BOROUGH OF CHAMBERSBURG

WASTEWATER TREATMENT PLANT UPGRADE

APPLICATION PACKAGE FOR WATER QUALITY MANAGEMENT PERMIT

May 2012

AECOM Project No. 60186852

Prepared By:

Jacob L. Rainwater, P.E.

(Seal)

AECOM
1700 Market Street
Philadelphia, PA 19103
Phone: (215) 399-4370
Fax: (215) 399-4371

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EXHIBIT A

GENERAL INFORMATION FORM

8000-PM-IT0001 Rev. 10/2009
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

Related ID#s (If Known)				DEP USE ONLY
Client ID#	53002	APS ID#		Date Received & General Notes
Site ID#	453250	Auth ID#	337877	
Facility ID#				

CLIENT INFORMATION

DEP Client ID#	Client Type / Code
53002	MUNI

Organization Name or Registered Fictitious Name | **Employer ID#** (EIN) | **Dun & Bradstreet ID#**
Borough of Chambersburg

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1
100 South 2nd Street

Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country
Chambersburg	PA	17201	USA

Client Contact Last Name	First Name	MI	Suffix
Anderson	Lance		P.E.

Client Contact Title	Phone	Ext
Water/Sewer Superintendent	(717) 709-2285	

Email Address
landerson@chambersburgpa.gov

FAX

SITE INFORMATION

DEP Site ID#	Site Name
453250	Chambersburg Borough Sewage Treatment Plant

EPA ID# | **Estimated Number of Employees to be Present at Site**

Description of Site
Wastewater Treatment Plant

County Name	Municipality	City	Boro	Twp	State
Franklin	Chambersburg Borough	☐	☒	☐	
County Name	**Municipality**	**City**	**Boro**	**Twp**	**State**
		☐	☐	☐	

Site Location Line 1
725 Hollywell Avenue

Site Location Line 2

Site Location Last Line – City	State	ZIP+4
Chambersburg	PA	17201-0909

Detailed Written Directions to Site
From S.R. 30, Lincoln Way East in Chambersbug, turn south onto South Main Street (S.R. 11). Proceed 1/2 miles and turn right onto West South Street. Go two blocks and continue straight onto Hollywell Ave - the site will be on the right with access off of Dump Road.

Site Contact Last Name	First Name	MI	Suffix
Kelly	Ronald		

Site Contact Title
Sewage Treatment Plant Manager

Site Contact Firm

Mailing Address Line 1
725 Hollywell Avenue

Mailing Address Line 2

Mailing Address Last Line – City	State	ZIP+4
Chambersburg	PA	17021-0909

Phone	Ext	FAX	Email Address
717-261-3299			

NAICS Codes (Two- & Three-Digit Codes – List All That Apply): 221

6-Digit Code (Optional): 221320

Client to Site Relationship
OWNOP

FACILITY INFORMATION

Modification of Existing Facility

		Yes	No
1.	**Will this project modify an existing facility, system, or activity?**	☒	☐
2.	**Will this project involve an addition to an existing facility, system, or activity?**	☒	☐

If "Yes", check all relevant facility types and provide DEP facility identification numbers below.

	Facility Type	DEP Fac ID#		Facility Type	DEP Fac ID#
☐	Air Emission Plant		☐	Industrial Minerals Mining Operation	
☐	Beneficial Use (water)		☐	Laboratory Location	
☐	Blasting Operation		☐	Land Recycling Cleanup Location	
☐	Captive Hazardous Waste Operation		☐	MineDrainageTrmt/LandRecyProjLocation	
☐	Coal Ash Beneficial Use Operation		☐	Municipal Waste Operation	
☐	Coal Mining Operation		☐	Oil & Gas Encroachment Location	
☐	Coal Pillar Location		☐	Oil & Gas Location	
☐	Commercial Hazardous Waste Operation		☐	Oil & Gas Water Poll Control Facility	
☐	Dam Location		☐	Public Water Supply System	
☐	Deep Mine Safety Operation -Anthracite		☐	Radiation Facility	
☐	Deep Mine Safety Operation -Bituminous		☐	Residual Waste Operation	
☐	Deep Mine Safety Operation -Ind Minerals		☐	Storage Tank Location	
☐	Encroachment Location (water, wetland)		☒	Water Pollution Control Facility	453250
☐	Erosion & Sediment Control Facility		☐	Water Resource	
☐	Explosive Storage Location		☐	Other:	

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	55	37	77	40	27

Horizontal Accuracy Measure: Feet --or-- Meters

Horizontal Reference Datum Code
- ☒ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code: GISDR

Reference Point Code: LWTU

Altitude: Feet 600 --or-- Meters

Altitude Datum Name
- ☒ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code: TOPO

Geometric Type Code: POINT

Data Collection Date: 5/1/12

Source Map Scale Number: 1 Inch(es) = 2,000 Feet
--or-- Centimeter(s) = Meters

PROJECT INFORMATION

Project Name
Chambersburg WWTP Upgrade

Project Description
The Borough of Chambersburg proposes to implement improvements to the existing Wastewater Treatment Plant (WWTP) and increase its design capacity to an average daily flow of 11.28 MGD to meet the projected 20-year wastewater needs. The existing headworks and influent pump station will be replaced. The existing grit removal system, vertical loop reactor process system, solids handling system, and the associated electrical and SCADA systems will be upgraded. Two new final clarifiers will also be constructed together with an accompanying return activated sludge (RAS) pumping station.

Project Consultant Last Name	First Name	MI	Suffix
Rainwater	Jacob	L.	PE

Project Consultant Title			**Consulting Firm**	
Project Manager			AECOM	
Mailing Address Line 1			**Mailing Address Line 2**	
1700 Market Street			Suite 1700	
Address Last Line – City			**State**	**ZIP+4**
Philadelphia			PA	19103
Phone	**Ext**	**FAX**	**Email Address**	
215-399-4370			Jacob.Rainwater@aecom.com	

Time Schedules	**Project Milestone (Optional)**
Advertise for Bid	Fall 2012
Award of Contract	**December 2012**
Construction Complete	**Summber 2012**

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** ☒ Yes ☐ No
2. **Is your project funded by state or federal grants?** ☒ Yes ☐ No
   Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
   Aspect of Project Related to Grant
   Grant Source: H2O Grant - Administrated by DCED
   Grant Contact Person: Dara Bostic, DCED, phone: 717-214-5334, fax: 717-787-9514
   Grant Expiration Date: June 30, 2013
3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** ☐ Yes ☒ No
   Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
   If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

Note: Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1. **Is there an adopted county or multi-county comprehensive plan?** ☐ Yes ☐ No
2. **Is there an adopted municipal or multi-municipal comprehensive plan?** ☐ Yes ☐ No
3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** ☐ Yes ☐ No
   Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
   If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.
4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** If zoning approval has been received, attach documentation. ☐ Yes ☐ No
5. **Have you attached Municipal and County Land Use Letters for the project?** ☐ Yes ☐ No

COORDINATION INFORMATION

Note: The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 and the accompanying Cultural Resource Notice Form.

If the activity will be a mining project (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

If the activity will not be a mining project, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	**Is this a coal mining project?** If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0. (DEP Use/48y1)	☐	Yes	☒	No
1.1	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?** (DEP Use/4x70)	☐	Yes	☐	No
1.2	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?** (DEP Use/4x70)	☐	Yes	☐	No
1.3	**Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?** (DEP Use/4x70)	☐	Yes	☐	No
1.4	**For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?** (DEP Use/4x62)	☐	Yes	☐	No
1.5	**Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?** (DEP Use/3140)	☐	Yes	☐	No
1.6	**Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?** (DEP Use/4z41)	☐	Yes	☐	No
2.0	**Is this a non-coal (industrial minerals) mining project?** If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0. (DEP Use/48y1)	☐	Yes	☒	No
2.1	**Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?** (DEP Use/4x70)	☐	Yes	☐	No
2.2	**Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?** (DEP Use/4x70)	☐	Yes	☐	No
2.3	**Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?** (DEP Use/4x70)	☐	Yes	☐	No
2.4	**For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?** (DEP Use/4x62)	☐	Yes	☐	No
2.5	**Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?** (DEP Use/3140)	☐	Yes	☐	No

3.0	**Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well?** If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0. (DEP Use/4z41)	☐	Yes	☒	No
3.1	**Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?** (DEP Use/4z41)	☐	Yes	☐	No
3.2	**Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system?** If "Yes", discuss in *Project Description*. (DEP Use/4z41)	☐	Yes	☐	No
3.3	**Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?** (DEP Use/4z41)	☐	Yes	☐	No
4.0	**Will the project involve a construction activity that results in earth disturbance?** If "Yes", specify the total disturbed acreage. (DEP Use/4x66) **4.0.1 Total Disturbed Acreage** approximately 5.0 acres	☒	Yes	☐	No
5.0	**Does the project involve any of the following?** If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0. (DEP Use/4x10)	☐	Yes	☒	No
5.1	**Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?** (DEP Use /4x10).	☐	Yes	☒	No
5.2	**Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?** (DEP Use/4x10).	☐	Yes	☒	No
5.3	**Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?** (DEP Use /4x10).	☐	Yes	☒	No
6.0	**Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?** (DEP Use/4x62)	☐	Yes	☒	No
7.0	**Will the project involve the construction and operation of industrial waste treatment facilities?** (DEP Use/4x62)	☐	Yes	☒	No
8.0	**Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations?** If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the *Project Description*, where applicable. (DEP Use/4x62) **8.0.1 Estimated Proposed Flow (gal/day)** Average Daily Flow: 11.28 MGD	☒	Yes	☐	No
9.0	**Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?** (DEP Use/4x61). **9.0.1 Was Act 537 sewage facilities planning submitted and approved by DEP?** If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	☐ ☒	Yes Yes	☒ ☐	No No
10.0	**Is this project for the beneficial use of biosolids for land application within Pennsylvania?** If "Yes" indicate how much (i.e. gallons or dry tons per year). (DEP Use/4X62) **10.0.1 Gallons Per Year (residential septage)** _____ **10.0.2 Dry Tons Per Year (biosolids)**	☐	Yes	☒	No

11.0 **Does the project involve construction, modification or removal of a dam?** ☐ Yes ☒ No
If "Yes", identify the dam. (DEP Use/3140)
11.0.1 **Dam Name**

12.0 **Will the project interfere with the flow from, or otherwise impact, a dam?** ☐ Yes ☒ No
If "Yes", identify the dam. (DEP Use/3140)
12.0.1 **Dam Name**

13.0 **Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)?** If "Yes", identify each type of emission followed by the amount of that emission. (DEP Use/4x70) ☒ Yes ☐ No
13.0.1 **Enter all types & amounts of emissions; separate each set with semicolons.** The existing flare gas burner and boiler are to be replaced. Biogas generated through anarobic digestors (125 scfm with a heating value of 550 BUT/scf) will be mostly utilitzed by the new boiler. The approximate maximum emissions of major air pollutants are estimated as (tpy): NOx 1.87; VOC 0.21; SOx 0.04; CO 1.57; PM 0.14.

14.0 **Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year?** If "Yes", check all proposed sub-facilities. (DEP Use/4x81) ☐ Yes ☒ No
14.0.1 **Number of Persons Served**
14.0.2 **Number of Employee/Guests**
14.0.3 **Number of Connections**
14.0.4 **Sub-Fac: Distribution System** ☐ Yes ☐ No
14.0.5 **Sub-Fac: Water Treatment Plant** ☐ Yes ☐ No
14.0.6 **Sub-Fac: Source** ☐ Yes ☐ No
14.0.7 **Sub-Fac: Pump Station** ☐ Yes ☐ No
14.0.8 **Sub Fac: Transmission Main** ☐ Yes ☐ No
14.0.9 **Sub-Fac: Storage Facility** ☐ Yes ☐ No

15.0 **Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?** (DEP Use/4x81) and 4x52). ☐ Yes ☒ No

16.0 **Is your project to be served by an existing public water supply?** If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project. (DEP Use/4x81) ☒ Yes ☐ No
16.0.1 **Supplier's Name** Borough of Chambersburg (own supply)
16.0.2 **Letter of Approval from Supplier is Attached** ☐ Yes ☒ No

17.0 **Will this project involve a new or increased drinking water withdrawal from a stream or other water body?** If "Yes", should reference both Water Supply and Watershed Management. (DEP Use/4x81 and 4x10) ☐ Yes ☒ No
17.0.1 **Stream Name**

18.0 **Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste?** If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed. (DEP/Use4x32) ☒ Yes ☐ No
18.0.1 **Type & Amount** Treatment of municipal wastewater, ADF 11.28 MGD

19.0 **Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?** (DEP Use/48y1) ☐ Yes ☒ No

20.0 **Does your project involve installation of a field constructed underground storage tank?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570) ☐ Yes ☒ No
20.0.1 **Enter all substances & capacity of each; separate each set with semicolons.**

21.0	**Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570) **21.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
22.0	**Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570) **22.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
23.0	**Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570) **23.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
24.0	**Will the intended activity involve the use of a radiation source?** (DEP Use/4x90).	☐	Yes	☒	No

CERTIFICATION

I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Type or Print Name Jacob L. Rainwater, P.E.

Signature	Title	Date
Jacob L Rainwater	Project Manager	5/10/2012

EXHIBIT B
WATER QUALITY MANAGEMENT PERMIT APPLICATION

Applicant Name: Borough of

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

APPLICATION FOR WATER QUALITY MANAGEMENT PERMIT

Before completing this form, read the step-by-step instructions provided in this application package.

Related ID#s (If Known)				DEP USE ONLY
Client ID#	53002	APS ID#		Date Received & General Notes
Site ID#	453250	Auth ID#	337877	
Facility ID#				

APPLICANT IDENTIFIER

Applicant Name: Borough of Chambersburg

Current Mailing Address: 100 South 2nd Street / Chambersburg, PA 17201

Current Phone Number: (717) 7092285

FACILITY TYPE (Check all appropriate boxes below)

- ☒ Treatment Plant Summary – Module 1
- ☐ Sewer System – Module 2
- ☒ Flow Equalization and Grit Chambers – Module 3
- ☒ Screening and Settling – Module 4
- ☒ Trickling Filters and Aeration – Module 5
- ☒ Chemical Treatment – Module 6
- ☐ Rapid Sand Filters – Module 7
- ☐ Other Filters and Disinfection – Module 8
- ☐ Aerobic Digestion Tanks – Module 9
- ☒ Anaerobic Digestion – Module 10
- ☐ Sludge Filters and Centrifuges – Module 11
- ☐ Sludge Drying Beds – Module 12
- ☐ Stream Encroachment and Crossings – Module 13
- ☐ Spray Irrigation – Module 14
- ☐ Industrial Wastewater Treatment Facility – Module 15
- ☐ Small Flow Treatment Facility – Module 16
- ☐ Sewer Extensions – Module 17
- ☐ Manure Storage Facilities – Module 18
- ☐ Supplementary Geology and Groundwater Information – Module 19
- ☐ Impoundments – Module 20
- ☐ Sequencing Batch Reactor – Module 21
- ☒ Pump Stations – Module 22

COMPLIANCE HISTORY REVIEW

Is/was the facility owner or operator in violation of any DEP regulation, permit, order or schedule of compliance at this or any other facility? ☐ Yes ☒ No

If "Yes," list each permit, order and schedule of compliance and provide compliance status. Use additional sheets to provide information on all permits.

Permit Program	Permit No.
Brief Description of Noncompliance	

Steps Taken to Achieve Compliance	Date(s) Compliance Achieved

Current Compliance Status ☒ In Compliance ☐ In Noncompliance

Applicant Name: Borough of

CERTIFICATION (Check appropriate box below.)

I certify under penalty of law that I

- ☐ am the applicant
- ☒ am an officer or official of the applicant
- ☐ have the authority to make this application (attach delegation of signatory authority) and that the plans, reports and documents designated and attached here with part of the application are true and correct to the best of my knowledge and belief.

Lance Anderson	Water/Sewer Superintendent
Name (type or print legibly)	Official Title
Lance Anderson	May 4, 2012
Signature	Date

(Use corporate or professional seal as appropriate.)

County of Franklin ss:
State of Pennsylvania

Taken, sworn and subscribed before me, this 4th day of May 20 12

Notary Seal

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Jennifer J. Cappuccio, Notary Public
Chambersburg Boro, Franklin County
My Commission Expires July 10, 2014
Member, Pennsylvania Association of Notaries

Jennifer J. Cappuccio
Notary Public

REGISTERED PROFESSIONAL ENGINEER

This is to certify that I have personally reviewed all engineering information contained in the accompanying modules, drawings, specifications and other documents which are part of this application and that I have found it to be of good engineering quality, true and correct, and is in conformance with the requirements of the Department of Environmental Protection (DEP), and it does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of DEP.

Name of Design Engineer: Jacob L. Rainwater, PE
Design Firm: AECOM
Mailing Address: 1700 Market Street, Suite 1700
Philadelphia, PA 19103
Telephone Number: (215) 3994370
E-mail Address: Jacob.Rainwater@aecom.com

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JACOB LEE RAINWATER
ENGINEER
No. PE071473
Professional Seal

Jacob L Rainwater
Signature of Professional Engineer

NOTICE: It is an offense under Pennsylvania Criminal Code to affirm a false statement in documents submitted to DEP.

DEP will consider the registered professional engineer whose seal is affixed to design documents to be fully responsible for the adequacy of all aspects of facility designs. The application and supporting documentation submitted for sewerage projects will be reviewed to ensure general consistency with good engineering practices, and the applicable design guidelines of DEP.

EXHIBIT C

WATER QUALITY MANAGEMENT PERMIT MODULES

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

TREATMENT PLANT SUMMARY
MODULE 1

Submit all assumptions and calculations in the *Design Engineer's Report*

APPLICANT NAME	Borough of Chambersburg
CLASS OF CONSTRUCTION (Check all applicable blocks)	☐ New ☒ Additions ☒ Replacement of Existing Unit(s) ☒ Modifications to Existing Unit(s)
If other than a new system, list the WQM permit number ammended by this application	2896404

	DESIGN LOADING DATA		**Existing Facilities Design**	**Present Operating Data**	**Proposed Facilities Design**
1.	HYDRAULIC DESIGN CAPACITY				
	a. Domestic	(mgd)	NA	NA	NA
	b. Industrial	(mgd)	NA	NA	NA
	c. Total	(mgd)	6.8	6.8	11.28
2.	ANNUAL AVERAGE FLOW	(mgd)	6.8	6.0	11.28
3.	DESIGN YEAR OR PERIOD FOR OPERATING DATA		current	Last 5 years	2031
4.	RUNOFF PERIOD	(hrs)	NA	NA	NA
5.	TOTAL DESIGN WASTEWATER DATA				
	a. Peak instanteous flow	(mgd)	17	17	33.5
	b. Peak hourly flow	(mgd)	17	17	33.5
	c. Maximum daily flow	(mgd)	17	17	28.2
	d. Maximum monthly average flow	(mgd)	8.84	7.8	14.66
	e. Organic (carbonaceous and nitrogenous) Design Capacity (maximum daily)	(lbs. BOD_5/day)	20,760	18,320[1]	42,912
	f. Maximum daily TSS concentration	(mg/L)	NA	428	450

Applicant Name: Borough of Chambersburg

FACILITIES DESIGN DATA

Treatment Unit Description (List in sequence)	Design Basis (See Below)	Number of Units			Total Treatment Unit Hydraulic Design (mgd)	Total Treatment Unit Organic Design (lbs/day)
		Existing	To Be Abandoned	Proposed New Units		
SCREENING DEVICE	PI	1	1	1	33.50	
INFLUENT PUMP STATION	PI	1	1	1	33.50	
GRIT REMOVAL UNIT	PI	1		1	33.50	
PRIMARY SETTLING TANKS	MMA/PH	4			33.50	
VLR – PreAnoxic and Aeration Components	PH	1 (to be modified)			33.50	
POST AERATION TANKS	PH		1	1	33.50	
VLR – Post Anoxic Component	PH	1 (to be modified)			33.50	
Re-aeration	PH			1	33.50	
FINAL SETTLING TANKS	PH	3		2	33.50	
DISINFECTION FACILITES	PI	2			33.50	
ROTARY DRUM THICKENERS	MMA	2				
ACID PHASE ANAEROBIC DIGESTER	MMA			1		
GAS PHASE ANAEROBIC DIGESTER	MMA			1 (Converted from Ex. Digester)		
SLUDGE DEWATERING	MMA	2				
CHEMICAL TREATMENT	PH			2 (Alum and Supplement Carbon		

Design Basis:
PI – Peak Instantaneous Flow
PH – Peak Hourly Flow
MD – Maximum Daily Flow
MMA – Maximum Monthly Average Flow
MDO – Maximum Daily Organic Load

Applicant Name: Borough of Chambersburg

WASTE CHARACTERISTICS

OUTFALL: 001

SAMPLING PERIOD: From 1/1/2011 To 12/31/2011

☒ Yes ☐ No NPDES Permit application submitted within last 3 years for this outfall.

