

EAST GOSHEN MUNICIPAL AUTHORITY

February 13, 2017

7:00 PM

1. CALL TO ORDER/PLEDGE OF ALLEGIANCE/MOMENT OF SILENCE

- a. Ask if anyone will be taping the meeting

2. CHAIRMAN'S REPORT/OTHER MEMBERS REPORTS

3. SEWER REPORTS

- a. Director of Public Works Report
- b. Pennoni Engineer's Report
- c. Big Fish Environmental Inc. Report

4. APPROVAL OF MINUTES

- a. January 9, 2017

5. APPROVAL OF INVOICES

- a. Pennoni Invoice #731599 \$1,422.75
- b. Pennoni Invoice #731600 \$ 199.75
- c. Pennoni Invoice #731601 \$ 796.75
- d. Pennoni Invoice #731602 \$ 563.00
- e. Pennoni Invoice #731603 \$ 484.50
- f. Gawthrop Invoice #175775 \$ 940.00 already paid
- g. Gawthrop Invoice #177124 \$ 597.50

5. LIAISON REPORTS

6. FINANCIAL REPORTS

- a. January Financial Report

7. OLD BUSINESS

8. GOALS

a. Operate the Ridley Creek Sewer Treatment Plant in compliance with NPDES Permit requirements. *January, February, March, April, May, June, July, August, September, October, November, December*

b. Continue to implement the formal Inflow (surface water) & Infiltration (ground water), (collectively "I&I") Plan to reduce the amount of I&I into the sewer system.

c. Respond to capacity requests within 45 days. *943 Cornwallis Drive, 1420 East Strasburg Road (3 EDUs), 1329 North Chester Road, 1631 Hunter Circle, 411 Misak Drive*

d. Develop an operation manual for Ridley Creek Sewer Treatment Plant and pump stations. *Currently under review by staff.*

e. Submit topical articles of interest for the East Goshen newsletter. *Winter, Summer,*

f. Attend West Goshen Municipal Authority meetings to keep informed of planned capital expenditures and operation compliance. *January, February, March, May, June, July, August, September, October, November, December. January 2017*

9. NEW BUSINESS

a. RCSTP Alkalinity Chemical Feed Alternatives

10. CAPACITY REQUESTS

11. ANY OTHER MATTER

12. CORRESPONDENCE AND REPORTS OF INTEREST

13. PUBLIC COMMENT

14. ADJOURNMENT

EAST GOSHEN MUNICIPAL AUTHORITY
EAST GOSHEN TOWNSHIP
1580 PAOLI PIKE, WEST CHESTER, PA 19380-6199

February 8, 2017

To: Municipal Authority

From: Mark Miller

Re: January 2017 Monthly Report

Monthly Flows: The average daily flow to West Goshen was 768,000 gallons per day. No problems to report.

Meters: All meters were read on a daily basis. The temporary meters are being read on a by-weekly basis with no problems to report.

C.C. Collection: The pumping stations were visited on a daily basis with no problems to report. Routine maintenance was performed.

In December I met with the Homeowners Association from Steeple Chase who informed me that they were planning an extension paving project in both complexes.

I offered to televise their sanitary sewer system since they have had some problems in the past. We televised their system; we did 3000 LF and marked all laterals. We located a couple of main problems which they have agreed to repair. They will also clean all the lines.

We did repairs to every lateral, 79 total and replaced new caps and vent caps. I also asked that they have the contractor replace all the castings and lids (26) which we will supply.

With the repairs made to the laterals, I feel we eliminated a significant amount of inflow during wet weather amounts.

We did GPS on all the manholes and we will also add that information to our system.

We repaired a sewer lateral on Gateswood Drive that was loaded with tree roots.

We have two main repairs to do off of Reservoir Road. We were waiting for the ground to freeze however; I don't think that will be happening anytime soon.

R.C. Collection: Pump Stations were visited on a daily basis, routine maintenance was performed.

R.C. Plant: No problems to report for the month.

Alarms: We responded to 21 alarms for January.

PA One Calls: We received 46 PA One calls January.

EAST GOSHEN MUNICIPAL AUTHORITY
ENGINEER'S REPORT
February 10, 2017

Invoices

- Invoices with summaries are provided under separate cover.

Ridley Creek Sewage Treatment Plant (RCSTP)

- The NPDES Permit expires on February 28, 2017. The permit renewal application was finalized and submitted to PADEP on August 31, 2016. No changes to the existing permit are proposed. *(No update since last report).*
- We continued the evaluation of alternatives for automated alkalinity chemical feed systems to eliminate manual feeding and carrying soda ash bags up the exterior steps, including tank sizing and chemical cost analyses, and coordination with the operator. The material cost for a change to caustic soda would be roughly 50%-60% the current soda ash cost, approximately \$20,000/year more. An updated DRAFT report is attached with details on a change to caustic soda treatment. However, the operator is recommending further consideration of magnesium hydroxide instead of caustic, as well as a change to the phosphorus treatment, from alum to polyaluminum chloride (PaCl). The alum change would likely decrease the alkalinity treatment demands. We will discuss in more detail at the February MA meeting.
- Dutchland repaired the peeling CIM coating at the top of the SBR #1 tank. We met with Dutchland and the CIM manufacturer at the plant thereafter regarding the progressive deterioration of the coatings and rehabilitation vs. replacement approaches for all the tanks. We expect feedback from the manufacturer within the next 1-2 weeks.

Reservoir Road Pump Station

- PADEP issued the State Water Obstruction and Encroachment Permit for the pump station site and Chester Creek utility crossing in June 2016; however, they are requiring a separate federal authorization by the Army Corps of Engineers (ACOE). We coordinated with both PADEP and ACOE on this additional review in July and are still awaiting feedback. *(No update since last report).*
- We revised the NPDES plans and permit application again to address two new minor comments from CCCD that they issued on December 19, 2016, and we resubmitted to CCCD on December 22, 2016. *(No update since last report).*
- The Water Quality Management (WQM) Permit application was submitted to PADEP on April 13, 2016. They have informally notified us that they have no comments and are prepared to issue the WQM Permit once the aforementioned NPDES Permit is issued. *(No update since last report).*
- We previously prepared the front end of the bid document and Division 01 specification sections, including a draft Bid Form. The Bid Form needs to be finalized. Technical specifications were already prepared as part of the WQM Permit application. The full bid document will be completed, assembled, and forwarded to the Township upon receipt of the three remaining permits. *(No update since last report).*

- We will complete a listing of the permits, expiration dates, and renewal deadlines once the three remaining permits are issued. We anticipate including that listing in future Engineer's Reports to track the permit statuses. *(No update since last report).*

RCSTP and Pump Stations' O&M Manual

- Edits were made to address comments from the PW Director.

White Chimneys Manhole Replacement

- We will provide assistance as requested by the Township during construction.

Semi-Annual I&I Reports

- We previously evaluated apparent inconsistencies in the overall Chester Creek subbasin flows (as metered at the Westtown Way meter) between meter data, averages provided by East Goshen, and billing records from West Goshen, and we will discuss with the PW Department to resolve.
- We also began analysis of permanent and portable flow meter data for the upcoming first 2017 semi-annual report including an analysis of sewer billing EDUs by subbasin and conversion of our prior sewer system maps into GIS to facilitate the analyses.

Sunoco Pipeline

- Sunoco previously agreed to add a condition to the approval letter they are requesting from East Goshen that they (Sunoco) will physically locate the Ashbridge PS force main at the proposed pipeline crossing location and that an East Goshen representative must be present when any work is done near the force main. We had also coordinated with them on a potential conflict with the proposed Reservoir Road PS force main, but there has not yet been a resolution to our knowledge. *(No update since last report).*

New Connections

- 1420 E. Strasburg Road, Brakman Property – We reviewed a revised design submission for the 3-lot subdivision and provided sanitary sewer comments. The applicant now proposes 2 gravity sewer laterals and 1 grinder pump instead of the 3-grinder pump system that was originally proposed.
- 1680 E. Boot Road, Knauer Property – We reviewed a revised design submission for the 2 proposed gravity sewer laterals and provided two remaining sanitary sewer comments.

DCED Small Water & Sewer Program Grant

- The Township submitted a grant application for the installation of three permanent gravity sewer flow meters in October. The grant agency, the Commonwealth Financing Authority, is scheduled to award grants in March 2017. *(No update since last report).*

West Goshen Sewer System Consultation

- No activity since last report.



**RCSTP Monthly Operations
Report:
January 2017**

Executive Summary

The Ridley Creek sewage treatment plant outfall 001 achieved compliance with the NPDES discharge permit during December 2016. Discharge to Applebrook remained off line. Chemical usage utilized for total phosphorus removal, pH and total alkalinity remained consistent with previous months. Completed preparations to remove SBR 1 from service and place SBR 3 in service. No mechanical or operational issues were observed during operation of sludge dewatering equipment.

