YES or (NO)

DO YOU WANT CERTIFIED COPIES OF RECORDS? YES or (NO)

RIGHT TO KNOW OFFICER: George Crum

DATE RECEIVED BY THE AUTHORITY:

AGENCY FIVE (5)-DAY RESPONSE DUE:

***Public bodies may fill anonymous verbal or written requests. If the requestor wishes to pursue the relief and remedies provided for in this Act, the request must be in writing. (Section 702.) Written requests need not include an explanation why information is sought or the intended use of the information unless otherwise required by law. (Section 703.)*

OPEN RECORD/RIGHT-TO-KNOW REQUEST FOR SWDCMA

Budget documents which identify line items related to I/I reduction effort required by the consent order.

Site plan of the existing plant in which capacity/volume of each tank and purpose of each component is identified along with hydraulic profile

O&M manual for the operations of the plant

Any report detailing the upgrades required to comply with the permit and/or anticipated permit and the limits that were used for each parameter during the design evaluation.

Any estimates with regard to any proposed upgrades including information regarding the engineer who prepared it.

The zoning map for the plant parcel and the corresponding ordinance governing the district.

Any and all agreements between SWDCMA and the Borough of Brookhaven or the SWDCMA and any Brookhaven developers (specifically referencing the Segal Tract, the Lukens Tract, the Shepherd Tract, McGarry & Cella and/or Walsh) related to the collection, conveyance, and treatment of sewage from the Brookhaven Borough units.

Current NPDES Discharge Permit

Written documentation of proposed permit limits from DEP, EPA, or other regulatory agency

Breakdown of budget for the operation and maintenance activities of the plant, including equipment replacement, etc.

Breakdown of budget for the operation of the collection/conveyance system.

2010 Chapter 94

Response to DEP review letter of 2009 Chapter 94

The DEP consent order and agreement and semiannual progress reports provided to DEP.

Any documentation relating to the current proposed rate for Brookhaven residents if the flow is diverted to DELCORA including: detailed narrative and cost estimate for decommissioning of the SWDCMA plant, collection costs including maintenance/replacement of mains, lateral, rehab of manholes, new frames & covers, televising, root treatment, blockages, treatment costs, construction of force main/pump station costs, consent order costs, existing debt repayment, if there is debt.

Any and all agreements between the SWDCMA and the Township of Middletown.

The most recent NPDES Part II construction permit application including modules, engineer's design report, and drawings.

** Transmit Conf. Report **

P. 1

May 4 2011 14:31

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SOUTHWEST DELAWARE COUNTY MUNICIPAL AUTHORITY

STANDARD RIGHT-TO-KNOW REQUEST FORM

DATE REQUESTED: 5/4/11
REQUEST SUBMITTED BY: E-MAIL U.S. MAIL ☒ FAX ☐ IN-PERSON

NAME OF REQUESTOR: Borough of BrookhavenSTREET ADDRESS: 2 Cambridge RoadCITY/STATE/COUNTY (Required): Brookhaven, Pa 19015TELEPHONE (Optional): 610-874-2557

RECORDS REQUESTED:

*Provide as much specific detail as possible so the Authority Official can identify the information.

please see attachedDO YOU WANT COPIES? ☒ YES ☐ NODO YOU WANT TO INSPECT THE RECORDS? YES ☐ or ☒ NODO YOU WANT CERTIFIED COPIES OF RECORDS? YES ☐ or ☒ NORIGHT TO KNOW OFFICER: George Crum

DATE RECEIVED BY THE AUTHORITY:

AGENCY FIVE (5)-DAY RESPONSE DUE:

"Public bodies may fill anonymous verbal or written requests. If the requestor wishes to pursue the relief and remedies provided for in this Act, the request must be in writing. (Section 702.) Written requests need not include an explanation why information is sought or the intended use of the information unless otherwise required by law. (Section 703.)"

MEMORANDUM

WALTON, MULVENA & ASSOCIATES

100 Grove Rd. PO Box 518 Thorofare, NJ 08086

Phone: (856) 848-0033 Fax: (856) 848-0277

Division of NDI ENGINEERING COMPANY



DATE: 7 March 2011
TO: Brookhaven Borough Council
FROM: Eileen Mulvena, P.E., F. Clark Walton, P.E.
RE: Review of Western Delaware County Act 537 Plan Update for the Chester-Ridley Creek Service Area dated Final Draft 20 January 2011

The referenced document has been reviewed and while there are several statements that require correction in the beginning chapters, the substantive comments are relevant to Chapter 6. The various alternatives have been identified. The upgrade option is vague as it identifies various types of improvements but stresses the difficulties in maintaining the upgrades or the expected life to be realized. It is suggested that the life of the various pieces of equipment/tankage can be estimated and that the lifecycle costs for each to achieve a 50-yr life can be estimated in more detail than has been provided. It is likely that additional pre-design effort was done to at least size the various tanks in order to meet the desired/required performance criteria; it would be very helpful to have them added to the report to provide a feel for the changes needed. A plan showing the footprint of the existing plant and the expected improvements would also be helpful to envision the difficulties that perhaps they envision in incorporating these improvements.

1

For the construction of the force main and pump station, the pricing is unclear as to how the existing plant will be addressed. What is the phase out cost associated with removal of this use? How is this to be assessed? Is the cost to be shared only by existing users or all users? Shouldn't some attempt to quantify this be made so that communities affected by the phase-out will be aware of the costs associated with the pump station as well as the phase-out?

2

For all of the proposed alternatives, is the existing interceptor/conveyance system feeding the plant and/or proposed station adequate to handle all of the anticipated flow? Will any improvements be required at any section of the system to accommodate the proposed increases now or is this something that will be determined on a case-by-case basis as applicants come

3

forward? It is suggested that having an idea of that figure would be very helpful to those communities anticipating growth as they will likely be responsible for payment of those improvements in full. Or is the intent to have all the communities share in any interceptor upgrades? I think we should know if Brookhaven residents are going to be assessed for upgrades to the interceptor that may become mandatory due to others' connections. It is understood that all lines require maintenance; but, how much is maintenance and how much is due to new member flows? Does Council want this quantified more clearly?

As for the estimate for the pump station, it does appear to be low. The site pricing seems especially low. Of course, it is such a low part of the whole that even increasing it from \$64,000 to \$100,000 makes virtually no difference to the total cost. Have preliminary design drawings been prepared? It would be very helpful to see what the scale and scope of the pump station design is as it will help in evaluating the estimate provided.

4

For the force main pricing, I suggest that it is underpriced. The price per foot for Alternate 2A as presented is \$400. It is likely that the price to install such a large pipe (30") in developed areas on a state road could be nearly double. The work hours will be limited to 9AM-3PM. Traffic control will be costly. Existing utilities are in place and many changes in direction may be required. We are getting pricing over \$200/LF for local roads with 8" standard thickness pipe. I would suggest that this pricing be revisited and that the estimate be broken down by section, traditional trench versus boring. As for the boring, what process is involved in going under an interstate? What permits, what jurisdictions are involved? It would be helpful to understand the process, or if there are any additional requirements.

5

For Alternatives 2B and 2C, it is suggested that the price/foot will be much higher than estimated. Has any preliminary engineering been done to evaluate the constraints that will be realized? Again, it is suggested that unit pricing estimates be prepared that reflect the different areas of work. Also, if it is thought that some wetland mitigation is required, some value should be assigned at this time.

6

Have easements been addressed already? The main purpose for this is if owner(s) wish to be compensated, legal and easement costs will rise. It is suggested that it may be appropriate to put some estimate in there for that.

7

As for the engineering costs, this project will require substantial amounts of engineering if the design is to reflect the existing conditions/constraints to be encountered. Permitting alone can be time-consuming and can add up in cost. It is suggested that in addition to the permits, the design of the potential wetland mitigation, pump station design, interceptor evaluation, force main design, utility conflict analysis, and preparation of the plans and specs suitable for construction will be in excess of 8.5% of the construction cost. Perhaps there will be some cost savings due to the sheer size of the project; but, there appear to be many obstacles that are not found during smaller pipe installation projects.

8

Although the wetland issue is raised, it does not appear that direction has been given. It is recommended that the DEP and ACOE be contacted and some idea of a scope be developed. A field visit and discussions should yield valuable assistance to the applicant in estimating these costs or whether they are relevant.

9

I think the most helpful information to understand the variables involved in this proposal would be to have drawings that reflect the proposed plan in greater detail. Is the pipe to be installed in the cartway in some areas, under sidewalk in others? Does it affect any structures that are at the curblane? Are there areas where there are bridge structures that will require the force main to be routed some distance from the structure? Even if tax maps are used and the proposed routes are indicated along with any known obstacles/structures/ROW issues.

10

In Section 6.5, is this addressing all of the current flow going to the Chester plant? Does it include the approved flows being added to the CDCA from the new members? Have these connections been made yet? If not, are they part of the .25MGD estimated for new connections in 2010-2015? That number seems light for the new member communities if that hasn't already occurred. It is possible that this flow has already been added to the system. I do not know the current status of the new member connections.

11

What is the peak factor used for the Chester plant? It is stated that a rerating has occurred. What is the total anticipated average flow and what is the proposed anticipated peak flow following the phase-out of the SWDCMA plant?

12

One point that is not substantive; but, would be helpful to get clarification on is Section 7.6.1 seems to indicate Pennvest loans are available to individuals. Is this the case? If it is addressing municipalities, it should be noted that it is difficult for Delaware County communities to qualify.

13

Several times it is mentioned that Chester Creek has limited assimilative capacity. It would be helpful to have this quantified for both existing conditions and what would be anticipated. This seems to be the crux of the decision to close SWDCMA and therefore, additional quantitative information would be helpful in understanding this concern.

14

In summary, it is likely that some level of design engineering has been done to determine the estimates provided. It would be appropriate to have additional information/clarification of these line items included them in the Plan so that the estimates could be reviewed/compared to the various plans. In addition, a greater breakdown of the pricing would be helpful and if the easement issues have been investigated and resolved, knowing that there is some cost or no cost for the easements is helpful. If this information is not available, I would suggest that some value be assigned as easements can be costly. Condemnation proceedings hopefully will not be required as these may extend the timeline of the project.

15

There is no discussion of how the project costs will be assessed to the users. The checklist identifying the line items required to be addressed in this Act 537 has not been included. Therefore, it is unknown if any consideration as to how this is expected to be paid for is required to be provided. If it is not required under the scope of work approved by DEP, it is suggested that the Borough ask for this information as this will be of great interest to those Borough residents affected by this proposal. The cumulative cost to the affected residents could be steep depending upon how the improvements are to be assessed and over what period of time.

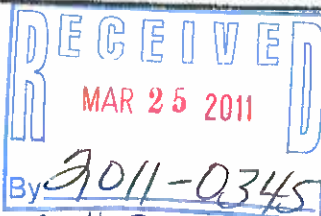
16

Orig. File Copy & PDF

Eileen W. Mulvena, P.E.

March 24, 2011

Council of Brookhaven Borough
2 Cambridge Road
Brookhaven, PA 19015



*CC: CVH, R. Lehman, Weston
Beth Bolt, Weston, JLS, Ben Linowski*

RECEIVED
MAR 25 2011
BROOKHAVEN BOROUGH

As background, Brookhaven Borough has been provided a copy of the Weston-prepared Act 537 Plan Revision that considers three alternatives: 1) keep the SWDCMA plant open and perform upgrades to have it meet present and anticipated permit effluent requirements 2) close the plant and construct a pump station and force main that will convey the flow to the Chester DELCORA plant and 3) do nothing. While "do nothing" is always an alternative we are required to consider, I don't know that it has ever been determined to be the best alternative. Therefore, this Plan considers the first two alternatives. Brookhaven Borough has been provided a copy of the Plan as we have residents in the SWDCMA service area who will be impacted by the alternative selected.

I presented Council with a review memo earlier this month at the Council meeting. These comments were forwarded to the County and also to Weston, the engineering company that authored the Plan. A response was received. Based on the limited additional information provided, I suspect that the detailed information I requested simply isn't available as only conceptual design appears to have been completed. Therefore, many of the same concerns remain and with the receipt of the response letter, additional questions/concerns have arisen. I think it is safe to state that the effort that was put into the Plan is considered to be sufficient by the design firm and that to provide us with more detailed information will require time that does not seem to fall within their desired timeframe for submission to DEP. Frankly, unless Council wishes to withhold approval of the Resolution, or DEP returns the Plan to the applicant stating they want additional Planning performed, the level of effort and estimates resulting from the conceptual design will stand.

When one reviews the 537 Plan from the vantage point of Brookhaven, and how Brookhaven residents will be impacted, it is incomplete. There simply isn't enough data to substantiate the estimates for any of the alternatives included in the Plan, nor is there any attempt to quantify the cost to close the SWDCMA plant and what impact that would have on Brookhaven residents which would be part of Alternative 1. I did ask what the cost to close the plant was estimated to be and the response was that it was not included in the Plan as it would be handled by SWDCMA and when the consultant asked SWDCMA for the figures, they do not appear to be available. I would suggest that the development of costs for each of the Alternatives requires costing to be provided for all aspects of the alternative. If something has to happen in order for any particular alternative to occur, then that item should be estimated and included in the total cost. We are at an advantage in that we

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have just recently gone through this same analysis. If you recall, the cost to close the Brookhaven WWTP and the impact on the rate payers was one of the deciding factors in moving forward with the upgrade. Council was very concerned about the cost of keeping the plant open versus closing the plant, and the primary concern was related to the rate that the users would pay. I reviewed this Plan with those sentiments fresh in my mind, and, unfortunately, the question just cannot be answered based on the information presented in the Plan.

There was an earlier 537 Plan approval that permitted a significant diversion of flow from SWDCMA to DELCORA as well as the loss of new business to the SWDCMA plant. Our residents realized increases of several hundred dollars in their annual fee. When that Plan was being considered, it was considered to be the least expensive construction approach. However, the Plan did not address user fees for the users remaining at SWDCMA, of which we would be included. It is noted that if SWDCMA had been operating the plant and collection system in a fashion that satisfied DEP, the idea for the diversion may never have been conceived or implemented. The result is that SWDCMA has continued to struggle with operation and maintenance issues and has many fewer members to share the cost.

So, if Alternative 2 is chosen, SWDCMA will be closed and a reduced customer base will pay and this is an area of concern and one that I think is important to the people of Brookhaven. I'm fairly confident that putting a more detailed effort into developing the estimate for Alternative 1, which is the upgrade of the SWDCMA plant, would result in a lower cost estimate. If you recall, we were told that DELCORA thought the recent upgrade at the Brookhaven plant was underestimated and that it was more on the order of a \$3M project. I had estimated \$1.8M for the full plant upgrade; we will come in at just about \$1.5M. Therefore, I suspect that the conceptual estimate they have prepared is conservative as was the conceptual estimate they prepared for our plant upgrades. This is true of estimates -- the more crude the details, the more conservative the estimate.

To a more technical point, if the SWDCMA plant was upgraded as proposed in Alternate 1, it was stated that there was concern over whether the Chester Creek could handle the flows from SWDCMA, with the expected growth in the member communities. Since the objective of Alternate 1 was to identify and estimate necessary upgrades at SWDCMA so that the plant could be compliant and environmentally sound, I do not understand why a statement was made that there is uncertainty that Chester Creek could assimilate the discharge. No response to this question was provided. If it is strictly a flow based concern, then was equalization considered? And this leads to the opposing concern of what is the potential impact to the Chester Creek aquatic life if 4.5MGD are removed? Has this situation been considered?

A statement was made that Middletown Township residents would not accept a threefold increase in their sewer fee so that was another reason to not upgrade the plant as identified in Alternate 1. Our residents' fees are two to two-and-one-half times greater than the fees paid by Middletown residents, who have been the recipients of a well-negotiated agreement for many years. Ultimately, however, they will pay higher fees once the existing contract between Middletown and SWDCMA expires. The average Middletown household pays \$250. In contrast, the cost to a Brookhaven household in the SWDCMA service area is in the range of \$500-600, according to a few Brookhaven residents I've spoken to. And, this is before we include the costs related to the proposed alternatives.

To restate the primary issue with Alternate 1, the estimate has been presented as conceptual and therefore it is likely too conservative.

Moving to the second alternative, which is the closure of SWDCMA and the diversion of flow to DELCORA, again detailed engineering estimates were not provided for the new construction and as previously stated, none was provided for the closure of the SWDCMA plant. I suspect that the unit pricing used for installation of 30" HDPE pipe is low at \$400/LF. As stated in my earlier review, we pay over \$200/LF for 8" HDPE pipe replacement at the depths they will need to be and with utility conflicts. The response letter indicated that recent bid results were used to prepare the estimate; it would be helpful to know what project location and the extent of the utility interferences they were experiencing. The estimate does not address how utility relocations will be paid, both for public utility relocations and private relocations. It would not be a surprise to find that many water, gas, and sewer service laterals will require relocation. Will the property owners pay these costs and if so, have they been informed of this? This should be a line item in the estimate. It doesn't appear that the affected property owners will benefit from this alternative so I think they will be interested in knowing if they will have any fiscal responsibility. And, if not, the cost for relocations should be a line item in the estimate. Contradictory statements are made regarding wetland mitigation. Clarification and an estimate for some level of mitigation should be included.

I am convinced that both Alternate 1 and Alternate 2 can be physically achieved, given sufficient capital expense. But, which one will be less expensive is unclear to me.

A critical question is whether the DELCORA plant can handle all the flow that it can potentially receive under the current Planning approvals and this proposed Plan. The current Plan in front of us indicates that a rerating to SOMGD was approved by DEP. I thought this rerating was included in the "Act 537 Sewage Facilities Plan for the Treatment and Disposal of Wastewater from the Central Delaware County Authority Service Area" to provide for diversion of flow from the central part of the county that currently is treated in Philadelphia to the Chester DELCORA plant. It was also to address new member flows from Upper Providence, Edgmont, and Newtown Townships. In that Plan, which I believe is still considered an active Plan, the alternative to construct a new pump station and force main from the old CDCA plant to DELCORA in Chester was selected because it would reduce the flows going to the Philadelphia plant for treatment and therefore result in much lower fees for those communities in the eastern part of the County. Significant savings were to be realized by reducing the flows sent to Philadelphia for treatment both on the average day as well as wet weather periods as there are high penalties imposed during the wet weather events.

