

**AGENDA**  
**EAST GOSHEN TOWNSHIP**  
**BOARD OF SUPERVISORS**

Tuesday, June 7, 2016  
7:00 PM

1. Call to Order
2. Pledge of Allegiance
3. Moment of Silence – Supervisor Carmen Battavio
4. Ask if anyone is recording the meeting
5. Chairman’s Report
  - a. Announce that on May 31, 2016, the Board met in Executive Session to discuss a personnel matter and that the Board meet prior to tonight’s meeting to discuss a Police personnel matter and a legal matter.
  - b. Announce that Sergeant David Leahy has been promoted to Lieutenant and that Ryan Benningfield, Mark McKinney and Joshua Micun have been promoted to full time Patrol Officers.
  - c. Announce that on June 28, 2016 @ 7 pm, the Board will hold a special meeting at the Goshen Fire House, 1320 Park Avenue, to review and discuss the various options and make a decision for the Hershey Mill Dam and Milltown Reservoir Dam.
6. Public Hearing – none
7. Emergency Services Reports
  - WEGO – none
  - Goshen Fire Co. - none
  - Malvern Fire Co – none
  - Fire Marshal – none
8. Financial Report – none
9. Old Business
  - a. Consider Gannett Fleming Review of Hershey Mill Dam Cost Estimates.
  - b. Consider Sorrell Hill Homeowner Association’s request to amend Swimming Pool Setbacks for a Single Family Open Space Development.
10. New Business
  - a. Consider Milltown Reservoir Sediment Report.
  - b. Consider Planning Commission recommendation for the Subdivision of 943 Cornwallis Drive.

- c. Consider participation in West Chester Area Council of Governments Regional Police Study.
- d. Consider adding WSFS Bank and Fulton Bank to the list of Township depositories.
- e. Consider authorizing Township Manager to execute letter and signal permit application for the Boot Road Restriping Project.
- f. Consider recommendation to replace the flat roof at the Township Building.
- g. Consider recommendation to replace the 2003 Tilt Trailer.
- h. Consider recommendation to replace Utility/Crane Truck.
- i. Consider a Resolution authorizing submission of a DCED-GTRP grant application for the Playground renovation.
- j. Consider engineering proposal for Paoli Pike Trail Segment C.
- k. Consider recommendation from Planning Commission concerning the Zoning Ordinance.

11. Any Other Matter

12. Approval of Minutes

- a. May 3, 2016
- b. May 17, 2016
- c. May 25, 2016

13. Treasurer's Report

- a. June 2, 2016

14. Correspondence, Reports of Interest

- a. April 27, 2016 Letter from Charles MacDonald suggesting a tunnel under Paoli Pike at the pedestrian crossing.
- b. May 31, 2016 Letter from Mars Drink advising they have filed an application for a Sate Only Air Operating Permit with PADEP.

15. Public Comment – Hearing of Residents

16. Adjournment

The Chairperson, in his or her sole discretion, shall have the authority to rearrange the agenda in order to accommodate the needs of other board members, the public or an applicant.

Dates of Importance

|              |  |         |
|--------------|--|---------|
| Jun 7, 2016  | Board of Supervisors                   | 7:00 pm |
| Jun 8, 2016  | Conservancy Board                      | 7:00 pm |
| Jun 9, 2016  | Historical Commission                  | 7:00 pm |
| Jun 13, 2016 | Municipal Authority                    | 7:00 pm |
| Jun 15, 2016 | Futurist Committee                     | 7:00 pm |
| Jun 21, 2016 | Board of Supervisors                   | 7:00 pm |
| Jun 28, 2016 | Board of Supervisors (Special Meeting) | 7:00 pm |

\*Newsletter Deadline for fall of 2016: August 1, 2016



*Westtown-East Goshen Regional Police Department  
1041 Wilmington Pike  
West Chester, PA 19382*

*May 11, 2016*

*The Westtown-East Goshen Regional Police Department is proud to announce the following promotions:*

- *Lieutenant David Leahy*
- *Officer Ryan Benningfield (full-time)*
- *Officer Mark McKinney (full-time)*
- *Officer Joshua Micun (full-time)*

*The Honorable William D. Kraut will conduct the official swearing in which will take place on Thursday, June 9, 2016, at 5:00 p.m. The ceremony will take place in the Training Room of the Department. You are invited to attend and support our newly promoted officers.*

*Immediately following the ceremony, we invite you to celebrate with us at the Department with light refreshments.*

*Brenda M. Bernot  
Chief of Police*

**BOARD OF SUPERVISORS**  
EAST GOSHEN TOWNSHIP  
CHESTER COUNTY  
1580 PAOLI PIKE, WEST CHESTER, PA 19380-6199

May 27, 2016

Dear Resident:

East Goshen Township owns and operates two dams; the Milltown Reservoir Dam, located on Reservoir Road, just north of West Chester Pike, and the Hershey Mill Dam, located on Greenhill Road just east of Hershey Mill Road. Both dams are regulated by the Pennsylvania Department of Environmental Protection who has advised the Township that both dams do not meet their current requirements. The concern is that during a major rain event the dams could fail.

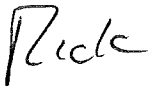
In accordance with Township policy this letter is being sent to the owners of property within 1,000 feet of both of the dams.

This letter is to advise you that the Board of Supervisors will hold a special meeting on Tuesday, June 28, 2016 @ 7 pm at the Goshen Fire House located at 1320 Park Avenue, West Chester, PA 19380.

The purpose of the special meeting is to review and discuss the various options and make a decision for each dam.

Information on both dams is available under the "About Us" on the Township Web Site ([www.eastgoshen.org](http://www.eastgoshen.org)).

Sincerely,



Louis F. Smith, Jr.  
Township Manager



Excellence Delivered **As Promised**



May 13, 2016

Mr. Rick Smith, Jr., Township Manager  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380-6199

Dear Mr. Smith,

**Subject: Dam Related Engineering Services for East Goshen Township  
Hershey Mill Dam (DEP ID No. D15-125)  
Construction Cost Review**

East Goshen Township (Township) is currently in the process of evaluating alternatives for either modifying or breaching Hershey Mill Dam (DEP ID No. D15-125). Preliminary cost estimates for three options were provided to the Township in an April 6, 2016 letter from Edward B. Walsh & Associates. As requested by the Township, Gannett Fleming reviewed information provided for each option and is providing an opinion on the construction costs and feasibility of the three options. The three options being considered are described below.

**Option 1 – New Auxiliary Spillway.** Includes adding a 58-foot-wide auxiliary spillway adjacent to the existing 22-foot-wide principal spillway and raising the top of dam by as much as 1.5-feet in some areas to elevation 450.5 in order to convey the 100-year flood without overtopping the embankment. The crest of the new auxiliary spillway will be four inches higher than the crest of the principal spillway. The Township has secured a permit from the Pennsylvania Department of Environmental Protection (DEP), Division of Dam Safety for this option. The permit was issued on July 7, 2014. The construction cost prepared by Edward. B. Walsh & Associates for this option is \$302,025.

**Option 2 – Lower Principal Spillway.** Option 2 involves lowering the crest of the principal spillway 6 feet and removing upstream sediment deposits as needed by excavating pilot channels through the reservoir to direct flows towards the spillway. The construction cost prepared by Edward. B. Walsh & Associates for this option is \$96,456.

**Option 3 – Decommission Dam.** Option 3 involves breaching the embankment down to the natural streambed and re-establishing the stream channel through the sediment deposits in the reservoir. The construction cost prepared by Edward. B. Walsh & Associates for this option is \$97,674.

Gannett Fleming, Inc.

P.O. Box 67100 • Harrisburg, PA 17106-7100 | 207 Senate Avenue • Camp Hill, PA 17011-2316

t: 717.763.7211 • f: 717.763.8150

[www.gannettfleming.com](http://www.gannettfleming.com)

**DOCUMENTS PROVIDED FOR REVIEW:**

The opinions provided within this letter were developed based information presented in the following documents:

- Letter from Edward B. Walsh & Associates, Inc., dated April 6, 2016 containing a breakdown of the estimated construction costs for Options 1, 2 and 3.
- Construction drawings (six sheets) entitled “Restoration Plan for Hershey’s Mill Dam” as prepared by Edward B. Walsh & Associates, last revised June 11, 2014.
- Dam Permit issued by DEP, Division of Dam Safety on July 15, 2014.
- East Goshen Township Memo by Rick Smith dated March 17, 2016.

Only Option 1 has been advanced to the point where permits have been obtained. No drawings, concept sketches, or construction quantities for Options 2 and 3 have been provided.

**GANNETT FLEMING OPINIONS**

*Option 1 – New Auxiliary Spillway.* In the absence of supporting calculations for the new auxiliary spillway shown on the drawings prepared by Edward B. Walsh & Associates, there appear to be certain components of the design that may require additional investigation. Based on our cursory review of the information provided, the following provides our opinion on the estimated construction cost and areas where additional detail may be needed.

- Risk of Flood Damage During Construction: The construction cost estimate includes \$17,550 for water control during construction of which \$12,350 consists of pumping the stream(s) around the work area or over the existing spillway for a period of up to 1 month. The proposed pumping system would need to be operated continuously for at least a month. The specified cost appears to be very low for this critical work item. In addition, diversion and care of water for dam projects carries substantial risk, and this risk is normally transferred to the Contractor, since the contractor controls the site and the means and measures to divert the flow through the work area. The risk associated with providing diversion and care of water during construction does not appear to be reflected in the current construction cost estimate. It is likely that during the construction period, a heavy rainfall will occur that will exceed the capacity of the proposed pumping system and flood the construction site. In addition to damaging work in progress, there is the potential to damage the adjacent dam features and/or cause sediment deposits within the reservoir to be flushed downstream. Any changed conditions encountered during construction, or bad weather, could also delay the project and extend the time needed to pump the flow around the work area.

- Dewatering the Site: Construction of the proposed auxiliary spillway involves placement of a concrete slab on a suitable foundation. In order for this to take place, the foundation excavation must be fully dewatered and dry. This is typically accomplished through the use of sump pits and/or groundwater dewatering wells. Foundation dewatering does not appear to be reflected in the current cost estimate.
- Unknown Foundation Conditions: No subsurface or foundation information for the new Auxiliary spillway is provided on the drawings. It is unclear if subsurface investigations have been performed to sample foundation materials, locate bedrock and classify the soils located within/under the proposed auxiliary spillway. Therefore the foundation conditions for the auxiliary spillway appear to be unknown. Understanding the foundation conditions for the auxiliary spillway is important. If the spillway is founded on erodible overburden material, which appears to be the case, the auxiliary spillway design should include a seepage analysis and would likely require a seepage cutoff wall and filtered drain system to control seepage under the structure and prevent a piping failure. If the auxiliary spillway structure is founded on bedrock, foundation treatment would include additional excavation and effort to clean and inspect the foundation rock, and place backfill concrete to the desired foundation grade.
- Seepage, Collection and Filter System: The drawings indicate the addition of a short filter diaphragm at the left end of the proposed spillway to collect seepage which may occur around the left end of the spillway. No seepage collection and filtering system is shown for seepage under the spillway. It is recommended that this feature be considered in the design, especially if the auxiliary spillway is founded on erodible material.
- Fill Materials, Placement, Compaction and Testing: The drawings indicate that material removed from the embankment to construct the spillway expansion will be stockpiled and reused to backfill the spillway. While this appears to be a reasonable approach, no information is provided to confirm if this material is suitable as “impervious” backfill. Pending soil test results, offsite “impervious” material may need to be imported to the site at an additional cost. No information on fill placement, compaction and testing requirements could be found within the information provided.
- Sheet Pile Wall Details: The design shows placement of a steel sheet pile wall running upstream-downstream through the embankment along the left side of the principal spillway to support the excavation for the new auxiliary spillway. It is assumed that the sheet pile wall will remain in place at the completion of the project. The placement of this sheet pile wall will create a potential seepage path through the embankment. Seepage treatment details for the sheet pile wall are not shown on the drawings.
- Stone Facade Details: The downstream face of the proposed spillway contains a vertical concrete wall that is to be treated with a stone facade to match the appearance of the existing spillway. Information such as the thickness of the stone facade, how the facade will be anchored to the vertical concrete wall, etc. are not clearly evident from the information provided. Such details may impact the cost of the facade and may also



necessitate modifications to the spillway cross section (i.e., additional detail needed for the concrete foundation that supports the facade and the length that the spillway crest slab overhangs the facade).

- Concrete Details: The proposed spillway is to be comprised of a concrete foundation slab, a vertical concrete wall at the downstream face of the spillway, a concrete slab for energy dissipation downstream of the spillway and a concrete slab to form the crest of the spillway. Given the length and width of the proposed concrete features, construction and expansion joints with waterstops will be required to control cracking of the concrete and seepage through the structure.
- Potential for Changed Conditions: Rehabilitation of existing dams often includes working with limited information, especially when as-built records and subsurface information are not available for the structure. During excavation for the proposed modifications, unanticipated features and conditions can be encountered that can substantially impact the intended design or require additional modifications to the dam. The Township should include a contingency in their budget for this option to address the potential for changed conditions. Contingencies in the range of 20 to 30 percent are appropriate for the unknowns associated with Option 1.

Based on the above, the current estimate of \$302,025 appears low for Option 1.

***Option 2 – Lower Principal Spillway.*** Without a detailed design, construction quantities, or a detailed description of what is included in Option 2, we are unable to determine if the construction cost estimate of \$97,000 is reasonable. However, we offer the following opinions related to unit costs, many of which are applicable to Options 1, 2 and 3:

- Mobilization and Demobilization: These costs are typically assumed to be approximately seven (7) percent of the construction cost. The mobilization costs provided in the estimates are in the vicinity of one (1) percent.
- Excavation Costs: Excavation costs for common earth normally range between \$5 and \$20 per cubic yard depending on the volume of material, type of equipment used, and haul distance for spoiling the material. Excavation costs provided in the estimate assume a unit cost of \$5 per cubic yard. We would also anticipate an additional cost to spoil, compact, grade and stabilize the material once it is at its final destination. Onsite spoiling costs may be in the range of \$5 to \$10 per cubic yard of material.
- Erosion and Sediment Control Costs: The erosion and sediment control costs appear to be reasonable for the scale of the project.
- Potential for Changed Conditions: As discussed under Option 1, rehabilitation of existing dams often includes working with limited information, especially when as-built records and subsurface information are not available for the structure. During excavation for the proposed modifications, unanticipated features and conditions can be encountered

that can substantially impact the intended design or require additional modifications to the dam. The Township should include a contingency in their budget for this option to address the potential for changed conditions. Contingencies in the range of 30 percent are appropriate for conceptual designs. The cost estimate provided within the Edward B. Walsh & Associates letter dated April 6, 2016 contains a contingency of approximately 14 percent. Given the above, we would recommend increasing the contingency.

Assuming the items/quantities listed in the Option 2 cost estimate are reasonable and comprehensive of the project, the construction cost estimate of \$97,000 appears low based on the observations listed above.

**Option 3 – Decommission Dam.** Similar to Option 2, without a detailed design, construction quantities, or a detailed description of what is included in Option 3, we are unable to determine if the construction cost estimate of \$97,000 is reasonable. However, the comments offered with respect to Option 2 also apply to Option 3. In our opinion, the main uncertainty and risk associated with Option 3 is the control of water and the management of the reservoir sediment. The construction cost estimate has allocated \$11,760 for the control of offsite runoff through the work area. Depending on the methods used and the length of time for which these facilities must be maintained, these costs may be low. The volume of sediment to be removed and the location where the sediment will be spoiled will significantly influence the construction costs. It is our understanding that sediment sampling performed by URS in 2008 found the reservoir sediments to be “clean”; therefore, the reservoir sediments can be spoiled onsite. Assuming the items/quantities listed in the Option 3 cost estimate are reasonable and comprehensive of the project, the construction cost estimate of \$97,000 appears low based on the observations listed above.

An option that does not appear to have been considered is to lower the entire dam to the point where it is no longer a regulated structure and retains the reservoir sediment. This approach may be less expensive than decommissioning the dam if removal of substantial sediment deposits is required.

In summary, it is our opinion that the construction cost estimates for Options 1, 2 and 3 are on the low side. The cost for Option 3, however, may be diminished by obtaining outside funding through a grant or if the project is used to mitigate environmental impacts for another project.

***Gannett Fleming***  
Mr. Rick Smith  
East Goshen Township

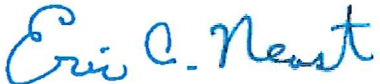
6

May 13, 2016

If you have any questions or need additional information, please do not hesitate to call me or Paul Schweiger at 717-763-7212, extensions 2828 and 2504, respectively.

Sincerely,

GANNETT FLEMING, INC.  
Environmental Resources Division



ERIC C. NEAST, P.E.  
Project Manager  
Dams and Hydraulics Section



EDWARD B. WALSH & ASSOCIATES, INC.  
*Complete Civil Engineering Design / Consultation Services*  
Lionville Professional Center  
125 Dowlin Forge Road  
Exton, PA 19341

April 6, 2016

Option One - Dam Improvement per DEP approved plan:

Risbon Excavating provided a quote for construction of the concrete spillway and berm improvements. The quoted amount was \$ 204,521.00 (see attached for line item / cost breakdown). Following the bid there were additional plan revisions required by DEP. The construction costs associated with plan revisions following construction bid provided by Risbon Excavating are the following:

1. Install sheet piling to contain dam embankment beyond spillway construction area = \$ 40,900.00
2. Install underdrain system beyond walls = \$ 7,200.00
3. Existing wall extension to new top of berm height = \$3,800.00
4. Construction stakeout = \$ 4,700.00 (this line item was excluded from Risbon price)
5. Quote adjustment factor for inflation = \$ 40,904.00

These items are added to the quote of \$ 204,521.00

Total cost = \$ 302,025.00

OptionTwo - Lower the spillway six feet and partial removal of impounded sediment:

Individual unit quantities and costs are as follows:

1. Same line items as 1, 3, and 4 from Risbon bid (subtotal = \$ 28,500.00)
2. E & S controls
  - Rock Construction entrance \$3,500.00
  - 600 LF of Filter Sock \$ 3,780.00
  - Stabilize disturbed area \$ 1,200.00
3. Excavation of soil behind spillway down to new spillway elevation = 510 CY @ \$5/CY = \$2,550.00 (assumes material to be set in lake area )
4. Stream elevation adjustment in bottom of lake to meet new spillway elevation = \$ 4,150.00
5. Spillway construction
  - Existing spillway demolition \$6,200.00
  - Construct new spillway (same width as existing but six feet lower) = \$30,430.00
6. Rip rap scour protection = \$4,180.00
7. Contingency amount = \$11,966.00

Total = \$96,456.00

Option Three - Remove the spillway and removal of impounded sediment:

Individual unit quantities and costs are as follows:

1. Mobilization = \$800.00
2. Water control / bypass pumping = \$11,760.00

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610-903-0060 FAX 610-903-0080  
www.ebwalshinc.com  
Established 1985

3. E & S controls
    - Rock Construction entrance \$3,500.00
    - 800 LF of Filter Sock \$ 5,040.00
    - Stabilize disturbed area \$ 10,220.00
  4. Excavation of soil behind spillway = 6,700 CY @ \$5/CY = \$33,500.00 (assumes material to be set in lake area )
  5. Stream reconstruction = \$ 16,850.00
  6. Spillway demolition and removal of material = \$3,850.00
  7. Contingency amount = \$12,154.00
- Total = \$97,674.00

PAGE-2-  
FRIENDS OF HERSHEY MILL DAM  
RESTORATION- EXC. BID

|  |             |
|--|-------------|
| 4) Water Control Cont.-  |             |
| c) dig new stream path to straighten and allow for lowering of pond-   | \$2,700.00  |
| 5) Spillway-   |             |
| a) build berm around work area to protect from pond w/fill from pond bottom-   | \$1,350.00  |
| b) demo/remove and stockpile existing stone wall @ new spillway area-  | \$ 500.00   |
| c) dig for new spillway-   | \$2,933.00  |
| 1) stockpile to use as backfill  |             |
| d) dig footers-  | \$1,480.00  |
| e) pour new spillway as per plans-   | \$91,300.00 |
| f) backfill walls of spillway w/compaction using material removed during dig of new spillway-                                      | \$6,800.00  |
| g) install rip-rap scour protection in front of new spillway-  | \$4,180.00  |
| h) re-grade berm to reach new elevation and width-   | \$2,200.00  |
| 6) Lower pond bottom elevation to achieve a 6'ft deep pond; push spoils to sides and middle to create an island in middle of pond- | \$34,960.00 |
| 7) Misc.-  |             |
| a) grout under existing spillway lip to stop undermining-  | \$2,500.00  |

**TOTAL PROPOSAL- \$204,521.00**

RISBON EXCAVATING, LLC  
71 RISBON ROAD  
HONEY BROOK, PA 19344  
PH(610)286-5173/FAX(610)286-5141  
email- [risbonexc71@aol.com](mailto:risbonexc71@aol.com)

FRIENDS OF HERSHEY'S MILL DAM  
1034 HERSHEY MILL RD.  
WEST CHESTER, PA 19380  
PH(610)296-4210/CELL(610)804-1122  
email- [nbde@verizon.net](mailto:nbde@verizon.net)

Att: Neil DeRiemer

Re: DAM RESTORATION/NEW SPILLWAY  
EXC. BID

**Bid to Include:**

|   |             |
|---|-------------|
| 1) Mobilization-  | \$ 800.00   |
| 2) E & S-   |             |
| a) install 600lf of 18" silt sox-   | \$3,780.00  |
| b) install 50lf of 18" silt fence-  | \$ 88.00    |
| c) erosion control mat-   |             |
| 1) 10,000sf on re-graded dam breast-  | \$6,100.00  |
| 2) 15,000sf on sides of pond after lowering pond<br>bottom elevation and placing spoils on sides<br>of pond-                    | \$9,150.00  |
| d) install/remove rock construction entrance off<br>Greenhill Rd. to work area at new spillway-                                 | \$3,500.00  |
| e) install/remove temporary access/construction<br>entrance off Hershey Mill Rd.-   | \$2,500.00  |
| 3) Clearing-  |             |
| a) remove trees/stumps from dam breast and along<br>Hershey Mill Rd. to allow for spoils to be placed;<br>haul stumps off site- | \$12,850.00 |
| 4) Water Control-   |             |
| a) build cofferdam upstream of existing spillway<br>to allow for pumping stream-  | \$2,500.00  |
| b) pump stream(s) around work area to or over existing<br>spillway for a period of up to 1 month (4) weeks-                     | \$12,350.00 |

# **Memo**

## **East Goshen Township**

Date: March 17, 2016  
To: Board of Supervisors  
From: Rick Smith, Township Manager  
Re: Hershey Mill Dam

The attached worksheet outlines the cost to:

- Improve Spillway so that the dam will pass the design storm,
- A Partial Breach (lowering the existing concrete spillway by six feet) as suggested by PADEP,
- A Full Breach

Under the Improve Spillway option, we would be responsible for all of the typical costs associated with operating and maintain a dam.

If we went with the Partial Breach and Full Breach options we would still incur some expense to maintain the lowered dam or the open space.

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# Hershey Mill Dam 30 Year Life Costs

3/18/2016

| Option                  | Design/Permit | Bidding | Construction | Inspection                     | Contingency                     | Total     | Yearly                                   | 30 Year Cost |
|-------------------------|---------------|---------|--------------|--------------------------------|---------------------------------|-----------|--|--------------|
| <b>Improve Spillway</b> | \$37,160      | \$3,300 | \$302,025    | 5% of Construction<br>\$15,101 | 10% of Construction<br>\$30,203 | \$387,789 | \$4,000<br>Inspection and/or Maintenance | \$458,054    |
| <b>Partial Breach</b>   | \$11,100      | \$3,300 | \$96,456     | \$4,823                        | \$10,756                        | \$126,434 | \$2,000                                  | \$266,965    |
| <b>Full Breach</b>      | \$11,100      | \$3,300 | \$97,674     | \$4,884                        | \$10,877                        | \$127,835 | \$2,000                                  | \$268,366    |

**Comments**

**Design/Permit**

See 2/3/12 proposal for Improve Spillway cost. This work has been completed and we have a permit

See 12/29/15 proposal for Partial Breach cost

Based on 3/16/16 conversation with Adam ok to use Partial Breach estimate for Full Breach

**Bidding**

See 8/27/14 proposal for bidding costs

**Construction**

See 3/16/16 cost estimate

**Inspection**

Based on 3/16/16 conversation with Adam use 5% of construction cost

**Contingency**

Based on 3/16/16 conversation with Adam use 10% of Construction Cost since we have the plans and permit for the Improve Spillway Option

Based on 3/17/16 conversation with Adam use 10% of Design/Permit and Construction Cost since we do not have the plans and permit for the Partial Breach or Full Breach Options.

**Yearly Costs**

Assume Annual Inspection @ \$2,000 & Routine Maintenance @ \$2,000 for Improve Spillway Option

Assume Routine Maintenance @ \$2,000 for Partial Breach and FullBreach Options



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125 Dowlin Forge Road  
Exton, PA 19341

March 16, 2016

Mr. Rick Smith, Township Manager  
East Goshen Township

**RE: Hershey's Mill Dam, East Goshen Township, Chester County**

Dear Mr. Smith:

Pursuant to your request I have completed a cost analysis for multiple options for modifications to the Hershey Mill Dam to satisfy the requirements previously established by DEP with respect to the Dam. The following options were considered in the cost analysis:

1. Improve the current dam and spillway per the DEP approved plans to construct a new spillway. Included in this cost is excavation to increase the ponding depth available. The excavated material would stay in the lake area to create an upland area.

**Estimated Cost = \$302,025.00**

2. Lower the existing spillway (six feet) to ensure the 100 year storm event can be contained to the spillway area. The cost includes the excavation needed to remove the fill behind the existing spillway down to the elevation for the new spillway. The cost also includes the construction of a new spillway in the location of the existing one as it is anticipated that the existing spillway foundation is not sufficient for loading that would occur with a new concrete spillway system.


**Estimated Cost = \$96,456.00**

3. Remove the spillway completely and establish the stream upslope from the spillway area. This option includes sufficient excavation of the fill material to provide a stream with a level area adjacent to the stream and 3:1 slopes beyond the level area to get to existing grade.

**Estimated Cost = \$97,674.00**

Should you require any additional information or have any questions, please do not hesitate to contact me.

Very truly yours,  
EDWARD B. WALSH & ASSOC., INC.

  
Adam J. Brower, P.E.

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### 30-Year Cost Analysis of Three Options for HM Dam

Long-term inflation 2%  
Discount rate 1%

| Year                | Improve Spillway | Partial Breach | Full Breach    |
|---------------------|------------------|----------------|----------------|
| 0                   | 387,789          | 126,434        | 127,835        |
| 1                   | 2,020            | 4,040          | 4,040          |
| 2                   | 2,040            | 4,080          | 4,080          |
| 3                   | 2,061            | 4,121          | 4,121          |
| 4                   | 2,081            | 4,162          | 4,162          |
| 5                   | 2,102            | 4,204          | 4,204          |
| 6                   | 2,123            | 4,246          | 4,246          |
| 7                   | 2,144            | 4,289          | 4,289          |
| 8                   | 2,166            | 4,331          | 4,331          |
| 9                   | 2,187            | 4,375          | 4,375          |
| 10                  | 2,209            | 4,418          | 4,418          |
| 11                  | 2,231            | 4,463          | 4,463          |
| 12                  | 2,254            | 4,507          | 4,507          |
| 13                  | 2,276            | 4,552          | 4,552          |
| 14                  | 2,299            | 4,598          | 4,598          |
| 15                  | 2,322            | 4,644          | 4,644          |
| 16                  | 2,345            | 4,690          | 4,690          |
| 17                  | 2,369            | 4,737          | 4,737          |
| 18                  | 2,392            | 4,785          | 4,785          |
| 19                  | 2,416            | 4,832          | 4,832          |
| 20                  | 2,440            | 4,881          | 4,881          |
| 21                  | 2,465            | 4,930          | 4,930          |
| 22                  | 2,489            | 4,979          | 4,979          |
| 23                  | 2,514            | 5,029          | 5,029          |
| 24                  | 2,539            | 5,079          | 5,079          |
| 25                  | 2,565            | 5,130          | 5,130          |
| 26                  | 2,591            | 5,181          | 5,181          |
| 27                  | 2,616            | 5,233          | 5,233          |
| 28                  | 2,643            | 5,285          | 5,285          |
| 29                  | 2,669            | 5,338          | 5,338          |
| 30                  | 2,696            | 5,391          | 5,391          |
| <b>30-year cost</b> | <b>458,054</b>   | <b>266,965</b> | <b>268,366</b> |

PARTIAL BREACH  
AND  
FULL BREACH



EDWARD B. WALSH & ASSOCIATES, INC.  
*Complete Civil Engineering Design / Consultation Services*  
Lionville Professional Center  
125 Dowlin Forge Road  
Exton, PA 19341

December 29, 2015

Board Of Supervisors  
East Goshen Township  
1580 Paoli Pike  
West Chester, Pa. 19380

**RE: Hershey Mill Dam Spillway Design and Permitting  
East Goshen Township, Chester County, PA**

Dear Board Members:

In accordance with your request of 12/23/2015, EBWA has prepared a proposal for the Civil Engineering services necessary to provide a modified system that will meet DEP regulations. The proposal includes the necessary engineering to prepare a plan set that includes the necessary details for construction. In addition the proposal includes the required preparation of the DEP applications for the review of the dam and spillway design and permitting for the dam to remain with a spillway at a reduced elevation.

Edward B. Walsh and Associates, Inc. (EBWA) proposes the following:

**I. Pond Spillway Design:**

1. Perform modeling to determine spillway sizing and embankment improvements needed to meet DEP regulations for a reduced classification.
2. Prepare construction improvement plan set including the following:
  - Proposed grading and improvement plan including sediment removal and regrading
  - Erosion control to be implemented for construction
  - Construction staging
  - Spillway and embankment details
  - Rock energy dissipater design and specification
  - Construction and erosion control details

Total I.....\$9,800.00  
Note this includes a redesign of the spillway at the location of the existing spillway to reduce construction costs.

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Established 1985

**II. DEP Dam Permit:**

1. Prepare application package including the following:

- Dam Permit
- General Information Form
- Operation and Maintenance Program
- PNDI Search

2. Meet with client and DEP staff (budget 4 hours)

Total II.....\$1,300.00

**Grand Total I & II (Preliminary/Final Plans).....\$11,100.00**

Please note that the above does include normal revisions to the plan as requested by DEP. This proposal does *not* however, include major revisions to the plan as requested by the Client, DEP and/or the Township beyond the Permit requirements. In addition this proposal does not include construction inspection or retaining wall designs for the proposed berm height modification.

This proposal is valid for a period of 90 days from the date of this proposal, after which EBWA reserves the right to update. Any other work not included within the scope of this project will be subject to your prior approval and will be billed on a time and material basis at the following hourly rates:

|                                  |   |               |
|----------------------------------|---|---------------|
| Principal                        | = | \$150.00/Hour |
| Landscape Architect              | = | \$125.00/Hour |
| Project Mgr./Sr. Eng. & Surveyor | = | \$130.00/Hour |
| Project Mgr./Engineer            | = | \$100.00/Hour |
| Prof. Land Surveyors             | = | \$ 95.00/Hour |
| Chief of Survey                  | = | \$ 95.00/Hour |
| Environmental Scientist          | = | \$ 90.00/Hour |
| Designer I                       | = | \$ 95.00/Hour |
| Draftsperson/CADD                | = | \$ 95.00/Hour |
| Draftsperson                     | = | \$ 85.00/Hour |
| Inspector                        | = | \$ 78.00/Hour |
| Survey Crew (2-Man Crew)         | = | \$135.00/Hour |

\*\* The above-referenced rates are subject to annual adjustments in January of each year.

Payment terms are net thirty (30) days. Invoices are sent monthly on work performed each month. If this proposal meets with your approval, please sign, date and forward one (1) copy to my attention. We can schedule the work upon your authorization to proceed.

December 29, 2015  
East Goshen Township  
Dam Spillway Design / Permitting Proposal  
Page 3 of 3

I would like to take this opportunity to thank you for giving EBWA the opportunity to provide you with this proposal and I look forward to the prospect of working with you on this project.

Very truly yours,  
EDWARD B. WALSH & ASSOC., INC.



Adam J. Brower, P.E.  
Project Engineer

**PROPOSAL ACCEPTANCE:**

\_\_\_\_\_  
**Authorized Signature**

\_\_\_\_\_  
**Date**



EDWARD B. WALSH & ASSOCIATES, INC.  
 Complete Civil Engineering Design / Consultation Services  
 Lionville Professional Center  
 125 Dowlin Forge Road  
 Exton, PA 19341

August 27, 2014

Board Of Supervisors  
 East Goshen Township  
 1580 Paoli Pike  
 West Chester, Pa. 19380

**RE: Hershey Mill Dam Spillway Contract Document Preparation and Bid Review Process  
 East Goshen Township, Chester County, PA**

Dear Board Members:

In accordance with your request, EBWA has prepared a proposal for Civil Engineering services necessary to prepare contract documents for the Hershey Mill Dam improvement construction bidding and bid review process. The documentation will be prepared with the PennBID program and the process for bid reviews and question answering will be conducted via the PennBID program.

Edward B. Walsh and Associates, Inc. (EBWA) proposes the following:

**I. Contract Documents / Bid Letting:**

1. Preparation of contract documents and technical specifications including but not limited to:
  - a. Advertisement for bids.
  - b. Bid Form.
  - c. Agreement / Bond Forms.
  - d. PA Steel Products Procurement Act.
  - e. General Conditions / Technical Specifications.
  - f. Prevailing Wage Rate Determination.

Subtotal 1.....\$1,350.00

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 Established 1985

2. Coordinate the Bid Letting Process:

- a. Post Construction Drawings and Contract Documents to PennBID system for public bid process.
- b. Provide Bid Advertisement to Daily Local (advertisement to be paid for by the Township.)
- c. Attend Pre-bid meeting.
- d. Review and respond to Contractor Questions via the PennBID system.
- e. Coordinate the bid opening.
- f. Review of bids and check references.
- g. Provide letter of recommendation to Township for bid award.

Subtotal 2.....\$1,950.00

**Grand Total .....\$3,300.00**

The following items are excluded from the scope of work:

Major revisions (changes to the scope of work) to the plans as requested by the Township, Conservation District or DEP, additional Geotechnical studies or structural engineering design, PNDI follow up resolution / renewal, construction stakeout / as-built survey, permit / application fees, construction inspection / oversight, public meeting attendance (except as noted), delivery charges and prints / reproductions.

This proposal is valid for a period of 90 days from the date of this proposal, after which EBWA reserves the right to update. Any other work not included within the scope of this project will be subject to your prior approval and will be billed on a time and material basis at the following hourly rates:

|                                  |   |               |
|----------------------------------|---|---------------|
| Principal                        | = | \$150.00/Hour |
| Landscape Architect              | = | \$125.00/Hour |
| Project Mgr./Sr. Eng. & Surveyor | = | \$135.00/Hour |
| Project Mgr./Engineer            | = | \$100.00/Hour |
| Prof. Land Surveyors             | = | \$ 95.00/Hour |
| Chief of Survey                  | = | \$ 95.00/Hour |
| Environmental Scientist          | = | \$ 90.00/Hour |
| Designer I                       | = | \$ 95.00/Hour |
| Draftsperson/CADD                | = | \$ 95.00/Hour |
| Draftsperson                     | = | \$ 85.00/Hour |



August 27, 2014  
East Goshen Township  
Dam Spillway Contract Document / Bid Letting  
Page 3 of 3

|                          |   |               |
|--------------------------|---|---------------|
| Inspector                | = | \$ 78.00/Hour |
| Survey Crew (2-Man Crew) | = | \$135.00/Hour |

\*\* The above-referenced rates are subject to annual adjustments in January of each year.

Payment terms are net thirty (30) days. Invoices are sent monthly on work performed each month. If this proposal meets with your approval, please sign, date and forward one (1) copy to my attention. We can schedule the work upon your authorization to proceed.

I would like to take this opportunity to thank you for giving EBWA the opportunity to provide you with this proposal and I look forward to the prospect of working with you on this project.

Very truly yours,  
EDWARD B. WALSH & ASSOC., INC.



Adam J. Brower, P.E.  
Project Engineer

**PROPOSAL ACCEPTANCE:**

\_\_\_\_\_  
**Authorized Signature**

\_\_\_\_\_  
**Date**

IMPROVE SPILLWAY



EDWARD B. WALSH & ASSOCIATES, INC.  
Complete Civil Engineering Design / Consultation Services  
Lionville Professional Center  
125 Dowlin Forge Road  
Exton, PA 19341

February 3, 2012

Board Of Supervisors  
East Goshen Township  
1580 Paoli Pike  
West Chester, Pa. 19380

**RE: Hershey Mill Dam Spillway Design and Permitting  
East Goshen Township, Chester County, PA**

Dear Board Members:

In accordance with your request, EBWA has prepared a proposal for Civil Engineering and Professional Land Surveying services necessary to evaluate the existing dam and spillway and to provide a modified system that will meet DEP regulations. The proposal includes the necessary engineering to prepare a plan set that includes the necessary details for construction. In addition the proposal includes the required preparation of the DEP applications for the review of the dam and spillway design and permitting for the dam to remain.

Edward B. Walsh and Associates, Inc. (EBWA) proposes the following:

**I. Site Survey and Base Plan Preparation:**

1. Site Survey of Existing Features:
  - a. Survey to be performed of existing features and topography in area proposed for improvements.
  - b. Survey cross-sections of pond area including the embankment and area downslope of the embankment.
2. Finalize Base Plan in CAD File of parcel showing additional features surveyed.

Total I.....\$2,910.00

**II. Pond Spillway Design:**

1. Determine flow rate to dam.

REGISTERED PROFESSIONAL ENGINEERS & LAND SURVEYORS  
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Established 1985

2. Perform modeling to determine spillway sizing and embankment improvements needed to meet DEP regulations.
3. Perform geotechnical analysis of existing embankment at spillway.
4. Prepare construction improvement plan set including the following:
  - o Existing features plan
  - o Proposed grading and improvement plan
  - o Erosion control to be implemented for construction
  - o Construction staging
  - o Spillway and embankment details
  - o Rock energy dissipater design and specification
  - o Construction and erosion control details

Total II.....\$23,125.00

**III. DEP Dam Permit:**

1. Prepare application package including the following:
  - o Environmental Assessment
  - o Risk Assessment
  - o Dam Permit
  - o General Information Form
  - o Operation and Maintenance Program
  - o PNDI Search
  - o NPDES Permitting
2. Meet with client and DEP staff (budget 16 hours)

Total III.....\$11,125.00

**Grand Total I, II, III & IV (Preliminary/Final Plans).....\$37,160.00**

Please note that the above does include normal revisions to the plan and hydrological analysis as requested by DEP. This proposal does *not* however, include major revisions to the plan as requested by the Client, DEP and/or the Township beyond the Permit requirements. In addition this proposal does not include construction inspection or retaining wall designs for the proposed berm height modification.

This proposal is valid for a period of 90 days from the date of this proposal, after which EBWA reserves the right to update. Any other work not included within the scope of this project will be

February 3, 2012  
East Goshen Township  
Dam Spillway Design / Permitting Proposal  
Page 3 of 3

subject to your prior approval and will be billed on a time and material basis at the following hourly rates:

|                                  |   |               |
|----------------------------------|---|---------------|
| Principal                        | = | \$150.00/Hour |
| Landscape Architect              | = | \$125.00/Hour |
| Project Mgr./Sr. Eng. & Surveyor | = | \$130.00/Hour |
| Project Mgr./Engineer            | = | \$100.00/Hour |
| Prof. Land Surveyors             | = | \$ 95.00/Hour |
| Chief of Survey                  | = | \$ 95.00/Hour |
| Environmental Scientist          | = | \$ 90.00/Hour |
| Designer I                       | = | \$ 95.00/Hour |
| Draftsperson/CADD                | = | \$ 95.00/Hour |
| Draftsperson                     | = | \$ 85.00/Hour |
| Inspector                        | = | \$ 78.00/Hour |
| Survey Crew (2-Man Crew)         | = | \$135.00/Hour |

\*\* The above-referenced rates are subject to annual adjustments in January of each year.

Payment terms are net thirty (30) days. Invoices are sent monthly on work performed each month. If this proposal meets with your approval, please sign, date and forward one (1) copy to my attention. We can schedule the work upon your authorization to proceed.

I would like to take this opportunity to thank you for giving EBWA the opportunity to provide you with this proposal and I look forward to the prospect of working with you on this project.

Very truly yours,  
EDWARD B. WALSH & ASSOC., INC.



Adam J. Brower, P.E.  
Project Engineer

**PROPOSAL ACCEPTANCE:**

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

---

JAMES AND JACQUELINE DELANEY  
914 SORRELL HILL DRIVE  
MALVERN, PA 19355

Mr. Senya Isayeff  
Chairman- Board of Supervisors  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

RE: Proposed Amendment to Zoning Ordinance Regarding Construction of Swimming Pools and Setback Requirements in Sorrell Hill Development.

June 7, 2016

Dear Chairman Senya,

As acting President of the Sorrell Hill Homeowners Association and on behalf of all the residents of Sorrell Hill, I am fully in favor of the proposed amendment to the zoning ordinance regarding setback requirements with respect to the construction of swimming pools within the Sorrell Hill Development. This proposal was recommended by The East Goshen Township Planning Commission.