Treatment Process Operation

During December 2016, there were no exceedances of the final effluent discharge limitations for outfall 001. Additional TSS samples were collected on average twice per week to allow for a means to calculate a weekly average. The total phosphorus monthly average had a concentration of 0.27 mg/L as compared to the permitted limitation of 0.50 mg/L. Table 1 illustrates the final effluent composite sample data reported for the December 2016 eDMR. During the month, the final effluent total phosphorus concentration discharged ranged from 0.23 to 0.33 mg/L.

Table 1

December 2016 - Final Effluent - Out Fall 001											
NPDES Permit Discharge Limitations	Flow	CBOD ₅		TSS		NH ₄ -N		Phosphorus, Total , mg/L		Fecal Coliform	
	MGD Average	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	Geo Mean	Geo Mean
	0.75	20	125	10	131	7	44	0.5	3	200	1,000
	Instantaneous Maximum	40		42							
Sample Date											
December 1, 2016	0.359			5	15.0						
December 6, 2016	0.346	3.0	8.7	4	11.5	0.197	0.57	0.27	0.78	3	0.4771
December 8, 2016	0.318			3	8.0						
December 13, 2016	0.309	2.0	5.2	4	10.3	3.470	8.94	0.23	0.59	1	0.0000
December 15, 2016	0.362			2	6.0						
December 20, 2016	0.359	5.5	16.5	4	12.0	0.701	2.10	0.33	0.99	2	0.3010
December 22, 2016	0.372			3	9.3						
December 27, 2016	0.341	5.3	15.1	5	14.2	0.714	2.03	0.25	0.71	4	0.6021
December 29, 2016	0.340			4	11.3						
Average	0.345	4.0	11.3	4	10.9	1.27	3.41	0.27	0.77	2	0.3451
Minimum	0.309	2.0	5.2	2	6.0	0.20	0.57	0.23	0.59	1	0.0000
Maximum	0.372	5.5	16.5	5	15.0	3.47	8.94	0.33	0.99	4	0.6021



**RCSTP Monthly Operations
Report:
January 2017**

Discharge to Applebrook, Outfall 002, remained discontinued during December and will remain off line until the spring of 2017

Table 2 illustrates the influent composite sample data reported for the December 2016.

Table 2

December 2016 - Influent Wastewater											
Design Basis	Flow	BOD ₅		TSS		NH ₄ -N		TKN, mg/L		Phosphorus, Total, mg/L	
		mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day
	MGD Average	335	2,098	320	2,001	32	200	48	301	9.1	57
Sample Date											
December 6, 2016	0.470	101	396	166	651	49.0	192	56.9	223	6.1	24
December 13, 2016	0.391	91.2	357	40	157	44.7	175	44.8	146	5.2	20
December 20, 2016	0.423	85.5	335	144	564	45.7	179	52.1	184	5.1	20
December 27, 2016	0.459	139	545	240	941	53.9	211	64.7	248	5.3	21
Average	0.436	104	408	148	578	48.3	189	54.6	200	5.4	21
Minimum	0.391	86	335	40	157	44.7	175	44.8	146	5.1	20
Maximum	0.470	139	545	240	941	53.9	211	64.7	248	6.1	24

Table 3 presents the available Outfall 001 final effluent data for the month of January 2017. During January, the presence of foam conditions on the surface of the SBRs began to increase with foam concentrations ranging from 80% to 100% of the area.

During January, additional TSS and total phosphorus samples were collected. Several final effluent pollutant concentrations were elevated during the month; however, there are no anticipated exceedances of the permitted limitations for Outfall 001. There was no discharge from outfall 002. Split sampling of the composite sample collected by Applied Laboratory Services (ALS) is ongoing for comparative analysis and daily results.



**RCSTP Monthly Operations
Report:
January 2017**

Table 3

January 2017 - Final Effluent - Out Fall 001											
NPDES Permit Discharge Limitations	Flow	CBOD₅		TSS		NH₄-N		Phosphorus, Total , mg/L		Fecal Coliform	
	MGD Average	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	mg/L	lbs/ month	Geo Mean	Geo Mean
	0.75	20	125	10	131	7	44	0.5	3	200	1,000
	Instantaneous Maximum	40		42							
Sample Date											
January 3, 2017	0.390	5.90	19.2	12	39.0	0.761	2.48	0.44	1.43	210	2.3222
January 5, 2017	0.351			6	17.6						
January 10, 2017	0.333	11.1	30.8	24	66.7	7.88	21.88	1.10	3.05	6	0.7782
January 11, 2017	0.342			11	31.4						
January 12, 2017	0.325			12	32.5						
January 17, 2017	0.333	7.2	20.0	12	33.3	9.82	27.27	0.36	1.00	4	0.6021
January 19, 2017	0.338			6	16.9						
January 23, 2017	0.390							0.20	0.65		
January 24, 2017	0.379	2.9	9.2	9	28.4	3.05	9.64	0.27	0.85	15	1.1761
January 25, 2017	0.335							0.26	0.73		
January 26, 2017	0.309			7	18.0			0.17	0.44		
January 27, 2017	0.319							0.17	0.45		
January 28, 2017	0.330							0.16	0.44		
January 29, 2017	0.391							0.28	0.91		
January 30, 2017	0.347			4	11.6			0.17	0.49		
January 31, 2017	0.344			5	14.3			0.20	0.57		
Average	0.347	6.8	19.8	10	28.2	5.38	15.32	0.32	0.92	17	1.2196
Minimum	0.309	2.9	9.2	4	11.6	0.76	2.48	0.16	0.44	4	0.6021
Maximum	0.391	11.1	30.8	24	66.7	9.82	27.27	1.10	3.05	210	2.3222

The influent wastewater pollutant concentrations and loading entering the wastewater treatment facility remained within the design concentrations. Composite samples are collected at the influent doghouse manhole and influent wet well. The influent flow meter reading is collected from the influent flow meter located prior to the Screening Building, excluding the internal recycle flows.

Table 4 presents the available pollutant data for the influent wastewater collected at the doghouse manhole during January 2017.



**RCSTP Monthly Operations
Report:
January 2017**

Table 4

January 2017 - Influent Wastewater											
Design Basis	Flow	BOD ₅		TSS		NH ₄ -N		TKN, mg/L		Phosphorus, Total, mg/L	
		mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day
	MGD Average	335	2,098	320	2,001	32	200	48	301	9.1	57
Sample Date											
January 3, 2017	0.520	155	672	124	538	58.2	252	52.4	227	5	22
January 10, 2017	0.398	181	785	218	946	44.8	194	52.6	175	5.5	24
January 17, 2017	0.424	204	885	262	1,136	52.2	226	55.4	196	6.4	28
January 24, 2017	0.474	168	729	110	477	42.4	184	47.7	189	4.0	17
January 31, 2017	0.383										
Average	0.440	177	768	179	774	49.4	214	52.0	197	5.2	23
Minimum	0.383	155	672	110	477	42.4	184	47.7	175	4.0	17
Maximum	0.520	204	885	262	1136	58.2	252	55.4	227	6.4	28

Sequencing batch reactors (SBRs) numbered 1, 2 and 4 were in service during December. SBRs 2, 3 and 4 were in service during January. Process monitoring of each SBR included ammonia as N, nitrite as N, Nitrate as N, COD, SSV, MLSS and total phosphorus. Daily analysis of the final effluent flow equalization grab sample is total phosphorus is ongoing. Sample collection and analysis of the influent wastewater collected at the influent pump station wet well is ongoing.

Addition of aluminum sulfate solution to the SBRs to assist with phosphorus removal continued. The volume of aluminum sulfate solution to the SBRs increased to from 61.6 gpd to 92.9 gpd. Soda ash daily addition decreased from 421 lbs./day to 377 lbs./day. Soda ash assists towards maintaining SBR pH concentrations above 7.0 standard units and assists to replenish alkalinity consumed during the nitrification process and aluminum sulfate solution addition.

On January 13th, SBR No. 3 was placed in service as a treatment unit.



**RCSTP Monthly Operations
Report:
January 2017**

Solids Dewatering and Disposal: January 2017

Sludge Dewatering Summary	
Gallons of sludge dewatered	289,178
Number of dumpsters	4

**Nineteen (19) days of centrifuge operation*

Flow data:

January 2017			
Flow Meter Location	Total Volume for Month, MG	Average Daily Flow, gpd	Daily Maximum Flow, gpd
Influent Wastewater to Screening Building*	13.489	435,113	556,290
Influent Wastewater to SBRs	14.006	451,793	557,132
Internal Recycle	0.614	22,118	82,952
Treated Effluent to Disc Filters	13.858	447,040	545,792
Final Effluent Discharge	11.090	357,742	480,000
Applebrook Golf Course	No Discharge	No Discharge	No Discharge

Chemical Usage:

January 2017		
Chemical	Daily Average	Total Monthly
Soda Ash	377	11,350
Aluminum Sulfate solution	92.9	2,879
Polymer (centrifuge)	0.84	

**Nineteen (19) days of centrifuge operation*

During January, sludge wasting to the sludge holding tanks and decanting of the sludge holding tanks was ongoing. Process monitoring included pH, total alkalinity and total solids.