In the Plan in front of us, this same rerating is being utilized to handle the flows proposed to be diverted from SWDCMA. In this Plan, it is stated that the flows from CDCA can be sent to Philadelphia if need be. Can flows be diverted from Chester back to Philadelphia without Planning being required? And, more to the point, should the diversion that is currently approved from CDCA to Chester be done at all if the savings projected during that Plan analysis can't be realized? Should millions of dollars be spent to divert flows from CDCA from the Philadelphia treatment plant to DELCORA, only to send the flows back again when the SWDCMA flows require such action? The whole premise of the CDCA Plan may be in question. There are agreements in place in the CDCA system, and work has actually begun to bring the selected Alternative to being. I would suggest that this requires additional Planning and that the CDCA membership should be informed of the potential reduction or loss of any

savings. These savings were to be shared to the Muckinipates and Darby Creek Joint Authority members as well, so perhaps they need to be informed as well.

And, if both Plans get executed, are any upgrades required at the Chester treatment plant? If any are required, then they should be identified in the Plan and included as part of the cost for that alternative.

In summary, please clarify how the total flow distribution is envisioned to occur and provide revised projected savings and costs for the CDCA Plan if it is affected by the SWDCMA diversion.

I would suggest that the potential viability of having both Plans successfully implemented warrants a closer look at the SWDCMA upgrade alternative. I think the CDCA membership has moved far enough along that there is a commitment to that approach.

What we do know now for the Plan in front of us is that the projected cost to the Brookhaven residents to construct the selected alternative of closing SWDCMA and diverting the flow to DELCORA is \$54/EDU. It was not indicated over what period that fee would be charged. Is this a one-time surcharge, or is it to be an annual fee for some number of years? While the \$54/EDU sounds very reasonable, it does not include the impact of the closure of the plant.

In summary, if Council wishes to have more information, the Resolution should not be adopted at this time. I had planned on suggesting some protective measures to be added to the Resolution and these included:

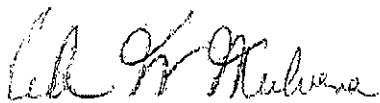
1. The Borough will investigate alternative treatment options, namely the diversion of some if not all of our residents' flow from SWDCMA to the Brookhaven WWTP; and
2. Require the upgrade to the SWDCMA plant be reevaluated at the detail design level if the construction bids for the diversion come in at 20% higher than the construction estimate included in the Plan.

Unfortunately, in speaking with DEP, I was told that if we attach conditions to the Resolution, the Plan will be returned to the applicant for resolution with Brookhaven prior to DEP review. If Council approves the Resolution, the Plan will be presented to DEP as is. DEP thought it would be helpful to have my initial comments, the Weston response, and this memo so I will be forwarding these.

As stated in my initial review memo, I am not concerned about non-substantive statements and do not feel there is value in paying to have me itemize each one. I would ask Council to let the document remain as it is as it relates to those items.

Sincerely,

Walton, Mulvena & Associates
Division of NDI ENGINEERING COMPANY



Eileen W. Mulvena, P.E.
Program Manager

SWDCMA has determined it is in the best interest of all of its customers to decommission its Baldwin Run facility and divert the flow to the WRTP. SWDCMA and DELCORA have signed an agreement to provide the most cost effective service over time to all SWDCMA customers, including the Brookhaven SWDCMA customers. Middletown has also signed a similar agreement and desires to divert its flow from the Baldwin Run facility to the WRTP, whether the Baldwin Run facility closes or not. This means appx. 7,500+EDU would be removed from the Baldwin Run facility along with its future payments which would leave the existing customers, including the SWDCMA Brookhaven customers, to pay all of any future upgrade and/or nutrient removal costs on its own.

Potential options for Brookhaven on the 537 Plan

- Disapprove the 537 Plan
- Approve 537 Plan, but with conditions
- Approved the 537 Plan as presented

Possible results of above actions:

Disapprove the 537 Plan

- Brookhaven could anticipate delay as a result of plan denial which would provide it time to decide or leverage with SWDCMA in negotiations over ownership and cost for the Brookhaven portion of the SWDCMA collection system, and to further study what the costs would be to divert the Brookhaven flow to their existing Brookhaven facility. Delay will cost all of the SWDCMA customers, including its Brookhaven customers more money over time.
- Potential for proposed 537 plan to be changed and submitted to DEP (this option has a very strong potential to actually occur); removing Brookhaven from consideration. Could cause a slight delay in current plan approval timing.
 - Once Brookhaven is removed from plan it will no longer receive the benefit of the SWDCMA agreement guaranteeing no tapping fee charge from DELCORA. After study should Brookhaven determine it in fact would be in its interest to stay in the SWDCMA system they would then be subject to the tapping fee requirement, effectively increasing the cost to do so by \$1,000 per EDU.
 - Brookhaven would be compelled to undertake 537 planning on its own.
 - SWDCMA feels there is a value in the Brookhaven collection system it owns and will expect payment for the system.
 - SWDCMA has incurred debt for both the collection system and the plant in order to treat the flows from its Brookhaven customers, if those flows were to leave that portion of the debt would have to be paid off by the new purchaser of the system.

Approve 537 Plan, but with conditions

- Depending on significance of conditions, this is effectively the same as option one. If delay or re-vote by other municipalities results from proposed conditions would be regarded as the same as option one.
 - Brookhaven's position on negotiations with SWDCMA on collection system acquisition would shift from a position of equal partner to one of need with the basis of comparison the cost of construction of entirely new collection system. In other words SWDCMA's position could change from seeing fair payment for its system and debt portion to a price that is merely less than the cost for Brookhaven to construct its own system (adjusted for age).

Approve 537 Plan as presented

- Brookhaven stays with SWDCMA and flow goes to DELCORA
- -or- Brookhaven studies issue of diverting flow to own plant and makes determination after study to move, institutes its own 537 plan and negotiates with SWDCMA for collection system or constructs new collection system and constructs new FM and PS to move flow to Brookhaven plant. After study Brookhaven determines the best course is to remain in the SWDCMA system to be diverted to DELCORA and continues with the plan as currently presented.
- This alternative allows Brookhaven to keep its options open while allowing the other municipalities to move forward with their needs.
- Brookhaven can expand its study of options to the scope it deems necessary while staying on track with the proposed plan.

Brookhaven Borough Questions and Responses: Chester-Ridley Act 537 Plan, 22 April 2011

For DELCORA,

1. What is the status of the Brookhaven units as a result of the revised Act 537 Plan issued by DELCORA?

Response: If Brookhaven approves the original plan, flow from those units will go to DELCORA for treatment when the pump station becomes operational. If Brookhaven does not approve the original plan and the 'revised' plan is submitted, in a practical sense, nothing will change in the short term. The units in Brookhaven Borough are attached to the SWDCMA collection system. Ultimately, though, Brookhaven Borough is responsible for Act 537 planning. If Brookhaven does not adopt the original plan and the 'revised' plan is adopted, Brookhaven Borough will not be operating according to an approved Act 537 Plan, and will be responsible for development of an alternative planning document, that will determine the status longer term.

2. It is understood that the proposed force main project is considered to be very similar to Rt. 291 project; however, it seems that there are a lot more possibilities of utility conflicts on this proposed project than on the route 291 project. How many utility conflicts did they face on the route 291 project? How much has been spent in resolving them? Who paid for the relocations? The owner or the project?

Response: The alignment for the Chester Force Main was chosen to stay out of the street, thereby minimizing utility conflicts. As construction continues, we anticipate issues with unmarked lines. The project owner would incur the costs of any utility relocations, however, to date, there have

been no relocations. We do expect an issue later in the project with the discovery of an unmarked gas line and water line. These lines were not identified by the respective utilities during design. The project owner (DELCORA) will pay for these costs.

3. Please clarify how the recent letter regarding a revision to the eastern service area may impact the flows at the Chester Plant.

Response: The Eastern Plan Revision has just started. Alternatives have not been identified at this time.

4. It seems worthwhile to investigate removing flow from Philadelphia and sending it to Chester for the cost savings. But, the current Plan indicates that CDCA-diverted flow currently going to Chester could be sent to Philadelphia if need be to handle the SWDCMA diversion. This is in conflict with the alternative analysis used to select the diversion of CDCA flow to Chester. And, if there are times that CDCA flow has to be sent to Philadelphia, then it seems that diverting additional flow from Philadelphia is not a possibility without treatment plant upgrades in Chester. It seems that there should be a slow-down of the SWDCMA Plan approval so that the alternative to send Philadelphia flow to Chester can be evaluated against the diversion of the SWDCMA diversion to Chester vs diversion of Philadelphia flow to Chester and upgrading the SWDCMA plant.

Response: The Central Delaware Force Main was installed to balance flow between two sewer districts: East and West. It provides flexibility to send flow to the WRTP or to Philadelphia. It is not a conflict to send flow each way. It is not a conflict to balance flow between two sewer districts.

5. What is the proposed treatment cost to the SWDCMA residents?

Response: The DELCORA treatment cost per thousand gallons for western wholesale users in 2011 is \$1.77 and is the most descriptive rate

for estimation purposes for the new proposed Chester-Ridley Creek PS and FM to service and treat the waste from the Baldwin Run customers. The \$1.77 figure includes the O&M costs for routine maintenance for the two Southern Pump Stations. This is the figure we have used since the inception of our planning. To this the debt service for the FM and PS needs to be added (estimated at \$54.00 per unit for 20 years). Also SWDCMA charges will also have to be included. 2014/2015 is still years away. The final DELCORA rate will be developed using the rate study DELCORA employs to determine the rates for all user classifications. All users in the same classification will pay the same rate. These charges will be billed to the SWDCMA (or Middletown) who would then bill those municipalities and or individual units they provide collection and/or conveyance to. DELCORA's rates for treatment over the past 10 years have increased less than 2% per year.

6. And, any of the original questions we asked that have not yet been answered.

Response: All questions asked have been answered to the highest degree possible during this planning stage of the proposed alternatives.

MINUTES
BROOKHAVEN BOROUGH COUNCIL
COUNCIL MEETING
MONDAY APRIL 4, 2011
7:30 PM

The regularly scheduled meeting of Brookhaven Borough Council was called to order by Council President, John J. Wilwert, Jr. at 7:30 PM. He led in the Pledge of Allegiance to the American Flag. Ms. Sawicki read the names of the Borough residents who passed away in March. She asked for a moment of silence in their memory.

The record shows the following people seated at the Council Table: Mr. Donaway, Mr. Linowski, Ms. Sawicki, Mrs. McKinley, Mr. Wilwert, Ms. MacKenzie from Beatty Lincke, Mayor Hess, Mrs. Erickson, Mr. McCray and Mrs. Mulvena from Walton, Mulvena and Associates. Ms. Leslie is absent because of illness.

PRESENTATIONS FROM COUNCIL – Mayor Hess

Mayor Hess read a resolution honoring Mr. and Mrs. Hamilton on the occasion of their 66th Wedding Anniversary. They could not be present tonight. Mr. Hamilton just came home from the hospital yesterday. Warner and Betty Hamilton reside at 3709 Mt. Vernon Avenue and were married on August 26, 1944 at Upland Methodist Church. They have lived here since 1953. Ms. Sawicki made the motion and Mr. Donaway the second to adopt the resolution. Motion carried by unanimous vote.

Mayor Hess read a resolution honoring Mr. and Mrs. Cirigliano, 4513 Chandler Drive, on the occasion of their 57th Wedding Anniversary. Dominic and Marian Cirigliano have lived in Brookhaven for 51 years and were married in St. Anthony's Church in Chester, PA. Mr. Donaway made the motion and Mrs. Erickson the second to adopt the resolution. Motion carried by unanimous vote.

Mayor Hess said he would deliver these resolutions to Mr. and Mrs. Hamilton and Mr. and Mrs. Cirigliano.

PUBLIC DISCUSSION

Harry Seth, 3633 North Clearwater Lane asked what would the impact be on the Borough should we elect to adopt the County's Act 537 Plan. He said we have no representation on the Board. He also asked about the status of the Resolution he would like passed concerning backflow valves. Mr. Wilwert said the resolution is in the works.

SCHOOL BOARD REPORT – Dr. Holly Acosta

Dr. Acosta sent Mrs. McKinley an e-mail today saying she will be unable come this evening because of a previously scheduled meeting.

FIRE CHIEF'S REPORT – Chief Montella

For the month of March, Chief Montella reported 4 fire incidents, 17 non-fire incidents, 23 mutual aids and 5 drills. Broken down into monthly calls the incident figures are as follows: 18 structures, 3 rescue/mva's, 5 drills/training, 3 wires, 8 gas investigations, 1 assist to the police, 2 CO detectors, 1 smoke investigation, 3 assists to the ambulance, 1 dumpster and 2 airbanks. Losses showed \$3,000 for structure, \$3,000 for contents for a total of \$6,000. There was \$250,000 worth of property endangered. No injuries to anyone—civilian or

firefighter. The manpower report shows 49 calls with an average of 20 people responding for a total of 740 hours. 5 training sessions with an average of 38 people participating for 456 hours.

Chief Montella said the Opticon appears to be working now but they still are going to have to put the pole across the street from the Fire Company. Mrs. Mulvena said PennDOT wants the Borough to update the plans for the work done under the stimulus money we received.

MINUTES APPROVAL

Mr. Linowski made the motion and Ms. Sawicki the second to approve the minutes from the February 28, 2011 Workshop. Motion carried by unanimous vote.

Mr. Linowski made the motion and Ms. Sawicki the second to approve the minutes from the March 7, 2011 Council Meeting. Motion carried by unanimous vote.

SOLICITOR'S REPORT – Ms. MacKenzie

Ms. MacKenzie had no report this evening other than to ask Mrs. McKinley to put the UCC Resolution on the April 25 Workshop Agenda.

FINANCE COMMITTEE, FIRE COMMITTEE CHAIR, POLICE COMMITTEE CHAIR, CIVIL SERVICE LIAISON AND CLOCK/SIGN COMMITTEE LIAISON – Ms. Sawicki

Ms. Sawicki presented the Bills for Approval List. There were no changes to be made. She made the motion to approve the bills for payment. Mr. Linowski made the second. The list is dated 04/01/11 and the total is \$128,515.53. Motion carried by unanimous vote.

Ms. Sawicki introduced the 2011 Trash Fee Rebate Resolution. She made the motion and Mr. Linowski made the second to adopt the Resolution. Motion carried by unanimous vote. This is Resolution 2011-05.

Regarding the proposed Resolution to Adopting the Delaware County Sewage Facilities Plan-Western Plan of Study, Ms. Sawicki made the motion and Mr. Donaway second **not to adopt** this resolution. Mr. Donaway asked for discussion before the vote was taken. Among other things, Mr. Donaway said we don't know what it is going to take to close Southwest Delaware County Municipal Authority (SWDCMA). We don't have any figures on that. DELCORA says that's SWDCMA's problem. SWDCMA does not have these figures to give us. When we looked at shutting down our own Wastewater Treatment Plant (WWTP), just to bring the land back was a "financial disaster". We need to know SWDCMA's figures. SWDCMA has had economic and other financial problems. The Act 537 plan "is light on details". Mr. Donaway said it's all about the facts and numbers. The plan does not talk about engineering, utility relocation and in order to make an intelligent decision for our residents we need to get these facts. He continued saying that learned that at Workshop a young lady in the audience asked When will Brookhaven make a decision on the Resolution? Mr. Wilwert told her on Monday, April 4. He said he would call for a motion to either adopt the resolution or deny the resolution. Mr. Donaway said it is his understanding that Christine Volkay-Hilditch, the Director of Engineering for DELCORA told Council if they did deny the resolution Council would be doing their own 537 Plan to take the collection system out of DELCORA and putting it somewhere else. She said either way she is submitting the plan on the 2nd of April. She said from her perspective she needed to move on because, basically, little old Brookhaven is the only holdout. Mr. Donaway said Brookhaven Borough Council does not operate under threat. "Little old Brookhaven does its homework". She needs to make an apology to council and our residents.

If she does not, he will go to legal measures. Unless we get more details, Mr. Donaway said he is not voting to adopt the resolution. Mr. Linowski said he thought Ms. Volkay-Hilditch spoke out of turn. The prudent thing to do is review our own 537 plan at a future date. He does not want to see 620 homes in Brookhaven on the sidelines. It is not just DELCORA, its SWDCMA. He would like to see the adoption of this resolution and plan at this time and then do our own Act 537 Plan at a later date.

Mrs. Mulvena asked what happens if we do not pass the resolution? Mrs. Mulvena spoke about a similar plan DELCORA is facing with Philadelphia and they have been able to come up with a plan. She said the DELCORA Plan is like putting 10 pounds of sewage in a 5 pound bag. The Eastern side is much bigger than the Western side. Maybe one plan should be developed for the two areas and called the DELCORA Service Area Plan. Maybe DELCORA should get a 3rd Party in to operate themselves. Mayor Hess said we don't have the figures to know what the cost to our residents will be. Mr. Linowski said DELCORA is not going to take over the SWDCMA system—the lines in the street will still belong to SWDCMA. A \$54 increase will cover the upgrade to the SWDCMA system. That is Southwest's estimate per Mr. Crum. Mrs. Mulvena wants to know what will it cost to close SWDCMA. She said SWDCMA has a Consent Order to get rid of I&I in their system. We are part of getting rid of it. There was no discussion in the plan about how much that is going to cost. Someone said they are going to do it out of "user fees". Our sewer fees are going to go up. Their existing user fees will not cover the I&I. Mr. Linowski said there will be no Middletown Township, who now has a sweetheart deal, in the plan. Mrs. Mulvena said she is worried about collection system costs. 2014 is an ambitious goal. We should slow down and make sure what they are going to do. Mr. Donaway said Council "sent NDI back to the drawing board" when we did our own 537 Plan. SWDCMA sent NDI 17 pages of their comments about our plan. Mr. Wilwert said little old Brookhaven is last but how well did the other 8 communities look at the plan? How much is the rate going to go up? Mrs. Mulvena said either way the fees are going to go up. That \$54 is on top of what they pay now. She said it could be as much as \$1,000. Mr. Linowski said that's what his sister who lives in Aston pays now. Mr. Linowski asked Mrs. Mulvena if the Brookhaven WWTP can take the 620 homes on the SWDCMA line? She said that Trimble Run, School, North Clearwater, Victor are easy to bring into the plant. She didn't know about the other homes. She will ask Dutchland and Keystone how many homes we can conceptually add to the system. She wants a "quick and dirty" number of units. Additional tanks can be installed at our WWTP—there's room down there. Motion ~~not to adopt~~ the resolution approved by a roll call 4-1 vote as follows:

Mr. Donaway – Yes, Do Not Adopt; Mrs. Erickson – Yes, Do Not Adopt; Mr. Linowski – No – Adopt;
Mr. McCray – Abstained because he is employed by DELCORA; Ms. Sawicki – Yes, Do Not Adopt;
Mr. Wilwert – Yes, Do Not Adopt.