NAME OF LABORATORY/CONSULTANT
Analytical Laboratory Services, Inc.
34 Dogwood Lane
Middletown, PA 17057

Telephone No.: (717) 944-5541

SAMPLING LOCATION * – TREATMENT FACILITY INFLUENT						EXISTING TREATMENT FACILITY EFFLUENT				NEW TREATMENT FACILITY EFFLUENT (Expected)				ANALYTICAL METHOD NUMBER
PARAMETER	UNITS	MONTHLY AVERAGE	24 HR. MAX.	MIN.	MAX.	MONTHLY AVERAGE	24 HR. MAX.	MIN.	MAX.	MONTHLY AVERAGE	24 HR. MAX.	MIN.	MAX.	
Flow	mgd	NA	NA	NA	NA	6.703	17.840	4.240	8.870		NA	NA	33.50	
pH	SU	NA	NA	NA	NA	7.03	7.57	6.73	7.31	6-9	6-9	6-9	6-9	
BOD5	mg/L	237	766	180	335	NA	NA	NA	NA	NA	NA	NA	NA	
CBOD5	mg/L	NA	NA	NA	NA	3.09	8.80	1.97	4.64	15 (Warm) 25 (Cold) [2]	NA	NA	30 (Warm) 50 (Cold) [2]	
TSS	mg/L	195	428	144	276	5.50	15.40	2.33	8.42	30	NA	NA	60	
NH3-N	mg/L	NA	NA	NA	NA	0.80	8.44	0.09	2.82	3.5 (Warm) 10 (Cold) [2]	NA	NA	7.0 (Warm) 20 (Cold) [2]	
TP	mg/L	NA	NA	NA	NA	2.42	6.20	1.60	4.33	NA	NA	NA	16,560 lbs [4]	
TN	mg/L	NA	NA	NA	NA	10.7	18.2	8.6	14.3	NA	NA	NA	124,199 lbs [4]	
TRC	mg/L	NA	NA	NA	NA	0	0	0	0	0	0	0	0	
DO	mg/L	NA	NA	NA	NA	9.02	13.1	7.8	10.12	Min. 5	Min. 5	Min. 5	Min. 5	
Fecal Coliform	#/100/ mL	☐ FORMTEX	NA	NA	NA	2	240	1	4	200 (Warm) 10 (Cold) [3]	NA	NA	NA	
TKN	mg/L	NA	NA	NA	NA	2.2	6.5	1.2	5.0	NA	NA	NA	NA	
NO3+NO2	mg/L	NA	NA	NA	NA	8.6	12.9	6.2	10.5	NA	NA	NA	NA	

***Use Additional Sheets as Necessary**

Comments/additional information:
1. Only occurred in one day;
2. Warm season from 5/1 to 10/31; winter season from 11/1 to 4/30;
3. Warm season from 5/1 to 9/30; winter season from 10/1 to 4/30;
4. Net annual limits, lbs/year.

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

FLOW EQUALIZATION AND GRIT CHAMBERS
MODULE 3

APPLICANT NAME	Borough of Chambersburg

FLOW EQUALIZATION			UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed
INDICATE FUNCTION			Storage of: ☐ Untreated Wastewater ☐ Treated Wastewater	Storage of: ☐ Untreated Wastewater ☐ Treated Wastewater	Storage of: ☐ Untreated Wastewater ☐ Treated Wastewater
DESIGN DATA	1. CAPACITY	a. Normal Operating Capty. (gal)			
		b. Maximum Available Capty. (gal)			
	2. DISCHARGE TO UNIT	a. Flow (mgd)			
		b. Duration (hrs/day)			
	3. DISCHARGE FROM UNIT	a. Flow (mgd)			
		b. Duration (hrs/day)			
	4. DETENTION	a. Average (hrs)			
		b. Maximum (hrs)			

5. GENERAL INFORMATION

a. Describe outlet and method of water level control.

b. How will sediment accumulation and/or septic conditions in the unit be minimized?

GRIT CHAMBERS		UNIT 1 ☒ Existing ☐ Proposed	UNIT 2 ☐ Existing ☒ Proposed	UNIT ☐ Existing ☐ Proposed
1. TYPE OF UNIT		Hydrodynamic Vortex Separator	Hydrodynamic Vortex Separator	
2. DESIGN DATA	a. Horizontal Velocity (fps)	0.76 fps at AVG; 2.24 fps at PI (Inlet Channel)	0.76 fps at AVG; 2.24 fps at PI (Inlet Channel)	
	b. Method Of Velocity Control (Specify)	Influent Pumping and channel hydraulics	Influent Pumping and channel hydraulics	
	c. Detention Period At Average Daily Flow	~ 2.48 Min.	~ 2.48 Min.	Min.
	d. Detention Period At Maximum Daily Flow	~ 0.84 Min.	~ 0.84 Min.	Min.

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

SCREENING AND SETTLING
MODULE 4

APPLICANT NAME	Borough of Chambersburg

SCREENING AND COMMINUTING DEVICES

For each device being used, provide a brief description.
For function include design data such as capacity, velocity through bars and slope of bars.

TYPE	LOCATION	FUNCTION
Manually Cleaned Bar Screen (New)	Influent Pumping Station	Screening of influent in bypass channel.
Mechanically Cleaned Fine Scree (New)	Influent Pumping Station	Screening of influent in primary channel. Capacity: 33.50 MGD; Inclination: 75 deg.; 1/4" screen; 3 Hp drive motor

SETTLING TANKS (Identify function and sequence in the process used.)	UNIT 1-3	UNIT 4-5	UNIT	UNIT
	☒ Existing ☐ Proposed	☐ Existing ☒ Proposed	☐ Existing ☐ Proposed	☐ Existing ☐ Proposed
	☐ Primary ☐ Intermediate ☒ Final	☐ Primary ☐ Intermediate ☒ Final	☐ Primary ☐ Intermediate ☐ Final	☐ Primary ☐ Intermediate ☐ Final

1. HYDRAULIC LOADING DURING RUNOFF PERIOD	a. Forward Flow (mgd)		7.05 mgd per tank (one tank out of service)	7.05 mgd per tank (one tank out of service)		
	b. Recirculation Flow (If applicable) (mgd)		3.6 mgd per tank	3.6 mgd per tank		
	c. Total Flow (a + b) (mgd)		10.65 mgd per tank	10.65 mgd per tank		
2. LOADING RATES (BASED ON FORWARD FLOW)	a. Capacity (Gallons)		727,588 each	727,588 each		
	b. Detention	(1) Average	7.74 hr	7.74 hr		
		(2) Minimum	2.48 hr	2.48 hr		
	c. Surface Settling Rate (gal/day/sq ft)	(1) Average	371	371		
		(2) Maximum	1,159	1,159		
	d. Weir Overflow Rate (gal/ft/day)	(1) Average	8,555	8,555		
		(2) Maximum	25,551	25,551		

3. For final settling tanks in the activated sludge process, describe the average and peak solids loading rates based on mixed-liquor flow (forward flow + recirculation).

Based on an assumed MLSS concentration of 3,500 mg/l, the average solds loading rate is 0.82 lb/hr/ft2 and based on a MLSS concentration of 3,000 mg/l at peak flows, the peak solids loading rate is 1.8 lb/hr/ft2.

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

TRICKLING FILTERS AND AERATION
MODULE 5

APPLICANT NAME Borough of Chambersburg

TRICKLING FILTERS		UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed
1. FILTER LOADING	a. BOD Load (No Recirculation) (lbs/day/1,000 cu ft)				
	b. Hydraulic Load (mgd/acre) (during runoff period)				
	c. Recirculation (1) Rate (mgd)				
	(2) Ratio	: 1	: 1	: 1	: 1
	(3) From (Specify)				
	(4) To (Specify)				

2. For each unit describe type of system, filter media, filter loading and the underdrain system.

Unit

Unit

Unit

Unit

AERATION TANKS, OXIDATION DITCHES, AERATED LAGOONS		UNIT Post Aeration ☐ Existing ☒ Proposed	UNIT Re-Aeration ☐ Existing ☒ Proposed	UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed
TYPE OF ACTIVATED SLUDGE PROCESS		Aeration	Aeration		
1. HYD. LOADING	a. Volume (gal)	~ 2,000,000	~ 100,000		
	b. Detention Time (hrs) (without recirculation)	4.26	0.21		
2. RETURN SLUDGE CAPACITY (percent)		75%	N/A		
3. BOD (lbs/day/1,000 cu ft)		33 avg design day	N/A		

4. METHOD OF AERATION:
Describe the method of aeration to be used, including: type, number and location of the aeration units; quantity of air provided; backup aeration capacity.

Unit Post Aeration — Fine bubble diffusion (see drawings)

Unit Re-Aeration — Fine bubble diffusion (see drawings)

Unit

Unit

NOTE: Modules 19 and 20 must be completed for Aerated Lagoons and Oxidation Ditches.

Applicant Name:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

TRICKLING FILTERS AND AERATION
MODULE 5

APPLICANT NAME					
TRICKLING FILTERS		UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed
1. FILTER LOADING	a. BOD Load (No Recirculation) (lbs/day/1,000 cu ft)				
	b. Hydraulic Load (mgd/acre) (during runoff period)				
	c. Recirculation (1) Rate (mgd)				
	(2) Ratio	: 1	: 1	: 1	: 1
	(3) From (Specify)				
	(4) To (Specify)	☐ FORMTEXT			

2. For each unit describe type of system, filter media, filter loading and the underdrain system.

Unit

Unit

Unit

Unit

AERATION TANKS OXIDATION DITCHES AERATED LAGOONS		UNIT VLR 3 ☐ Existing ☒ Proposed	UNIT 4 ☒ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed
TYPE OF ACTIVATED SLUDGE PROCESS		Anoxic	Minimul Aeration		
1. HYD. LOADING	a. Volume (gal)	600,000	600,000		
	b. Detention Time (hrs) (without recirculation)	1.28	1.28		
2. RETURN SLUDGE CAPACITY (percent)		75%	75%		
3. BOD (lbs/day/1,000 cu ft)		33	33		

4. METHOD OF AERATION:
Describe the method of aeration to be used, including: type, number and location of the aeration units; quantity of air provided; backup aeration capacity.

Unit

Unit VLR 3 Air supplied by existing disk aerator and supplemental air by new coarse diffusion (details in Engineer's Report).

Unit VLR 4 Air supplied by existing disk aerator and supplemental air by new coarse diffusion (details in Engineer's Report).

Unit

NOTE: Modules 19 and 20 must be completed for Aerated Lagoons and Oxidation Ditches.

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

CHEMICAL TREATMENT
MODULE 6

APPLICANT NAME	Borough of Chambersburg

CHEMICAL TREATMENT PROCESS (Do not use to describe disinfection facilities.)

1. DESCRIBE PROCESS:

   Alum addition upstream of Primary and Secondary Clarifiers for chemical phosphorus removal

2. WILL THE PROCESS INCREASE TOTAL SOLIDS? ☒ YES ☐ NO

   IF YES, SPECIFY INCREASE: 20 mg/l at peak loading MILLIGRAMS PER LITER

MIXING AND FLOCCULATION FACILITIES

INDICATE FUNCTION OF EACH UNIT AND FILL IN OR CHECK ALL RELEVANT DATA.		UNIT ☐ Mixing ☐ Quick Mix ☐ Flocculation ☐ Existing ☐ Proposed	UNIT ☐ Mixing ☐ Quick Mix ☐ Flocculation ☐ Existing ☐ Proposed	UNIT ☐ Mixing ☐ Quick Mix ☐ Flocculation ☐ Existing ☐ Proposed
1. CAPACITY	(gal)			
	(cu ft)			
2. DETENTION TIME	(min)			

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

ANAEROBIC DIGESTION
MODULE 10

APPLICANT NAME	Borough of Chambersburg			
DESIGN DATA	UNIT Acid Phase Anaerobic Digester ☐ Existing ☒ Proposed	UNIT Gas Phase Anaerobic Digester ☒ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed	UNIT ☐ Existing ☐ Proposed
1. CLASSIFICATION	Acid Phase Digester	Gas Phase Digester		
a. Single Stage Or Multi Stage	Multi-Stage (Acid Phase Reactor)	Multi-Stage (Gas Phased Reactor)		
b. Conventional Or High Rate	High Rate	High Rate		
2. CAPACITY (cu ft)	12,000	62,200		
3. a. Anticipated Volume (gal/day)	60,000	60,000		
b. Solids Concentration (percent)	5.9%	5.9%		
c. Detention Time (days)	1.5	7.8		
d. Volatile Suspended Solids (VSS) Loading (lbs/day/1,000 cu ft)	1,965	380		
4. HEATING FACILITIES (specify)AND TEMPERATURE (deg F)	Heat Exchanger & Direct Steam Injection (95 F)	Heat Exchanger & Direct Steam Injection (95 F)		
5. MIXING FACILITIES (specify)	Pump Mixing	Linear Motion Mechanical Mixing		

6. GENERAL INFORMATION:

a. Describe method of supernatant withdrawal and disposal. None, complete mix digester with no decanting.

b. Describe gas utilization and safety equipment used. Gas is used for digester heating and HVAC purposes. The gas will be used either in an existing heater / heat exchanger or a new steam boiler. Excess gas will be flared. Digesters will contain pressure / vacuum relief valves and the gas lines will contain condensate / sediment traps and a back pressure regulator with a flame trap.

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

PUMP STATIONS
MODULE 22

APPLICANT NAME	Borough of Chambersburg

PUMP STATION (Submit separate module for each pump station)

1.	PUMP STATION NAME: Influent Pumping Station	
2.	List the WQM permit number of the sewer to which this system connects.	NA (Inside WWTP)
3.	List the WQM permit number of the treatment facility receiving flow from this system.	NA (Inside WWTP)
4.	What is the reserve capacity of the most limiting component between this connection and the treatment facility?	Part of WWTP
5.	LOCATION (street name, etc.): 725 Hollywell Avenue, Chambersburg, PA 17201	
	USGS Quadrangle Name	Chambersburg, PA

Latitude/Longitude of Pump Station	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	55	38	77	40	25

Latitude/Longitude of Connection Point	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	55	38	77	40	25

6. TYPE (e.g., conventional, suction lift, ejector or submersible): Submersible

7. INITIAL POPULATION TO BE SERVED: 67,030 FUTURE POPULATION TO BE SERVED: 112,800
DESIGN YEAR: 20

8. DESIGN INFORMATION:	AVG (mgd)	MAX (Peak Instantaneous) (mgd)
a. Domestic Flowrate (based on design population to be served)	11.28	33.50
b. Industrial Flowrate	NA	NA
c. Infiltration/Inflow (I/I) Rate	NA	NA
d. Design Flowrate	11.28	33.50

e. Effective Wet Well Capacity	(gal)	9,342 - Trench wet well design with VFD -driven pumps
f. Detention Time	(min)	1.19 at AVG; 0.40 at PI
g. Design Average Velocity in Force Main	(fps)	3.56 fps at AVG; 10.57 fps at PI
h. Total Dynamic Head (Pump Station + Force Main)	Static Head	55.25 ft
	Friction Loss	14.75 ft
	TDH	70 ft
i. Diameter of Force Main		30 inches

9. Describe the proposed project with respect to the 100-year flood elevation, ventilation, emergency power provision and alarm system.
The proposed influent pumping station will be located out of the 100-yr flood plain. It is vented. The plant emergency generator is designed to run four pumps at a power outage and the fifth pump is a backup unit. The alarm signals for high/low water alarms, pump failure, VFD failure, overheat, etc. will be sent to the plant control system and then to responsible staff.

Applicant Name: Borough of Chambersburg

PUMPS

LIST ALL THE PUMPS IN THE PUMPING STATION

			Check Columns That Apply To Each Pump								Pump Capacity	
NUMBER OF IDENTICAL PUMPS	Describe Pump Use	Type of Pump	EXISTING	PROPOSED	VARIABLE SPEED	CONSTANT SPEED	AUTOMATIC CONTROL	MANUAL CONTROL	PNEUMATIC EJECTOR	STANDBY	gpm	TDH (ft)
5	Influent Pumping	Submersible	☐	☒	☒	☐	☒	☐	☐	☒	5,850	70
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

PUMP STATIONS
MODULE 22

APPLICANT NAME	Borough of Chambersburg

PUMP STATION (Submit separate module for each pump station.)

1. PUMP STATION NAME: Recycle Pumping Station

2. List the WQM permit number of the sewer to which this system connects.	NA (Inside WWTP)
3. List the WQM permit number of the treatment facility receiving flow from this system.	NA (Inside WWTP)
4. What is the reserve capacity of the most limiting component between this connection and the treatment facility?	Part of WWTP

5. LOCATION (street name, etc.): 725 Hollywell Avenue, Chambersburg, PA 17201

USGS Quadrangle Name: Chambersburg, PA

	Latitude			Longitude		
Latitude/Longitude of Pump Station	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	55	40	77	40	32
Latitude/Longitude of Connection Point	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	55	40	77	40	32

6. TYPE (e.g., conventional, suction lift, ejector or submersible): Submersible Propeller

7. INITIAL POPULATION TO BE SERVED: NA FUTURE POPULATION TO BE SERVED: NA
DESIGN YEAR: 20

8. DESIGN INFORMATION:	AVG (mgd)	MAX (Peak Instantaneous) (mgd)
a. Domestic Flowrate (based on design population to be served)	NA	NA
b. Industrial Flowrate	NA	NA
c. Infiltration/Inflow (I/I) Rate	NA	NA
d. Design Flowrate	65.23 (three new pumps in operation)	65.23
e. Effective Wet Well Capacity	(gal) Post Aeration Tank, 2 million gallons	
f. Detention Time	(min) 44	
g. Design Average Velocity in Force Main	(fps) 8.04	
h. Total Dynamic Head (Pump Station + Force Main)	Static Head ~ 10 ft	
	Friction Loss 10 ft	
	TDH 20 ft	
i. Diameter of Force Main	48 inches	

9. Describe the proposed project with respect to the 100-year flood elevation, ventilation, emergency power provision and alarm system.

The proposed recycle pumping station will be located out of the 100-yr flood plain. It pumps water out of the post aeration tank and there is no building for this pumping station. The recycle pump station is open to the atmosphere in an open tank. The Plant has two independent electrical utility feeds, so in the event that one of the two is inoperable, the other electrical utility feed can provide full power to the recycle pumping system. The alarm signals will be sent to the plant control system and then to responsible staff.

Applicant Name: Borough of Chambersburg

PUMPS

LIST ALL THE PUMPS IN THE PUMPING STATION

			Check Columns That Apply To Each Pump								Pump Capacity	
NUMBER OF IDENTICAL PUMPS	Describe Pump Use	Type of Pump	EXISTING	PROPOSED	VARIABLE SPEED	CONSTANT SPEED	AUTOMATIC CONTROL	MANUAL CONTROL	PNEUMATIC EJECTOR	STANDBY	gpm	TDH (ft)
4	Internal Recycle Pumping	Submersible Propeller	☐	☒	☒	☐	☒	☐	☐	☒	15,100	20
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
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			☐	☐	☐	☐	☐	☐	☐	☐		

Applicant Name: Borough of Chambersburg

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

PUMP STATIONS
MODULE 22

APPLICANT NAME	Borough of Chambersburg

PUMP STATION (Submit separate module for each pump station.)