Sludge holding tank No. 1 was in service. The level at the beginning of the month was 12.62 feet and the level at the end of the month was 9.58 feet. Zero (0) gallons of supernatant were decanted during the month. Zero (0) pounds of soda ash were added. The average pH concentration was measured as 6.51 S.U. average total alkalinity measured as 250 mg/l and average total solids concentration measured as 1.05%.



**RCSTP Monthly Operations
Report:
January 2017**

Sludge holding tank No. 2 was in service. The level at the beginning of the month was 11.03 feet and the level at the end of the month was 12.33 feet. Zero (0) gallons of supernatant were decanted during the month. Zero (0) pounds of soda ash were added. The average pH concentration was measured as 6.37 S.U., average total alkalinity measured as 300 mg/l and average total solids concentration measured as 0.79%.

PA DEP

No activity

Significant Storm/Hydraulic Loading Events

During January, there were a total of twenty (20) days where a trace of precipitation of snow was recorded at the facility. There were three (3) storm events resulting in a daily precipitation amount equal to or greater than 0.5 inches measured during a 24 hour period. A total of 3.66 inches of rainfall and 3 inches of snow were measured during the month. These events occurred on:

- January 3rd 0.57 inches
- January 17th: 0.76 inches
- January 23rd 0.76 inches

There several days during the month where daily precipitation was recorded on consecutive days. Those periods of consecutive days of precipitation are as follows:

January 1st through the 3rd for a total of 0.91 inches
January 10th through the 12th for a total of 0.50 inches
January 19th through the 28th for a total of 1.47 inches

Plant operations were adjusted to manage the precipitation to prevent exceedances of the permitted discharge limitations for Outfall 001. Adjustments included reading aeration minutes per cycle, extending decant minutes per cycle and reducing settling times. The facility experienced several filled decant cycles during the rain events.

Minor Repairs and Preventative Maintenance

January 2nd & 3rd Observed white "greasy substance" on the disc filters.



**RCSTP Monthly Operations
Report:
January 2017**

- January 3rd through 23rd: Daily drained and cleaned both disc filters.
- January 10th: SBR 4 motive pump was observed to be air bound. Township staff assisted with torch to unfreeze aeration tank valve to unbound the motive pump.
- January 11th: Chemical delivery arrived.
- January 13th: Removed SBR 1 from service. Placed SBR 3 in service.
- January 14th: Respond to SBR 3 motive pump high temperature alarm.
- January 15th: Rewire SBR 3 motive pump. Install DO caps and calibrate DO sensors for SBRs 2, 3 and 4.
- January 16th: Adjusted process controls for SBR 2 to increase the hours of aeration for SBR.
- January 23rd: Dutchland staff installed the motive and sludge pumps for SBR 3. Power failure around 10:00 AM. Emergency generator operated for approximately 30 minutes.
- January 29th: Emergency repair for SBR 3 final effluent actuator. Tri-State Technician was called out to repair actuator. Key way in actuator was split. The actuator was repaired and returned to service.
- January 31st: Chemical delivery arrived.

Draft
EAST GOSHEN TOWNSHIP MUNICIPAL AUTHORITY
MEETING MINUTES
January 9, 2017

The East Goshen Township Municipal Authority held their regular public meeting on Monday, January 9, 2017 at 7:00 pm at the East Goshen Township building. Members in attendance were: Chairman Ed McAssey, Dana Pizarro, Jack Yahraes, and Kevin Cummings. Also in attendance were: Rick Smith (Township Manager), Carmen Battavio (Supervisor), Mike Ellis (Pennoni), Patrick McKenna, Attorney, and Walter Wujcik, Conservancy Board.

COMMON ACRONYMS:

<i>BFES – Big Fish Environmental Services</i>	<i>MA- Municipal Authority</i>
<i>BOS – Board of Supervisors</i>	<i>NPDES – National Pollutant Discharge Elimination System</i>
<i>CB – Conservancy Board</i>	<i>PC – Planning Commission</i>
<i>DEP – Department of Environmental Protection</i>	<i>PM – Prevention Maintenance</i>
<i>EPA – Environmental protection Agency</i>	<i>PR – Park & Recreation Board</i>
<i>HC – Historical Commission</i>	<i>RCSTP – Ridley Creek Sewer Treatment Plant</i>
<i>I&I – Inflow & Infiltration</i>	<i>SBR – Sequencing Batch Reactor</i>
<i>LCSTP – Lockwood Chase Sewer Treatment Plant</i>	<i>SSO – Sanitary System Overflow</i>
	<i>WAS – Waste Activated Sludge</i>

Call to Order & Pledge of Allegiance

Ed called the meeting to order at 7:00 pm and led those present in the Pledge of Allegiance. There was a moment of silence to remember our troops and first responders. Ed asked if anyone would be recording the meeting. There was no response.

Sewer Reports

1. Director of Public Works, Mark Miller provided the following report for December:

Monthly Flows: The average daily flow to West Goshen was 689,000 gallons per day.

Meters: The meters were read on a daily basis. The portable meters were read on a bi-weekly basis.

C.C. Collection: Pump stations were visited on a daily basis. The Barkway Pump Station wet well was cleaned and vacuumed out due to heavy grease build up.

We located and repaired two lateral breaks, both were on Meadow Drive, each was allowing approx. 15,000 to 20,000 gallons per day. We also located a line break on Bramble Lane. This should be repaired next week.

We televised 36,000 LF of pipe in quadrant 3. We also replaced 12 sewer caps.

R.C. Collection – We visited the pump station on a daily basis. We installed 12 charcoal inserts on Cornwallis Drive to control odors. We are gearing up to clean the sewer right-of-way behind the homes in Hershey Mill Estates.

R.C. Plant: We completed the soda ash storage building with the exception of the vinyl siding. We trenched in conduit for the sampler.

Alarms: We responded to 23 alarms for December.

PA One Calls: We received 64 PA One calls for December.

1 **2. Pennoni Engineer's Report for November**

2 Mike Ellis provided the following report.

3 Invoices: Invoices with summaries are provided under separate cover.

4 Ridley Creek Sewage Treatment Plant (RCSTP):

5 The NPDES Permit expires on February 28, 2017. The permit renewal application was
6 finalized and submitted to PADEP on August 31, 2016. No changes to the existing
7 permit are proposed. (No update since last report)

8 We continued the evaluation of alternatives for automated alkalinity chemical feed
9 systems to eliminate manual feeding and carrying bags up the exterior steps, including
10 tank sizing and chemical cost analyses. The preferred alternative is a change to caustic
11 soda from the current soda ash treatment. We are coordinating feasibility and details
12 with the operator and will provide an up dated letter report by the February MA meeting.
13 Dutchland repaired the additional bubbles in the SBR #3 CIM coating that were
14 identified lower on the walls after repairing the peeling coating at the top. It is our
15 understanding that the tank has been refilled and is back in use.

16 Reservoir Rd Pump Station:

17 PADEP issued the State Water Obstruction and Encroachment Permit for the pump
18 station site and Chester Creek utility crossing in June 2016; however, they are requiring a
19 separate federal authorization by the Army Corps of Engineers (ACOE). We coordinated
20 with both PADEP and ACOE on this additional review in July and are still awaiting
21 feedback. (No update since last report)

22 We revised the NPDES plans and permit application again to address two new minor
23 comments from CCCD that they issued on December 19, 2016, and we resubmitted to
24 CCCD on December 22, 2016.

25 The Water Quality Management (WQM) Permit application was submitted to PADEP on
26 April 13, 2016. They have informally notified us that they have no comments and are
27 prepared to issue the WQM Permit once the aforementioned NPDES Permit is issued.
28 (No update since last report)

29 We previously prepared the front end of the bid document and Division 01 specification
30 sections, including a draft Bid Form. The Bid Form still needs to be finalized. Technical
31 specifications were already prepared as part of the WQM Permit application. The full bid
32 document will be completed, assembled, and forwarded to the Township upon receipt of
33 the three remaining permits. (No update since last report)

34 We will complete a listing of the permits, expiration dates, and renewal deadlines once
35 the three remaining permits are issued. We anticipate including that listing in future
36 Engineer's Reports to track the permit statuses. (No update since last report)

37 RCSTP and Pump Stations' O&M Manual

38 No update since last report.

39 White Chimneys Manhole Replacement

40 We will provide assistance as requested by the Township during construction.

41 Semi-Annual I&I Reports

42 We previously evaluated apparent inconsistencies in the overall Chester Creek subbasin
43 flows (as metered at the Westtown Way Meter) between meter data, averages provided
44 by East Goshen and billing records from West Goshen, and we will discuss with the PW
45 Department to resolve.