MAYOR'S REPORT – Mayor Hess

Mayor Hess said the Police Committee and the Civil Service Commission would like to advertise a Civil Service Test to establish an eligibility list from which we can hire full time police officers. Ms. Sawicki made the motion and Mr. Donaway the second to authorize this test for the reason stated above. Motion carried by unanimous vote.

Mayor Hess gave an update on the SPCA situation. He said we are working with Mario Civera hoping to come up with a solution to this problem before July 1.

Continuing his report, Mayor Hess said he has received several complimentary phone messages about the signs on the stop signs about what happens if one fails to stop. These signs are rotated to different locations every 2 weeks or so. They are working. Also, the trailer that tracks your speed has a camera and sign on it. Smile for the camera.

CHAIR TRAFFIC CALMING, RECREATION COMMITTEE LIAISON AND SCHOOL BOARD LIAISON –
Mr. McCray

Mr. McCray made the motion and Ms. Sawicki the second to approve the Parade Permit for the Baseball/Softball Opening Day Parade on April 9. Motion carried by unanimous vote.

The plastic eggs for the Easter Egg Hunt on April 17 will be stuffed on Monday, April 11 beginning at 6:30 PM here at the municipal center. There are over 5,000 eggs to be filled with wrapped candy. Along with the firefighters and others from the municipal center, residents are urged to help too.

On July 15 at 7:00 PM the Recreation Committee is sponsoring The Theatre in the Park. We haven't found out what the play will be yet.

BUSINESS SUPPORT AND DEVELOPMENT, POLICE COMMITTEE, INSPECTORS DIRECTOR,
HEALTH INSPECTOR DIRECTOR AND CHAIR HEALTH/PUBLIC SAFETY – Mrs. Erickson

Spring is here and Mrs. Erickson urged everyone to clean up their property and to be mindful of your neighbors. The first Wednesday of the month is bulk trash and in May there are two—the first and third Wednesday. Do not put your bulk trash or regular trash out too early. The night before is early enough.

Mrs. Erickson said don't empty swimming pools into the street. The water and chemicals in it eventually gets into the streams.

The Business and Professional Association will be meeting here on Wednesday, April 13 at 7:00 PM. She spoke about coupons the Association is working on for distribution.

COMPREHENSIVE PLANS, PLANNING LIAISON, LONG RANGE DEVELOPMENT, CONDO
ASSOCIATION CHAIR, AND HOLIDAY PARADE – Mr. Donaway

Mr. Donaway reported that the Brookhaven Planning Commission has nothing on their agenda for this month; therefore, their April 26 meeting is cancelled. The same situation existed in March.

A Long Range Planning Committee Meeting should be scheduled but with Ms. Leslie's illness, this will have to wait until she feels better.

Mr. Donaway announced that he, Mr. Linowski, Mr. Feindt, Mr. Walton and Mrs. McKinley will be meeting with the residents of sections V, W, and Y at Hilltop. We are doing this in an advisory capacity. There are problems with the decks and stairs. This is a situation over which we have no control—the residents hold the power and we are going to urge them to get the situation resolved themselves. They certainly can do it if they try. The meeting will be here at 7:30 on April 7.

The Holiday Parade Committee will meet on April 13 at 7:30 PM.

ARBOR/SHADE TREE CHAIR, EMERGENCY MANAGEMENT ADMINISTRATION CHAIR,
RECYCLING CHAIR AND VETERANS' GROUPS – Ms. Leslie

Although Ms. Leslie is ill, she e-mailed the following report to Mr. Wilwert to be read tonight:

Recycling -- Many thanks to our borough residents for helping to bring up the recycling numbers from 2009. Curbside figures went up 12.07 tons for 2010. Keep up the good work and remember we use single stream recycling so everything can be mixed in one bin.

A Shred It Day is scheduled for Saturday, May 14 from 9:00 AM until Noon.

Arbor/Shade Tree -- Williamson Trade School Horticultural Students will be taking on our Butterfly Garden as a service project and will begin to clean up the garden in about 2 weeks. Volunteers are still needed throughout the spring and summer months to maintain the garden and keep it weeded. The glass butterfly has been repaired and will be put out in a few weeks when the weather breaks.

Veterans -- Last November, the former Commander and Founder of the Brookhaven Legion Post 94, Albert Merlino, passed away. To honor him, the Post 94 membership voted to rename the Post "Albert Merlino Memorial Post 94". A special meeting and ceremony will be held at the Municipal Center on Thursday, May 12, 2011 at 7:00 PM at which time the Pennsylvania Department Commander, Pete Wasco, will present the Post with a new Legion Charter bearing the new name. All legion members are urged to attend. A buffet dinner will be served after the ceremony.

The 2011 Memorial Day Ceremony is scheduled for Monday, May 30.

CHAIR ORDINANCE COMMITTEE, CONDO ASSOCIATION, ZONING OFFICER DIRECTOR, ZONING HEARING BOARD LIAISON AND ASSISTANT SCHOOL BOARD LIAISON -- Mr. Linowski

Mr. Linowski made a motion to approve the employment of a Secretary to the Zoning Hearing Board at an hourly rate of \$10.00. Mr. Hampton explained that she failed to show up for a work session he had scheduled with her. Mr. Linowski withdrew his motion.

ENGINEER'S REPORT -- Mrs. Mulvena

The record shows Mrs. Mulvena provided Council with an updated Engineer's Report dated 24 March 2011. This report included Municipal Center Cooling Unit Bid information and Bid Tally Sheet, information necessary for Council to approve a change order to Dutchland in an amount not to exceed \$10,000 for Phase II at the WWTP and updated Act 357 Plan to Divert Flow from SWDCMA to DELCORA plus a memo on the subject.

There were 9 bidders for the Municipal Center Cooling Unit. The bids were tabulated and it is the recommendation of Walton, Mulvena & Associates that the contract be awarded to the lowest apparent bidder, Clipper Pipe & Service, Inc. from Crum Lynn, PA for Lots 1 and 2 for a contract amount of \$69,800. Mrs. Mulvena said she checked Clipper Pipe & Service, Inc.'s references and the company and their work were highly praised. Mr. Linowski made the motion and Ms. Sawicki the second to award the contract for Lots 1 and 2 to Clipper Pipe & Service, Inc. for a contract amount of \$69,800. Ms. Sawicki said this Unit must be installed as soon as possible. Motion carried by unanimous vote.

Mrs. Mulvena spoke about a memo she wrote dated 1/2/11 in which she presented preliminary estimates for Phase II of the project. Council had authorized an \$80,000 change order to Dutchland based on preliminary estimates received. The final contract price barring any additional unanticipated events is \$1,060,315 which requires nearly an additional \$10,000. Mrs. Mulvena suggested that a motion be made that a change order be approved for a not-to-exceed amount of \$10,000 bringing their contract amount from the original \$971,195 to

the total stated above. Ms. Sawicki so moved and Mrs. Erickson made the second. Motion carried by unanimous vote.

Regarding the pre-emption device at W. Brookhaven Road/Bridgewater Road, PennDOT has modified the permit to provide for this. Request for Quotes will be prepared.

The Borough has received from PECO Energy an \$11,492 rebate for the traffic signals along Edgmont Avenue. This is part of the PECO Act 129 Rebate Program.

Mrs. Mulvena read in its entirety the Stormwater Management Tip of the Month. It concerned over-fertilizing and pesticides. She said that soil test kits are available to make sure your ground really needs to be fertilized. Mr. Wilwert asked if he plants a tree and it dies, can he get a soil test to possibly find out what killed the tree? She said yes. Mayor Hess said there is a link to all kinds of stormwater management information on our website.

INSPECTORS' REPORTS

BUILDING INSPECTOR – Mr. Feindt

Mr. Feindt said things seem to be picking up. Getting permit applications for small decks and sheds.

FIRE MARSHAL – Mr. Leslie is working this evening.

BOARD OF HEALTH – Mrs. Warfield

Mrs. Warfield said she needs Council's direction on situations where citations have been issued for trash and debris and the homeowner(s) still have failed to clean up. Mr. Wilwert asked if they have been to court yet? No. Mayor Hess asked what the renters in the one particular property say when they are asked to clean up? Mrs. Warfield said they say they will clean up but don't. The whole citation process sometimes takes up to 3 months. Possibly the District Justice could schedule hearings on these cases as soon as possible. Talk to him. Can we clean up and then lien the property? Mrs. Erickson said the house is not empty. Mr. Linowski, speaking about the house on Chester Creek Road said that the debris was moved from the side of the house to the back of the house. It hasn't gone away. In addition, over the past few months, there appears to be a sewer problem on the front lawn. Southwest Delaware County Municipal Authority was made aware of this by Mrs. Warfield. Neighbors say there is still sewage coming out. Mrs. Mulvena said DEP needed to be called. Ms. MacKenzie wants a copy of the letters sent by the Board of Health on these homes. She said Mrs. Warfield should have both the homeowner and the tenant at the Chester Creek Road location cited.

Mr. Wilwert announced that the Fish and Game Commission has stocked Chester Creek. We got a complaint about the "mansion sewage". That complaint was unfounded. The problem was in Middletown Township, not Brookhaven.

Mrs. Warfield asked if our Public Works Department will be cutting lawns of abandoned, empty properties. Yes and liens will be placed.

Girls Softball is up and running and so is their refreshment stand. Baseball is ready for opening day.

Mrs. Warfield asked to speak with Ms. MacKenzie after the meeting.

ZONING OFFICER – Mr. Hampton

Mr. Hampton said he was away for a few days last week but his work is caught up.

Mr. Hampton said the Zoning Hearing Board received 2 applications for secretary. One girl did not know she had to take notes at meetings and transcribe them. She was no longer interested. The other girl did not show up for an appointment with Mr. Hampton. He waited over an hour for her and she never showed up even though in previous discussions she was told she could bring her children with her. Can't have someone who is undependable. Chairman of the Zoning Hearing Board, Joe Kurman, will ask for a motion to rescind her appointment at their meeting on May 10.

PLUMBING, CODE ENFORCEMENT AND ELECTRICAL – Messrs. J. and R. Grant

Neither gentleman had a report this evening.

PRESIDENT'S REPORT – Mr. Wilwert

Mr. Wilwert said there was a solicitation permit on which the fee should be waived.

Motion by Mr. McCray and second by Mr. Linowski to Waive Permit Fee – Smedley D. Butler Detachment/Marine Corps League to solicit donations in Front of Pathmark on June 25 & 27 and October 1 & 2, 2011. Motion carried by unanimous vote.

Mr. Wilwert said the Public Works staff is out filling potholes. For every one they fill, it seems that two more pop up. Please call the Borough Office to report potholes.

There is a clutch issue with the chipper and it will have to be sent away to be serviced after this round of chipping.

The Public Works Department is going to upgrade the plantings on the Coebourn Boulevard traffic island in addition to the other islands they already did.

Regarding the Cambridge Square issues with an emergency vehicle unable to get through when we had a heavy snowfall and parking caused a plowing problem, Gary Thompson and Mr. Wilwert will be rescheduling a visit to the area with members of the Fire Company.

PUBLIC DISCUSSION

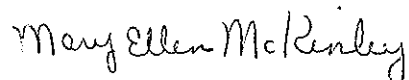
Harry Seth from 3633 North Clearwater Lane asked should the Borough not have had a court stenographer at workshop for the DELCORA presentation. Ms. MacKenzie said no, it was not a hearing. He also spoke about calling Verizon about a problem with a fallen tree on Bridgewater Road. Verizon should be working on the problem to resolve it by the end of the week.

Diane Smith from Bethel Township addressed Council. They are forming a committee. Their group is concerned about lost pets and stray animals. She asked what Council's plans are when the SPCA no longer will take animals from us. Mayor Hess said we are working with Delaware County Council. He has spoken to 7 or 8 other municipalities and we are all having the same problem. We hope to get together over the next several

weeks to put a plan in place. Ms. Smith's group is trying to put something together for the interim. Mr. Wilwert asked Ms. Smith if their group has a game plan. She explained most of their people are volunteers for the SPCA. This is a "grass roots" organization and their volunteers are pet foster parents. If they can help us, they will be glad to. Mr. Wilwert said a lot of us are pet owners. He asked Ms. Smith when their next meeting was. She replied April 13 at 7:00 PM. Mr. Wilwert said we could ask our State Representative for help with the SPCA situation too.


There being no other business to come before Council, Mr. Linowski made the motion and Mr. Donaway the second to adjourn the meeting. Motion carried by unanimous vote.

Respectfully Submitted,



Mary Ellen McKinley
Borough Secretary

I, Mary Ellen McKinley, Brookhaven Borough Secretary, hereby certify that this is a true and exact copy of the approved Minutes from the Brookhaven Borough Council Meeting held on Monday, April 4, 2011.


Mary Ellen McKinley

05/04/2011
Date

Alternate configuration data

Project details: Alum and Methanol feed added

Project name: Gamble lane Project ref.: E11059

Plant name: Unknown User name: jeways

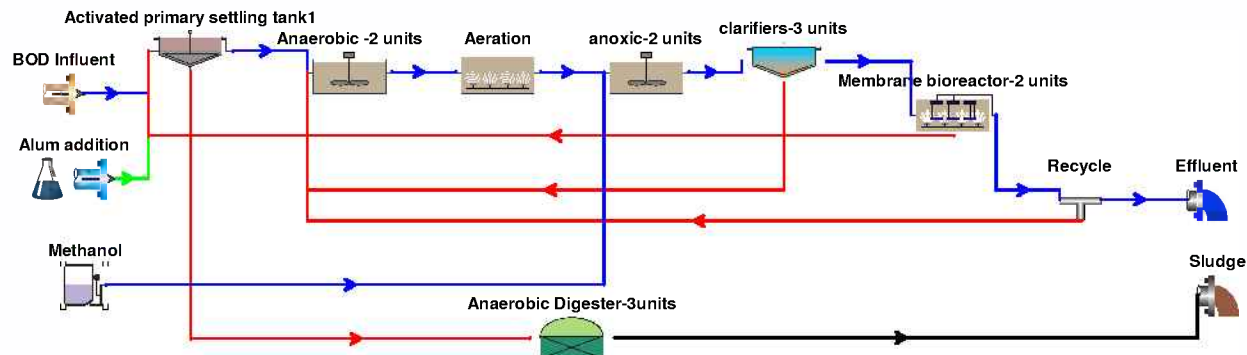
Created: 4/29/2011

Saved: 5/3/2011

Steady state solution

SRT : 5.51

Flowsheet



Configuration information for all Activated primary settling tank units

Physical data

Element name	Volume [gallons]	Area [ft2]	Depth [ft]
Activated primary settling tank1	975275.0000	8991.4008	14.500

Operating data Average (flow/time weighted as required)

Element name	Split method	Average Split specification
Activated primary settling tank1	Flow paced	10.00 %

Element name	Percent removal	Blanket fraction
Activated primary settling tank1	65.00	0.85

Configuration information for all Anaerobic Digester units

Physical data

Element name	Volume [gallons]	Area [ft2]	Depth [ft]	Head space volume
Anaerobic Digester-3units	839933.0000	5614.1358	20.000	154637.0

Operating data Average (flow/time weighted as required)

Element name	Pressure [psi]	pH
Anaerobic Digester-3units	5.0	-

Element name	Average Temperature
Anaerobic Digester-3units	35.0

Configuration information for all Bioreactor units

Physical data

Element name	Volume [gallons]	Area [ft2]	Depth [ft]	# of diffusers
Aeration	2302548.6000	21228.0000	14.500	4810
Anaerobic -2 units	613326.0000	5654.4666	14.500	Un-aerated
anoxic-2 units	654892.0000	6037.6780	14.500	Un-aerated

Operating data Average (flow/time weighted as required)

Element name	Average DO Setpoint [mg/L]
Aeration	1.3
Anaerobic -2 units	0
anoxic-2 units	0

Aeration equipment parameters

Element name	$k_1 \text{ in } C = k_1(PC)^{0.25} + k_2$	$k_2 \text{ in } C = k_1(PC)^{0.25} + k_2$	$Y \text{ in } KLa = C Usg ^ Y - Usg \text{ in } [m^3/(m^2 d)]$	Area of one diffuser	% of tank area covered by diffusers [%]
Aeration	2.5656	0.0432	0.8200	0.0410	10.0000

Anaerobic -2 units	2.5656	0.0432	0.8200	0.0410	10.0000
anoxic-2 units	2.5656	0.0432	0.8200	0.0410	10.0000

Element name	Alpha (surf) OR Alpha F (diff) [-]	Beta [-]	Surface pressure [kPa]	Fractional effective saturation depth (Fed) [-]
Aeration	0.5000	0.9500	101.3250	0.3250
anoxic-2 units	0.5000	0.9500	101.3250	0.3250

Element name	Supply gas CO2 content [vol. %]	Supply gas O2 [vol. %]	Off-gas CO2 [vol. %]	Off-gas O2 [vol. %]	Off-gas H2 [vol. %]	Off-gas NH3 [vol. %]	Off-gas CH4 [vol. %]	Surface turbulence factor [-]
Aeration	0.0350	20.9500	2.0000	18.8000	0	0	0	2.0000
anoxic-2 units	0.0350	20.9500	2.0000	18.8000	0	0	0	2.0000

Configuration information for all Membrane bioreactor units

Physical data

Element name	Volume [gallons]	Area [ft2]	Depth [ft]	# of diffusers	# of cassettes	Displaced volume / cassette [ft3/cassette]	Membrane area / cassette [ft2/cassette]	Total displaced volume [gallons]	Membrane surface area [ft2]
Membrane bioreactor-2	90100.0000	354.2535	34.000	329	6.00	1000.000	300000.00	44899.83	1800670.50

units

Operating data Average (flow/time weighted as required)

Element name	Average DO Setpoint [mg/L]
Membrane bioreactor-2 units	1.3

Element name	Split method	Average Split specification
Membrane bioreactor-2 units	Flow paced	10.00 %

Aeration equipment parameters

Element name	k_1 in $C = k_1(PC)^{0.25} + k_2$	k_2 in $C = k_1(PC)^{0.25} + k_2$	Y in $KLa = C Usg ^ Y - Usg$ in [m ³ /(m ² d)]	Area of one diffuser	% of tank area covered by diffusers [%]
Membrane bioreactor-2 units	0.0500	0.3800	1.0500	0.0500	50.0000

Element name	Alpha (surf) OR Alpha F (diff) [-]	Beta [-]	Surface pressure [kPa]	Fractional effective saturation depth (Fed) [-]
Membrane bioreactor-2 units	0.7000	0.9500	101.3250	0.3000

Element name	Supply gas CO2 content [vol. %]	Supply gas O2 [vol. %]	Off-gas CO2 [vol. %]	Off-gas O2 [vol. %]	Off-gas H2 [vol. %]	Off-gas NH3 [vol. %]	Off-gas CH4 [vol. %]	Surface turbulence factor [-]
Membrane bioreactor-2 units	0.0350	20.9500	1.2000	19.9000	0	0	0	2.0000