1. PUMP STATION NAME: Return Sludge Pumping Station (New)

2. List the WQM permit number of the sewer to which this system connects.	NA (Inside WWTP)
3. List the WQM permit number of the treatment facility receiving flow from this system.	NA (Inside WWTP)
4. What is the reserve capacity of the most limiting component between this connection and the treatment facility?	Part of WWTP

5. LOCATION (street name, etc.): 725 Hollywell Avenue, Chambersburg, PA 17201

USGS Quadrangle Name: Chambersburg, PA

Latitude/Longitude of Pump Station	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	55	37	77	40	32

Latitude/Longitude of Connection Point	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	55	37	77	40	32

6. TYPE (e.g., conventional, suction lift, ejector or submersible): Horizontal End Solids Handling

7. INITIAL POPULATION TO BE SERVED: NA FUTURE POPULATION TO BE SERVED: NA
DESIGN YEAR: 20

8. DESIGN INFORMATION:

	AVG (mgd)	MAX (Peak Instantaneous) (mgd)
a. Domestic Flowrate (based on design population to be served)	NA	NA
b. Industrial Flowrate	NA	NA
c. Infiltration/Inflow (I/I) Rate	NA	NA
d. Design Flowrate	7.0 (Two New RAS Pumps in Operation)	7.8 (Two New RAS Pumps in Operation)

e. Effective Wet Well Capacity	(gal)	NA, Suction Side: Final Clarifiers
f. Detention Time	(min)	NA
g. Design Average Velocity in Force Main	(fps)	8.43
h. Total Dynamic Head (Pump Station + Force Main)	Static Head	11 ft
	Friction Loss	14 ft
	TDH	25 ft
i. Diameter of Force Main		16 inches

9. Describe the proposed project with respect to the 100-year flood elevation, ventilation, emergency power provision and alarm system.
The proposed RAS/WAS pumping station will be located out of the 100-yr flood plain. The Plant has two independent electrical utility feeds, so in the event that one of the two is inoperable, the other electrical utility feed can provide full power to the RAS pumping system. The alarm signals for high/low water alarms, pump failure, VFD failure, overheat, etc. will be sent to the plant control system and then to responsible staff.

Applicant Name: Borough of Chambersburg

PUMPS

LIST ALL THE PUMPS IN THE PUMPING STATION

NUMBER OF IDENTICAL PUMPS	Describe Pump Use	Type of Pump	Check Columns That Apply To Each Pump								Pump Capacity	
			EXISTING	PROPOSED	VARIABLE SPEED	CONSTANT SPEED	AUTOMATIC CONTROL	MANUAL CONTROL	PNEUMATIC EJECTOR	STANDBY	gpm	TDH (ft)
3	Return Sludge Pumping (New)	Horizontal End Solids Handling	☐	☒	☒	☐	☒	☐	☐	☐	2,640	25
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		
			☐	☐	☐	☐	☐	☐	☐	☐		

EXHIBIT D

ENGINEER'S REPORT

BOROUGH OF CHAMBERSBURG

WWTP UPGRADE PROJECT

PA DEP PERMIT APPLICATION

DESIGN ENGINEER'S REPORT

MAY 2012

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CHAMBERSBURG WWTP UPGRADE PROJECT

BOROUGH OF CHAMBERSBURG
WWTP UPGRADE PROJECT: DESIGN SUMMARY REPORT

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Introduction

The Borough of Chambersburg ("Borough") owns and operates a wastewater treatment plant (WWTP) that serves the Borough, along with portions of Greene, Hamilton, and Guilford Townships, in Franklin County, Pennsylvania. A small portion of Letterkenny Township is also serviced through Hamilton Township.

The Chambersburg WWTP is located in the Potomac River Basin within the Chesapeake Bay Watershed, and will therefore be subject to Total Phosphorous (TP) and Total Nitrogen (TN) limits of the Commonwealth's recently adopted Chesapeake Bay Tributary Strategy.

The Borough and its partners have determined that an upgrade and expansion of the WWTP is required at this time in order to meet the anticipated growth within the service area and to meet the new total nitrogen (TN) and phosphorus (TP) discharge limits that have been established by the PA DEP.

It is noted that compliance with the Chesapeake Bay Tributary Strategy discharge limits is required beginning in October, 2012. Since the upgraded WWTP will not be fully operational until the summer of 2014, it is anticipated that the Borough will need to acquire "nutrient credits" to meet these requirements in the interim period. The Borough is presently investigating the most cost effective way to acquire these credits.

General Project Overview

The existing treatment facilities at the Chambersburg WWTP are not able to meet the pending nutrient discharge limits. Therefore, an upgrade to the WWTP will be required to meet the TN and TP caps. In addition to meeting the TN and TP caps, an expansion from 6.8 MGD to 11.28 MGD is needed to accommodate the anticipated growth within the service area. A peak design flow of 28.2 MGD, based upon a 2.5 peaking factor, has also been established for the general plant design. As such, all treatment processes are designed to meet permit limits at these flows. However, from a hydraulic capacity standpoint, it has been decided by the Sewer Committee that the facilities must be able to convey a total influent peak flow of 33.5 mgd. This value was arrived at based upon analysis provided by the Borough's conveyance system engineer. This analysis indicated that 33.5 mgd represents the maximum flow that can presently be conveyed by the collection and conveyance system without widespread surcharges within the system. As such, the Sewer Committee selected this same value as the appropriate maximum hydraulic loading to the WWTP.

Based on these design criteria, the new headworks and influent pumping station facility must be sized for 33.5 mgd of influent flow, and all internal conveyance infrastructure must be capable of passing flows that are associated with a peak influent flow of 33.5 mgd. The PA DEP has also indicated that the UV disinfection system must be sized to treat the 33.5 mgd peak flow, which has been accomplished through a UV disinfection upgrade project that was completed recently.

As a general summary, the upgrade will consist of the following primary components:

Liquid Processing System Upgrades

- Upgrade of the existing grit removal system by adding a second, parallel unit
- Upgrade and supplement of the existing Vertical Loop Reactor (VLR) treatment process to provide biological nutrient removal. As a general description, under this approach, the primary clarifier effluent will be directed to VLR tank 2, which will be utilized as a pre-anoxic reactor. Submerged mixers will be installed to provide solids suspension without introducing oxygen. Flow would then go into VLR tank 3, which will be operated under minimally oxygenated conditions, around 0.5 mg/l dissolved oxygen (DO) conditions. Then flow will be directed into VLR tank 4, which would be fully aerobic, operated at about 2 mg/l of D.O.

  A new effluent weir, spanning the entire width of VLR tank 4, will be installed to assist in keeping liquid levels in VLR tank 4 at a suitable level as the flows through the tank are significantly increased as a result of the treatment process modifications. Flow will then be directed into the VLR tank 4 effluent trough. Two new 42" pipes will be connected to the existing effluent trough's side wall and will run in parallel prior to tying into a common 60" pipe. Flow will then be conveyed through the 60" pipe to the west, travelling to the area to the south of the biosolids storage pad and the west of the existing final clarifiers where it would discharge into the new post aeration tanks. Effluent from the post aeration tanks would then flow into a deoxygenation tank. Flow will then be pumped back to the VLR tanks, travelling through a new flow splitting meter vault along the way. The meter vault will send a portion of the total flow as internal recycle to VLR Tank 2 (the pre-anoxic reactor). The remaining portion of the flow will discharge into VLR tank 1, which will be converted to a post-anoxic reactor (the aerators will be removed and turned over to the Borough for parts).

  Effluent from the post-anoxic reactor will be piped to a new reaeration tank. Effluent from the reaeration tank would then discharge to the existing secondary clarifier flow splitter box.
- Phosphorus removal will be enhanced by metal salt addition at both the primary and secondary clarifiers.
- Two new final clarifiers will be constructed along and associated return activated sludge (RAS) pumps will be installed.
- The UV System is currently being expanded to accommodate the projected 11.28 MGD average daily flow (ADF).

Solids Handling System Upgrades

The solids handling process will be upgraded so that there are no longer two separate solids products produced, but rather one Class B solids product. This will be attained by the following modifications:

- The waste activated sludge (WAS) will be withdrawn from the secondary clarifiers and pumped to the existing aerated waste sludge holding tank.
- This WAS will be thickened by the existing rotary drum thickeners.
- The thickened WAS will be combined with the gravity-thickened primary sludge in a newly constructed acid phase anaerobic digester.
- Flow from the acid phase digester will be directed into a gas phase digester, which will be provided by converting the existing primary digester to be used for this purpose. The digested sludge will be conveyed into the existing secondary digester (which has a gas-storing Dystor cover) and then into the existing digested sludge storage tank, as is the current practice.
- The digested solids will be pumped from the digested sludge storage tank to the existing belt filter presses to be dewatered and then taken off-site as a Class B biosolids product.

The electrical and SCADA systems will be upgraded as required to accommodate the plant upgrades. All of the upgrades will be designed for the projected ADF of 11.28 mgd with appropriate peaking factors.

Following is a more focused discussion of the various aspects of the WWTP Upgrade project.

Mechanical and Process

Influent Wastewater Pump Station

The existing influent wastewater pump station consists of two (2) 16-in Fairbanks Morse vertical turbine solids handling pumps, "VTSH pumps", (Model VTSH-UWF, 5250 gpm, 69 feet total dynamic head, "TDH", 1185 rpm, 125 HP) and (5) existing Allis Chalmers centrifugal dry pit pumps (Model 400, 6 x 6 x 17, 1513 gpm, 82 feet TDH, 1175 rpm, 50 HP). The existing vertical turbine pumps are located outdoors and have a dedicated wet well, which is exposed to atmosphere and hydraulically connected to the dry pit pump wet well by a 36-in diameter pipe. The vertical turbine pumps discharge to a single 18-in force main. The existing dry pit pumps are located inside the pump station and discharge to two existing 16-in force mains. Flows from all three force mains combine when they discharge into a single 30-in pipe on the north end of the site, upstream of the grit chamber.

The existing influent pumping station has demonstrated the ability to pump the peak flows that have been experienced during the spring 2011 wet weather conditions, but this was only possible with all of the pumps operating at their full pumping capacity. As such, it is obvious that the existing system will not be capable of pumping the future peak design flow of 33.5 mgd and it

was determined that a new influent pumping station would be constructed in conjunction with the new headworks structure.

The new influent pump station will be a self-cleaning wet well configuration, which employs an influent channel that slopes down to increase fluid velocity prior to discharging into a trench-type wet well in which the pumps are lined up in a single row. This type of self-cleaning trench wet wells can utilize either VTSH pumps or submersible pumps. The Borough staff has discussed this and has elected to use submersible pumps.

In order to provide efficient pumping at the range of flows required that must be accommodated, (approximately 3 mgd during present day overnight conditions, and 33.5 mgd at peak future flow conditions) the pumps will be equipped with variable frequency drives.

Headworks

Flow enters the treatment plant by gravity flow through a 48" sewage interceptor main prior to discharging into the headworks. The existing headworks provides three parallel channels. The first channel has a manually cleaned bar screen, the second channel has a hydraulically operated JWC grinder (Model 30003-0040-DI), and the third channel serves as a bypass. The channels are separated by removable sliding plates and flow into a single Parshall flume.

The existing influent channels have been evaluated to determine if their hydraulic capacity is adequate for future flow conditions. Analysis indicates that they cannot accommodate the future peak hydraulic design flow of 33.5 mgd that has been established for the project. In addition, storm events experienced during the spring of 2011 resulted in flows that approached the 25 mgd range. During these times, the capacity of the existing headworks was taxed. As a result, it has been concluded that a new headworks will be required as part of this upgrade project.

Upon review of treatment alternatives for the headworks, Borough staff has concluded that an automatically cleaned mechanical fine screen for removal of rags is preferred over continuing the practice of using a grinder to macerate the rags. Borough staff and AECOM visited a treatment facility that successfully utilizes a ¼-inch screen provided by Huber called the RakeMax, which is a single screening unit that could potentially serve the purpose of both coarse and fine screening and is designed to be utilized without an upstream bar screen or other protective device. Huber representatives indicate that the RakeMax screen with ¼" spacing is designed such that the frame itself is used as a course screen with up to 2" bar spacing, and that the bars are designed to be replaceable.

By installing a single screening unit that can serve the functions of both coarse and fine screening, the new headworks can be smaller and therefore more economical than a facility that must have a separate course and fine screen in series. There is another manufacturer (Headworks) that offers a unit model very similar to the Huber unit, so a competitive bidding environment can be provided.

A wash compactor and vertical conveyer will be required to move screenings outside of the new headworks structure into a bin. The Borough has indicated that the design of the new headworks

should be performed with the goal of providing an effective system as economically as possible. As such, the basis of design is to have the headworks as an open-topped (not enclosed) structure, and portions of the screenings equipment would be heat traced and insulated to protect against freezing.

It is anticipated that the new headworks will contain a single primary channel, approximately 6 feet wide, which will be equipped with the previously described automatically cleaned screen, as well as a similarly sized bypass channel, equipped with a manually cleaned bar screen.

Another necessary component of the new headworks structure will be a reliable influent meter, capable of measuring flows at the peak design flow. AECOM will coordinate with the Borough, its municipal partners, PA DEP, and the Borough's collection/conveyance system engineer (CET) to select a suitable influent flow meter.

The new headworks will consist of a multi-rake mechanical bar screen, wash press, bypass channel with manual bar screen, followed by a self-cleaning trench wet well and (5) submersible solids handling pumps (4 operating and 1 standby). The headworks will be located below grade with an approximate footprint of 90 feet long, 40 feet wide, and 35 feet deep. The screenings area will be covered with a concrete slab to support the screen and wash press. The wet well will be exposed to the elements and not be covered per the Borough's request. A stair, railings, wash down hose reels with 50-ft of 1-in hose, railings, lighting, and ventilation will be provided. Submerged concrete surfaces will be coated with epoxy. Fabricated stainless steel slide gates will be provided to isolate the bypass and mechanical screen. Aluminum stop logs and storage racks will be provided for each slide gate. A motor operated cast iron gate will be installed upstream of the pumps for use during a cleaning cycle. An epoxy coated steel frame will be located over the pumps to support an electric wire rope hoist and monorail, to assist with pump and screenings removal when the manual bar rack is in service. Wet well baffles and flow splitter will be Type 316L stainless steel. Each pump discharge will consist of a magnetic flow meter, pressure instruments, air/vacuum valve, dismantling joint, rubber flapper check valve, and a plug valve. A flood alarm will be provided via float switch and an ultrasonic level sensor will be used to control pump speed. The raw waste water piping will be ductile iron with epoxy coating and ceramic epoxy lining. Exposed piping will be insulated and heat traced.

The mechanical bar screen is based on Huber's RakeMax model 7300/1852/6, ¼-in bar spacing, 75 degree incline, 7-ft channel width, 27-ft discharge height, and a 3 HP drive motor. The screen will be constructed from Type 304L stainless steel and heat tracing is required. A local control panel will be provided with HMI and PLC.

Screenings will be washed, pressed, and discharge into a covered storage bin at grade through a continuous bagger. The wash press is based on Huber's ROTAMAT model WAP 4 with maximum capacity of 140 cubic feet per hour. The wash press will be constructed from Type 304L stainless steel, have a 5 HP drive motor, and be heat traced. Plant water is required.

The rail mounted submersible solids handling raw wastewater influent pumps are based on ABS Model XFP 301M-CH2, with a primary rating of 5,815 gpm at 70 feet TDH driven by variable

speed 140 HP 1200 RPM motors. The pumps will have a 12-in discharge, fabricated tail piece with suction bell, be coated with ceramic epoxy, and be capable of passing 5-in solids. Station capacity will be 4 mgd minimum (1 pump running), 11.3 mgd average (2 pumps running), and 33.5 mgd peak (4 pumps) running. The variable frequency drives will be located in the storage area of the existing administration building, located north of the UV reactors. Air conditioning will be provided to cool the VFD's. Pump control panels with HMI will be provided. The location has not yet been finally determined.

Influent Pump Station Effluent Force Main
At the peak influent design flow of 33.5 mgd, velocities in the existing forcemains that lead to the grit removal system would exceed 11 feet per second (fps). As such, a new forcemain will be installed.

Grit Removal
The existing grit chamber is a John Meunier 16-ft diameter vortex type with a 2 HP paddle drive. There are (2) existing centrifugal self-priming grit pumps (Gorman-Rupp Model T4A3-B /F, 7.5 HP) located in the basement of the solids handling building, that feed the existing classifier. To provide the additional treatment capacity required by this upgrade project, a new grit chamber will be installed. The new grit chamber would be identical to but installed as a mirror image of the existing one. This will promote even flow distribution across both units. Further investigation is required to determine if the two units will be capable of performing over the entire flow range, or if there will need to be a way to switch to operation of a single unit under low flow conditions.

The originally envisioned plan was to demolish the existing truck unloading station to provide the space required for the new grit chamber. Since the existing truck unloading station is currently not being used, it would not need to be replaced. During a walk-thru with plant staff, the concern was raised that this area is near what is believed to be the perimeter of the former garbage disposal site. It was, however, also noted that there had obviously been previous disturbance in this area, which may mitigate the concern of encountering garbage should excavation be performed in this area.

During the recent geotechnical investigations, a boring was taken in this area and no abnormal material was encountered. Construction in this area represents the most operator friendly and cost effective approach if there are not regulatory issues associated with it. As such, since, contingent upon the agreement of the Borough and its solicitor, AECOM would propose to further pursue locating the new grit removal system in this area in a manner that is flexible and responsive to the subsurface conditions that are encountered.

For the new grit removal system, a new sample pump and flow meter will be provided. The new grit chamber will have a dedicated 4-in glass lined ductile iron pipe, routed to grit pumps in the basement of the solids handling building. A 3rd grit pump will be provided so each grit chamber has a dedicated pump and the grit piping will be modified so (1) pump will serve as a common standby. Manual slide gates will be installed on the new grit unit similar to the existing one, to

allow for isolation and maintenance. Some modifications to the existing 30-in inlet and 42-inch discharge piping will be required.

An additional hydrocyclone is required and can be mounted on the existing classifier. Plant staff has noted that the bearing on the drive end of the existing grit extraction screw is in need of replacement.

It has been assumed that the existing odor control system will be tied into the new grit chamber inlet channel. However, it must be confirmed that the existing odor control system has sufficient capacity available to accommodate this additional load.

Biological Treatment Process Description

Description of Biological System Project Components

Modifications will be made to supplement the existing vertical loop reactor (VLR) treatment process to accommodate the increased flows and to provide for biological nutrient removal (BNR) treatment. Under the modified system, primary clarifier effluent will be directed to VLR tank 2, which would be utilized as a pre-anoxic reactor. The existing VLR aerators will be removed and turned over to the Borough for parts. The existing course bubble diffusers will be demolished. Submerged mixers will be installed to provide a motive force for the liquid and solids suspension without introducing oxygen. Flow would then go into VLR tank 3, which would be operated under minimally oxygenated conditions, around 0.5 mg/l dissolved oxygen (DO) conditions. Then flow would be directed into VLR tank 4, which would be fully aerobic, operated at about 2 mg/l of D.O. Air will be provided from the existing four VLR blowers (3 operating, 1 standby). All four will be piped to a single header at the VLR tanks and two flow control valves and thermal mass flow meters will be provided to distribute air to new course bubble diffusers in VLR tanks 3 and 4. DO probes will be installed to provide a set point for the flow control valves.

A new effluent weir, spanning the entire width of VLR tank 4, will be installed to assist in keeping liquid levels in VLR tank 4 at a suitable level as the flows through the tank are significantly increased as a result of the treatment process modifications. Flow will then be directed into the VLR tank 4 effluent trough. Two new 42" pipes will be connected to the existing effluent trough's side wall and will run in parallel prior to tying into a common 60" pipe. Flow will then be conveyed through the 60" pipe to the west, travelling to the area to the south of the biosolids storage pad and the west of the existing final clarifiers where it would discharge into the new post aeration tanks. Effluent from the post aeration tanks would then flow into a deoxygenation tank. Flow will then be pumped back to the VLR tanks, travelling through a new flow splitting meter vault along the way. The meter vault will send a portion of the total flow as internal recycle to VLR Tank 2 (the pre-anoxic reactor). The remaining portion of the flow will discharge into VLR tank 1, which will be converted to a post-anoxic reactor (the aerators will be removed and turned over to the Borough for parts).

Effluent from the post-anoxic reactor would be piped to a new reaeration tank. Effluent from the reaeration tank would tie into the existing pipe that feeds the secondary clarifier flow splitter box.

Phosphorus removal will be enhanced by alum addition to both the primary and secondary clarifier feeds. Experience indicates that overall chemical consumption is lower when addition is made at both clarifier feed points. Following is further discussion of the proposed new tanks associated with the biological treatment process.

VLR Modifications and Biological System

Submerged mechanical mixers will be provided in the first and second tanks of the VLR system, which will be utilized as post and pre anoxic zones, respectively, so that recirculation and mixing can be accomplished without the introduction of performance-compromising oxygen into what will be operated as a pure anoxic zone. With the submerged mixers installed, the existing rotors can be removed and can be salvaged for replacement parts for the rotors that will remain in use in VLR tanks 3 and 4.

Surface wasting of foam and filamentous growth will be implemented in the biological treatment system. Control of filamentous (bulking) microorganisms will improve clarifier performance and ensure that the long Solids Retention Times (SRTs) required for nitrification will be maintained. Utility water sprays will be provided to retard filamentous growth.