1 Sunoco Pipeline

2 Sunoco previously agreed to add a condition to the approval letter they are requesting
3 from East Goshen that they (Sunoco) will physically locate the Ashbridge PS force main
4 at the proposed pipeline crossing location and that an East Goshen representative must be
5 present when any work is done near the force main. We have also coordinated with them
6 on a potential conflict with the proposed Reservoir Road PS force main, but there has not
7 yet been a resolution to our knowledge. (No update since last report)

8 New Connections

9 1420 E. Strasburg Road, Brakman Property – A 3-lot grinder pump system is proposed.
10 We attended a review meeting with the developer, Township staff, and design consultant
11 on December 14, 2016. We are awaiting a revised design submission to address sanitary
12 sewer comments.

13 1680 E. Boot Road, Knauer Property – We issued comments on the proposed gravity
14 sewer laterals on December 14, 2016.

15 DCED Small Water & Sewer Program Grant

16 The Township submitted a grant application for the installation of three permanent
17 gravity sewer flow meters in October. The grant agency, the Commonwealth Financing
18 Authority, is scheduled to award grants in March 2017. (No update since last report.)

19 West Goshen Sewer System Consultation

20 No activity since last report.
21

22 **3. Big Fish Environmental Services** – Scott's report for December showed that the Ridley
23 Creek sewage treatment plant outfall 001 achieved compliance with the NPDES discharge permit
24 during November 2016. Discharge to Applebrook remained off line.
25 Chemical usage utilized for total phosphorus removal, pH and total alkalinity remained
26 consistent with previous months. Repairs to SBR 3 were completed during December. Repairs
27 to the alum feed pumps to the SBRs were completed during the month. No mechanical or
28 operational issues were observed during operation of sludge dewatering equipment.
29

30 **Approval of Minutes**

31 The minutes of the December 12, 2016 were approved as amended.
32

33 **Approval of Invoices**

34 1. Dana moved to approve payment of the following Pennoni invoices:

- | | | | |
|----|----|-----------------|------------|
| 35 | a. | Pennoni #726816 | \$1,784.42 |
| 36 | b. | Pennoni #726817 | \$4,042.50 |
| 37 | c. | Pennoni #726818 | \$1,000.25 |
| 38 | d. | Pennoni #726819 | \$ 373.75 |

39 Kevin seconded the motion. The motion passed unanimously.

40 2. Jack moved to approve payment of the following Gawthrop invoice:

- | | | | |
|----|----|--------------------------|-------------------------|
| 41 | a. | Gawthrop Invoice #157998 | \$500.00 (already paid) |
|----|----|--------------------------|-------------------------|

42 Dana seconded the motion. The motion passed unanimously.
43
44
45
46

1 **Liaison Report**

2 **Conservancy Board** – Walter reported that the second planting along E. Boot Road was done in
3 December. Keep East Goshen Beautiful Day will be held on Saturday, April 22, 2017, which is
4 Earth Day.

5 **Board of Supervisors** – Carmen mentioned that Senya resigned. Applications should be sent to
6 Rick Smith by January 13, 2017. Interviews will be done at a public meeting. Although this is
7 to fill a term which will end soon, it is expected that the person will run for reelection.
8

9 **Financial Reports**

10 Jon Altshul provided the following written report:

11 In December 2016, the Municipal Authority recorded \$456 in interest income and \$38,604 in
12 expenses, for a negative variance of \$38,178. Expenses consisted of:

- 13 • \$7,377 for the 4th quarter administrative charge-back
- 14 • \$1,012 for engineering services
- 15 • \$500 for legal services
- 16 • \$1,622 for the Reservoir Road Pump Station engineering
- 17 • \$28,092 for 28% of the debt service on the 1998 note

18 As of November 30th, the fund balance was \$1,415,651, of which \$1,373,851 is in the main
19 construction account (most of which represents the 2013 note).
20

21 **Goals**

22 Goals for 2017 were reviewed.
23

24 **New Business**

25 **West Goshen Sewer Authority** - Ed reported that he attended the meeting last week. Items
26 covered were:

- 27 • EPA moved things back 60 days
- 28 • Emergency generator is on site but not installed yet
- 29 • \$17 million bond issue would cover costs for 2017 – 2020
- 30 • Review of lease agreements pending

31 Dana and Kevin will attend the February 1, 2017 meeting.
32

33 **Adjournment**

34 There being no further business, Jack moved to adjourn the meeting. Dana seconded the motion.
35 The meeting was adjourned at 8:00 pm. The next meeting will be held on Monday, February 13,
36 2017 at 7:00 pm.
37

38 Respectfully submitted,
39
40
41

42 Ruth Kiefer
43 Recording Secretary



INVOICE

Newark, DE
302-655-4451 Fax: 302-654-2895

Remit Payment To:
Pennoni
P.O. Box 827328
Philadelphia, PA 19182-7328

East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199
Attention: Louis F. Smith, Twp Mgr.

Invoice # : 731599
Invoice Date : 01/27/2017
Project : EGMA1504
Project Name : Reservoir Rd PS Design &
Permitting

For Services Rendered through: 1/15/2017

Prepared and resubmitted revised NPDES permit plans, Notice of Intent application forms, and response letter to CCCD to address their December 19, 2016 comments.

Phase : 12 -- Permitting

Total Phase : 12 -- Permitting

Labor : 1,422.75
Expense : 0.00
Phase Total : 1,422.75

Amount Due This Invoice

\$1,422.75

Phase : 12 -- Permitting

Labor Class	Hours/ Units	Rate	Amount
Authority Engineer	3.50	115.00	402.50
Graduate Engineer	13.25	77.00	1,020.25
Labor Total:	16.75		1,422.75

Total Phase : 12 -- Permitting

Labor : \$1,422.75
Expense : \$0.00

Total Project : EGMA1504 -- Reservoir Rd PS Design & Permitting

Labor : \$1,422.75
Expense : \$0.00

OK RSZ-10-17

East Goshen Municipal Authority
EGMA1504 Invoice Summary
Invoice Date 1/27/2017

Project: EGMA1504
Pennoni Job No.: Reservoir Rd PS Design & Permitting
Invoice No: 731599
Invoice Period: 12/12/2016 to 01/15/2017
Initial Authorization: \$ 167,120.00 **Date:** 1/27/2017
Contract Amount: \$ 183,120.00
Previously Invoiced: \$ 180,752.25
Current Invoice: \$ 1,422.75
Invoiced to Date (\$): \$ 182,175.00
Invoiced to Date (%): 99.48%
Remaining Budget (\$): \$ 945.00
Remaining Budget (%): 0.52%

Budget by Phase:

Phase Name:	Permitting	Phase 12
Phase Budget:	\$ 41,950.25	
Previously Invoiced:	\$ 39,582.50	
Current Invoice:	\$ 1,422.75	
Invoiced to Date (\$):	\$ 41,005.25	
Invoiced to Date (%):	97.75%	
Remaining Budget (\$):	\$ 945.00	
Remaining Budget (%):	2.25%	

Comments: Prepared and resubmitted revised NPDES permit plans, Notice of Intent application forms, and response letter to CCCD to address their December 19, 2016 comments.

Reservoir Road Pump Station Design & Permitting

INVOICE SUMMARY

For Services Rendered through: 1/15/2017

Task No.	Activity	Contract Amount*	Invoiced Effort thru 12/11/2016	Remaining Budget (\$)	Remaining Budget (%)	Completed?
1	Concept Design	\$13,655.75	\$13,655.75	-	-	Yes
2	DEP WQM Pre-App. Meeting	\$1,300.00	\$1,300.00	-	-	Yes
3	Existing Conditions Survey	\$22,783.75	\$22,783.75	-	-	Yes
4	Sewer Stakeout in Easements	\$0.00	\$0.00	-	-	Scope eliminated
5	1636 Bow Tree Dr. Boundary Survey & Easement	\$4,020.00	\$4,020.00	-	-	Yes
6	Additional Boundary Surveys & Easements	\$0.00	\$0.00	-	-	Scope eliminated
7	Geotechnical Borings	\$4,000.00	\$4,000.00	-	-	Yes
8	Install Permanent Survey Benchmarks	\$0.00	\$0.00	-	-	Scope eliminated
9	Progress Design	\$29,450.00	\$29,450.00	-	-	Yes
10	Infiltration Testing	\$1,800.00	\$1,800.00	-	-	Yes
11	Final Design	\$64,160.25	\$64,160.25	\$0.00	0%	No**
12	Permitting	\$41,950.25	\$41,005.50	\$944.75	2%	No***
TOTAL		\$183,120.00	\$182,175.25	\$944.75	0.5%	

*After 12/14/2015 approved re-allocation of task budgets, 5/9/2016 approval of \$7,000 supplement, 7/11/16 approval of \$4,000 supplement, and 11/14/16 approval of \$5,000 supplement.

**Need to complete Bid Form and assemble full bid document package for Township once remaining permits are issued.

*** All permit applications have been submitted, and we are awaiting issuance of four remaining permits. NPDES permit revisions have been submitted to the County Conservation District. The other outstanding permits are the PADEP Water Quality Management (WQM) Permit, Army Corps of Engineers federal authorization on the Chester Creek Small Projects Joint Permit, and Chester County Conservation District E&S approval.