Configuration information for all BOD Influent units

Operating data Average (flow/time weighted as required)

Element name	BOD Influent
Flow	7000000
Total Carbonaceous BOD mgBOD/L	250.00
Volatile suspended solids mgVSS/L	195.00
Total suspended solids mgTSS/L	240.00
Total Kjeldahl Nitrogen mgN/L	45.00
Total P mgP/L	10.00
Nitrate N mgN/L	0
pH	7.30
Alkalinity mmol/L	6.00

Calcium mg/L	80.00
Magnesium mg/L	15.00
Dissolved oxygen mg/L	0

Element name	BOD Influent
Fbs - Readily biodegradable (including Acetate) [gCOD/g of total COD]	0.1600
Fac - Acetate [gCOD/g of readily biodegradable COD]	0.1500
Fxsp - Non-colloidal slowly biodegradable [gCOD/g of slowly degradable COD]	0.7347
Fus - Unbiodegradable soluble [gCOD/g of total COD]	0.0500
Fup - Unbiodegradable particulate [gCOD/g of total COD]	0.1300
Fna - Ammonia [gNH3-N/gTKN]	0.6600
Fnox - Particulate organic nitrogen [gN/g Organic N]	0.5000
Fnus - Soluble unbiodegradable TKN [gN/gTKN]	0.0200
FupN - N:COD ratio for unbiodegradable part. COD [gN/gCOD]	0.0350
Fpo4 - Phosphate [gPO4-P/gTP]	0.5000
FupP - P:COD ratio for unbiodegradable part. COD [gP/gCOD]	0.0110
FZbh - Non-poly-P heterotrophs [gCOD/g of total COD]	0.0001
FZbm - Anoxic methanol utilizers [gCOD/g of total COD]	0.0001
FZaob - Ammonia oxidizers [gCOD/g of total COD]	0.0001
FZnob - Nitrite oxidizers [gCOD/g of total COD]	0.0001
FZamob - Anaerobic ammonia oxidizers [gCOD/g of total COD]	0.0001
FZbp - PAOs [gCOD/g of total COD]	0.0001
FZbpa - Propionic acetogens [gCOD/g of total COD]	0.0001

FZbam - Acetoclastic methanogens	[gCOD/g of total COD]	0.0001
FZbhm - H2-utilizing methanogens	[gCOD/g of total COD]	0.0001

Configuration information for all Methanol units

Operating data Average (flow/time weighted as required)

Element name	Methanol
Non-polyP heterotrophs mgCOD/L	0
Anoxic methanol utilizers mgCOD/L	0
Ammonia oxidizing biomass mgCOD/L	0
Nitrite oxidizing biomass mgCOD/L	0
Anaerobic ammonia oxidizers mgCOD/L	0
PolyP heterotrophs mgCOD/L	0
Propionic acetogens mgCOD/L	0
Acetoclastic methanogens mgCOD/L	0
Hydrogenotrophic methanogens mgCOD/L	0
Endogenous products mgCOD/L	0
Slowly bio. COD (part.) mgCOD/L	0

Slowly bio. COD (colloid.) mgCOD/L	0
Part. inert. COD mgCOD/L	0
Part. bio. org. N mgN/L	0
Part. bio. org. P mgP/L	0
Part. inert N mgN/L	0
Part. inert P mgP/L	0
Stored PHA mgCOD/L	0
Releasable stored polyP mgP/L	0
Fixed stored polyP mgP/L	0
PolyP bound cations mg/L	0
Readily bio. COD (complex) mgCOD/L	0
Acetate mgCOD/L	0
Propionate mgCOD/L	0
Methanol mgCOD/L	1188000.00
Dissolved H2 mgCOD/L	0
Dissolved methane mg/L	0
Ammonia N mgN/L	0
Sol. bio. org. N mgN/L	0
Nitrite N mgN/L	0
Nitrate N mgN/L	0
Dissolved nitrogen gas mgN/L	0
PO4-P (Sol. & Me Complexed) mgP/L	0
Sol. inert COD mgCOD/L	0
Sol. inert TKN mgN/L	0
Inorganic S.S. mgISS/L	0

Struvite mgISS/L	0
Hydroxy-dicalcium-phosphate mgISS/L	0
Hydroxy-apatite mgISS/L	0
Magnesium mg/L	0
Calcium mg/L	0
Metal mg/L	0
Other Cations (strong bases) meq/L	0
Other Anions (strong acids) meq/L	0
Total CO2 mmol/L	0
User defined 1 mg/L	0
User defined 2 mg/L	0
User defined 3 mgVSS/L	0
User defined 4 mgISS/L	0
Dissolved oxygen mg/L	0
Flow	400

Configuration information for all Model clarifier units

Physical data

Element name	Volume[gallons]	Area[ft2]	Depth[ft]	Number of layers	Top feed layer	Feed Layers
clarifiers-3 units	1422166.4000	15843.0000	12.000	10	6	1

Operating data Average (flow/time weighted as required)

Element name	Split method	Average Split specification
clarifiers-3 units	Flow paced	72.00 %

Element name	Average Temperature	Reactive
clarifiers-3 units	Uses global setting	Yes

Configuration information for all Metal addition units

Operating data Average (flow/time weighted as required)

Element name	Alum addition
Non-polyP heterotrophs mgCOD/L	0
Anoxic methanol utilizers mgCOD/L	0
Ammonia oxidizing biomass mgCOD/L	0
Nitrite oxidizing biomass mgCOD/L	0
Anaerobic ammonia oxidizers mgCOD/L	0
PolyP heterotrophs mgCOD/L	0
Propionic acetogens mgCOD/L	0
Acetoclastic methanogens mgCOD/L	0
Hydrogenotrophic methanogens mgCOD/L	0
Endogenous products mgCOD/L	0

Slowly bio. COD (part.) mgCOD/L	0
Slowly bio. COD (colloid.) mgCOD/L	0
Part. inert. COD mgCOD/L	0
Part. bio. org. N mgN/L	0
Part. bio. org. P mgP/L	0
Part. inert N mgN/L	0
Part. inert P mgP/L	0
Stored PHA mgCOD/L	0
Releasable stored polyP mgP/L	0
Fixed stored polyP mgP/L	0
PolyP bound cations mg/L	0
Readily bio. COD (complex) mgCOD/L	0
Acetate mgCOD/L	0
Propionate mgCOD/L	0
Methanol mgCOD/L	0
Dissolved H ₂ mgCOD/L	0
Dissolved methane mg/L	0
Ammonia N mgN/L	0
Sol. bio. org. N mgN/L	0
Nitrite N mgN/L	0
Nitrate N mgN/L	0
Dissolved nitrogen gas mgN/L	0
PO ₄ -P (Sol. & Me Complexed) mgP/L	0
Sol. inert COD mgCOD/L	0
Sol. inert TKN mgN/L	0

Inorganic S.S. mgISS/L	0
Struvite mgISS/L	0
Hydroxy-dicalcium-phosphate mgISS/L	0
Hydroxy-apatite mgISS/L	0
Magnesium mg/L	0
Calcium mg/L	0
Metal mg/L	150000.00
Other Cations (strong bases) meq/L	5.00
Other Anions (strong acids) meq/L	894.03
Total CO2 mmol/L	7.00
User defined 1 mg/L	0
User defined 2 mg/L	0
User defined 3 mgVSS/L	0
User defined 4 mgISS/L	0
Dissolved oxygen mg/L	0
Flow	200

Configuration information for all Splitter units

Operating data Average (flow/time weighted as required)

Element name	Split method	Average Split specification
Recycle	Flow paced	250.00 %

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Elements	Total Carbonaceous BOD [mg/L]	Total Carbonaceous BOD [lb/d]	Total suspended solids [mgTSS/L]	Total suspended solids [lb TSS/d]	Total Kjeldahl Nitrogen [mgN/L]	Total Kjeldahl Nitrogen [lb N/d]	Ammonia N [mgN/L]	Ammonia N [lb N/d]	Total N [mgN/L]	Total N [lb N/d]	Total P [mgP/L]	Total P [lb P/d]	Dissolved oxygen [mg/L]	Dissolved oxygen [lb /d]	pH []	pH [lb /d]
BOD Influent	250.03	14606.11	240.04	14022.85	45.00	2628.80	29.70	1735.01	45.00	2628.80	10.00	584.18	0	0	7.30	-----
Effluent	0.80	42.16	0.00	0.00	2.85	149.93	1.14	59.98	3.49	183.73	0.01	0.50	1.25	65.73	6.95	-----
Sludge	1288.91	7529.51	2529.17	14774.88	161.46	943.22	44.15	257.89	161.46	943.22	99.92	583.68	0.00	0.00	5.99	-----

Album page - Page 2

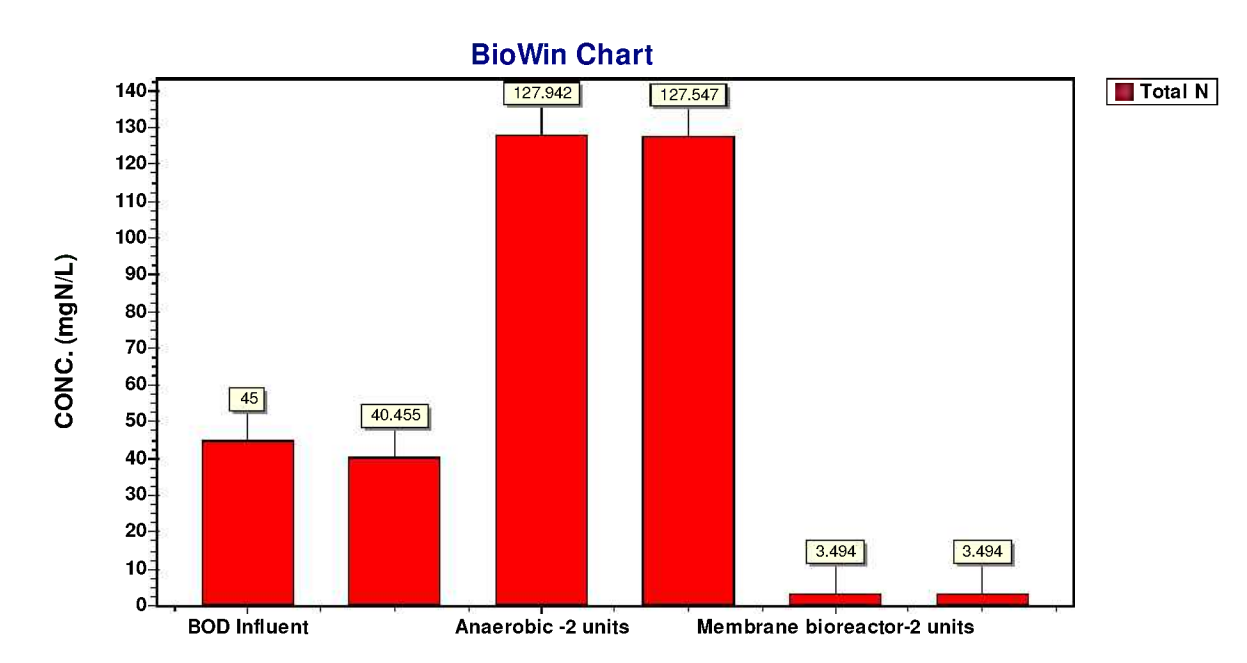
Elements	Hydraulic residence time [hours]	Return activated sludge flow [gal/d]	Return activated sludge TSS [mg/L]	Solids loading rate [lb/(ft ² d)]	Surface overflow rate [gal/(ft ² d)]
Activated primary settling tank1	3.04	-----	-----	-----	778.54
clarifiers-3 units	1.16	5040000.00	10076.99	27.50	1546.46

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Elements	# of diffusers []	Air flow rate / diffuser [ft ³ /min (20C, 1 atm)]	Air supply rate [ft ³ /min (20C, 1 atm)]	Hydraulic residence time [hours]
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Aeration	4810.00	0.97	4648.61	1.87
Membrane bioreactor-2 units	329.00	0.74	242.22	0.04

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Album page - Page 5

Elements	Flow [gal/d]	Metal ion [mmol/L]	Methanol [mgCOD/L]	Metal [mg/L]
Alum addition	200.00	298.34	0	150000.00

Methanol	400.00	0	1188000.00	0
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Alum addition			
Parameters	Conc. (mg/L)	Mass rate (lb/d)	Notes
Volatile suspended solids	0	0	
Total suspended solids	410377.08	684.95	
Particulate COD	0	0	
Filtered COD	0	0	
Total COD	0	0	
Soluble PO4-P	0	0	
Total P	0	0	
Filtered TKN	0	0	
Particulate TKN	0	0	
Total Kjeldahl Nitrogen	0	0	
Filtered Carbonaceous BOD	0	0	
Total Carbonaceous BOD	0	0	
Nitrite + Nitrate	0	0	
Total N	0	0	
Total inorganic N	0	0	
Alkalinity	15789.04	11.95	mmol/L and kmol/d

pH	7.00	
Volatile fatty acids	0	0
Total precipitated solids	410377.08	684.95
Total inorganic suspended solids	410377.08	684.95
Ammonia N	0	0
Nitrate N	0	0
Parameters	Value	Units

Eileen W. Mulvena, P.E.

F. Clark "Sande" Walton, P.E.

17 October 2011

Department of Environmental Protection
Southeast Regional Office
2 East Main Street
Norristown, PA 19401

Attn: Kelly A. Sweeney

RE: Act 537 Plan Update for Western Delaware County, Chester-Ridley Creek Review Letter Dated
September 7, 2011

Dear Kelly:

On behalf of Brookhaven Borough, we provide the following information/responses to the referenced letter

Item 26.a.iii:

The types and sizes of the existing facilities were determined from reading the Act 537 Plan description of the existing treatment facilities and scaling from a Google aerial photo of the plant. The Borough retained the services of Dutchland, Inc., a sewage facilities design/build firm, to perform modeling and estimating services to evaluate the existing capacity of the SWDCMA plant and any upgrades that may be required.

The Plan indicates that the current wastewater treatment processes include screening, primary clarification, biological treatment using activated biofilters, fine and coarse bubble activated sludge, final clarification, and chlorination. It appears that a trickling filter tank remains available on-site. In 2002, the headworks were improved with a second fine screen, an aerated grit separator, and a channel reconfiguration. The biofilters' pumping and recirculation systems were also upgraded.

The Plan also indicated that the design BOD5 = 12,510#/day and that the current NPDES discharge limit is 6MGD.

With this information and the aerial view of the plant, a model was developed, in Biowin 3.1, which assigned a use for each of the tanks present in the aerial view and based on the treatment process utilized at the plant. A depth was assigned to each of the tanks based on the hydraulic limits of the plant. Please note that the Model used is based on assumed data and as such is only a guide to how the plant can be configured to achieve the effluent limits required. A more accurate model can be created if the actual tank dimensions and volumes are used, of course, but we believe this model represents a reasonable estimate of performance based on the information available.

Setting the plant flow at 7MGD, the model predicts the plant capability was for BOD5 = .68mg/l; TSS=0.0; TKN=2.47mg/l, TN=11.28mg/l and TP=5.01mg/l. Please refer to the copy of the Biowin analysis report attached with this letter. Since we do not know the actual pipe connections running between the tanks we just selected the tanks based on their assumed sizes and allowed for any pipe changes to connect the flow sequence to occur during construction. Obtaining a copy of the process plan for the site will determine what piping changes will be necessary to configure the plant according to our assumptions.

The two 60ft diameter tanks west of the aeration basin were modeled as anoxic tanks. The membrane reactor was modeled after the clarifiers. The parameters of the membrane reactor were assumed.

The modeled process is as follows: Influent flows to the primary settling tank; then it would go to two anaerobic tanks (which were the two 60' clarifiers); then to the aeration tank; then to the anoxic tanks (the two circular 62' tanks near the digester); then to the clarifiers; then to the membrane biofilter; to disinfection and then discharge. Sludge would be drawn from the primary settling tank and passed through the anaerobic digester and the resultant sludge would be disposed as it is currently being handled.

Based on the model as it was run, the plant is able to handle the 16.65MGD peak flow indicated in the Plan. However, it resulted in TP = 3mg/l.

Further modifications to the model to provide for phosphorus and nitrogen removal were made to achieve TN<3mg/l and TP<1mg/l.

The \$7M estimate was derived based on the modeling and the improvements that would be needed to meet the limits we anticipated:

Phosphorus removal: shed; pumps; storage totes, concrete pads	\$100,000
Nitrogen removal: shed; pumps; hoists; totes, concrete pads	\$125,000
Control System, Design, Manufacture, Installation, T-Box?	\$250,000
6MGD EQ tank	\$4,300,000

Repiping throughout plant, conversion of trickling filters	\$350,000
Miscellaneous Electrical Modifications:	\$250,000

Subtotal:	\$5,375,000
Contingencies (25%)	\$1,343,750
Engineering/Inspection (8.5%)	\$456,875
Total:	\$7,175,625

Recent information received regarding the condition of some of the existing tanks at SWDCMA indicates that some new tanks may be required. In addition, Dutchland just completed construction of a 7.5MGD circular digester for \$1,127,000 which indicates that the \$4.3M estimate is excessive. Therefore, a modified estimate is provided below:

New anaerobic & anoxic tanks (if necessary)	\$2,800,000
Phosphorus removal: shed; pumps; storage totes, concrete pads	\$100,000
Nitrogen removal: shed; pumps; hoists; totes, concrete pads	\$125,000
Control System, Design, Manufacture, Installation, T-Box?	\$250,000
6MGD EQ tank	\$1,500,000
Repiping throughout plant, conversion of trickling filters	\$350,000
Miscellaneous Electrical Modifications:	\$250,000

Subtotal:	\$5,375,000
Contingencies (25%)	\$1,343,750
Engineering/Inspection (8.5%)	\$456,875
Total:	\$7,175,625

The Plan indicates that tertiary treatment for nutrient removal is the main component of alternative evaluating an upgrade of the SWDCMA plant. "The process upgrades suggested may include treatment with lime or

chemicals to remove phosphorus, ammonia stripping to remove nitrogen, and /or activated carbon adsorption."

It appears that the denitrifying filters is the significant variation in the pricing. The Plan calls for \$13.856M to be spent on denitrifying filters FRP Option and \$221,000 for a reaeration tank.

The cost for a denitrification filter is out of line with current costs. At a plant which was just recently bid in July of this year, the price for a 450,000 GPD filter was \$318,000. This is \$0.71 per GPD. At that price a filter for a 6MGD plant should cost approximately \$4,241,000 and that does not consider any economies of scale. At \$14M the denitrifying filter appears to be over 3 times more costly than it has to be. If the assumptions in the model developed by Dutchland are correct, the plant can be retrofitted to meet the nitrogen limits without that filter. The open question is; "are the assumptions correct?" Even with the denitrification filter, the project is less costly than the chosen Alternative 2. A more thorough investigation is warranted before concluding it is absolutely needed.