It was very disappointing to me when the Board voted to deny this proposal at the Supervisors meeting on May 3<sup>rd</sup>, 2016. There was a motion to approve the ordinance, but no second and no discussion. This was very frustrating due to the importance of this issue for our community.

Mr. Nagle respectfully asked the Board of Supervisors if this important matter could be heard at a future meeting and you agreed. I ask that the Board give it careful consideration. There will be no material harm to anyone. It will permit any resident whose property can accommodate construction of a normal size swimming pool to build one if they choose. The amendment is keeping within the spirit of the Township ordinance. We believe that this change will enhance property values, and provide us with full enjoyment of our homes.

Thank you,

  
James Delaney  
President- Sorrell Hill Homeowners Association

## Rick Smith

---

**From:** [REDACTED]  
**Sent:** Thursday, June 02, 2016 12:03 PM  
**To:** Rick Smith; Brian Nagle; Mark Gordon  
**Cc:** Jim Delaney; Bob Chagares; kellyrobbins@robbsinc.com  
**Subject:** Requesting addition to BOS agenda for meeting of 6/7/2016  
**Attachments:** DocuSign\_Sorrell\_Hill\_Community\_Board.pdf; Delaney SHHOA Letter to Senya.pdf

Rick-

On behalf of the residents of Sorrell Hill, I am requesting that the residents be heard at the next Board of Supervisors meeting on June 7, 2016. We will be represented by our Counsel, Brian Nagle. We hope to have a discussion with the Board regarding the proposed amendment to the zoning ordinance with respect to setback lines for the construction of swimming pools within the Sorrell Hill development. This proposal has been recommended by The Planning Commission.

I have attached for circulation to the Board Members, a petition which has been signed by 9 of the 11 total residents of Sorrell Hill fully supporting the approval of the proposed amendment. Furthermore, I am including a letter from James Delaney, President of The Sorrell Hill Homeowners Association to Mr. Senya Isayeff, Chairman of The Board of Supervisors which also advocates approval of the proposed amendment. We ask that the Board give this very important issue to our community thoughtful consideration.

Thank you for your consideration, and please let me know if you have any questions.

Best Regards,  
Stephen Robbins

5/31/2016

Board of Supervisors  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

RE: Proposed Amendment to Zoning Ordinance Regarding Construction of Swimming Pools and Setback Requirements in Sorrell Hill Development.

June 7, 2016

Dear Board Members,

As a resident of Sorrell Hill, I am fully in favor of the proposed amendment to the zoning ordinance regarding setback requirements with respect to the construction of swimming pools within the Sorrell Hill Development, and which has been recommended by The East Goshen Township Planning Commission.

I respectfully ask the Board of Supervisors to approve this change. It will permit any resident whose property can accommodate construction of a normal size swimming pool if they choose. The amendment is keeping within the spirit of the Township ordinance. We believe that this change will enhance property values, and provide us with full enjoyment of our homes.

Thank you,

DocuSigned by:  
*Thomas S. Arena* 5/31/2016  
DocuSigned by:  
*Dr. Michael Sumner*  
9054450111 Sorrell Hill Drive,  
Malvern Pa 19355

Michael Sumner  
DocuSigned by:  
*JAMES D DELANEY*  
JAMES D DELANEY

DocuSigned by:  
*Stephen A. Robbins-905 Sorrell Hill Drive*

71D04D0F9DB74E3  
DocuSigned by:  
*JKill*  
DocuSigned by:  
*ghartan123@comcast.net*  
125839948B0245Z...  
George Harlanghartan123@comcast.net

DocuSigned by:  
*Ben Mears*  
587907BDDDD148F...

DocuSigned by:  
*Bob Chagares*  
AFF60D8C6D3344C...

DocuSigned by:  
*Deborah B. Chagares*  
CC8451DEFD674D4...

DocuSigned by:  
*ginny104@msn.com*  
683E1E0C71E67E...

# Memorandum

---

East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

Voice: 610-692-7171  
Fax: 610-692-8950  
E-mail: [mgordon@eastgoshen.org](mailto:mgordon@eastgoshen.org)

---

Date: 4/8/2016  
To: Board of Supervisors  
From: Mark Gordon, Township Zoning Officer  
Re: Swimming Pool Setbacks for Single Family Open space Development (SFOD)

---

Dear Board Members,

As you know, the Single-Family Open space Development (Sorrell Hill) reduced lot size allowances makes the construction of a standard swimming pool problematic. The PC has discussed this issue at length and reviewed graphical representations of all of the lots in Sorrell Hill in order to visualize the potential impacts of an ordinance amendment.

After hearing public comment and discussing this matter at three public meetings the Planning Commission is proposed a text amendment to the accessory use standards for swimming pools.

## Background

The Sorrell Hill Development on Line Road is a Single-family open space development and the standard swimming pool setbacks make it very difficult for any of the properties within that development to comply with the current requirements; even if a very small pool is considered. The Sorrell Hill development is the only Single-family open space development within East Goshen Township.

The current regulation requires that: *Pools shall be located behind the building setback line and in no case shall the edge of water be closer than 25 feet to any lot line.* This being said, each single family home in the Sorrell Hill development has its own lot lines within the boundary of the development.

The Planning Commission considered options of how to amend the zoning ordinance so that swimming pools can be accommodated within Single-family open space developments. For example, requiring a minimum 25 foot swimming pool setback from the development boundary would be in keeping with the current zoning requirements and would not impact those residential uses which abut Single-family open space developments. Also, additional requirements have been proposed for the



location of swimming pools in relation to existing residential structures not owned by the applicant. Staff has reviewed this proposed amendment with the CCPC staff and the Township solicitor and incorporated their comments.

**Staff Recommendation:**

It is the opinion of the staff that an amendment to the code to modify the Swimming Pool Accessory Use section of the Zoning Ordinance for Single Family Open space developments is appropriate and such an amendment can still accomplish the original spirit of the pool setback requirements.

This amendment will permit a normal size swimming pool to be constructed on residential lots within single family open space developments while still maintaining an ultimate setback of 25 feet to the boundary of the Single-family open space development. The existing ordinance requirement for pools essentially prohibits standard size swimming pools within Single family open space developments. This will permit equitable use of swimming pools as an accessory use for property owners within single-family open space developments.

**Draft Ordinance Recommendation:**

240-32 Accessory uses

Q.

Swimming pool.

(1)

Pools shall be located behind any regulated ~~the~~ building setback line and the edge of the water in no case shall the edge of water be closer than shall be at least twenty-five (25) feet to-from any lot line.

Exception for Single-family open space developments: Pools constructed within an approved single-family open space development shall be located behind the single family dwelling in an area on the individual lot which abuts the common open space. The edge of water shall be at least ten (10) feet from any lot line within the open-space development; and twenty-five (25) feet from any development boundary line; and at least twenty-five (25) feet from any principal building not owned by the applicant which exists at the date of the filing of a building permit for the pool.

(2)

Fencing.

(a)

All pools shall have a permanent enclosure erected and maintained that entirely and completely surrounds the pool. The enclosure shall extend not less than four feet above the ground. All gates shall be self-closing, self-latching and lockable with latches placed at least four feet above the ground. The enclosure shall be constructed so as to prohibit the passage of a sphere larger than four inches in diameter through any opening or under the fence. Fences shall be designed and constructed to withstand a horizontal

concentrated load of 200 pounds applied on a one-square-foot area at any point of the fence/enclosure.

(b)

Aboveground pools (which shall include pools less than 10% in-ground) shall not require a fence if the walls of the pool are at least four feet above grade on all sides, but any fixed stairway or entranceway shall be entirely and completely enclosed to a height of four feet above ground, and any gate shall be self-closing, self-latching and lockable with no openings that will pass a sphere greater than four inches in diameter. Any removable access, such as a ladder, need not comply, but must be removed when not in use.

(3)

The land area occupied by a pool and any accompanying structure shall be included in the impervious coverage percentage.

(4)

If the pool is supplied from a private well, there shall be no cross-connection with a central water supply system. All water supply inlets shall be above the overflow level to the pool.

(5)

No swimming pool shall have a drainage system connected to the sanitary sewers. All methods of drainage shall be stated on the Zoning Permit and be approved by the Township Engineer.

(6)

No loudspeaker or amplifying system shall be permitted which will project sound beyond the boundaries of the property.

(7)

All lighting shall be located as not to shine directly beyond the limits of the property.

**Draft Motion:**

Mr. Chairman, I move that amend the accessory use requirement for swimming pools, §240-32.Q, and authorize staff and the solicitor to prepare the ordinance amendment for adoption.

**EAST GOSHEN TOWNSHIP  
PLANNING COMMISSION**

1580 PAOLI PIKE, WEST CHESTER, PA 19380-6199

April 8, 2016

East Goshen Township  
Board of Supervisors  
1580 Paoli Pike  
West Chester, Pa. 19380

Re: Swimming Pool Requirements

Dear Board Members:

At their meeting on April 6, 2016 the planning commission voted in favor of the following motion:

Mr. Chairman, I move that we recommend that the Board of Supervisors consider amending the accessory use requirement for swimming pools, §240-32.Q, as drafted, adding an exception for pools constructed within Single-family open space developments do to the reduced lot sizes and surrounding open space. This will permit a normal size swimming pool to be constructed on residential lots within single family open space developments while still maintaining an ultimate setback of 25 feet to the boundary of the Single-family open space development. This will permit equitable use of swimming pools as an accessory use for property owners within single-family open space developments.

Sincerely,



Mark A. Gordon  
Township Zoning Officer

---

# Technical Memorandum

## Environmental Sediment Sampling

---

**Prepared For:** East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

**Prepared By:** Gannett Fleming Inc.  
207 Senate Avenue  
Camp Hill, PA 17011

**Subject:** Sediment Characterization  
Milltown Reservoir  
Chester County, PA

**Date:** May 27, 2016

---

### INTRODUCTION

Gannett Fleming, Inc. (GF) prepared this Environmental Sediment Sampling Technical Memorandum for East Goshen Township in an effort to summarize findings of the sediment sampling conducted at the Milltown Reservoir in May 2016. This memo documents the sampling methods, laboratory analytical results, and provides a comparison of detections to their respective PADEP fill concentration limits. A Project Location Map is provided as **Figure 1**. A Sediment Sample Location Map is provided as **Figure 2**. The Reservoir Sedimentation Map is included as **Attachment A**. The Laboratory Analytical Report and Chain of Custody Forms have been included as **Attachment B**.

### BACKGROUND INFORMATION

GF understands that the sediment within the Milltown Reservoir needs to be screened for potential contamination to assist East Goshen Township in its evaluation of future plans for the reservoir. The 10-acre Milltown Reservoir is located between Reservoir Road and Lochwood Lane in Chester County, PA. GF performed sampling to characterize the material in-place as part of project engineering and planning to determine if this material could present a human health or ecological concern that would need to be further addressed, or if this material would be considered “clean” and therefore used without restriction.

### HEALTH AND SAFETY PLAN

GF developed a Health and Safety Plan (HASP) for workers conducting the sediment sampling. The HASP is attached to this memo as **Attachment C**. The HASP included the recommended personal protective equipment that was anticipated to be used during the sediment sampling (modified Level D). All field personnel were required to have a minimum of OSHA 40-hour Hazardous Waste Operations training prior to conducting the fieldwork. The HASP also included directions to the nearest hospital for emergency care and listed phone numbers of emergency responders in the area, in addition to emergency contacts on the GF team.

## **FIELD METHODS AND ANALYSIS**

On May 3-4, 2016, GF was onsite to collect sediment samples from three sites within the Milltown Reservoir. GF representatives, Corey Myers and Steve Wittig conducted the sediment sampling effort. The field effort was conducted in accordance with the attached health and safety plan. The sediment consisted of silt loams, silty clay loams, and organic matter.

### Sampling Methods

Soil samples were collected in laboratory supplied bottleware and placed in a cooler with ice for shipment to the laboratory under chain-of-custody documentation. The samples were collected and analyzed according to the following:

- Semivolatile organic compounds (SVOCs) with library search using EPA method SW-846/ 8270C
- Inorganics (TAL Metals) using EPA method SW-846/6010B
- Polychlorinated Biphenyls (PCBs) using EPA Method SW846/8082
- Chlorinated Pesticides using EPA Method SW846/8081A
- Herbicides using EPA method SW846/8151A
- pH using EPA method 9045 (soil/water)

### Sampling Equipment

- Stainless steel bowls
- Stainless steel spoons
- Laboratory supplied bottleware
- 2" Bucket auger
- 4" Bucket auger
- 3' auger extensions (5)
- Nitrile gloves and safety glasses
- 10' section of 6" PVC pipe (1)
- 2' section of 6" PVC pipe (2)
- 6" PVC coupler (2)
- 10' section of 3" PVC pipe
- Sledgehammer
- 24 oz. Stainless steel hammer
- Rubber Mallet
- Jon Boat

### Analytical Laboratory

ALS Environmental (ALS) of Middletown, PA was contracted by GF to provide the bottleware and sediment analyses. Analyses were performed according to ALS's NELAP-approved quality assurance program and Pennsylvania requirements. The test results met requirements of the current NELAP standards/state requirements, where applicable.

### Decontamination Procedure

Sampling equipment consisted mostly of sealed tools that were certified clean when packaged and opened just prior to sampling. The use of dedicated tools reduces the risk of cross-contamination issues. Disposable gloves were used to maintain clean handling of the material and were disposed of as a residual waste. Decontamination fluid was generated to clean the bucket augers, extensions, stainless steel spoons, and stainless steels bowls since this equipment was not dedicated.

Decontamination procedures and investigation derived waste (IDW) were implemented and generated respectively. The decontamination procedure of the sediment sampling equipment hardware followed EPA Standard Operating Procedures and consisted of the following:

- Physical removal of soil and debris;
- Non-phosphate detergent wash;
- Tap water rinse;
- Distilled/deionized water rinse;
- 10% nitric acid rinse;
- Distilled/deionized water rinse;
- Solvent rinse (pesticide grade);
- Air dry; and
- Distilled/deionized water rinse

The decontamination fluid consisted of less than five gallons and was field filtered to remove suspended solids and then pumped under pressure through an enclosed vessel charged with granulated activated carbon. The treated water was discharged in uplands directly to the ground surface. Other IDW including disposable gloves were disposed of as residual waste.

#### Quality Assurance/ Quality Control

Quality assurance and quality control samples were collected to verify the field procedures and check the laboratory results in order to confirm the results of the field effort with confidence. GF collected one (1) equipment rinsate sample after cleaning the bucket augers, stainless steel bowls, and stainless steel spoons to verify the decontamination procedures. The analytical results indicated that the decontamination procedures in the field may be relied upon.

#### Field Sampling

The three sampling locations were selected based on the depth of sediment and location within the reservoir. The sample locations are depicted on **Figure 2**. It was GF's intention to take samples that represented the existing sediment profile across the entire reservoir. As shown on the Reservoir Sedimentation Map, enclosed as **Attachment A**, the sediment depth was most shallow at the northern end of the reservoir. Sediment depth increased moving toward the spillway in the southeast quadrant of the reservoir. The maximum sediment depth is 12', at a point located near the eastern shore the reservoir. A summary of the sample sites is provided in **Table 1**.

GF conducted the sampling effort at all three locations by collecting sediment samples from a jon boat using a bucket auger. The bucket auger was advanced into the sediment in 1' increments. Once positioned, a 3" diameter PVC pipe was lowered into the sediment to be used as guide for the auger. The PVC pipe was driven into the reservoir bottom using a sledgehammer. Extensions were added as the auger was advanced into the deeper sampling depths. After advancing auger approximately 1', the auger was removed and contents emptied into a stainless steel bowl. This process was repeated as many times as necessary to advance the auger 3-4' for each composite sample. A separate steel bowl was used for each composite. All equipment was decontaminated between each sampling location.

GF collected composite samples at each of the three sampling locations. A total of 6 composite samples were collected from three locations as indicated on Figure 2. Each composite consisted of sediments taken in 3-4' lifts. The sediment was assessed visually for evidence of contaminants. No visual evidence of contamination was observed. Each composite was collected using the bucket auger. Once onshore, the composite was mixed in a stainless steel bowl, transferred to laboratory supplied bottleware, and submitted for laboratory analyses. Standard laboratory turnaround times were requested. The sampling

plan followed the recommendations in the PA Management of Fill Policy to characterize material for beneficial re-use.

## **LABORATORY ANALYTICAL RESULTS**

The full laboratory analytical report with the chain-of-custody is provided in **Attachment B**. Laboratory analytical results are summarized in **Table 1** and compared to the Pennsylvania Statewide Health Standards and the Pennsylvania Clean Fill Standards.

## **DISCUSSION OF RESULTS**

Based on the analytical results, samples Site 3-Composite 2 and Site 3-Composite 3 returned with cobalt concentrations at 12.6 and 12.3 mg/kg, respectively. These concentrations exceed the existing 8.1 mg/kg clean fill standard for cobalt.

None of the other concentrations detected exceeded their respective clean fill concentration limits or their respective statewide health standards.

On May 27, 2016, GF contacted Mr. Scott Walters of PADEP to discuss the clean fill numeric values and background levels of naturally occurring metals like cobalt. Mr. Walters confirmed with the surrounding land use that background conditions would apply and that the material would qualify as clean fill. Please see **Attachment D** for DEP Coordination, including a phone memo documenting the conversation with Mr. Walters, PADEP Clean Fill Standards, and MSC Table 4a of the Pennsylvania State Wide Health Standards.

## **CONCLUSIONS**

Based on the results of the sediment characterization effort, it was determined that samples Site 3-Composite 2 and Site 3-Composite 3 both exceed the existing clean fill standard for cobalt (8.1 mg/kg). Cobalt concentrations at Site 1 and Site 2 were detected at concentrations less than the existing clean fill standard.

As of December 2014, the Pennsylvania Department of Environmental Protection (PADEP) proposed updates to the existing clean fill standards under the Management of Fill Policy. These standards propose an increase in the clean fill concentration of cobalt from 8.1 mg/kg to 50 mg/kg. Cobalt in the Milltown Reservoir pond sediment was found in concentrations of 12.6 and 12.3 mg/kg. These concentrations are slightly above PADEP's recommended clean fill concentrations of 8.1 mg/kg.

Medium Specific Concentration (MSC) Table 4a, under the Pennsylvania State Wide Health Standards, includes a standard for cobalt. Under Pennsylvania law, the MSC for cobalt in residential soils (0-15 feet) is 66 mg/kg. Per the Pennsylvania standard, the concentrations of cobalt found in the pond sediment is below the thresholds set under the MSC for residential soils.

Land use surrounding the Milltown Reservoir is comprised entirely of residential properties. No industrial sources have been identified during review of the project area. The cobalt concentrations identified at Site 3 can be attributed to naturally occurring background levels of cobalt. The watershed was converted from agricultural use to urban development. Industrial processes and mining are not associated with the watershed of Milltown Reservoir. Metal detections in the lab results are associated with natural background conditions. Results of the sediment analyses does not indicate a need to handle or treat the material in any specialized way. This material is determined to be clean fill. The dredging of the pond sediment would follow an approved erosion and sediment control plan and regulatory permits for dredging and excavation in waters of the United States and Commonwealth.

Enclosures: Figure 1: Project Location Map  
Figure 2: Sediment Sample Location Map  
Table 1: Summary of Sediment Analytical Results  
Attachment A: Reservoir Sedimentation Map  
Attachment B: Laboratory Analytical Report & Chain of Custody  
Attachment C: Health and Safety Plan  
Attachment D: DEP Coordination

cc: File 060466

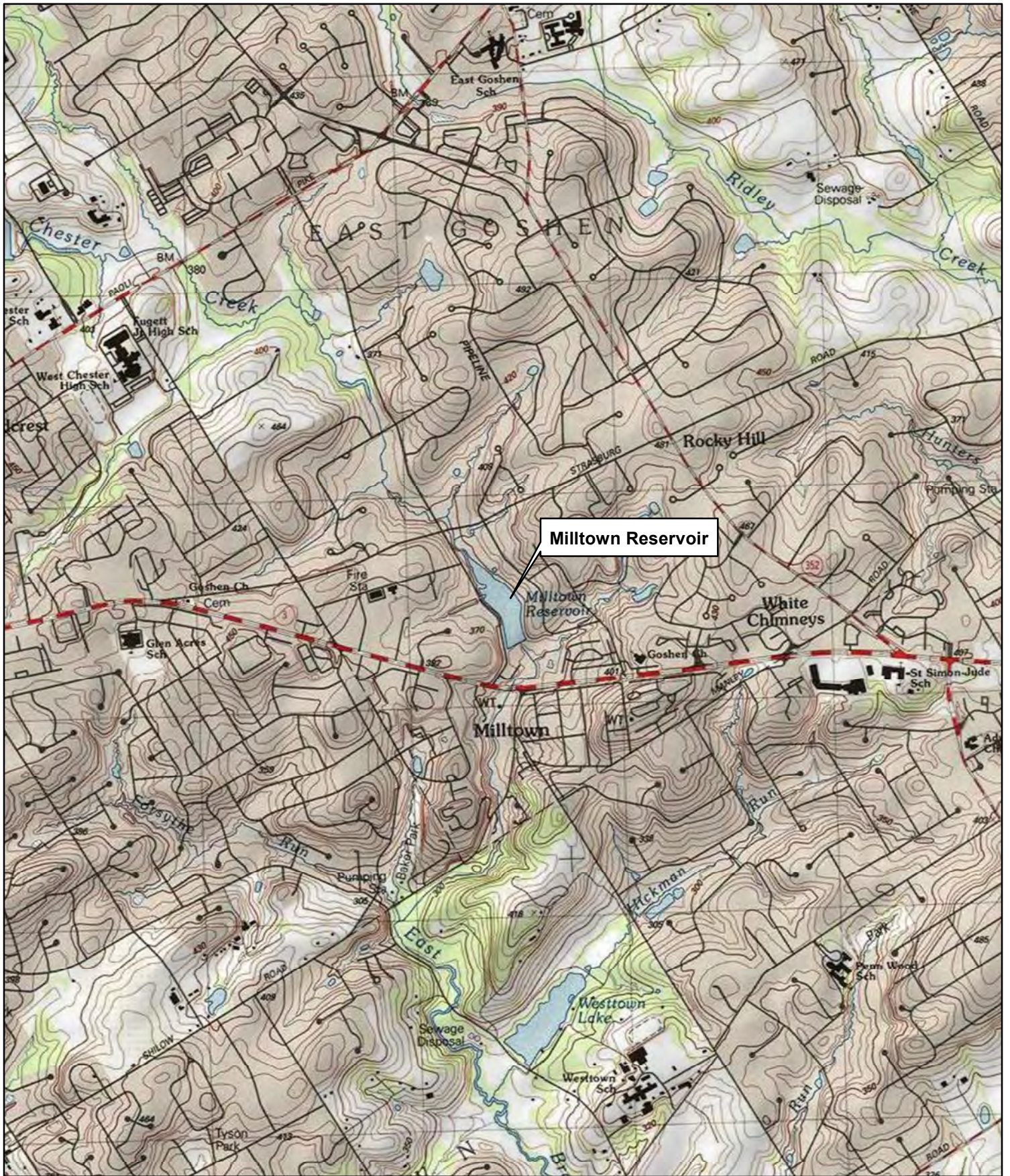


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**FIGURE 1**  
**PROJECT LOCATION MAP**

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**FIGURE 1  
PROJECT LOCATION MAP**

**East Goshen Township**

**Milltown Reservoir Sediment Sampling**

**East Goshen Township, Chester County, Pennsylvania**

**Scale**



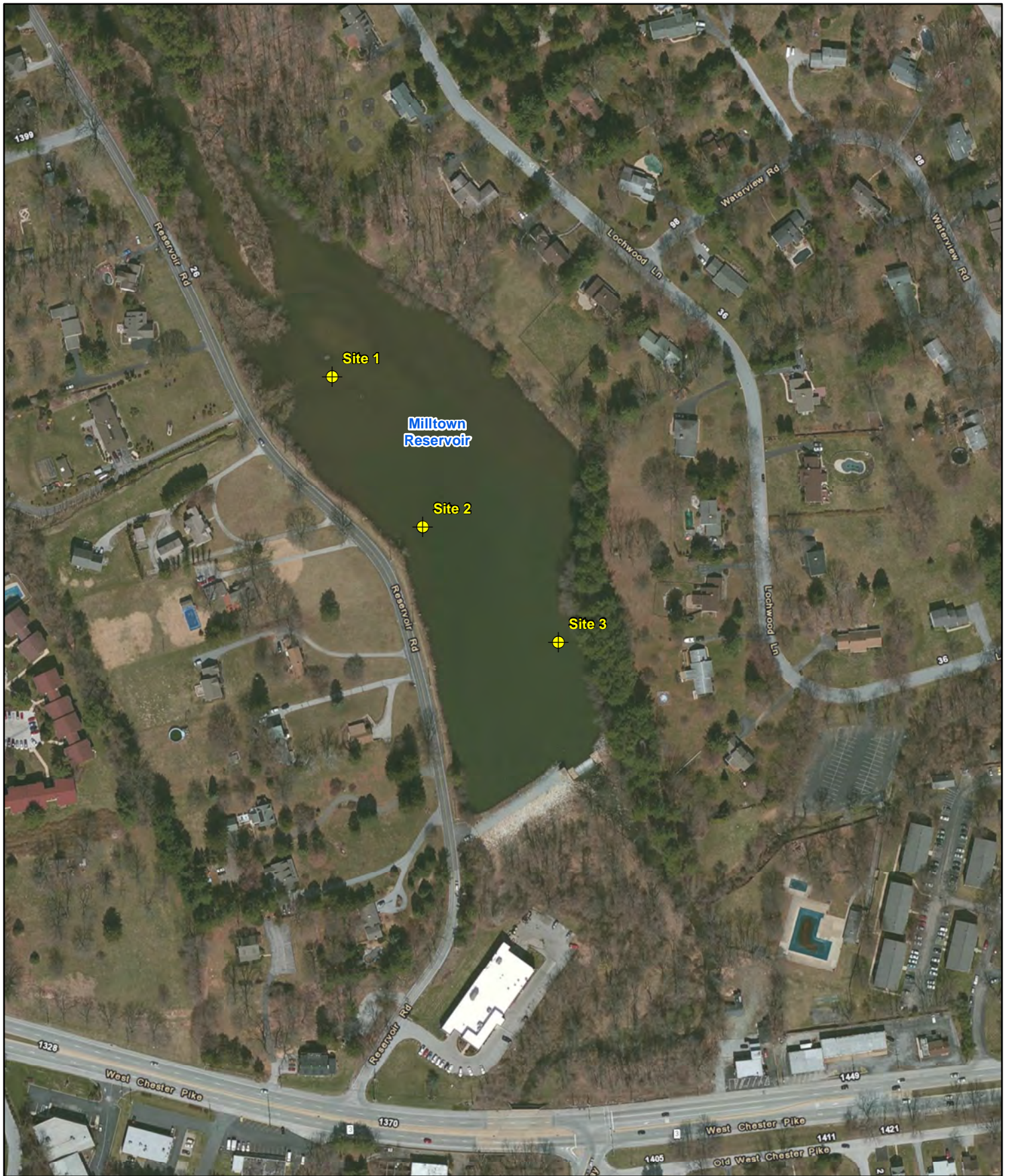
**Gannett Fleming**

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**FIGURE 2**  
**SEDIMENT SAMPLE LOCATION MAP**

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**FIGURE 2  
SEDIMENT SAMPLE LOCATION MAP**

**East Goshen Township**

**Milltown Reservoir Sediment Sampling**

**East Goshen Township, Chester County, Pennsylvania**

**Legend**

 Sediment Sample Sites

**Scale**



**Gannett Fleming**

Site locations as sampled on May 2-3, 2016 by Corey Myers and Steve Wittig of Gannett Fleming, Inc. Aerial imagery and transportation basemapping provided by ESRI ArcGIS Online webservices. GF Project No. 60466; Map Prepared: 05/11/2016

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**TABLE 1**  
**SUMMARY OF SEDIMENT ANALYTICAL RESULTS**

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Table 1  
Summary of Sediment Analytical Results  
Milltown Reservoir

| Sample Name and Location               | Site 1 Composite-001 |    | Site 2 Composite-001 |    | Site 2 Composite-002 |    | Site 3 Composite-001 |    | Site 3 Composite-002 |    | Site 3 Composite-003 |    | PADEP Act 2 MSC's for Organic and Inorganic Regulated Substances in Soil: Direct Contact Numeric Values | Pennsylvania Clean Fill Concentration for Organics and Metals <sup>2</sup> | Units |
|--|----------------------|----|----------------------|----|----------------------|----|----------------------|----|----------------------|----|----------------------|----|---|--|-------|
| Sample Date                            | 3-May-16             |    | 3-May-16             |    | 3-May-16             |    | 4-May-16             |    | 4-May-16             |    | 4-May-16             |    |   |  |       |
| Sample Time                            | 1030                 |    | 1150                 |    | 1230                 |    | 0930                 |    | 1015                 |    | 1100                 |    |   |  |       |
| Sample Type                            | Sediment             |    | Sediment             |    | Sediment             |    | Sediment             |    | Sediment             |    | Sediment             |    |   |  |       |
| Sampling Depth                         | 0-3'                 |    | 0-4'                 |    | 4-7'                 |    | 0-4'                 |    | 4-8'                 |    | 8-12'                |    |   |  |       |
| Inorganic Compounds (Metals)           | Results              | DQ | Results              | DQ | Results              | DQ | Results              | DQ | Results              | DQ | Results              | DQ | 0-15'   |  |       |
| Aluminum, Total                        | <b>3,300</b>         | -  | <b>1,260</b>         | -  | <b>1,530</b>         | -  | <b>5,360</b>         | -  | <b>47,700</b>        | -  | <b>46,300</b>        | -  | 190,000   | -  | mg/kg |
| Arsenic, Total                         | <b>0.46</b>          | -  | <0.21                | U  | <b>0.27</b>          | -  | <b>0.9</b>           | -  | <b>7.2</b>           | -  | <b>7.9</b>           | -  | 12  | 12   | mg/kg |
| Barium, Total                          | <b>20.3</b>          | -  | <b>8.5</b>           | -  | <b>9.7</b>           | -  | <b>48.6</b>          | -  | <b>339</b>           | -  | <b>312</b>           | -  | 44,000  | 8,200  | mg/kg |
| Beryllium, Total                       | <b>0.095</b>         | -  | <0.069               | U  | <0.059               | U  | <b>0.19</b>          | -  | <b>1.6</b>           | -  | <b>1.6</b>           | -  | 440   | 320  | mg/kg |
| Cadmium, Total                         | <0.053               | U  | <0.069               | U  | <0.059               | U  | <b>0.096</b>         | -  | <0.93                | U  | <0.95                | U  | 110   | 38   | mg/kg |
| Calcium, Total                         | <b>314</b>           | -  | <b>168</b>           | -  | <b>86.2</b>          | -  | <b>694</b>           | -  | <b>3,850</b>         | -  | <b>2,690</b>         | -  | -   | -  | mg/kg |
| Chromium, Total                        | <b>4.8</b>           | -  | <b>1.8</b>           | -  | <b>2.0</b>           | -  | <b>10.1</b>          | -  | <b>76.1</b>          | -  | <b>68.5</b>          | -  | 660   | 94   | mg/kg |
| Cobalt, Total                          | <b>0.74</b>          | -  | <0.35                | U  | <b>0.38</b>          | -  | <b>1.5</b>           | -  | <b>12.6</b>          | -  | <b>12.3</b>          | -  | 66  | 8.1  | mg/kg |
| Copper, Total                          | <b>2.2</b>           | -  | <b>1.1</b>           | -  | <b>1.6</b>           | -  | <b>5.3</b>           | -  | <b>43.4</b>          | -  | <b>45.2</b>          | -  | 8,100   | 8,200  | mg/kg |
| Iron, Total                            | <b>3,050</b>         | -  | <b>1,290</b>         | -  | <b>1,450</b>         | -  | <b>6,070</b>         | -  | <b>47,200</b>        | -  | <b>47,900</b>        | -  | 150,000   | -  | mg/kg |
| Lead, Total                            | <b>4.3</b>           | -  | <b>1.6</b>           | -  | <b>1.4</b>           | -  | <b>8.9</b>           | -  | <b>76.6</b>          | -  | <b>48.7</b>          | -  | 500   | 450  | mg/kg |
| Magnesium, Total                       | <b>498</b>           | -  | <b>234</b>           | -  | <b>194</b>           | -  | <b>1,020</b>         | -  | <b>7,790</b>         | -  | <b>6,500</b>         | -  | -   | -  | mg/kg |
| Manganese, Total                       | <b>35.8</b>          | -  | <b>17.0</b>          | -  | <b>21.6</b>          | -  | <b>77.2</b>          | -  | <b>702</b>           | -  | <b>741</b>           | -  | 10,000  | 31,000   | mg/kg |
| Nickel, Total                          | <b>2.40</b>          | -  | <b>1.0</b>           | -  | <b>1.2</b>           | -  | <b>5.3</b>           | -  | <b>40.9</b>          | -  | <b>41.3</b>          | -  | 4,400   | 650  | mg/kg |
| Potassium, Total                       | <b>265</b>           | -  | <b>102</b>           | -  | <b>102</b>           | -  | <b>398</b>           | -  | <b>3,620</b>         | -  | <b>3,060</b>         | -  | -   | -  | mg/kg |
| Selenium, Total                        | <b>0.52</b>          | -  | <0.35                | -  | <0.29                | -  | <b>0.74</b>          | -  | <b>5.5</b>           | -  | <b>7.6</b>           | -  | 1,100   | 26   | mg/kg |
| Sodium, Total                          | <b>68.1</b>          | -  | <b>124</b>           | -  | <b>36.8</b>          | -  | <b>132</b>           | -  | <b>274</b>           | -  | <b>164</b>           | -  | -   | -  | mg/kg |
| Thallium, Total                        | <0.053               | U  | <0.069               | U  | <0.059               | U  | <0.080               | U  | <0.93                | U  | <0.95                | U  | 15  | 14   | mg/kg |
| Vanadium, Total                        | <b>5.6</b>           | -  | <b>2.0</b>           | -  | <b>2.4</b>           | -  | <b>11.0</b>          | -  | <b>90.4</b>          | -  | <b>82.9</b>          | -  | 1,500   | 1,500  | mg/kg |
| Zinc, Total                            | <b>10.4</b>          | -  | <b>4.5</b>           | -  | <b>3.8</b>           | -  | <b>25.6</b>          | -  | <b>165</b>           | -  | <b>141</b>           | -  | 66,000  | 12,000   | mg/kg |
| Semivolatile Organic Compounds (SVOCs) |                      |    |                      |    |                      |    |                      |    |                      |    |                      |    |   |  |       |
| Chrysene                               | <0.151               | U  | <b>0.226</b>         | -  | <0.156               | U  | <0.234               | U  | <0.196               | U  | <0.176               | U  | 570   | 230  | mg/kg |
| Fluoranthene                           | <b>0.158</b>         | -  | <b>0.194</b>         | -  | <0.156               | U  | <0.234               | U  | <0.196               | U  | <0.176               | U  | 8,800   | 3,200  | mg/kg |
| General Chemistry                      |                      |    |                      |    |                      |    |                      |    |                      |    |                      |    |   |  |       |
| pH                                     | 6.97                 | -  | 6.93                 | -  | 6.91                 | -  | 6.87                 | -  | 6.91                 | -  | 6.85                 | -  | -   | -  | SU    |

**Notes:**

1. Residential (R) Medium Specific Concentrations (MSC) for Organic and Inorganic Related Substances in Soil (Direct Contact 0-15 feet), Pennsylvania Department of Environmental Protection (PADEP) listed in Title 25, PA Code, Chapter 250, "Administration of the Land Recycling Program" regulations, Appendix A, Table 3A, dated November 24, 2001 and revised January 8, 2011.
2. Pennsylvania Department of Environmental Protection, Management of Fill, August 27, 2010, Doc # 258-2182-773, Clean Fill Concentrations Limits for Organics (Table FP-1a) and Metals (Table FP-1b).
3. Results in **bold** type indicate that the measured level of the parameter exceeded the laboratory method detection limit.
4. "U" - Compound was not detected above the laboratory detection limit.
5. "-" Indicates a blank cell with no value.
6. NA - not analyzed.
7. DQ - detection qualifier.

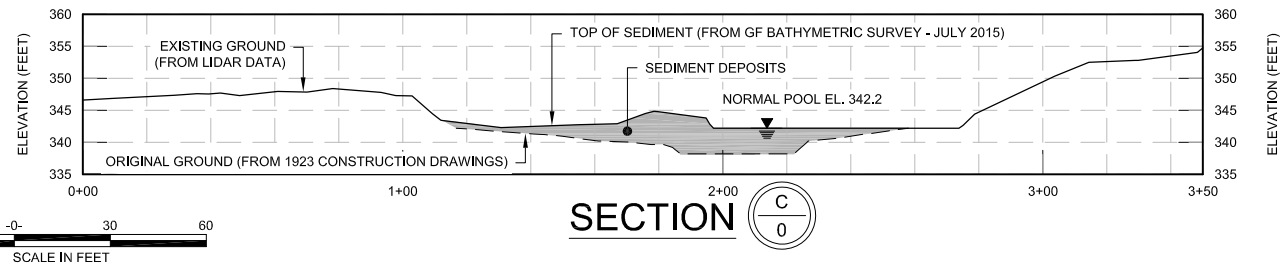
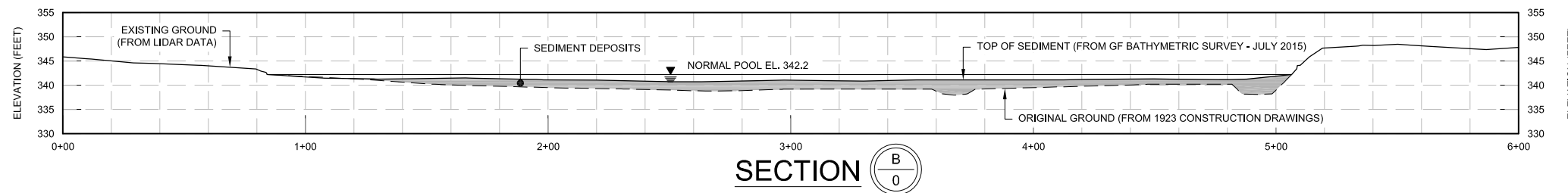
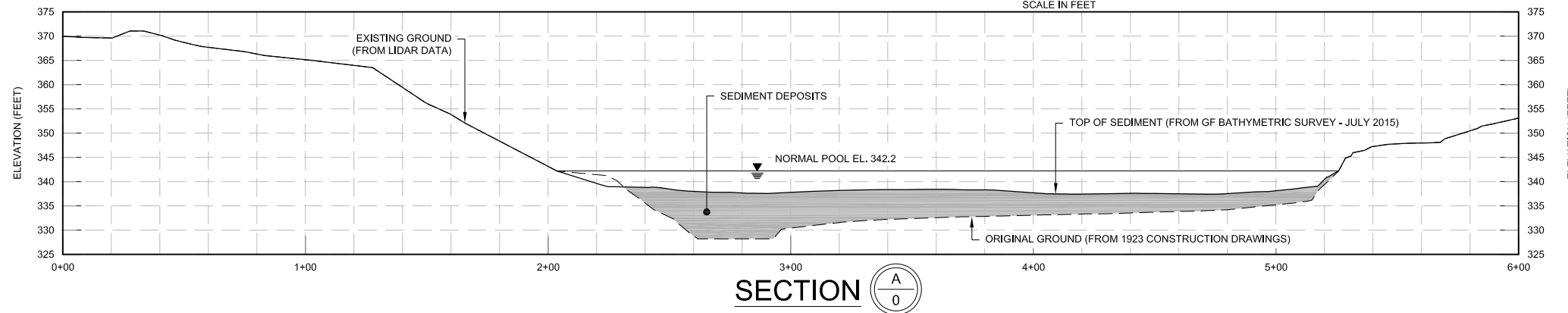
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**ATTACHMENT A**  
**RESERVOIR SEDIMENTATION MAP**

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RESERVOIR SEDIMENT DEPTH



| SEDIMENT DEPTH LEGEND |                   |              |
|-----------------------|-------------------|--------------|
| MIN. DEPTH (FEET)     | MAX. DEPTH (FEET) | COLOR        |
| 0                     | 1.0               | Red          |
| 1.0                   | 2.0               | Orange       |
| 2.0                   | 3.0               | Yellow       |
| 3.0                   | 4.0               | Light Green  |
| 4.0                   | 5.0               | Green        |
| 5.0                   | 6.0               | Dark Green   |
| 6.0                   | 7.0               | Light Blue   |
| 7.0                   | 8.0               | Blue         |
| 8.0                   | 9.0               | Dark Blue    |
| 9.0                   | 10.0              | Light Purple |
| 10.0                  | 11.0              | Blue         |
| 11.0                  | 12.0              | Dark Purple  |

- NOTES:
1. SEDIMENTATION DEPTH COMPARES THE CONTOURS SHOWN ON THE 1923 CONSTRUCTION DRAWINGS TO THE TOP OF SEDIMENT ELEVATION SURVEYED BY GANNETT FLEMING IN JULY 2015.
  2. APPROXIMATELY 46,800 CY (29 ACRE-FEET) OF SEDIMENT IS ESTIMATED TO BE PRESENT WITHIN THE MILLTOWN DAM RESERVOIR.