INVOICE

Newark, DE
302-655-4451 Fax: 302-654-2895

Remit Payment To:
Pennoni
P.O. Box 827328
Philadelphia, PA 19182-7328

East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199
Attention: Louis F. Smith, Twp Mgr.

Invoice # : 731600
Invoice Date : 01/27/2017
Project : EGMA1505
Project Name : RCSTP and Pump Station O&M Manual

For Services Rendered through: 1/15/2017

Updated O&M Manual to address comments from Mark Miller.

Phase : **** -- Professional Services

Total Phase : **** -- Professional Services

Labor :	199.75
Expense :	0.00
Phase Total :	199.75

Amount Due This Invoice

\$199.75

Fee :	12,500.00
Prior Billings :	7,123.00
Current Billings :	199.75
Total Billings :	7,322.75

Phase : **** -- Professional Services

Labor Class	Hours/ Units	Rate	Amount
Authority Engineer	0.25	119.00	29.75
Engineering Technician I	2.50	68.00	170.00
Labor Total:	2.75		199.75

Total Phase : **** -- Professional Services

Labor :	\$199.75
Expense :	\$0.00

Total Project : EGMA1505 -- RCSTP and Pump Station O&M Manual

Labor :	\$199.75
Expense :	\$0.00

dc RS 2/10/17

INVOICES DUE ON RECEIPT. Invoices outstanding over 30 days will have a Service Charge of 1 1/2% per month.

East Goshen Municipal Authority
EGMA1505 Invoice Summary
Invoice Date 1/27/2017

Project: EGMA1505
Pennoni Job No.: RCSTP & Pump Station O&M Manual
Invoice No: **721600**
Invoice Period: 10/17/2016 to 1/15/2017
Initial Authorization: \$ 12,500.00 **Date:** 1/27/2017
Contract Amount: \$ 12,500.00
Previously Invoiced: \$ 7,123.00
Current Invoice: \$ 199.75
Invoiced to Date (\$): \$ 7,322.75
Invoiced to Date (%): 59%
Remaining Budget (\$): \$ 5,177.25
Remaining Budget (%): 41%

Budget by Phase:

Phase Name: RCSTP & Pump Station O&M Manual
Phase Budget: \$ 12,500.00
Previously Invoiced: \$ 7,123.00
Current Invoice: \$ 199.75
Invoiced to Date (\$): \$ 7,322.75
Invoiced to Date (%): 59%
Remaining Budget (\$): \$ 5,177.25
Remaining Budget (%): 41%

Comments: Updated O&M Manual to address comments from Mark Miller.



INVOICE

Newark, DE
302-655-4451 Fax: 302-654-2895

Remit Payment To:
Pennoni
P.O. Box 827328
Philadelphia, PA 19182-7328

East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199
Attention: Louis F. Smith, Twp Mgr.

Invoice # : 731601
Invoice Date : 01/27/2017
Project : EGMA1601
Project Name : 2016 General Services

For Services Rendered through: 1/15/2017

Continued feasibility analysis of potential RCSTP soda ash to caustic soda chemical change including cost estimate, trial run alternatives, and chemical storage tank research; coordination with Dutchland and on-site observation of completion of CIM coating repairs in RCSTP SBR #3; reviewed December MA meeting agenda and RCSTP operator's report; and attended December MA meeting.

Phase : ** -- Professional Services**

Total Phase : ** -- Professional Services**

Labor :	796.75
Expense :	0.00
Phase Total :	796.75

Amount Due This Invoice

\$796.75

Fee :	16,395.50
Prior Billings :	15,598.75
Current Billings :	796.75
Total Billings :	16,395.50

Phase : ** -- Professional Services**

Labor Class	Hours/ Units	Rate	Amount
Authority Engineer	5.50	115.00	632.50
Senior Engineer	0.50	110.00	55.00
Project Engineer	0.25	97.00	24.25
Senior Engineering Technician	1.00	85.00	85.00
Labor Total:	7.25		796.75

Total Phase : ** -- Professional Services**

Labor :	\$796.75
Expense :	\$0.00

Total Project : EGMA1601 -- 2016 General Services

Labor :	\$796.75
Expense :	\$0.00

OK TRS 2/10/17

INVOICES DUE ON RECEIPT. Invoices outstanding over 30 days will have a Service Charge of 1 1/2% per month.

East Goshen Municipal Authority
EGMA1601 Invoice Summary
Invoice Date 1/27/2017

Project: EGMA1601
Pennoni Job No.: 2016 General Services
Invoice No: **731601**
Invoice Period: 12/12/2016 to 1/15/2017
Initial Authorization: \$ 12,300.00 **Date:** 1/27/2017
Contract Amount: \$ 16,395.50
Previously Invoiced: \$ 15,598.75
Current Invoice: \$ 796.75
Invoiced to Date (\$): \$ 16,395.50
Invoiced to Date (%): 100%
Remaining Budget (\$): \$ -
Remaining Budget (%): 0%

Budget by Phase:

Phase Name: 2016 General Services
Phase Budget: \$ 16,395.50
Previously Invoiced: \$ 15,598.75
Current Invoice: \$ 796.75
Invoiced to Date (\$): \$ 16,395.50
Invoiced to Date (%): 100%
Remaining Budget (\$): \$ -
Remaining Budget (%): 0%

Comments: Continued feasibility analysis of potential RCSTP soda ash to caustic soda chemical change including cost estimate, trial run alternatives, and chemical storage tank research; coordination with Dutchland and on-site observation of completion of CIM coating repairs in RCSTP SBR #3; reviewed December MA meeting agenda and RCSTP operator's report; and attended December MA meeting.



INVOICE

Newark, DE
302-655-4451 Fax: 302-654-2895

Remit Payment To:
Pennoni
P.O. Box 827328
Philadelphia, PA 19182-7328

East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199
Attention: Louis F. Smith, Twp Mgr.

Invoice # : 731602
Invoice Date : 01/27/2017
Project : EGMA1701
Project Name : 2017 General Services

For Services Rendered through: 1/15/2017

Initial field assessment of the peeling and bubbling CIM coating in RCSTP SBR #1; prepared January Engineers Report; reviewed January MA meeting agenda and RCSTP operator's report; and attended January MA meeting.

Phase : **** -- Professional Services

Total Phase : **** -- Professional Services

Labor : 563.00
Expense : 0.00
Phase Total : 563.00

Amount Due This Invoice

\$563.00

Fee : 12,700.00
Prior Billings : 0.00
Current Billings : 563.00
Total Billings : 563.00

Phase : **** -- Professional Services

Labor

Class	Hours/ Units	Rate	Amount
Authority Engineer	4.00	119.00	476.00
Senior Engineering Technician	1.00	87.00	87.00
Labor Total:	5.00		563.00

Total Phase : **** -- Professional Services

Labor : \$563.00
Expense : \$0.00

Total Project : EGMA1701 -- 2017 General Services

Labor : \$563.00
Expense : \$0.00

OLC RS 2-10-17

INVOICES DUE ON RECEIPT. Invoices outstanding over 30 days will have a Service Charge of 1 1/2% per month.

East Goshen Municipal Authority
EGMA1701 Invoice Summary
Invoice Date 1/27/2017

Project: EGMA1701
Pennoni Job No.: 2017 General Services
Invoice No: 731602
Invoice Period: NTP to 1/15/2017
Initial Authorization: \$ 12,700.00 **Date:** 1/27/2017
Contract Amount: \$ 12,700.00
Previously Invoiced: \$ -
Current Invoice: \$ 563.00
Invoiced to Date (\$): \$ 563.00
Invoiced to Date (%): 4%
Remaining Budget (\$): \$ 12,137.00
Remaining Budget (%): 96%

Budget by Phase:

Phase Name: 2017 General Services
Phase Budget: \$ 12,700.00
Previously Invoiced: \$ -
Current Invoice: \$ 563.00
Invoiced to Date (\$): \$ 563.00
Invoiced to Date (%): 4%
Remaining Budget (\$): \$ 12,137.00
Remaining Budget (%): 96%

Comments: Initial field assessment of the peeling and bubbling CIM coating in RCSTP SBR #1; prepared January Engineers Report; reviewed January MA meeting agenda and RCSTP operator's report; and attended January MA meeting.



INVOICE

Newark, DE
302-655-4451 Fax: 302-654-2895

Remit Payment To:
Pennoni
P.O. Box 827328
Philadelphia, PA 19182-7328

East Goshen Municipal Authority
1580 Paoli Pike
West Chester, PA 19380-6199
Attention: Louis F. Smith, Twp Mgr.

Invoice # : 731603
Invoice Date : 01/27/2017
Project : EGMA1703
Project Name : 2016 Chapter 94 Reports

For Services Rendered through: 1/15/2017

Initiated work on RCSTP, Chester Creek Collection System, and Westtown Chp. 94 Reports.