In response to 26.b.ix. Brookhaven has been told that the Chester Township collection system is being transferred to DELCORA. When this question was asked by Brookhaven as part of the Plan review, the response was that no decision had been made and it had not yet been seriously considered. The agreement executed between SWDCMA and DELCORA states that the Chester Township units "would become direct customers of DELCORA, as long as the diversion is determined by DELCORA's engineer to be feasible." (Article II, 2.01.e) . In reviewing the Eastern Plan of Study dated 2002 , pg. 7-4, DELCORA indicates that municipalities who own their collections system are billed directly by DELCORA. For those *customers* in Upland and Parkside Borough and Chester Township, it is stated that DELCORA bills them directly. DELCORA also owns and operates the collection system in these municipalities. The conclusion drawn was that the intent is for the balance of the Chester Township collection system to be transferred to DELCORA.

If those units are transferred to DELCORA, then the SWDCMA customer base will be reduced.

With that being said, the follow-up question to that becomes does the DELCORA Engineer have the authority to make the determination or is this something that will require Planning? As indicated previously, this decision will have an impact on the SWDCMA service area if the balance of the Chester Township units (1,300) are transferred. And, what will be the cost of this transfer? We take the position that this decision should not be made without a thorough and complete cost-benefit analysis for all users in the system and that Planning should be required. The SWDCMA Engineer indicated in a meeting held on August 2, 2011(at DEP) that the Chester Township pump station requires significant repair/maintenance/upgrade and that transferring the

units to DELCORA makes sense as the work at the station could be done when the new force main from that station to the proposed DELCORA main force main is constructed.

In response to 26.d.i. – the question has been answered satisfactorily by DELCORA. Clarification was provided that indicated the PennVest funding was available for on-lot system owners. The original statement did not indicate it was for on-lot system owners.

In response to 26.d.v - Please refer to the response provided under 26.b.ix.

As related to 26.e.i – Brookhaven provides the following clarification: the concern is that transferring eastern units to DELCORA's Chester Plant will require capital expenditures and whether the western service area municipalities will be assessed any portion of the upgrade costs. This would further increase the annual fee to the Brookhaven residents if the diversion to DELCORA were to occur.

If you require additional information, please contact the undersigned.

Sincerely,

Walton, Mulvena & Associates
A Division of NDI ENGINEERING COMPANY

A handwritten signature in black ink, appearing to read 'Eileen W. Mulvena', written in a cursive style.

Eileen W. Mulvena, P.E.

Program Manager

Brookhaven Borough Engineer

Mary McKinley

**BROOKHAVEN BOROUGH PLANNING COMMISSION
MINUTES OF MEETING
OCTOBER 25, 2011**

ATTENDEES: Commission Members: George Letherbury (Chairman),
Margaret Eighan, Ron Jackson Ron Kerins, Stan Warfield
Others Present: Joan Boyle, Recording Secretary.
Vawn Donaway, Council Representative,
Harold Hampton, Zoning Commission
Eileen Mulvena, Borough Engineer
F. Clark Walton, Borough Engineer

CALL TO ORDER

Mr. George Letherbury opened the meeting at 7:45 PM.

APPROVAL OF MINUTES

Mr. Letherbury asked for a motion for approval of the September 27, 2011 minutes. Mr. Jackson made a motion to approve the minutes and Ms. Eighan seconded it. The Commission members unanimously approved the September minutes.

**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
SERVICE AREA - ACT 537**

Mr. Letherbury commented that the purpose of the meeting was to review and approve the Western Delaware County Act Sewage Facilities Plan Update – Chester Ridley Creek Service Area. Mr. Letherbury asked the representatives that came to the meeting to identify themselves and their company. Attending the meeting was Beth Bolt, Project Engineer for Act 537 from Weston Engineering; Roger Lehman, Project Manager from Weston Engineering; Chris Volkay-Hilditch, Director of Engineering from Delcora; Karen Holm – Manager of Environmental Planning from Delaware County Planning Department; Zach Barner, Environmental Planner from Delaware County Planning Department. There was no representative from SWDCMA.

Mr. Letherbury addressed the representatives and told them that he assumed that they knew why the Brookhaven Planning Commission has not approved Act 537. We do not have reliable numbers that are necessary to make a decision. Some of the numbers are inappropriate – they do not “jive” with everything else that has been said. Mr. Letherbury said that we want to get clarification tonight. He opened the meeting for anyone who wanted to make any comments. Mr. Donaway suggested letting the representatives to make their case to the Commission members. Mr. Letherbury agreed and asked the representatives to tell the Planning Commission what they intend to do and to tell us how they are going to pay for it.

**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
SERVICE AREA – ACT 537**

Ms. Bolt said that they were not ready to make a presentation. They came to the meeting to answer questions from the Planning Commission. She said that all of the information was documented in Act 537, which they have submitted to the Planning Commission. Mr. Letherbury said that we need the numbers. Our engineer needs the numbers to determine what each one of the plans that are proposed will cost our residents. At this point we cannot do that since we do not have reliable numbers. Ms. Bolt said that they have documented as much information as they have. A lot of the costs associated with this are variables depending on what it will cost if Middletown participates. The way that it was explained to Ms. Bolt was that Brookhaven residents are the same as Aston residents and the other users except for Middletown residents. The benefit of this plan is to end the agreement with Middletown five years early. Right now, Brookhaven residents are subsidizing Middletown residents under this old agreement. Mr. Letherbury said that the Brookhaven Planning members agree. Ms. Bolt continued and said she does not have hard dollars figures to present. There are many variables. Mr. Letherbury asked when those variables are going to be determined. How can we make a judgment. Ms. Bolt said that Southwest is currently in negotiations with Middletown to see if they will participate in the decommissioning. Ms. Bolt said that they do not want to publish numbers that would bias or influence these negotiations in any way. The main point of this is that this will provide rate stability for Brookhaven residents and it will be a benefit to not be encumbered by that agreement five years early. We presented the capital costs that we know for constructing the pump station and force main. Southwest has presented a spread sheet with all their costs on it. It has the decommissioning costs on there. With that they do not want to take it upon themselves to analyze the costs because of the negotiations with Middletown.

Mr. Letherbury said that in the course of us doing this with Southwest we find that these numbers do not add up in relation to costs and etc. and that you (Delcora) have been fined by the DEP and that cost is not included in the budget so how do you (Delcora) expect to pay for this. Mrs. Mulvena said that that question should be directed to Southwest and not Delcora. Mrs. Mulvena said that we just learned tonight that Ms. Bolt is not certain Middletown would not participate in the decommissioning of Southwest. Ms. Bolt answered that she is not certain of that. Mrs. Mulvena said that this would be another change. The spreadsheet that Southwest gave to Mrs. Mulvena assumed that Middletown would pay 60% of the cost and everyone would participate in the cost. Brookhaven would be paying our share of the customer rate for everything that would be done and now this might not happen.

Brookhaven Planning Commission Meeting Minutes – October 25, 2011

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**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
SERVICE AREA – ACT 537**

Ms. Bolt replied that she is not saying that but she does not want to state for sure. The costs are unknown to her. She said that she could only document what was given to her.

What they have presented in the plan is what they know of. They know that it will be a benefit to Brookhaven to get out from Middletown five years early. They also know that it was stated by Jenifer Beal that at the DEP meeting they are going to have new nutrient treatment limits that will be coming out in 2014. We know that the WRPT at the Delcora Plant has a better process treatment and discharges currently higher quality waste water than the Baldwin Run Plant. Mrs. Mulvena asked when Jennifer said that; Ms. Bolt said it was at the July 28 meeting. Ms. Bolt said that there were 17 people there. Mrs. Mulvena asked what was the purpose of the meeting. Ms. Bolt said that she thought Jennifer said that nitrogen was going to be around 3 and currently the Baldwin Run Plant is discharging in the 20's. Mrs. Mulvena said that she went on line and their DMR said it is around 8 versus in the 20's and that is a significant difference. Ms. Bolt said that she did not do an analysis but she knows that Delcora's quality is better and there will be upgrades necessary to meet these new nutrient limits.

Mrs. Mulvena suggested that the representatives give their reasons why it would be better for Brookhaven to go to this plan without knowing all the costs.

Mr. Letherbury asked the representatives why they think it would be better for Brookhaven to go with this plan.

Ms. Bolt said that she thinks Brookhaven is in the same boat with Aston and all the other residents other than Middletown in that right now we are subsidizing Middletown so it is to our benefit to get out from under Middletown 5 years early.

The DEP clearly wants the plant to close. They are going to implement stricter affluent limits and it would be better for Brookhaven if they upgrade the plant than it would be to send the waste water to Delcora. There will be costs involved with building a new pump station and force main and decommissioning the plant. Those costs will be offsets by the benefit we will realize by not having to subsidize Middletown. There are so many different factors that it is hard to come down to an exact dollar amount the user fees will be. Ms. Bolt said that she could not promise that there will not be higher increase but over a period of time it will provide rate stability. Mr. Letherbury said that based on this, how do we know this is going to happen. He said that Ms. Bolt said it is an assumption but we would like to go to our residents and tell them we will do this plan because it will cost this much money in relationship with another plan that will cost that much. We can't do that.

Brookhaven Planning Commission Meeting Minutes – October 25, 2011

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**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
SERVICE AREA – ACT 537**

Ms. Bolt said that she can't give us numbers that she does not have. When she asked for costs, no one wants to publish rates when there is so much unknown. She said that when you stand back and look at the big picture, it will be very expensive to upgrade the Baldwin Run plant. Ms. Bolt said that many costs are fixed that will not change no matter what option is chosen. There are costs associated with the client about the existing debt service they have, their consent fee, etc. is all fixed.

Ms. Van said that Delcora rates have been very stable; they have only increased 2% in several years. In the end, this plan is about Southwest wanting to join the Delcora system. And Middletown, Brookhaven and Aston are now part of that Southwest system. She said that they have spent time documenting the cost of upgrading the plant, provided supplemental. At the end of the day, these are the costs available. If there are specific questions, we can answer them or come back and answer them. At the end of the day, we spent a lot of time getting the information that Ms. Bolt provided.

Mr. Letherbury said we have been involved in this thing for 6 months and we are no further along that when we started. We have numbers but we do not feel they are accurate. Southwest is just about bankrupt according to their figures and yet they are going into this thing and expect us to go with this. He asked how Brookhaven can possibly make a decision.

Mrs. Mulvena summarized the benefits as follows:

- ~ Brookhaven will not have to be with Middletown any longer and will get out 5 years early.
- ~ DEP wants the plant to close and more stringent limits will be coming in 2014.
- ~ There is cost to pay for the decommissioning and the pump station
- ~ there will be a force main which will be offset without having to subsidize Middletown and that will give Brookhaven rates stability.
- ~ No one wants to publish any rates because they would be very expensive to upgrade the plant because they have debts and costs which are fixed.
- ~ It is about Aston wanting to join Delcora and Delcora has stable rates.

Mrs. Mulvena said that this pretty much summarizes the comments.

**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
SERVICE AREA – ACT 537**

Mrs. Mulvena said that she would tell everyone where she has been in the last month with Southwest. It is unfortunate that Southwest does not participate in these discussions. This is probably the most frustrating thing – that this meeting is about addressing Southwest customers and Southwest did not send any representative to this meeting. Ms. Volkay-Hilditch responded that she didn't think Southwest knew that the Brookhaven Planning Commission wanted them to come tonight. Mrs. Mulvena said it didn't matter. Southwest is the Applicant and that is the whole issue here. What will it cost the Brookhaven residents for this diversion. Mrs. Mulvena said that Ms. Volkay-Hilditch has given us Delcora's rates and we didn't ask for any additional information because they gave us a number that we could work with. This number is comparable to what we are already paying elsewhere in the Borough. There was no reason to go back to Delcora but we keep going back to Southwest. Southwest knows that and they tell us that there is no money to spend for any additional information about this. Southwest is not authorized to spend any more money on this and they have spent more than enough time and more than they were budgeted for to spend to try to answer our questions. Mrs. Mulvena said that if Southwest truly wanted to move this along, they would have authorized the money to be spent that is needed to get this information.

Mrs. Mulvena then distributed the latest spreadsheet from Southwest and she marked it up with her comments. She said that the representatives should have this also since Southwest said that they have been copies of everything to the representatives. Mrs. Mulvena said that it doesn't look like these numbers have been incorporated into the plan.

Ms. Volkay-Hilditch said that she did not bring this tonight. All of the supplemental comments went back to the DEP and Delcora is waiting for DEP to answer them. Mrs. Mulvena asked if Delcora has responded to the technical comments. Ms. Volkay-Hilditch said they have started to prepare the response. Mrs. Mulvena asked if DEP has seen the comments that Delcora started to prepare. Your first sentence was that you sent it to DEP and you are waiting to hear from them. Mrs. Mulvena said then Ms. Volkay-Hilditch said they have submitted a technical response. Ms. Bolt said it was on the administrative completeness.

Mrs. Mulvena said when she spoke to Ms. Bolt last week she said that it is still not administratively complete and DEP did not sent a technical response.

**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
SERVICE AREA – ACT 537**

Mrs. Mulvena said we would go through the spreadsheet. We have started out with getting nothing from Southwest and we have now come a long way. On this sheet, if you look across the top, Southwest now identified each of the additional expenses that we can expect that Brookhaven would be charged for. One would be for the decommissioning of the existing plant and Southwest estimated that to be about 3 million dollars. Then they have an estimate for constructing a new pump station and a force main and they are estimating that their share of the cost would be 4.8 million and not the 12 million that is in the plan. Their reason for that is that Middletown will pay 60% of the costs. Ms. Bolt said that Middletown will pay for that. Mrs. Mulvena said they estimate Middletown will pay 60% and Aston will pay 40%. Mrs. Mulvena said that it is based on a proposed unit. Mrs. Mulvena had asked the Southwest engineer that if Southwest has 60% of the units, then they will pay 60% of the costs. Their engineer said "yes". Then Mrs. Mulvena said to the engineer that according to the 547 plan that is on the table, it does not say that. Table 5-4 has Aston as having the greater number of units so Mrs. Mulvena said her comment to them was to make sure the plan was updated to reflect that; the calculation of the costs has to match what is in the plan. If Middletown is going to have fewer units, then it seems like Aston customers (which includes Brookhaven) would end up paying the 60% or some fraction thereof, but it would be greater than what Middletown is shown to be paying. This is an issue that we are not certain is accurate. Mrs. Mulvena said she thinks they need to go back and look at that in their plan. Is Middletown really going to be 60% and Aston 40%. Apparently this will be renegotiated every year. They will look at the numbers each year and then make a decision as to who pays what percentage. This is what Mrs. Mulvena was told by the Southwest engineer.

The Delcora treatment charges are on the next column and they are based on the rates we were given months ago. They used a 1.5% increase per year for those.

Mrs. Mulvena said the fourth column is where we start having some questions. Southwest proposed to have costs to the plant and they show no capital funding in their budget. They are only proposing to increase the budget by 6% for both the plant and the system. However if you look at their budget, which we talked about last month, there is no capital in that budget. They have no money to make any improvements to the plant over the next 3 to 4 years or forever how long they plan to keep this plant working.

**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
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They also show that the plant costs go to zero and we are questioning that because they keep receiving miscellaneous sludge, sewage, etc. from waste haulers. Brookhaven sends our sludge from our plant there. They have a pre-treatment business where they have a lot of industrial customers bringing sewage there that they accept and treat. They intend to keep accepting that and sending that to Delcora. So they will have costs associated with that. There will be tests associated with that, equipment to be tested, and there are zero costs listed for that business. We do not know how you can operate that side of the business without incurring some expenses.

The collection cost is the next column. There is absolutely no capital funding in that collection system budget. Mrs. Mulvena said she has done some research on line and there are different ways to do it. We (Brookhaven) have a new plant and we do not have some of the costs involved. There should be some capital money put into the plant (Southwest) for the next couple of years. They have things that will fail over the next couple of years and they have absolutely no money. For the collection system it could be one and one-half the depreciation if they were keeping up with their consent order (which they are not). They are depreciating one million dollars so they should have \$750,000 for capital improvements in their system. Because they are not doing any work it is two and one-half times the depreciation. There is no money set aside. As a minimum there should be an increase in the operating plant budget, a significant increase in the collection system budget so they can actually do some work. We talked about this last month; there is no work being done. The cap that was mentioned that was to respond to their consent order and they are proposing \$280,000 a year. They do increase that for inflation as it goes on but the base amount is expected to be \$280,000. They have the plan in front of DEP right now and that is supposed to satisfy their consent. They are proposing that to satisfy their consent order issues. Mrs. Mulvena said she feels it is \$1 million too short. We do not know yet because they just submitted this to DEP and as far as we know, DEP has not responded back. The debt service is essentially what they are telling us and we have to go with that. That is the debt they have and what they expect to payout over the next 14-15 years.

Mrs. Mulvena said when they add up the total cost, if you go to the bottom of the spreadsheet, they tell us how they calculate their revenue and they have both a fixed portion and a variable portion. The fixed portion is \$298 per EDU; the variable is their water consumption at 85% and \$5.05 per thousand gallons. So they calculated and showed us in this chart how their revenue is derived. An interesting point where there is an asterisk is the miscellaneous revenue. The budget calls for \$200,000 in miscellaneous revenue. The last spreadsheet that Mrs. Mulvena received (they had Brookhaven only listed with townships) listed the water revenue.

**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
SERVICE AREA – ACT 537**

Mrs. Mulvena said we were not like the other townships and were more like a residential customer like the Aston people and the Chester Township people. We belong up with that line. So they moved us but didn't change any of the customer's account, so they moved our 620 but none of the numbers changed. The old number for the third party revenue was \$500,000 revenue but now it is \$765,000. Mrs. Mulvena said she thought to her it was questionable and she told their engineer this. It looks as though they made some number swaps but didn't change the spreadsheet. The numbers in green were changed but nothing else on the spreadsheet. The engineer told Mrs. Mulvena that the half million dollar number that was in there the last time was actual; that he was given that number.

Mrs. Mulvena said she questioned it because the budget said 200 and they said 595. Mrs. Mulvena asked the engineer if he could count on 595,000 a year since it is almost \$400,000 more a year budgeting this year. Is this a fluke or is this what you can expect. The engineer said that it was actual and that is what we can expect. Then Mrs. Mulvena got a revised spreadsheet and it is now saying \$765,000 so suddenly the actual revenue went from \$595,000 to \$765,000. Mrs. Mulvena said that is questionable to her, especially since the engineer said he was not authorized to spend any more time on this. Three quarters of a million dollars is 15% of their revenue and that can cause a problem down the line when the Brookhaven customers are asked to make up the difference.