EAST GOSHEN TOWNSHIP

MILLTOWN DAM  
 DEP ID NO. D15-146  
 EAST GOSHEN TOWNSHIP, CHESTER COUNTY, PA

**RESERVOIR SEDIMENTATION MAP**

GANNETT FLEMING, INC.  
 HARRISBURG, PENNSYLVANIA

DATE: FEB. 2016      SCALE: AS SHOWN

FIGURE 4-9



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**ATTACHMENT B**  
**LABORATORY ANALYTICAL REPORT & CHAIN OF**  
**CUSTODY**

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May 20, 2016

Mr. David Graff  
Gannett Fleming Inc. (Hbg)  
207 Senate Avenue  
Camp Hill, PA 17011

## Certificate of Analysis

|                 |                      |               |                              |
|-----------------|----------------------|---------------|------------------------------|
| Project Name:   | <b>2016-MILLTOWN</b> | Workorder:    | <b>2141551</b>               |
| Purchase Order: | <b>060466</b>        | Workorder ID: | <b>Millerstown Reservoir</b> |

Dear Mr. Graff:

Enclosed are the analytical results for samples received by the laboratory on Thursday, May 5, 2016.

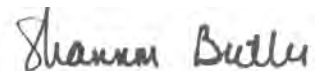
The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Ms. Shannon Butler (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

Ms. Shannon Butler  
Project Coordinator

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### SAMPLE SUMMARY

Workorder: 2141551 Millerstown Reservoir

| Lab ID     | Sample ID          | Matrix | Date Collected | Date Received  | Collected By        |
|------------|--------------------|--------|----------------|----------------|---------------------|
| 2141551001 | Site 1-Composite 1 | Solid  | 5/3/2016 10:30 | 5/5/2016 10:39 | Collected by Client |
| 2141551002 | Site 2-Composite 1 | Solid  | 5/3/2016 11:50 | 5/5/2016 10:39 | Collected by Client |
| 2141551003 | Site 2-Composite 2 | Solid  | 5/3/2016 12:30 | 5/5/2016 10:39 | Collected by Client |
| 2141551004 | Site 3-Composite 1 | Solid  | 5/4/2016 09:30 | 5/5/2016 10:39 | Collected by Client |
| 2141551005 | Site 3-Composite 2 | Solid  | 5/4/2016 10:15 | 5/5/2016 10:39 | Collected by Client |
| 2141551006 | Site 3-Composite 3 | Solid  | 5/4/2016 11:00 | 5/5/2016 10:39 | Collected by Client |
| 2141551007 | Equipment Blank    | Water  | 5/3/2016 14:00 | 5/5/2016 10:39 | Collected by Client |

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Vancouver Waterloo · Winnipeg · Yellowknife **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York **Mexico:** Monterrey

**SAMPLE SUMMARY**

Workorder: 2141551 Millerstown Reservoir

**Notes**

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.

**Standard Acronyms/Flags**

|        |  |
|--------|--|
| J      | Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte     |
| U      | Indicates that the analyte was Not Detected (ND)   |
| N      | Indicates presumptive evidence of the presence of a compound   |
| MDL    | Method Detection Limit   |
| PQL    | Practical Quantitation Limit   |
| RDL    | Reporting Detection Limit  |
| ND     | Not Detected - indicates that the analyte was Not Detected at the RDL  |
| Cntr   | Analysis was performed using this container  |
| RegLmt | Regulatory Limit   |
| LCS    | Laboratory Control Sample  |
| MS     | Matrix Spike   |
| MSD    | Matrix Spike Duplicate   |
| DUP    | Sample Duplicate   |
| %Rec   | Percent Recovery   |
| RPD    | Relative Percent Difference  |
| LOD    | DoD Limit of Detection   |
| LOQ    | DoD Limit of Quantitation  |
| DL     | DoD Detection Limit  |
| I      | Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL) |
| (S)    | Surrogate Compound   |
| NC     | Not Calculated   |
| *      | Result outside of QC limits  |

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

**PROJECT SUMMARY**

Workorder: 2141551 Millerstown Reservoir

**Sample Comments**

|   |                                      |                            |
|---|--------------------------------------|----------------------------|
| <b>Lab ID:</b> 2141551001   | <b>Sample ID:</b> Site 1-Composite 1 | <b>Sample Type:</b> SAMPLE |
| This sample was analyzed at a dilution in the 8081 Pesticide analysis due to sample matrix interference. Reporting limits were adjusted accordingly.  |                                      |                            |
| <b>Lab ID:</b> 2141551002   | <b>Sample ID:</b> Site 2-Composite 1 | <b>Sample Type:</b> SAMPLE |
| This sample was analyzed at a dilution in the 8081 Pesticide analysis due to sample matrix interference. Reporting limits were adjusted accordingly.  |                                      |                            |
| <b>Lab ID:</b> 2141551003   | <b>Sample ID:</b> Site 2-Composite 2 | <b>Sample Type:</b> SAMPLE |
| This sample was analyzed at a dilution in the 8081 Pesticide analysis due to sample matrix interference. Reporting limits were adjusted accordingly.  |                                      |                            |
| <b>Lab ID:</b> 2141551004   | <b>Sample ID:</b> Site 3-Composite 1 | <b>Sample Type:</b> SAMPLE |
| This sample was analyzed at a dilution in the 8081 Pesticide analysis due to sample matrix interference. Reporting limits were adjusted accordingly.  |                                      |                            |
| <b>Lab ID:</b> 2141551005   | <b>Sample ID:</b> Site 3-Composite 2 | <b>Sample Type:</b> SAMPLE |
| This sample was analyzed at a dilution in the 8081 Pesticide analysis due to sample matrix interference. Reporting limits were adjusted accordingly.  |                                      |                            |
| <b>Lab ID:</b> 2141551006   | <b>Sample ID:</b> Site 3-Composite 3 | <b>Sample Type:</b> SAMPLE |
| This sample was analyzed at a dilution in the 8081 Pesticide analysis due to sample matrix interference. Reporting limits were adjusted accordingly.  |                                      |                            |
| <b>Lab ID:</b> 2141551007   | <b>Sample ID:</b> Equipment Blank    | <b>Sample Type:</b> SAMPLE |
| The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory. |                                      |                            |

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551001**  
Sample ID: **Site 1-Composite 1**

Date Collected: 5/3/2016 10:30 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results | Flag | Units | RDL | Method      | Prepared      | By  | Analyzed      | By  | Cntr |
|-----------------------------|---------|------|-------|-----|-------------|---------------|-----|---------------|-----|------|
| <b>SEMIVOLATILES</b>        |         |      |       |     |             |               |     |               |     |      |
| Acenaphthene                | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Acenaphthylene              | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Acetophenone                | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Anthracene                  | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Atrazine                    | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Benzaldehyde                | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Benzo(a)anthracene          | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Benzo(a)pyrene              | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Benzo(b)fluoranthene        | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Benzo(g,h,i)perylene        | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Benzo(k)fluoranthene        | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Biphenyl                    | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 4-Bromophenyl-phenylether   | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Butylbenzylphthalate        | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Caprolactam                 | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Carbazole                   | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 4-Chloro-3-methylphenol     | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 4-Chloroaniline             | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| bis(2-Chloroethoxy)methane  | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| bis(2-Chloroethyl)ether     | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| bis(2-Chloroisopropyl)ether | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 2-Chloronaphthalene         | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 2-Chlorophenol              | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 4-Chlorophenyl-phenylether  | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Chrysene                    | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| mp-Cresol                   | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| o-Cresol                    | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Di-n-Butylphthalate         | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Di-n-Octylphthalate         | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Dibenzo(a,h)anthracene      | ND      |      | ug/kg | 151 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Dibenzofuran                | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 3,3-Dichlorobenzidine       | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 2,4-Dichlorophenol          | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Diethylphthalate            | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 2,4-Dimethylphenol          | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| Dimethylphthalate           | ND      |      | ug/kg | 301 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |
| 2,4-Dinitrophenol           | ND      |      | ug/kg | 602 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 11:34 | CGS | A    |

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 **Mexico:** Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551001**  
Sample ID: **Site 1-Composite 1**

Date Collected: 5/3/2016 10:30 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| 2,4-Dinitrotoluene          | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2,6-Dinitrotoluene          | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 1,4-Dioxane                 | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| bis(2-Ethylhexyl)phthalate  | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Fluoranthene                | 158            |             | ug/kg        | 151           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Fluorene                    | ND             |             | ug/kg        | 151           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Hexachlorobenzene           | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Hexachlorobutadiene         | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Hexachlorocyclopentadiene   | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Hexachloroethane            | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Indeno(1,2,3-cd)pyrene      | ND             |             | ug/kg        | 151           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Isophorone                  | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2-Methyl-4,6-dinitrophenol  | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2-Methylnaphthalene         | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Naphthalene                 | ND             |             | ug/kg        | 151           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2-Nitroaniline              | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 3-Nitroaniline              | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 4-Nitroaniline              | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Nitrobenzene                | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2-Nitrophenol               | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 4-Nitrophenol               | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| N-Nitroso-di-n-propylamine  | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| N-Nitrosodiphenylamine      | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Pentachlorophenol           | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Phenanthrene                | ND             |             | ug/kg        | 151           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Phenol                      | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Pyrene                      | ND             |             | ug/kg        | 151           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 1,2,4,5-Tetrachlorobenzene  | ND             |             | ug/kg        | 301           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2,3,4,6-Tetrachlorophenol   | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2,4,5-Trichlorophenol       | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2,4,6-Trichlorophenol       | ND             |             | ug/kg        | 602           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4,6-Tribromophenol (S)    | 59.8           |             | %            | 19 - 132      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2-Fluorobiphenyl (S)        | 49.1           |             | %            | 40 - 110      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| 2-Fluorophenol (S)          | 83.1           |             | %            | 26 - 116      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Nitrobenzene-d5 (S)         | 69.4           |             | %            | 38 - 112      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Phenol-d5 (S)               | 82             |             | %            | 35 - 111      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |
| Terphenyl-d14 (S)           | 46.8           |             | %            | 45 - 126      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 11:34   | CGS       | A           |

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551001**  
Sample ID: **Site 1-Composite 1**

Date Collected: 5/3/2016 10:30 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| <b>PCBs</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| Aroclor-1016                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Aroclor-1221                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Aroclor-1232                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Aroclor-1242                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Aroclor-1248                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Aroclor-1254                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Aroclor-1260                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Aroclor-1262                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Aroclor-1268                | ND             |             | mg/kg        | 0.078         | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 77.4           |             | %            | 49 - 115      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| Tetrachloro-m-xylene (S)    | 91.1           |             | %            | 27 - 137      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:35    | KJH       | A           |
| <b>PESTICIDES</b>           |                |             |              |               |               |                 |           |                 |           |             |
| Aldrin                      | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| alpha-BHC                   | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| beta-BHC                    | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| delta-BHC                   | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| gamma-BHC                   | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| alpha-Chlordane             | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| gamma-Chlordane             | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| 4,4'-DDD                    | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| 4,4'-DDE                    | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| 4,4'-DDT                    | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Dieldrin                    | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Endosulfan I                | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Endosulfan II               | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Endosulfan Sulfate          | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Endrin                      | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Endrin Aldehyde             | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Endrin Ketone               | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Heptachlor                  | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Heptachlor Epoxide          | ND             |             | ug/kg        | 20.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Methoxychlor                | ND             |             | ug/kg        | 38.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| Toxaphene                   | ND             |             | ug/kg        | 412           | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 94.4           |             | %            | 30 - 135      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |

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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551001** Date Collected: 5/3/2016 10:30 Matrix: Solid  
Sample ID: **Site 1-Composite 1** Date Received: 5/5/2016 10:39

| Parameters                        | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| Tetrachloro-m-xylene (S)          | 69.3           |             | %            | 30 - 111      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 15:59    | RWS       | A           |
| <b>HERBICIDES</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| 2,4-D                             | ND             |             | ug/kg        | 115           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| 2,4-DB                            | ND             |             | ug/kg        | 115           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| Dalapon                           | ND             |             | ug/kg        | 115           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| Dicamba                           | ND             |             | ug/kg        | 115           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| Dichloroprop                      | ND             |             | ug/kg        | 115           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| Dinoseb                           | ND             |             | ug/kg        | 286           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| Pentachlorophenol                 | ND             |             | ug/kg        | 115           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| 2,4,5-T                           | ND             |             | ug/kg        | 115           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| 2,4,5-TP                          | ND             |             | ug/kg        | 115           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| <i>Surrogate Recoveries</i>       | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4-Dichlorophenylacetic acid (S) | 69.3           |             | %            | 36 - 113      | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 14:42   | KJH       | A           |
| <b>WET CHEMISTRY</b>              |                |             |              |               |               |                 |           |                 |           |             |
| Moisture                          | 42.1           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| pH                                | 6.97           | 1           | pH_Units     |               | SW846 9045D   |                 |           | 5/7/16 06:25    | MSA       | A           |
| Total Solids                      | 57.9           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| <b>METALS</b>                     |                |             |              |               |               |                 |           |                 |           |             |
| Aluminum, Total                   | 3300           |             | mg/kg        | 4.2           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Antimony, Total                   | ND             |             | mg/kg        | 0.11          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Arsenic, Total                    | 0.46           |             | mg/kg        | 0.16          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Barium, Total                     | 20.3           |             | mg/kg        | 0.26          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Beryllium, Total                  | 0.095          |             | mg/kg        | 0.053         | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Cadmium, Total                    | ND             |             | mg/kg        | 0.053         | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Calcium, Total                    | 314            |             | mg/kg        | 5.3           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Chromium, Total                   | 4.8            |             | mg/kg        | 0.11          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Cobalt, Total                     | 0.74           |             | mg/kg        | 0.26          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/20/16 09:32   | MO        | A1          |
| Copper, Total                     | 2.2            |             | mg/kg        | 0.26          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Iron, Total                       | 3050           |             | mg/kg        | 2.6           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Lead, Total                       | 4.3            |             | mg/kg        | 0.11          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Magnesium, Total                  | 498            |             | mg/kg        | 5.3           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Manganese, Total                  | 35.8           |             | mg/kg        | 0.26          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Mercury, Total                    | ND             |             | mg/kg        | 0.086         | SW846 7471B   | 5/16/16 10:30   | MNP       | 5/16/16 13:17   | MNP       | A2          |
| Nickel, Total                     | 2.4            |             | mg/kg        | 0.26          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Potassium, Total                  | 265            |             | mg/kg        | 5.3           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |
| Selenium, Total                   | 0.52           |             | mg/kg        | 0.26          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:49   | MO        | A1          |

### ALS Environmental Laboratory Locations Across North America

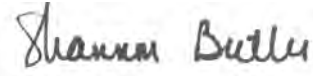
**Canada:** Burlington · Calgary · Centre of Excellence · Edmonton · Fort McMurray · Fort St. John · Grande Prairie · London · Mississauga · Richmond Hill · Saskatoon · Thunder Bay  
Vancouver Waterloo · Winnipeg · Yellowknife **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York **Mexico:** Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551001** Date Collected: 5/3/2016 10:30 Matrix: Solid  
Sample ID: **Site 1-Composite 1** Date Received: 5/5/2016 10:39

| Parameters      | Results | Flag | Units | RDL   | Method      | Prepared      | By  | Analyzed      | By | Cntr |
|-----------------|---------|------|-------|-------|-------------|---------------|-----|---------------|----|------|
| Silver, Total   | ND      |      | mg/kg | 0.11  | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:32 | MO | A1   |
| Sodium, Total   | 68.1    |      | mg/kg | 5.3   | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:49 | MO | A1   |
| Thallium, Total | ND      |      | mg/kg | 0.053 | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:32 | MO | A1   |
| Vanadium, Total | 5.6     |      | mg/kg | 0.11  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:49 | MO | A1   |
| Zinc, Total     | 10.4    |      | mg/kg | 0.26  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:49 | MO | A1   |



Ms. Shannon Butler  
Project Coordinator

#### ALS Environmental Laboratory Locations Across North America

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551002** Date Collected: 5/3/2016 11:50 Matrix: Solid  
Sample ID: **Site 2-Composite 1** Date Received: 5/5/2016 10:39

| Parameters                  | Results | Flag | Units | RDL | Method      | Prepared      | By  | Analyzed      | By  | Cntr |
|-----------------------------|---------|------|-------|-----|-------------|---------------|-----|---------------|-----|------|
| <b>SEMIVOLATILES</b>        |         |      |       |     |             |               |     |               |     |      |
| Acenaphthene                | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Acenaphthylene              | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Acetophenone                | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Anthracene                  | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Atrazine                    | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Benzaldehyde                | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Benzo(a)anthracene          | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Benzo(a)pyrene              | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Benzo(b)fluoranthene        | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Benzo(g,h,i)perylene        | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Benzo(k)fluoranthene        | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Biphenyl                    | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 4-Bromophenyl-phenylether   | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Butylbenzylphthalate        | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Caprolactam                 | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Carbazole                   | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 4-Chloro-3-methylphenol     | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 4-Chloroaniline             | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| bis(2-Chloroethoxy)methane  | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| bis(2-Chloroethyl)ether     | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| bis(2-Chloroisopropyl)ether | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 2-Chloronaphthalene         | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 2-Chlorophenol              | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 4-Chlorophenyl-phenylether  | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Chrysene                    | 226     |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| mp-Cresol                   | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| o-Cresol                    | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Di-n-Butylphthalate         | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Di-n-Octylphthalate         | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Dibenzo(a,h)anthracene      | ND      |      | ug/kg | 183 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Dibenzofuran                | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 3,3-Dichlorobenzidine       | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 2,4-Dichlorophenol          | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Diethylphthalate            | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 2,4-Dimethylphenol          | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| Dimethylphthalate           | ND      |      | ug/kg | 366 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |
| 2,4-Dinitrophenol           | ND      |      | ug/kg | 732 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:00 | CGS | A    |

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Vancouver Waterloo · Winnipeg · Yellowknife **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York **Mexico:** Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551002**  
Sample ID: **Site 2-Composite 1**

Date Collected: 5/3/2016 11:50 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| 2,4-Dinitrotoluene          | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2,6-Dinitrotoluene          | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 1,4-Dioxane                 | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| bis(2-Ethylhexyl)phthalate  | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Fluoranthene                | 194            |             | ug/kg        | 183           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Fluorene                    | ND             |             | ug/kg        | 183           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Hexachlorobenzene           | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Hexachlorobutadiene         | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Hexachlorocyclopentadiene   | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Hexachloroethane            | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Indeno(1,2,3-cd)pyrene      | ND             |             | ug/kg        | 183           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Isophorone                  | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2-Methyl-4,6-dinitrophenol  | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2-Methylnaphthalene         | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Naphthalene                 | ND             |             | ug/kg        | 183           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2-Nitroaniline              | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 3-Nitroaniline              | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 4-Nitroaniline              | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Nitrobenzene                | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2-Nitrophenol               | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 4-Nitrophenol               | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| N-Nitroso-di-n-propylamine  | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| N-Nitrosodiphenylamine      | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Pentachlorophenol           | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Phenanthrene                | ND             |             | ug/kg        | 183           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Phenol                      | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Pyrene                      | ND             |             | ug/kg        | 183           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 1,2,4,5-Tetrachlorobenzene  | ND             |             | ug/kg        | 366           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2,3,4,6-Tetrachlorophenol   | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2,4,5-Trichlorophenol       | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2,4,6-Trichlorophenol       | ND             |             | ug/kg        | 732           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4,6-Tribromophenol (S)    | 51.3           |             | %            | 19 - 132      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2-Fluorobiphenyl (S)        | 42             |             | %            | 40 - 110      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| 2-Fluorophenol (S)          | 85.3           |             | %            | 26 - 116      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Nitrobenzene-d5 (S)         | 69             |             | %            | 38 - 112      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Phenol-d5 (S)               | 82.8           |             | %            | 35 - 111      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |
| Terphenyl-d14 (S)           | 41             | 1           | %            | 45 - 126      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:00   | CGS       | A           |

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Vancouver Waterloo · Winnipeg · Yellowknife   
**United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York   
**Mexico:** Monterrey

**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

 Lab ID: **2141551002** Date Collected: 5/3/2016 11:50 Matrix: Solid  
 Sample ID: **Site 2-Composite 1** Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| <b>PCBs</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| Aroclor-1016                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Aroclor-1221                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Aroclor-1232                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Aroclor-1242                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Aroclor-1248                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Aroclor-1254                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Aroclor-1260                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Aroclor-1262                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Aroclor-1268                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 87.8           |             | %            | 49 - 115      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| Tetrachloro-m-xylene (S)    | 95.8           |             | %            | 27 - 137      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:46    | KJH       | A           |
| <b>PESTICIDES</b>           |                |             |              |               |               |                 |           |                 |           |             |
| Aldrin                      | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| alpha-BHC                   | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| beta-BHC                    | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| delta-BHC                   | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| gamma-BHC                   | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| alpha-Chlordane             | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| gamma-Chlordane             | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| 4,4'-DDD                    | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| 4,4'-DDE                    | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| 4,4'-DDT                    | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Dieldrin                    | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Endosulfan I                | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Endosulfan II               | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Endosulfan Sulfate          | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Endrin                      | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Endrin Aldehyde             | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Endrin Ketone               | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Heptachlor                  | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Heptachlor Epoxide          | ND             |             | ug/kg        | 38.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Methoxychlor                | ND             |             | ug/kg        | 74.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| Toxaphene                   | ND             |             | ug/kg        | 794           | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 87.3           |             | %            | 30 - 135      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |

**ALS Environmental Laboratory Locations Across North America**

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**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551002**  
Sample ID: **Site 2-Composite 1**

Date Collected: 5/3/2016 11:50 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                        | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| Tetrachloro-m-xylene (S)          | 60.2           |             | %            | 30 - 111      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:15    | RWS       | A           |
| <b>HERBICIDES</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| 2,4-D                             | ND             |             | ug/kg        | 148           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| 2,4-DB                            | ND             |             | ug/kg        | 148           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| Dalapon                           | ND             |             | ug/kg        | 148           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| Dicamba                           | ND             |             | ug/kg        | 148           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| Dichloroprop                      | ND             |             | ug/kg        | 148           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| Dinoseb                           | ND             |             | ug/kg        | 368           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| Pentachlorophenol                 | ND             |             | ug/kg        | 148           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| 2,4,5-T                           | ND             |             | ug/kg        | 148           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| 2,4,5-TP                          | ND             |             | ug/kg        | 148           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| <i>Surrogate Recoveries</i>       | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4-Dichlorophenylacetic acid (S) | 69.7           |             | %            | 36 - 113      | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:19   | KJH       | A           |
| <b>WET CHEMISTRY</b>              |                |             |              |               |               |                 |           |                 |           |             |
| Moisture                          | 55.9           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| pH                                | 6.93           | 2           | pH_Units     |               | SW846 9045D   |                 |           | 5/7/16 06:28    | MSA       | A           |
| Total Solids                      | 44.1           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| <b>METALS</b>                     |                |             |              |               |               |                 |           |                 |           |             |
| Aluminum, Total                   | 1260           |             | mg/kg        | 5.5           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Antimony, Total                   | ND             |             | mg/kg        | 0.14          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Arsenic, Total                    | ND             |             | mg/kg        | 0.21          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Barium, Total                     | 8.5            |             | mg/kg        | 0.35          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Beryllium, Total                  | ND             |             | mg/kg        | 0.069         | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Cadmium, Total                    | ND             |             | mg/kg        | 0.069         | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Calcium, Total                    | 168            |             | mg/kg        | 6.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Chromium, Total                   | 1.8            |             | mg/kg        | 0.14          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Cobalt, Total                     | ND             |             | mg/kg        | 0.35          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/20/16 09:35   | MO        | A1          |
| Copper, Total                     | 1.1            |             | mg/kg        | 0.35          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Iron, Total                       | 1290           |             | mg/kg        | 3.5           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Lead, Total                       | 1.6            |             | mg/kg        | 0.14          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Magnesium, Total                  | 234            |             | mg/kg        | 6.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Manganese, Total                  | 17.0           |             | mg/kg        | 0.35          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Mercury, Total                    | ND             |             | mg/kg        | 0.10          | SW846 7471B   | 5/16/16 10:30   | MNP       | 5/16/16 13:21   | MNP       | A2          |
| Nickel, Total                     | 1.0            |             | mg/kg        | 0.35          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Potassium, Total                  | 102            |             | mg/kg        | 6.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |
| Selenium, Total                   | ND             |             | mg/kg        | 0.35          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:53   | MO        | A1          |

**ALS Environmental Laboratory Locations Across North America**

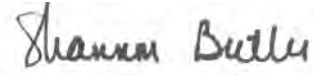
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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551002** Date Collected: 5/3/2016 11:50 Matrix: Solid  
Sample ID: **Site 2-Composite 1** Date Received: 5/5/2016 10:39

| Parameters      | Results | Flag | Units | RDL   | Method      | Prepared      | By  | Analyzed      | By | Cntr |
|-----------------|---------|------|-------|-------|-------------|---------------|-----|---------------|----|------|
| Silver, Total   | ND      |      | mg/kg | 0.14  | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:35 | MO | A1   |
| Sodium, Total   | 124     |      | mg/kg | 6.9   | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:53 | MO | A1   |
| Thallium, Total | ND      |      | mg/kg | 0.069 | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:35 | MO | A1   |
| Vanadium, Total | 2.0     |      | mg/kg | 0.14  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:53 | MO | A1   |
| Zinc, Total     | 4.5     |      | mg/kg | 0.35  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:53 | MO | A1   |



Ms. Shannon Butler  
Project Coordinator

#### ALS Environmental Laboratory Locations Across North America

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Vancouver Waterloo · Winnipeg · Yellowknife **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York **Mexico:** Monterrey

**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551003**  
Sample ID: **Site 2-Composite 2**

Date Collected: 5/3/2016 12:30 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results | Flag | Units | RDL | Method      | Prepared      | By  | Analyzed      | By  | Cntr |
|-----------------------------|---------|------|-------|-----|-------------|---------------|-----|---------------|-----|------|
| <b>SEMIVOLATILES</b>        |         |      |       |     |             |               |     |               |     |      |
| Acenaphthene                | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Acenaphthylene              | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Acetophenone                | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Anthracene                  | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Atrazine                    | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Benzaldehyde                | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Benzo(a)anthracene          | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Benzo(a)pyrene              | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Benzo(b)fluoranthene        | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Benzo(g,h,i)perylene        | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Benzo(k)fluoranthene        | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Biphenyl                    | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 4-Bromophenyl-phenylether   | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Butylbenzylphthalate        | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Caprolactam                 | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Carbazole                   | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 4-Chloro-3-methylphenol     | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 4-Chloroaniline             | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| bis(2-Chloroethoxy)methane  | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| bis(2-Chloroethyl)ether     | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| bis(2-Chloroisopropyl)ether | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 2-Chloronaphthalene         | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 2-Chlorophenol              | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 4-Chlorophenyl-phenylether  | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Chrysene                    | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| mp-Cresol                   | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| o-Cresol                    | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Di-n-Butylphthalate         | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Di-n-Octylphthalate         | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Dibenzo(a,h)anthracene      | ND      |      | ug/kg | 156 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Dibenzofuran                | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 3,3-Dichlorobenzidine       | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 2,4-Dichlorophenol          | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Diethylphthalate            | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 2,4-Dimethylphenol          | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| Dimethylphthalate           | ND      |      | ug/kg | 312 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |
| 2,4-Dinitrophenol           | ND      |      | ug/kg | 624 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:26 | CGS | A    |

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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551003**  
Sample ID: **Site 2-Composite 2**

Date Collected: 5/3/2016 12:30 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| 2,4-Dinitrotoluene          | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2,6-Dinitrotoluene          | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 1,4-Dioxane                 | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| bis(2-Ethylhexyl)phthalate  | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Fluoranthene                | ND             |             | ug/kg        | 156           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Fluorene                    | ND             |             | ug/kg        | 156           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Hexachlorobenzene           | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Hexachlorobutadiene         | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Hexachlorocyclopentadiene   | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Hexachloroethane            | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Indeno(1,2,3-cd)pyrene      | ND             |             | ug/kg        | 156           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Isophorone                  | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2-Methyl-4,6-dinitrophenol  | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2-Methylnaphthalene         | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Naphthalene                 | ND             |             | ug/kg        | 156           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2-Nitroaniline              | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 3-Nitroaniline              | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 4-Nitroaniline              | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Nitrobenzene                | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2-Nitrophenol               | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 4-Nitrophenol               | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| N-Nitroso-di-n-propylamine  | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| N-Nitrosodiphenylamine      | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Pentachlorophenol           | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Phenanthrene                | ND             |             | ug/kg        | 156           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Phenol                      | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Pyrene                      | ND             |             | ug/kg        | 156           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 1,2,4,5-Tetrachlorobenzene  | ND             |             | ug/kg        | 312           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2,3,4,6-Tetrachlorophenol   | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2,4,5-Trichlorophenol       | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2,4,6-Trichlorophenol       | ND             |             | ug/kg        | 624           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4,6-Tribromophenol (S)    | 45.9           |             | %            | 19 - 132      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2-Fluorobiphenyl (S)        | 36.5           | 1           | %            | 40 - 110      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| 2-Fluorophenol (S)          | 78.6           |             | %            | 26 - 116      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Nitrobenzene-d5 (S)         | 60.7           |             | %            | 38 - 112      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Phenol-d5 (S)               | 77.3           |             | %            | 35 - 111      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |
| Terphenyl-d14 (S)           | 37.8           | 2           | %            | 45 - 126      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:26   | CGS       | A           |

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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551003** Date Collected: 5/3/2016 12:30 Matrix: Solid  
Sample ID: **Site 2-Composite 2** Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| <b>PCBs</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| Aroclor-1016                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Aroclor-1221                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Aroclor-1232                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Aroclor-1242                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Aroclor-1248                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Aroclor-1254                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Aroclor-1260                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Aroclor-1262                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Aroclor-1268                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 84.2           |             | %            | 49 - 115      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| Tetrachloro-m-xylene (S)    | 88.1           |             | %            | 27 - 137      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 14:58    | KJH       | A           |
| <b>PESTICIDES</b>           |                |             |              |               |               |                 |           |                 |           |             |
| Aldrin                      | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| alpha-BHC                   | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| beta-BHC                    | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| delta-BHC                   | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| gamma-BHC                   | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| alpha-Chlordane             | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| gamma-Chlordane             | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| 4,4'-DDD                    | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| 4,4'-DDE                    | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| 4,4'-DDT                    | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Dieldrin                    | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Endosulfan I                | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Endosulfan II               | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Endosulfan Sulfate          | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Endrin                      | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Endrin Aldehyde             | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Endrin Ketone               | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Heptachlor                  | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Heptachlor Epoxide          | ND             |             | ug/kg        | 28.4          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Methoxychlor                | ND             |             | ug/kg        | 55.1          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| Toxaphene                   | ND             |             | ug/kg        | 585           | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 80.4           |             | %            | 30 - 135      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |

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**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551003** Date Collected: 5/3/2016 12:30 Matrix: Solid  
Sample ID: **Site 2-Composite 2** Date Received: 5/5/2016 10:39

| Parameters                        | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| Tetrachloro-m-xylene (S)          | 54.7           |             | %            | 30 - 111      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:31    | RWS       | A           |
| <b>HERBICIDES</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| 2,4-D                             | ND             |             | ug/kg        | 125           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| 2,4-DB                            | ND             |             | ug/kg        | 125           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| Dalapon                           | ND             |             | ug/kg        | 125           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| Dicamba                           | ND             |             | ug/kg        | 125           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| Dichloroprop                      | ND             |             | ug/kg        | 125           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| Dinoseb                           | ND             |             | ug/kg        | 312           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| Pentachlorophenol                 | ND             |             | ug/kg        | 125           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| 2,4,5-T                           | ND             |             | ug/kg        | 125           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| 2,4,5-TP                          | ND             |             | ug/kg        | 125           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| <i>Surrogate Recoveries</i>       | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4-Dichlorophenylacetic acid (S) | 62.1           |             | %            | 36 - 113      | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 15:56   | KJH       | A           |
| <b>WET CHEMISTRY</b>              |                |             |              |               |               |                 |           |                 |           |             |
| Moisture                          | 47.2           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| pH                                | 6.91           | 3           | pH_Units     |               | SW846 9045D   |                 |           | 5/7/16 06:34    | MSA       | A           |
| Total Solids                      | 52.8           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| <b>METALS</b>                     |                |             |              |               |               |                 |           |                 |           |             |
| Aluminum, Total                   | 1530           |             | mg/kg        | 4.7           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Antimony, Total                   | ND             |             | mg/kg        | 0.12          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Arsenic, Total                    | 0.27           |             | mg/kg        | 0.18          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Barium, Total                     | 9.7            |             | mg/kg        | 0.29          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Beryllium, Total                  | ND             |             | mg/kg        | 0.059         | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Cadmium, Total                    | ND             |             | mg/kg        | 0.059         | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Calcium, Total                    | 86.2           |             | mg/kg        | 5.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Chromium, Total                   | 2.0            |             | mg/kg        | 0.12          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Cobalt, Total                     | 0.38           |             | mg/kg        | 0.29          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/20/16 09:39   | MO        | A1          |
| Copper, Total                     | 1.6            |             | mg/kg        | 0.29          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Iron, Total                       | 1450           |             | mg/kg        | 2.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Lead, Total                       | 1.4            |             | mg/kg        | 0.12          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Magnesium, Total                  | 194            |             | mg/kg        | 5.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Manganese, Total                  | 21.6           |             | mg/kg        | 0.29          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Mercury, Total                    | ND             |             | mg/kg        | 0.082         | SW846 7471B   | 5/16/16 10:30   | MNP       | 5/16/16 13:22   | MNP       | A2          |
| Nickel, Total                     | 1.2            |             | mg/kg        | 0.29          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Potassium, Total                  | 102            |             | mg/kg        | 5.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |
| Selenium, Total                   | ND             |             | mg/kg        | 0.29          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 16:57   | MO        | A1          |

**ALS Environmental Laboratory Locations Across North America**

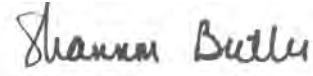
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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551003** Date Collected: 5/3/2016 12:30 Matrix: Solid  
Sample ID: **Site 2-Composite 2** Date Received: 5/5/2016 10:39

| Parameters      | Results | Flag | Units | RDL   | Method      | Prepared      | By  | Analyzed      | By | Cntr |
|-----------------|---------|------|-------|-------|-------------|---------------|-----|---------------|----|------|
| Silver, Total   | ND      |      | mg/kg | 0.12  | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:39 | MO | A1   |
| Sodium, Total   | 36.8    |      | mg/kg | 5.9   | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:57 | MO | A1   |
| Thallium, Total | ND      |      | mg/kg | 0.059 | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:39 | MO | A1   |
| Vanadium, Total | 2.4     |      | mg/kg | 0.12  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:57 | MO | A1   |
| Zinc, Total     | 3.8     |      | mg/kg | 0.29  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 16:57 | MO | A1   |



Ms. Shannon Butler  
Project Coordinator

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551004**  
Sample ID: **Site 3-Composite 1**

Date Collected: 5/4/2016 09:30 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results | Flag | Units | RDL | Method      | Prepared      | By  | Analyzed      | By  | Cntr |
|-----------------------------|---------|------|-------|-----|-------------|---------------|-----|---------------|-----|------|
| <b>SEMIVOLATILES</b>        |         |      |       |     |             |               |     |               |     |      |
| Acenaphthene                | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Acenaphthylene              | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Acetophenone                | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Anthracene                  | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Atrazine                    | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Benzaldehyde                | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Benzo(a)anthracene          | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Benzo(a)pyrene              | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Benzo(b)fluoranthene        | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Benzo(g,h,i)perylene        | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Benzo(k)fluoranthene        | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Biphenyl                    | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 4-Bromophenyl-phenylether   | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Butylbenzylphthalate        | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Caprolactam                 | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Carbazole                   | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 4-Chloro-3-methylphenol     | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 4-Chloroaniline             | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| bis(2-Chloroethoxy)methane  | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| bis(2-Chloroethyl)ether     | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| bis(2-Chloroisopropyl)ether | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 2-Chloronaphthalene         | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 2-Chlorophenol              | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 4-Chlorophenyl-phenylether  | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Chrysene                    | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| mp-Cresol                   | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| o-Cresol                    | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Di-n-Butylphthalate         | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Di-n-Octylphthalate         | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Dibenzo(a,h)anthracene      | ND      |      | ug/kg | 234 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Dibenzofuran                | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 3,3-Dichlorobenzidine       | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 2,4-Dichlorophenol          | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Diethylphthalate            | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 2,4-Dimethylphenol          | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| Dimethylphthalate           | ND      |      | ug/kg | 469 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |
| 2,4-Dinitrophenol           | ND      |      | ug/kg | 938 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 12:51 | CGS | A    |

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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551004**  
Sample ID: **Site 3-Composite 1**

Date Collected: 5/4/2016 09:30 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| 2,4-Dinitrotoluene          | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2,6-Dinitrotoluene          | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 1,4-Dioxane                 | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| bis(2-Ethylhexyl)phthalate  | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Fluoranthene                | ND             |             | ug/kg        | 234           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Fluorene                    | ND             |             | ug/kg        | 234           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Hexachlorobenzene           | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Hexachlorobutadiene         | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Hexachlorocyclopentadiene   | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Hexachloroethane            | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Indeno(1,2,3-cd)pyrene      | ND             |             | ug/kg        | 234           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Isophorone                  | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2-Methyl-4,6-dinitrophenol  | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2-Methylnaphthalene         | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Naphthalene                 | ND             |             | ug/kg        | 234           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2-Nitroaniline              | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 3-Nitroaniline              | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 4-Nitroaniline              | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Nitrobenzene                | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2-Nitrophenol               | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 4-Nitrophenol               | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| N-Nitroso-di-n-propylamine  | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| N-Nitrosodiphenylamine      | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Pentachlorophenol           | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Phenanthrene                | ND             |             | ug/kg        | 234           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Phenol                      | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Pyrene                      | ND             |             | ug/kg        | 234           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 1,2,4,5-Tetrachlorobenzene  | ND             |             | ug/kg        | 469           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2,3,4,6-Tetrachlorophenol   | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2,4,5-Trichlorophenol       | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2,4,6-Trichlorophenol       | ND             |             | ug/kg        | 938           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4,6-Tribromophenol (S)    | 42.6           |             | %            | 19 - 132      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2-Fluorobiphenyl (S)        | 31             | 1           | %            | 40 - 110      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| 2-Fluorophenol (S)          | 75.5           |             | %            | 26 - 116      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Nitrobenzene-d5 (S)         | 58.8           |             | %            | 38 - 112      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Phenol-d5 (S)               | 75             |             | %            | 35 - 111      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |
| Terphenyl-d14 (S)           | 34.7           | 2           | %            | 45 - 126      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 12:51   | CGS       | A           |

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Vancouver Waterloo · Winnipeg · Yellowknife   
**United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York   
**Mexico:** Monterrey

**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551004** Date Collected: 5/4/2016 09:30 Matrix: Solid  
Sample ID: **Site 3-Composite 1** Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| <b>PCBs</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| Aroclor-1016                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Aroclor-1221                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Aroclor-1232                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Aroclor-1242                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Aroclor-1248                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Aroclor-1254                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Aroclor-1260                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Aroclor-1262                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Aroclor-1268                | ND             |             | mg/kg        | 0.15          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 76.9           |             | %            | 49 - 115      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| Tetrachloro-m-xylene (S)    | 91.6           |             | %            | 27 - 137      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:09    | KJH       | A           |
| <b>PESTICIDES</b>           |                |             |              |               |               |                 |           |                 |           |             |
| Aldrin                      | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| alpha-BHC                   | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| beta-BHC                    | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| delta-BHC                   | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| gamma-BHC                   | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| alpha-Chlordane             | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| gamma-Chlordane             | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| 4,4'-DDD                    | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| 4,4'-DDE                    | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| 4,4'-DDT                    | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Dieldrin                    | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Endosulfan I                | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Endosulfan II               | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Endosulfan Sulfate          | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Endrin                      | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Endrin Aldehyde             | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Endrin Ketone               | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Heptachlor                  | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Heptachlor Epoxide          | ND             |             | ug/kg        | 38.0          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Methoxychlor                | ND             |             | ug/kg        | 73.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| Toxaphene                   | ND             |             | ug/kg        | 783           | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 96.6           |             | %            | 30 - 135      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |

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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