Phase : **** -- Professional Services

Total Phase : **** -- Professional Services

Labor : 484.50
Expense : 0.00
Phase Total : 484.50

Amount Due This Invoice

\$484.50

Fee : 15,000.00
Prior Billings : 0.00
Current Billings : 484.50
Total Billings : 484.50

Phase : **** -- Professional Services

Labor Class	Hours/ Units	Rate	Amount
Authority Engineer	0.50	119.00	59.50
Engineering Technician I	6.25	68.00	425.00
Labor Total:	6.75		484.50

Total Phase : **** -- Professional Services

Labor : \$484.50
Expense : \$0.00

Total Project : EGMA1703 -- 2016 Chapter 94 Reports

Labor : \$484.50
Expense : \$0.00

o/c PS 2-10-17

INVOICES DUE ON RECEIPT. Invoices outstanding over 30 days will have a Service Charge of 1 1/2% per month.

East Goshen Municipal Authority
EGMA1703 Invoice Summary
Invoice Date 1/27/2017

Project: EGMA1703
Pennoni Job No.: 2016 Chapter 94 Reports
Invoice No: **731603**
Invoice Period: NTP to 1/15/2017
Initial Authorization: \$ 15,000.00 **Date:** 1/27/2017
Contract Amount: \$ 15,000.00
Previously Invoiced: \$ -
Current Invoice: \$ 484.50
Invoiced to Date (\$): \$ 484.50
Invoiced to Date (%): 3%
Remaining Budget (\$): \$ 14,515.50
Remaining Budget (%): 97%

Budget by Phase:

Phase Name: 2016 Chapter 94 Reports
Phase Budget: \$ 15,000.00
Previously Invoiced: \$ -
Current Invoice: \$ 484.50
Invoiced to Date (\$): \$ 484.50
Invoiced to Date (%): 3%
Remaining Budget (\$): \$ 14,515.50
Remaining Budget (%): 97%

Comments: Initiated work on RCSTP, Chester Creek Collection System, and Westtown Chp. 94 Reports.



Gawthrop Greenwood, PC
Attorneys at Law

17 East Gay Street, Suite 100 (p) 610-696-8225
West Chester, PA 19381-0562 (f) 610-344-0922
gglaw@gawthrop.com www.gawthrop.com

*This Invoice
HAS ALREADY BEEN
PAID*

East Goshen Municipal Authority
1580 Paoli Pike
West Chester PA 19380

Page: 1
01/09/2017
Client No: 6604-001R
Invoice No: 175775

General Authority Services

Fees

		Hours	
12/12/2016			
PMM	Preparation for and attend Authority meeting.	2.50	
12/13/2016			
PMM	Messages from/to M Gordon regarding O'Connell easement.	0.20	
12/14/2016			
PMM	Message from and telephone conference with M Gordon regarding Loudon/O'Connell easement; Message from O'Connell regarding same.	0.40	
12/16/2016			
PMM	Message from J O'Connell regarding easement; Email to M Gordon and R Smith regarding same; Telephone conference with R Smith regarding same; Telephone conference with J O'Connell regarding same.	0.80	
12/19/2016			
PMM	Numerous emails from/to M Gordon regarding O'Connell easement.	0.60	
12/21/2016			
PMM	Message from J O'Connell.	0.20	
	For Current Services Rendered	4.70	940.00

Recapitulation

<u>Timekeeper</u>	<u>Hours</u>	<u>Hourly Rate</u>	<u>Total</u>
Patrick M. McKenna	4.70	\$200.00	\$940.00

Total Current Charges 940.00

Balance Due

\$940.00

*OK TO PAY TJS
1-19-17*



Gawthrop Greenwood, PC
Attorneys at Law

17 East Gay Street, Suite 100 (p) 610-696-8225
West Chester, PA 19381-0562 (f) 610-344-0922
gglaw@gawthrop.com www.gawthrop.com

East Goshen Municipal Authority
1580 Paoli Pike
West Chester PA 19380

Page: 1
02/07/2017
Client No: 6604-001R
Invoice No. 177124

General Authority Services

Fees

		Hours	
01/09/2017			
PMM	Review and analyze letter from J O'Connell dated January 5, 2017 regarding 1662 E Boot Road; Preparation for and attend Authority meeting.	2.00	
01/27/2017			
JLB	Call to J O'Connell to discuss draft letter and agreement	0.30	
01/31/2017			
PMM	Telephone conference with A Sundquist regarding West Goshen Municipal Authority Meeting; Email from A Sundquist regarding same; Emails to/from EGMA and R Smith regarding same.	0.80	
	For Current Services Rendered	3.10	597.50

Recapitulation

Timekeeper	Hours	Hourly Rate	Total
Patrick M. McKenna	2.80	\$200.00	\$560.00
Jody L. Bowden	0.30	125.00	37.50

Previous Balance \$940.00

Total Current Charges 597.50

01/27/2017 Payment -940.00

Balance Due \$597.50

To ensure proper credit, please write client number on your check when returning payment. Thank You.
A finance charge of 1.25% per month (15% annually) may be charged on balances not paid 60 days after the invoice date.

OK TO PAY
2-10-17

Memo

To: Municipal Authority
From: Jon Altshul
Re: MA January Financial Report
Date: February 9, 2017

In January, the Municipal Authority recorded \$595 in interest income and \$9,249 in expenses, for a negative variance of \$8,654. Expenses included \$4,340 in regular engineering; \$2922 in engineering for the Reservoir Road Pump Station, \$940 for legal expenses and \$984 for PMAA membership.

As of January 31st, the fund balance was \$1,405,997, of which \$1,371,512 is in the main construction account (most of which represents the 2013 note).

A complete list of all year-to-date expenses and revenues is provided.

EAST GOSHEN TOWNSHIP
1580 PAOLI PIKE
WEST CHESTER, PA
Municipal Authority
January 2017

Account Title	Acct #	Annual Budget	Month To Date Actual	Year To Date Actual
MUNICIPAL AUTHORITY BEGINNING FUND BALANCE			1,415,650.50	
RCSTP BUDGET				
REVENUE				
INTEREST EARNED - RCSTP EXPANSION	07341 1020	3,250.00	594.59	594.59
GRANT REVENUE	07392 0800	0.00	0.00	0.00
TOTAL REVENUE		3,250.00	594.59	594.59
EXPENSES				
R.C.-CAP. PROJ.-ENGINEER	07424 7451	0.00	0.00	0.00
R.C. CAP EXPANSION GEN'L CONTRACTOR	07424 7452	0.00	0.00	0.00
R.C. CAP EXPANSION - ELECTRICAL	07424 7453	0.00	0.00	0.00
R.C. CAP EXP CONTINGENCY CAPITAL	07424 7454	0.00	0.00	0.00
R.C. CAP EXP CONTINGENCY ONGOING	07424 7455	0.00	0.00	0.00
R.C. CAP EXP ADDITIONAL CONTINGENCY	07424 7456	0.00	0.00	0.00
TRANSFER TO SEWER SINKING FUND	07492 0550	0.00	0.00	0.00
TRANSFER TO AUTHORITY CAP FUND	07492 0990	0.00	0.00	0.00
TOTAL EXPENSES		0.00	0.00	0.00
RCSTP NET RESULT		3,250.00	594.59	594.59

EAST GOSHEN TOWNSHIP
1580 PAOLI PIKE
WEST CHESTER, PA
Municipal Authority
January 2017

Account Title	Acct #	Annual Budget	Month To Date Actual	Year To Date Actual
OPERATING BUDGET				
REVENUE				
INTEREST EARNINGS	07341 1000	10.00	0.23	0.23
C.C. TAPPING FEES	07364 1100	14,296.00	0.00	0.00
R.C.TAPPING FEES	07364 1110	0.00	0.00	0.00
CONNECTION FEES - SEWER	07364 1130	0.00	0.00	0.00
MISCELLANEOUS REVENUE	07380 1000	0.00	0.00	0.00
TRANSFER FROM SEWER OPERATING	07392 0500	100,755.00	0.00	0.00
TOTAL REVENUE		115,061.00	0.23	0.23
EXPENSES				
ADMINISTRATIVE WAGES	07424 1400	31,620.00	0.00	0.00
MISCELLANEOUS EXPENSE	07424 3000	2,500.00	987.52	987.52
MUNIC.AUTH.-AUDITING	07424 3110	9,078.00	0.00	0.00
ENGINEERING SERVICES	07424 3130	37,500.00	4,399.50	4,399.50
LEGAL SERVICES	07424 3140	9,250.00	940.00	940.00
M.C.-DVRFA-DEBT SERVICE	07471 1000	26,320.00	0.00	0.00
M.C.-DVRFA-INTEREST PAYMN	07472 1000	0.00	0.00	0.00
M.C.-DVRFA-INTEREST PAYMN	07472 1010	2,043.00	0.00	0.00
TOTAL EXPENSES		118,311.00	6,327.02	6,327.02
OPERATING NET RESULT		(3,250.00)	(6,326.79)	(6,326.79)