Mrs. Mulvena said that this explains how they calculated this to come up 12.57 per thousand gallons is what the revenue equates to for billing based on 1.25 million gallons of water per day flow.

If you go back up to the top of the spreadsheet, they are saying that the \$7 million that is in total annual cost column really requires a rate of \$15.34 but what they have is \$12.57 so they are short \$3.00 per EDU (customer) to cover their costs so they are operating at a loss. Mrs. Mulvena said that Southwest said they would borrow money – they would borrow 3.3 million dollars to cover our operating budget. This would cover their losses from 2010 to 2011; Mrs. Mulvena said she doesn't know how they got through with these shortfalls. Southwest is using that loan to subsidize their losses. The rate that they are going to charge is 13.33 % per thousand. It should be 15.34 but because they are borrowing it will be 13.33 and that is how they are bringing that number down. We found that the average Brookhaven water consumption was 49 thousand gallons per year. Based on this, Mrs. Mulvena said it would cost the average resident \$653 in 2012 and will go as high as \$745; Southwest said it will drop back off for a couple of years and then it will go back up and then it will go back down again and then climb again, etc. This goes to 2040 which seems to far off to know rates.

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Mrs. Mulvena said that the columns we have an issue with is the allocation of Middletown getting 60% and Aston getting 40% because this does not agree with what the plan says there is no capital funding provided for in the plan , there is no collection system capital funding and we don't know if DEP will approve their capital proposal. We don't know if they can get a loan because of their debt and what their rate would be. This sums up everything we saw on the spreadsheet.

Mrs. Mulvena said some additional concerns are that the Southwest Board has not voted on this budget yet. This is the biggest issue. This assumes a 6% annual increase. The present board can only be held accountable for the budget for this year. Next year when there is another board they can not be held accountable. We don't even know if this board will adopt this and that is our concern. Southwest has not started to apply for a loan.

Mr. Letherbury asked about the cost – is this an increase or is that what it will be. Mrs. Mulvena said it depends on what the customer is paying now. Some customers are in the \$500 group, some customers are in the \$600 group, etc. Mrs. Mulvena said the figures on the spreadsheet shows what the average customer will pay. The Brookhaven engineers checked six homes for various water consumption to get these scenarios. If Southwest does not have DEP approval of their CAP plan, then \$280,000 will not satisfy the consent order since they have 65 miles of pipe. Mrs. Mulvena said that we learned last month that Southwest does not own 1-1/2 mile of the interceptor in Middletown. They still have to negotiate with Middletown about getting this. They are hoping to have this as zero costs so we don't know about how this will go. They have not started negotiations yet with Middletown. Also, DEP has questioned whether Delcora has the capacity to handle the proposed flow. They are concerned that when Delcora received an earlier approval, they used the same allocation that they want to give to the Southwest flow. Mrs. Mulvena said we will have to wait and see what the answer is on that – if DEP agrees. The question is if the plan is implementable as presented. Mrs. Mulvena said that we have come a long way. Southwest first said that it would cost \$300,000 to decommission the plant and that it would come out of operating costs. Now it is up to \$3 million. If all these things happen as Southwest says they will (and we don't think they will) we now have a range of what the costs will be. That is a lot of progress from the very beginning. Mrs. Mulvena said that this information has to be incorporated into the plan. The capital issues at Southwest are a huge concern. There are no issues with Delcora. They can treat the sewage and we know that. The issue is what it is going to cost on the Southwest side.

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Mr. Letherbury said that one of the options is to close the plant and build a pumping station and force main and the treatment will now be done by Delcora. Would Southwest still be involved in that. Mrs. Mulvena said that is the option Southwest wants to move forward with. This is what they presented in the plan. They will close the Southwest plant and build a pump station and a force main that will go from the Aston plant into Chester to Delcora. Southwest would not be involved in the treatment any longer but Southwest would still own the collection system and would also be responsible for invoicing all of this. They would still be involved but not in the maintenance of the pump station, the force main or any of the treatment. Delcora would take care of this and bill Southwest for that and then Southwest would bill the residents.

Mr. Warfield commented that Southwest would still exist. Mrs. Mulvena said that all these costs are only estimates, such as the loan. The costs will not be known until they go out for estimates. The estimate that has been prepared is based on the 12 million that is in the plan that was submitted to DEP. All of these numbers can change other than the debt. The debt is the only fixed item that is on this list. There are many variables.

Mr. Letherbury said he understands that the other municipalities involved in this have already approved the plan and that Brookhaven is the only one that has not. How can the other municipalities approve this without knowing all the numbers. Ms. Holm said that we know that Delcora can treat this. Ms. Bolt said that the fixed cost has no impact on this plan. Ms. Bolt said that the consent cost is resolved. Mrs. Mulvena said it is not. Mrs. Mulvena said that the original question we asked is what the cost is and the answer has to have that component in it. That is what Southwest has been told to respond to.

Ms. Bolt said this plan address the two things that are variables here are treating at Delcora by constructing a pump station and force main or to continue to run the Baldwin Run Plant. Mrs. Mulvena said that Southwest is critical here for the plan. Mrs. Mulvena said that when she came up with the estimate to upgrade the plant it was 7 million and their estimate was 28 million. That is a big gap. Ms. Bolt said that their estimate to upgrade the plant was 28 million and Southwest estimate was 24 million. Ms. Bolt said that Southwest provided them (Weston Engineering) a spreadsheet. Mrs. Mulvena said that Southwest wants out of the business; they do not care what the cost is.

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Mrs. Mulvena asked the Brookhaven Planning Commission members to decide if they have enough information tonight to support this plan, which is alternate #2. Mr. Letherbury asked for comments from the planning members. Mr. Warfield said that we can't get solid numbers locked in no matter what option is used. They are only estimates. Mrs. Mulvena said that once the plan gets approved, the CAP will be a fixed number. They will be getting an answer since DEP must sign the consent order.

Mrs. Mulvena said we need this information in order to make a decision about our plants. Ms. Bolt said that is between Brookhaven and Southwest and does not have a bearing on this plan. Mrs. Mulvena said that we only care about Brookhaven. We need to know the overall costs. Ms. Bolt said that the Act 537 does not affect Brookhaven costs. Mrs. Mulvena said it does since Brookhaven was told that if we didn't go with this, we would have to find another way to treat our sewage. We need to have the overall costs. We need to have the costs of constructing lines if we have to, costs to build pump stations, and etc. versus what the costs would be to stay with Southwest.

Ms. Bolt asked Mrs. Mulvena if the DEP asked Brookhaven to hold up a regional act 537. Mrs. Mulvena responded that Brookhaven is not holding it up. She asked Ms. Bolt if they received technical approval to go ahead with this? Ms. Bolt said that we (Weston Engineering) need to have Brookhaven's resolution to do this. Ms. Volkay-Hilditch said that their engineers are going to get these handled.

Mrs. Mulvena said that it was the recommendation of the Brookhaven lawyer and engineer to not approve this until we have the costs. We should wait until we have concrete numbers. Mrs. Mulvena told Ms. Bolt that if they already supplied all the technical information to DEP, then let us see what comes back. Mrs. Mulvena said that Brookhaven never wanted to hold anything up, but as long as Southwest has deficiencies, we are not holding anything up. Southwest has admitted that they are not ready; they do not know what the Board is going to do. Mrs. Mulvena said that she hopes Delcora is going to go back and modify the plan. Ms. Bolt said that she would have to verify what has been given to them on the spreadsheet.

Ms. Bolt said that what she wanted to leave the members with is that there are so many issues that are fixed and not a part of the plan, no matter what the costs are. No matter what scenario is chosen, Southwest has to comply with the plan. Mrs. Mulvena said that the treatment part of the plan can not be accurate since it shows no backup plans. The numbers from Southwest do not add up.

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Mr. Letherbury said that he thinks we will eventually approve this plan but he doesn't think it will be tonight. Ms. Eighan asked when the negotiations with Middletown Township are expected to be complete. Ms. Bolt said she is not sure. Mr. Letherbury asked how is Southwest going to pay for this; how can they get the money when they are in debt now and are going to borrow more money.

Mrs. Mulvena told the Planning Commission members that they can vote for this and can change their vote later after the numbers/costs are known. However Brookhaven Council is asked to vote on a resolution for this. A resolution is more serious. No one should go into this with the idea that they will change their minds later. It takes away the spirit of what a resolution is. Brookhaven Council has decided that they are not going to do that. They are either going to vote in favor of moving forward with this or they are going to vote to reject it. If we vote to reject it, we know we have to plan on taking those units to the Brookhaven plant.

Mrs. Mulvena said the Planning Commission could either vote to go forward or vote to deny it. We could also vote to deny it and pursue our own plan to get our own units.

Mr. Letherbury asked for a motion. He asked what the Planning Commission members want to do. Mr. Donaway asked if they could ask for a contingency. Mr. Letherbury asked how we can make a decision based on the information we have been given. He asked how the other municipalities voted to go with this. Mrs. Mulvena reviewed again the benefits of this plan as presented earlier in the meeting by Ms. Bolt. Mrs. Mulvena said that is what the other municipalities probably went by. Mr. Letherbury asked if there are guarantees about the rates. Mrs. Mulvena said there are never any guarantees about rates. Mr. Letherbury said he is concerned that if we approve this plan and the resident's rates jump \$600, they are going to ask why the Planning Commission didn't do something about it.

Mrs. Mulvena said that if we can get to the point that the Southwest Board approves the budget and DEP signs the consent order and if we can get all the numbers involved, then we will have some pretty decent numbers. Mrs. Mulvena said we need time. Southwest has to pass the budget.

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Mrs. Mulvena said that Southwest is not ready to get the technical information so we (Brookhaven) are not holding them up. Southwest has technical deficiencies. The clock doesn't start until they are administratively prepared. Southwest has to pass a budget by late December. Mrs. Mulvena said that if Southwest had submitted all their technical information and it was approved, then we would be holding them up. Until Southwest does that, we have time. Mrs. Mulvena feels it will be one to three months before they get their technical approved.

Mr. Letherbury asked if the numbers we have requested are available. Mrs. Mulvena said that they have to pass the budget by late December. Mr. Kerins asked if that is all we need. He said that this time schedule is not going to work. Ms. Bolt said that we need to have the plant operational by October, 2014. She said they need time for construction of the plant and to get it up and running.

Ms. Volkay-Hilditch said that they have a commitment for Delcora to get this done by the fall of 2014. If DEP gives approval faster, we will get it done faster. If it takes slower, then we will get it done slower. Delcora's goal and commitment is to have it done by December, 2014. Mr. Donaway asked that if Delcora does not get it done by then, do they just push forward to get it done. Ms. Volkay-Hilditch said she would like to get it done sooner. Ms. Volkay-Hilditch said she is seeking approval today and if we do not get it today, she wants to get a copy of whatever was approved today at this meeting so she can submit it with comments to the DEP as to where we are. Delcora is in a position of having technical comments and administrative comments. She said that as Mrs. Mulvena pointed out, if Brookhaven rejects the plan, they have to be in a position to get another plan. Ms. Volkay-Hilditch said that she does not have an approval or any comments to submit for approval. Ms. Volkay-Hilditch said that what she gathered tonight is that Brookhaven wants Southwest's budget and their technical plan and also DEP's approval of the plan. She said that at the end of the day, Delcora has a plan that deals with costs. Ms. Mulvena said that Ms. Volkay-Hilditch said at a previous meeting that if Brookhaven does not approve this plan, Brookhaven has to build a pump station to handle it. Mrs. Mulvena said we were forced to look at this now. DEP is telling Southwest that they have to do the work and refine numbers.

**REVIEW AND APPROVAL OF WESTERN DELAWARE COUNTY ACT
SEWAGE FACILITIES PLAN UPDATE - CHESTER-RIDLEY CREEK
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Mr. Letherbury asked what if the Planning Commission said tonight that based on the numbers we have seen, we would approve it based on option 2. He then asked what would be the repercussions. Mrs. Mulvena said there would not be any. Mrs. Mulvena said that the Brookhaven Planning Commission is an Advisory Board to Council and they (Council) should go with their advice. Mrs. Mulvena said that if the Planning Commission does not want to go with these plans, Council will review that. Another option is that the Planning Commission can table it until we receive more information.

Ms. Holm said that at the Delaware County Planning Commission the Applicant does not always have to be present at the meetings. They just submit their plans and the Planning Commission reviews it. Mr. Letherbury said that at our meetings, the Applicant attends so they can answer any questions

Ms. Eighan made a motion to table the matter until January when Southwest has passed their budget and they get information from DEP. All the members of the Brookhaven Planning Commission agreed to this.

Mr. Bolt asked when she can get a copy of the minutes. Mr. Kerins said that as a courtesy to Weston and Delcora, we (Planning Commission) will meet on November 22nd to approve the minutes. All the members agreed to this. The minutes will then be sent to all interested parties.

Ms. Bolt asked if the DEP approves the comments, then Brookhaven will be the only hurdle for this. Mr. Kerins asked if they have done a technical analysis for this. Mr. Kerins said that they could not start on the plan until the technical comments are approved by DEP.

Mrs. Mulvena said that if Delcora and Weston gets the technical approval, they can start the design. We (Brookhaven) are not holding them up. She said that Brookhaven means nothing as far as them starting on the design.

OTHER BUSINESS

Mr. Walton said that during the course of the last three months, there have been many comments on Edmont Avenue and the changes that are being made. There is a magazine put out by the boroughs. Mr. Walton thought that as the plans for changes to the avenue are made we could make a list of them. They will be better for pedestrians and tree lined.

Brookhaven Planning Commission Meeting Minutes – October 25, 2011

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OTHER BUSINESS

Mr. Letherbury said that this has already been done in the Comprehensive Plan. Mr. Walton said he thinks the Planning Commission did a wonderful job. He said that there is a new way to plant trees. If we look at the planting as a seepage bed, the water comes down. This is something that is starting to be adopted all over the country. It will be implemented immediately because we don't have a storm sewage system that suits it. For instance, a lot of the trees that we have on Edgmont Avenue sit back and hold a lot of storm water. Citadel Bank incorporated a new system to help with the rain water. It gets water quality and starts to bring that into play. Many of the other towns are doing this. We had a complaint here the other day about serious flooding. Seepage beds only last 12 years.

We had a serious situation in New Orleans after the hurricane when there was flooding. Thailand has had a flooding situation for almost three months. We have gone through some terrible flooding here in Brookhaven. In the past year we have had five areas that have had serious flooding.

Mr. Walton asked the Planning Commission to look at the plans when they are received to get an understanding of this so we can prevent flooding. Mr. Letherbury said that he agreed; he would also like to see the pavement have a wider area for pedestrians with a grass strip. Mrs. Mulvena said for new building this is required but there is nothing we can do for existing sidewalks.

Mr. Walton said that if we can just get a step forward in what we are going to do, in 25 years Brookhaven will be put in the magazine.

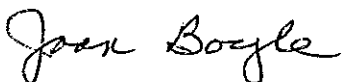
ANY OTHER BUSINESS

There was none.

MOTION FOR ADJOURNMENT

Mr. Letherbury asked for a motion to adjourn the meeting. Ms. Eighan made a motion and it was seconded by Mr. Kerins. The meeting ended at 9:35 PM.

Minutes Respectfully Submitted By:



Joan Boyle
Planning Commission Secretary

Mary Mc Kenley

**BROOKHAVEN BOROUGH PLANNING COMMISSION
MINUTES OF MEETING
NOVEMBER 22, 2011**

ATTENDEES: Commission Members: George Letherbury (Chairman),
Ron Jackson Ron Kerins, Stan Warfield
Absent: Margaret Eighan
Others Present: Joan Boyle, Recording Secretary.
Harold Hampton, Zoning Commission
Eileen Mulvena, Borough Engineer

CALL TO ORDER

Mr. George Letherbury opened the meeting at 7:35 PM.

APPROVAL OF MINUTES

Mr. Letherbury asked for a motion for formal approval of the October 25, 2011 minutes. Mr. Jackson made a motion to approve the minutes and Mr. Kerins seconded it. The Commission members unanimously approved the October minutes.

PUBLIC COMMENTS

There was none.

ANY OTHER BUSINESS

There was none.

MOTION FOR ADJOURNMENT

Mr. Letherbury asked for a motion to adjourn the meeting. Mr. Warfield made a motion and it was seconded by Mr. Kerins. The meeting ended at 7:41 PM.

Minutes Respectfully Submitted By:

Joan Boyle

Joan Boyle
Planning Commission Secretary

Joe Paole
 Adam ~~Paole~~ Counsel
 Jen Fields
 Gerard Fernandez
 Bob Naef
 Nelson Schaeffer
 Ryan - DCPO
 Eileen M.
 Brookhaven Counsel

Wilwert
 Salvucci
 Bob P.
 me
 Zach B.
 Karen H.
 Kelly S.
 Beth H.
 Keith D.

7/28/11 17 Attendees

- ① Joe Salvucci outlined plan
 Joe Paola recorded history

Gerard Fernandez - reported that
 South West's plan is to transfer
 flows to DECORA.

He mentioned the agreement w/
 DECORA
 * He stated that costs to upgrade
 will be much higher

Joe F
 asked why
 not upgrade

Jen Fields reported that
 state wide nutrient criteria
 would be promulgated in 2014

* STATEC reported a cost to
 upgrade would be \$25 M

Eileen M said Brookhaven wants detailed
 SWPCMA cost data
 Bob Naef reported that Brookhaven
 is only trying to obtain the
 collection system at no cost
 to Brookhaven.

He read a paragraph from a
 letter from Brookhaven to SW
 promising to approve the Plan
 in exchange for the collection
 system at no cost.

Eileen Mulvena disagreed - said
 she didn't look @ alternate

planning until Brookhaven was removed ~~also~~ from the plan.

Joe Feola said DEP position is that upgrades will be very expensive. PADEP wants to be good for the environment.

Joe Salvucci talked about the rate payer \rightarrow SW will lose 600 rate payers. Middletown will pull out so pool of ratepayers will be lower \rightarrow \approx 7,000 supporting the upgrades.

Eileen Mulvena said her consultant estimated ~~\$4.6~~ \$7 million to upgrade plant.

SQUABBLING BETWEEN BROOKHAVEN & SW

Eileen \rightarrow raised the issue w/ Chester Township ~~the~~ collection system transfer to DELCORA. Eileen wants to know how the transfer would affect rates of remaining customers.

Joe Feola said plans have to go together.

Beth Mahoney said Brookhaven could pass interim plan & then phase II to remove the Brookhaven Residents.