Plant staff has discussed the potential need for upgrade of the existing VLR drives that will remain in VLR loops 3 and 4. This has been investigated to some extent but a final decision has not yet been made.

Post Aeration Tank

A new post aeration tank (Approximately 2.0 million gallon (MG) total capacity) will be constructed to the west of the existing secondary clarifiers. These aerobic reactors will serve to augment the aeration treatment that is provided in the back portion of the VLR so that complete nitrification is achieved.

The tank will consist of a post-aeration zones, deoxygenation zones, surface wasting pumps, and recycle pumps. The post aeration, deoxygenation, and surface wasting pump stations will be divided into 2 trains operated in parallel to allow for isolation of a single train to accommodate maintenance. Approximate dimensions of the tank will be 140 feet long and 75 feet wide (for both trains combined). The side water depth will be approximately 26 feet. Fine bubble aeration diffusers will be installed and new blowers will be required. At least (1) standby blower will be provided. The blowers will likely be positive displacement rotary lobe type, equipped with variable frequency drives, although the possibility of utilizing screw compressors is also being evaluated due to their high efficiency. The blowers will be located outdoors on a concrete pad with an integral sound-attenuating enclosure. New insulated stainless steel piping will be provided. DO probes and flow control valves will be used to distribute air flow to each diffuser

grid. The tank drains will be tied into the existing plant drain system. Slide gates will be provided for isolation.

Deoxygenation Tanks

Deoxygenation zones, approximately 116,000 gallons in total volume, will be constructed immediately downstream of the new post aeration tanks. Similarly to the post aeration tanks, the deoxygenation tanks will be divided into two trains. The dimensions of both trains combined will be approximately 22 feet by 14 feet, with a side water depth of approximately 26 feet. The purpose of these zones is to reduce the dissolved oxygen concentration in the mixed liquor discharged from the post aeration tanks so that it does not introduce oxygen into the downstream anoxic treatment zones, which would inhibit denitrification activity.

Downstream of the deoxygenation zones, an internal recycle pump station will be constructed. This internal recycle pump station will facilitate the discharge a high percentage of the flow into the pre anoxic zone (converted VLR tank 2), while the balance of the forward flow will continue in the biological treatment process to the downstream post anoxic reactor (converted VLR tank 1). (4) submersible propeller pumps will be provided. Each pump will have a primary rating of 15,100 gpm and 20 feet TDH (3 operating at 65 mgd and 1 standby). Each pump will be driven by a variable speed, 100 HP, 600 rpm motor.

Re-aeration Tank

The forward flow from the post anoxic tank will discharge into a new 0.1 million gallon re-aeration tank, divided into two trains. The purpose of the re-aeration tank is to strip out the nitrogen gas that was produced during the denitrification process performed in the secondary anoxic tank and to raise the dissolved oxygen level in the wastewater so that proper settling can take place in the downstream clarifiers. As such, the depth will not exceed 15 feet to facilitate the stripping off of nitrogen gas so that degassing does not occur in the downstream secondary clarifiers.

Fine bubble diffusers and DO probes will be installed in both trains of the re-aeration tank. New insulated stainless steel piping will be provided. The tank drains will be tied into the existing plant drain system. Slide gates will be provided for isolation. The re-aeration tank effluent will flow directly to the final clarifier splitter box through the existing 36-inch pipe.

Final Clarifiers No. 4 & 5

There are (3) existing final clarifiers (Envirodyne Model HB37-TDS-1, 88-ft diameter by 16-ft total side wall). Based upon standard solids loading rate design recommendations, two new final clarifiers will be required to accommodate the additional flows associated with this project.
As part of this upgrade project, new weirs and manual stainless steel slide gates will be installed in the existing final clarifier splitter box to accommodate the new clarifiers. New 30-in cement-lined ductile iron pipe will connect the existing splitter box to the new clarifier inlets. New 24-in cement-lined ductile iron pipes will be tied into the existing 36-in pipe between the clarifiers and UV disinfection. A new 6-in glass-lined ductile iron pipe will be provided to bring scum to the existing final clarifier scum pump station.

New 12-in cement-lined ductile iron pipes will be routed from the new clarifiers to new return activated sludge (RAS) pumps. Plant staff has indicated there have been no significant problems with the existing clarifiers The new clarifiers will be similar to the existing units.

RAS/WAS Pump Station
There are (4) existing RAS pumps (Allis-Chalmers Model 150, Type NSX, 6 x 6 x 14, 1575 gpm, 22 feet TDH, 705 rpm, 20 HP).

The possibility of extending the east end of the pump station to fit the additional pumps was considered. However, based upon recent discussions with plant staff, it was determined that a new brick and block building, constructed beside the new final clarifiers, is the preferred approach for housing the new RAS pumps.

The Basis of design for the new RAS pumps is horizontal solids handling, Fairbanks Morse 8" E5426 with a primary operating point of 1,575 gpm and 28 feet TDH, driven by a premium efficient variable speed 20 HP, 900 rpm motor. Each pump discharge will have a dismantling joint, rubber flapper check valve and magnetic flow meter, and plug valve.

The pump station will include an electric wire rope hoist and monorail, hose reel with 50-feet of 1-in hose, and flushing connections on the piping. An attached electrical room will be constructed to house the associated variable frequency drives and panel boards.

Ultraviolet Disinfection (UV)
The Borough has recently completed a UV Disinfection System Upgrade Project that included a retrofit of its existing UV System and installation of a second parallel UV system. The system can now treat up to the peak hydraulic capacity of the facility: 33.5 MGD.

Acid Phase Digester

A new 90,000 gallon acid phase (pH of 5.5 to 6.0) digester will be constructed, east of the existing primary digester. The tank will be 22-ft diameter, 32-ft straight side, have an 11-ft high cone bottom, a skirt with access to the drain valves, an OSHA ladder and cage, railings on the top, and inspection/sampling ports. It will likely be welded steel with a suitable coating, fabricated in the field. The tank will have level instrumentation (either radar or pressure transmitters) located on the drain pipe. Temperature will be monitored to ensure process optimization. Dual pressure/vacuum relief valves with flame traps will mounted on the top.

A jet type mixing system will be provided with (2) horizontal chopper pumps (1 operating, 1 standby) and (3) discharge nozzles inside the tank. Each pump will be rated for 650 gpm and have a direct driven 10 HP, 1200 rpm motor. Piping and nozzles will be ductile iron and coated with epoxy.

Approximately 10% of the total gas in the digestion process will be produced during the acid phase. Based on data from similar process at a different plant, gas composition is expected to be 25% methane and 75% carbon dioxide. A new candlestick type waste gas burner with natural

gas pilot will be provided to burn the acid phase waste gas. Since the gas will not burn at 25% methane, the waste gas will need to be blended with natural gas. The waste gas burner will be located adjacent to the existing burner and be provided with a pilot and control panel, back pressure regulator, flame trap, fire-safe isolation valves, flow meter, and monometer.

The digester will be designed for 200 Degrees F and but will normally operate around 140 Degrees F. The existing Bryan boiler will be demolished and replaced with a new dual fuel (natural and digester gas) boiler capable of producing steam. A tee will be installed on the discharge of the existing heat exchanger in the digester building and a new pipe will carry heated sludge to the acid phase digester. Approximately 1700 lb/hr of 75 psig steam will be mixed into the new heated sludge pipe through a control valve. A drain and overflow pipe will be provided. (3) outlet pipes will be mounted inside the tank at different elevations. Digested sludge will flow by gravity to the gas phase digester (the existing primary digester with floating cover). Flow control will be provided by motor-operated pinch valves that are controlled by a level monitoring system.

Gas Phase Digester
The Borough has an existing 60-ft diameter by 23-ft high primary digester with a USFilter/Envirex steel floating cover. This existing primary digester will be modified to operate as the gas phase digester. There are (2) existing mixing pumps mounted on the cover that do not provide the required mixing. A new jet type mixing system will be provided with (2) horizontal self-priming chopper pumps (1 operating, 1 standby) and (2) sets of mixing nozzles. Each pump will be rated for 1800 gpm, 37 feet TDH, with an output speed of 785 rpm. The pumps will be driven by belt and a 30 HP, 1800 rpm motor. A new linear motion mixer was also investigated for mixing but complications associated with modifications to the center dome, sludge piping, and gas piping that would be required to accommodate the new linear motion mixer made this option less attractive. The digested solids in the gas phase digester will be pumped to the existing secondary digester, then to the sludge holding tank, before flowing by gravity to the sludge pumping station to be pumped to the belt filter presses for dewatering.

Solids Handling Piping Changes
Currently the Gravity Thickener (GT) operates without elutriation water. This can lead to odor issues and rising solids which reduce the concentration fed to the digester. To address these concerns, WWTP staff has asked that this upgrade project make provision for plant water addition to provide elutriation (dilution) water for the primary solids feed to the GT. It has been proposed that this be accomplished by adding plant water to the discharge of the primary sludge transfer pumps at the Primary Sludge pump station. Further investigation is required to determine if the existing utility water pumps would need to be supplemented or replaced to provide the required flow and pressure for this purpose.

Currently there is no means for transferring primary sludge to the rotary drum thickening system. Adding a small amount of primary sludge to the RDT system will reduce polymer demand and improve percent solids performance. This capability will be provided by the addition of remotely actuated valves, located on the discharge of the primary clarifier sludge pumps that

feed to the gravity thickener, to "jumper" primary solids to the new VLR surface wasting lines which will be used to introduce approximately a 10% mix of primary solids to the RDT WAS storage tank, which is the percent composition that experience indicates optimizes thickening performance.

Chemical Addition

Heated fiberglass sheds will be provided for new chemical feed equipment. Metal salt addition (alum is typically the preferred choice for wastewater facilities that utilize UV disinfection) will be utilized at the primary and secondary clarifiers for phosphorous removal. The biological modeling results indicate that sodium hydroxide will not be required in the biological treatment process for pH adjustment. However, in order to provide for flexibility in operations and to provide a contingency for unexpected circumstances, Borough staff has requested that provision of a future pH adjustment chemical feed system be provided. As such, the current project will be designed such that a future pH adjustment system will be possible if deemed necessary. The Borough has expressed a preference for magnesium hydroxide.

A supplemental carbon source will also be required at the secondary anoxic tank to accommodate the denitrification treatment process. Glycerol has been discussed as a possible supplemental carbon source alternative.

The use of these chemicals will necessitate some safety measures for compliance with regulations. A safety shower is required because of the use of sodium hydroxide and alum. Additionally, dependent upon the type of supplemental carbon source that is selected, a fire suppression system may be required.

Electrical

Emergency Generator and Electrical Service Upgrade

The plant is served from two separate underground primary service laterals and two separate pad-mounted transformers. The Borough has two existing 1980 vintage 500 kW generators.

The treatment facility is equipped with two separate electrical feeds from the Borough, which satisfies the PA DEP's power redundancy requirement. As such, additional emergency power generation is not required. However, the Borough plans to utilize its two existing 500 kW generators to power the new influent pumping station pumps and the UV disinfection units in the unlikely event that both utility services from the Borough were lost.

As mentioned previously, the plant is served from two separate underground primary service laterals and two separate pad-mounted transformers. The two transformers are rated at 1,500 and 2,500 kVA. Both transformer secondary feeders route from the transformers into the existing switchgear located in the Main Electric Building. Field investigations confirmed that the existing switchgear has a 3000-amp rating.

The existing plant main electrical equipment located in the existing electrical building is sized at 3000 amps. With the increase of process, the load will require 6000 amps at 480 volts. The included single line diagram shows an anticipated layout for plant power to the major components. Given that a new electrical building was proposed, it is expected that two new medium voltage services be brought to two new pad-mounted transformers located in the vicinity of the new building. The existing medium voltage services and transformers will be demolished.

Many of the loads on the existing switchboard will remain but others will be relocated to the new electrical building switchboard. The intent of relocating loads and the switchboard breakers is to keep the distance between the switchboard and the loads as short as possible to control voltage drop.

Existing Digester Building

There was a concern about how much change would have to be made to the electrical systems within the digester building when minor equipment changes are made. The concern was based on certain areas within the building being classified as hazardous and whether that would require more extensive upgrades to the existing systems. Mr. Joe Mellott of Commonwealth Code Inspection Service was asked to meet at the site so that he had first hand information on the situation and could offer an opinion on what had to be done to adhere to the National Electrical Code. According to Mr. Mellott, he felt that only those modifications necessary to address the minor equipment changes would need to be made. He did say that Mr. Bill Chittester, his supervisor, would be the person making the final decision; however, Mr. Mellott felt that given Mr. Chittester's fair handling of these situations, there should be no problems.

Electrical Components

a. Introduction

There are areas where unclassified or hazardous conditions exist. These areas will be addressed both by ventilation means and equipment meant specifically for the areas. By ventilating in specific ways, there are some hazardous areas that can be degraded to lesser conditions and there are areas that can be downgraded to unclassified conditions.

b. Applicable Codes and Standards

All of the codes applicable to the project cannot be identified at this early stage of the project; however, there are some codes that are known to apply and, as such, will be followed. These include the following:

National Electrical Manufacturers Association (NEMA).
Occupational Safety and Health Administration (OSHA).
American National Standards Institute (ANSI).
National Fire Protection Association (NFPA).

NFPA 70; 2011 National Electrical Code, and current amendments.
NFPA 820 – Standard for Fire Protection in Wastewater Treatment and Collection Facilities.
Underwriters' Laboratories, Inc. (UL) Listings, Labels, and Approvals shall govern the quality and performance of certain specified Products.
Institute of Electrical and Electronic Engineer (IEEE).
Insulated Cable Engineers Association (ICEA).
International Building Code as pertinent.

As the design progresses into the next stage, the AECOM Team will discuss with the Borough whether there are local electrical codes that should have bearing on the design.

c. Existing Electrical Distribution

It is apparent that the electrical distribution equipment will have to be evaluated based on the upgrade plant loading. There will be locations where the distribution system will remain undisturbed while areas with upgrades will command changes. Those areas where change is warranted, additional capacity will be built in to accommodate reasonable future loads.

d. Site Lighting

There will be areas of disturbance where existing site lighting might be interfered with due to the upgrades. In these instances, new site lighting will adhere to the existing lighting appearance, type of lamp, and distribution pattern as much as possible. Tank catwalks and building walls will receive lighting treatment to complement the site lighting. The control of site lighting will be a continuation of the existing methods of control. All lighting will be designed with energy efficiency in mind.

Instrumentation and Control

a. Introduction

The existing plant is operating through a redundant set of in-plant Supervisory Control and Data Acquisition (SCADA) systems using CitectSCADA by Schneider Electric. The design intent is to expand the system to incorporate the added facilities, but maintain the human-machine interface so as not to make the plant Operators learn an entirely different system.

b. Applicable Codes and Standards

Instrument Society of America (ISA)
National Electrical Manufacturers Association (NEMA)
Occupational Safety and Health Administration (OSHA)
American National Standards Institute (ANSI)
National Fire Protection Association (NFPA)
Scientific Apparatus Makers Association (SAMA)

Institute of Electrical and Electronic Engineer (IEEE)
Electronic Industries Association (EIA)
Insulated Cable Engineers Association (ICEA)
Local Power and Telephone Companies

c. Existing SCADA Systems

The existing plant wide system will remain in place. Buildings presently have remote terminal units for input/output functions as well as message display units. These I/O units are connected to the master via fiber optic cables.

d. Proposed SCADA Interface

The main program will be expanded to accommodate the plant upgrade. Remote I/O will be added to each new facility and existing remote I/O systems will be modified to follow changes to process within existing facilities. New I/O will be connected to the master via fiber optic cables.

e. Instrumentation

The equipment used for monitoring process conditions will be specified with consensus from the Borough in those areas for which there is a choice of equipment.

f. Installation and Testing

All hardware and system programs shall be completely factory tested under simulated operating conditions. In addition, the Owner and/or Engineer can be called on to witness a Factory Acceptance Test (FAT). This test is very costly since the Owner and/or Engineer could be at the plant for a week or so. In lieu of this, a Web-X virtual setup can be held over the Internet with none of the parties leaving home. At these sessions general conditons with similar functions are reviewed. The expected correct operations are then programmed at the site.

The FAT test procedures shall follow, insofar as they apply, to Section 8, Recommended Tests for Interacting Systems established by the Instrument Society of America under Standard RP 55.1 and the Factory Acceptance Plan detailed within these Specifications. The submittal shall contain a schedule identifying each testing activity. Upon satisfactory completion of each testing activity, the System Manufacturer shall provide the certification and documentation.

The availability of the entire distributed control system shall not be less than 99.97 percent with a mean time to repair (MTTR) of two (2.0) hours for any consecutive period of six months during the one (1) year guarantee period. Availability, MTTR and other supporting terminology shall be as defined in SAMA Standard PMC32.1-1976.

Structural

There will be several new concrete tank structures included in the project. The Borough has requested that the project bidding documents be structured such that prices are obtained for both cast-in-place and precast concrete structures.

Following are the criteria that will be used for design:

- Design shall conform to the current edition of the International Building Code.
- Loading criteria and loading combinations for buildings and structures shall conform to the American Society of Civil Engineers ***Minimum Design Loads for Buildings and Other Structures*** (ASCE/SEI-7) unless more severe loadings are required by the applicable building code.
- Design and placement of structural concrete shall conform to the American Concrete Institute ***Building Code Requirements for Reinforced Concrete*** (ACI 318).
- Design and placement of concrete for liquid containment structures shall follow the American Concrete Institute ***Code Requirements for Environmental Engineering Concrete Structures*** (ACI 350) in addition to the requirements of ACI 318.
- Design, fabrication, and erection of structural steel shall follow the American Institute of Steel Construction ***Specification for Structural Steel Buildings*** (June 1, 1989) and the 9th Edition (1989) of the AISC Manual of Steel Construction.
- Welding procedures and qualifications for welders shall follow the recommended practices of the American Welding Society D1.1 Structural Welding Code.
- Design and erection of masonry materials of brick, concrete block, or structural tile shall conform to the ***Building Code Requirements for Masonry Structures*** (ACI 530 / ASCE 5 / TMS 402) and the ***Specifications for Masonry Structures*** (ACI 530.1 / ASCE 6-99 / TMS 602) reported by the Masonry Standards Joint Committee.

Architectural

Codes and Regulations

The following codes and regulations shall be used to perform the architectural work for the project:

- Building Code – 2009 International Building Code (IBC) with local amendments
- Fire/Life Safety Code – 2009 International Fire Code
- Accessibility Code – 2009 IBC Chapter 11 & 2003 ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities
- The American Disabilities Act (ADA)
- Energy Code – 2009 International Energy Conservation Code (IECC)
- Occupational Safety and Health Act (OSHA) Regulations

Energy Code Requirements

The Borough of Chambersburg is located in Franklin County and is classified as Climate Zone 5A by the IECC. Minimum building envelope requirements for opaque assemblies in Zone 5A are as follows:

- Roofs with insulation entirely above deck – R-20ci
- Above grade mass walls – R-11.4ci
- Below grade walls – R-7.5ci
- Mass Floors – R-10ci
- Unheated slab-on-grade floors – No Requirement
- Swinging opaque doors – U-0.70
- Roll-up doors – U-0.50

Exterior Materials Overview

It is anticipated that a new electrical building will be required as part of the upgrade. The new building will be a single story masonry bearing wall structure with a flat roof and be similar in appearance to the existing Solids Handling and RAS buildings. The walls will be constructed of a CMU back-up wall with an air space/insulation cavity and concrete masonry veneer. The architectural aesthetic will complement the existing structures but will not be identical.

The roofing material will be a light colored multi-ply modified bitumen with a 25 year minimum service life. The light color will reflect the sun's energy, keeping the building cooler in the summer months while helping to reduce the heat island effect caused by dark colored surfaces. Doors and louvers will be constructed of anodized or Kynar finished aluminum for durability, corrosion resistance and minimal maintenance.

The addition to the RAS Building will receive a similar material palette and aesthetic as the original structure. Existing materials will be investigated and upgraded as required. The new addition will comply with the latest applicable codes.

Interior Materials and Finishes
Interior finishes will be selected for durability, ease of maintenance and appearance. The selection of finishes, furnishings, colors, and lighting will be analyzed in much greater depth during detailed design. Proposed preliminary finish choices are as follows.