**Lab ID:** 2141551004      **Date Collected:** 5/4/2016 09:30      **Matrix:** Solid  
**Sample ID:** Site 3-Composite 1      **Date Received:** 5/5/2016 10:39

| Parameters                        | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| Tetrachloro-m-xylene (S)          | 121            | 3           | %            | 30 - 111      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 16:46    | RWS       | A           |
| <b>HERBICIDES</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| 2,4-D                             | ND             |             | ug/kg        | 169           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| 2,4-DB                            | ND             |             | ug/kg        | 169           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| Dalapon                           | ND             |             | ug/kg        | 169           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| Dicamba                           | ND             |             | ug/kg        | 169           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| Dichloroprop                      | ND             |             | ug/kg        | 169           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| Dinoseb                           | ND             |             | ug/kg        | 421           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| Pentachlorophenol                 | ND             |             | ug/kg        | 169           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| 2,4,5-T                           | ND             |             | ug/kg        | 169           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| 2,4,5-TP                          | ND             |             | ug/kg        | 169           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| <i>Surrogate Recoveries</i>       | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4-Dichlorophenylacetic acid (S) | 65.5           |             | %            | 36 - 113      | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 16:33   | KJH       | A           |
| <b>WET CHEMISTRY</b>              |                |             |              |               |               |                 |           |                 |           |             |
| Moisture                          | 61.5           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| pH                                | 6.87           | 4           | pH_Units     |               | SW846 9045D   |                 |           | 5/7/16 06:38    | MSA       | A           |
| Total Solids                      | 38.5           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| <b>METALS</b>                     |                |             |              |               |               |                 |           |                 |           |             |
| Aluminum, Total                   | 5360           |             | mg/kg        | 6.4           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Antimony, Total                   | ND             |             | mg/kg        | 0.16          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Arsenic, Total                    | 0.90           |             | mg/kg        | 0.24          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Barium, Total                     | 48.6           |             | mg/kg        | 0.40          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Beryllium, Total                  | 0.19           |             | mg/kg        | 0.080         | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Cadmium, Total                    | 0.096          |             | mg/kg        | 0.080         | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Calcium, Total                    | 694            |             | mg/kg        | 8.0           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Chromium, Total                   | 10.1           |             | mg/kg        | 0.16          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Cobalt, Total                     | 1.5            |             | mg/kg        | 0.40          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/20/16 09:43   | MO        | A1          |
| Copper, Total                     | 5.3            |             | mg/kg        | 0.40          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Iron, Total                       | 6070           |             | mg/kg        | 4.0           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Lead, Total                       | 8.9            |             | mg/kg        | 0.16          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Magnesium, Total                  | 1020           |             | mg/kg        | 8.0           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Manganese, Total                  | 77.2           |             | mg/kg        | 0.40          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Mercury, Total                    | ND             |             | mg/kg        | 0.12          | SW846 7471B   | 5/16/16 10:30   | MNP       | 5/16/16 13:23   | MNP       | A2          |
| Nickel, Total                     | 5.3            |             | mg/kg        | 0.40          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Potassium, Total                  | 398            |             | mg/kg        | 8.0           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |
| Selenium, Total                   | 0.74           |             | mg/kg        | 0.40          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:01   | MO        | A1          |

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**Vancouver Waterloo · Winnipeg · Yellowknife**    **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York    **Mexico:** Monterrey

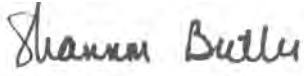


### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551004** Date Collected: 5/4/2016 09:30 Matrix: Solid  
Sample ID: **Site 3-Composite 1** Date Received: 5/5/2016 10:39

| Parameters      | Results | Flag | Units | RDL   | Method      | Prepared      | By  | Analyzed      | By | Cntr |
|-----------------|---------|------|-------|-------|-------------|---------------|-----|---------------|----|------|
| Silver, Total   | ND      |      | mg/kg | 0.16  | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:43 | MO | A1   |
| Sodium, Total   | 132     |      | mg/kg | 8.0   | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:01 | MO | A1   |
| Thallium, Total | ND      |      | mg/kg | 0.080 | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:43 | MO | A1   |
| Vanadium, Total | 11.0    |      | mg/kg | 0.16  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:01 | MO | A1   |
| Zinc, Total     | 25.6    |      | mg/kg | 0.40  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:01 | MO | A1   |



Ms. Shannon Butler  
Project Coordinator

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551005** Date Collected: 5/4/2016 10:15 Matrix: Solid  
Sample ID: **Site 3-Composite 2** Date Received: 5/5/2016 10:39

| Parameters                  | Results | Flag | Units | RDL | Method      | Prepared      | By  | Analyzed      | By  | Cntr |
|-----------------------------|---------|------|-------|-----|-------------|---------------|-----|---------------|-----|------|
| <b>SEMIVOLATILES</b>        |         |      |       |     |             |               |     |               |     |      |
| Acenaphthene                | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Acenaphthylene              | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Acetophenone                | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Anthracene                  | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Atrazine                    | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Benzaldehyde                | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Benzo(a)anthracene          | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Benzo(a)pyrene              | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Benzo(b)fluoranthene        | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Benzo(g,h,i)perylene        | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Benzo(k)fluoranthene        | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Biphenyl                    | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 4-Bromophenyl-phenylether   | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Butylbenzylphthalate        | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Caprolactam                 | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Carbazole                   | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 4-Chloro-3-methylphenol     | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 4-Chloroaniline             | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| bis(2-Chloroethoxy)methane  | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| bis(2-Chloroethyl)ether     | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| bis(2-Chloroisopropyl)ether | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 2-Chloronaphthalene         | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 2-Chlorophenol              | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 4-Chlorophenyl-phenylether  | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Chrysene                    | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| mp-Cresol                   | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| o-Cresol                    | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Di-n-Butylphthalate         | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Di-n-Octylphthalate         | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Dibenzo(a,h)anthracene      | ND      |      | ug/kg | 196 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Dibenzofuran                | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 3,3-Dichlorobenzidine       | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 2,4-Dichlorophenol          | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Diethylphthalate            | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 2,4-Dimethylphenol          | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| Dimethylphthalate           | ND      |      | ug/kg | 393 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |
| 2,4-Dinitrophenol           | ND      |      | ug/kg | 786 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:17 | CGS | A    |

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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551005**  
Sample ID: **Site 3-Composite 2**

Date Collected: 5/4/2016 10:15 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| 2,4-Dinitrotoluene          | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2,6-Dinitrotoluene          | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 1,4-Dioxane                 | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| bis(2-Ethylhexyl)phthalate  | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Fluoranthene                | ND             |             | ug/kg        | 196           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Fluorene                    | ND             |             | ug/kg        | 196           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Hexachlorobenzene           | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Hexachlorobutadiene         | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Hexachlorocyclopentadiene   | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Hexachloroethane            | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Indeno(1,2,3-cd)pyrene      | ND             |             | ug/kg        | 196           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Isophorone                  | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2-Methyl-4,6-dinitrophenol  | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2-Methylnaphthalene         | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Naphthalene                 | ND             |             | ug/kg        | 196           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2-Nitroaniline              | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 3-Nitroaniline              | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 4-Nitroaniline              | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Nitrobenzene                | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2-Nitrophenol               | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 4-Nitrophenol               | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| N-Nitroso-di-n-propylamine  | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| N-Nitrosodiphenylamine      | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Pentachlorophenol           | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Phenanthrene                | ND             |             | ug/kg        | 196           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Phenol                      | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Pyrene                      | ND             |             | ug/kg        | 196           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 1,2,4,5-Tetrachlorobenzene  | ND             |             | ug/kg        | 393           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2,3,4,6-Tetrachlorophenol   | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2,4,5-Trichlorophenol       | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2,4,6-Trichlorophenol       | ND             |             | ug/kg        | 786           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4,6-Tribromophenol (S)    | 40.2           |             | %            | 19 - 132      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2-Fluorobiphenyl (S)        | 28.3           | 1           | %            | 40 - 110      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| 2-Fluorophenol (S)          | 82.5           |             | %            | 26 - 116      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Nitrobenzene-d5 (S)         | 62.2           |             | %            | 38 - 112      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Phenol-d5 (S)               | 81             |             | %            | 35 - 111      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |
| Terphenyl-d14 (S)           | 35             | 2           | %            | 45 - 126      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:17   | CGS       | A           |

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Vancouver Waterloo · Winnipeg · Yellowknife   
**United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York   
**Mexico:** Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551005** Date Collected: 5/4/2016 10:15 Matrix: Solid  
Sample ID: **Site 3-Composite 2** Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| <b>PCBs</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| Aroclor-1016                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Aroclor-1221                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Aroclor-1232                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Aroclor-1242                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Aroclor-1248                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Aroclor-1254                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Aroclor-1260                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Aroclor-1262                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Aroclor-1268                | ND             |             | mg/kg        | 0.11          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 78.7           |             | %            | 49 - 115      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| Tetrachloro-m-xylene (S)    | 88.1           |             | %            | 27 - 137      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:21    | KJH       | A           |
| <b>PESTICIDES</b>           |                |             |              |               |               |                 |           |                 |           |             |
| Aldrin                      | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| alpha-BHC                   | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| beta-BHC                    | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| delta-BHC                   | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| gamma-BHC                   | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| alpha-Chlordane             | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| gamma-Chlordane             | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| 4,4'-DDD                    | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| 4,4'-DDE                    | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| 4,4'-DDT                    | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Dieldrin                    | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Endosulfan I                | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Endosulfan II               | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Endosulfan Sulfate          | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Endrin                      | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Endrin Aldehyde             | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Endrin Ketone               | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Heptachlor                  | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Heptachlor Epoxide          | ND             |             | ug/kg        | 27.2          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Methoxychlor                | ND             |             | ug/kg        | 52.9          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| Toxaphene                   | ND             |             | ug/kg        | 561           | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 87.7           |             | %            | 30 - 135      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |

### ALS Environmental Laboratory Locations Across North America

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Vancouver Waterloo · Winnipeg · Yellowknife **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York **Mexico:** Monterrey

**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

 Lab ID: **2141551005** Date Collected: 5/4/2016 10:15 Matrix: Solid  
 Sample ID: **Site 3-Composite 2** Date Received: 5/5/2016 10:39

| Parameters                        | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| Tetrachloro-m-xylene (S)          | 58.7           |             | %            | 30 - 111      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:02    | RWS       | A           |
| <b>HERBICIDES</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| 2,4-D                             | ND             |             | ug/kg        | 146           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| 2,4-DB                            | ND             |             | ug/kg        | 146           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| Dalapon                           | ND             |             | ug/kg        | 146           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| Dicamba                           | ND             |             | ug/kg        | 146           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| Dichloroprop                      | ND             |             | ug/kg        | 146           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| Dinoseb                           | ND             |             | ug/kg        | 364           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| Pentachlorophenol                 | ND             |             | ug/kg        | 146           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| 2,4,5-T                           | ND             |             | ug/kg        | 146           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| 2,4,5-TP                          | ND             |             | ug/kg        | 146           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| <i>Surrogate Recoveries</i>       | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4-Dichlorophenylacetic acid (S) | 71.9           |             | %            | 36 - 113      | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/11/16 17:10   | KJH       | A           |
| <b>WET CHEMISTRY</b>              |                |             |              |               |               |                 |           |                 |           |             |
| Moisture                          | 54.5           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| pH                                | 6.91           | 3           | pH_Units     |               | SW846 9045D   |                 |           | 5/7/16 06:41    | MSA       | A           |
| Total Solids                      | 45.5           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| <b>METALS</b>                     |                |             |              |               |               |                 |           |                 |           |             |
| Aluminum, Total                   | 47700          |             | mg/kg        | 74.6          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Antimony, Total                   | ND             |             | mg/kg        | 1.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Arsenic, Total                    | 7.2            |             | mg/kg        | 2.8           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Barium, Total                     | 339            |             | mg/kg        | 4.7           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Beryllium, Total                  | 1.6            |             | mg/kg        | 0.93          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Cadmium, Total                    | ND             |             | mg/kg        | 0.93          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Calcium, Total                    | 3850           |             | mg/kg        | 93.2          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Chromium, Total                   | 76.1           |             | mg/kg        | 1.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Cobalt, Total                     | 12.6           |             | mg/kg        | 4.7           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/20/16 09:47   | MO        | A1          |
| Copper, Total                     | 43.4           |             | mg/kg        | 4.7           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Iron, Total                       | 47200          |             | mg/kg        | 46.6          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Lead, Total                       | 76.6           |             | mg/kg        | 1.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Magnesium, Total                  | 7790           |             | mg/kg        | 93.2          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Manganese, Total                  | 702            |             | mg/kg        | 4.7           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Mercury, Total                    | ND             |             | mg/kg        | 0.10          | SW846 7471B   | 5/16/16 10:30   | MNP       | 5/16/16 13:24   | MNP       | A2          |
| Nickel, Total                     | 40.9           |             | mg/kg        | 4.7           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Potassium, Total                  | 3620           |             | mg/kg        | 93.2          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |
| Selenium, Total                   | 5.5            |             | mg/kg        | 4.7           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:05   | MO        | A1          |

**ALS Environmental Laboratory Locations Across North America**

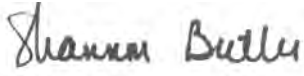
 Canada: Burlington · Calgary · Centre of Excellence · Edmonton · Fort McMurray · Fort St. John · Grande Prairie · London · Mississauga · Richmond Hill · Saskatoon · Thunder Bay  
 Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551005** Date Collected: 5/4/2016 10:15 Matrix: Solid  
Sample ID: **Site 3-Composite 2** Date Received: 5/5/2016 10:39

| Parameters      | Results | Flag | Units | RDL  | Method      | Prepared      | By  | Analyzed      | By | Cntr |
|-----------------|---------|------|-------|------|-------------|---------------|-----|---------------|----|------|
| Silver, Total   | ND      |      | mg/kg | 1.9  | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:47 | MO | A1   |
| Sodium, Total   | 274     |      | mg/kg | 93.2 | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:05 | MO | A1   |
| Thallium, Total | ND      |      | mg/kg | 0.93 | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:47 | MO | A1   |
| Vanadium, Total | 90.4    |      | mg/kg | 1.9  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:05 | MO | A1   |
| Zinc, Total     | 165     |      | mg/kg | 4.7  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:05 | MO | A1   |

  
Ms. Shannon Butler  
Project Coordinator

#### ALS Environmental Laboratory Locations Across North America

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551006** Date Collected: 5/4/2016 11:00 Matrix: Solid  
Sample ID: **Site 3-Composite 3** Date Received: 5/5/2016 10:39

| Parameters                  | Results | Flag | Units | RDL | Method      | Prepared      | By  | Analyzed      | By  | Cntr |
|-----------------------------|---------|------|-------|-----|-------------|---------------|-----|---------------|-----|------|
| <b>SEMIVOLATILES</b>        |         |      |       |     |             |               |     |               |     |      |
| Acenaphthene                | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Acenaphthylene              | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Acetophenone                | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Anthracene                  | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Atrazine                    | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Benzaldehyde                | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Benzo(a)anthracene          | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Benzo(a)pyrene              | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Benzo(b)fluoranthene        | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Benzo(g,h,i)perylene        | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Benzo(k)fluoranthene        | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Biphenyl                    | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 4-Bromophenyl-phenylether   | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Butylbenzylphthalate        | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Caprolactam                 | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Carbazole                   | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 4-Chloro-3-methylphenol     | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 4-Chloroaniline             | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| bis(2-Chloroethoxy)methane  | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| bis(2-Chloroethyl)ether     | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| bis(2-Chloroisopropyl)ether | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 2-Chloronaphthalene         | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 2-Chlorophenol              | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 4-Chlorophenyl-phenylether  | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Chrysene                    | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| mp-Cresol                   | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| o-Cresol                    | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Di-n-Butylphthalate         | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Di-n-Octylphthalate         | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Dibenzo(a,h)anthracene      | ND      |      | ug/kg | 176 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Dibenzofuran                | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 3,3-Dichlorobenzidine       | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 2,4-Dichlorophenol          | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Diethylphthalate            | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 2,4-Dimethylphenol          | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| Dimethylphthalate           | ND      |      | ug/kg | 353 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |
| 2,4-Dinitrophenol           | ND      |      | ug/kg | 706 | SW846 8270D | 5/11/16 02:25 | VLM | 5/11/16 13:43 | CGS | A    |

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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

 Lab ID: **2141551006**  
 Sample ID: **Site 3-Composite 3**

 Date Collected: 5/4/2016 11:00 Matrix: Solid  
 Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| 2,4-Dinitrotoluene          | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2,6-Dinitrotoluene          | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 1,4-Dioxane                 | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| bis(2-Ethylhexyl)phthalate  | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Fluoranthene                | ND             |             | ug/kg        | 176           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Fluorene                    | ND             |             | ug/kg        | 176           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Hexachlorobenzene           | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Hexachlorobutadiene         | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Hexachlorocyclopentadiene   | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Hexachloroethane            | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Indeno(1,2,3-cd)pyrene      | ND             |             | ug/kg        | 176           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Isophorone                  | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2-Methyl-4,6-dinitrophenol  | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2-Methylnaphthalene         | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Naphthalene                 | ND             |             | ug/kg        | 176           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2-Nitroaniline              | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 3-Nitroaniline              | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 4-Nitroaniline              | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Nitrobenzene                | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2-Nitrophenol               | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 4-Nitrophenol               | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| N-Nitroso-di-n-propylamine  | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| N-Nitrosodiphenylamine      | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Pentachlorophenol           | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Phenanthrene                | ND             |             | ug/kg        | 176           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Phenol                      | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Pyrene                      | ND             |             | ug/kg        | 176           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 1,2,4,5-Tetrachlorobenzene  | ND             |             | ug/kg        | 353           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2,3,4,6-Tetrachlorophenol   | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2,4,5-Trichlorophenol       | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2,4,6-Trichlorophenol       | ND             |             | ug/kg        | 706           | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4,6-Tribromophenol (S)    | 63.2           |             | %            | 19 - 132      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2-Fluorobiphenyl (S)        | 55.8           |             | %            | 40 - 110      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| 2-Fluorophenol (S)          | 84.8           |             | %            | 26 - 116      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Nitrobenzene-d5 (S)         | 73.6           |             | %            | 38 - 112      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Phenol-d5 (S)               | 83.5           |             | %            | 35 - 111      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |
| Terphenyl-d14 (S)           | 54.2           |             | %            | 45 - 126      | SW846 8270D   | 5/11/16 02:25   | VLM       | 5/11/16 13:43   | CGS       | A           |

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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551006** Date Collected: 5/4/2016 11:00 Matrix: Solid  
Sample ID: **Site 3-Composite 3** Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| <b>PCBs</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| Aroclor-1016                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Aroclor-1221                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Aroclor-1232                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Aroclor-1242                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Aroclor-1248                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Aroclor-1254                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Aroclor-1260                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Aroclor-1262                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Aroclor-1268                | ND             |             | mg/kg        | 0.13          | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 79.6           |             | %            | 49 - 115      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| Tetrachloro-m-xylene (S)    | 87             |             | %            | 27 - 137      | SW846 8082A   | 5/6/16 04:00    | CMA       | 5/6/16 15:32    | KJH       | A           |
| <b>PESTICIDES</b>           |                |             |              |               |               |                 |           |                 |           |             |
| Aldrin                      | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| alpha-BHC                   | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| beta-BHC                    | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| delta-BHC                   | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| gamma-BHC                   | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| alpha-Chlordane             | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| gamma-Chlordane             | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| 4,4'-DDD                    | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| 4,4'-DDE                    | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| 4,4'-DDT                    | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Dieldrin                    | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Endosulfan I                | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Endosulfan II               | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Endosulfan Sulfate          | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Endrin                      | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Endrin Aldehyde             | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Endrin Ketone               | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Heptachlor                  | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Heptachlor Epoxide          | ND             |             | ug/kg        | 33.8          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Methoxychlor                | ND             |             | ug/kg        | 65.6          | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| Toxaphene                   | ND             |             | ug/kg        | 696           | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)     | 76.2           |             | %            | 30 - 135      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |

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Vancouver Waterloo · Winnipeg · Yellowknife **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York **Mexico:** Monterrey

**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551006**  
Sample ID: **Site 3-Composite 3**

Date Collected: 5/4/2016 11:00 Matrix: Solid  
Date Received: 5/5/2016 10:39

| Parameters                        | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| Tetrachloro-m-xylene (S)          | 69.5           |             | %            | 30 - 111      | SW846 8081B   | 5/6/16 04:00    | CMA       | 5/6/16 17:17    | RWS       | A           |
| <b>HERBICIDES</b>                 |                |             |              |               |               |                 |           |                 |           |             |
| 2,4-D                             | ND             |             | ug/kg        | 137           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| 2,4-DB                            | ND             |             | ug/kg        | 137           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| Dalapon                           | ND             |             | ug/kg        | 137           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| Dicamba                           | ND             |             | ug/kg        | 137           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| Dichloroprop                      | ND             |             | ug/kg        | 137           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| Dinoseb                           | ND             |             | ug/kg        | 341           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| Pentachlorophenol                 | ND             |             | ug/kg        | 137           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| 2,4,5-T                           | ND             |             | ug/kg        | 137           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| 2,4,5-TP                          | ND             |             | ug/kg        | 137           | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| <i>Surrogate Recoveries</i>       | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4-Dichlorophenylacetic acid (S) | 69.3           |             | %            | 36 - 113      | SW846 8151A   | 5/9/16 06:20    | VLM       | 5/12/16 07:47   | KJH       | A           |
| <b>WET CHEMISTRY</b>              |                |             |              |               |               |                 |           |                 |           |             |
| Moisture                          | 52.2           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| pH                                | 6.85           | 1           | pH_Units     |               | SW846 9045D   |                 |           | 5/7/16 06:45    | MSA       | A           |
| Total Solids                      | 47.8           |             | %            | 0.1           | S2540G-11     |                 |           | 5/11/16 10:52   | SLC       | A           |
| <b>METALS</b>                     |                |             |              |               |               |                 |           |                 |           |             |
| Aluminum, Total                   | 46300          |             | mg/kg        | 76.2          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Antimony, Total                   | ND             |             | mg/kg        | 1.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Arsenic, Total                    | 7.9            |             | mg/kg        | 2.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Barium, Total                     | 312            |             | mg/kg        | 4.8           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Beryllium, Total                  | 1.6            |             | mg/kg        | 0.95          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Cadmium, Total                    | ND             |             | mg/kg        | 0.95          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Calcium, Total                    | 2690           |             | mg/kg        | 95.2          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Chromium, Total                   | 68.5           |             | mg/kg        | 1.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Cobalt, Total                     | 12.3           |             | mg/kg        | 4.8           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/20/16 09:51   | MO        | A1          |
| Copper, Total                     | 45.2           |             | mg/kg        | 4.8           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Iron, Total                       | 47900          |             | mg/kg        | 47.6          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Lead, Total                       | 48.7           |             | mg/kg        | 1.9           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Magnesium, Total                  | 6500           |             | mg/kg        | 95.2          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Manganese, Total                  | 741            |             | mg/kg        | 4.8           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Mercury, Total                    | ND             |             | mg/kg        | 0.10          | SW846 7471B   | 5/16/16 10:30   | MNP       | 5/16/16 13:25   | MNP       | A2          |
| Nickel, Total                     | 41.3           |             | mg/kg        | 4.8           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Potassium, Total                  | 3060           |             | mg/kg        | 95.2          | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |
| Selenium, Total                   | 7.6            |             | mg/kg        | 4.8           | SW846 6020A   | 5/10/16 13:40   | JPS       | 5/19/16 17:09   | MO        | A1          |

**ALS Environmental Laboratory Locations Across North America**

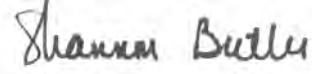
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### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551006** Date Collected: 5/4/2016 11:00 Matrix: Solid  
Sample ID: **Site 3-Composite 3** Date Received: 5/5/2016 10:39

| Parameters      | Results | Flag | Units | RDL  | Method      | Prepared      | By  | Analyzed      | By | Cntr |
|-----------------|---------|------|-------|------|-------------|---------------|-----|---------------|----|------|
| Silver, Total   | ND      |      | mg/kg | 1.9  | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:51 | MO | A1   |
| Sodium, Total   | 164     |      | mg/kg | 95.2 | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:09 | MO | A1   |
| Thallium, Total | ND      |      | mg/kg | 0.95 | SW846 6020A | 5/10/16 13:40 | JPS | 5/20/16 09:51 | MO | A1   |
| Vanadium, Total | 82.9    |      | mg/kg | 1.9  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:09 | MO | A1   |
| Zinc, Total     | 141     |      | mg/kg | 4.8  | SW846 6020A | 5/10/16 13:40 | JPS | 5/19/16 17:09 | MO | A1   |

  
Ms. Shannon Butler  
Project Coordinator

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Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551007** Date Collected: 5/3/2016 14:00 Matrix: Water  
Sample ID: **Equipment Blank** Date Received: 5/5/2016 10:39

| Parameters                  | Results | Flag | Units | RDL | Method      | Prepared      | By  | Analyzed      | By  | Cntr |
|-----------------------------|---------|------|-------|-----|-------------|---------------|-----|---------------|-----|------|
| <b>SEMIVOLATILES</b>        |         |      |       |     |             |               |     |               |     |      |
| Acenaphthene                | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Acenaphthylene              | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Acetophenone                | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Anthracene                  | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Atrazine                    | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Benzaldehyde                | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Benzo(a)anthracene          | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Benzo(a)pyrene              | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Benzo(b)fluoranthene        | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Benzo(g,h,i)perylene        | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Benzo(k)fluoranthene        | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Biphenyl                    | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 4-Bromophenyl-phenylether   | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Butylbenzylphthalate        | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Caprolactam                 | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Carbazole                   | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 4-Chloro-3-methylphenol     | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 4-Chloroaniline             | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| bis(2-Chloroethoxy)methane  | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| bis(2-Chloroethyl)ether     | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| bis(2-Chloroisopropyl)ether | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 2-Chloronaphthalene         | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 2-Chlorophenol              | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 4-Chlorophenyl-phenylether  | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Chrysene                    | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| mp-Cresol                   | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| o-Cresol                    | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Di-n-Butylphthalate         | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Di-n-Octylphthalate         | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Dibenzo(a,h)anthracene      | ND      |      | ug/L  | 1.6 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Dibenzofuran                | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 3,3-Dichlorobenzidine       | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 2,4-Dichlorophenol          | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Diethylphthalate            | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 2,4-Dimethylphenol          | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| Dimethylphthalate           | ND      |      | ug/L  | 3.3 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |
| 2,4-Dinitrophenol           | ND      |      | ug/L  | 6.5 | SW846 8270D | 5/10/16 13:50 | JSR | 5/11/16 14:05 | CGS | A    |

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**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551007**  
Sample ID: **Equipment Blank**

Date Collected: 5/3/2016 14:00 Matrix: Water  
Date Received: 5/5/2016 10:39

| Parameters                  | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|-----------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| 2,4-Dinitrotoluene          | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2,6-Dinitrotoluene          | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 1,4-Dioxane                 | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| bis(2-Ethylhexyl)phthalate  | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Fluoranthene                | ND             |             | ug/L         | 1.6           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Fluorene                    | ND             |             | ug/L         | 1.6           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Hexachlorobenzene           | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Hexachlorobutadiene         | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Hexachlorocyclopentadiene   | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Hexachloroethane            | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Indeno(1,2,3-cd)pyrene      | ND             |             | ug/L         | 1.6           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Isophorone                  | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2-Methyl-4,6-dinitrophenol  | ND             |             | ug/L         | 6.5           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2-Methylnaphthalene         | ND             |             | ug/L         | 1.6           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Naphthalene                 | ND             |             | ug/L         | 1.6           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2-Nitroaniline              | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 3-Nitroaniline              | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 4-Nitroaniline              | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Nitrobenzene                | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2-Nitrophenol               | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 4-Nitrophenol               | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| N-Nitroso-di-n-propylamine  | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| N-Nitrosodiphenylamine      | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Pentachlorophenol           | ND             |             | ug/L         | 6.5           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Phenanthrene                | ND             |             | ug/L         | 1.6           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Phenol                      | ND             |             | ug/L         | 8.7           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Pyrene                      | ND             |             | ug/L         | 1.6           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 1,2,4,5-Tetrachlorobenzene  | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2,3,4,6-Tetrachlorophenol   | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2,4,5-Trichlorophenol       | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2,4,6-Trichlorophenol       | ND             |             | ug/L         | 3.3           | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| <i>Surrogate Recoveries</i> | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| 2,4,6-Tribromophenol (S)    | 86.7           |             | %            | 47 - 128      | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2-Fluorobiphenyl (S)        | 76.8           |             | %            | 52 - 118      | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| 2-Fluorophenol (S)          | 55.9           |             | %            | 20 - 87       | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Nitrobenzene-d5 (S)         | 79.5           |             | %            | 27 - 139      | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Phenol-d5 (S)               | 33.3           |             | %            | 10 - 81       | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |
| Terphenyl-d14 (S)           | 85.9           |             | %            | 46 - 133      | SW846 8270D   | 5/10/16 13:50   | JSR       | 5/11/16 14:05   | CGS       | A           |

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**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551007** Date Collected: 5/3/2016 14:00 Matrix: Water  
Sample ID: **Equipment Blank** Date Received: 5/5/2016 10:39

| Parameters                     | Results        | Flag        | Units        | RDL           | Method        | Prepared        | By        | Analyzed        | By        | Cntr        |
|--------------------------------|----------------|-------------|--------------|---------------|---------------|-----------------|-----------|-----------------|-----------|-------------|
| <b>PCBs</b>                    |                |             |              |               |               |                 |           |                 |           |             |
| Total Polychlorinated Biphenyl | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1016                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1221                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1232                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1242                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1248                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1254                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1260                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1262                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Aroclor-1268                   | ND             |             | ug/L         | 0.47          | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| <i>Surrogate Recoveries</i>    | <i>Results</i> | <i>Flag</i> | <i>Units</i> | <i>Limits</i> | <i>Method</i> | <i>Prepared</i> | <i>By</i> | <i>Analyzed</i> | <i>By</i> | <i>Cntr</i> |
| Decachlorobiphenyls (S)        | 60.7           |             | %            | 30 - 150      | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| Tetrachloro-m-xylene (S)       | 55             |             | %            | 36 - 112      | SW846 8082A   | 5/6/16 12:25    | LEH       | 5/9/16 15:31    | KJH       | D           |
| <b>PESTICIDES</b>              |                |             |              |               |               |                 |           |                 |           |             |
| Aldrin                         | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| alpha-BHC                      | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| beta-BHC                       | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| delta-BHC                      | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| gamma-BHC                      | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| alpha-Chlordane                | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| gamma-Chlordane                | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| 4,4'-DDD                       | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| 4,4'-DDE                       | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| 4,4'-DDT                       | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Dieldrin                       | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Endosulfan I                   | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Endosulfan II                  | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Endosulfan Sulfate             | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Endrin                         | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Endrin Aldehyde                | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Endrin Ketone                  | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Heptachlor                     | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Heptachlor Epoxide             | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Methoxychlor                   | ND             |             | ug/L         | 0.019         | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |
| Toxaphene                      | ND             |             | ug/L         | 0.95          | SW846 8081B   | 5/9/16 07:55    | LEH       | 5/9/16 20:02    | RWS       | C           |

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**ANALYTICAL RESULTS**

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551007**  
Sample ID: **Equipment Blank**

Date Collected: 5/3/2016 14:00 Matrix: Water  
Date Received: 5/5/2016 10:39

| Parameters                        | Results | Flag | Units    | RDL      | Method      | Prepared      | By  | Analyzed      | By  | Cntr |
|-----------------------------------|---------|------|----------|----------|-------------|---------------|-----|---------------|-----|------|
| <i>Surrogate Recoveries</i>       |         |      |          |          |             |               |     |               |     |      |
| Decachlorobiphenyls (S)           | 72.4    |      | %        | 30 - 140 | SW846 8081B | 5/9/16 07:55  | LEH | 5/9/16 20:02  | RWS | C    |
| Tetrachloro-m-xylene (S)          | 54.1    |      | %        | 30 - 123 | SW846 8081B | 5/9/16 07:55  | LEH | 5/9/16 20:02  | RWS | C    |
| <b>HERBICIDES</b>                 |         |      |          |          |             |               |     |               |     |      |
| 2,4-D                             | ND      |      | ug/L     | 0.19     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| 2,4-DB                            | ND      |      | ug/L     | 0.29     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| Dalapon                           | ND      |      | ug/L     | 0.95     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| Dicamba                           | ND      |      | ug/L     | 0.19     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| Dichloroprop                      | ND      |      | ug/L     | 0.48     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| Dinoseb                           | ND      |      | ug/L     | 4.8      | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| MCPA                              | ND      |      | ug/L     | 38.1     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| MCPP                              | ND      |      | ug/L     | 38.1     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| Pentachlorophenol                 | ND      |      | ug/L     | 0.19     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| 2,4,5-T                           | ND      |      | ug/L     | 0.19     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| 2,4,5-TP                          | ND      |      | ug/L     | 0.29     | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| <i>Surrogate Recoveries</i>       |         |      |          |          |             |               |     |               |     |      |
| 2,4-Dichlorophenylacetic acid (S) | 112     |      | %        | 14 - 172 | SW846 8151A | 5/9/16 17:00  | VLM | 5/10/16 09:44 | KJH | F    |
| <b>WET CHEMISTRY</b>              |         |      |          |          |             |               |     |               |     |      |
| pH                                | 6.92    |      | pH_Units |          | SW846 9040C |               |     | 5/6/16 14:32  | MSA | E    |
| <b>METALS</b>                     |         |      |          |          |             |               |     |               |     |      |
| Aluminum, Total                   | ND      |      | mg/L     | 0.089    | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Antimony, Total                   | ND      |      | mg/L     | 0.0022   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Arsenic, Total                    | ND      |      | mg/L     | 0.0030   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Barium, Total                     | 0.0064  |      | mg/L     | 0.0056   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Beryllium, Total                  | ND      |      | mg/L     | 0.0010   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Cadmium, Total                    | ND      |      | mg/L     | 0.0011   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Calcium, Total                    | 0.22    |      | mg/L     | 0.11     | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Chromium, Total                   | ND      |      | mg/L     | 0.0022   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Cobalt, Total                     | ND      |      | mg/L     | 0.0056   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Copper, Total                     | ND      |      | mg/L     | 0.0056   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Iron, Total                       | ND      |      | mg/L     | 0.056    | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Lead, Total                       | ND      |      | mg/L     | 0.0022   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Magnesium, Total                  | ND      |      | mg/L     | 0.11     | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Manganese, Total                  | ND      |      | mg/L     | 0.0056   | SW846 6020A | 5/8/16 14:20  | JPS | 5/17/16 17:17 | MO  | H1   |
| Mercury, Total                    | ND      |      | mg/L     | 0.00050  | SW846 7470A | 5/17/16 01:00 | MNP | 5/17/16 13:10 | MNP | H2   |

**ALS Environmental Laboratory Locations Across North America**

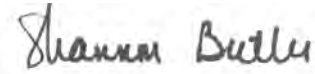
Canada: Burlington · Calgary · Centre of Excellence · Edmonton · Fort McMurray · Fort St. John · Grande Prairie · London · Mississauga · Richmond Hill · Saskatoon · Thunder Bay  
Vancouver Waterloo · Winnipeg · Yellowknife United States: Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York Mexico: Monterrey

### ANALYTICAL RESULTS

Workorder: 2141551 Millerstown Reservoir

Lab ID: **2141551007** Date Collected: 5/3/2016 14:00 Matrix: Water  
Sample ID: **Equipment Blank** Date Received: 5/5/2016 10:39

| Parameters       | Results | Flag | Units | RDL    | Method      | Prepared     | By  | Analyzed      | By | Cntr |
|------------------|---------|------|-------|--------|-------------|--------------|-----|---------------|----|------|
| Nickel, Total    | ND      |      | mg/L  | 0.0056 | SW846 6020A | 5/8/16 14:20 | JPS | 5/17/16 17:17 | MO | H1   |
| Potassium, Total | ND      |      | mg/L  | 0.11   | SW846 6020A | 5/8/16 14:20 | JPS | 5/17/16 17:17 | MO | H1   |
| Selenium, Total  | ND      |      | mg/L  | 0.0056 | SW846 6020A | 5/8/16 14:20 | JPS | 5/17/16 17:17 | MO | H1   |
| Silver, Total    | ND      |      | mg/L  | 0.0022 | SW846 6020A | 5/8/16 14:20 | JPS | 5/17/16 17:17 | MO | H1   |
| Sodium, Total    | 0.19    |      | mg/L  | 0.11   | SW846 6020A | 5/8/16 14:20 | JPS | 5/17/16 17:17 | MO | H1   |
| Thallium, Total  | ND      |      | mg/L  | 0.0010 | SW846 6020A | 5/8/16 14:20 | JPS | 5/17/16 17:17 | MO | H1   |
| Vanadium, Total  | ND      |      | mg/L  | 0.0022 | SW846 6020A | 5/8/16 14:20 | JPS | 5/17/16 17:17 | MO | H1   |
| Zinc, Total      | ND      |      | mg/L  | 0.0056 | SW846 6020A | 5/8/16 14:20 | JPS | 5/17/16 17:17 | MO | H1   |



Ms. Shannon Butler  
Project Coordinator

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**PARAMETER QUALIFIERS**

| Lab ID  | # | Sample ID          | Analytical Method | Analyte              |
|---|---|--------------------|-------------------|----------------------|
| <b>2141551001</b>   | 1 | Site 1-Composite 1 | SW846 9045D       | pH                   |
| The solid pH measured in water was 6.973 at 19.1 degrees C.   |   |                    |                   |                      |
| <b>2141551002</b>   | 1 | Site 2-Composite 1 | SW846 8270D       | Terphenyl-d14        |
| The surrogate Terphenyl-d14 for method SW846 8270D was outside of control limits. The % Recovery was reported as 41 and the control limits were 45 to 126. This result was reported at a dilution of 1.         |   |                    |                   |                      |
| <b>2141551002</b>   | 2 | Site 2-Composite 1 | SW846 9045D       | pH                   |
| The solid pH measured in water was 6.931 at 19.2 degrees C.   |   |                    |                   |                      |
| <b>2141551003</b>   | 1 | Site 2-Composite 2 | SW846 8270D       | 2-Fluorobiphenyl     |
| The surrogate 2-Fluorobiphenyl for method SW846 8270D was outside of control limits. The % Recovery was reported as 36.5 and the control limits were 40 to 110. This result was reported at a dilution of 1.    |   |                    |                   |                      |
| <b>2141551003</b>   | 2 | Site 2-Composite 2 | SW846 8270D       | Terphenyl-d14        |
| The surrogate Terphenyl-d14 for method SW846 8270D was outside of control limits. The % Recovery was reported as 37.8 and the control limits were 45 to 126. This result was reported at a dilution of 1.       |   |                    |                   |                      |
| <b>2141551003</b>   | 3 | Site 2-Composite 2 | SW846 9045D       | pH                   |
| The solid pH measured in water was 6.908 at 19.3 degrees C.   |   |                    |                   |                      |
| <b>2141551004</b>   | 1 | Site 3-Composite 1 | SW846 8270D       | 2-Fluorobiphenyl     |
| The surrogate 2-Fluorobiphenyl for method SW846 8270D was outside of control limits. The % Recovery was reported as 31 and the control limits were 40 to 110. This result was reported at a dilution of 1.      |   |                    |                   |                      |
| <b>2141551004</b>   | 2 | Site 3-Composite 1 | SW846 8270D       | Terphenyl-d14        |
| The surrogate Terphenyl-d14 for method SW846 8270D was outside of control limits. The % Recovery was reported as 34.7 and the control limits were 45 to 126. This result was reported at a dilution of 1.       |   |                    |                   |                      |
| <b>2141551004</b>   | 3 | Site 3-Composite 1 | SW846 8081B       | Tetrachloro-m-xylene |
| The surrogate Tetrachloro-m-xylene for method SW846 8081B was outside of control limits. The % Recovery was reported as 121 and the control limits were 30 to 111. This result was reported at a dilution of 5. |   |                    |                   |                      |
| <b>2141551004</b>   | 4 | Site 3-Composite 1 | SW846 9045D       | pH                   |
| The solid pH measured in water was 6.874 at 19.4 degrees C.   |   |                    |                   |                      |
| <b>2141551005</b>   | 1 | Site 3-Composite 2 | SW846 8270D       | 2-Fluorobiphenyl     |
| The surrogate 2-Fluorobiphenyl for method SW846 8270D was outside of control limits. The % Recovery was reported as 28.3 and the control limits were 40 to 110. This result was reported at a dilution of 1.    |   |                    |                   |                      |
| <b>2141551005</b>   | 2 | Site 3-Composite 2 | SW846 8270D       | Terphenyl-d14        |
| The surrogate Terphenyl-d14 for method SW846 8270D was outside of control limits. The % Recovery was reported as 35 and the control limits were 45 to 126. This result was reported at a dilution of 1.         |   |                    |                   |                      |
| <b>2141551005</b>   | 3 | Site 3-Composite 2 | SW846 9045D       | pH                   |
| The solid pH measured in water was 6.910 at 19.7 degrees C.   |   |                    |                   |                      |
| <b>2141551006</b>   | 1 | Site 3-Composite 3 | SW846 9045D       | pH                   |
| The solid pH measured in water was 6.852 at 19.6 degrees C.   |   |                    |                   |                      |

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**ATTACHMENT C**  
**HEALTH AND SAFETY PLAN**

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**GANNETT FLEMING, INC (GF)**

**SHORT-FORM HEALTH AND SAFETY PLAN**

***This short form Health and Safety Plan (HASP) is intended for use only on small-scale, short duration projects. (e.g. 1-2 days with limited work tasks and site contamination) Gannett Fleming, Inc. (GF) developed this HASP for use only by GF employees. The HASP has been developed to conform to federal, state and local guidelines and regulations and GF policies and procedures.***

**Compliance with this HASP will help reduce but cannot guarantee total elimination of injuries or incidents in the project area. This HASP was prepared specifically for this project and should not be used for any other project or site. Gannett Fleming, Inc. cannot guarantee the health and safety of any person in this project area.**

|  |   |                             |             |
|--|---|-----------------------------|-------------|
| Site Name  | Milltown Reservoir Sediment Characterization  |                             |             |
| Project Number   | 060466  |                             |             |
| Location   | 10-acre reservoir located on the east side of Reservoir Road in East Goshen Township, Chester County, PA. |                             |             |
| Document Date  | April 21, 2016  |                             |             |
| <b>Signatures</b>  | <b>Printed Name</b>   | <b>Signature</b>            | <b>Date</b> |
| <b>HASP Prepared by</b>                                  | Corey Myers   |                             | 04/21/2016  |
| <b>Reviewed by<br/>(Corporate Safety Representative)</b> | Samantha Badaczewski  | <i>Samantha Badaczewski</i> | 04/22/2016  |
| <b>GF Project Manager</b>                                | David H. Graff  |                             |             |

**1.0 ON-SITE ORGANIZATION AND COORDINATION**

The following GF personnel are designated to carry out the stated job functions on-site and have received the appropriate training to perform their site duties in accordance with applicable regulations, including 29 CFR 1910.120.

| <b>Job Function</b>                     | <b>Name</b>                 | <b>Phone Number Office/Cell</b>                           |
|---|-----------------------------|---|
| GF Project Manager:                     | David Graff                 | Phone Numbers Removed for Posting in Technical Memorandum |
| GF Corporate Safety Manager:            | Paula Loht, C.I.H., CSP     |   |
| Site Safety & Health Supervisor (SSHS): | Steve Wittig/Corey Myers    |   |
| Field Operations Leader (FOL):          | Corey Myers                 |   |
| Field Team Members:                     | Corey Myers                 |   |
|   | Steve Wittig                |   |
|   | <b>Name and Affiliation</b> |   |
| Contractor Representative:              | N/A                         |   |

**2.0 SITE SETTING AND DESCRIPTION** (Insert a short description of the site including its location, approximate size, site topography, accessibility, site history, past and current use, known or suspected contaminant information, etc.).