EAST GOSHEN TOWNSHIP
1580 PAOLI PIKE
WEST CHESTER, PA
Municipal Authority
January 2017

Account Title	Acct #	Annual Budget	Month To Date Actual	Year To Date Actual
CAPITAL BUDGET				
REVENUE				
LOAN PROCEEDS-SEWER PROJECT	07393 1001	0.00	0.00	0.00
TRANSFER FROM SEWER CAP RESERVE	07392 0900	0.00	0.00	0.00
TOTAL REVENUE		0.00	0.00	0.00
EXPENSES				
MARYDELL PUMP STATION - ENGINEER	07425 1000	0.00	0.00	0.00
MARYDELL PUMP STATION -CONSTRUCTION	07425 2000	0.00	0.00	0.00
MANHOLE COVER REPLACEMENTS	07424.7405	0.00	0.00	0.00
C.C. CAPITAL - COLLECTION	07424.7420	212,486.00	0.00	0.00
LOCHWOOD ABANDONMENT ENGINEER	07424 7475	0.00	0.00	0.00
LOCHWOOD ABANDONMENT CONSTRUCTION	07424 7476	0.00	0.00	0.00
LOCHWOOD ELIMINATION PHASE 2	07424 7477	0.00	0.00	0.00
HERSHEY MILL STATION - ENGINEER	07426 1000	0.00	0.00	0.00
HERSHEY MILL STATION - CONSTRUCTION	07426 2000	0.00	0.00	0.00
RESERVE PUMP STATION - ENGINEER	07427 1000	0.00	0.00	0.00
RESERVE PUMP STATION - CONSTRUCTION	07427 2000	0.00	0.00	0.00
RESERVOIR PUMP STATION - ENGINEER	07428 1000	0.00	2,921.50	2,921.50
RESERVOIR PUMP STATION CONSTRUCTION	07428 2000	0.00	0.00	0.00
ASBSTOS CONCRETE ENGINEERING	07429 3130	0.00	0.00	0.00
DIVERSION PROJ.- LEGAL	07429 3166	0.00	0.00	0.00
TOTAL EXPENSES		212,486.00	2,921.50	2,921.50
CAPITAL NET RESULT		(212,486.00)	(2,921.50)	(2,921.50)
MUNICIPAL AUTHORITY ENDING FUND BALANCE			1,406,996.80	

East Goshen Township General Ledger

Report Date 02/08/17

GL Transaction Details

PAGE 1

MGRP18 run by BRIAN

12 : 15 PM

Acct #	Per	Src	Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
07341-1000	INTEREST EARNINGS					0.00				
	1701 JE		56730		0.23		02/03/17	INTEREST		INTEREST EARNED JANUARY 2017 07 FUND
07341-1000	****	***	*****	0.00	0.23	-0.23				
07341-1020	INTEREST EARNED - CONSTRUCTION					0.00				
					594.59		02/03/17	INTEREST		INTEREST EARNED JANUARY 2017 07 FUND
07341-1020	****	***	*****	0.00	594.59	-594.59				
07424-3000	MISCELLANEOUS EXPENSE					0.00				
	CD		56280	984.30			01/04/17	3040		2132 PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOC 2017 ACTIVE MEMBERSHIP DUES
			56424	3.22			01/13/17	3041		425 EAST GOSHEN TOWNSHIP - GENERAL CORRECT BB&T DEPOSIT OF REMAININ BALANCE OF CLOSED ACCT.1100.1010 07100.1000
07424-3000	****	***	*****	987.52	0.00	987.52				
07424-3130	ENGINEERING SERVICES					0.00				
			56425	4,399.50			01/13/17	3042		1052 PENNONI ASSOCIATES INC. SERVICES THRU 10/16/16 RCSTP & P STATION
07424-3130	****	***	*****	4,399.50	0.00	4,399.50				
07424-3140	LEGAL SERVICES					0.00				
			56550	940.00			01/25/17	3043		528 GAWTHROP GREENWOOD & HALSTED LEGAL SERVICE - DEC. 2016 GEN.AU
07424-3140	****	***	*****	940.00	0.00	940.00				
07428-1000	RESERVOIR PUMP STATION - ENGINEER					0.00				
			56426	2,546.50			01/13/17	22002		1052 PENNONI ASSOCIATES INC. SERVICE THRU 10/16/16 RESERV.RD
			56551	375.00			01/25/17	22003		263 CHESTER COUNTY CONSERVATION DISTRICT RESERVOIR RD. NPDES PLAN REVIEW
07428-1000	****	***	*****	2,921.50	0.00	2,921.50				
Grand Total				9,248.52	594.82	8,653.70				

East Goshen Township General Ledger

Report Date 02/08/17

GL Transaction Details

PAGE 2

MGRP18 run by BRIAN

12 : 15 PM

Acct #	Per	Src Trx #	Debits	Credits	Beg/End Bal	Date	Check/Ref #	ID #	Name/Description
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MEMORANDUM

TO: East Goshen Municipal Authority
Rick Smith, Township Manager
Mark Miller, Public Works Director

CC: Scott Towler, Big Fish Environmental

FROM: Michael Ellis, PE

DATE: February 10, 2017

SUBJECT: RCSTP Alkalinity Chemical Feed Alternatives

Background

The Ridley Creek Sewage Treatment Plant (RCSTP) currently uses 350 to 450 lbs/day of sodium carbonate (soda ash) for pH control and alkalinity addition. The chemical is delivered in pallets of 50-lb bags. Each pallet contains 20 bags for a weight of 1000 lbs/pallet. Two pallets are currently delivered to the RCSTP each week. On average, 8-9 bags are loaded into the SBRs each day (2-3 bags/SBR tank/day).

Upon delivery, the pallets are unloaded and transported to the top of the paved access path and stored in a shed that is located next to the SBR walkway. The shed floor is at the same level as the SBR walkway. However, the pallets can only be transported when the PW Department brings their excavator/loader to the plant, which typically occurs every 1-2 weeks. When deliveries are made without the excavator/loader at the plant, the pallets are set and stored in the original control building, which is approximately 22 feet below the SBR walkway, until they can be moved to the upper shed. The soda ash bags are carried by the operator from the shed and manually fed directly into the top of the SBR tanks. Periodically, the bags have to be manually carried from the original control building up the stairs to the SBR tanks.

This soda ash operation is not ideal due to inefficient feeding and transporting and operator safety concerns. The shed is also not sized to accommodate multiple pallets. Further, the plant is currently operating at approximately 50% of its design capacity, so the amount of chemical to be fed to the SBRs could double once the plant is at or near full capacity in the future.

Pennoni was asked to briefly review the situation and develop alternatives and recommendations as to other available forms of alkalinity addition and/or automated chemical feeders.

Alkalinity

Alkalinity is the ability of an aqueous solution to neutralize an acid (in other words, the strength of the bases in the solution). Alkalinity addition is used to supplement the alkalinity consumed in the nitrification process and the alkalinity that is used to neutralize the acidity from alum addition, and to a lesser degree PAC addition for phosphorous removal. It also assists the operator with maintaining SBR pH above 7.0 standard units. Without a source of alkalinity, the treatment for total nitrogen and phosphorus removal would be jeopardized.

The common forms of alkalinity are: sodium carbonate (soda ash), sodium bicarbonate (baking soda), magnesium hydroxide (milk of magnesia), sodium hydroxide (caustic soda), and hydrated calcium hydroxide (lime). Sodium bicarbonate and magnesium hydroxide have advantages that they provide buffering to a treatment process. The pH will not rise above 8.3. The other chemicals require pH monitoring to ensure that the pH stays in the neutral range.

Liquid and Dry Chemicals

Liquid chemical is transported in drums, 350 gallon totes, or bulk carrier (tanker truck). For some liquid chemicals, partial bulk loads are available.

Liquid chemical can be fed from a drum, tote, or bulk storage tank. If receiving a full truck load, the bulk tank needs to be large enough to receive a truck load while maintaining a residual volume of liquid chemical.

Dry chemical is transported in bags, 1-ton super sacks, or 20-ton bulk carriers.

Dry chemical can be fed neat as a powder or as a liquid solution or slurry. To feed as a powder, the chemical is fed from a bin with a screw conveyor directly into an application point. The screw conveyor is used to feed chemical into a solution tank from which a liquid feeder is used. **For the RCSTP, we recommend a solution feeder.**

The bin can be filled from a silo, elevating a super sack above it, or dumping in individual bags. If the product is free running such as sodium bicarbonate, the bin is separated from the silo. If the product is not, then the silo can be placed over the bin. If the bin is being filled by bags, an elevated stand with a pallet jack is normally provided so that the operator has an easier time of handling the bags. The super sack is either hoisted into place with a dedicated gantry hoist, or a fork truck can be used. Using a small screw conveyor to transfer super sacks or bags into a smaller silo or larger bin is a possibility. In this way, smaller quantities can be received and handled.