Wall finishes and materials will be selected for maintainability, sound absorption and light reflectance. Paint colors will be chosen for visual balance and light reflectance of interior spaces. Interior doors will be painted hollow metal doors for durability. Process area finishes will be selected for minimal maintenance. Concrete floors will receive liquid hardener or dust proof sealer as appropriate. CMU walls will be painted for light reflectance and to provide an easily cleanable surface. Ceilings will be exposed steel framing or concrete with a paint finish. Metals such as guard railings shall be provided with a clear anodic finish and hatches will be corrosion resistant mill finished aluminum. Overhead structures such as monorails and specific floor areas will receive safety paint markings.

Safety
The facility will be designed to meet applicable code requirements for safety. Specific signs, equipment colors and other measures as required by code will be incorporated into this design to provide a safety conscious working environment. First aid kits and fire extinguishers will be provided.

Energy Conservation
The entire building envelope will contain sufficient insulation so as to satisfy, in conjunction with heating and ventilation equipment, the area temperature requirements that are determined in the HVAC design.

Sound Control
The acoustical design for the new structure that houses the new generator(s) will include the use of acoustical masonry walls and insulated metal doors.

HVAC
At this conceptual design phase of the project, the HVAC design has not yet been initiated since evaluation of HVAC requirements must follow the preliminary design of the other disciplines. The following codes and regulations shall be used to guide the HVAC for the project:

- Mechanical Code – 2009 International Mechanical Code (IMC)
- Energy Code – 2009 International Energy Conservation Code (IECC)
- American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc. (ASHRAE)
- National Fire Protection Association (NFPA)
- Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)

Design Conditions:
Outdoor Design Temperatures: (Reference: ASHRAE Fundamentals, 2009)
Summer: 89.6 deg F dry bulb, 72.5 deg F wet bulb
Winter: 8.7 deg F

Indoor Design Temperatures: Indoor spaces shall maintain 55 degrees F in process spaces in the winter and 104 degrees F in the summer. Electrical rooms shall be air conditioned to 85 degrees F to protect sensitive equipment.

Plumbing and Fire Suppression

Codes and Regulations
The following codes and regulations shall be used to guide the plumbing and automatic fire suppression for the project:

- Plumbing Code – 2009 International Plumbing Code
- Energy Code – 2009 International Energy Conservation Code
- Fire/Life Safety Code – 2009 International Fire Code
- National Fire Protection Association (NFPA) standards

Alum and supplemental carbon chemical storage tanks will be located outdoors. A combination emergency shower/eye wash unit will be provided in the vicinity of the storage tanks. The walking time from potential hazards to a shower/eye wash unit is recommended by ANSI Z358.1 not to exceed 10 seconds. Since the distance to existing buildings from the outdoor storage tanks will be in excess of this amount, a packaged emergency shower/eye wash building is proposed. The heated packaged building will house the shower/eye wash unit, tempered water heating equipment, and local and remote alarms. Connections to the municipal water supply, sanitary sewer, and electric utility will be provided.

The proposed RAS pump building will be equipped with a potable cold water wash-down station, floor drainage system discharging to the sanitary sewer, and a flat roof drainage system discharging to grade.

Constructability

1. General

The construction of the Borough of Chambersburg's Wastewater Treatment Plant Upgrades will likely not require phasing, but there will be several components that must consider the need to maintain the operation of the plant throughout the construction period. To maintain the plant operation during construction certain constraints and conditions will be placed upon the contractor and plant operations personnel. It is noted that there has already been a project undertaken that doubled the capacity of the UV Disinfection System. The focus of this writing is the larger, full scale plant upgrade.

During construction of the improvements, all influent flows must continue to receive primary and secondary treatment as presently occurs as well as disinfection. Borough personnel will continue to operate the plant during the construction period and will be responsible for meeting permit conditions. The Contractor will coordinate the construction schedule with the Engineer and the Borough and provide all necessary labor, equipment, fuel, power and materials for its work as maybe required to maintain flow to the units that must be in service to meet the permit conditions.

Any work required that might interrupt the normal plant operations shall be accomplished within the constraints set forth in the contract documents and in accordance with the requirements of plant operation that will maintain effluent quality. Constraints shall be developed such that should construction activities impact existing plant operations, the contractor will be required to work around the clock and supply multiple work crews as necessary to complete the work including testing and acceptance within the specified time frame. The contractor will be required to have on hand, located in close proximity to the work area(s) all necessary tools, equipment and materials, both temporary and permanent, necessary to complete each work category, without interruption. Prefabricating of all piping and other assemblies shall be completed to the greatest degree possible prior to any shutdowns. The Engineer and the Borough must be satisfied that the contractor has complied with these requirements before shutdowns will be authorized.

The Borough's plant operation staff will dewater all areas of the operating facilities within the time period specified. All objectionable materials remaining within channels or tanks shall be removed concurrently with the draining process. Existing tankage shall be turned over to the Contractor in a clean fashion to all the performance of the work. All debris, as a result of the work of the contractor, shall be completely removed and the area cleaned by the contractor prior to turning the system over to the Borough.

The contractor shall be required to submit shutdown procedures and sequences to the Engineer and the Borough for approval prior to performing the shutdown. The contractor shall submit temporary facility designs including but not limited to bulkheads, pumping systems, buildings/enclosures and pipelines to the Engineer for review and approval as necessary. All shutdown requests shall be provided to the Engineer and the Borough a minimum of 14 days prior to the shutdown and shall be submitted in writing. Approval of the shutdown will be contingent upon the projected weather forecasts for the shutdown period. Shutdowns will be subject to constraints imposed on the plant by flow conditions. Shutdown sequences will be subject to change in order to maintain plant operations. The contractor will be prohibited from shutting down or disconnecting any operating system in the plant. Borough personnel shall execute all system shutdowns.

Access into and out of the existing site shall be maintained at all times. The contractor will ensure safe working conditions for plant personnel to maintain and operate the existing and new treatment systems.

The contractor will be required to provide dust, noise and odor control as well as pipe and/or tank spillage and drainage control during construction. The contractor will also be required to provide temporary heating, ventilation and electrical power as necessary for construction in all project areas.

The following sections will present the thirteen major components of the construction (noting the UV System is already installed) and the approach to implementing the upgrade of the plant with the key components of process, electrical and the instrumentation system discussed. All electrical and instrumentation system will constructed along with the improvements in each component. It is not intend to address every issue of construction in this section but provide an understanding of the construction phases, constraints associated with building the improvements and ensuring that the improvements can be built in a sequenced manner.

2. New Headworks/Influent Pump Station (Structure No. 2)

The new Headworks and Influent Pump Station, essentially is a Cast-In-Place concrete tank built independently of the existing operations. The tank is to be located in an open area east of the existing Headworks. The tank will receive flow from a channel to the east of the structure and exit the flow into the proposed Grit Facilities. While the new station will be constructed near the existing Headworks, access to the Headworks should be maintained and unimpeded by this construction. Coordination on the final tie will be required, but otherwise the sequencing of the Work is linear for this structure.

- Construct New Headworks and Influent Pump Station:

1. Construct the new Headworks – this construction will not interfere with plant operations and will not require a shutdown or disruption to the plant operations.

2. The depth of the tank will not pose a constructability issue relative to the adjacent structures. Braced Sheeting may be necessary to construct the foundation, but not to support the loads from the nearby structures that are significantly shallower than the proposed tank.

3. Access to the site will likely not be impacted. Contractor staging will be limited and should be addressed in the Final Contract Documents.

4. The Headworks and Pump Station can be placed into service without the additional Grit Tank but cannot be placed into service until the new Force Main to the Grit Tanks and the electrical service is run to the new site.

3. New Grit Removal

The New Grit Removal Tank is very similar to the Headworks in terms of constraints, predecessors and successors, and the very linear and independent nature of this construction.

The proposed grit chamber is a mirror image of the existing grit chamber and is being constructed to the north of the existing grit chamber. The tank will receive split flow from the new Headworks and exit the flow to the Primary Settling Tanks. Solids are also removed and pumped separately. Sequencing of the Work is linear for this structure. The tie in to the existing tank and splitting the flow will involve a short duration shutdown.

- Construct New Grit removal System:

1. Construct the new Grit Removal Tank – this construction will not interfere with plant operations and will not require a shutdown or disruption to the plant operations.

2. The depth of the tank, however poses a constructability issue relative to the adjacent structures. Braced Sheeting will be necessary to convey the loads from the nearby grit tank that is essentially at the same elevation than the proposed tank and whose cone of influence does extend into the proposed excavation. The tank is also located closer to the roadway to the north and the loading from the roadway may interfere with the excavation. As such, braced sheeting design will need to protect these structures.

3. The roadway to the north of the tank may require some re-direction of traffic (See Site Work discussion below).

4. Access to the site will likely be accomplished via the roadway to the north of the tank site and that area will also provide the staging area for concrete deliveries. Temporary roadways may need to be constructed between the tank and the roadway to provide for concrete and material deliveries. Contractor staging will be limited and should be

addressed in the Final Contract Documents. This tank will not allow for staging between the tank and the roadway for staging.

5. The Grit Removal Tank can be placed into service independently of the other systems preceding and succeeding the process.

4. Existing VLR Train 2 Conversion to Pre-Anoxic Reactor

The existing VLR No. 2 Train is set to be converted to a Pre-anoxic Reactor. To accomplish this task, the Second Train of the VLR will need to shutdown for an extended period of time and once the conversion is started, the tank will no longer be available for use as a VLR, limiting the treatment capability. To assist in the treatment process, the new proposed Post Aeration Tanks should be constructed and placed into service prior to the removal of VLR-2.

The modifications to the process are limited to inside the tank and as such, the construction of the work is fairly linear and is restricted only by the process that must be maintained with the tank out of service. The rotors will be removed and replaced with submerged mixers and surface wasting will be installed to allow for foam control. The construction of these structures is fairly linear as well, although their sequencing should be considered as follows.

- Construct VLR-2 Conversion:

1. Due to the treatment requirements, the new VLR-2 Modifications should be constructed after the Post Aeration Tanks and Deoxygenation Tanks are constructed and placed into service. The tank modifications will interfere with plant operations and will require a shutdown or disruption to the plant operations.

2. The channels run through a congested area with very limited access for equipment delivery and staging. New Mixers will likely need to be flown in from the area north of the VLR's

3. Upon completion of the VLR-2 Modifications, the tank can be ready for service provided that the other modifications in the treatment train modifications to VLR-1.

5. New Post Aeration, Deoxygenation and Recycle Pump Station

Integral to the modifications of the existing and new aeration system is the construction of the new Post Aeration Tank and the adjacent Deoxygenation Tank and the Recycle Pump Station. Completion of these structures are unimpeded by plant operations and can be constructed without interference to plant operations. Additionally the construction of these structures early in construction will allow the process flexibility and additional aeration control of the process during construction of other components of the system. As such, these three integrated structures and their supporting pipes should be constructed first in the aeration system modifications. The actual construction of these structures is fairly straight-forward in that they will be constructed on virgin ground to the west of the existing plant and no interferences or other coordination is likely, except for the actual tie-ins. Work is linear for this structure.

- Construct New Post Aeration Tank:

1. Construct the new Post Aeration Tank – this tank construction itself will not interfere with plant operations and will not require a shutdown or disruption to the plant operations. However, the connections to the tank will interfere with plant operations as noted below.

2. With no adjacent structures the depth of the tank does not pose a constructability issue relative to the adjacent structures.

3. The area of the Post Aeration Tank is not congested and its proximity to other structures will make the construction fairly straight-forward without the coordination of other components of this construction. Access to the site will likely be accomplished via the open area to the west of the clarifiers and that area will also provide the staging area for concrete deliveries.

4. The Post Aeration Tank cannot be placed into service until the piping modifications feeding and sending and supporting structures are constructed.

6. Conversion of VLR-1 to Post Anoxic Tank

The existing VLR No. 1 Train is set to be converted to a Post-anoxic Reactor, and is tied into the conversion of VLR-2. To accomplish this task, similar to Item no. 4 above, the First Train of the VLR will need to shutdown for an extended period of time and once the conversion is started, the tank will no longer be available for use as a VLR, limiting the treatment capability. To assist in the treatment process, the new proposed Post Aeration Tanks should be constructed and placed into service prior to the removal of VLR-1.

The modifications to the process are limited to inside the tank and as such, the construction of the work is fairly linear and is restricted only by the process that must be maintained with the tank out of service. The rotors will be removed and replaced with submerged mixers and surface wasting will be installed to allow for foam control. The construction of these structures is fairly linear as well, although their sequencing should be considered as follows.

- Construct VLR-1 Conversion:

1. Due to the treatment requirements, the new VLR-1 Modifications should be constructed after the Post Aeration Tanks and Deoxygenation Tank and Recycle Pump Station (Structures 5, 6 and 7) are constructed and placed into service. The tank modifications will interfere with plant operations and will require a shutdown or disruption to the plant operations.

2. The channels run through a congested area with very limited access for equipment delivery and staging. New Mixers will likely need to be flown in from the area north of the VLR's

3. Upon completion of the VLR-2 Modifications, the tank can be ready for service provided that the other modifications in the treatment train modifications to VLR-2 (Structure No. 4)

7. New 0.1 MG Re-Aeration Tank

The new Re-aeration Tank is independent of other structures in terms of constraints, predecessors and successors, however, it is suggested that this Tank be constructed after the construction of the aeration system modifications to minimize interferences with plant operations. The work should also be closely coordinated with the modifications to the clarifiers, although that should be limited to the tie-ins and connections only. Clarifier work may proceed independently of the re-aeration tank work.

Sequencing of the Work is linear for this structure.

- Construct New 0.1 MG Re-Aeration Tank:

1. Construct the new Re-aeration Tank – this construction will not interfere with plant operations and will not require a shutdown or disruption to the plant operations.

2. The tank foundation may require braced sheeting if a deeper footing foundation is selected. The proximity of the tank to other structures is such that the impact of the excavation will need to be analyzed to minimize impact on existing structures nearby. Final Contract Documents will address the support and impact analysis required.

3. The Re-Aeration Tank is integral to the operation of the new facilities and will be placed into service in conjunction with the other facilities.

8. New Secondary Clarifiers

The construction of the new clarifiers and RAS Pump Station should follow the modifications to the aeration system, however, there is flexibility in this construction such that the secondary components can be constructed independently of other structures in terms of constraints, predecessors and successors. The structure is sufficient remote to other structures that its construction will not require coordination with other structures.

Sequencing of the Work is linear for this structure.

- Construct new Clarifiers and RAS Pump Station:

1. Construct the new structures – this construction will not interfere with plant operations and will not require a shutdown or disruption to the plant operations, except for the tie into the Clarifier Splitter Box, and some of the RAS Piping connections.

2. The clarifier foundations will likely not require braced sheeting assuming a footing design is selected. The proposed tanks are sufficiently removed from other structures such that the foundation can be constructed with normal sloping of the excavation.

3. Access to the site will likely be accomplished via the northern most roadway on the site. Contractor staging will also take place in this area.

9. New Electrical Building

The Electrical Building is planned to be located adjacent to the existing electrical building. The existing electrical building will remain active during and after construction although some electrical loads will be transferred to the new building. Additionally new electrical service will be brought in. These scenarios provide for short term shutdowns to allow for the switchover of power supplies. These switchovers can be designed to minimize impact on operation, however, there will be an impact regardless. The New Electrical Building will serve all the new electrical loads imposed on the designed improvements and as such must be constructed prior to the initiation of any testing of the new systems. The building's proximity to adjacent structures will need to be closely considered during the final design.

The Electrical Building is envisioned as a masonry structure built on a slab foundation. Although deep excavations are not envisioned for this structure, the difficulty of the adjacent structures is such that protection of the adjacent structures may need to be considered in the design. Sequencing of the Work is linear for this structure.

- Construct Electrical Building:

1. Construct the new Building – this construction will not interfere with plant operations and will not require a shutdown or disruption to the plant operations, other than possible short shutdowns to allow for electrical connections and new service feeders.

2. The building foundation will likely not require braced sheeting assuming a slab on grade or footing design is selected. However, the final location selected by the design will dictate if any additional supports for adjacent structures will be necessary. It is assumed that electrical feeds to and from the Building will be done in overhead raceways.

3. Access to the site will not be difficult. Contractor staging will also take place in this area, south and west of the structure.

4. The Electrical Building is integral to the operation of the new facilities and will be placed into service in conjunction with the other facilities.

10. Digester Improvements

The Digester Tank Improvements (Conversion to a Gas Phase and the addition of a new Acid Phase Digester) are independent of other structures in terms of constraints, predecessors and successors, however, it is suggested that these Tanks be constructed concurrently.

The existing digester will not undergo significant structural work and be limited to process work inside the vessel. The new Acid Phase Tank is envisioned as a steel ground storage tank resting on a ringwall foundation. The Acid Phase tank is to be located in an open area east of the

existing digester. Underground piping will feed and drain the tank. Sequencing of the Work is linear for these structures.

- Construct New Acid Phase Tank:

1. Construct the new Acid Phase Tank – this construction will not interfere with plant operations and will not require a shutdown or disruption to the plant operations.

2. The tank foundation will likely not require braced sheeting if a ringwall foundation is selected. The proximity of the tank to other structures is such that the concrete ringwall can be constructed with normal sloping of the excavation although it will be analyzed further in Final design.

3. Access to the site will likely be accomplished without any impedances. Contractor staging will also take place in this area.

4. The New Acid Phase Tank is integral to the operation of the new facilities and will be placed into service in conjunction with the other facilities.

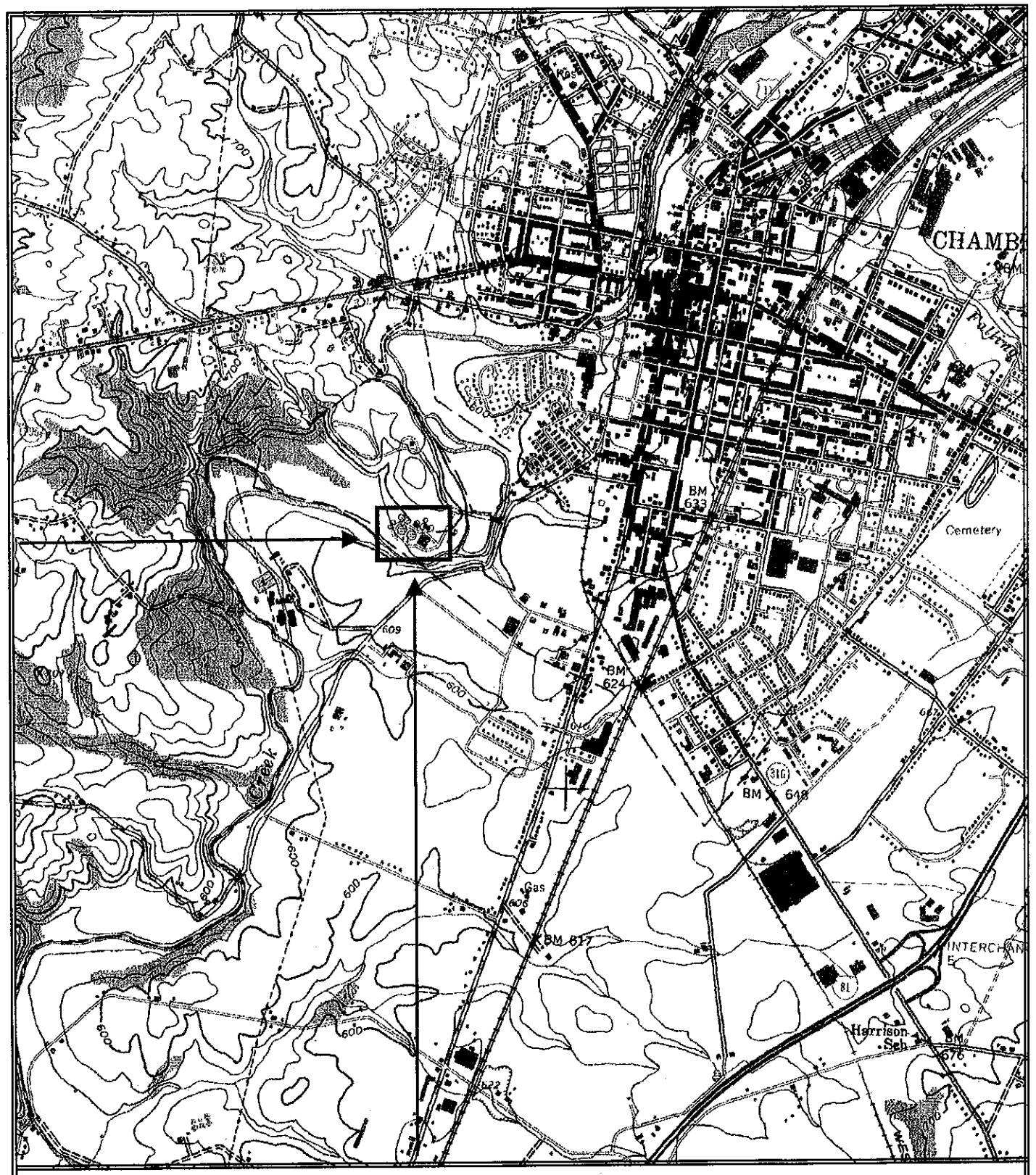
5. The conversion of the existing Digester to the a Gas Phase Digester will involve close coordination with plant operations but should be otherwise unimpeded.