**CHARACTERIZATION OF POND SEDIMENTS FOR DREDGING & DISPOSAL**

Gannett Fleming, Inc. (GF) understands that the sediment within the Milltown Reservoir needs to be screened for potential contamination to assist East Goshen Township evaluate future plans for the reservoir. The 10-acre Milltown Reservoir is located between Reservoir Road and Lochwood Lane in Chester County, PA. GF proposes to characterize the material in-place as part of project engineering and planning to determine if this material could present a human health or ecological concern that would need to be further addressed or if this material would be considered “clean” and therefore used without restriction.

Sediment Characterization

GF proposes to follow the Pennsylvania Management of Fill Policy Document No. 258-2182-773, dated August 7, 2010. Up to six (6) composite sediment samples will be collected, consisting of 4 grab samples each. Samples will be placed into laboratory supplied bottleware and submitted to a PA accredited laboratory under chain of custody documentation. The following analyses would be requested to characterize the pond sediments:

- Semivolatile organic compounds (SVOCs) with library search using EPA method SW-846/ 8270C
- Inorganics (TAL Metals) using EPA method SW-846/6010B
- Polychlorinated Biphenyls (PCBs) using EPA Method SW846/8082
- Chlorinated Pesticides using EPA Method SW846/8081A
- Herbicides using EPA method SW846/8151A
- pH using EPA method 9045 (soil/water).

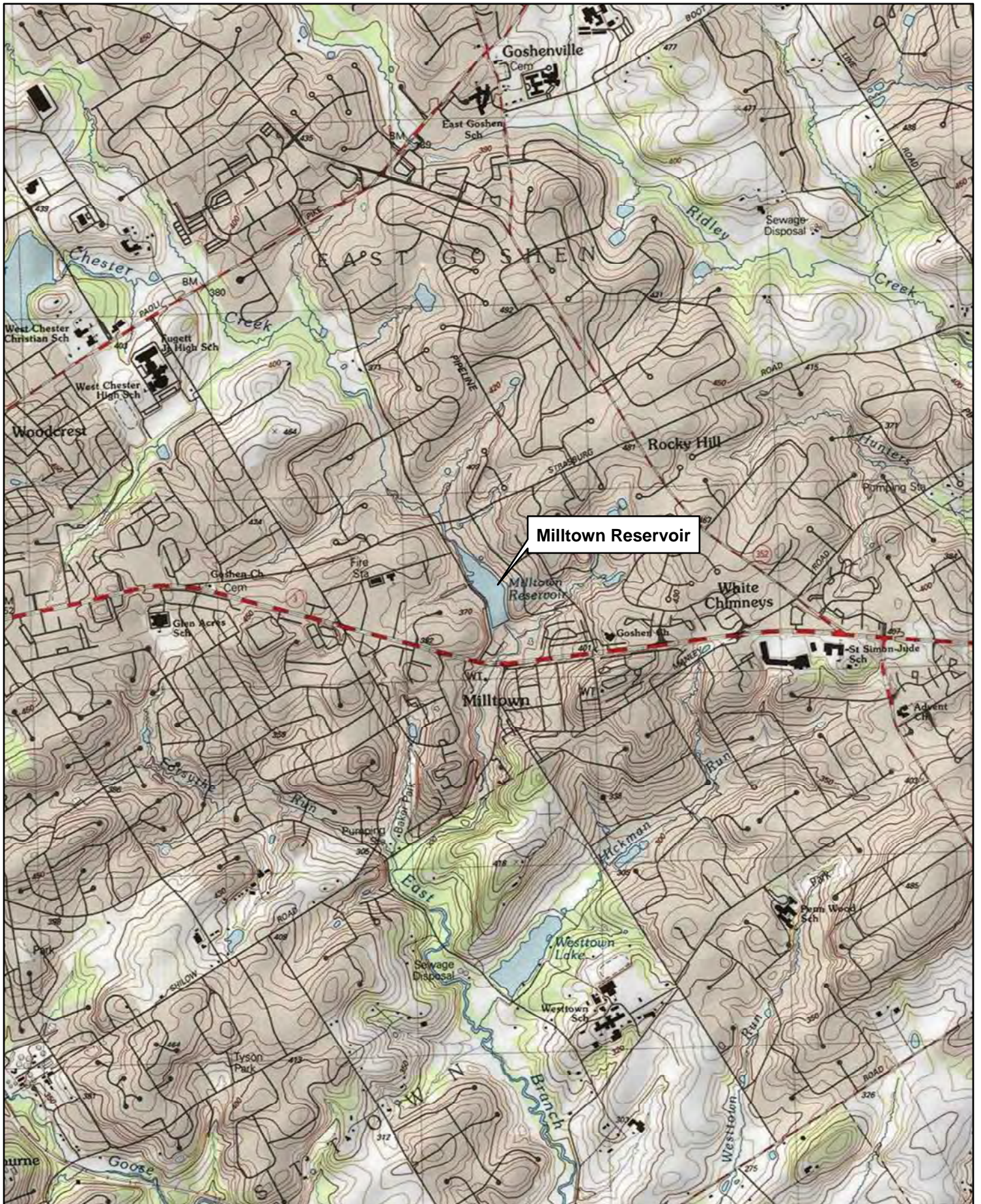
Assumptions

1. Sediment thickness is estimated at 12 feet.
2. Pond water depths are estimated at 4-6 ft under normal flow conditions.
3. GF assumes that the dredge material would be characterized as clean fill or regulated fill and not hazardous waste.
4. Fieldwork would be conducted during seasonal conditions suitable for pond access.

**Attached Site Maps**

Figure 1 – USGS Topographic Location Map

Figure 2 – Aerial Location Map



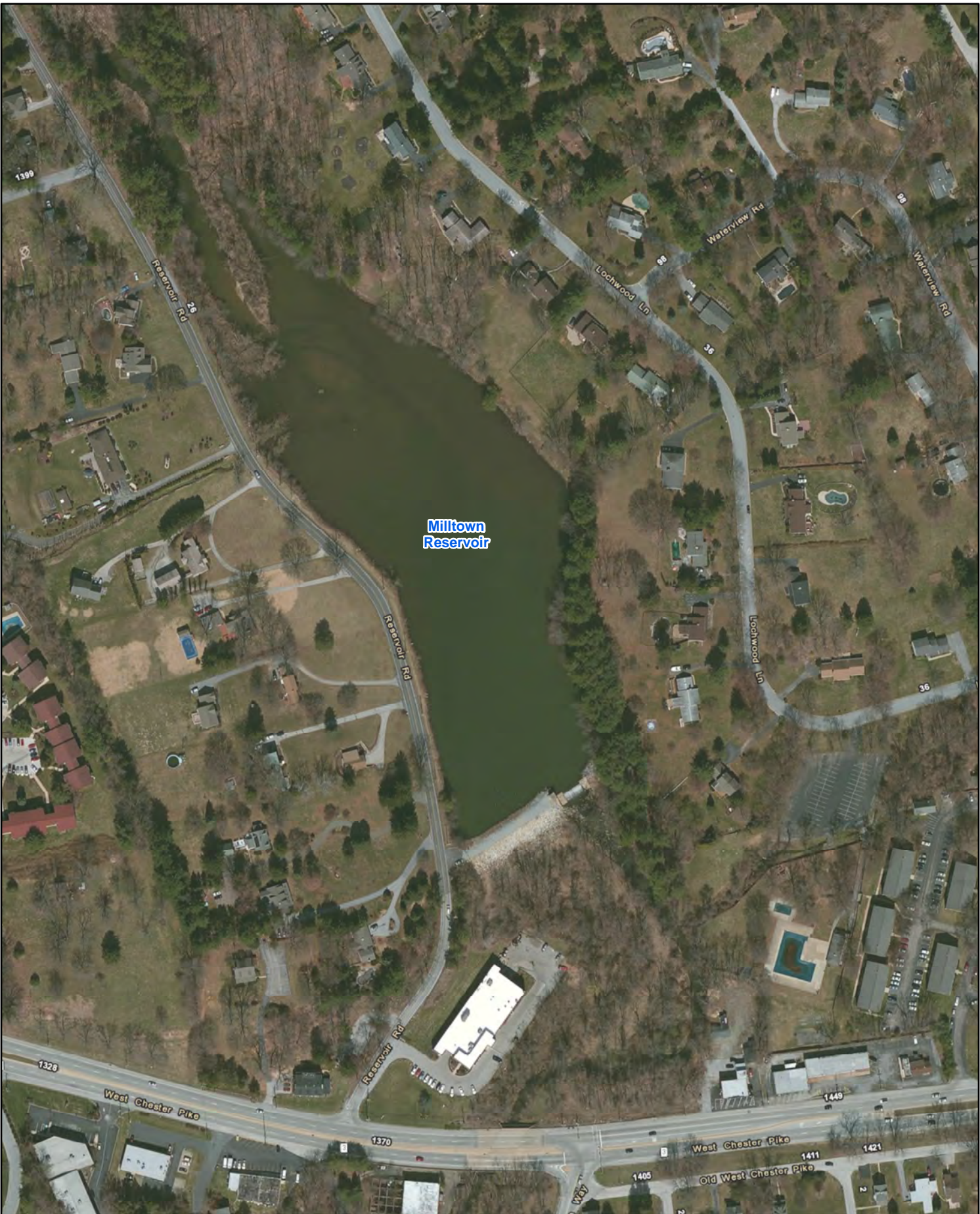
**FIGURE 1**  
**USGS TOPOGRAPHIC LOCATION MAP**

**Milltown Reservoir Sediment Sampling**  
**East Goshen Township, Chester County, Pennsylvania**



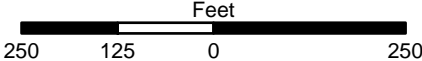
**Gannett Fleming**





**FIGURE 2  
PROJECT LOCATION MAP**

**Milltown Reservoir Sediment Sampling  
East Goshen Township, Chester County, Pennsylvania**



Source: Aerial imagery and transportation basemapping provided by ESRI ArcGIS Online webservices. Map Prepared: 04/20/2016



| SITE TYPE                             |  |   |
|---------------------------------------|--|---|
| Select One                            |  |   |
| <input type="checkbox"/> Active       | <input checked="" type="checkbox"/> Inactive     |   |
| Select One                            |  |   |
| <input type="checkbox"/> Secure       | <input checked="" type="checkbox"/> Unsecure     |   |
| Select All That Apply                 |  |   |
| <input type="checkbox"/> Agricultural | <input type="checkbox"/> Military                | <input checked="" type="checkbox"/> Residential - Urban |
| <input type="checkbox"/> Commercial   | <input checked="" type="checkbox"/> Natural Area | <input type="checkbox"/> Unknown                        |
| <input type="checkbox"/> Industrial   | <input type="checkbox"/> Recreational            | <input type="checkbox"/> Other (specify) _____          |
| <input type="checkbox"/> Landfill     | <input type="checkbox"/> Residential - Rural     |   |

| SURROUNDING POPULATION              |   |
|-------------------------------------|---|
| <input type="checkbox"/> Industrial | <input checked="" type="checkbox"/> Residential |
| <input type="checkbox"/> Urban      | <input type="checkbox"/> Rural                  |
|                                     | <input type="checkbox"/> Other                  |

### 3.0 ON-SITE ACTIVITIES

Anticipated Dates of Field Activities: May 3 - 4, 2016

| DESCRIPTION OF PROJECT  |  |
|---|--|
| <input checked="" type="checkbox"/> Preliminary Assessment – Sediment Investigation | <input type="checkbox"/> UST Removal               |
| <input type="checkbox"/> Site Inspection  | <input type="checkbox"/> Wetland Identification    |
| <input checked="" type="checkbox"/> Remedial Investigation                          | <input type="checkbox"/> Feasibility Study         |
| <input type="checkbox"/> Remedial Action (Limited)                                  | <input type="checkbox"/> Sewer Inspection/Cleaning |
| <input type="checkbox"/> Bridge/Roadway Activities                                  |  |
|   |  |

| SPECIFIC WORK TASKS                                   |   |
|---|---|
| <input type="checkbox"/> Soil Sampling                | <input type="checkbox"/> Soil Gas Sampling        |
| <input type="checkbox"/> Drilling/Subsurface          | <input type="checkbox"/> Excavation               |
| <input type="checkbox"/> Surface Water Sampling       | <input type="checkbox"/> Ground Water Monitoring  |
| <input type="checkbox"/> XRF Soil Screening           | <input type="checkbox"/> Operations & Maintenance |
| <input checked="" type="checkbox"/> Sediment Sampling | <input type="checkbox"/> Other (describe) _____   |

If more than two Work Tasks have been selected, STOP. A Long Form HASP is required.

#### 4.0 HAZARD ASSESSMENT

| What potential hazards may personnel be exposed to:<br>(Check all that apply)              |  |
|--|--|
| <input type="checkbox"/> Air Pressure  | <input type="checkbox"/> Mobile Heavy Equipment (Excavators, Loaders, etc.)                              |
| <input type="checkbox"/> Biological - Infectious Waste, Blood, etc.                        | <input type="checkbox"/> Metal Items (Plates, Wire, Particles, etc.)                                     |
| <input checked="" type="checkbox"/> Biological - Animals, Reptiles, Rodents, Insects, etc. | <input type="checkbox"/> Power Transmission Equip. (Shafts, Pulleys, Gears)                              |
| <input type="checkbox"/> Boilers, Pressure Vessels, Cylinders, etc.                        | <input type="checkbox"/> Noise   |
| <input type="checkbox"/> Boxes, Barrels, Containers, Packages, etc.                        | <input type="checkbox"/> Plants, Trees, Vegetation, etc.   |
| <input checked="" type="checkbox"/> Chemicals (Flammable, Health, Reactive)                | <input type="checkbox"/> Plastic Items (Powders, Sheets, Particles, etc.)                                |
| <input type="checkbox"/> Cold – Atmospheric Temperature                                    | <input checked="" type="checkbox"/> Pumps and Prime Movers   |
| <input type="checkbox"/> Cold Temperature Sources (Cryogenic Products – LN2)               | <input type="checkbox"/> Radiological - Ionizing ( $\alpha$ , $\beta$ , $\gamma$ , x-ray, neutron, etc.) |
| <input type="checkbox"/> Confined Spaces (Hazardous Atmospheres)                           | <input type="checkbox"/> Radiological - Non-Ionizing (UV, IR, laser, etc.)                               |
| <input type="checkbox"/> Conveyors   | <input type="checkbox"/> Scrap, Debris, Waste Materials  |
| <input type="checkbox"/> Electrical Equipment/Systems                                      | <input type="checkbox"/> Steam   |
| <input type="checkbox"/> Excavations   | <input checked="" type="checkbox"/> Uneven Walking/Working Surfaces                                      |
| <input checked="" type="checkbox"/> Glass Items  | <input type="checkbox"/> Vehicles - Passenger  |
| <input checked="" type="checkbox"/> Hand Tools - Non-Powered                               | <input type="checkbox"/> Welding, Cutting, Brazing   |
| <input type="checkbox"/> Hand Tools - Powered  | <input type="checkbox"/> Wood Items (Logs, Lumber, Particles, etc.)                                      |
| <input checked="" type="checkbox"/> Heat – Atmospheric Temperature                         | <input checked="" type="checkbox"/> Other (specify): Work over water, from jon boat                      |
| <input type="checkbox"/> Heat Temperature Sources (Furnaces, Heaters, Open Flame, etc.)    | <input type="checkbox"/> Other (specify):  |
| <input type="checkbox"/> Hoisting Equip. (Cranes, Forklifts, etc.)                         | <input type="checkbox"/> Other (specify):  |
| <input type="checkbox"/> Ladders, Scaffolds, Aerial Lift Platforms                         |  |
| <input type="checkbox"/> Machinery (Drilling, Presses, Mixers, etc.)                       |  |

4.1 The following substance(s) are known or suspected to be on-site. The primary hazards of each are identified.

| Substances             | Impacted Media                | Concentrations    | Exposure Limits                 | Primary Hazards   |
|------------------------|-------------------------------|-------------------|---------------------------------|---|
| HCl                    | Container/sample preservative |                   | 7mg/m <sup>3</sup>              | inhalation, ingestion (solution), skin and/or eye contact |
| Nitric acid            | Container/sample preservative |                   | 5 mg/m <sup>3</sup>             | inhalation, ingestion, skin and/or eye contact            |
| Petroleum hydrocarbons | Sediments                     | Potential unknown | 5 ug/L<br>0.5 mg/m <sup>3</sup> | inhalation, skin absorption, ingestion, skin              |

|      |  |  |  |                    |
|------|--|--|--|--------------------|
| PCBs |  |  |  | and/or eye contact |
|------|--|--|--|--------------------|

Hazard Substances information is provided in the attached [NIOSH POCKET GUIDE SHEETS](#)

## 5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The minimum PPE required for personnel when on sites is: safety glasses. Maximum level of PPE on this project is Level D. Work requiring upgrade to Level C is not permitted unless authorized by the Corporate Safety Representative.

| Hazard Controls and Personal Protective Equipment (PPE)<br>(Check all that apply)  |
|--|
| <b><u>HAZARD AWARENESS</u></b>   |
| <i>Personnel are to eliminate or minimize their exposure to potentially hazardous conditions, unless all appropriate hazard controls are in place.</i>   |
| <b>Head Protection</b><br><input type="checkbox"/> Hard Hat <input type="checkbox"/> High Visibility Cap <input type="checkbox"/> Other (specify):   |
| <b>Eye Protection</b><br><input checked="" type="checkbox"/> Safety Glasses <input type="checkbox"/> Chemical Goggles <input type="checkbox"/> Face Shield <input type="checkbox"/> Other:   |
| <b>Foot Protection</b><br><input type="checkbox"/> Leather/Safety Toe Boots <input type="checkbox"/> Rubber/Safety Toe Boots <input type="checkbox"/> Other (specify):   |
| <b>Body Protection</b><br><input checked="" type="checkbox"/> Long Pants <input checked="" type="checkbox"/> Shirt with 4" sleeves (minimum) <input type="checkbox"/> High Visibility Vest <input type="checkbox"/> Cotton Coveralls <input type="checkbox"/> Rain Suit<br><input type="checkbox"/> Cold Weather Clothing <input type="checkbox"/> Other:  |
| <b>Hand Protection</b><br><input type="checkbox"/> Leather <input type="checkbox"/> Cut Resistant (Kevlar) <input checked="" type="checkbox"/> Chemical (Specify: nitrile) <input type="checkbox"/> Other:   |
| <b>Hearing Protection</b><br><input type="checkbox"/> Ear Plugs <input type="checkbox"/> Ear Muffs <input type="checkbox"/> Other:   |
| <b>Other PPE or Equipment:</b><br><input checked="" type="checkbox"/> First Aid Kit <input checked="" type="checkbox"/> Mobile Phone <input type="checkbox"/> 2-Way Radios <input type="checkbox"/> Flashlight <input checked="" type="checkbox"/> Fluids/Drinking Water/Ice<br><input checked="" type="checkbox"/> Towels/Towelettes <input checked="" type="checkbox"/> Hand Cleaner/Disinfectant <input type="checkbox"/> Hand/Foot Warmers <input checked="" type="checkbox"/> Eyewash bottle <input checked="" type="checkbox"/> Fire extinguisher<br><input type="checkbox"/> Other: |
| <b>Additional Controls/Remarks:</b><br>Personal Flotation Devices (PFDs)   |

## 6.0 COMMUNICATION AND TRAINING

A tailgate safety meeting must be conducted and documented for all personnel covered by this plan. (See page 7)

| SITE CONTROL AND COMMUNICATIONS             |   |
|---|---|
| <b>Traffic Control Plans</b>                | No work will be performed on roadways.  |
| <b>Standard Operating Procedures (SOPs)</b> | The following applicable SOPs are attached:<br><b>SOP #4 Vehicle Fleet Program</b><br><b>SOP #7 PPE</b><br><b>SOP #14 Hand Tools</b><br><b>SOP #15 HAZWOPER</b><br><b>SOP #16 First Aid</b> |

## 7.0 DECONTAMINATION PROCEDURES

Limited decontamination will be required for projects where this short-form HASP is applicable.

| DECONTAMINATION PROCEDURES |                                       |   |
|----------------------------|---------------------------------------|---|
| Type                       | Procedure                             | Equipment   |
| Personnel                  | Hand/Face Washing                     | Soap/Water  |
| Sampling/Small Equipment   | Follow Project-Specific Sampling Plan | <input checked="" type="checkbox"/> Buckets<br><input checked="" type="checkbox"/> Brushes<br><input type="checkbox"/> Water Hoses<br><input type="checkbox"/> Tubs<br><input type="checkbox"/> Disposal Drums<br><input checked="" type="checkbox"/> Cleaning Solution (Alconox, etc.) |
| Heavy Equipment            | Follow Project-Specific Work Plan     | <input type="checkbox"/> Decontamination Pad<br><input type="checkbox"/> Steam Cleaner  |

## 8.0 AIR MONITORING Check box if Air Monitoring Not Required

| Monitoring Instrument                      | Action Level            |
|--|-------------------------|
| <i>Oxygen Meter</i>                        | <19.5% or >23%          |
| <i>Combustible Gas Indicator/LEL Meter</i> | 10% LEL                 |
| <i>Carbon Monoxide Meter</i>               | 35 ppm                  |
| <i>Hydrogen Sulfide</i>                    | 10 ppm                  |
| <i>Organic Vapor Monitor (PID)</i>         | 5-10ppm                 |
| <i>Colorimetric Detector Tubes</i>         | <i>Project-Specific</i> |
| <i>Dust Monitor</i>                        | <i>Project-Specific</i> |

For project-specific action levels, contact Corporate Safety Representative. If action levels (above) are exceeded, contact Project Manager and Corporate Safety Representative.

**9.0 EMERGENCY INFORMATION**

| Emergency Information                            |  |
|--|--|
| <b>Phone Numbers:</b>                            | <b>Emergency Contacts:</b> <span style="border: 1px solid black; padding: 2px;">Phone Numbers Removed for Posting in Technical Memorandum</span> |
| Local Police: 911                                | Project Mgr: David H. Graff  |
| Local Ambulance: 911                             | Corporate Safety Mgr: Paula Loht   |
| Local Fire Department: 911                       | Insurance Mgr: Suzanne White   |
| Local Hospital: 911<br><i>(Attach Route Map)</i> | Client Contact:  |
| First Aid Trained Individual On-Site:            | Steve Wittig – Environmental Scientist   |

**10.0 HASP TRAINING LOG**

By signing the log below, the individual certifies that the contents of this Health and Safety Plan (HASP) have been explained to them, they have had the opportunity to read and review the HASP, they understand the information and hazards presented, and will abide by the HASP.

| Printed Name | Organization          | Signature | Date |
|--------------|-----------------------|-----------|------|
| Steve Wittig | Gannett Fleming, Inc. |           |      |
| Corey Myers  | Gannett Fleming, Inc. |           |      |
|              |                       |           |      |
|              |                       |           |      |
|              |                       |           |      |
|              |                       |           |      |
|              |                       |           |      |
|              |                       |           |      |

## Daily Safety Briefing (Tailgate Safety Meeting) Check List

**All Topics Must Be Discussed Every Day of Every Project Even If The Same Field Staff Are**

### A. "Administrative" Topics

|   |
|---|
| 1. Introduce all persons present.   |
| 2. Identify Roles & Responsibilities/Chain of Command [e.g., Client Project Manager (PM), Gannett Fleming (GF) and Subcontractor PM/Supervisors, GF and Subcontractor H&S Officers, Field Operations Leader (FOL), etc.]. |
| 3. Emphasize the Gannett Fleming Stop Work Authority Policies:<br><b>Anyone has the authority and right to Stop Work because of Unsafe Conditions.</b>  |
| 4. Identify and discuss the role of visitors (e.g., client representatives, regulatory representatives, citizens, GF staff).  |
| 5. Identify persons who require an initial site briefing and provide the necessary information.   |

### B. General Health and Safety Topics

|  |
|--|
| 1. Emphasize that the Health and Safety of Workers, Residents, and Visitors Must Always be Considered First.   |
| 2. Weather forecast for the day.   |
| 3. Buddy system.   |
| 4. Physical, chemical and/or biological hazards anticipated.   |
| 5. PPE required.   |
| 6. Air monitoring requirements.  |
| 7. Site control requirements.  |
| 8. Communication requirements.   |
| 9. Decontamination requirements (Personal hygiene/decon and sanitary facilities available, not just equipment decon).  |
| 10. Material handling requirements (place emphasis on proper lifting techniques).  |
| 11. Fire and/or explosion hazards.   |
| 12. Emergency procedures including routes to hospital and escape, emergency medical treatment, medical evacuation from the site, and assembly/rally location for site workers to meet. |
| 13. Emergency shut off for all equipment. Drill rig, Air Knife, Geoprobe - all members of a field team must know the location of the kill switches and how to operate them.            |

### C. Specific Work To Be Conducted, and Related Health and Safety Issues and Hazards

|   |
|---|
| 1. Other Health and Safety Issues that others need to be aware of shall be discussed.   |
| 2. Less all-encompassing health and safety issues shall be addressed during task SPSAs. |

### D. Closing Activities

|  |
|--|
| 1. Set Mid-Day (e.g., Lunchtime) Safety Briefing.  |
| 2. Ensure all persons have signed the Initial HASP Training Log and the Initial Site Entry Briefing Log.             |
| 3. Document this Tailgate Safety Briefing in a Site Log Book. Include names and affiliations of all persons on-site. |

- Map & Directions
- Map Only
- Directions Only
- Print

[www.cchosp.com](http://www.cchosp.com) Excellence In Diagnosis, Treatment & Prevention of Heart Disease. PA. Ad



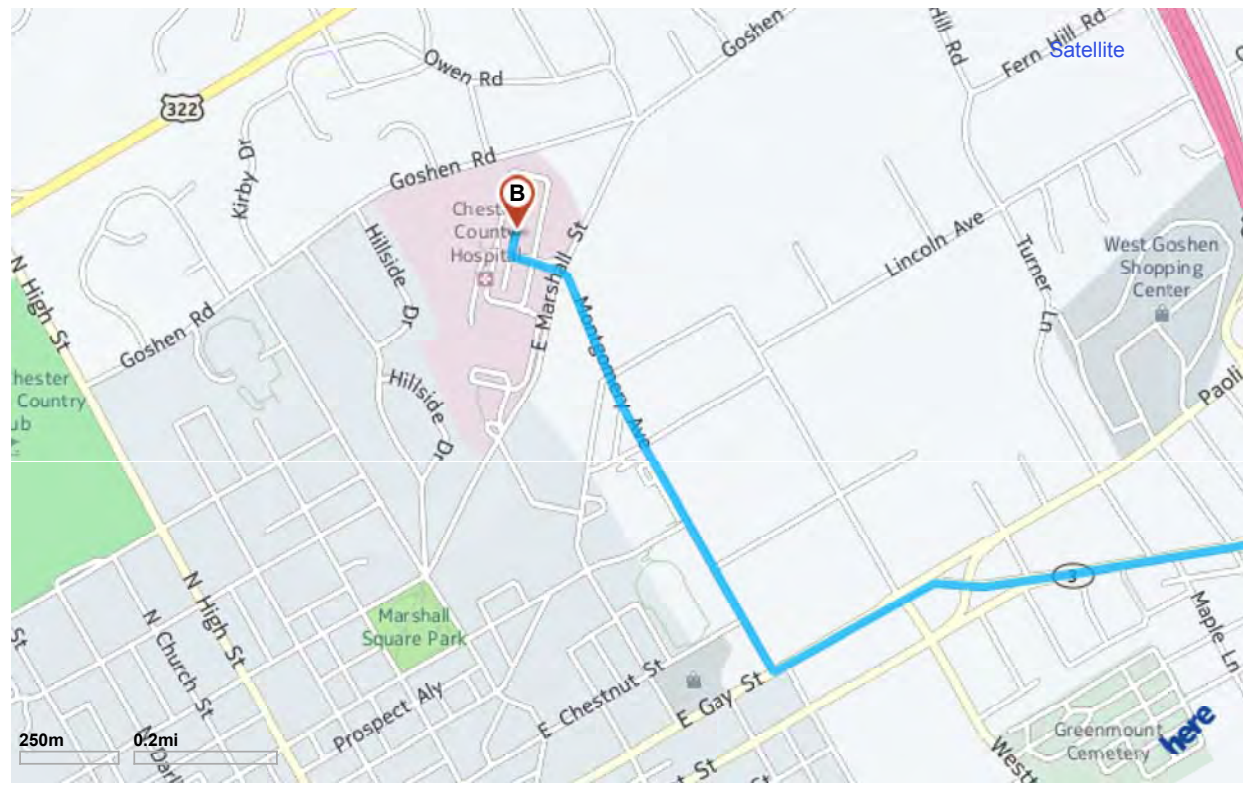
- A** 8 Reservoir Rd, West Chester, PA 19380-6218
- B** The Chester County Hospital, 701 E Marshall St, West Chester, PA 19380

Enter notes here

255

Total Distance: 3.54 mi— Total Time: 10 mins

Map Layout



- A** 8 Reservoir Rd, West Chester, PA 19380-6218 [Collapse All](#)

Head toward West Chester Pike on Reservoir Rd Go for 0.1 mi [Hide](#)



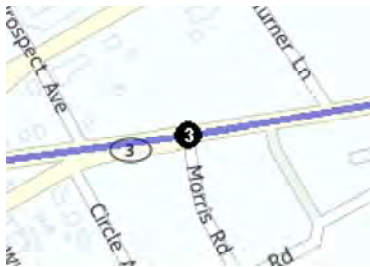
➤ Turn right onto West Chester Pike (PA-3)

Go for 2.3 mi [Hide](#)



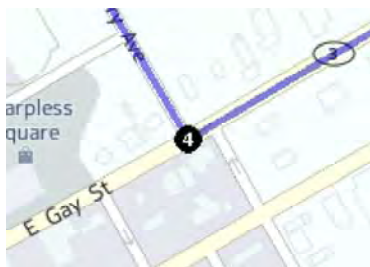
↑ Continue on E Gay St (PA-3)

Go for 0.4 mi [Hide](#)



➤ Turn right onto Montgomery Ave

Go for 0.6 mi [Hide](#)



↑ Continue straight ahead

Go for 364 ft [Hide](#)



➤ Turn right

Go for 154 ft [Hide](#)





Arrive at your destination on the right.

[Hide](#)



The Chester County Hospital, 701 E Marshall St, West Chester, PA 19380

[Collapse All](#)

When using any driving directions or map, it is a good idea to double check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning

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**ATTACHMENT D**  
**DEP COORDINATION**

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# Phone Conversation Record

## Environmental Sediment Sampling Results – Clean Fill

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**Prepared For:** East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

**Prepared By:** Gannett Fleming Inc.  
207 Senate Avenue  
Camp Hill, PA 17011

**Subject:** Sediment Characterization  
Milltown Reservoir  
Chester County, PA

**Date:** May 27, 2016

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On May 27, 2016 at 0930 hours, David Graff of Gannett Fleming contacted Mr. Scott Walters of PADEP (717) 787-2693, to discuss the clean fill numeric values and background levels of naturally occurring metals, specifically cobalt. Mr. Graff presented the circumstance that sediment sample results indicated a cobalt concentration above the 2010 Management of Fill Policy numeric value of 8.1 mg/kg for inorganic substances. Mr. Graff also explained that in 2014 PADEP proposed a revised cobalt value of 50 mg/kg which increased the numeric values of cobalt instead of making them more restrictive. Mr. Walters confirmed that the 2010 values are still applicable and that the 2014 values were not finalized, however acknowledged that for cobalt the decision to increase the value was still proposed. Mr. Graff and Mr. Walters agreed that the Pennsylvania Statewide Health Standards show cobalt concentrations below 66 mg/kg as an acceptable residential direct contact value between 0 and 15 below the surface. Mr. Graff and Mr. Walters also acknowledged that cobalt is a naturally occurring metal and its presence in a watershed that does not have industrial discharges, mining, or other smelting type of industry would suggest that cobalt is naturally occurring and not suggesting a contaminant of concern that was released into the environment.

Mr. Walters confirmed that Gannett Fleming's assessment of the surrounding land use and watershed history that the background conditions would apply and that the presence of cobalt would not influence the clean fill characterization decision since this metal is considered naturally occurring. Mr. Graff explained that all other constituents were below the Clean Fill numeric values except for cobalt and that the clean fill decision was being made on the material. The conversation ended at 0945 hours.

**Attached:** PADEP Management of Fill Policy, 2010 Numeric Values  
PADEP Management of Fill Policy, 2014 Proposed Numeric Values  
Pennsylvania Land Recycling Program, Medium Specific Concentrations (MSCs)  
Statewide Health Standards, Residential Values 0-15 feet Direct Contact Values

## Appendix B

**Table FP-1b**  
**Chemical Concentration Limits For Metals and Inorganics**

| PARAMETER            | Chemical Abstract Services Registry Number | Existing Clean Fill Total Analysis (mg/kg) | *Proposed Clean Fill Total Analysis (mg/kg) |
|----------------------|--|--|---|
| ANTIMONY             | 7440-36-0                                  | 27   | 27  |
| ARSENIC              | 7440-38-2                                  | 12   | 12  |
| BARIUM AND COMPOUNDS | 7440-39-3                                  | 8,200                                      | 8200  |
| BERYLLIUM            | 7440-41-7                                  | 320  | 320   |
| BORON AND COMPOUNDS  | 7440-42-8                                  | 6.7  | 1900  |
| CADMIUM              | 7440-43-9                                  | 38   | 38  |
| CHLORIDES            |  | NA   | NA  |
| CHROMIUM III         | 16065-83-1                                 | 190,000                                    | 190000                                      |
| CHROMIUM VI          | 18540-29-9                                 | 94   | 190   |
| COBALT               | 7440-48-4                                  | 8.1  | 50  |
| COPPER               | 7440-50-8                                  | 8,200                                      | <b>8100</b>                                 |
| CYANIDE FREE         | 57-12-5                                    | 200  | 200   |
| LEAD                 | 7439-92-1                                  | 450  | 450   |
| MANGANESE            | 7439-96-5                                  | 31,000                                     | <b>2000</b>                                 |
| MERCURY              | 7439-97-6                                  | 10   | 10  |
| NICKEL               | 7440-02-0                                  | 650  | 650   |
| NITRATE NITROGEN     |  | na   | NA  |
| NITRITE NITROGEN     |  | na   | NA  |
| SELENIUM             | 7782-49-2                                  | 26   | 26  |
| SILVER               | 7440-22-4                                  | 84   | 84  |
| SULFATE              |  | na   | NA  |
| THALLIUM             | 7440-28-0                                  | 14   | 14  |
| TIN                  | 7440-31-5                                  | 240  | 130000                                      |
| VANADIUM             | 7440-62-2                                  | 1,500                                      | 1500  |
| ZINC                 | 7440-66-6                                  | 12,000                                     | 12000                                       |

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\* Based on the current Chapter 250 standards.

**APPENDIX A**  
**Table 4 - Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil**

**A. Direct Contact Numeric Values**

| REGULATED SUBSTANCE  | CASRN      | Residential<br>MSC<br>0-15 feet | Nonresidential MSCs      |         |                                 |         |   |
|----------------------|------------|---------------------------------|--------------------------|---------|---------------------------------|---------|---|
|                      |            |                                 | Surface Soil<br>0-2 feet |         | Subsurface<br>Soil<br>2-15 feet |         |   |
| ALUMINUM             | 7429-90-5  | 190,000                         | C                        | 190,000 | C                               | 190,000 | C |
| ANTIMONY             | 7440-36-0  | 88                              | G                        | 1,100   | G                               | 190,000 | C |
| ARSENIC              | 7440-38-2  | 12                              | G                        | 53      | G                               | 190,000 | C |
| BARIUM AND COMPOUNDS | 7440-39-3  | 44,000                          | G                        | 190,000 | C                               | 190,000 | C |
| BERYLLIUM            | 7440-41-7  | 440                             | G                        | 5,600   | G                               | 190,000 | C |
| BORON AND COMPOUNDS  | 7440-42-8  | 44,000                          | G                        | 190,000 | C                               | 190,000 | C |
| CADMIUM              | 7440-43-9  | 110                             | G                        | 1,400   | G                               | 190,000 | C |
| CHROMIUM III         | 16065-83-1 | 190,000                         | C                        | 190,000 | C                               | 190,000 | C |
| CHROMIUM VI          | 18540-29-9 | 660                             | G                        | 8,400   | G                               | 20,000  | N |
| COBALT               | 7440-48-4  | 66                              | G                        | 840     | G                               | 190,000 | N |
| COPPER               | 7440-50-8  | 8,100                           | G                        | 100,000 | G                               | 190,000 | C |
| CYANIDE, FREE        | 57-12-5    | 4,400                           | G                        | 56,000  | G                               | 190,000 | C |
| FLUORIDE             | 16984-48-8 | 8,800                           | G                        | 110,000 | G                               | 190,000 | C |
| IRON                 | 7439-89-6  | 150,000                         | G                        | 190,000 | C                               | 190,000 | C |
| LEAD                 | 7439-92-1  | 500                             | U                        | 1,000   | S                               | 190,000 | C |
| LITHIUM              | 7439-93-2  | 440                             | G                        | 5,600   | G                               | 190,000 | C |
| MANGANESE            | 7439-96-5  | 10,000                          | G                        | 130,000 | G                               | 190,000 | C |
| MERCURY              | 7439-97-6  | 35                              | G                        | 450     | G                               | 190,000 | C |
| MOLYBDENUM           | 7439-98-7  | 1,100                           | G                        | 14,000  | G                               | 190,000 | C |
| NICKEL               | 7440-02-0  | 4,400                           | G                        | 56,000  | G                               | 190,000 | C |
| PERCHLORATE          | 7790-98-9  | 150                             | G                        | 2,000   | G                               | 190,000 | C |
| SELENIUM             | 7782-49-2  | 1,100                           | G                        | 14,000  | G                               | 190,000 | C |
| SILVER               | 7440-22-4  | 1,100                           | G                        | 14,000  | G                               | 190,000 | C |
| THALLIUM             | 7440-28-0  | 15                              | G                        | 200     | G                               | 190,000 | C |
| TIN                  | 7440-31-5  | 130,000                         | G                        | 190,000 | C                               | 190,000 | C |
| VANADIUM             | 7440-62-2  | 1,500                           | G                        | 20,000  | G                               | 190,000 | C |
| ZINC                 | 7440-66-6  | 66,000                          | G                        | 190,000 | C                               | 190,000 | C |

All concentrations in mg/kg

R - Residential

NR - Non-Residential

G - Ingestion

H - Inhalation

C - Cap

U - UBK Model

S - SEGH Model


# Memorandum

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**East Goshen Township**  
**1580 Paoli Pike**  
**West Chester, PA 19380**

Voice: 610-692-7171  
Fax: 610-692-8950  
E-mail: [mgordon@eastgoshen.org](mailto:mgordon@eastgoshen.org)

---

Date: 6/2/2016  
To: Board of Supervisors  
From: Mark Gordon, Township Zoning Officer   
Re: 943 Cornwallis Drive / Subdivision Application

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Dear Commissioners,

The Township has received a subdivision and land development application and plans for 943 Cornwallis Drive on 2/16/2016 with one 30 day planning extension granted by the applicant. **The Board of Supervisors must take action on this application on or before June 30, 2016.**

The Planning Commission, Municipal Authority, Conservancy Board, Township Engineer, CCPC and the PA DEP have reviewed the plans and their reviews are enclosed.

The application proposes to subdivide the ~2.5 acre parcel into two lots, demolish the existing single family home and build two new homes; one on each lot.

The Planning Commission made a recommendation to approve this subdivision application on April 6 with conditions. Since that time the applicant's engineer, Township engineer and staff have worked through the last minor issues and the plan is before you tonight for approval.

The applicant is seeking the approval of the subdivision and land development application and plans and is requesting waivers from the following requirements of the Subdivision Ordinance:

1. 205-28.A - Combine Prelim and Final Plan Approval
2. 205-35.G - Grading within five feet of the property line
3. 205-36 - Requirement to submit a Landscape Plan
4. 205-62 - Install street trees.