Lawyer says they could say they ~~don't~~ don't like the plan in a "wherefore" clause.

be Geda says we don't have to go back to non-involved municipalities and go back to Brookhaven only w/ resolution that explains phased approach to remove Brookhaven.

Jennifer Fields wants to receive the proposed resolution from Brookhaven so she can review it.

"We're approving the plan for today & they will assess options later."

ENVIRONMENTALLY SOUND
FEASIBLE
IMPLEMENTABLE

Plant must be decommissioned properly

DEP wants to be invited to the meeting w/ SWDCMA & Brookhaven to share cost information

*Ask Christine if we can share cost information
August 2nd



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

June 21, 2011

Mr. Roger W. Lehman, P.E.
Senior Technical Manager
Weston Solutions, Inc.
1400 Weston Way
P.O. Box 2653
West Chester, PA 19380

Re: Act 537 Plan Update
Western Delaware County Act 537 Plan Update
for the Chester-Ridley Creek Service Area
Aston, Chester, Edgmont, Middletown,
Upper Chichester, and Upper Providence
Townships, Brookhaven and Chester
Heights Boroughs, and the City of Chester
Delaware County

Dear Mr. Lehman:

On May 19, 2011, the Southeast Regional Office of the Department of Environmental Protection ("Department") received the submission of the proposed Official Sewage Facilities Plan ("Plan") entitled *Western Delaware County Act 537 Plan Update for the Chester-Ridley Creek Service Area*.

We reviewed the project for completeness and determined on June 8, 2011, that the submittal is administratively incomplete. Information that addresses the following items must be submitted so that we can continue our review of your Plan:

1. The Department is aware of concerns on the part of Brookhaven Borough that have prohibited it from adopting the proposed Plan. Although Brookhaven Borough has been removed from the Plan, the Department still questions how the Plan is able to be implemented without either an approval of the proposed Plan by Brookhaven Borough or a separate Plan for Brookhaven Borough, which is approved by the Department either before or simultaneously with this proposed Plan. Before our review of this Plan can continue, Brookhaven Borough must present a feasible option for the collection, conveyance, and treatment of sewage generated within their borders.

The Department is willing to host a meeting to allow for discussions regarding the options for Brookhaven Borough. We will be contacting representatives of the Delaware County Regional Water Control Authority ("DELCORA"), Brookhaven Borough, and the Southwest Delaware County Municipal Authority ("SWDCMA") in the near future to schedule a meeting to discuss this issue further.

2. Please submit a Plan Summary, as described on the Administrative Completeness Checklist that is found in Part 2 of the Department publication entitled Instructions for Completing Act 537 Plan Content and Environmental Assessment Checklist (Document ID 362-0300-003). This publication is available on the Department's website address located in the first page footer.
3. Section C of the Act 537 Plan Content and Environmental Assessment Checklist provides the names of the municipalities which are tributary to the existing SWDCMA Wastewater Treatment Facility and are, therefore, municipalities affected by this Plan.

Please clarify why Chester Heights Borough has not been included in Section C of the Checklist.

4. Chapter 71, Section 71.31(f) indicates that the Plan shall be adopted by resolution, with specific reference to the alternatives of choice and a commitment to implement the Plan within the time limits established in an implementation schedule.

The Administrative Completeness Checklist requires the submission of original, signed, and sealed Resolutions of Adoption which contain, at a minimum, alternatives chosen and a commitment to implement the Plan in accordance with the implementation schedule.

- a. An original, signed, and sealed Resolution of Adoption, which references the specific alternatives chosen and which correctly identifies the title of the Plan, must be submitted to the Department from the following municipalities: Chester Heights Borough, the City of Chester, and Aston, Chester, Middletown, Upper Chichester, and Upper Providence Townships. The submitted Resolutions of Adoption are not original and are not sealed. In addition, they refer to the "Delaware County Act 537 Western Plan of Study," and they do not reference the chosen alternatives.
- b. An original, signed, and sealed Resolution of Adoption, which references the specific alternatives chosen and includes a commitment to implement the Plan in accordance with the implementation schedule must be submitted to the Department from Edgmont Township. The submitted Resolution of Adoption is not original, is not sealed, and does not reference the chosen alternatives.

In addition, the Resolution of Adoption incorrectly identifies the Plan as the "Delaware County Sewage Facilities Plan Eastern Plan of Study." The revised Resolution of Adoption must correctly identify the Plan's title.

Further, the Resolution of Adoption may not contain conditions to the municipality's approval of the Plan. The submitted Resolution of Adoption from Edgmont Township indicates that its approval is conditioned upon the submitted Plan not being inconsistent with or contrary to the Edgmont Township Act 537 Plan. As part of its review of the submitted Plan, and before adopting the Plan, Edgmont Township must assure that the Plan is consistent with its Act 537 Plan. The revised Resolution of Adoption from Edgmont Township may contain no conditions to its approval.

5. Chapter 71, Section 71.31(b) of the Department's Regulations and the Administrative Completeness Checklist requires that the municipality request, review, and consider the comments by the appropriate official planning agencies of the municipality, including a planning agency with area-wide jurisdiction, if one exists. Evidence that the Plan has been before these agencies for 60 days without comment is sufficient to satisfy the requirements of this section.

The Plan does not appear to contain evidence that comments were requested from the municipal planning agencies or the county planning agency.

- a. Comments from the planning agencies of the following municipalities must be submitted to the Department: Chester Heights Borough, the City of Chester, and Aston, Chester, Edgmont, Middletown, Upper Chichester, and Upper Providence Townships.
- b. Comments from the Delaware County Planning Department must be submitted to the Department.
- c. Evidence that all comments received from the municipal and county planning agencies were considered must be submitted to the Department.

Documentation that the Plan was before any of the planning agencies for 60 days without comment will satisfy the requirement to obtain comments from that planning agency.

6. Chapter 71, Section 71.31(c) requires documentation of the publication of the proposed Plan adoption action at least once in a newspaper of general circulation in the municipality. The notice must contain the Plan's major recommendations, including a list of the sewage facilities alternatives considered.

The April 14, 2011, public notice does not include a list of the sewage facilities alternatives considered. A new public notice which meets the requirements of Section 71.31(c) is required. Following the 30-day public comment period, a copy of the public notice, copies of all comments received as a result of the Plan, and the responses to the comments must be submitted. If no comments are received, a letter to that effect may be submitted.

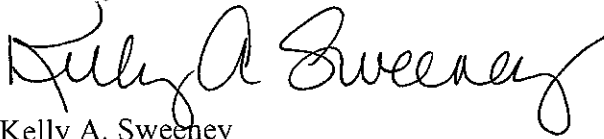
7. The Plan only includes the April 14, 2011, public notice. Please submit a copy of the second public notice. Also, your May 18, 2011, letter indicates that comments and responses received during 2 public comment periods are included in the submitted Plan. Please clarify if comments were received as a result of the public notices. If so, provide their location in the Plan and the location of the responses to the comments.
8. The implementation schedule included in Chapter 9 of the Plan on page 9-1 must be revised to include a task and milestone date for the submission of a Water Quality Management permit application. In addition, the Department recommends that the implementation schedule be drafted so that tasks occur within a finite number of days following a major milestone. For example, the task "Submission of the Water Quality Management Permit Application" may be included on the implementation schedule as occurring "x" days following the task "Approval of the Act 537 Plan."
9. The Plan does not appear to contain any documentation that SWDCMA agrees to the proposed decommissioning of their wastewater treatment facility and the diversion of the flow to the DELCORA wastewater treatment facility. Please submit a final, signed agreement between SWDCMA and DELCORA which notes that the SWDCMA wastewater treatment facility will be decommissioned, SWDCMA will maintain a collection and conveyance system that is tributary to the DELCORA wastewater treatment facility, and that DELCORA will provide sewage treatment to the municipalities and authorities formerly served by the SWDCMA wastewater treatment facility.
10. A final, signed agreement between DELCORA and the Southern Delaware County Authority ("SDCA") that notes that flows generated in Upper Chichester Township which are served by the collection and conveyance system owned and operated by SDCA will be diverted to DELCORA must be submitted to the Department.

Please note, Item 8 of the Administrative Completeness Checklist requires the submission of documentation indicating that the appropriate agencies have received, reviewed, and concurred with the method proposed to resolve identified inconsistencies within the proposed alternative and consistency requirements in 71.21.(a)(5)(i-iii). The Department will assure that all inconsistencies have been resolved as part of the technical review of this Plan.

The Department's review period of 120 days does not start until a complete submission is received.

If there are any questions concerning the information required, please contact me at 484.250.5182.

Sincerely,



Kelly A. Sweeney
Sewage Planning Specialist 2
Water Management

cc: Mr. Pickett – Delaware County Planning Department (via e-mail)
Ms. Holm – Delaware County Planning Department (via e-mail)
Ms. Volkay-Hilditch – DELCORA (via e-mail)
Mr. Salvucci – DELCORA (via e-mail)
Mr. Crum – SWDCMA (via e-mail)
Mr. Catania – SDCA
Mr. Lehr – Aston Township (via e-mail)
Ms. McKinley – Brookhaven Borough (via e-mail)
Ms. Mulvena – Walton, Mulvena & Associates (via e-mail)
Mr. Pisarek – Chester Township
Ms. Timmins – Chester Heights Borough (via e-mail)
Ms. Reiner – Edgmont Township (via e-mail)
Mr. Clark – Middletown Township (via e-mail)
Mr. Majeski – Middletown Township Sewer Authority (via e-mail)
Mr. Fazler – Bradford Engineering Associates, Inc. (via e-mail)
Ms. Coleman – Upper Chichester Township (via e-mail)
Mr. Cashman – Upper Providence Township (via e-mail)
Mr. Donze – Upper Providence Township Sewer Authority
Mr. Kelly – Kelly & Close Engineers
Mr. Butler – City of Chester (via e-mail)
Adam N. Bram, Esq. – Office of Chief Counsel (via e-mail)
Mr. Feola – DEP (via e-mail)
Ms. Fields – DEP (via e-mail)
Ms. Mahoney – DEP (via e-mail)
Planning Section
Re 30 (johl1wqm)172-6



Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
610-701-3000 • Fax 610-701-3186
www.westonsolutions.com

23 April 2012

Ms. Kelly A. Sweeney
Municipal Planning and Finance Section
PADEP Southeast Regional Office
2 East Main Street
Norristown, PA 19401

Re: DELCORA Act 537 Plan Update Chester-Ridley Service Area

Dear Ms. Sweeney:

Weston Solutions, Inc. (WESTON®) is submitting the enclosed responses to your e-mail dated April 19, 2012 requesting additional information for the Act 537 Plan Update for the Chester-Ridley Service Area, on behalf of The Delaware Regional Water Quality Control Authority (DELCORA) and the Delaware County Planning Department (DCPD).

This Plan Update has been prepared to evaluate alternatives for sewage treatment for customers of the Southwest Delaware County Municipal Authority (SWDCMA). The Study Area is known as the Chester-Ridley Creek Service Area. The Act 537 Plan Update for the Chester-Ridley Creek Service Area has been prepared to address a serious problem at the Baldwin Run Pollution Control Facility (BRPCF) by evaluating alternatives to either upgrade the existing facility or divert flow to DELCORA via a new pump station and force main.

Bethel Township was not included in Table 2 because DELCORA does not believe that the project will proceed due to the number of pump stations needed to redirect the flow. However, to avoid any issues, Table 2 has been updated to include the Bethel Township flow and to incorporate the terms of the Sunoco Refinery agreement that was finalized on 23 March 2012. The new agreement with Sunoco limits their average daily flow (ADF) to 6.0 MGD. The previous agreement limited Sunoco flow to 10 MGD, so there is now 4 MGD of added available capacity at the WRTP. Moreover, Sunoco's average daily flow has decreased to less than 2.0 MGD since operations ceased at the end of 2011.

In order to streamline this review process, rather than transmitting large meter data files, the flow values for Newtown and Upper Providence Townships have been removed as flows less than municipal commitments from the calculation in the revised Table 2. The new agreement with Sunoco is provided to you (Attachment 1 of this letter) and has also been included in the revised Table 2 to demonstrate ample capacity at the WRTP to accept flows from the Chester-Ridley Service Area. We are happy to provide the meter data, which reports flow values to the hundredth of an MGD.



Kelly Sweeney
PADEP

23 April 2012
Page 2

**Revised Table 2
WRTP Capacity and Committed Flows**

Source of Flow	Average Daily Flow (MGD)
WRTP (5-year average) ¹	37.1
Committed Industrial Flows	
Sunoco Reserve ²	0.00
Municipal Commitments³	
City of Chester	0.326
Chester Township	0.375
Bethel Township	0.121
Newtown Township	0.841
Edgmont Township	0.350
Upper Providence Township	0.369
2011 Flow Under Municipal Commitments⁴	
Newtown Township	0.00
Upper Providence Township	0.00
Proposed Commitment	
Chester-Ridley Creek Service Area	6.66
Total WRTP Flow + Commitments	
	46.142
Notes: ¹ 5-Year ADF per 2011 Chapter 94 Report ² Permitted flow 5-year ADF (6.0 MGD - 6.020 MGD = - 0.02MGD)) ³ Commitments per February 3, 2009 PADEP letter ⁴ This flow is from metered sources that were included in the Municipal Commitments listed in the February 3, 2009 PADEP letter and are now delivering flow to the WRTP.	

Please find a copy of the agreement with the City of Philadelphia attached to this letter, as well. Thank you for your communication concerning the Chester-Ridley Act 537 Plan review. We trust that this submission addresses your outstanding information requirements. If you have any questions or require additional information, please do not hesitate to contact me at (610) 701-3132. Thank you for your attention.

Very truly yours,

WESTON SOLUTIONS, INC.

Elizabeth Bolt, P.E.
Senior Project Engineer

cc: C. Volkay-Hilditch (DELCORA)
R. Powell (DELCORA)
K. Holm (DCPD)

Attachment 1

Agreement with Sunoco

AMENDED AGREEMENT OF SALES AND SERVICE

THIS AMENDED AGREEMENT is made as of the 23rd day of MARCH 2012 by Delaware County Regional Water Quality Control Authority ("DELCORA"), a Pennsylvania Municipal Authority and Sunoco, Inc. (R&M) ("SUNOCO"), a Pennsylvania Corporation.

RECITALS

A. DELCORA owns and operates (i) a wastewater treatment plant (the "Western Regional Plant") located in the City of Chester, Pennsylvania and (ii) a related conveyance system consisting of interceptors, sewers, pump stations and other equipment (together with the Western Regional Plant, the "Western Regional System"); and

B. DELCORA and SUNOCO entered into an Agreement dated as of December 1, 1973 (the "Original Agreement") pursuant to which the Authority has been treating SUNOCO wastewater since the Western Regional System began commercial operation; and

C. The Original Agreement terminated on December 1, 2004, and the parties replaced the Original Agreement with that certain Agreement of Sales and Service dated January 1, 2005 by and between DELCORA and SUNOCO (the "Existing Agreement") setting forth the terms under which the Authority agreed to treat SUNOCO wastewater; and

D. Due to changes in the operations of SUNOCO's Marcus Hook Refinery, the parties are replacing the Existing Agreement with this Amended Agreement to set forth the terms under which the Authority will continue to treat SUNOCO wastewater; and

E. For purposes of this Agreement, SUNOCO shall be classified as a "Wholesale Industrial User"; and

F. SUNOCO is authorized to discharge certain wastewaters into the Western Regional System (i) under an Industrial Discharge Permit No. IOT-03-02, which was issued to SUNOCO by the DELCORA on December 10, 2003 (the "Permit"), and (ii) subject to the conditions of the Permit and DELCORA Standards, Rules and Regulations of 2011 adopted by DELCORA Resolution No. 2011-04 adopted April 19, 2011 and as same shall be amended from time to time (collectively, the "Rules and Regulations"). Such wastewater is referred to herein as "Permitted Wastewater".

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing and intending to be legally bound hereby, the parties agree as follows:

ARTICLE I

DELIVERY AND ACCEPTANCE OF WASTEWATER

1.01 Point of Connection and Metering. Permitted Wastewater shall be delivered by SUNOCO to the Western Regional System at a point of connection at the boundary of SUNOCO's property as described in Exhibit A. SUNOCO's metering station located as shown on Exhibit A shall measure and record all flows from SUNOCO to the Western Regional System.

1.02 Acceptance of Wastewater. DELCORA shall accept Permitted Wastewater from the SUNOCO conveyance facilities in an amount not to exceed six million (6,000,000) gallons per day (average daily flow) based on a monthly average, consistent with the Permit. SUNOCO's daily peak flow shall not exceed 15.0 million gallons per day. In the event that SUNOCO's daily peak flow exceeds 15 million gallons per day, SUNOCO shall pay a surcharge equal to \$5,000.00 per million gallons in excess of 15.0 million gallons per day. Said surcharge shall be billed to SUNOCO as part of the regular quarterly billing as set forth in Section 2.04.

ARTICLE II

SERVICE CHARGES AND PAYMENTS

2.01 Service Charges. SUNOCO shall pay DELCORA in each calendar year or portion thereof during which this Agreement is in effect, subject to the other provisions hereof, a service charge for the wastewater treatment and conveyance services rendered by DELCORA to SUNOCO for Permitted Wastewater. The service charge shall be based upon rates which are uniform for all users categorized as "Wholesale Industrial Users" in the Western region and DELCORA, in its sole and reasonable discretion, shall allocate the costs of the system among classes of users based upon the respective burdens placed on the system by each class. The service charge for the Wholesale Industrial Users class shall be determined by annual resolution passed by the DELCORA Board of Directors.

Charges will be reconciled at year end based on actual flows and loadings. DELCORA's good faith determinations as to the elements of costs, classifications of its customers, size of

reasonable reserves and like matters shall be conclusive.

Notwithstanding the above provisions, DELCORA may, within DELCORA's sole discretion, make improvements that will more closely quantify components of treatment costs should DELCORA determine that said improvements would be more equitable.

2.02 Estimates of Service Payments to be Made by SUNOCO.

(a) **Preliminary Estimate.** On or before October 31st of each year commencing in 2005, DELCORA will prepare and submit to SUNOCO a preliminary statement for the next succeeding calendar year showing the estimated amounts to be paid by SUNOCO during such year.

(b) **Final Estimate.** On or before December 1st of each year commencing in 2005, DELCORA will prepare and submit to SUNOCO a statement approved by the DELCORA Board of Directors showing, in reasonable detail, for the next succeeding calendar year: the estimated amounts to be paid by SUNOCO during such year determined in accordance with the provisions hereof, hereafter "Final Estimate." The amounts to be paid by SUNOCO contained within the Final Estimate shall be hereafter referred to as the "Estimated Service Payments to be Made by SUNOCO."