11. Site Work

Construction activities will most likely impact the Northern most roadway, north of the proposed Grit Tank as well as other access roads in the plant, particularly the road to the north of the VLR's. These roads will likely be needed for construction staging and deliveries and will impact the sludge transportation and other supply delivery trucks to the treatment plant. As such, a temporary re-routing of traffic around the construction should be implemented.

EXHIBIT E

USGS TOPOGRAPHIC MAP



Chambersburg WWTP Upgrade Project

Project Site

N

Scale = 1:24,000

1,000 500 0 1,000 2,000

1 inch equals 2,000 feet

ARRO
ENGINEERING & ENVIRONMENTAL CONSULTANTS
OUT IN FRONT

USGS
Chambersburg Quadrangle

EXHIBIT F

ACT 537 PLANNING APPROVAL LETTER

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER MANAGEMENT PROGRAM

October 5, 2011

Chambersburg Borough Council
100 South 2nd Street
Chambersburg, PA 17201-2512

Re: Act 537 Plan Update
APS ID No. 693795
DEP Code No. C3-28001-ACT
Chambersburg Borough, Franklin County

Ladies and Gentlemen:

We have reviewed your May 2011 Act 537 Plan, submitted on June 21, 2011, prepared by Salzmann Hughes Attorneys at Law, Buchart Horn Inc., and AECOM and entitled Borough of Chambersburg Act 537 Plan Update. The submission is consistent with the planning requirements given in Chapter 71 of the rules and regulations of the Department. The plan provides for an upgrade and expansion of the existing 6.8 MGD sewage treatment plant to 11.28 MGD average daily flow in order to meet the nutrient reduction requirements imposed by the Chesapeake Bay Tributary Strategy and the twenty year flow projections. The Plan includes many equipment and process upgrades including a sequencing batch reactor to treat filtrate from the belt filter presses to reduce the recycle nutrient loads to the head of the plant.

The plan is approved with the following conditions:

1. The approved project will require an NPDES Permit for the proposed effluent discharge. The permit application must be submitted in the name of the municipality or authority, as appropriate.

2. The approved project will require a Water Management Part II Permit for the construction and operation of the proposed sewage facilities. The permit application must be submitted in the name of the municipality or authority, as appropriate. Issuance of a Part II Permit will be based upon a technical evaluation of the permit application and supporting documentation. Starting construction prior to obtaining a Part II Permit is a violation of The Clean Streams Law.

3. Other Departmental permits may be required for construction if encroachment to streams or wetlands will result. Information regarding the requirements for such permits or approvals can be obtained from the Department's Permitting and Technical Services Section, Watershed Management Program at the letterhead address or telephone 717.705.4802.

4. Completion of a Uniform Environmental Review (UER) is required in order to be eligible for PENNVEST funding consideration. If the Borough of Chambersburg intends to apply for PENNVEST funding, a full Act 537 Plan Revision including a UER must be completed by the Borough of Chambersburg and submitted to the Department for review and approval prior to applying for PENNVEST funding.

5. Also, if PENNVEST funding is to be applied for, than an in-depth evaluation and consideration of nutrient trading options would be required as part of the UER/Act 537 Plan Revision as outlined in Condition No. 4 above. Detailed information concerning nutrient trading options is available on the DEP website.

It is now the Borough of Chambersburg responsibility to implement the 537 Plan in accordance with the schedules contained within the Plan.

Since the Department has approved your Plan, you are now eligible to receive a 50 percent planning cost reimbursement as provided under Section 6 of the Sewage Facilities Act (Act 537). A copy of the reimbursement application is enclosed. You are reminded that reimbursement applications must show detailed cost breakdowns of tasks completed or you will place your reimbursement in jeopardy.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa. C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, PO Box 8457, Harrisburg, PA 17105-8457, 717.787.3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800.654.5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717.787.3483) FOR MORE INFORMATION.

If you have any questions, please call David Gates at 717.705.4766.

Sincerely,

Lee A. McDonnell, P.E.
Program Manager
Water Management Program

Enclosure

cc: Salzmann Hughes Attorneys at Law
AECOM
Franklin County Planning Commission

3800-FM-WSFR0009 9/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

DATE SUBM

APPLICATION FOR ACT 537 SEWAGE FACILITIES PLANNING ASSISTANCE

1. APPLICANT	TELEPHONE	FEDERAL E.I.N. No.
2.ADDRESS CITY ZIP COUNTY		DEPARTMENT USE ONLY Review Initials and Approval Dates Central Office ___ __/__/__ ___ __/__/__
3. OFFICIAL OF APPLICANT	TITLE	

PLANNING BOARD OR COMMISSION				Paid V.T. # _____ Check No. _____ Date of Check _____
1. NAME OF PLANNING AGENCY		TELEPHONE		
2.ADDRESS	CITY	ZIP	COUNTY	
3. CHAIRMAN OF AGENCY		POLITICAL SUBDIVISON SERVED:		

IF THE PLAN SUBMITTED IS A JOINT EFFORT LIST THE POLITICAL SUBDIVISIONS AND PLANNING AREAS		*FOR APPLICANT USE*
4. NAME OF POLITICAL SUBDIVISION	PLANNING AREA	5. THE OFFICIAL PLAN IS: ☐ A new plan ☐ A revision of existing plan ☐ A part of a comprehensive plan
		6. DATE PLANNING STARTED:
		7. DATE OFFICIAL PLAN COMPLETE:
10. NAME OF PLANNING CONSULTANT SUBDIVISION TELEPHONE:	11. ADDRESS OF PLANNING CONSULTANT	8. DATE OFFICIAL PLAN ADOPTED: 9. DATE OFFICIAL PLAN APPROVED BY DEP:

PLANNING ASSISTANCE INFORMATION		
COST OF OFFICIAL PLAN ATTACH INVOICES	$	
FUNDS PREVIOUSLY RECEIVED FROM THIS DEPARTMENT OR OTHER AGENCIES		
AGENCY:	$	
DATE:		
AGENCY:	$	
DATE:		
AGENCY:	$	
DATE:		
TOTAL RECEIVED	$	
APPLICANT'S SHARE OF COST	$	
AMOUNT REQUESTED - EQUAL TO ½ OF APPLICANT'S SHARE	$	

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF:

I, _____ being duly sworn according to law depose and say that I am an official of the applicant and that the information included in this application and documents attached as a part of the application are true and correct to the best of my knowledge and belief.

Sworn to and subscribed before me this _____ day of _____ 20 ___ .

_____ Signature of Notary Public

_____ Signature of Applicant's Official

_____ MY COMMISSION EXPIRES:

_____ TITLE

SEAL

EXHIBIT G

PNDI SEARCH RESULTS

ARRO
ENGINEERING & ENVIRONMENTAL CONSULTANTS

August 22, 2011

Corporate Headquarters
108 West Airport Road
Lititz, PA 17543
T 717.569.7021
F 717.560.0577
www.thearrogroup.com

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street
P.O. Box 8552
Harrisburg, Pa 17105-8552

RE: PNDI Search Results
Chambersburg Borough Wastewater Treatment Plant
Chambersburg Borough, Franklin County, Pennsylvania
ARRO #10391.00

PNDI Reviewer:

The Borough of Chambersburg is proposing to upgrade and expand its existing wastewater treatment plant (WWTP) located at 725 Hollywell Avenue in Chambersburg Borough, Pennsylvania. ***See the attached USGS Location Map.*** The plant upgrade and expansion is required to meet the anticipated growth in the service area and to meet the new total nitrogen and phosphorus discharge limits that have been established by the Pennsylvania Department of Environmental Protection (PA DEP).

The majority of the upgrade and expansion will occur within the existing fenced-in compound; however, one structure, a 100-foot by 83-foot final clarifier tank, will be expanded approximately 100-feet outside of the fenced area, along the northwest side of the treatment plant. ***See the attached aerial photograph.***

As part of the planning process, a Pennsylvania Natural Diversity Inventory (PNDI) search was performed for the treatment plant property. The PNDI search indicated the following:

- PA Department of Conservation and Natural Resources; Potential Impact; Ruellia strepens – Threatened.
- PA Fish and Boat Commission; Potential Impact; Sensitive Species – Endangered.

See the attached PNDI search results.

In an effort to identify if the ruellia strepens was present on the property, ARRO Consulting, Inc. (ARRO) personnel performed an on-site analysis. The on-site analysis involved examination of the vegetation in a pre-determined study area.

Site Analysis

On August 17, 2011, ARRO personnel performed an on-site analysis to determine if ruellia strepens was present at or immediately adjacent to the proposed limit of disturbance. A search

radius of approximately 300-feet around the proposed limit of disturbance was established to define the study area. The study area, which is located at an approximate elevation of 600 ft. above mean sea level and is sloped from east to west, consists of grass and woodland areas. Prior to the site analysis, a contractor had cleared an approximately 80 ft. by 100 ft. area. ***See attached site photos.***

ARRO personnel walked the study area, utilizing a grid pattern, to identify the presence of ruellia strepens. Newcomb's Wildflower Guide; First Edition, by Lawrence Newcomb, published by Little, Brown and Company (1977), describes ruellia strepens as a wildflower with opposite leaves, blue or violet flowers with a smooth or nearly smooth stem, and flowers growing on short stalks from the middle axils (p.256).

Findings

The presence of ruellia strepens was not encountered in the study area during the on-site analysis.

If you have any questions or concerns please feel free to contact me at your earliest convenience.

Sincerely,

Mark Harman, P.G.

MH:gls

c: M.C. Lowe, P.E., ARRO

j:\chambersburg-aecom\chambersburg_wwtp_upgrade\pndi_search\dcnr_ltr.doc

ENGINEERING & ENVIRONMENTAL CONSULTANTS

August 22, 2011

Corporate Headquarters
108 West Airport Road
Lititz, PA 17543
T 717.569.7021
F 717.560.0577
www.thearrogroup.com

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, Pa 16823-7437

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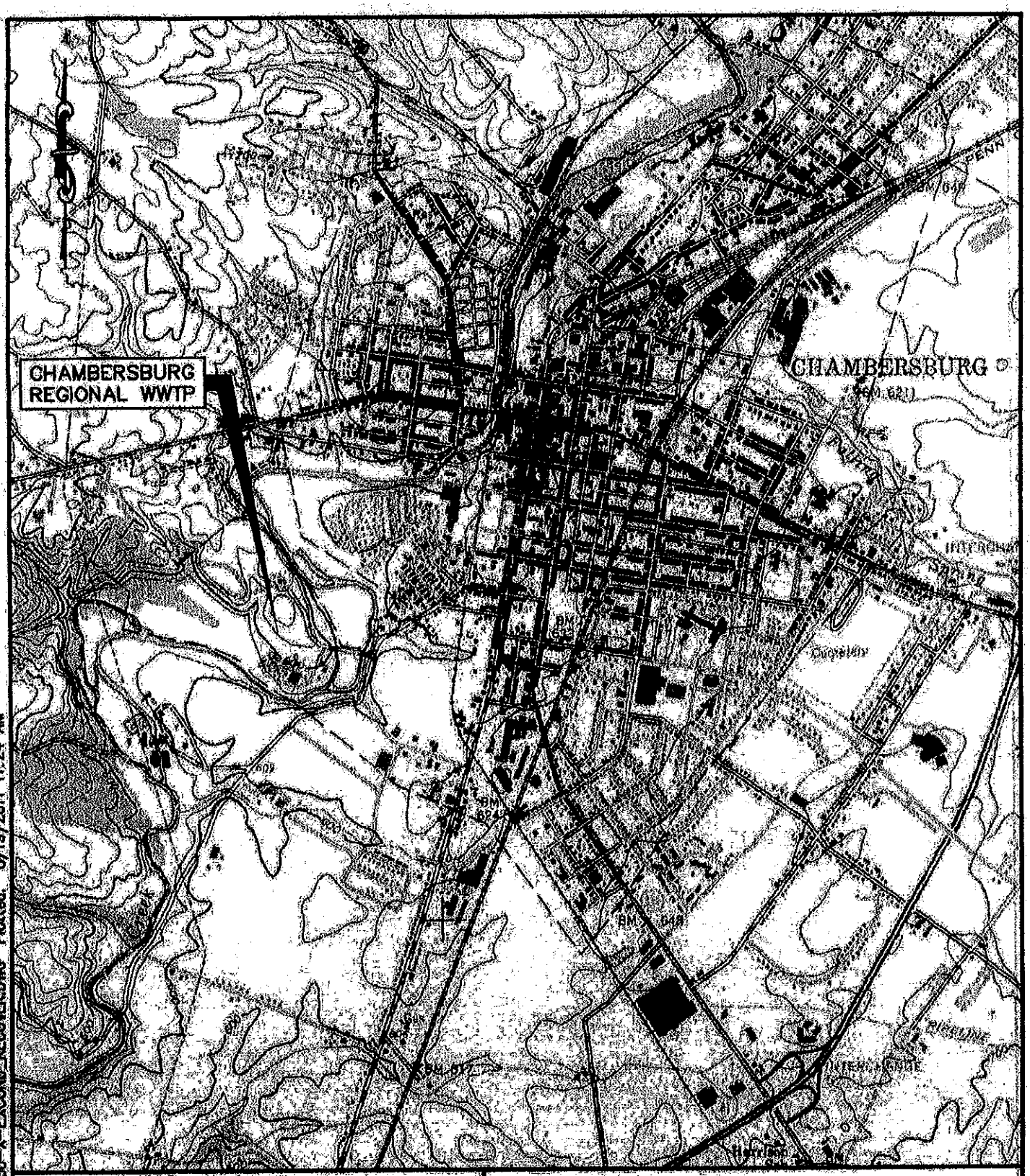
Mark Harman, P.G.

MH:gls

c: M.C. Lowe, P.E., ARRO



CHAMBERSBURG REGIONAL WASTEWATER TREATMENT PLANT

CHAMBERSBURG BOROUGH, FRANKLIN COUNTY, PA

0 1000 2000 4000 6000

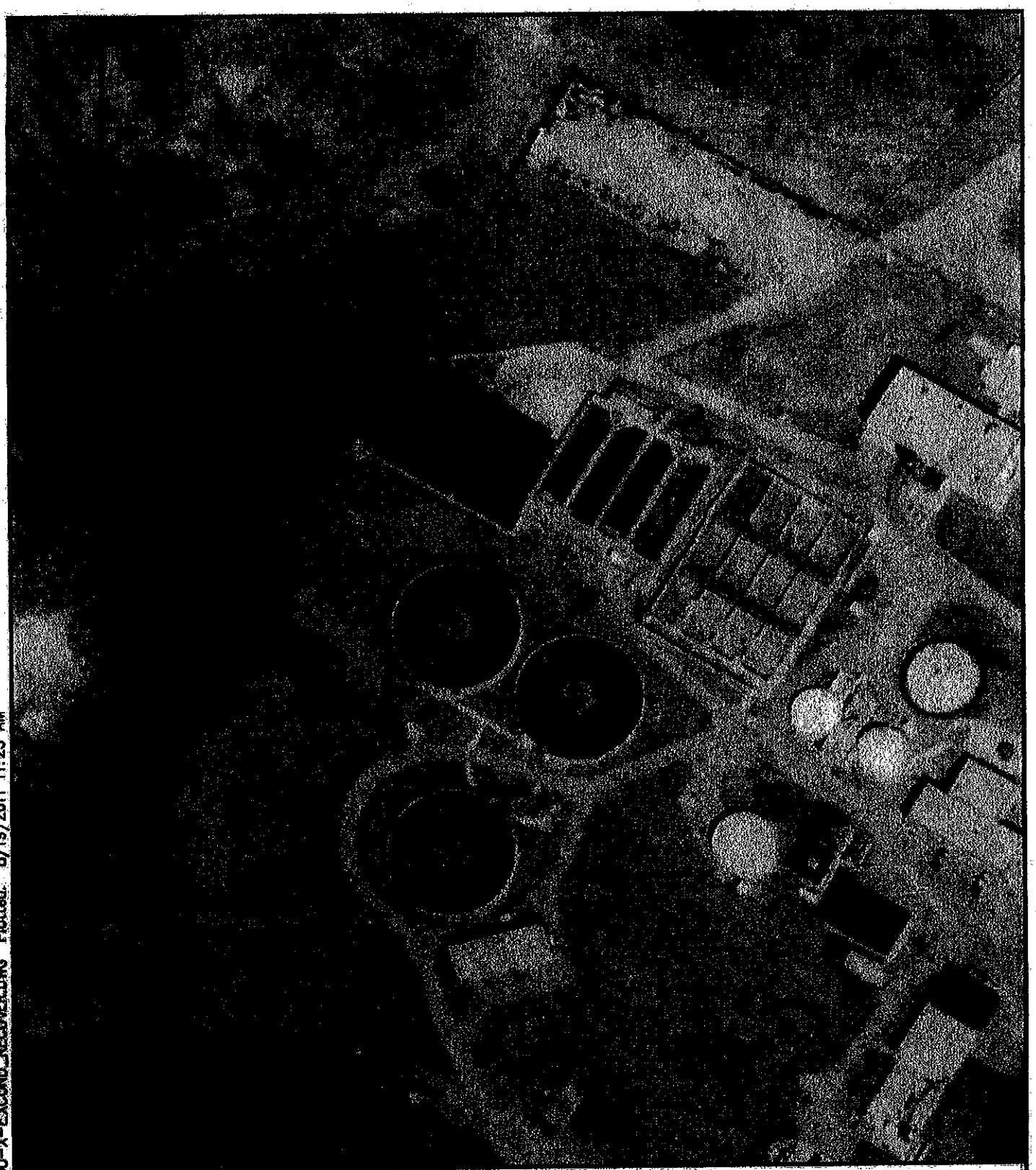
SCALE: 1" = 2000'

ARRO
ENGINEERING & ENVIRONMENTAL CONSULTANTS

108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

SCALE:	DATE	DWG. NO.
GRAPHIC	8/19/11	SK-1

Dwg: Name: 100160.00-X-EXCNG_RECOVER.DWG Plotted: 8/19/2011 11:24 AM



CHAMBERSBURG REGIONAL WASTEWATER TREATMENT PLANT

CHAMBERSBURG BOROUGH, FRANKLIN COUNTY, PA

0 50 100 200 300

SCALE: 1" = 100'

ARRO
ENGINEERING & ENVIRONMENTAL CONSULTANTS

108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

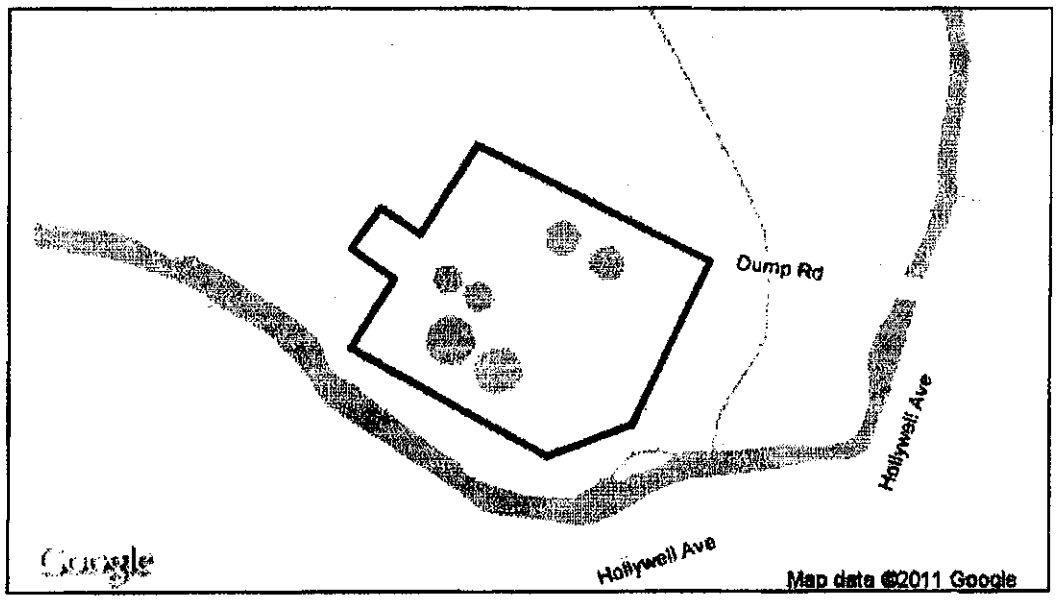
SCALE:	DATE	DWG. NO.
GRAPHIC	8/19/11	SK-2

Dwg. Name: 100160.00-X-EXCOND_RECOVER.DWG Plotted: 8/19/2011 11:25 AM

PNDI Project Environmental Review Receipt Project Search ID: 20110819311972

1. PROJECT INFORMATION

Project Name: **Chambersburg TP**
Date of review: **8/19/2011 10:21:00 AM**
Project Category: **Development,Additions/maintenance to existing development facilities**
Project Area: **14.6** acres
County: **Franklin** Township/Municipality: **Chambersburg**
Quadrangle Name: **CHAMBERSBURG** ~ ZIP Code: **17201**
Decimal Degrees: **39.927625 N, -77.674498 W**
Degrees Minutes Seconds: **39° 55' 39.5" N, -77° 40' 28.2" W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
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.