Staff supports waiver requests 1-3:

Request 1: Combining the Preliminary Plan and Final plan is appropriate in this case.

Request 2: The grading proposed along the property line is needed to accommodate a new shared driveway along the northern boundary of the tract. The applicant owns the property to the north and the grading proposed will not adversely impact future property owners of either lot.

Request 3: The locations of each new home are depicted on the plan, however the actual footprints may change based on the desires of the builder or new owner. In the past applicants who have been granted a waiver from the LS Plan requirement have listed the species to be planted on the final plan and submit a LS plan for each home when the site plan is submitted with the building permit for the new home.

Request 4: A waiver from the street tree requirement is recommended so long as the applicant incorporates the 4 street trees required, into the landscape plans for the two lots, and they be planted outside the proposed street right of way.

At this time the Township staff is satisfied with the final plans and recommends approval of the plan. The Township engineer's final review letter will be available for your meeting, if not sooner.

**Draft Motion:**

Mr. Chairman, I move that we approve the Preliminary and Final Subdivision and Land Development Plan for 943 Cornwallis Drive titled "PLAN OF SUBDIVISION FOR 943 CORNWALLIS DRIVE" dated 10/22/2015 and last revised 5/16/2016 and grant the requested waivers, with the following conditions:

1. The applicant shall submit a Landscape plan for each lot when building permits for the new homes are submitted.
2. Each individual lot landscaping plan shall include two trees that meet the street tree requirements and those trees shall be planted outside the proposed street right of way as depicted on the plan.
3. The applicant shall submit a Subdivision and Land development agreement, financial security agreement and the shared driveway maintenance agreement to the Township for review and approval prior to releasing the final plans for recording.
4. The applicant will follow all applicable federal, State and Local laws and secure all proper permits prior to construction of the improvements depicted on the plans.



EAST GOSHEN TOWNSHIP  
CHESTER COUNTY, PA

**FILE**

**SUBDIVISION AND / OR LAND DEVELOPMENT APPLICATION**

Date Filed: 2-16-2016

FEB 16 2016

Application for (Circle one):

Subdivision  Land Development  Subdivision & Land Development

A. Application is hereby made by the undersigned for approval of a Subdivision and or Land Development Plan, more particularly described below.

1. Applicant's name: T. RICHARD MOSER LAND DEVELOPERS LP

Address: 1171 LANCASTER AVE. BRAWLEY PA 19312 Phone: 610-725-0812

Fax: 610-725-0816 Email: TRC MOSER NAMES.COM

2. Name and address of present owner (if other than 1. above)

Name: JIM ANGELINI

Address: 959 CORNWALLIS DRIVE 19380 Phone: 610-496-4487

Fax: \_\_\_\_\_ Email: JL519@VERIZON.NET

3. Location of plan: 943 CORNWALLIS DRIVE WC PA 19380

4. Proposed name of plan: 943 CORNWALLIS DRIVE

5. County Tax Parcel No.: 53-4-57 Zoning District: R-2

6. Area of proposed plan (ac.): 2.655 ACRES Number of lots: 2

7. Area of open space (ac.): \_\_\_\_\_

8. Type of structures to be constructed: SINGLE FAMILY

9. What provisions are to be made for water supply and sanitary sewer? WELL WATER

PUBLIC SEWER

10. Linear feet of road to be constructed: 0

11. Name of Engineer: E.B. WALSH ASSOC. ADAM BRAWLEY

Phone Number: 610-903-0031 Fax: \_\_\_\_\_

Email address: ABRAWLEY@EBWALSHINC.COM



EAST GOSHEN TOWNSHIP, CHESTER COUNTY PA  
SUBDIVISION AND/OR LAND DEVELOPMENT APPLICATION

12. Name of Land Planner: EB WALSH ASSOC ADAM BROWN

Phone Number: 610-903-0031 Fax: \_\_\_\_\_

Email address: ABROWN@EBWALSHINC.COM

- B. I/We agree to reimburse the Township of East Goshen for such fees and expenses the Township may incur for the services of an Engineer(s) in investigations, tests, and review in relation to the Subdivision Plan.
- C. I/We agree to post financial security for the improvements depicted on the Subdivision and or land Development Plan pursuant to the Subdivision and Land Development Ordinance.
- D. I/We agree to reimburse the Township of East Goshen for all inspection fees at the actual cost to Township.

---

**NOTICE**

The Township requires an Occupancy Permit before any building can be occupied; no Occupancy Permit will be issued until final inspection and approved by the Zoning Officer and Building Inspector.

\_\_\_\_\_  
Owner Signature

\_\_\_\_\_  
Applicant Signature

---

**Administrative Use**

Fees received from applicant \$ 200<sup>00</sup> basic fee, plus \$ \_\_\_\_\_ per lot

For 2 lots = \$ 200<sup>00</sup>

Application and plan received by: all ed Date: 2/17/2016  
(Signature)

Application accepted as complete on: 2/17/2016  
(Date)

EAST GOSHEN TOWNSHIP, CHESTER COUNTY PA  
SUBDIVISION AND/OR LAND DEVELOPMENT APPLICATION

**SUBDIVISION AND/OR LAND DEVELOPMENT CHECKLIST**

This checklist outlines the steps and items needed to insure completeness of the application and to insure the application follows the process and conforms to the timeframe outlined by the State of Pennsylvania and East Goshen Township. This checklist is broken into two parts, the Application Process and the Review Process. The application process must be completed in its entirety prior to the advancement into the Review Process.

\* Review the formal Planning Commission review procedure on page five.

Application for (Circle all appropriate):     Subdivision     Land Development

**Applicant Information:**

Name of Applicant: T. RICHARD MOSER LAND DEVELOPERS LP

Address: 1171 LANCASTER AVE BERWYN PA 19312

Telephone Number: 610-725-0812      Fax: 610-725-0816

Email Address: TRC MOSER HOMES.COM

Property Address: 943 CORNWALLIS DRIVE WC PA 19380

**Property Information:**

Owner's Name: SIM ANGELINI

Address: 959 CORNWALLIS DRIVE WC PA 19380

Tax Parcel Number: 53-4-57      Zoning District: R2      Acreage: 2.655

Description of proposed subdivision and or land Development:

SUBDIVIDING 1 LOT INTO 2

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**EAST GOSHEN TOWNSHIP, CHESTER COUNTY PA  
SUBDIVISION AND/OR LAND DEVELOPMENT APPLICATION**

**Application Process Checklist (Administrative use only):**

| <u>Item</u>  | <u>Date Complete</u> |
|--|----------------------|
| 1. Completed Township Application Form: .....                    | <u>2-16-16</u>       |
| 2. Township application and review fees paid:.....               | <u>11</u>            |
| 3. County Act 247 Form complete: .....                           | <u>11</u>            |
| 4. Appropriate County Fees included: .....                       | <u>11</u>            |
| 5. 11 Copies of sealed Sub / LD plans: .....                     | <u>11</u>            |
| 6. 11 copies of other required plans:                            |                      |
| a. Landscape: (sealed).....                                      | <u>—</u>             |
| b. Conservancy: (sealed).....                                    | <u>—</u>             |
| c. Stormwater Management: (sealed).....                          | <u>2-16-16</u>       |
| 7. Three copies of the stormwater report and calculations: ..... | <u>2-16-16</u>       |
| 8. Copies of supplementary studies, if required:                 |                      |
| a. Traffic Impact Study:.....                                    | <u>—</u>             |
| b. Water Study: .....  | <u>—</u>             |

Application accepted on 2/17/2016 by MARK GORDON

Official Signature  Title TWP Zoning Officer

**Review Process Checklist (Administrative use only)**

| <u>Item</u>   | <u>Date Complete</u> |
|---|----------------------|
| 1. Date of first formal Planning Commission Meeting following complete submission of application, (Day 1):..... | <u>3-2-16</u>        |
| Date Abutting property letter sent: .....   | <u>2-18-16</u>       |
| 2. Date presented to Planning Commission: .....   | <u>3-2-16</u>        |
| 3. Date submitted to CCPC: .....  | <u>2-17-16</u>       |
| 4. Date submitted to Township Engineer: .....   | <u>2-17-16</u>       |
| 5. Date by which the PC must act, (Day 70): .....   | <u>5-11-16</u>       |
| 6. Date by which Board of Supervisors must act, (Day 90): .....   | <u>5-31-16</u>       |
| 7. Date sent to CB: .....   | <u>2-18-16</u>       |
| 8. Date sent To MA: .....   | <u>2-18-16</u>       |
| 9. Date sent to HC: .....   | <u>2-18-16</u>       |
| 10. Date sent to PRB: .....   | <u>2-18-16</u>       |
| 11. Date sent to TAB: .....   | <u>2-18-16</u>       |

**EAST GOSHEN TOWNSHIP, CHESTER COUNTY PA  
SUBDIVISION AND/OR LAND DEVELOPMENT APPLICATION**

**East Goshen Township Planning Commission  
Procedure for processing Subdivision, Land Development, Conditional Use,  
Variance, and Special Exception Applications**

**August 19, 2002**

**1<sup>st</sup> Revision: September 22, 2003**

**2<sup>nd</sup> Revision: March 2, 2006**

1. In order for any application to be considered by the Planning Commission it must be submitted to the Township with all required documentation as per the Township Code and with all applicable fees paid. The Township will use a checklist to verify all required documentation has been submitted. Until the application is complete the application will not be considered "filed" by the Township staff. The Planning Commission will acknowledge receipt of the application at their next regularly scheduled meeting.
2. All materials to be considered at the next regular meeting of the Planning Commission must be submitted with at least eleven (11) copies to the Township Staff by not later than close of business the previous Tuesday. Any materials submitted after that time will be held for the following meeting and not provided to the Commission at the upcoming meeting.
3. The application review cycle for Subdivision and Land Development Applications shall begin with the next regular meeting of the Commission after the complete application is filed. The application review cycle for Conditional Use, Variance, and Special Exception Applications shall begin the day a complete application is filed with the Township.
4. Applicants should not distribute material to the Commission during a meeting unless it is directly related to the initial presentation of the application. All materials for the Planning Commission, including any material to be used at a meeting, must be delivered to the Township Staff not later than close of business the previous Tuesday.
5. The burden of supplying necessary materials to the Planning Commission in a timely manner is on the applicant. Late delivery of material may require an extension on the part of the applicant or a recommendation for denial of the application by the Planning Commission.
6. Formal application presentations to the Planning Commission will only be made at the regular meeting after the complete application is submitted and accepted by the Township staff.
7. The application will remain on the Planning Commission's agenda until such time as the Commission has made its recommendation to the Board of Supervisors and or Zoning Hearing Board.
8. Applicants are encouraged to attend each Planning Commission meeting in order to answer questions or address issues concerning their application.
9. Applications will be voted on only during the regular Planning Commission meetings.
10. The Chairman, in his sole discretion, may waive or modify any of this procedure.

**EAST GOSHEN TOWNSHIP  
PLANNING COMMISSION**

1580 PAOLI PIKE, WEST CHESTER, PA 19380-6199

April 8, 2016

East Goshen Township  
Board of Supervisors  
1580 Paoli Pike  
West Chester, Pa. 19380

Re: 943 Cornwallis Drive / 53-4-57  
Dimensional Variance Request

Dear Board Members:

At their April 6, 2016 meeting the Planning commission passed the following motion recommending approval of the subdivision and land development application for 943 Cornwallis Drive:

Mr. Chairman, I move that we recommend that the Board of Supervisors grant the requested waivers and approve the final subdivision plan for 943 Cornwallis Drive with the following conditions:

1. The applicant shall list the proposed varieties and number of plants proposed for landscaping on the final plan.
2. The applicant shall correct the waiver requests to reflect the correct ordinance sections.
3. Landscape plans for each lot shall be submitted to the Township along with the building permit application. The Township staff will confirm that the proposed plantings are not invasive species, the trees proposed are listed on the Township Recommended Tree Species List (Resolution 2015-20) and that the landscaping is installed prior to issuance of a use and occupancy certificate.
4. Each individual lot landscape plan shall include two trees that meet the street tree requirements and those trees shall be planted outside the proposed street right of way as depicted on the plan.

Sincerely,



Mark A. Gordon  
Township Zoning Officer



EDWARD B. WALSH & ASSOCIATES, INC.  
*Complete Civil Engineering Design / Consultation Services*  
*Lionville Professional Center*  
*125 Dowlin Forge Road*  
*Exton, PA 19341*

May 27, 2016

Mr. Mark Gordon, Zoning Officer  
East Goshen Township  
1580 Paoli Pike  
West Chester, Pa. 19380

Dear Mr. Gordon:

Enclosed please find revised plans for the Cornwallis Drive subdivision. The plans have been revised to address review comments provided in the Township review letter dated May 13, 2016. The revisions are as follows:

**Stormwater Management:**

1. The tests 1 through 3 represent three separate tests, at different depths that were performed at Test Pit #1. No tests were conducted at Test Pits 5 and 6 due to soil conditions.
2. The detail for the rain garden was revised to note the specifications as required by DEP in the BMP manual.
3. The rain garden location was set to ensure it receives flow from the Township storm sewer pipe that discharges upslope from the rain garden location. The discharge from the pipe will provide sufficient volume to meet the storage needed in the rain garden.
4. Sheet one was revised to provide an easement around the rain garden. The easement agreement includes the maintenance requirements.
5. This comment is provided for information purposes and does not require a revision.
6. Any comments received from the sewer authority will be addressed.

Should you have any questions or need any additional information, please do not hesitate to contact me.

Very truly yours,

EDWARD B. WALSH & ASSOC., INC.

A handwritten signature in black ink, appearing to read "Adam J. Brower". The signature is fluid and cursive, with the first name "Adam" and last name "Brower" clearly distinguishable.

Adam J. Brower, P.E.

### STORMWATER RUNOFF VOLUME ANALYSIS

The runoff volume control is addressed by the installation of two stormwater management systems downslope of the improvements on the property. The volume recharged has been determined as follows:

|                                 |   |                   |                               |
|---------------------------------|---|-------------------|-------------------------------|
| <u>2-Year Storm Event</u>       |   |                   |                               |
| Pre-Developed Volume            | = | 1,894 C.F.        | (from Hyd. No. 6)             |
| <b>Post-Developed Volume</b>    | = | <b>2,456 C.F.</b> | (from Hyd No. 7 & 8)          |
| Increase in Volume              | = | 562 C.F.          |                               |
| Required Volume to be Recharged | = | 562 C.F.          | (if soils allow infiltration) |

Minimum Infiltration Requirement = 1" / SF of impervious surface

Impervious surface = 4,537 SF (note 80% of existing impervious was deducted from proposed)

Required infiltration = 378 CF (minimum)

Rain Garden / Retention Area:

The infiltration testing for lot 1 concluded that subsurface systems for infiltration was not possible due to a high water table. To meet the minimum required volume reduction it is proposed to install a retention area at the upper corner of lot 1.

System Dimensions = 571 SF x 0.67 ft deep

Volume retained = 382 CF

To provide sufficient runoff to the rain garden to ensure the required volume is stored in the system, the rain garden is located down slope from the Township storm sewer pipe which discharge on lot 2. The discharge from the storm sewer pipe will flow through the rain garden and provide the required storage volume.



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

**FILE**

March 15, 2016

Scott J. Andress  
Edward B. Walsh Associates  
Lionville Professional Center  
125 Dowlin Forge Road  
Exton, PA 19341

Re: 943 Cornwallis Drive Subdivision

Dear Scott:

At their meeting on Monday, March 15, 2016 the Municipal Authority approved your request for capacity for one (1) new dwelling unit to be constructed as a result of the above referenced subdivision.

The tapping fee for the new dwelling is \$7,148 which is due payable at the time the building permit is issued for the single family dwelling on Lot 2.

I have enclosed the executed Sewage Facilities Planning Module for your use.

Please give me a call at 610-692-7171 or e-mail me at [rsmith@eastgoshen.org](mailto:rsmith@eastgoshen.org) if you have any questions or need additional information.

Sincerely,



Louis F. Smith, Jr  
Township Manager

Enclosure



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

March 22, 2016

RECEIVED  
MAR 28 2016

Mr. Rick Smith  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

Re: Act 537, Application for Exemption  
943 Cornwallis Drive Subdivision  
DEP Code No. 1-15919-238-E  
East Goshen Township  
Chester County

Dear Mr. Smith:

The Department of Environmental Protection (DEP) has received the above-referenced subdivision plan. This letter confirms DEP's determination that the above-referenced project is exempt from the requirement to revise the Official Plan for new land development. This determination is based in part on municipal and other sign-offs. The project is located at 943 Cornwallis Drive, in East Goshen Township, Chester County.

This project proposes a 2 lot residential subdivision. The existing dwelling will be demolished and 2 new single-family dwellings will be constructed.

The project will be connected to the East Goshen Municipal Authority collection system and will generate an additional 275 gallons of sewage per day to be treated at the East Goshen Municipal Authority Wastewater Treatment Facility.

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, P.O. 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.

Mr. Rick Smith

- 2 -

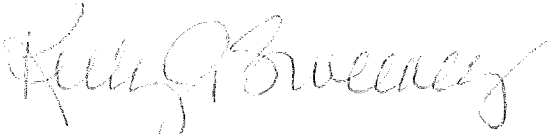
March 22, 2016

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 or concerns, please contact me at 484.250.5182.

Sincerely,



Kelly A. Sweeney  
Sewage Planning Specialist 2  
Clean Water

cc: Chester County Health Department  
Chester County Planning Commission  
Chester County Conservation District  
T. Richard Moser Land Developers, LP  
Mr. Scott Andress  
East Goshen Municipal Authority  
Planning Section  
Re 30 (GJE16CLW)082-3

# EAST GOSHEN CONSERVANCY

March 18, 2016

East Goshen Township  
Planning Commission  
1580 Paoli Pike  
West Chester, Pa. 19380

Re: Moser SD Application / 943 Cornwallis Dr.  
Conservancy Board Recommendation

Dear Commission Members:

At their meeting on March 9, 2015 the Conservancy Board voted in favor of the following motion:

Madam Chairman, I move that we recommend that the Planning Commission recommend approval of the subdivision plan for 943 Cornwallis Drive and support the landscaping waivers requested with the following conditions:

1. The applicant shall list the proposed varieties and number of plants proposed for landscaping on the final plan and a LS plan shall be provided to the Township along with the building permit application. The Township staff will confirm that the proposed plantings are not invasive species, the trees proposed are listed on the Township Recommended Tree Species List (Resolution 2015-20) and that the landscaping is installed prior to issuance of a use and occupancy certificate.
2. The street tree requirement should be waived due to the existence of existing street trees.

Sincerely,



Mark A. Gordon  
Zoning Officer



# THE COUNTY OF CHESTER



## COMMISSIONERS

Terence Farrell  
Kathi Cozzone  
Michelle Kichline

Brian N. O'Leary, AICP  
Executive Director

## PLANNING COMMISSION

Government Services Center, Suite 270  
601 Westtown Road  
P. O. Box 2747  
West Chester, PA 19380-0990  
(610) 344-6285 Fax (610) 344-6515

March 10, 2016

Louis F. Smith, Jr., Manager  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

Re: Preliminary/Final Subdivision - 943 Cornwallis Drive  
# SD-2-16-13319 - East Goshen Township

Dear Mr. Smith:

A preliminary/final subdivision plan entitled "943 Cornwallis Drive", prepared by Edward B. Walsh and Associates, Inc., and dated October 22, 2015, was received by this office on February 17, 2016. The plan is reviewed by the Chester County Planning Commission in accord with the provisions of Section 502 of the Pennsylvania Municipalities Planning Code. We offer the following comments on the proposed subdivision for your consideration.

### **PROJECT SUMMARY:**

Location - the east side of Cornwallis Drive, north of Colonial Lane

Site Acreage - 2.65 acres

UPI - 53-4-57

Landscapes2 Designation - **Suburban Landscape**

Watersheds Designation - Ridley Creek watershed

### **PROPOSAL:**

The applicant proposes the creation of two residential lots. The existing residence on Lot 1 will be removed. The project site, which will be served by on-site water and public sewer, is located in the R-2 Low Density Residential zoning district.

**RECOMMENDATION:** The Commission recommends that the issues raised in this letter be addressed and all East Goshen Township requirements be satisfied before action is taken on this subdivision plan.

### **COUNTY POLICY:**

#### **LANDSCAPES:**

1. The project site is located within the **Suburban Landscape** designation of *Landscapes2*, the 2009 County Comprehensive Plan. The proposed subdivision is consistent with the objectives of the **Suburban Landscape**.



WATERSHEDS:

2. *Watersheds, An Integrated Water Resources Plan for Chester County and Its Watersheds*, is the water resources component of *Landscapes2*. *Watersheds* indicates that the proposed development activity is located within the Ridley Creek watershed. The highest priority management objectives identified in *Watersheds* for consideration in land development and land use planning within the Ridley Creek watershed include: reduce stormwater runoff, protect vegetated riparian corridors, and protect/enhance water-based recreation, cultural, historic resources and public access. These concerns and conditions should be taken into consideration in final site design decisions. Specific strategies for implementation to effectively address these items can be found in Part 8 of *Watersheds*. A more detailed listing of water resources management needs and resources to be protected within the Ridley Creek watershed can be found in Part 10 of *Watersheds*. *Watersheds* can be accessed at [www.chesco.org/water](http://www.chesco.org/water) through the “Water Information (Online Maps and Publications)” link.

PRIMARY ISSUES:

3. Vehicular access to Lot 2 will be provided from a shared access easement on UPI# 53-4-59 to the north. The details of this shared access arrangement should be incorporated into the deeds of both lots.

4. We estimate that there are approximately 63 dwelling units currently served by a single access to Route 352 at Colonial Lane. If Colonial Lane or Cornwallis Drive were to be blocked by an accident, or natural disaster, access for emergency vehicles could be compromised. We reiterate that the Township should consider establishing a secondary/emergency access connection for these residences or consider limiting the number of residences permitted on a single access. The County Planning Commission's Multimodal Circulation Handbook recommends that a maximum of 24 dwelling units utilize a single access point. The Township should consider adding provisions to the Township Subdivision and Land Development Ordinance pertaining to the maximum number of lots permitted on a cul-de-sac in order to avoid this issue for future development proposals. The Emergency Access design element of the Multimodal Circulation Handbook is available online at: <http://www.landscapes2.org/transportation/circulation/09-EmergAccess.cfm>.

The County Planning Commission recently reviewed a final subdivision plan for the adjoining 4.05 parcel to the east (UPI# 53-4-55), regarding the creation of a second residential lot located on the west side of North Chester Road south of Wineberry Lane (CCPC# SD-10-15-12812, "Gary Moore," dated November 12, 2015). The applicant and Township should investigate the feasibility of creating an emergency access connection which would extend along the southern portion of #53-4-57 and the northern portion of UPI# 53-4-55, utilizing the proposed driveway entrance for Lot 1 of the current plan submission and the proposed driveway entrance for Lot 2 of the Gary Moore subdivision as part of an emergency access connection. The Commission identified in its review of the Gary Moore subdivision plan (comment #3, page 2) that the Lot 2 driveway entrance could potentially be utilized as an emergency access connection from North Chester Road to Cornwallis Drive.

5. The site contains areas of hydric (wet) soils (CaB Califon and GdB Gladstone) which have limitations to development. These limitations include drainage problems due to low permeability, low runoff rates and sub-surface saturation. When construction takes place on these soils, it interferes with the natural drainage of the land. If construction occurs on this site, on-site alterations to existing drainage patterns should be carefully inspected by the Township Engineer to insure that off-site drainage conditions are not negatively affected.
6. In July 2013, the "County-wide Act 167 Stormwater Management Plan for Chester County, PA" was approved by the Pennsylvania Department of Environmental Protection (DEP). Land disturbance and land development activities that occur within Chester County must comply with the stormwater management standards included in the approved Act 167 Plan and the requirements of the municipality's County-Wide Act 167 stormwater ordinance. Implementation of the Act 167 Plan and ordinances will help reduce the impacts of stormwater and pollutant runoff to Chester County's streams and groundwater. The municipal engineer should thoroughly review the proposed plans to ensure compliance with the applicable standards of the County-wide Act 167 Plan as incorporated within the municipality's Act 167 stormwater management ordinance.
7. The proposed project is located in an area designated by the Pennsylvania Department of Environmental Protection (DEP) as a Special Protection Watershed. Special Protection Watersheds are important because Chester County's High Quality and Exceptional Value Watersheds may be especially sensitive to degradation and pollution that could result from development. The DEP or the municipality may impose stricter limitations on proposed wastewater and stormwater discharges in these watersheds, and special care should be exercised in the design, construction, operation and maintenance of stormwater control facilities in these areas to prevent degradation of the waters of the Commonwealth.

Page: 4

Re: Preliminary/Final Subdivision - 943 Cornwallis Drive  
# SD-2-16-13319 - East Goshen Township

8. As of 2014, nearly every municipality in Chester County has at least one stream segment listed as impaired by the Pennsylvania Department of Environment Protection (DEP) and not meeting the applicable state water quality standards. The municipal engineer and the applicant should review the DEP information regarding the locations, sources and causes of listed water body impairments to ensure that the proposed activity will not increase the pollutant loading to an impaired water body. Information regarding listed impairments for Chester County water bodies can be found at [www.chesco.org/water](http://www.chesco.org/water) through the "TMDLs/Water Quality Improvement" link.

ADMINISTRATIVE ISSUES:

9. The plan depicts the location of a 20 foot wide sanitary sewer easement for Lot 1 that traverses Lot 2. The details of this easement should be incorporated into the deeds of both parcels.
10. A copy of the plan should be submitted to the Chester County Health Department (CCHD) for their review and comment on the proposed sewage disposal and/or water supply. The municipality from the appropriate authority and company prior to final plan approval, if applicable, should receive confirmation on the availability of sufficient sewer and water capacity.
11. A minimum of five (5) copies of the plan should be presented at the Chester County Planning Commission for endorsement to permit recording of the final plan in accord with the procedures of Act 247, the Pennsylvania Municipalities Planning Code, and to meet the requirements of the Recorder of Deeds, the Assessment Office, and the Health Department.

This report does not review the plan for compliance to all aspects of your ordinance, as this is more appropriately done by agents of East Goshen Township. However, we appreciate the opportunity to review and comment on this plan. The staff of the Chester County Planning Commission is available to you to discuss this and other matters in more detail.

Sincerely,



Paul Farkas  
Senior Planner

cc: Jim Angelini  
T. Richard Moser Land Developers LP  
Edward B. Walsh and Associates, Inc.  
Moser Construction Management LLC  
Chester County Health Department



**Memo**  
**East Goshen Township**  
**1580 Paoli Pike**  
**West Chester, PA 19380**

E-mail [rsmith@eastgoshen.org](mailto:rsmith@eastgoshen.org)

Date: May 26, 2016  
To: Board of Supervisors  
From: Rick Smith, Township Manager  
Re: Police Study

At the West Chester Area Council of Governments meeting in March the members discussed the possibility of consolidating and/merging the municipal police departments.

It was a consensus of the members in attendance that the concept should be explored and on Tuesday May 24<sup>th</sup> a meeting was held with Ron Stern, Local Government Policy Specialist with the Governor's Center for Local Government Services, at the Department of Community Affairs and Economic Development to share his knowledge and available services regarding consolidation of police services.

The following municipalities were represented at the meeting: Birmingham Township, East Bradford Township, East Goshen Township, Thornbury Township, West Chester Borough, Westtown Township, and West Whiteland Township.

Ron Stern advised that the Center for Local Government Services would conduct a study on police consolidation at no cost to the participating municipalities.

At the conclusion of the meeting, it was agreed by the representatives in attendance to return to their municipalities to discuss the initiative with their governing bodies and provide a response to the following questions.

1. Will the municipality commit to participation in a regional police feasibility study, to be conducted by DECED as a no cost?
2. What are the goals / objectives / interests of the participating municipality in consideration of police regionalization (services consolidation)?

If the Board wants to proceed, it will need to approve sending a Letter of Intent (attached) to the Center for Local Government Services.



# LETTER OF INTENT

This Letter of Intent is submitted to the Governor's Center for Local Government Services to request technical assistance. By submitting this request, the municipality agrees to cooperate with the Center.

The governing body must approve this request for assistance by motion prior to submission. No resolution is required.

Complete and return the form either by mail or fax. Center personnel will evaluate the request to determine the level of assistance. The contact person designated below will receive all future information regarding this request.

**PLEASE COMPLETE THE FOLLOWING**

Type of technical assistance being requested:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Regional Police Consolidation             | <input type="checkbox"/> Finance                  |
| <input type="checkbox"/> Police Management                                    | <input type="checkbox"/> Public Works             |
| <input type="checkbox"/> Fire & Emergency Services                            | <input type="checkbox"/> Administrative/Secretary |
| <input type="checkbox"/> Council of Governments/Intergovernmental Cooperation | <input type="checkbox"/> Home Rule                |
| <input type="checkbox"/> Land Use Planning                                    | <input type="checkbox"/> Boundary Change          |
| <input type="checkbox"/> Uniform Construction Code                            | <input type="checkbox"/> Other _____              |

Are you currently a part of any intergovernmental agreement?  Yes  No

If yes, describe briefly: East Goshen Township and Westtown Township are Charter Members of the Westtown East Goshen Regional Police Department.

Description of Project: East Goshen Township, together with other contiguous and/or proximate municipalities, is interested to investigate and develop regional police services with the assistance of the Governor's Center for Local Government Services in the form of an initial study to assess and provide recommendations on the feasibility to establish such intergovernmental service and to help the participating municipalities make a decision for subsequent actions toward continued participation and development of regional police service.

**CHIEF ELECTED OFFICIAL (PRINT)**

Municipality: EAST GOSHEN TOWNSHIP Federal ID#: 23-6005479

County: Chester

Name: Senya D. Isayeff Title: Chairman , Board of Supervisors

Municipal Address: 1580 Paoli Pike  
West Chester, PA 19380

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**CONTACT PERSON**

Name: Louis F. (Rick) Smith, Jr. Title: Township Manager / Secretary

Address: 1580 Paoli Pike  
West Chester, PA 19380

Phone: 610 692 7171 Fax: 610 692 8950

E-mail: rsmith@eastgoshen.org

**SIGNATURE AND VERIFICATION**

I hereby certify that the governing body, at a public meeting held on \_\_\_\_\_, has approved this Letter of Intent.

Louis F. (Rick) Smith, Jr.  
 Attest (Secretary)

\_\_\_\_\_  
 Date

# Memo

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To: Board of Supervisors  
From: Jon Altshul  
Re: Consider Fulton Bank & WSFS Bank as depositories  
Date: June 1, 2016

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The Township's current depositories are DNB First, National Bank of Malvern, National Penn Bank, BB&T Bank, Penn Liberty Bank, PLGIT, TD Bank, M&T Bank and Meridian Bank.

In the next two or three months, it is anticipated that WSFS Bank will have completed its acquisition of Penn Liberty and BB&T will have completed its acquisition of National Penn.

I would therefore ask the Board to authorize WSFS as a Township depository, so there is no confusion after the Penn Liberty deal is completed. To offset the loss of National Penn, I would also like the Board's permission to authorize Fulton Bank as a Township depository. Fulton has a 4-star rating from Bankrate and is offering us a 0.25% interest rate on collateralized deposits, which is higher than M&T, BB&T and DNB First, our three primary depositories.

**Suggested motion:** I move that we appoint WSFS Bank and Fulton Bank as Township depositories.

# Memo

## East Goshen Township

Date: May 16, 2016  
To: Board of Supervisors  
From: Rick Smith, Township Manager  
Re: Boot Road Restriping Project

The Boot Road Restriping Project is proceeding slowly but surely forward. Under this project Boot Road would be restriped to a four lanes between Greenhill Road and Wilson Drive. There would be one east bound lane (coming from Route 202), a center left turn lane, and two westbound lanes (going towards Route 202). This would reduce the congestion that routinely occurs on Boot Road during the PM peak hour.

West Goshen Township has received comments from Penn DOT on the most recent Highway Occupancy Permit submission. One of the comments is an acknowledgement that East Goshen is aware of the submission. In addition since the project will involve changes at the intersections of Boot Road and Wilson Drive which is in East Goshen we will need to submit an application to amend the signal permit for that intersection.

**Suggest Motion:** I move that we authorize the Township Manager to send a letter to Penn DOT acknowledging our awareness of the project and to execute the application to amend the signal permit at Boot Road and Wilson Drive.

**BOARD OF SUPERVISORS**  
EAST GOSHEN TOWNSHIP  
CHESTER COUNTY  
1580 PAOLI PIKE, WEST CHESTER, PA 19380-6199

June 7, 2016

Mr. Louis Belmonte, P.E.  
District Traffic Engineer  
Pennsylvania Department of Transportation  
7000 Geerdes Boulevard  
King of Prussia, PA 19406

Re: Highway Occupancy Permit Application No. 88291  
Boot Road Restriping Project

Dear Mr. Belmonte:

This letter will confirm that the East Goshen Township Board of Supervisors is aware of and supports the above referenced Highway Occupancy Permit Application that has been submitted by West Goshen Township.

Please give me a call at 610-692-7171 or e-mail me at [rsmith@eastgoshen.org](mailto:rsmith@eastgoshen.org) if you should have any questions or need additional information.

Sincerely,

Louis F. Smith, Jr.  
Township Manager

Cc: Casey LaLonde, West Goshen Township Manager

**Memo**  
**East Goshen Township**  
**1580 Paoli Pike**  
**West Chester, PA 19380**

Voice (610) 692-7171

Fax (610) 692-8950

E-mail [rsmith@eastgoshen.org](mailto:rsmith@eastgoshen.org)

**DATE:** June 6, 2016  
**TO:** Board of Supervisors  
**FROM:** Rick Smith, Township Manager  
**RE:** Township Building Roof

The Township Building was constructed in 1992 and we need to replace the flat roof over the Public Works area. Attached is the report from Pennoni.

We have \$135,000 in the sinking fund for the replacement of this roof.

I would recommend authorizing Pennoni to prepare the bid specifications. As suggested I would recommend that we hold off putting the project out to bid until August, in order to reduce our cost.



One Drexel Plaza  
3001 Market Street, Suite 200  
Philadelphia, PA 19104  
T: 215-222-3000  
F: 215-222-3588

www.pennoni.com

June 2, 2016

EGOS0007

Rick Smith, Township Manager  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

**RE: Municipal Building Roofing Investigation**

Dear Rick:

On May 19, 2016, Lisa Lemonick of LHL Consulting, LLC (LHL), a dedicated sub-consultant to Pennoni Associates and I, visited the municipal building to observe, evaluate and document the conditions of approximately 10,692 square feet (SF) of roofing (See Roofing Photos R1 and R2). The purpose of the site visit was to verify that the existing conditions matched the existing drawings provided by the Township. In addition, the condition of the existing roofing and roof drainage were observed. The condition assessment included visual observations of the exposed and readily accessible portions of the roofing.

**DESCRIPTION OF EXISTING ROOFING**

The building is an L-shaped structure, with two sloped roofs and a flat roof. The flat portion of the building is approximately 5,535 SF and is sloped approximately ¼-inch vertical to 12-inch horizontally from the northwest to the southeast. The remaining portion of 5,157 SF comprises two sloped roofing sections. The sloped roofs are shingled, while the flat roof is a built-up roofing system. The roofs all drain to gutters and downspouts. Because the shingled roof sections are still under warranty, this report will focus only on the flat portion of the roof, with the exception that the Township has requested that larger gutters and downspouts be installed on the sloped roof sections.

**OBSERVATIONS, ANALYSIS AND CONCLUSIONS**

No leaks were reported by the maintenance staff; however, an older leak was observed to have been patched on the southern corner. The building has one mechanical unit (See Roofing Photo R3) with a screened fence located on the easterly side of the roof, with vegetation growing around the base of the screen (See Roofing Photo R4). Vegetation growing on a roof is an indication that the insulation in this area is wet, which is permitting roots to grow. Vegetation should not be pulled out until the roofing system is to be repaired or replaced. A PVC pipe has been installed from the condensate line of the unit that discharges into the gutter (See Roofing Photo R5). A few other pipe penetrations exist on this roof, all with rain caps. A satellite dish also exists, that is supported on a skid that is ballasted down with concrete blocks (See Roofing Photo R7). The building was constructed in

1992, and we understand that only one roof was installed, therefore no cores were obtained. The existing roofing system, based upon the drawings and warranty, is a built-up system with mineral cap sheet, installed over polyisocyanurate insulation and supported by metal roof deck and open web steel bar joists. Most of the roof drains water properly, except where the patched area of roofing was observed (See Roofing Photo R6). This area is ponding water.

The existing flat roof roofing is at the end of its useful service life and is no longer under warranty. Seams are starting to pull open, some blisters are present and "alligatoring" is forming at the exposed asphalt bonding the cap sheet to the felts below. Alligatoring is a crazed cracking pattern in the roof's surfacing. Blistering is a different phenomenon in which air or moisture pockets are trapped between the membrane and the roof deck. As the sun heats the roof, those pockets expand and stretch the membrane. Eventually, the membrane will crack, in long vertical cracks not patterned like the alligatoring.

### RECOMMENDATIONS

While only one roof does exist on the flat roof structure, the logical course of action would be to install a second roofing system. However, the structure of this building was not designed under today's building codes, and therefore under today's building codes the structure would not be able to support two roofing systems. Therefore, it is our recommendation to remove the roofing and insulation down to deck, repair any damaged deck, install new installation to meet the current energy requirements of the current governing code, and install a new modified bituminous roofing system with a 20-year no dollar limit warranty.

The Township should budget approximately \$145,000 to replace the roofing system. The Township should keep in mind that this estimate is a budgetary number for the construction cost and does not include any engineering costs associated with the development of bid documents, or any unforeseen conditions. In addition, this estimate does not include construction phase services by Pennoni. Pennoni also recommends that this work be scheduled for the early fall in order to avoid unnecessary increases in the contractor's costs during the summer months when roofing projects are in higher demand. We can prepare bid documents upon authorization by the Township.

Sincerely,

**PENNONI ASSOCIATES INC.**



Nathan Cline, P.E.  
Township Engineer



D. Matthew Stuart, P.E., S.E., P.Eng., F.ASCE, F.SEI  
Structural Division Manager



**Appendix: Roof Photos**



**Roofing Photo R 1: Garage and Municipal Building**



**Roofing Photo R 2: Garage**



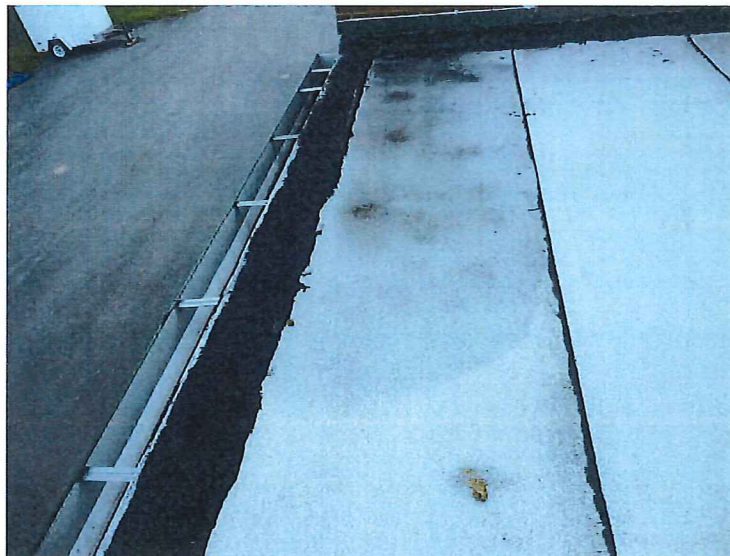
**Roofing Photo R 3: Mechanical unit and screening**



**Roofing Photo R 4: Vegetation growing at screen base**



**Roofing Photo R 5: PVC pipe installed at condensate**



**Roofing Photo R 6: Ponding area at southern end**



**Roofing Photo R 7: Satellite dish on sled with ballast**

Date: May 24, 2016  
To: Board of Supervisors  
From: Mark Miller  
Re: 2003 Tilt Trailer Replacement

We are scheduled to replace the 2003 Tilt Trailer this year, and \$10,000 was budgeted for this purpose in the 2016 sinking fund. We use this trailer to haul the roller and paver. However, it is not big enough to haul both at the same time so we have to make two trips.

Instead of doing a 1-for-1 replacement, I am proposing that we replace two trailers, both of which are fully depreciated, with one 20 ton trailer capable of hauling both the paver and roller.