Alkalinity Chemical Alternatives

The dry alkalinity chemicals are hydrophilic so dry air must be circulated through a bin or silo to prevent clumping.

1. Sodium carbonate (soda ash) is typically delivered as a dry chemical. It is available as a 15% solution in drums or totes. At 1.4 lbs/gallon, one tote would last less than two days. If sodium carbonate would be continued to be used for this application, the product would need to be received dry. A silo, a larger bin with super sack or bag transfer, or a bag fed solution tank could be used to store and feed chemical.
2. Sodium bicarbonate (baking soda) is typically delivered as a dry chemical. Sixty percent more sodium bicarbonate would need to be fed than the current sodium carbonate. This product would be handled similarly as the sodium carbonate.
3. Magnesium hydroxide is delivered as a truck load slurry. The weight percent is approximately 50 percent. Feeding magnesium hydroxide slurry has its own problems. The slurry cannot be allowed to sit. If the pump stops, the pump, discharge piping, and suction piping need to be flushed. Large plants are candidates for magnesium hydroxide.

4. Sodium hydroxide (caustic soda) is delivered as a liquid, typical solution weight percentages are 25 and 50 percent. 50 percent caustic will freeze or solidify at 55°F. 25 percent caustic freezes at minus 20°F so it will not freeze in our climate. There are savings in transportation costs with 50 percent caustic. However, most plants of the RCSTP size opt for the 25 percent to avoid the handling requirements of the more concentrated chemical.
5. Hydrated calcium hydroxide (lime) has two issues. It is received as a dry chemical, and to feed in the liquid form it needs to be slurry since its solubility is low and it would be impractical to feed it as a solution.

Recommendation – 25% caustic soda is recommended since it is liquid chemical and will not require the additional equipment and operation of a dry chemical application. Further, the liquid chemical can be stored outside and can be delivered as a liquid in mini-bulk.

Chemical Feed Location and Control Alternatives

The pH in each SBR tank is currently manually checked daily by the operator. It is our understanding that continued manual pH sampling is preferred since it is not a hardship to the staff and to avoid additional maintenance and periodic inaccurate data that can be typical of automated pH probes in wastewater.

1. Directly into SBR tanks. This would require four separate chemical feed pumps and piping systems from the chemical feed tank. It would also require automated monitoring of pH in each individual tank and a control system for the dosing to each tank, or daily manual re-setting of the four feed pumps at a constant rate based upon manual pH readings.
2. Into the pressure wastewater piping between the influent wet well and SBR tanks. This would require the chemical feed to be injected into a pressurized pipe, which is not the most desirable alternative. However, only one chemical feed pump would be needed, and it could be set to inject chemical at a set rate when the wet well pumps run.
3. Into the Influent Wet Well or Screen Building. The chemical would be fed directly into the wet well or screen building channel. This would require one chemical feed pump system and would likely be the least costly alternative. The chemical feed could be manually set at a constant rate at all times and be reset by the operator as needed based on manual pH readings. Alternatively, it could be automatically controlled via influent flow metering, wet well pump on-off cycles, or automated pH monitoring in the SBR tanks. It may also be possible to set up a single automated pH monitoring probe on the common discharge piping between the SBR tanks and the equalization tanks.

Recommendation – Inject the caustic soda into the channel in the screen building so as to only need one chemical feed pump that can be programmed to pump at a constant rate at all times with manual adjustments made by the operator as needed based on manual pH readings in the SBR tanks. This avoids the cost, maintenance, and reliability concerns of additional pumps, automation, and controls.

Storage Tank

Based upon the current consumption of soda ash, an average of 125 gpd of 25% caustic soda is estimated to be used. Since the plant is operating at approximately half its hydraulic design capacity now, this quantity could double if/when the plant becomes fully loaded. Jar testing should be performed to confirm this caustic soda demand and to set a feed rate.

According to Coyne Chemical, their largest bulk delivery is 45,000 pounds, which is approximately 4,200 gallons of caustic soda. This would last approximately 33 days at the current average usage of 125 gpd. However, the delivery companies have been reluctant to make bulk deliveries due to truck access challenges. For planning purposes, if the chemical storage tank were sized to hold a full bulk delivery volume while still holding several days of residual operating volume, we would recommend a 6,000-gallon tank, which will be somewhat larger than currently needed but will be sized to better accommodate the needs if/when the plant is at its full hydraulic loading capacity.

Coyne Chemical offers a tank level monitoring system with a liquid level sensor and cellular communication system that allows them to monitor the liquid level and to schedule deliveries as needed without requiring notification from the operator. This also allows them to make partial deliveries when they are in the area with a delivery truck with a small volume leftover, potentially at decreased costs. Coyne will typically install and maintain this system, including any cellular fees, at no cost to the client.

The tank can be located outside next to the screen building. It could be positioned in the footprint of the old equalization tank if that tank were to be demolished. It should be a high density cross-linked polyethylene (HDXLPE) double containment tank placed inside a containment curb to contain spill and drips. The chemical feed pump(s), electric supply/outlets, and any controls would need to be in a weather-protected environment, but they are not recommended inside the screen building since that is a Class 1 Div 1 hazardous space, requiring significant increased costs for explosion proof equipment. The most cost effective solution would be to place the pump(s), electric, and any controls in a small heated shed or hot box adjacent to the new tank and screen building.

Trial Approach

The Municipal Authority has inquired if an inexpensive test/trial run of the caustic soda feed into the screen building could be established for a couple months prior to committing to a permanent treatment change. There are two approaches: (1) pump from totes, or (2) pump from a small tank with mini-bulk service. Our understanding is that the chemical delivered costs are similar for either option. Pumping from totes would require that totes be moved every 3 to 4 days.

A 1500-gallon temporary tank could be used to hold the caustic inside a containment system. The metering pumps could also be wrapped in plastic sheeting for wet weather protection and placed inside the containment. The containment would have dimensions of 15 feet x 15 feet and a height of 12 inches. The temporary plastic containment would be constructed of wood and lined with a heavy mil HDPE plastic sheeting. The containment and tank would be placed on a well compacted modified crushed stone pad with plywood on top. Feed tubing could be run inside of PVC carrier pipe to take suction from the tank to the pumps to the discharge point.

The pumps would be electronic solenoid pumps and require 120 volts. The pumps would run 24 hours per day at a constant flow rate. Estimated costs for this trial run set up with a 1500-gallon tank follow:

Tank and Pump Installation		\$ 20,450
Electrical installation		<u>\$ 6,750</u>
	Subtotal	\$ 27,200
Contingency		<u>\$ 5,440</u>
	Subtotal	\$ 32,640
Contractor @ 10%		<u>\$ 3,264</u>
	Subtotal	\$ 35,904
Engineering & permitting @ 20%		<u>\$ 7,181</u>
	Total	\$ 43,085

Alternatively, totes could be placed inside the containment with a fork truck. A tote platform would be elevated so that the platform top would be higher than the containment walls. The estimated costs for this trail run set up follow:

Tank and Pump Installation		\$ 14,950
Electrical installation		<u>\$ 6,750</u>
	Subtotal	\$ 21,700
Contingency		<u>\$ 4,340</u>
	Subtotal	\$ 26,040
Contractor @ 10%		<u>\$ 2,604</u>
	Subtotal	\$ 28,644
Engineering & permitting @ 20%		<u>\$ 5,729</u>
	Total	\$ 34,373

Permitting

Since this is a change to the treatment process, an amendment to the plant's Water Quality Management Part II Permit would likely be required even for a trial run. This permit application would need to include permit forms, a narrative, and design plans. The application would take 1-2 months to prepare, and DEP has 4 months to review the application. We anticipate that review could be completed in a shorter period of time, but the entire process is likely to take 4-6 months from approval to proceed to permit issuance.

Costs and Payback Period

In 2016, the plant accepted 152,850 pounds of soda ash. The chemical was delivered in 3,057 fifty-pound bags. The total cost to the Township from their Vender Expenditure History report was \$45,309 for the year.

The estimated equivalent quantity of 25% caustic soda is 43,903 gallons per year. For mini-bulk service, we have received a cost from Coyne Chemical of \$1.50 per gallon delivered. The estimated cost for an equivalent quantity of 25% caustic solution is \$66,000 per year.

A caustic tank has not been included in the capital costs. Our understanding is that the tanks can be provided by the chemical supplier.

Our opinion of probable design, permitting, and construction costs for a permanent caustic soda treatment alternative follows:

Tank and Pump Installation		\$ 40,850
Electrical installation		<u>\$ 28,800</u>
	Subtotal	\$ 69,650
Contingency		<u>\$ 13,930</u>
	Subtotal	\$ 83,580
Contractor @ 10%		<u>\$ 8,358</u>
	Subtotal	\$ 91,938
Engineering & permitting @ 20%		<u>\$ 18,388</u>
	Total	\$ 110,326

END OF MEMO