RESPONSE TO QUESTION(S) ASKED

Q1: "Will the entire project area (including any 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, maintained (periodically mown) lawn, crop agriculture field or maintained orchard?"
Your answer is: **3. Unknown**

Q2: Will the entire project occur within an existing building, parking lot, driveway, road, street, or maintained (periodically mowed) lawn?
Your answer is: **3. Unknown**

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: 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).

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. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Ruellia strepens
Common Name: Limestone Petunia
Current Status: Threatened
Proposed Status: Threatened

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: Endangered
Proposed Status: Endangered

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 jurisdictinal 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

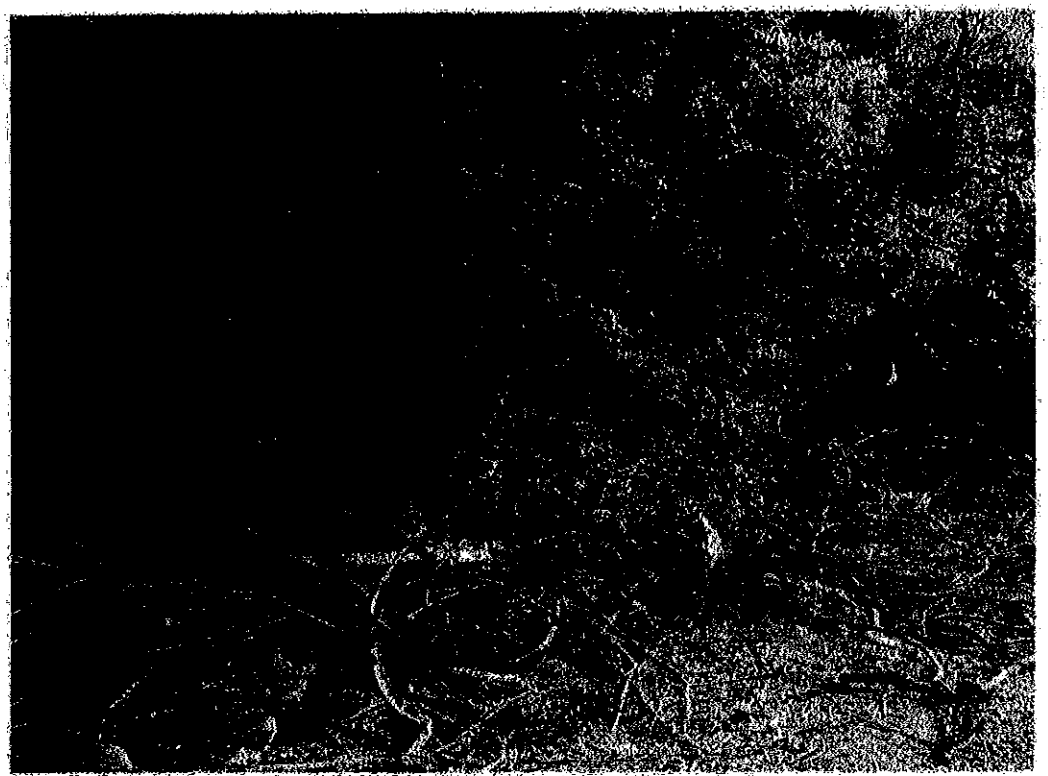
Name:_____
Company/Business Name:_____
Address:_____
City, State, Zip:_____
Phone:(_____)_____Fax:(_____)_____
Email:_____

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.

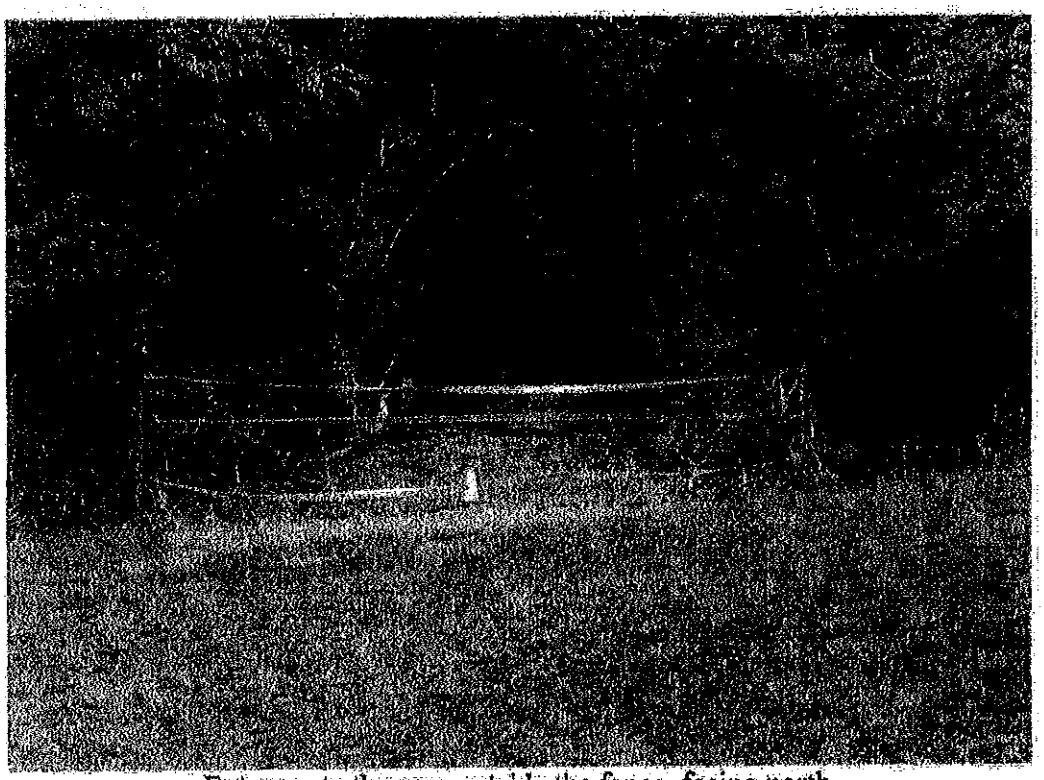
_____ _____
applicant/project proponent signature date

Outside the fenced area, facing east.



Outside the fenced area, facing east.

Site Photographs



Entrance to the area outside the fence, facing north.

Outside the fenced area, facing west.

Outside the fenced area, facing west.

Outside the fenced area, facing west.

Outside the fenced area, facing west.

Outside the fenced area, facing north.

Outside the fenced area, facing north.

Outside the fenced area, facing east.

Outside the fenced area, facing east.

Outside the fenced area, facing south.

Mark Harman, P.G., S.E.O.

EXPERIENCE

2000 – 2003	D.C. Gohn & Associates, Inc. Environmental Scientist I
2003 – Present	ARRO Consulting, Inc. Project Geologist, Environmental Scientist IV

- Mr. Harman is a Licensed Professional Geologist in Pennsylvania; PG No. 004875.
- Mr. Harman is a Certified Sewage Enforcement Officer; S.E.O. No. 03338.
- Mr. Harman has successfully completed the Army Corp 40-hour Wetland Delineation Training course.
- Mr. Harman has been involved in environmental research and consulting for ten (10) years. He has conducted environmental studies throughout Pennsylvania, Maryland, and Delaware.

EDUCATION

Millersville University
Bachelor of Science – Engineering Geology, 2001
Minor – Applied Geography, 2001

CONTINUING EDUCATION

E&S
- Erosion and Sediment Control Workshop, 2002
- Erosion and Sediment Control Workshop, 2005

SWM / BMPs
- Computations in Stormwater Management, 2003
- Low Impact Dev. & Stormwater Best Management Practices BMPs in Pa Workshop, 2004
- Best Management Practices BMPs in Pa Workshop, 2005
- PaDEP Chapter 102 Regulations: Post Construction Stormwater Management Guidance, 2010.
- PaDEP Chapter 102 Regulations: Regulation Changes, 2011.
- Green Roof Technologies, 2011
- Emergency Action Planning, 2011

S.E.O.

- Pa DEP Sewage Enforcement Officer Certification, 2003
- S.E.O. Enforcement Training, Drip Irrigation Septic System Installation & Permitting, 2003
- S.E.O. Enforcement Training, Soils Profile Descriptions, 2004
- S.E.O. Enforcement Training, Microbial Contamination Issues & Advances for On-lot Systems, 2004
- S.E.O. Enforcement Training, Advanced Soils Descriptions, 2005
- S.E.O. Enforcement Training, Technical Decision Making for Malfunctioning (septic system) Resolutions, 2007
- S.E.O. Enforcement Training, Enforcement - Section 1, 2009
- S.E.O. Enforcement Training, Enforcement - Section 2, 2009
- S.E.O. Enforcement Training, Construction Inspection Techniques, 2010.

Wetlands

- Army Corps of Engineers Wetland Delineation & Management Training Program, 2006
- Army Corp / PaDEP – Public Information Workshop: PASPGP-3, Chapter 105 Regulations, Nationwide Permits, Jurisdictional Determinations, 2007
- Plant ID Wetlands & Their Borders, 2008

Geology

- Fundamentals of Geology, 2008
- Applied Geology / Professional Practice of Geology, 2008
- Water Well & Pump Performance: The economic basics for water well operation, rehabilitation and maintenance decisions, 2010.
- Structural and Hydro-Structural Geology: Theory and Applications for the Practicing Professional, 2011.

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

August 30, 2011

PNDI Number: 20110819311972

Mark Harman
ARRO Engineering and Environmental Consultants
FAX: 717-560-0577 (hard copy WILL NOT follow)

Re: Chambersburg Borough Wastewater Treatment Plant Upgrades
Chambersburg Borough; Franklin County

Dear Mr. Harman,

Thank you for submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 20110819311972 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, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

DCNR recommends the following VOLUNTARY steps to help prevent the spread of invasive species:

- The area of disturbance should be minimized to the fullest extent that would allow for treatment plant upgrades; this will help to lessen the area of soil and vegetation disturbance associated with this project.

- If possible, please clean all construction equipment and vehicles thoroughly (especially the undercarriage and wheels) before they are brought on site, this will remove invasive plant seeds from the equipment and undercarriages of the vehicles that may have been picked up at other sites.

- Avoid using seed mixes that include invasive plant species (like Crown vetch) to re-vegetate the area. Please also attempt to use weed-free straw or hay mixes when possible. A complete list of all Pennsylvania invasive plants can be found here: *http://www.dcnr.state.pa.us/forestry/wildplant/invasivelist.aspx*

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.

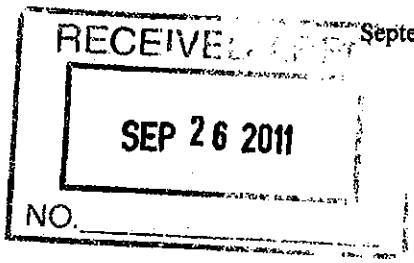
Sincerely,

Mr. Kelly L. Sitch, Ecological Program Specialist
Ph: 717-425-5370 ~ Fax: 717-772-0271 ~ c-ksitch@pa.gov

Pennsylvania Fish & Boat Commission

established 1866

Division of Environmental Services
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823-9620
(814) 359-5237 Fax: (814) 359-5175



September 22, 2011

IN REPLY REFER TO
SIR # 37045

MARK HARMAN
ARRO CONSULTING
108 WEST AIRPORT RD
LITITZ, PA 17343

RE: Species Impact Review (SIR) - Rare, Candidate, Threatened and Endangered Species
CHAMBERSBURG WWTP UPGRADE
PNDI Search Number (if available): 20110819311972
CHAMBERSBURG Township/Borough, FRANKLIN County, Pennsylvania

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search "potential conflict" or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code. The absence of recorded information from our files does not necessarily imply actual conditions on site. Future field investigations could alter this determination. The information contained in our files is routinely updated. A Species Impact Review is valid for one year only.

__X__ ***NO ADVERSE IMPACTS EXPECTED FROM THE PROPOSED PROJECT***

__X__ Except for occasional transient species, rare, candidate, threatened or endangered species under our jurisdiction are not known to exist in the vicinity of the project area. Therefore, no biological assessment or further consultation regarding rare species is needed with the Commission. Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered.

____ An element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

If you have any questions regarding this review, please contact the biologist indicated below:

____	Chris Urban	814-359-5113	____	Kathy Gipe	814-359-5186
__X__	Katie Brashear	814-359-5239	____	Bob Morgan	814-359-5129

Thank you in advance for your cooperation and attention to this important matter of species conservation and habitat protection.

SIGNATURE: _____ DATE: September 22, 2011

Christopher A. Urban
Chief, Natural Diversity Section

EXHIBIT H

PHMC NOTIFICATION

PHMC Notification

The notification has been submitted to the Pennsylvania Historical and Museum Commission for review on May 4, 2012. The response letter will be forwarded to PA DEP once it is received.

ENGINEERING & ENVIRONMENTAL CONSULTANTS

Corporate Headquarters
108 West Airport Road
Lititz, PA 17543
T 717.569.7021
F 717.560.0577
www.thearrogroup.com

UPS NEXT DAY DELIVERY
1Z 1667160397512917

May 7, 2012

Pennsylvania Historical and Museum Commission
Bureau of Historic Preservation
400 North Street, Second Floor
Harrisburg, PA 17120-0093

RE: Borough of Chambersburg
Chambersburg Wastewater Treatment Plant Upgrade
Water Quality Management Part II Permit Application
ARRO #10281.00

Dear Historical and Museum Commission:

On behalf of the Borough of Chambersburg, ARRO is preparing a Water Quality Management Part II Permit Application for the above referenced project.

Enclosed, for your review, is the Cultural Resource Notification form, a 7.5' USGS map indicating the location of the project, and a project narrative. A plot plan of the proposed upgrades of the existing wastewater treatment plant is also attached for your reference. The total projected disturbed area is approximately 2.5 acres.

Please review this documentation and provide us with any comments or concerns that you may have at your earliest convenience.

Sincerely,

Mark Harman, P.G.
Project Manager

MH:gls

c: Mendi Lowe, ARRO
Peng Chen, ARRO

0120-PM-PY0003 Rev. 5/2006
NOTICE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CULTURAL RESOURCE NOTICE

DEP USE ONLY
Date Received

Read the instructions before completing this form.

SECTION A. APPLICANT IDENTIFIER

Applicant Name	Borough of Chambersburg				
Street Address	100 South 2nd Street				
City	Chambersburg	State	PA	Zip	17201
Telephone Number	717-264-5151				
Project Title	Chambersburg Wastewater Treatment Plant Upgrade				

SECTION B. LOCATION OF PROJECT

Municipality: Chambersburg County Name: Lancaster DEP County Code: 36

SECTION C. PERMITS OR APPROVALS

Name of Specific DEP Permit or Approval Requested: WQM Part II Permit & NPDES permit for stormwater associated with construction activities

Anticipated federal permits:

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

SECTION D. GOVERNMENT FUNDING SOURCES

- ☐ State: (Name)
- ☒ Local: (Name) Borough of Chambersburg
- ☐ 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 (Norristown)
- ☐ 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	Telephone Number, if known
Franklin County Conservation District	717-264-5499

SECTION G. CONSULTANT

Consultant, if applicable	ARRO Consulting, Inc.				
Street Address	108 West Airport Road				
City	Lititz	State	PA	Zip	17543
Telephone Number	717-560-6083				

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.

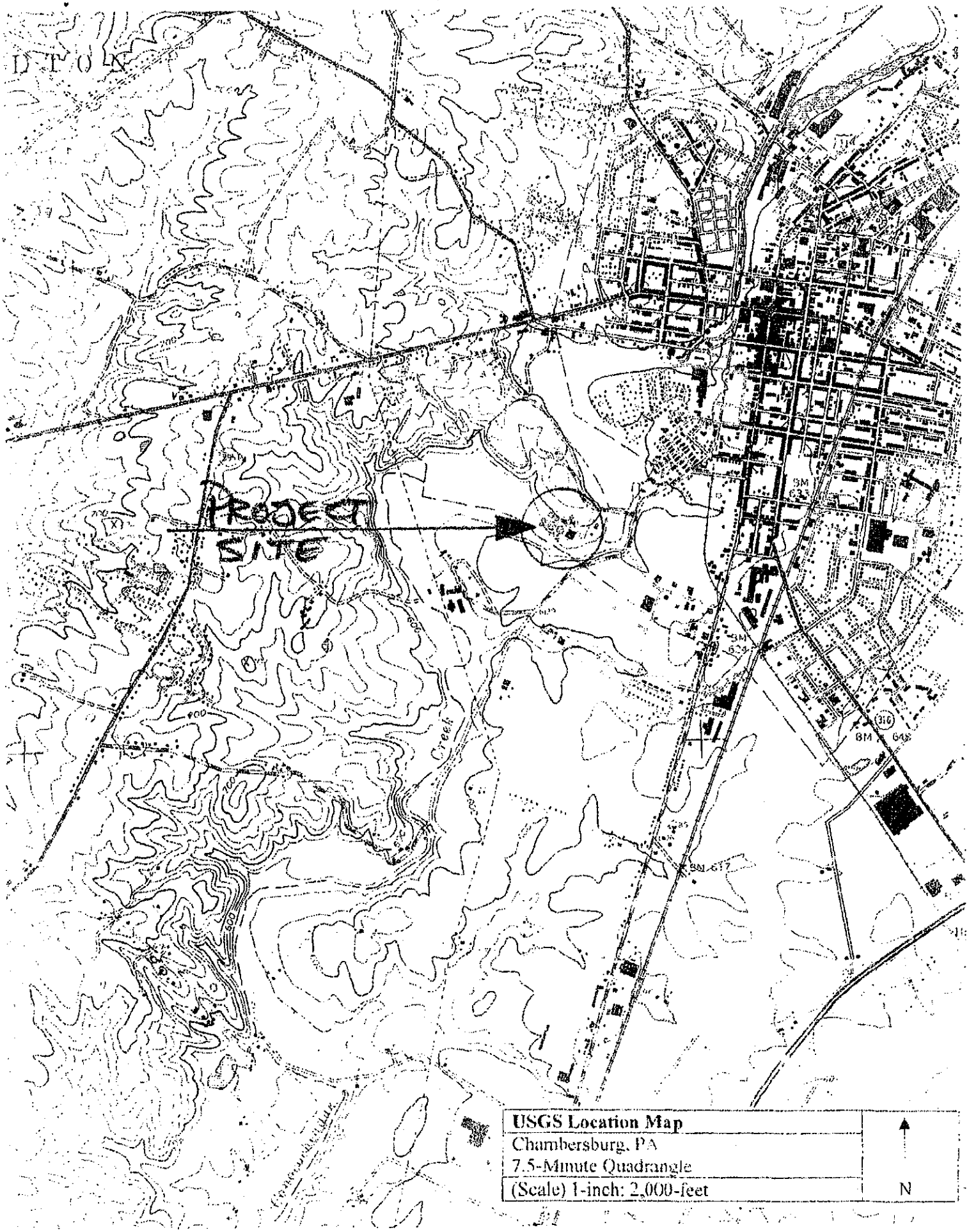
REQUESTED

Attach photographs of any building over 40 years old.

Attach site map, if available.