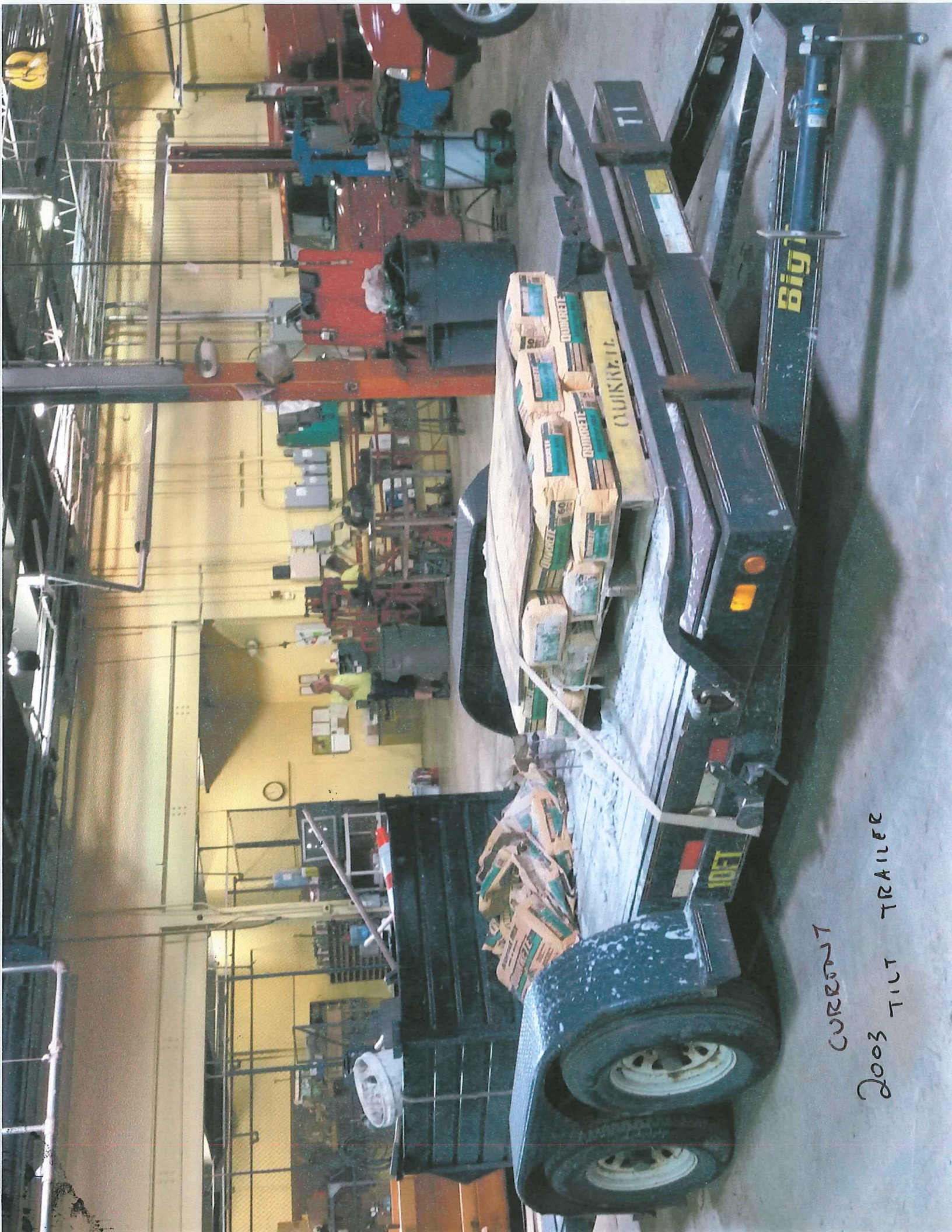
Both trailers that we would propose to replace are fully depreciated; \$29,700 for the 1990 Interstate Trailer and \$6,600 for the Tilt Trailer for a total of \$36,300. Thus, this purchase would result in a net savings in the sinking fund of about \$10,000.

We received COSTARS pricing for two 20 ton trailers that meet our specifications:

| Vendor                  | Make         | Price    | Trade In<br>(of 2 trailers) | Net Price |
|-------------------------|--------------|----------|-----------------------------|-----------|
| Eagle Power & Equipment | Eager Beaver | \$26,637 | -\$2,850                    | \$23,787  |
| Stephenson Equipment    | Felling      | \$29,254 | No trade-in offered         | \$29,254  |

I would recommend purchasing the trailer from Eagle Power and Equipment in the amount of \$26,637.

I would also recommend listing the trailers on MUNCIBID, the on-line auction platform for municipalities that we successfully used to sell the Ford F550 earlier this year, to see if we can get more for them than the quoted trade in price.



CURRENT  
2003 TILT TRAILER

CURRENT  
1990 INTERSTATE





EAGER

20XPT

Hi-Tensile

TRASH ONLY

A.J. Bloomer, Inc.  
8510 342-2707

PROPOSED  
EAGER  
BEAVER

24' Long  
20 ton



May 23, 2016

To: Board of Supervisors

From: Mark Miller

RE: Utility/Crane Truck Replacement

We are scheduled to replace our utility/crane truck this year. We budgeted \$130,000 for this purchase in the 2016 Sinking Fund. The compartments are rusted out in several areas which are causing damage to the equipment in the compartment. The existing utility truck was purchased in 2002 and is fully depreciated at \$138,000.

This truck is used for all confined space entries; all pump removals at the pumping stations and the sewer plant. The truck also is equipped with hand tools; self-contained breathing apparatuses, tri-pods, body harnesses and ropes. It also transports the camera and shoring trailers.

We received two price quotes for a 2017 Peterbilt utility truck with a crane through COSTARS, as summarized below. However, the body available through Hunter is only 11 feet long, which will not allow us to load all of our safety equipment, and the crane is not large enough to lift the pumps at the sewer plant. The vehicle offered by G.L. Sayre has a 14 feet long body and a crane that is sufficient for our needs at the plant.

| Vendor     | Make           | Chassis     | Body        | Trade In  | Net Price    |
|------------|----------------|-------------|-------------|-----------|--------------|
| Hunter*    | 2017 Peterbilt | \$85,126.00 | \$66,911.86 | -\$26,000 | \$126,037.86 |
| G.L. Sayre | 2017 Peterbilt | \$84,796.00 | \$72,013.00 | -\$30,000 | \$126,809.00 |

\* Does not meet Township specifications

I recommend that the Township purchase the 2017 Peterbilt through G.L. Sayre for \$126,809.

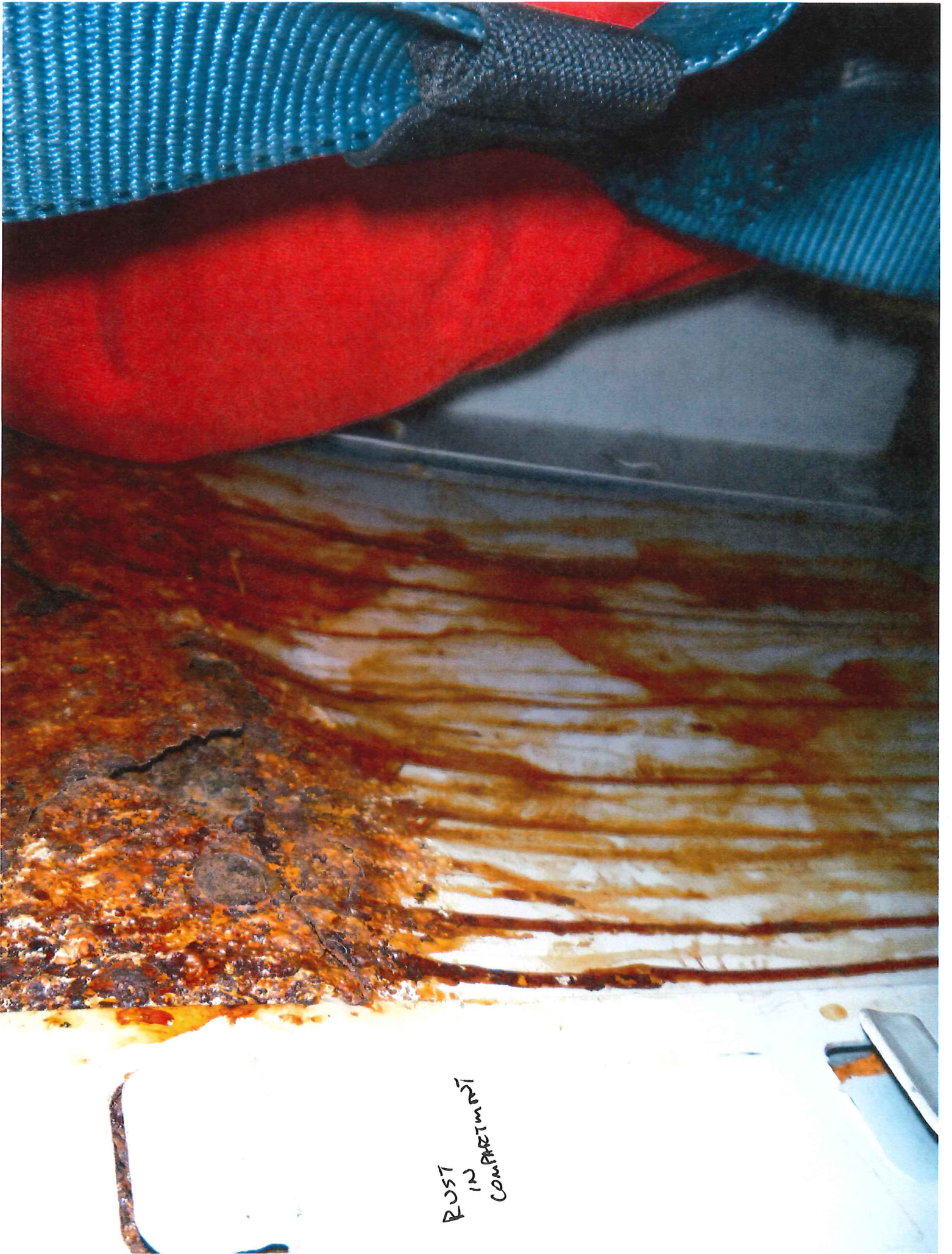
LIFTMOORE

CURRENT  
TRUCK # 8

UTILITY/CRANE

EAST TOW






RUST  
IN  
COMPARTMENT

MORE RUST





RUST  
UNDERNEATH  
FRAME

RUST  
AT

FRAME + BODY



# Memo

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To: Board of Supervisors  
From: Jason Lang  
Re: East Goshen Park Playground Renovation, DCED-GTRP Grant Application  
Date: June 7, 2016

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The East Goshen Park Master Plan has identified a number of funding sources for the renovation of the playground space, including the DCED Greenways, Trails, and Recreation Program (GTRP). The playground renovation cost estimate is \$637,770. The DCED-GTRP Grant amount requested is \$250,000. East Goshen Township has applied for a DCNR-C2P2 Development Grant in the amount of \$300,000 towards project costs as well; decision anticipated in early November. Therefore, the East Goshen Township match will be \$87,770 if awarded the DCNR-C2P2 Development Grant and \$387,770 if not awarded. Attached is the DCED-GTRP Resolution Page for inclusion in the application packet due June 30, 2016.

Note: The difference in C2P2 and GTRP Grant Application Cost Estimates is \$75952.

This is a result in acceptable contingency differences (C2P2 = 15% of project costs, \$80952)  
(GTRP = 5% of installation costs, \$5000)

For planning purposes, the Township should anticipate the actual project costs to be \$713,722.

Therefore:

|                        |                  |
|------------------------|------------------|
| Project Cost:          | \$713,722        |
| DCNR-C2P2 Grant Award: | \$300,000        |
| DCED-GTRP Grant Award: | <u>\$250,000</u> |
| Township Expense:      | \$163,722        |

Motion: I move to authorize application for a DCED-GTRP Grant in the amount of \$250,000 and approve matching funds in the amounts of \$87,770 or \$387,770 with the noted DCNR-C2P2 Development Grant application pending.

**EAST GOSHEN TOWNSHIP  
CHESTER COUNTY, PENNSYLVANIA**

**RESOLUTION NO. 2016-**

**A RESOLUTION FORMALLY REQUESTING GRANT FUNDING THROUGH  
THE PENNSYLVANIA DEPARTMENT OF ECONOMIC DEVELOPMENT'S  
GREENWAYS, TRAILS AND RECREATION PROGRAM.**

**BE IT RESOLVED**, that the Board of Supervisors of the Township of East Goshen of Chester County hereby requests a Greenways, Trails, and Recreation Program (GTRP) grant of \$250,000 from the Commonwealth Financing Authority to be used to renovate the East Goshen Park Playground that serves East Goshen Township's 20,000 residents and another 53,000 citizens within a three mile radius.

**BE IT FURTHER RESOLVED**, that the applicant does hereby designate Louis F. Smith Jr., Township Manager, as the official to execute all documents and agreements between East Goshen Township and the Commonwealth Financing Authority to facilitate and assist in obtaining the requested grant.

I, Louis F. Smith Jr., duly qualified Secretary of the Township of East Goshen, Chester County, PA, hereby certify that the forgoing is a true and correct copy of a Resolution duly adopted by a majority vote of the East Goshen Township Board of Supervisors at a regular meeting held on June 5, 2016 and said resolution has been recorded in the minutes of the East Goshen Township Board of Supervisors and remains in effect as of this date.

IN WITNESS THEREOF, I affix my hand and attach the seal of East Goshen Township, this 7<sup>th</sup> day of June, 2016.

East Goshen Township  
Name of Applicant

Chester  
Name of County

\_\_\_\_\_  
Secretary



# Memorandum

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**East Goshen Township**  
**1580 Paoli Pike**  
**West Chester, PA 19380**

Voice: 610-692-7171  
Fax: 610-692-8950  
E-mail: [mgordon@eastgoshen.org](mailto:mgordon@eastgoshen.org)

---

Date: 6/3/2016  
To: Planning Commission  
From: Mark Gordon, Township Zoning Officer   
Re: Paoli Pike Trail / Segment C Engineering Proposal

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Dear Board Members,

The Township has received the requested engineering proposal for Segment C of the Paoli Pike Trail from McMahon Associates Inc. The proposal is right on target with the estimates from the Paoli Pike Trail Master Plan.

As you know the Township was awarded a Federal Transportation Alternatives Program (TAP) grant of \$1,000,000 (managed by DVRPC) which must be used for the construction of Segment C of the Paoli Pike Trail. These funds must be obligated by August of 2018. With federal funding comes additional oversight and requirements which adds time to the process.

In order for the DVRPC to release our awarded grant funding, we must have all engineering, permitting and easements secure prior to August of 2018. This seems like a long way off, however; as you can see in the project schedule, there are many things that need to happen in order to get there.

McMahon is confident that if we get started in August of 2016 we can meet all the TAP requirements and fulfill the DVRPC contract obligations on time.

The Staff recommendation is to move forward with the engineering work on segment c as outlined in the enclosed proposal.

March 24, 2016

Mr. Mark Gordon  
Zoning Officer  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

RECEIVED

MAR 28 2016

**RE: DVRPC 2016 Transportation Alternatives Program (TAP)**

Dear Mr. Gordon:

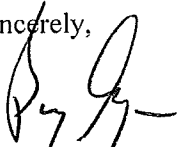
It is my pleasure to inform you that East Goshen Township has been awarded \$1,000,000 for the Paoli Pike Trail, Segment C project for implementation in the DVRPC 2016 TAP. Your application was one of eleven projects regionally awarded from a pool of thirty-five applications in the Pennsylvania portion of the DVRPC region.

Project readiness and the capacity of the applicants to implement these projects in a timely manner was a major consideration in the selection of these projects for funding. Funds awarded through this program must be federally obligated by August 2018. PennDOT District 6-0 will provide assistance in guiding the project through the PennDOT Design Development process.

A DVRPC project manager will be contacting you in the following weeks to schedule a project kick-off meeting to define the scope and responsibilities for the steps required to advance your project. Please be advised that you should not proceed with any element of this project for which you expect to be reimbursed until after the kick-off meeting.

Congratulations on your successful award and we look forward to working with you to implement your project.

Sincerely,



Barry J. Seymour  
Executive Director

c: Charles Davies, PennDOT – District 6-0  
William Deguffroy, TAP County Representative  
Joe Banks, DVRPC  
Ryan Gallagher, DVRPC



McMAHON ASSOCIATES, INC.  
840 Springdale Drive  
Exton, PA 19341  
p 610-594-9995 | f 610-594-9565

PRINCIPALS

Joseph W. McMahon, P.E.  
Joseph J. DeSantis, P.E., PTOE  
John S. DePalma  
William T. Steffens  
Casey A. Moore, P.E.  
Gary R. McNaughton, P.E., PTOE

ASSOCIATES

John J. Mitchell, P.E.  
Christopher J. Williams, P.E.  
R. Trent Ebersole, P.E.  
Matthew M. Kozsuch, P.E.  
Maureen Chlebek, P.E., PTOE  
Dean A. Carr, P.E.

May 25, 2016

Mr. Louis (Rick) Smith  
Township Manager  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

RE: **Proposal for Engineering Services**  
Paoli Pike Trail – Segment C from Reservoir Road to Boot Road  
East Goshen Township, Chester County, PA  
McMahon Project No. 815632.21

Dear Mr. Smith:

McMahon Associates, Inc. is pleased to submit this proposal associated with the engineering services for the above referenced project. As you are aware, the Township received \$1,000,000 of funding from the Transportation Alternatives Program (TAP) grant. In order to utilize the funding, the Township will be required to complete the preliminary design, environmental clearance, final design and preparation of the Plans, Specification and Estimate (PS&E) in accordance with the Delaware Valley Regional Planning Commission's (DVRPC) *Project Development Process Products/Deliverables (PDPPD) for federally funded projects*, which is based on *PennDOT's Transportation Program Development and Project Delivery Process, Design Manual 1, September 2010*. All engineering work will be coordinated with the assigned Project Implementation Coordinator at the DVRPC.

The specific milestones for the project that are required include a scoping field view meeting, environmental clearance, right-of-way and utility clearance, safety review, traffic review, constructability review and the submission of the final Plans, Specification and Estimate (PS&E). The following is a summary of the scope of services (**see attached detailed Scope of Services**) that will be completed during the Preliminary Engineering phase (August 2016 to December 2016) and the Final Design phase (December 2016 to August 2018) of the project:

1. Environmental Clearance/NEPA Process. This process is required by the National Environmental Policy Act (NEPA) for federal and state funded projects programmed on the region's Transportation Improvement Program. Specific tasks include public participation, preparation of a BRPA environmental clearance documentation, cultural resources coordination with District 6-0, qualitative studies related hazardous waste evaluations, endangered species, noise, air, etc.



A scoping field view meeting will be held with the District and the DVRPC in the fall, which is the first step of the environmental clearance process.

2. Preliminary Engineering tasks as required by PennDOT's Publication 10X, Design Manual Part 1X. The major tasks include submission to PennDOT for a Safety Review Submission, in accordance with current District 6-0 standards and requirements. Also, a Design Field View submission will not be required by PennDOT Central Office because the project will be processed under the Bridge and Roadway Programmatic Agreement (BRPA) or as a Level 1b CEE.
3. Utility and Right of Way Clearance Certification Process.
4. Preparation of Plans, Specification and Estimate (PS&E) package for submission through PennDOT's Engineering and Construction Management System (ECMS). The PS&E package will be advertised for construction through ECMS.

#### *Fee*

We anticipate that the total fee for the scope of services is **\$351,809.00**. A labor/cost breakdown for the associated fee is attached. The fee is exclusive of out-of-pocket expenses, including mileage, plan reproduction, plotting and graphics in accordance with our Standard Provisions for Professional Services. Additional meetings and engineering services not listed in the attached scope of services as requested by the Township, PennDOT or DVRPC will be billed on a time-and-materials basis or under a separate addendum proposal in accordance with the attached Standard Provisions for Professional Services.

#### *Timing*

McMahon is prepared to immediately begin working on the project upon your written authorization to proceed by returning this agreement with an authorized signature. We will work diligently and closely with you and the involved agencies to the best of our ability to attempt to meet the required August 2018 deadline in order to receive the TAP grant funding obligation for the construction. However, we cannot control the outcome and review times of the review agencies required by the process, cooperation of any affected utility companies and the acquisition of right-of-way which can have an influence on the project schedule.

#### *Conditions*

This agreement hereto sets forth the entire understanding between the parties with respect to the subject matter hereof, supersedes any and all prior understandings whether written or oral with respect to the subject matter hereof and may not be altered, modified, changed, amended or waived in any manner, except in a writing signed by all of the parties hereto.

The conditions of this agreement call for the execution of this contract with the understanding that **Invoices for services will be submitted monthly and are payable within 30 days of issuance.** All invoices not paid within 30 days are subject to a 1.5% monthly interest charge, and all projects with overdue balances exceeding 90 days will be subject to a stoppage of all work. Any changes in the specific work program described above will result in an adjustment of the conditions and fees.

If the terms of this contract, as contained herein, and in the attached Standard Provisions for Professional Services are agreeable to you, please execute both copies of the agreement below in the space provided and return one signed copy to our office. McMahon is committed to completing the project in a timely and cost-effective manner and to do our best to satisfy and meet project schedule.

If you should have any questions, or require further information, please feel free to contact me at 610-594-9995, ext. 5129.

Sincerely,



Stephen C. Giampaolo, P.E.  
Senior Project Manager

SCG/ab  
Attachments

cc: Jamie Kouch, P.E., McMahon Associates, Inc.  
Natasha Manbeck, P.E., AICP McMahon Associates, Inc.

**Accepted by East Goshen Township:**

**I have reviewed all terms of this contract, and I am authorized to sign in the space below for execution of this contract.**

By: \_\_\_\_\_  
(Signature of Authorized Representative)

\_\_\_\_\_  
(Printed Name of Authorized Representative)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## SCOPE OF SERVICES

As a result of the Township receiving TAP grant funds for the project, the design and plans are required to be completed in accordance with the Delaware Valley Regional Planning Commission's (DVRPC) *Project Development Process Products/Deliverables (PDPPD) for federally funded projects*, which is based on *PennDOT's Transportation Program Development and Project Delivery Process, Design Manual 1, September 2010*. All engineering work will be coordinated with the assigned Project Implementation Coordinator at the DVRPC. The specific milestones that are required include a scoping field view, environmental clearance, right-of-way clearance, utility clearance, safety review, traffic review, construction review and the submission of the Final Plans, Specification and Estimate (PS&E). The following scope of services includes tasks that will be completed during the Preliminary Engineering and Final Design phases of the project:

### Preliminary Engineering Phase

#### *Task 1 – Topographic Survey*

The topographic survey recently completed will be utilized for the preliminary engineering and final design. Additional topographic survey will be necessary for surveying the wetland delineation and for setting right-of-way reference circles along Paoli Pike.

#### *Task 2 – Environmental Clearance/NEPA Process*

McMahon and our sub-consultant, Lotus Environmental Consulting, LLC (Lotus) will complete the environmental clearance process that is required by the National Environmental Policy Act (NEPA) for federally and state funded projects. The scope of services for this process is as follows:

### Engineering and Environmental Scoping

This task will be completed by McMahon with assistance and support by Lotus for the environmental portions. Based on the PennDOT SOL 482-13-03 "Revised Environmental and Engineering Scoping Procedures (Pub 10B DM-1B)", the project will require preparation of the initial Scoping Document, a Scoping Field View (SFV) meeting, and updating of the Scoping Document for District review and approval. It is anticipated that the project will be processed under the Bridge and Roadway Programmatic Agreement (BRPA) or as a Level 1b CEE; however, the level of environmental documentation will be confirmed upon completion and approval of the Scoping Documents.

Administrative Activities – it is anticipated that PennDOT will provide any available screening information and technical support data from the prior planning and programming process for the project.

Scoping Documentation – Lotus will create the initial Scoping Document package in the ECMS expert system and will provide all the required environmental information. McMahon will verify and provide the engineering information (traffic, funding/cost estimates, design criteria, traffic control, and roadway and structures information, etc.) needed for the initial Scoping Document.

Qualitative information will be obtained through secondary sources and documented for the environmental subject areas in the scoping form. The initial scoping form will be generated in the Department's CE Expert System and posted for review by the District. Any anticipated public and agency involvement, permits and consistency determinations will be identified in the form.

Scoping Field View – Lotus will coordinate with PennDOT to assemble the scoping team and coordinate the SFV meeting. Lotus will have one (1) staff member participate at the SFV meeting and will provide the appropriate number of copies of the initial Scoping Document for use during the field view. During the SFV meeting, the Scoping Document will be reviewed and completed by verifying and updating the information. Lotus will prepare and provide SFV meeting minutes, with input from McMahon, to be incorporated into the Scoping Document for the project.

Complete the Scoping Document – Lotus will address and provide updates/revisions to the environmental portion of the Scoping Document based on review comments and make the complete Scoping Document for the project available for review/approval by PennDOT through the CE Expert System

## **Cultural Resources**

### **Above Ground Historic Resources**

The above-ground historic resource work conducted under this contract will follow PennDOT Publication #689, *The Transportation Project Development Process: Cultural Resources Handbook effective April 1, 2013 and Guidelines for Historic Resources Surveys in Pennsylvania*, by the Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission (BHP, PHMC). This work will comply with pertinent state and federal legislation, including *Section 106 of the National Historic Preservation Act of 1966*, as amended in 1980 and 1992; the *National Environmental Policy Act of 1969*; *Code of Federal Regulations: Advisory Council on Historic Preservation (36 CFR 800)*, as amended; *Commonwealth of Pennsylvania Act Nos. 1970-120 and 1978-273*; and *Executive Order 11593*.

Preliminary research on CRGIS indicates that there are no listed or evaluated resources in the study area. A field view noted a potentially eligible resource located on the south side of Paoli Pike. Lotus will coordinate with the PennDOT District Cultural Resource Professional (CRP) architectural historian to delineate the Area of Potential Effects (APE) for the project. Based on the nature of the project and presence of modern development in the project area, it is anticipated that the potential for visual effects would be minimal, and therefore, the APE would be limited to the proposed trail section. Lotus will invite the District Architectural Historian (AH) to view the

McMAHON



project area for the purposes of delineating the APE and determining appropriate levels of documentation. Lotus will supply a memo to the district AH outlining the project and the APE. It is assumed that the District Architectural Historian will determine that the project is exempt from detailed cultural resources eligibility or effects investigations.

*If it is determined that additional work for historic resources is required, such as supplemental historic resource survey for unknown potentially NRHP-eligible resources or preparation of Determination of Effect documentation, then an addendum proposal will be provided for the Township's approval.*

### **Archaeology**

Preliminary research on CRGIS indicates that there are no previously identified archaeological sites in the study area. Based on the scope of the project, Lotus does not anticipate the need for detailed archaeological investigations for the proposed trail. It appears that most of the improvements will occur within areas that had been previously disturbed as a result of the adjacent development. Lotus will conduct a pedestrian field reconnaissance to confirm and document the presence of previously disturbed soils within the study area. The field reconnaissance will be held in conjunction with the above ground structures survey. Lotus will then prepare a memo to provide to the District for submission to the PHMC.

*If it is determined that additional archaeological investigation is required, such as preparation and submission of a Record of Disturbance Form, then an addendum proposal will be provided for the Township's approval.*

### **Wetlands Study**

Lotus will identify and delineate the boundaries of all "waters of the US", including streams and wetlands. Lotus anticipates delineating wetlands in the two storm water management basins and the drainage swale along Paoli Pike.

Lotus will examine secondary sources such as the Chester County Soil Survey to identify known hydric soils, National Wetland Inventory Maps (US Fish and Wildlife Service) to locate anticipated wetland areas and the USGS 7 1/2 min. Quadrangle Sheets (U.S. Geological Survey) to define the drainage and topography of the site. These sources provide the background information and a starting point for in-field investigations.

Lotus will delineate the wetlands using the methodology presented in the U.S. Army Corps of Engineers (ACOE) *Wetland Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (2012). Lotus will classify identified/delineated wetlands utilizing Cowardin, et al. (1979), *Classification of Wetlands and Deepwater Habitats of the U.S.*

The wetland boundaries and the ordinary high water mark of identified streams will be marked with surveyor's flagging. McMahon or one of their sub-consultants will survey the wetland and waters flagging. Upon receipt of the surveyed mapping, Lotus will coordinate with McMahon to ensure the survey points depict the





wetland/waters boundaries and Lotus will generate the mapping to meet the requirements for use in the wetland report.

Lotus will prepare the Wetland Identification and Delineation Report (WIDR). The report will include the methodology, wetland and stream descriptions, photographs and data forms. Lotus will conduct the wetland functional assessment using the Corps Descriptive Method (CDM). The results of the functional assessment will be summarized in the individual wetland descriptions in the wetland report. Reports will be submitted to the Township and District electronically. This task assumes one round of report revisions based on district comments.

Upon final approval of the WIDR, Lotus will request and conduct a field view with the Corps of Engineers and the PADEP. Lotus will prepare the Preliminary Jurisdictional Determination Form and organize a Preliminary JD field view to verify the wetland jurisdictional boundaries with the U.S. Army Corps of Engineers and the PADEP. Upon confirming the jurisdictional boundaries of waters in the study area, Lotus will coordinate with the ACOE and PADEP to evaluate the permitting requirements for the proposed project, which may include the option to utilize a PADEP Chapter 105 Waiver 6 for impacts to SWM facilities.

Impacts to the waters and wetlands will be identified and included in the CEE. No mitigation will be included as part of this task.

### **Threatened and Endangered Species**

Lotus will prepare a PNDI search using the Pennsylvania Natural Heritage Program Environmental Review on-line tool. The project site is located within Chester County, a known bog turtle county and it is assumed that a Phase I Bog Turtle Habitat Survey will be required if there are wetlands within 300 feet of the impact area. We know there are two detention basins with wetlands and a wetland ditch within the study area.

Given the presence of wetlands within the impact area, Lotus will be required to conduct a Phase I Bog Turtle Habitat Study for all wetlands and waters within 300 feet of the limit of disturbance. The survey will examine the presence of suitable hydrology (typically spring-fed with shallow surface waters or saturated soils present year-round), soils which are usually permanently saturated organic or mineral soils - soft, mucky soils), and dominant vegetation of low grasses and sedges, often with a scrub-shrub wetland component. It is assumed that no further testing will be required. Lotus will prepare a summary report of the survey results for submission to the District Environmental Staff and the resource agencies. Draft copies will be submitted electronically, final copies (five copies) will be submitted in a hard copy format.

It is assumed no further testing will be required for the bog turtle. It is also assumed that there will be no conflict with the Northern Long Eared Bat since there will be minimal loss of trees.

### **Hazardous and Residual Wastes**

The proposed trail will involve property owned by the Sunoco Station and CVS, which have been identified as potential sensitive wastes based on preliminary database screening. Because excavation will be required on that



property, the completion of a Phase I Environmental Site Assessment (ESA) in accordance with the Pennsylvania Department of Transportation's *Publication 281 - Waste Site Evaluation Procedures Handbook, Volumes I and II* (December 2012) will be required. The Phase I ESA will determine the presence or absence of potential sensitive waste sites within the study area. The study area for the Phase I ESA includes all parcels adjacent to the limit of disturbance, but will not include business or structures greater than 200 feet from the limit of disturbance. We anticipate a detailed assessment and review of the Sunoco and CVS parcels. The scope of the Phase I report will include the following:

**Records Review** – A standard records review to be conducted by Environmental Data Resources, Inc. (EDR), or similar vendor service specializing in Phase I ESA and ASTM regulatory records review. Lotus will obtain and review federal and state environmental database search results from EDR to determine the presence of known, alleged, or potential hazardous waste sites in the project study area, and summarize those sites that may pose a potential hazard with respect to the project. It is assumed that the database search will incorporate a search radius of approximately 250 feet buffered from the anticipated limit of disturbance.

**Site Inspection** – Lotus will conduct a visual site reconnaissance of the study area in order to assess current conditions and identify any obvious signs of potential hazards. Lotus will obtain Intent to Enter Letters from the District prior to the site inspection. The study area will be assessed and reviewed for indicators of hazardous materials and/or waste using a detailed field checklist. The checklist will include underground storage tanks (USTs), aboveground storage tanks (ASTs), surficial evidence of waste burial, dumps, drums, storage areas, septic systems, oil/water separators, PCB transformers, stained ground and exposed surface soils, and stressed vegetation. Areas of concern will be noted as appropriate during the field view. Site photographs and site-specific notes will be collected for each area of concern and a site sketch will be prepared. Lotus will also attempt to interview persons having actual knowledge of the environmental history of the area should specific areas of concern be encountered.

**PADEP File Review** – Based upon the results of the Records Review and the Site Inspection, if required, Lotus will contact Pennsylvania Department of Environmental Protection to obtain permission to review departmental files related to environmental concerns or conditions that have been identified.

**Historical Aerial Photographs, Topographic Maps, and Sanborn Maps Review** – Lotus will obtain historical aerial photographs, for at least three (3) different time-periods, and topographic maps from Environmental Data Resources, Inc. (EDR). The historical aerial photographs and topographic maps will be reviewed to determine former site features and to ascertain changes in site usage. The aerial photographs and topographic maps will also be reviewed to identify potential environmental concerns associated with the subject site and adjoining properties. The historical Sanborn fire insurance maps will be obtained from EDR, if available, for the study area. The fire insurance maps will be reviewed to identify previous uses or occupancies of the properties at specified dates, including operating history. The fire insurance maps will also be reviewed to identify and assess any recognized environmental conditions in connection with the properties located along the subject site.

**Reporting** – Lotus will prepare a report summarizing the results of the investigation. Data collected from the environmental records/database search and review, historical photographs and maps review, and the site



reconnaissance will be analyzed and cross-referenced to confirm the findings. The location of known and/or potential areas with environmental concerns will be plotted on a map. The issues or areas of environmental concern will also be discussed and summarized. The report will provide discussions of the purpose, scope and limitations of the Phase I ESA, descriptions of the field methodology, and any references used. One (1) copy of the draft report summarizing the findings of the Phase I ESA for the study area will be provided for review and comments. One (1) copy of the Final report for the study area, which addresses comments from the draft report, will be provided. Reports will be provided electronically in pdf format.

Lotus will also prepare an Environmental Due Diligence form for use in the contract documents. This task does not include Phase II investigations (if required) or the preparation of a waste management plan or contract special provisions for identified sensitive waste issues.

### **Level 1B CEE (BRPA)**

The project will require either a Level 1B/BRPA environmental clearance document. Lotus will complete the BRPA Matrix. The task includes incorporating the results of the Threatened and Endangered Species and Historic Structures, and Archaeological investigations, and wetland investigations into the matrix. No detailed investigations will be required for geologic resources, public facilities and services, soils, community cohesion, farmlands, air, noise or water quality, Section 4(f), or floodplains. McMahon will supply the engineering information and the bike-ped checklist, if required.

The BRPA form will be generated in the Department's CE Expert System and posted for review, concurrence and approval by the District. One revision is anticipated.

It is anticipated that no additional detailed field studies, investigations, meetings, or coordination beyond what is specified in this technical proposal will be required. If it is determined that any additional detailed studies are required, Lotus will prepare a technical and cost proposal for approval prior to the commencement of any out of scope work.

### ***Task 3 – Preliminary Engineering Activities***

The McMahon Team will complete the preliminary engineering activities for the proposed multi-use trail depicted on the Paoli Pike Trail – Feasibility Study and Master Plan in accordance with Publication 13M, "Design Manual Part 2 (DM-2) Highway Design", August 2009 Edition, most recent revision, A Policy on Geometric Design of Highways and Streets (Green Book), Sixth Edition (2011), American Association of State Highway and Transportation Officials (AASHTO), Smart Transportation Guidebook, March 2008, Guide for the Planning, Design and Operation of Pedestrian Facilities, (2004), American Association of State Highway and Transportation Officials (AASHTO), Guide for the Development of Bicycle Facilities (2012), American Association of State Highway and Transportation Officials (AASHTO). At the end of this task, the project will require Safety Review approval which is necessary to continue with the Final Design Phase of the project. On previous projects of this type, we have successfully received preliminary engineering approval from PennDOT with a waiver for the Design Field View Submission, which is typically required on major transportation projects



in accordance with PennDOT's Transportation Program Development and Project Delivery Process, Design Manual 1. *Therefore, the preparation of a formal Design Field View Submission is not included in the scope of work.* The specific sub-tasks to be performed pursuant to this proposal are strictly limited to those expressly set forth herein. No additional services for Task 3 will be provided unless requested and agreed to in writing. The specific sub-tasks to be completed as part of Task 3 are as follows:

Task 3A – Preliminary Line and Grade

The line and grade for the project will be developed to identify any design deficiencies and the need for design exceptions in accordance with Publication 13M, "Design Manual Part 2 (DM-2) Highway Design", August 2009 Edition should the design criteria not be met. Other publications such as AASHTO's Policy on Geometric Design of Highway and Streets (Green Book), 2004 edition and additional AASHTO pedestrian facility design guidelines will be utilized for developing a line and grade for the proposed multi-use trail that considers context sensitive solutions.

Task 3B – Safety Review Submission

As required by PennDOT's Publication 10X, Design Manual Part 1X, McMahon will submit the preliminary engineering plans to PennDOT for a Safety Review Submission, in accordance with current District 6-0 standards and requirements. This submission will include a Design Criteria Report, Safety Study Report and Design Exception Request, if required. McMahon will submit the required number of plans, including a Bicycle and Pedestrian Checklists and the Safety Review Submission Quality Assurance Certification Form. This task includes all resubmissions necessary to obtain Safety Review approval should PennDOT have any comments. The Safety Review Submission package will include the following:

Safety Review Plans

- Title Sheet
- Index Sheet
- Location Map and General Notes
- Typical roadway sections, indicating pavement structure type and depths
- Roadway Improvement (geometric) Plans, drawn to 1"=25' scale
- Centerline Profile
- Cross-sections at 50-foot intervals (1"=5' scale)
- Maintenance and Protection of Traffic Plans
- Pavement Marking and Signing Plans
- ADA Plans

Other Documents

- Engineer's Preliminary Opinion of Construction Cost Estimate
- Design Criteria Report
- Safety Study



Task 3C – Preliminary ADA Curb Ramp Design

The specific work to be completed for this task will include the preliminary design of sixteen (16) new curb ramps along the multi-use trail/driveway crossings and crossings the intersections of Paoli Pike and Reservoir Road and at Boot Road in accordance with PennDOT's current ADA standards. McMahon will prepare preliminary ADA curb ramp plans and details in accordance with current PennDOT Publication No. 72, RC 67, June 2010 edition and Chapter 6 of DM-2, drawn to 1'=5" scale (including the preparation of Technically Infeasible Forms, if necessary) for this intersection. The plans will be submitted with the Safety Review Submission.

Task 3D – Preliminary Post Construction Storm water Management (PCSM) Best Management Practices Best Management Practices (BMP) Plan

The McMahon Team will develop a preliminary post construction storm water management (PCSM) Best Management Practices (BMP) plan consisting of features such as impervious disconnection, protection of existing tree canopy, landscaping and planting, soil amendments, vegetated buffers, infiltration trenches. This work will take place prior to submitting the safety review package. These post construction storm water management facilities (BMP's) will control the 2 Year Storm runoff volume increase between the pre-construction and post-construction conditions. The preliminary PCSM/BMP plan along with design analysis calculations will be presented at the pre-application meeting to get the Chester County Conservation District (CCCD) and the PADEP to approve prior to commencing with the final design and plan preparation. At this meeting, our team will discuss controlling the 2 Year Storm runoff volume increase and the best method to achieve water quality compliance. The two methods are the use of Worksheet 10 – Water Quality Compliance for Nitrate or the Pollutant Reduction Worksheets 12 and 13. The scope of this project does not include storm water management facilities to control storm water rate increase between the pre-construction and post-construction conditions. In addition, we will discuss the requirements for the additional segments for the entire Paoli Trail.

Task 3E – Utility Coordination

McMahon will notify the Pennsylvania One Call System of design and construction activity in the area and will send plans and request markups from utility companies with facilities within the project limits. As utility plans are received, they will be checked immediately against the field data to verify utility locations and will then be plotted on the project construction plans. During the design phase of the project, we will attempt to avoid utility conflicts with the resources that are available to us. However, should there be utility conflicts; our office will identify all utilities that will need to be relocated to the best of our ability.

*McMahon Associates, Inc. is not liable for any unmarked utilities or inaccurate as-built plans. All design will be based on field mark-outs, utility as-built plans and notification responses. In accordance with PennDOT Design Manual Part 5 – Utility Relocation, Chapter 6, Subsurface Utility Exploration (SUE) is highly recommended by PennDOT and could be required by PennDOT during the design stage. However, at this time it is not anticipated that SUE will be required based on the scope of the proposed improvements, and we*



anticipate that the utility companies will be able to provide us with sufficient underground data. Should this data not be available, then the Township will need a SUE consultant to perform the necessary work. Our office will only provide these services under a separate addendum proposal as authorized by the Township once the need for SUE is determined during design. For the purpose of this proposal, McMahon will complete all of the utility coordination work stated above and prepare a Subsurface Utility Exploration (SUE) Impact Report for the project in accordance with PennDOT requirements.

### Task 3F – Meetings and Public Participation

For the purpose of this proposal, the McMahon Team will attend six (6) progress meetings with the Township and PennDOT District 6-0 as necessary to discuss the status of the project. Also, our team will conduct one (1) plans display meeting to present the preliminary design of the multi-use trail to the local residents, businesses and other stakeholders.