2.03 Amended Estimates. In the event of unusual contingencies requiring an upward revision in the current budget adopted by DELCORA, or in the event of a material change in the quantity or quality of SUNOCO'S wastewater flow, DELCORA may amend the Estimated Service Charges to reflect such changed conditions. A statement showing the amended estimated payments, hereafter "Amended Estimate," in reasonable detail, and the reasons therefore shall be submitted to SUNOCO, thereafter, commencing with the next quarterly payment, the payments made by SUNOCO shall be based upon the Amended Estimate.

2.04 Payments on Estimates. DELCORA shall submit to SUNOCO quarterly invoices reflecting the amount due and owing to DELCORA. SUNOCO agrees to pay said Estimated Service Charges for the next succeeding calendar year in four (4) equal installments to be paid within thirty (30) days of the receipt of each correct quarterly invoice. Actual usage of DELCORA's sewer system will be reconciled with the estimates utilized in calculating quarterly billings and adjustments made pursuant to 2.05 below.

2.05 Audited Statements. DELCORA shall cause to be prepared and certified by an independent Certified Public Accountant on or before May 31st of each year, a report setting forth in

reasonable detail (a) the Operating and Capital Costs of the Western Regional System for the preceding calendar year, and (b) the final service charge chargeable to SUNOCO for such year determined in accordance with the provisions of Sections 2.01 through 2.04 above. Such report shall contain statements setting forth the payments theretofore made by SUNOCO as estimated payments of service charges and the amount by which the final service charge to SUNOCO exceeds or is less than the aggregate of the payments and credits theretofore made by or allowed to SUNOCO on account of such service charge. Said final service charge shall be added to or subtracted from the third quarterly billing of the succeeding year.

2.06 Penalty on Late Payments. If SUNOCO does not make full payment of any such quarterly installments or additional charges, except as specified in 2.03, on or before the specified payment date, there shall be added to the amount thereof interest at the rate of 10% per annum from the due date of such charge to the date on which DELCORA shall receive payment thereof.

2.07 State and Federal Regulations to be Followed. Notwithstanding any provision set forth in this Article, the service charges payable by SUNOCO under this Agreement shall be calculated in such manner as will comply with the applicable regulations of the Federal Environmental Protection Agency and the Pennsylvania Department of Environmental Protection, or any successor agencies having jurisdiction thereof.

ARTICLE III

MEASUREMENT OF WASTEWATER FLOWS

3.01 Metering. The quantity of wastewater emanating from SUNOCO's facilities and discharged into the Sun Force Main shall be based upon readings of SUNOCO's meter as referenced in Section 1.01 above.

3.02 Access to Meters. DELCORA shall have the right of access to the meter for the purpose of reading and checking in place for accuracy, at its expense.

3.03 Missing or Inaccurate Flow Records. In the case of missing or inaccurate flow records due to faulty meter operation or otherwise, an estimate of flows shall be made by DELCORA based upon DELCORA's consideration of DELCORA and/or SUNOCO records of past flow or similar flows as applied to the current conditions, for use in place of meter readings.

ARTICLE IV
WASTEWATER QUALITY RESTRICTIONS

4.01 Uniform Standards. DELCORA has adopted uniform wastewater quality standards by the above-referenced Rules and Regulations, which comply with the requirements of Federal, State and Local regulatory authorities. SUNOCO will refrain from discharging or permitting the discharge of wastewater from SUNOCO's facilities into DELCORA's System that would violate any of such standards as they now exist or as they may be modified from time to time. Wastewater which does not meet the standards set forth in the Rules and Regulations, as amended, is hereinafter referred to as "improper wastewater" or "improper discharge".

4.02 Reimbursement for Damages from Improper Discharge. SUNOCO will assist DELCORA in determining the source of any improper wastewater. Upon notice from and at the direction of DELCORA, SUNOCO will assist DELCORA in terminating the flow of any improper discharge. All damages caused to DELCORA's and SUNOCO's property as the result of improper discharge shall be recoverable from the person or entity which is the source of the improper discharge. If DELCORA is unable to recover its damages after pursuing a civil action against the source, the excess damages shall be recovered through the general rate structure in succeeding years. SUNOCO shall indemnify and hold harmless DELCORA with respect to any damages or losses suffered by DELCORA on any other person or entity resulting from an improper discharge or improper wastewater originating from SUNOCO.

ARTICLE V
OPERATION AND MAINTENANCE OF FACILITIES

5.01 DELCORA Facilities. DELCORA will exercise best efforts to continuously operate, maintain and repair the Western Regional System or cause it to be maintained and repaired so that it will be at all times in efficient operating condition and in compliance with the standards prescribed by all appropriate regulatory agencies for the purpose of this Agreement.

5.02 Hold Harmless. DELCORA shall own the pipeline from the point of connection referred to in Section 1.01, but will not hold SUNOCO harmless for any damages or losses to the Western Regional System or the person or property of third parties directly resulting from (a) SUNOCO's breach of this Agreement; (b) SUNOCO's non-compliance with the DELCORA Standards, Rules and Regulations then in effect; (c) SUNOCO's violation of federal, state or local

statutes, ordinances, regulations or procedures applicable wastewater transportation, treatment and/or disposal; and/or (d) illegal, intentional and/or negligent act(s) of SUNOCO.

ARTICLE VI

MISCELLANEOUS

6.01 Insurance. DELCORA will insure, or cause to be insured, the Western Regional System, or such parts thereof as are usually insured by the Owners and/or operators of wastewater systems in the Commonwealth of Pennsylvania. Such insurance policies shall be non-assessable. DELCORA will also maintain liability insurance consistent with similar wastewater systems.

6.02 Inspection. Each party shall provide each other from time to time all information relevant to the proper administration of their responsibilities under this Agreement, or in respect to the interpretation hereof, as, and in such form and detail as, may be reasonably requested and each shall at all reasonable times and from time to time permit their representative to examine and inspect their respective records and physical facilities relevant to the subject matter of this Agreement.

6.03 Force Majeure. Notwithstanding any other provision of this Agreement, neither party hereto shall be responsible in damages to the other for any failure to comply with this Agreement resulting from an act of God or riot, sabotage, public calamity, flood, strike, breakdown of conveyance or treatment facilities due to circumstances beyond the party's control, or other event beyond its reasonable control. If a force majeure event occurs: (a) the non-performing party shall give the other party prompt written notice describing the particulars of the force majeure event and the potential duration thereof; and (b) the non-performing party shall resume performance at the earliest practicable time after the end of the force majeure event.

6.04 Indemnity. To the extent permitted by law, each party agrees to indemnify, defend and save harmless the other party against all costs, claims, losses, damages or legal actions of any nature on account of any injury to persons or property occurring in the performance of this Agreement due to the negligence of such party or its agents, employees, contractors or subcontractors, notwithstanding the provisions of Section 5.02.

6.05 No Joint Ownership. No provision of this Agreement shall be construed to create any type of ownership of any property, any partnership or joint venture, or create any other rights or liabilities except as expressly set forth herein.

6.06 Severability. Should any provision hereof, for any reason, be held illegal or invalid, no other provision of this Agreement shall be affected, and this Agreement shall then be construed

and enforced as if such illegal or invalid provision had not been contained herein.

6.07 Headings. The headings in this Agreement are solely for convenience and shall have no effect in the legal interpretation of any provision hereof.

6.08 Effective Date, Term and Termination. The Existing Agreement shall terminate and this Amended Agreement shall become effective as of April 1, 2012. This Amended Agreement shall remain in force and effect until December 31, 2025.

6.09 Notice of Termination. Either party may elect to terminate this Agreement after December 31, 2020, with the provision of five years written notice to the other party delivered at any time after December 31, 2015.

6.10. Waiver. The failure of SUNOCO or DELCORA to insist upon strict performance of any of the terms contained herein shall not be construed as a waiver of any rights hereunder.

6.11 Counterparts. This Agreement has been executed in five (5) counterparts, each of which shall be regarded for all purposes as an original, but such counterparts shall together constitute but one and the same instrument.

6.12. Successors and Assigns. This Agreement shall bind and inure to the benefit of the respective successors and assigns of the parties hereto.

6.13. Assignment of Service Charges. DELCORA's right to receive payments hereunder may be assigned and pledged to Commerce Bank, as Trustee under Indenture dated July 1, 2001, or any subsequent Indenture to secure DELCORA'S Sewer Revenue Bonds currently outstanding or hereafter issued to cover any Project Costs to DELCORA.

ARTICLE VII

DEFINITIONS

7.01 Definitions Incorporated Herein. The definitions set forth in the DELCORA Rules and Regulations, as amended, are incorporated herein by reference thereto as though set forth in full herein. Wherever used herein, the said terms shall have the meanings as so defined except in those instances where the context clearly indicates otherwise. The terms "Western Regional Plant", "Western Regional System", "Original Agreement", "Existing Agreement", "Wholesale Industrial User", "Permit", "Rules and Regulations" and "Permitted Wastewater" as used in this Amended

Agreement shall have the meanings as so defined in the Recitals to this Amended Agreement and such definitions are incorporated herein by reference hereto as though set forth in full herein.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement of Sales and Service to be executed as of the date and year first written above by their respective duly authorized officers and their respective seals to be hereunto affixed.

**DELAWARE COUNTY REGIONAL
WATER QUALITY CONTROL AUTHORITY**

(CORPORATE SEAL)

By: Stanley R. Kester
Stanley R. Kester, Chairman

Attest:

David G. Gorbey
David G. Gorbey, Secretary

SUNOCO, INC. (R&M)

By: John D. Pickering
John D. Pickering, SVP Manufacturing

(CORPORATE SEAL)

Attest:

Glean M. Jones
~~Secretary~~ Assistant Secretary

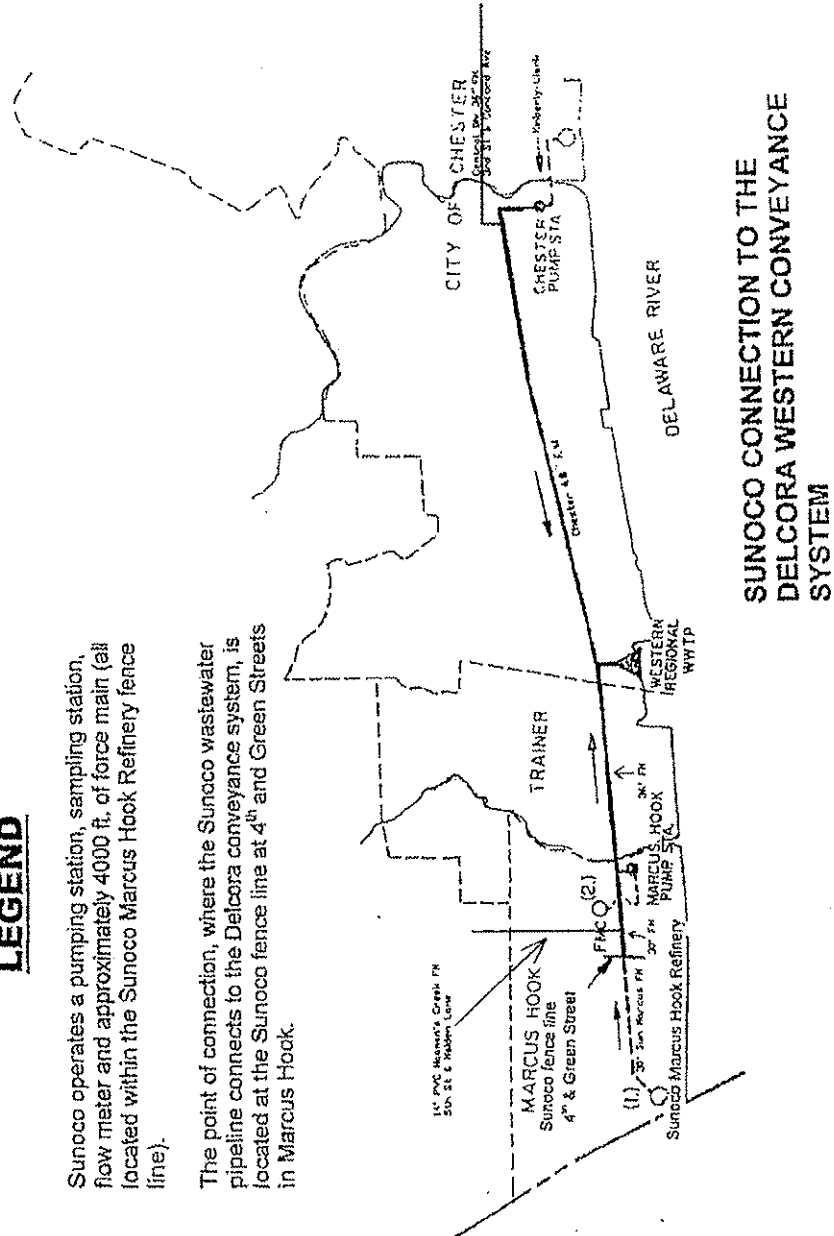
EXHIBIT A

DELCORA WESTERN CONVEYANCE SYSTEM SUNOCO CONNECTION

LEGEND

Sunoco operates a pumping station, sampling station, flow meter and approximately 4000 ft. of force main (all located within the Sunoco Marcus Hook Refinery fence line).

The point of connection, where the Sunoco wastewater pipeline connects to the Delcora conveyance system, is located at the Sunoco fence line at 4th and Green Streets in Marcus Hook.



Attachment 2

Agreement with City of Philadelphia

WASTEWATER SERVICE AGREEMENT

COPY

This Agreement ("Agreement") is made this 25th day of July, 2011, by and between the **CITY OF PHILADELPHIA** acting through its Water Department ("City") and the **Delaware County Regional Water Quality Control Authority ("DELCORA")**, a body corporate and politic organized and existing under the laws of the Commonwealth of Pennsylvania, having a principal place of business at 100 E. Fifth Street in Chester, Pennsylvania 19013 (collectively referred to as the "Parties").

BACKGROUND

WHEREAS, City owns and operates wastewater collection and treatment facilities providing services to convey, treat and dispose of wastewater and its by-products ("Wastewater Treatment Services"); and

WHEREAS, the Council of the City of Philadelphia has by Ordinance, Bill No. 1129, approved by the Mayor on May 20, 1987, authorized the Water Commissioner to enter into agreements for the sale of Wastewater Treatment Services to suburban communities; and

WHEREAS, the Parties entered into a Wholesale Wastewater Agreement dated March 15, 1974 ("1974 Agreement"), whereby the City agreed to provide DELCORA Wastewater Treatment Services; and

WHEREAS, the Parties have amended the 1974 Agreement on May 1, 1995 and again on June 15, 2006; and

WHEREAS, The 1974 Agreement as amended is scheduled to terminate on July 25, 2011; and

WHEREAS, DELCORA desires to continue to procure Wastewater Treatment Services from City to ensure wastewater treatment for DELCORA and its contributing jurisdictions; and

WHEREAS, City is actively managing a Federal and State-mandated Combined Sewer Overflow ("CSO") program within City, and such program requires the City to maximize the treatment of wastewater collected in City's combined sewer system; and

WHEREAS, City in order to efficiently manage its CSO program must limit the treatment of inflow and infiltration from separate sanitary sewer systems within the City and from the City's wholesale customers; and

WHEREAS, City desires to provide and DELCORA desires to utilize Wastewater Treatment Services in accordance with the terms and conditions set forth in this Agreement.

WHEREAS, the current wastewater services contract was expiring on July 25, 2011; and

WHEREAS, the City has been in negotiations with US EPA and PA DEP regarding the City's Long Term Control Plan Update; and

WHEREAS, the City has deferred negotiations with DELCORA until 2011;

NOW, THEREFORE, intending to be legally bound and in consideration of the mutual covenants contained in this Agreement, the Parties agree as follows:

I. DEFINITIONS

For the purposes of this Agreement, the following terms and phrases shall have the following meanings:

- A. Biochemical Oxygen Demand ("BOD"): The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure for five (5) days at 20 degrees Celsius expressed in terms of concentration (milligrams per liter (mg/l)).
- B. DRBC: Delaware River Basin Commission.
- C. EPA: United States Environmental Protection Agency.
- D. Fiscal Year: A fiscal year shall be the year beginning on July 1 of any given year and ending on June 30th of the following year.
- E. Flow Limits: The maximum amount of wastewater that may be discharged to the City as measured in Millions of Gallons per Day ("MGD") and/or Cubic Feet per Second ("cfs") for treatment as specified in Exhibit "A."
- F. Industrial User: Any facility, entity or person that introduces an indirect discharge regulated under the Clean Water Act, state or local law to a POTW.
- G. Loadings Limits: The maximum Biochemical Oxygen Demand (BOD) loadings and Suspended Solids ("SS") loadings that may be discharged to City for treatment as specified in Exhibit "A."
- H. SWWPCP: Southwest Water Pollution Control Plant.
- I. Non-domestic User: Commercial, industrial or municipal users who discharge to the POTW.

- J. PADEP: Commonwealth of Pennsylvania Department of Environmental Protection.
- K. PCB: Polychlorinated Biphenyls.
- L. Prohibited Exceedance: Any exceedance of the Flow and/or Loading Limits established in this Agreement and Exhibits.
- M. POTW: Publicly Owned Treatment Works. A treatment works as defined by section 212 of the Clean Water Act (33 U.S.C. §1292) which is owned by the City including any devices and systems used in the storage, treatment, recycling or reclamation of municipal sewage and industrial waste. This definition includes any sewers that convey wastewater to the POTW treatment plant, but does not include pipes, sewers or other conveyances not connected to a facility providing treatment. POTW shall also include any sewers that convey wastewater to the POTW from persons outside the City who are, by contract or agreement with the City, users of the City's POTW.
- N. Significant Industrial User ("SIU"): (1) any Industrial User subject to any National Categorical Pretreatment Standard; or (2) any Industrial User that discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater) or contributes a process waste stream which makes up five percent (5%) or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or (3) any Industrial User that is found by the City, PADEP or EPA to have a reasonable potential, either alone or in conjunction with other discharges, to adversely affect the POTW, the collector system, the solid waste byproducts of the POTW, or air emissions from the POTW.
- O. Suspended Solids ("SS"): The total suspended matter that floats on the surface of, or is suspended in water, wastewater or other liquids, and which is removable by laboratory filtering expressed in terms of concentration (milligrams per liter (mg/l)).
- P. Contributing Jurisdiction: Any municipality or jurisdiction whose wastewater is conveyed through the force main serving DELCORA to the City's SWWPCP.
- Q. Long Term Control Plan ("LTCP") or Long Term Control Plan Update ("LTCPU") shall mean the City's approved plan for controlling combined sewer overflows.

II. TERM