SECTION I. SIGNATURE BLOCK

Applicant's Signature	Date of Submission of Notice to PHMC
	5/4/12


PROJECT SITE
USGS Location Map
Chambersburg, PA
7.5-Minute Quadrangle
(Scale) 1-inch: 2,000-feet
N

Project Narrative

The Borough of Chambersburg ("Borough") owns and operates the Chambersburg Wastewater Treatment Plant (WWTP). The treatment plant serves the Borough, along with portions of Greene, Hamilton, Guilford and Letterkenny Townships. In order to meet the anticipated growth within the service area and to meet the Total Prosperous (TP) and Total Nitrogen (TN) limits recently adopted by the Commonwealth as part of the Chesapeake Bay Tributary Strategy, the Borough and its partners have determined an upgrade and expansion to the existing WWTP is necessary. The proposed WWTP upgrade and expansion will involve the improvement of several primary treatment components such as liquid processing systems and solids handling systems.

Currently the WWTP property consists of 142.9-acres, with 15.5-acres, or less than 11%, of the parcel being utilized for WWTP operations. The portion of the parcel being utilized for WWTP operations consists of impervious surface (WWTP operations, access routes, parking areas, etc.) and vegetative areas (grass). The WWTP upgrade and expansion will increase the impervious surface on the property by 1.31-acres; however, only 0.61-acres of this impervious will affect stormwater runoff. Proposed impervious surface is the result of 13 structures of various sizes and their associated facilities that will be installed throughout the WWTP operations area. Of these 13 structures, 4 structures (Post Aeration Chambers 1 & 2 and Final Clarifier Tanks 4 & 5), which represent 0.70-acres or 53% of the total proposed impervious, have open tops; therefore, there will be no stormwater runoff associated with these structures.

Sketch Plan

Note the following plan sheets that are included with the submission package:

- Sheet 1 of 12 – Cover sheet
- Sheet 3 of 12 – Existing Conditions Plan: The project area is defined as the area enclosed within the fence line with the exception of two small areas to the west and north (see highlighted area).
- Sheet 4 of 12 – Proposed Conditions Plan: The proposed site changes area highlighted.
- The remaining plan sheets are technical and mechanical drawings.

EXHIBIT I

ACT 14/67/68 NOTIFICATIONS

ARRO
ENGINEERING & ENVIRONMENTAL CONSULTANTS

UPS NEXT DAY DELIVERY

Corporate Headquarters
108 West Airport Road
Lititz, PA 17543
T 717.569.7021
F 717.560.0577
www.thearrogroup.com

May 2, 2012

Franklin County Planning Commission
218 North Second Street
Chambersburg, PA 17201

RE: Chambersburg Borough WWTP, Franklin County
WWTP Upgrade
Act 14/67/68 Notification

Dear Commission Members:

On behalf of the Borough of Chambersburg, please be informed of the Borough's intent to submit a Water Quality Management (WQM) Permit Application to the Pennsylvania Department of Environmental Protection (DEP) for the above referenced project.

Project Name:	Chambersburg WWTP Upgrade
Project Description:	The Borough of Chambersburg proposes to implement improvements to the existing Wastewater Treatment Plant (WWTP) and increase its design capacity to an average daily flow of 11.28 MGD to meet the projected 20-year wastewater needs. The existing headworks and influent pump station will be replaced. The existing grit removal system, vertical loop reactor process system, solids handling system, and the associated electrical and SCADA systems will be upgraded. Two new final clarifiers will also be constructed together with an accompanying return activated sludge (RAS) pumping station.
Contact Person:	Lance Anderson, PE Water/Sewer Superintendent Borough of Chambersburg 100 South 2nd Street Chambersburg, PA 17201
Site Location:	Chambersburg Borough WWTP 725 Hollywell Avenue, Chambersburg, PA 17201
Municipality/County:	Borough of Chambersburg, Franklin County

Section 1905-A of the Commonwealth Administrative Code, as amended by Act 14, requires each applicant for a DEP permit give written notice to the municipality(ies) and the county(ies) in

which the permitted activity is located. The written notices shall be received by the municipality(ies) and county(ies) at least 30 days before the Department may issue or deny the permit.

Acts 67, 68, and 127 of 2000 amended the Municipalities Planning Code (MPC) to direct state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure, and to specify that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as described in Sections 619.2 and 1105 of the MPC. Acts 67 and 68 went into effect on August 21, 2000. Act 127, providing clarification for the changes made by Acts 67 and Acts 68, was signed on December 22, 2000.

Enclosed is a General Information Form (GIF) completed by the applicant for this project. DEP invites you to review and comment on the accuracy of answers provided with regard to land use aspects of this project; please be specific and focus on relationship to zoning ordinances. If you wish to submit comments for DEP to become a part of a land use review of this project, you must respond within 30 days to the DEP Regional Office referenced in this letter. If there are no land use comments received by the end of the comment period, DEP will assume there are no substantive land use conflicts and will proceed with the normal application review process.

Please submit any comments concerning this project within 30 days from the date of receipt of this letter to:

Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110.

For more information about this land use review process, please visit www.dep.state.pa.us (DirectLINK: Land Use).

Sincerely,

Peng Chen

Peng Chen, P.E.
Project Engineer

PC:gls

c: Lance Anderson, P.E., Borough of Chambersburg
Jacob L. Rainwater, P.E., AECOM
Mendi C. Lowe, P.E., ARRO

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218 N 2ND ST
CHAMBERSBURG, PA, 17201, US

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108 West Airport Road
Lititz, PA 17543
T 717.569.7021
F 717.560.0577
www.thearrogroup.com

May 2, 2012

Franklin County Commissioners
14 North Main Street
Chambersburg, PA 17201

RE: Chambersburg Borough WWTP, Franklin County
WWTP Upgrade
Act 14/67/68 Notification

Dear Commissioners:

On behalf of the Borough of Chambersburg, please be informed of the Borough's intent to submit a Water Quality Management (WQM) Permit Application to the Pennsylvania Department of Environmental Protection (DEP) for the above referenced project.

Project Name:	Chambersburg WWTP Upgrade
Project Description:	The Borough of Chambersburg proposes to implement improvements to the existing Wastewater Treatment Plant (WWTP) and increase its design capacity to an average daily flow of 11.28 MGD to meet the projected 20-year wastewater needs. The existing headworks and influent pump station will be replaced. The existing grit removal system, vertical loop reactor process system, solids handling system, and the associated electrical and SCADA systems will be upgraded. Two new final clarifiers will also be constructed together with an accompanying return activated sludge (RAS) pumping station.
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Site Location:	Chambersburg Borough WWTP 725 Hollywell Avenue, Chambersburg, PA 17201
Municipality/County:	Borough of Chambersburg, Franklin County

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Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110.

For more information about this land use review process, please visit www.dep.state.pa.us (DirectLINK: Land Use).

Sincerely,

Peng Chen

Peng Chen, P.E.
Project Engineer

PC:gls

c: Lance Anderson, P.E., Borough of Chambersburg
Jacob L. Rainwater, P.E., AECOM
Mendi C. Lowe, P.E., ARRO

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May 2, 2012

Chambersburg Borough Council
100 South 2nd Street
Chambersburg, PA 17201

RE: Chambersburg Borough WWTP, Franklin County
WWTP Upgrade
Act 14/67/68 Notification

Dear Council Members:

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Southcentral Regional Office
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Harrisburg, PA 17110.

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Sincerely,

Peng Chen

Peng Chen, P.E.
Project Engineer

PC:gls

c: Lance Anderson, P.E., Borough of Chambersburg
Jacob L. Rainwater, P.E., AECOM
Mendi C. Lowe, P.E., ARRO

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F 717.560.0577
www.thearrogroup.com

May 2, 2012

Chambersburg Borough Planning and Zoning Commission
100 South 2nd Street
Chambersburg, PA 17201

RE: Chambersburg Borough WWTP, Franklin County
WWTP Upgrade
Act 14/67/68 Notification

Dear Commission Members:

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Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110.

For more information about this land use review process, please visit www.dep.state.pa.us (DirectLINK: Land Use).

Sincerely,

Peng Chen

Peng Chen, P.E.
Project Engineer

PC:gls

c: Lance Anderson, P.E., Borough of Chambersburg
Jacob L. Rainwater, P.E., AECOM
Mendi C. Lowe, P.E., ARRO

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Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

Related ID#s (If Known)		DEP USE ONLY
Client ID# 53002	APS ID#	Date Received & General Notes
Site ID# 453250	Auth ID# 337877	
Facility ID#		

CLIENT INFORMATION

DEP Client ID#	Client Type / Code
53002	MUNI

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#
Borough of Chambersburg		

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2
100 South 2nd Street	

Address Last Line – City	State	ZIP+4	Country
Chambersburg	PA	17201	USA

Client Contact Last Name	First Name	MI	Suffix
Anderson	Lance		P.E.

Client Contact Title	Phone	Ext
Water/Sewer Superintendent	(717) 709-2285	

Email Address	FAX
landerson@chambersburgpa.gov	

SITE INFORMATION

DEP Site ID#	Site Name
453250	Chambersburg Borough Sewage Treatment Plant

EPA ID#	Estimated Number of Employees to be Present at Site

Description of Site
Wastewater Treatment Plant

County Name	Municipality	City	Boro	Twp	State
Franklin	Chambersburg Borough	☐	☒	☐	
County Name	**Municipality**	**City**	**Boro**	**Twp**	**State**
		☐	☐	☐	

Site Location Line 1	Site Location Line 2
725 Hollywell Avenue	

Site Location Last Line – City	State	ZIP+4
Chambersburg	PA	17201-0909

Detailed Written Directions to Site
From S.R. 30, Lincoln Way East in Chambersbug, turn south onto South Main Street (S.R. 11). Proceed 1/2 miles and turn right onto West South Street. Go two blocks and continue straight onto Hollywell Ave - the site will be on the right with access off of Dump Road.

Site Contact Last Name	First Name	MI	Suffix
Kelly	Ronald		

Site Contact Title	Site Contact Firm
Sewage Treatment Plant Manager	

Mailing Address Line 1	Mailing Address Line 2
725 Hollywell Avenue	

Mailing Address Last Line – City	State	ZIP+4
Chambersburg	PA	17021-0909

Phone	Ext	FAX	Email Address
717-261-3299			

NAICS Codes (Two- & Three-Digit Codes – List All That Apply): 221

6-Digit Code (Optional): 221320

Client to Site Relationship
OWNOP

FACILITY INFORMATION

Modification of Existing Facility

		Yes	No
1.	**Will this project modify an existing facility, system, or activity?**	☒	☐
2.	**Will this project involve an addition to an existing facility, system, or activity?**	☒	☐

If "Yes", check all relevant facility types and provide DEP facility identification numbers below.

	Facility Type	DEP Fac ID#		Facility Type	DEP Fac ID#
☐	Air Emission Plant		☐	Industrial Minerals Mining Operation	
☐	Beneficial Use (water)		☐	Laboratory Location	
☐	Blasting Operation		☐	Land Recycling Cleanup Location	
☐	Captive Hazardous Waste Operation		☐	MineDrainageTrmt/LandRecyProjLocation	
☐	Coal Ash Beneficial Use Operation		☐	Municipal Waste Operation	
☐	Coal Mining Operation		☐	Oil & Gas Encroachment Location	
☐	Coal Pillar Location		☐	Oil & Gas Location	
☐	Commercial Hazardous Waste Operation		☐	Oil & Gas Water Poll Control Facility	
☐	Dam Location		☐	Public Water Supply System	
☐	Deep Mine Safety Operation -Anthracite		☐	Radiation Facility	
☐	Deep Mine Safety Operation -Bituminous		☐	Residual Waste Operation	
☐	Deep Mine Safety Operation -Ind Minerals		☐	Storage Tank Location	
☐	Encroachment Location (water, wetland)		☒	Water Pollution Control Facility	453250
☐	Erosion & Sediment Control Facility		☐	Water Resource	
☐	Explosive Storage Location		☐	Other:	

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	39	55	37	77	40	27

Horizontal Accuracy Measure: Feet --or-- Meters

Horizontal Reference Datum Code
- ☒ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code: GISDR

Reference Point Code: LWTU

Altitude: Feet 600 --or-- Meters

Altitude Datum Name
- ☒ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code: TOPO

Geometric Type Code: POINT

Data Collection Date: 5/1/12

Source Map Scale Number: 1 Inch(es) = 2,000 Feet
--or-- Centimeter(s) = Meters

PROJECT INFORMATION

Project Name
Chambersburg WWTP Upgrade

Project Description
The Borough of Chambersburg proposes to implement improvements to the existing Wastewater Treatment Plant (WWTP) and increase its design capacity to an average daily flow of 11.28 MGD to meet the projected 20-year wastewater needs. The existing headworks and influent pump station will be replaced. The existing grit removal system, vertical loop reactor process system, solids handling system, and the associated electrical and SCADA systems will be upgraded. Two new final clarifiers will also be constructed together with an accompanying return activated sludge (RAS) pumping station.

Project Consultant Last Name	First Name	MI	Suffix
Rainwater	Jacob		PE

Project Consultant Title			Consulting Firm	
Project Manager			AECOM	
Mailing Address Line 1			**Mailing Address Line 2**	
1700 Market Street			Suite 1700	
Address Last Line – City			**State**	**ZIP+4**
Philadelphia			PA	19103
Phone	**Ext**	**FAX**	**Email Address**	
215-399-4370			Jacob.Rainwater@aecom.com	

Time Schedules	Project Milestone (Optional)
Advertise for Bid	Fall 2012
Award of Contract	**December 2012**
Construction Complete	**Summber 2012**

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** ☒ Yes ☐ No

2. **Is your project funded by state or federal grants?** ☒ Yes ☐ No
   Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
   Aspect of Project Related to Grant
   Grant Source: _____
   Grant Contact Person: _____
   Grant Expiration Date: _____

3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** ☐ Yes ☒ No
   Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
   If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

Note: Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1. **Is there an adopted county or multi-county comprehensive plan?** ☐ Yes ☐ No
2. **Is there an adopted municipal or multi-municipal comprehensive plan?** ☐ Yes ☐ No
3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** ☐ Yes ☐ No
   Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
   If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.
4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** If zoning approval has been received, attach documentation. ☐ Yes ☐ No
5. **Have you attached Municipal and County Land Use Letters for the project?** ☐ Yes ☐ No

COORDINATION INFORMATION

Note: The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 and the accompanying Cultural Resource Notice Form.

If the activity will be a mining project (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

If the activity will not be a mining project, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	**Is this a coal mining project?** If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0. (DEP Use/48y1)	☐	Yes	☒	No
1.1	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?** (DEP Use/4x70)	☐	Yes	☐	No
1.2	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?** (DEP Use/4x70)	☐	Yes	☐	No
1.3	**Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?** (DEP Use/4x70)	☐	Yes	☐	No
1.4	**For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?** (DEP Use/4x62)	☐	Yes	☐	No
1.5	**Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?** (DEP Use/3140)	☐	Yes	☐	No
1.6	**Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?** (DEP Use/4z41)	☐	Yes	☐	No
2.0	**Is this a non-coal (industrial minerals) mining project?** If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0. (DEP Use/48y1)	☐	Yes	☒	No
2.1	**Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?** (DEP Use/4x70)	☐	Yes	☐	No
2.2	**Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?** (DEP Use/4x70)	☐	Yes	☐	No
2.3	**Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?** (DEP Use/4x70)	☐	Yes	☐	No
2.4	**For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?** (DEP Use/4x62)	☐	Yes	☐	No
2.5	**Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?** (DEP Use/3140)	☐	Yes	☐	No

3.0	**Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well?** If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0. (DEP Use/4z41)	☐	Yes	☒	No
3.1	**Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?** (DEP Use/4z41)	☐	Yes	☐	No
3.2	**Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system?** If "Yes", discuss in *Project Description*. (DEP Use/4z41)	☐	Yes	☐	No
3.3	**Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?** (DEP Use/4z41)	☐	Yes	☐	No
4.0	**Will the project involve a construction activity that results in earth disturbance?** If "Yes", specify the total disturbed acreage. (DEP Use/4x66) **4.0.1 Total Disturbed Acreage** approximately 5.0 acres	☒	Yes	☐	No
5.0	**Does the project involve any of the following?** If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0. (DEP Use/4x10)	☐	Yes	☒	No
5.1	**Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?** (DEP Use /4x10).	☐	Yes	☒	No
5.2	**Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?** (DEP Use/4x10).	☐	Yes	☒	No
5.3	**Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?** (DEP Use /4x10).	☐	Yes	☒	No
6.0	**Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?** (DEP Use/4x62)	☐	Yes	☒	No
7.0	**Will the project involve the construction and operation of industrial waste treatment facilities?** (DEP Use/4x62)	☐	Yes	☒	No
8.0	**Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations?** If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the *Project Description*, where applicable. (DEP Use/4x62) **8.0.1 Estimated Proposed Flow (gal/day)** Average Daily Flow: 11.28 MGD	☒	Yes	☐	No
9.0	**Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?** (DEP Use/4x61).	☐	Yes	☒	No
	9.0.1 Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	☒	Yes	☐	No
10.0	**Is this project for the beneficial use of biosolids for land application within Pennsylvania?** If "Yes" indicate how much (i.e. gallons or dry tons per year). (DEP Use/4X62)	☐	Yes	☒	No
	10.0.1 Gallons Per Year (residential septage) _____				
	10.0.2 Dry Tons Per Year (biosolids)				

11.0	**Does the project involve construction, modification or removal of a dam?** If "Yes", identify the dam. (DEP Use/3140)	☐	Yes	☒	No
	11.0.1 Dam Name				
12.0	**Will the project interfere with the flow from, or otherwise impact, a dam?** If "Yes", identify the dam. (DEP Use/3140)	☐	Yes	☒	No
	12.0.1 Dam Name				
13.0	**Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)?** If "Yes", identify each type of emission followed by the amount of that emission. (DEP Use/4x70)	☒	Yes	☐	No
	13.0.1 Enter all types & amounts of emissions; separate each set with semicolons.				
14.0	**Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year?** If "Yes", check all proposed sub-facilities. (DEP Use/4x81)	☐	Yes	☒	No
	14.0.1 Number of Persons Served				
	14.0.2 Number of Employee/Guests				
	14.0.3 Number of Connections				
	14.0.4 Sub-Fac: Distribution System	☐	Yes	☐	No
	14.0.5 Sub-Fac: Water Treatment Plant	☐	Yes	☐	No
	14.0.6 Sub-Fac: Source	☐	Yes	☐	No
	14.0.7 Sub-Fac: Pump Station	☐	Yes	☐	No
	14.0.8 Sub Fac: Transmission Main	☐	Yes	☐	No
	14.0.9 Sub-Fac: Storage Facility	☐	Yes	☐	No
15.0	**Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?** (DEP Use/4x81) and 4x52).	☐	Yes	☒	No
16.0	**Is your project to be served by an existing public water supply?** If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project. (DEP Use/4x81)	☒	Yes	☐	No
	16.0.1 Supplier's Name Borough of Chambersburg (own supply)				
	16.0.2 Letter of Approval from Supplier is Attached	☐	Yes	☒	No
17.0	**Will this project involve a new or increased drinking water withdrawal from a stream or other water body?** If "Yes", should reference both Water Supply and Watershed Management. (DEP Use/4x81 and 4x10)	☐	Yes	☒	No
	17.0.1 Stream Name				
18.0	**Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste?** If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed. (DEP/Use4x32)	☒	Yes	☐	No
	18.0.1 Type & Amount Treatment of municipal wastewater, ADF 11.28 MGD				
19.0	**Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?** (DEP Use/48y1)	☐	Yes	☒	No
20.0	**Does your project involve installation of a field constructed underground storage tank?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570)	☐	Yes	☒	No
	20.0.1 Enter all substances & capacity of each; separate each set with semicolons.				
21.0	**Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570)	☐	Yes	☒	No
	21.0.1 Enter all substances & capacity of each; separate each set with semicolons.				

22.0	**Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570) **22.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
23.0	**Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. (DEP Use/2570) **23.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
24.0	**Will the intended activity involve the use of a radiation source?** (DEP Use/4x90).	☐	Yes	☒	No

CERTIFICATION

I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Type or Print Name Peng Chen, P.E.

	Project Engineer	5/2/2012
Signature	**Title**	**Date**

EXHIBIT J

EROSION & SEDIMENTATION CONTROL PLAN APPROVAL

EROSION & SEDIMENT CONTROL PLAN

We are in the process of preparing the E & S Control Plan and it will be submitted to Franklin County Conservation District (FCCD) for review around June 2012. The approval letter will be forwarded to PA DEP. We request that the Water Quality Management Permit be approved upon the approval of the E & S control plan by Franklin County Conservation District.

EXHIBIT K

TECHNICAL SPECIFICATIONS