### Final Design Phase

#### *Task 1 – Roadway Drainage Design*

McMahon will design additional roadway drainage facilities (infiltration trenches and amended soil grass buffers) and modifications to the existing drainage facilities along Paoli Pike to accommodate the storm water runoff from the proposed multi-use trail. The design analysis will include drainage area/runoff calculations, inlet spread analysis, capacity calculations for existing and proposed swales and storm pipe, as necessary. The drainage design will be in accordance with PennDOT Publication 13M, Design Manual, Part 2, Chapter 10 and PennDOT Publication 584, PennDOT Drainage Manual. At this time, it appears that there are potential wetlands near the existing Goshen Corporate Park storm water (STW) basins. If they are maintained STW basins, then any obstructions or encroachments from the project are eligible for the PA Department of Environmental Protection Agency (PADEP) Chapter 105 Waiver 6. If the Waiver is not applicable and the impacts are <0.1 acre of wetlands disturbance, then a Chapter 105 General Permit – 7 can be applied for. The design intends to use a boardwalk system in these areas to lessen the impacts. With boardwalks it depends how high the boardwalk is and how much shading is created. Therefore, the boardwalk will need to be set at an elevation to promote sunlight to qualify for the Waiver or General Permit. If the wetland impacts are >0.1, then a Joint Permit Application will be required. For the purpose of this proposal, the coordination and preparation for a Waiver 6 or General Permit – 7 application is included. *If additional work is required to prepare a Joint Permit Application, then an addendum proposal will be provided for the Township's approval.*

#### *Task 2 – Erosion and Sediment Pollution Control (E&SPC) Plan and NPDES Permit*

After the pre-application meeting with the CCCD and the PADEP, the McMahon Team will commence with the final design of the PCSM/BMPs, preparation of the E&SPC and PCSM plans and an Individual NPDES permit application, as the project is in a high quality watershed. The permit application will include the completed Notice of Intent application, standard worksheets (as determined at the pre-application meeting), calculations and reports. The design, plans and calculations will be completed in accordance with the PADEP Erosion and

MCMAHON



Sediment Pollution Control Program Manual, dated March 2012, Pennsylvania Storm water Best Management Practices Manual, dated December 2006 and PennDOT Drainage Manual –Publication 584, 2010. This task will include performing Double Ring Infiltrometer Testing to determine the soil properties for potential infiltration BMP's. The Infiltrometer Testing will be completed by Ingram Engineering.

### *Task 3 – Pavement Design*

Based on the scope of the project, a formal pavement design report is not required given the incidental pavement reconstruction for the installation of the concrete curbing/pavement restoration associated with the proposed multi-use trail installation. This type of work does not come under PennDOT's Publication 242's 1000 lineal feet requirement for undivided roadways. McMahon will be required to prepare and submit project design information to PennDOT's Pavement Engineer and request a pavement concurrence letter for the project. McMahon has submitted this type of request on multiple projects in the past. As documented in the Paoli Pike Trail – Feasibility Study and Master Plan, the proposed pavement section of the trail will be pervious paving.

### *Task 4 – Final ADA Curb Ramp Design Compliance Review*

The specific work to be completed for this task will include the final design of sixteen (16) new curb ramps along the multi-use trail/driveway crossings and crossings of East Central Avenue in accordance with PennDOT's current ADA standards. McMahon will address all comments from the ADA Compliance Review and submit the plans and design documentation for final approval.

### *Task 5 – Trail Boardwalk Design*

The specific work to be completed for this task will include the design of a boardwalk structure to span the existing wetland areas and storm water basins near the Goshen Corporate Park. The design will include overall horizontal layout (length and width), determination of pier spacing (based on wetland area) and beam/joist/decking, railing and abutment design. The boardwalk structure will be designed to accommodate pedestrian loading in accordance with AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges. The design of the boardwalk will be in accordance with timber design manuals, FHWA wetland trail design guidelines and manufactures specifications. The plans will include overall structure layout, a typical cross section, connection details, abutment details and boring information based on two (2) soil borings completed by Ingram Engineering. It is anticipated that PennDOT will not review the boardwalk structure as it outside of the right-of-way and will be maintained by the Township. Therefore, this task does not include the preparation of a TS&L Plan and Final Structure Plan in accordance with PennDOT requirements. *If it is determined that PennDOT will be required to review the boardwalk structure, then an addendum proposal will be provided for the Township's approval.*

### *Task 6 – Traffic Control Plan and Pavement Marking and Signing Plan*

In accordance with the PDPPD, the final pavement marking and signing plan and traffic control plan will be reviewed and approved by PennDOT's Traffic Unit. McMahon will develop the plans in accordance with



PennDOT Publication 213, Work Zone Traffic Control Guidelines, PennDOT TC-8600 and 8700 Standards and the Manual on Uniform Traffic Control Devices (MUTCD).

### *Task 7 – Traffic Signal Plans*

McMahon will prepare plans and supporting documentation for the modifications to the existing traffic signals at the intersections of Paoli Pike and Boot Road and Paoli Pike and Reservoir Road for accommodating the proposed multi-use trail. PennDOT will also require that coordination of the traffic signals along Paoli Pike will remain. Our scope of work related to the traffic signal design is as follows:

#### *Analysis and Calculations*

McMahon will utilize Synchro 8 capacity analysis software to develop the traffic signal timings for the AM, midday, PM, and weekend peak periods. We will also prepare a Traffic Signal Report, as required by PennDOT, which will contain signal design calculations, including vehicular and pedestrian clearance interval calculations, volume-density calculations, and left-turn conflict factor checks.

*It is assumed that analysis of the traffic signal timings will only be required at the intersections of Paoli Pike and Boot Road and Paoli Pike and Reservoir Road. If it is ultimately proposed to analyze and modify other signalized intersections along Paoli Pike, a supplemental proposal will be provided for authorization of this work.*

#### *Traffic Signal Permit Plans*

We will prepare revised traffic signal permit plans for the intersections of Paoli Pike and Boot Road and Paoli Pike and Reservoir Road, and for the Paoli Pike traffic signal system in accordance with current PennDOT District 6-0 procedures and requirements. The plans will reflect the trail geometry and curb ramp designs and will also specify existing and new traffic signal equipment, traffic signs, and controller phasing and timing. We will also revise the traffic signal system permit plan for the signal system along Paoli Pike.

#### *Traffic Signal Construction Plans*

Upon approval of the traffic signal permit plans, McMahon Associates, Inc. will prepare traffic signal construction plans and technical specifications to be included with the Plans, Specification and Estimate (PS&E) package. The construction plans will illustrate information shown on the permit drawings but will also include details regarding the proposed intersection modifications, including the electrical distribution systems, proposed equipment, and available utility information within the immediate vicinity of the intersections. The technical specifications will detail any requirements specific to East Goshen Township, such as controller type, equipment details, etc. The traffic signal permit plan will need to be revised at the completion of construction to reflect all As-Built conditions. *The completion of the traffic signal permit plan revisions during construction will be included under a separate proposal for construction services.*





### Task 8 – Right-of-Way Clearance

As a result of the project being funded with federal funds, the Township will be required to obtain all required right-of-way for the project in accordance with PennDOT Publication 98 – A Guide for Local Public Agency (LPA) Acquisition of Right-of-Way. PennDOT District 6-0’s Right-of-Way Unit will be the Township’s primary contact with PennDOT and primary source of information concerning right-of-way matters. At this time, it appears the project will require permanent trail easements along Paoli Pike from six (6) properties for the multi-use trail and for grading purposes behind the proposed trail. At the beginning of the project, McMahon and the Township will meet with the District’s Right-of-Way administrator (Matt Kulpa) to review the right-of-way needs, process and to discuss the right-of-way clearance for the project. At the end of the project, the District’s Right-of-Way Unit administrator will be responsible for certifying that the right-of-way was acquired and the project is cleared in accordance with appropriate procedures per Publication 98.

The Township will have to utilize the standard LPA Forms such LPA 12 – Deed of Easement and LPA 27 – Temporary Easement for Construction Purposes (if needed) for the necessary right-of-way acquisition listed above. Also, the Township will be required to hire a fee appraisal company and a review appraisal company to determine the just compensation for the right-of-way acquisition. *Our office is recommending Mark Abissi of Indian Valley Appraisal Company for the fee appraisal and William Wood to complete the review of the appraisal. Both appraisers would contract directly with the Township.* Please note that the Township can initially hold off on completing the appraisals and ask each property to sign a waiver (LPA 20) agreeing to waive their rights to just compensation. Should the property owner not agree to the waiver, then the Township will need to complete and appraisal process as stated above. This could impact the project schedule. In addition, to the appraisal companies, the Township should consider utilizing a special attorney to handle the property owner negotiations involving the just compensation and to complete the proper acquisition documentation (standard LPA forms) that is required by PennDOT. Our office can recommend a local attorney to handle this task.

The table below provides a summary of the procedure that will be required for the Township to acquire the rights-of-way to complete the project. The sequence of events listed must be followed in order, and the team member (Township, McMahon, appraisers and special attorney) responsible for each step is listed.

| Step | Procedural Step   | Responsibility          |
|------|---|-------------------------|
| 1.   | Announce project at an advertised Public Meeting  | Township <sup>(1)</sup> |
| 2.   | Provide written notice to affected property owners including:<br>-PennDOT Form LPA-23 “Advance Notice of Acquisition”<br>-PennDOT Publication 83<br>-Plot Plan of the affected property | Township <sup>(1)</sup> |



|                   |  |                    |
|-------------------|--|--------------------|
| 3.                | Prepare a Simplified Right-of-Way Plan<br>-Typical Right-of-Way plan set without Plats for each property (utilize Plot Plans created for Step 2.)<br>-Includes a table or boxes summarizing necessary property information<br>-Complete ownership verification. Property Deed must be obtained for permanent trail easements<br>-Plan must be approved and signed by the Township and the District Executive before negotiations begin | McMahon            |
| 4. <sup>(2)</sup> | Approach affected property owners regarding their willingness to donate their property using LPA-20 "Waiver of Rights."  | Attorney, Township |
| 5. <sup>(3)</sup> | Conduct an Appraisal Problem Analysis (APA) defining the scope of potential affect to property   | Review Appraiser   |
| 6. <sup>(4)</sup> | Conduct Fee Appraisal to determine estimated Just Compensation   | Fee Appraiser      |
| 7. <sup>(4)</sup> | Conduct review of Fee Appraisal  | Review Appraiser   |
| 8. <sup>(5)</sup> | Provide prompt written offer of Just Compensation to Property Owner  | Attorney, Township |
| 9.                | Allow Property Owner reasonable opportunity to review offer  | Attorney, Township |
| 10.               | Consider Administrative Settlements (offer amount greater than Just Compensation) if initial offer is not accepted   | Attorney, Township |
| 11.               | Begin Eminent Domain if settlement cannot be reached   | Attorney, Township |
| 12.               | Record any permanent right-of-way/easement documentation (including plat plan) at the Courthouse. Also, at the end of the process, the Simplified Right-of-Way plan can be recorded.   | McMahon            |

Notes:

- (1) McMahon will assist the Township in the preparation of project announcements, meeting exhibits, notification letters, plot plans, and PennDOT LPA forms.
- (2) If property owner(s) will not agree to sign LPA-20 "Waiver of Rights" and donate their property for the project, proceed to Step 5.
- (3) Any appraisal work can begin before the Simplified Right-of-Way plan is signed, however negotiation cannot begin until the plan is approved and signed.
- (4) An appraisal waiver option is available if the purchase price for the affected property is less than \$10,000.
- (5) The minimum Just Compensation offer price permitted is \$500.

For the purpose of this proposal, McMahon's staff will prepare a Right-of-Way Plan as required by PennDOT District 6-0, property plats and exhibits for the acquisitions, coordinate all technical information with the attorney and appraisers, attend six (6) meetings during the process and record any necessary documents at the courthouse. McMahon will not be responsible for the submission of the right-of-way documentation to PennDOT for the final clearance.

**Task 9 – Utility Clearance**

As required by PDPPD, the utility clearance process will be completed by McMahon during the final design phase and submitted for approval just prior to the PS&E submission. During Final Design, McMahon will try to minimize any required utility pole relocations and conflicts with any underground facilities. Should there be



any need for relocation work, McMahon will coordinate with the utility companies in the area to resolve conflicts and verify the need for utility relocation as part of the project. McMahon will schedule utility coordination meetings with all affected utilities to determine necessary relocation and right-of-way needs. McMahon will provide utility companies with all construction and right-of-way information necessary and will obtain a completed Form 4181 from each utility company within the project area. McMahon will prepare a draft Form D-419 using the completed Form 4181 to include the name of each utility in the project area, the contact person for each utility, a description of work to be accomplished for aerial or underground facilities, the estimated time to complete the relocation and the classification of work (prior, restrictive, concurrent, coordinated, incorporated). The Form D-419 will also indicate restrictions to the utility work. The draft D-419 will be submitted to the DVRPC's Consultant Project Manager and Utility Unit for final approval prior to the submission of the PS&E. At this time, McMahon does not anticipate the incorporation of utility relocation work into the PS&E package and the preparation of utility reimbursement agreements for this project.

### *Task 10 – Plans, Specification and Estimate (PS&E) Package*

#### Final Drawings for Construction

McMahon will submit 90% (pre-PS&E) plans and specifications for a **Constructability Review** (as per the PDPPD) and a **Final DM-3 Plan Review**. McMahon will complete the Final Drawings for Construction, based on comments received from these two reviews and any other comments received from the Department. Following the receipt of all review comments, McMahon will prepare the Final Drawings for Construction, including the following:

- Title Sheet
- Index Sheet
- Location Map and General Notes Sheet
- Typical Section and Details Sheets
- Summary of Quantities Sheets (prepared with AutoTab software)
- Tabulation of Quantities Sheets (prepared with AutoTab software)
- Plan Sheets
- Profile Sheets
- Contour, Grading and Drainage Plans
- Cross Sections
- “Also Included” plans such as pavement marking and signing plans, traffic signal plans, ADA Plans, traffic control plans, post construction storm water management plans and erosion and sediment control plans.

#### Cross Sections

McMahon will prepare cross sections in accordance with PennDOT Publication 14M, Design Manual Part 3.



### Special Provisions

McMahon will prepare draft special provisions for review by PennDOT prior to submitting with the Final PS&E. Any existing State or Township provisions will be used to ensure uniformity with other projects in the area. All construction items not approved by PennDOT's Publication 408 and Bulletin 15 will require proprietary approval from PennDOT Central Office. In addition, a Non-Standard Special Provisions Worksheet will be prepared in accordance with Publication 51.

### Final Engineer's Opinion of Cost Estimate

McMahon will prepare a detailed cost estimate to include with the PS&E submission package. Unit costs will be determined from ECMS item price history and recent bid prices in the area. McMahon will provide justification for all lump sum bid items and any non-Publication 408 items. In addition, a Cost Driver Analysis Form will be submitted for PennDOT's review.

### Construction Schedule

McMahon will prepare an Open Plan preliminary construction schedule to include with the PS&E submission package. The schedule will determine the duration of the project construction.

### Project Coordination utilizing ECMS

McMahon will enter all required information into PennDOT's ECMS System to complete the bid package. This task includes submitting all project approval letters, documentation such as the Environmental Due Diligence (EDD) Phase 1 Visual Inspection Form, Environmental Commitments and Mitigation Tracking System Tracking (ECMT) checklist to the DVRPC Project Implementation Coordinator for completing the Project Development Checklist. In addition, McMahon will enter all of the construction items, quantities and special provisions as well as address all applicable errors and warnings upon publication of the package. McMahon will use AutoTab software to import construction items, quantities, unit prices and Design Item Plan Stations.

### *Task 11 – Bidding Phase Services*

McMahon will work with PennDOT Dist. 6-0 to answer any questions from contractors during the bidding phase of the project. McMahon will coordinate with the PennDOT 6-0's Contract Management Unit to develop required addenda and will enter all information into the ECMS System. McMahon will also attend a Pre-Construction Meeting.

I:\eng\815632\Correspondence\Proposals\TAP Design Proposal\McM Scope of Services.docx



|  |                  |
|--|------------------|
| Direct Labor Cost (See attached Cost Breakdown)  | \$301,590        |
| Expenses - exclusive of out-of-pocket expenses, including mileage,<br>plan reproduction, plotting and graphics<br>Soil Testing and Borings | \$18,000         |
| <b>Total Lump Sum Fee for McMahon</b>  | <b>\$319,590</b> |

|  |          |
|--|----------|
| <b>Sub-Consultants:</b>                    |          |
| <i>Lotus Environmental Consulting, LLC</i> | \$32,219 |

|                           |                  |
|---------------------------|------------------|
| <b>Total Lump Sum Fee</b> | <b>\$351,809</b> |
|---------------------------|------------------|

|                                 |                    |
|---------------------------------|--------------------|
| <b>Total Estimated Manhours</b> | <b>2,815 hours</b> |
|---------------------------------|--------------------|

|                  |   |
|------------------|---|
| Engineer's Name: | McMahon Associates, Inc.<br>840 Springdale Drive<br>Exton, PA 19341 |
|------------------|---|

|                   |            |
|-------------------|------------|
| Federal I.D. No.: | 23-2462387 |
|-------------------|------------|

McMahon Direct Labor Cost - Preliminary Engineering

|  | Hours      |   | Hourly Rate |   | Total           |
|--|------------|---|-------------|---|-----------------|
| <b>Task 1 - 3F Total</b>                             | <b>821</b> |   |             |   | <b>\$89,770</b> |
| <b>Task 1 - Topographic Survey</b>                   | <b>36</b>  |   |             |   | <b>\$5,280</b>  |
| Principal  | 0          | x | \$210       | = | \$0             |
| Senior Project Manager                               | 0          | x | \$200       | = | \$0             |
| Senior Project Engineer                              | 0          | x | \$125       | = | \$0             |
| Project Engineer                                     | 0          | x | \$90        | = | \$0             |
| Staff Engineer/Design Technician                     | 0          | x | \$80        | = | \$0             |
| Chief of Survey                                      | 8          | x | \$140       | = | \$1,120         |
| Survey Crew  | 16         | x | \$200       | = | \$3,200         |
| Survey Technician                                    | 12         | x | \$80        | = | \$960           |
| <b>Task 2 - Environmental Clearance/NEPA Process</b> | <b>140</b> |   |             |   | <b>\$17,000</b> |
| Principal  | 0          | x | \$210       | = | \$0             |
| Senior Project Manager                               | 40         | x | \$200       | = | \$8,000         |
| Senior Project Engineer                              | 0          | x | \$125       | = | \$0             |
| Project Engineer                                     | 100        | x | \$90        | = | \$9,000         |
| Staff Engineer/Design Technician                     | 0          | x | \$80        | = | \$0             |
| <b>Task 3A - Preliminary Line and Grade</b>          | <b>146</b> |   |             |   | <b>\$15,200</b> |
| Principal  | 0          | x | \$210       | = | \$0             |
| Senior Project Manager                               | 6          | x | \$200       | = | \$1,200         |
| Senior Project Engineer                              | 40         | x | \$125       | = | \$5,000         |
| Project Engineer                                     | 100        | x | \$90        | = | \$9,000         |
| Staff Engineer/Design Technician                     | 0          | x | \$80        | = | \$0             |
| <b>Task 3B - Safety Review Submission</b>            | <b>292</b> |   |             |   | <b>\$27,000</b> |
| Principal  | 0          | x | \$210       | = | \$0             |
| Senior Project Manager                               | 8          | x | \$200       | = | \$1,600         |
| Senior Project Engineer                              | 24         | x | \$125       | = | \$3,000         |
| Project Engineer                                     | 160        | x | \$90        | = | \$14,400        |
| Staff Engineer/Design Technician                     | 100        | x | \$80        | = | \$8,000         |
| <b>Task 3C - Preliminary ADA Curb Ramp Design</b>    | <b>53</b>  |   |             |   | <b>\$5,050</b>  |
| Principal  | 0          | x | \$210       | = | \$0             |
| Senior Project Manager                               | 0          | x | \$200       | = | \$0             |
| Senior Project Engineer                              | 8          | x | \$125       | = | \$1,000         |
| Project Engineer                                     | 45         | x | \$90        | = | \$4,050         |
| Staff Engineer/Design Technician                     | 0          | x | \$80        | = | \$0             |
| <b>Task 3D - Preliminary PCSM/BMP Plan</b>           | <b>56</b>  |   |             |   | <b>\$7,240</b>  |
| Principal  | 0          | x | \$210       | = | \$0             |
| Senior Project Manager                               | 8          | x | \$200       | = | \$1,600         |
| Senior Project Engineer                              | 40         | x | \$125       | = | \$5,000         |
| Project Engineer                                     | 0          | x | \$90        | = | \$0             |
| Staff Engineer/Design Technician                     | 8          | x | \$80        | = | \$640           |

McMahon Direct Labor Cost - Preliminary Engineering

|  | Hours     |   | Hourly Rate                       |   | Total           |
|--|-----------|---|-----------------------------------|---|-----------------|
| <b>Task 3E - Utility Coordination</b>              | <b>44</b> |   |                                   |   | <b>\$4,720</b>  |
| <i>Principal</i>                                   | 0         | x | \$210                             | = | \$0             |
| <i>Senior Project Manager</i>                      | 4         | x | \$200                             | = | \$800           |
| <i>Senior Project Engineer</i>                     | 16        | x | \$125                             | = | \$2,000         |
| <i>Project Engineer</i>                            | 0         | x | \$90                              | = | \$0             |
| <i>Staff Engineer/Design Technician</i>            | 24        | x | \$80                              | = | \$1,920         |
| <br>   |           |   |                                   |   |                 |
| <b>Task 3F - Meetings and Public Participation</b> | <b>54</b> |   |                                   |   | <b>\$8,280</b>  |
| <i>Principal</i>                                   | 0         | x | \$210                             | = | \$0             |
| <i>Senior Project Manager</i>                      | 24        | x | \$200                             | = | \$4,800         |
| <i>Senior Project Engineer</i>                     | 24        | x | \$125                             | = | \$3,000         |
| <i>Project Engineer</i>                            | 0         | x | \$90                              | = | \$0             |
| <i>Staff Engineer/Design Technician</i>            | 6         | x | \$80                              | = | \$480           |
|  |           |   |                                   |   |                 |
|  |           |   | <b>Total McMahon Direct Labor</b> |   | <b>\$89,770</b> |
|  |           |   | <b>Total Estimated Manhours</b>   |   | <b>821</b>      |

McMahon Direct Labor Cost - Final Design

|  | Hours       |   | Hourly Rate |   | Total            |
|--|-------------|---|-------------|---|------------------|
| <b>Task 1 - 9 Total</b>                                | <b>1994</b> |   |             |   | <b>\$211,820</b> |
| <b>Task 1 - Roadway Drainage Design</b>                | <b>84</b>   |   |             |   | <b>\$7,800</b>   |
| Principal  | 0           | x | \$210       | = | \$0              |
| Senior Project Manager                                 | 4           | x | \$200       | = | \$800            |
| Senior Project Engineer                                | 0           | x | \$125       | = | \$0              |
| Project Engineer                                       | 60          | x | \$90        | = | \$5,400          |
| Staff Engineer/Design Technician                       | 20          | x | \$80        | = | \$1,600          |
| <b>Task 2 - E&amp;SCP Plan and NPDES Permit</b>        | <b>212</b>  |   |             |   | <b>\$23,800</b>  |
| Principal  | 0           | x | \$210       | = | \$0              |
| Senior Project Manager                                 | 12          | x | \$200       | = | \$2,400          |
| Senior Project Engineer                                | 120         | x | \$125       | = | \$15,000         |
| Project Engineer                                       | 0           | x | \$90        | = | \$0              |
| Staff Engineer/Design Technician                       | 80          | x | \$80        | = | \$6,400          |
| <b>Task 3 - Pavement Design</b>                        | <b>7</b>    |   |             |   | <b>\$810</b>     |
| Principal  | 0           | x | \$210       | = | \$0              |
| Senior Project Manager                                 | 1           | x | \$200       | = | \$200            |
| Senior Project Engineer                                | 2           | x | \$125       | = | \$250            |
| Project Engineer                                       | 4           | x | \$90        | = | \$360            |
| Staff Engineer/Design Technician                       | 0           | x | \$80        | = | \$0              |
| <b>Task 4 - Final ADA Curb Ramp Design Compliance</b>  | <b>87</b>   |   |             |   | <b>\$8,550</b>   |
| Principal  | 0           | x | \$210       | = | \$0              |
| Senior Project Manager                                 | 4           | x | \$200       | = | \$800            |
| Senior Project Engineer                                | 8           | x | \$125       | = | \$1,000          |
| Project Engineer                                       | 75          | x | \$90        | = | \$6,750          |
| Staff Engineer/Design Technician                       | 0           | x | \$80        | = | \$0              |
| <b>Task 5 - Trail Boardwalk Design</b>                 | <b>228</b>  |   |             |   | <b>\$27,000</b>  |
| Principal  | 0           | x | \$210       | = | \$0              |
| Senior Project Manager                                 | 8           | x | \$200       | = | \$1,600          |
| Senior Project Engineer                                | 160         | x | \$125       | = | \$20,000         |
| Project Engineer                                       | 60          | x | \$90        | = | \$5,400          |
| Staff Engineer/Design Technician                       | 0           | x | \$80        | = | \$0              |
| <b>Task 6 - TCP and Pavement Marking/Signing Plans</b> | <b>144</b>  |   |             |   | <b>\$12,400</b>  |
| Principal  | 0           | x | \$210       | = | \$0              |
| Senior Project Manager                                 | 4           | x | \$200       | = | \$800            |
| Senior Project Engineer                                | 0           | x | \$125       | = | \$0              |
| Project Engineer                                       | 40          | x | \$90        | = | \$3,600          |
| Staff Engineer/Design Technician                       | 100         | x | \$80        | = | \$8,000          |



McMahon Direct Labor Cost - Final Design

|  | Hours      |   | Hourly Rate                       | = | Total            |
|--|------------|---|-----------------------------------|---|------------------|
| <b>Task 7 - Traffic Signal Plans</b>   | <b>172</b> |   |                                   |   | <b>\$16,200</b>  |
| Principal                              | 0          | x | \$210                             | = | \$0              |
| Senior Project Manager                 | 12         | x | \$200                             | = | \$2,400          |
| Senior Project Engineer                | 0          | x | \$125                             | = | \$0              |
| Project Engineer                       | 100        | x | \$90                              | = | \$9,000          |
| Staff Engineer/Design Technician       | 60         | x | \$80                              | = | \$4,800          |
| <b>Task 8 - Right-of-Way Clearance</b> | <b>420</b> |   |                                   |   | <b>\$47,800</b>  |
| Principal                              | 0          | x | \$210                             | = | \$0              |
| Senior Project Manager                 | 60         | x | \$200                             | = | \$12,000         |
| Senior Project Engineer                | 120        | x | \$125                             | = | \$15,000         |
| Project Engineer                       | 160        | x | \$90                              | = | \$14,400         |
| Staff Engineer/Design Technician       | 80         | x | \$80                              | = | \$6,400          |
| <b>Task 9 - Utility Clearance</b>      | <b>86</b>  |   |                                   |   | <b>\$8,720</b>   |
| Principal                              | 0          | x | \$210                             | = | \$0              |
| Senior Project Manager                 | 6          | x | \$200                             | = | \$1,200          |
| Senior Project Engineer                | 16         | x | \$125                             | = | \$2,000          |
| Project Engineer                       | 40         | x | \$90                              | = | \$3,600          |
| Staff Engineer/Design Technician       | 24         | x | \$80                              | = | \$1,920          |
| <b>Task 10 - PS&amp;E Package</b>      | <b>492</b> |   |                                   |   | <b>\$51,500</b>  |
| Principal                              | 0          | x | \$210                             | = | \$0              |
| Senior Project Manager                 | 80         | x | \$200                             | = | \$16,000         |
| Senior Project Engineer                | 12         | x | \$125                             | = | \$1,500          |
| Project Engineer                       | 200        | x | \$90                              | = | \$18,000         |
| Staff Engineer/Design Technician       | 200        | x | \$80                              | = | \$16,000         |
| <b>Task 11 - Bidding Services</b>      | <b>62</b>  |   |                                   |   | <b>\$7,240</b>   |
| Principal                              | 0          | x | \$210                             | = | \$0              |
| Senior Project Manager                 | 8          | x | \$200                             | = | \$1,600          |
| Senior Project Engineer                | 24         | x | \$125                             | = | \$3,000          |
| Project Engineer                       | 24         | x | \$90                              | = | \$2,160          |
| Staff Engineer/Design Technician       | 6          | x | \$80                              | = | \$480            |
|  |            |   |                                   |   |                  |
|  |            |   | <b>Total McMahon Direct Labor</b> |   | <b>\$211,820</b> |
|  |            |   | <b>Total Estimated Manhours</b>   |   | <b>1994</b>      |

**MCMAHON ASSOCIATES, INC.**  
**STANDARD PROVISIONS FOR PROFESSIONAL SERVICES**  
**JANUARY 1, 2016**

**SERVICES**

McMahon Associates, Inc. reserves the right to make adjustments for individuals within these classifications as may be desirable in its opinion by reason of promotion, demotion, or change in wage rates. Such adjustments will be limited to the manner in which charges are computed and billed and will not, unless so stated in writing, affect other terms of an agreement, such as estimated total cost. The following rates will apply to actual time devoted by McMahon Associates, Inc. staff to this project computed to the nearest one-half hour.

| <u>PERSONNEL</u>                        | <u>HOURLY RATES</u> |
|---|---------------------|
| Principal                               | \$250.00            |
| Senior Associate                        | \$240.00            |
| Associate                               | \$225.00            |
|   |                     |
| Senior Engineer/Planner VIII            | \$210.00            |
| Senior Engineer/Planner VII             | \$200.00            |
| Senior Engineer/Planner VI              | \$195.00            |
| Senior Engineer/Planner V               | \$190.00            |
| Senior Engineer/Planner IV              | \$180.00            |
| Senior Engineer/Planner III             | \$170.00            |
| Senior Engineer/Planner II              | \$160.00            |
| Senior Engineer/Planner I               | \$150.00            |
|   |                     |
| Chief of Surveys                        | \$140.00            |
| Traffic Control/Construction Specialist | \$135.00            |
| Party Chief                             | \$120.00            |
|   |                     |
| Engineer VI                             | \$140.00            |
| Engineer V                              | \$130.00            |
| Engineer IV                             | \$125.00            |
| Engineer III                            | \$120.00            |
| Engineer II                             | \$110.00            |
| Engineer I                              | \$105.00            |
|   |                     |
| Technician/Word Processor IV            | \$ 95.00            |
| Technician/Word Processor III           | \$ 90.00            |
| Technician/Word Processor II            | \$ 85.00            |
| Technician/Word Processor I             | \$ 80.00            |
| Survey Technician                       | \$ 75.00            |
| Field Traffic Count Personnel           | \$ 50.00            |

**TERMS**

1. **Invoices** - Invoices will be provided on a monthly basis and will be based upon percentage of completion or actual hours, plus expenses. Payment is due to McMahon Associates, Inc. within 30 days of the invoice date. Unpaid balances beyond 30 days are subject to interest at the rate of 1.5% per month. This is an annual percentage rate of 18%.
2. **Confidentiality** - Technical and pricing information in this proposal is the confidential and proprietary property of McMahon Associates, Inc. and is not to be disclosed or made available to third parties without the written consent of McMahon Associates, Inc.
3. **Commitments** - Fee and schedule commitments will be subject to renegotiation for delays caused by the client's failure to provide specified facilities or information, or any other unpredictable occurrences.
4. **Expenses** - Automatic Traffic Recorder equipment usage will be billed at \$25.00 per 24-hour count. Incidental expenses are reimbursable at cost, plus an administration fee of 10%. These include subconsultants, reproduction, postage, graphics, reimbursement of automobile usage at the IRS-approved rate, parking and tolls. Expenses which by company policy are not billed as reimbursable expenses to clients and therefore, will not be billed as part of this contract include the following: air travel, rental car, lodging, meals, and long distance phone charges between McMahon Associates offices. If it becomes necessary during the course of this project to travel elsewhere, those travel costs will be treated as reimbursable expenses. These expenses will be reflected in the monthly invoices.
5. **Attorney's Fees** - In connection with any litigation arising from the terms of this agreement, the prevailing party shall be entitled to all costs including reasonable attorney's fees at both the trial and appellate levels.
6. **Ownership and Use of Documents** - All original drawings and information are to remain the property of McMahon Associates, Inc. The client will be provided with copies of final drawings and/or reports for information and reference purposes.
7. **Insurance** - McMahon Associates, Inc. will maintain at its own expense Workman's Compensation Insurance, Comprehensive General Liability Insurance and Professional Liability Insurance and, upon request, will furnish the client a certificate to verify same.
8. **Termination** - This agreement may be terminated by the authorized representative effective immediately on receipt of written notice. Payment will be due for services rendered through the date written notice is received.
9. **Binding Status** - The client and McMahon Associates, Inc. bind themselves, their partners, successors, assigns, heirs, and/or legal representatives to the other party to this Agreement, and to the partners, successors, assigns and legal representatives of such other party with respect to all covenants of this Contract.

# Memorandum

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East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380

Voice: 610-692-7171  
Fax: 610-692-8950  
E-mail: [mgordon@eastgoshen.org](mailto:mgordon@eastgoshen.org)

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Date: 6/2/2016  
To: Board of Supervisors  
Cc: Planning Commission  
From: Mark Gordon, Township Zoning Officer   
Re: Zoning Ordinance Review

Dear Board Members,

The Planning Commission conducted a comprehensive review of Articles II, III, and IV of the Zoning Ordinance to identify any inconsistencies and to formulate recommendations for amendments.

The matrix enclosed outlines the sections of the zoning ordinance which need to be reviewed closely and amended accordingly. The PC believes working from the beginning of the ordinance is appropriate therefore the priorities are listed in that order.

Please review the recommendation and advise the Commission if you have specific sections that you would like to be given a higher priority.

# East Goshen Township

## Planning Commission Review of the Zoning Ordinance CH 240

### Zoning Ordinance Recommendations

6/2/2016

#### Article II Residential Districts

| Title               | Section | Issue  | Recommendation  | Priority | Status |
|---------------------|---------|--|---|----------|--------|
| Animal Husbandry    | 9.B(2)  | Animal Husbandry is listed as accessory use however referred to as requiring conditional use approval in the R-2 [240-9.B.(2)]. As I read the ordinance closely I believe that there are substantial inconsistencies and find the code nearly impossible to interpret. | All aspects of this ordinance be amended to be more readable and enforceable. The PC should develop a clear and simple objective to communicate to the Board that would encompass the use across the Zoning Ordinance. Once a clear objective is established the solicitor could draft an amendment for review. | 1        |        |
|                     | 6       | There are two definitions of Animal Husbandry in 240-6 that need consistency.  | This needs to be included in the review of Animal Husbandry. Look at the applicability of this use in the R-2 and R-4. The use could be permitted for all Residential districts as long as a clear definition and standard is outlined for setbacks, etc.   |          |        |
|                     |         |  | a. Look at the applicability of this use in the R-2 and R-4   |          |        |
|                     |         |  | The use could be permitted for all Residential districts as long as a clear definition and standard is outlined for setbacks, etc.  |          |        |
| Temporary Structure | 6       | There is no Definition in the ordinance for "Temporary Structure"  | Recommendation: We could add a definition for temporary structure which includes a finite period of time. We could specify that a permit is required for the temporary structure and a permit shall only be valid for a defined period of time.   | 2        |        |
|                     |         |  | Webster's online Definition of Temporary: lasting for a limited time  |          |        |
| Temporary Use       | 6       | "Temporary Use" is identified in the ordinance and it is also not defined.   | Recommendation: Define Temporary Use and develop a standard that specifies that a permit is required for the temporary use and a permit shall only be valid for a defined period of time.   | 3        |        |
|                     |         |  |   |          |        |

# Zoning Ordinance Recommendations

6/2/2016

|                                     |      |  |  |   |  |
|-------------------------------------|------|--|--|---|--|
| Public and Private Recreation       |      | These terms should be consistent   | identify inconsistencies and correct   | 4 |  |
| Windmill                            | 32.T | This use is permitted in all residential districts except the R-2 and R-5 a standard is outlined in §240-32.T Accessory Uses / Windmill. | Amend the R-2 to permit this use, I believe it was an oversight since it's allowed in Milltown with ~10K s.f. lots (R-3) and not in the R-2 with 25K s.f. lots. The terminology could be looked at too, for consistency: i.e. Windmill and Wind-generated Energy systems but this isn't a huge concern, the meanings are synonymous. | 5 |  |
| Single Family Cluster Development   | 9.G  | This section of the ordinance is somewhat hidden   | Single Family Cluster should be highlighted in the NOTES of 240-9.G directing readers to 240-28 for specific area and bulk regulations.  | 6 |  |
| Single Family Openspace Development | 9.G  | This section of the ordinance is somewhat hidden   | Single Family Openspace should be highlighted in the NOTES of 240-9.G referring readers to 240-36 for specific area and bulk regulations.  | 7 |  |

## Article III Commercial Districts

| Title    | Section  | Issue  | Recommendation                              | Priority | Status |
|----------|----------|--|---|----------|--------|
| C-1 Uses | 14.B/C/E | B(6): C-1 Post Office Sale of goods on site?   | Sale of goods on site?                      | 8        |        |
|          |          | B(13): Outdoor retail sales of Christmas trees | By Right?                                   |          |        |
|          |          | C(2): Outdoor retail sales of Christmas trees  | CU, WHY?                                    |          |        |
|          |          | E(2): Outdoor Storage                          | (Define!)                                   |          |        |
|          |          | E(6): Temporary Use                            | Define ?                                    |          |        |
| C-2 Uses | 15       | Restaurants? It's not very clear.              | Restaurant uses should be clear and concise | 9        |        |

## Zoning Ordinance Recommendations

6/2/2016

### Article IV Industrial and Business Park Districts

| Title       | Section           | Issue  | Recommendation  | Priority | Status |
|-------------|-------------------|--|---|----------|--------|
| I / BP Uses | 19.C.(23)         | Research – This is allowed in I2 but not BP.                 | Permit in BP  | 10       |        |
|             |                   |  |   |          |        |
|             | 19.G.             | Max Building Height  | Since the height for apartments has been raised should this be raised. Dan pointed out that West Goshen allows up to 40 feet high.  | 11       |        |
|             |                   |  |   |          |        |
|             | 20                | Review I-2 district.   | There appears to be a lot of redundancy in I-1 & I-2. Review purpose of the I districts and determine if there are any uses that can be allowed in both I-1 and I-2.                            | 12       |        |
|             |                   |  |   |          |        |
|             | 20.D.(6) and (24) | Treatment center is listed twice.                            | Remove (24)   | 13       |        |
|             |                   |  |   |          |        |
|             | 20.F.(2)          | Typo:  | change 1-2 to I-2.  | 14       |        |
|             |                   |  |   |          |        |
|             | 20.F.(2) (b)      | Just say Permitted Uses because the uses are shown in (a).   | ( c ) and (d) have references to Article V. This may need some additional thought because permitted uses include conditional uses.  | 15       |        |
|             |                   |  |   |          |        |
|             | 20.F.(3) (a)      | 330/150 feet from what?? Minimum perimeter building setback? | Can the editor's notes be incorporated into the zones for clarification. The notes are attached to the definitions.   | 16       |        |
|             |                   |  |   |          |        |
|             | 20.F.(3)(g)       | Two buildings on one lot                                     | Do we want to keep this? Yes, I believe this adds some flexibility to property owners.  | 17       |        |
|             |                   |  |   |          |        |
|             | 20.F.(4)          | National Register of Historic Places                         | Ask the Historical Commission to review and make any comments on this section? This section was written to preserve the Chamber building and allow it to be subdivided and conveyed separately. | 18       |        |

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**EAST GOSHEN TOWNSHIP  
BOARD OF SUPERVISORS MEETING  
1580 PAOLI PIKE  
TUESDAY, MAY 3, 2016 – 7:00 pm  
DRAFT MINUTES**

**Present:** Chairman Senya D. Isayeff, Vice-Chairman Marty Shane, and Supervisors Janet Emanuel, Chuck Proctor, Carmen Battavio, Township Manager Rick Smith, Township CFO Jon Altshul, ABC Member Erich Meyer (Conservancy Board) and Township Solicitor Skip Brion.

**Call to order & Pledge of Allegiance:**

Senya called the meeting to order at 7:00 pm and asked Mr. Brion to lead the assembly in the Pledge of Allegiance.

**Moment of Silence:**

Carmen called for a moment of silence to honor the members of the military who keep us safe both locally and abroad. Senya added a moment of silence in honor of Dick Yoder, the former Mayor of West Chester who recently passed.

**Recording of Meeting:** None

**Chairman's Report:** Senya announced the following:

- a. On April 14, 2016, the Preserve at Applebrook, commenced a civil action against the Township and several other parties in the Chester County Court of Common Pleas regarding the use of Hibberd and Grist Mill Lanes. The Township Solicitor is representing the Township and has advised the Board of Supervisors not to further comment on the matter as it involves pending litigation.
- b. The Board met in Executive Session on April 16, 2016, and at 6:00 p.m., before this meeting, to discuss the pending litigation
- c. The Township was awarded a \$150,000 grant from Chester County for the Paoli Pike Trail, Segments F & G
- d. The Board would like to recognize the East Goshen Elementary School and Thrivent for their donation of \$1,428 to help send socioeconomically disadvantaged East Goshen Elementary students to the REC Camp.
- e. April 19<sup>th</sup> was known as Rick Smith Day, in honor of his Excellence in Government Award.
- f. Both Rick Smith and Marty Shane were the recipients of the Pennsylvania State Association of Township Supervisors (PSATS) President's Award. They were honored on April 20, 2016 at the PSATS Convention in Hershey, PA.

**Public Comment ~ Hearing of Residents:**

*David Malman of Landis & Setzler, legal counsel for the Preserve at Applebrook Homeowners Association (HOA), asked for the opportunity to distribute HOA documents to the Board regarding the Hibberd Lane Resolution which recognizes Hibberd and Grist Mill Lane as private roads, and asked that the Board read them. Mr. Brion, on behalf of the Board, commented that the Board will not publically comment on the documents.*

1  
2 *Jim Dehaven, President of the Preserve at Applebrook Homeowners Association*, commented  
3 that the HOA had provided several proposals to the Board and Township to help deal with the  
4 increased traffic through their community as a result of the East Boot Road detour, which had  
5 been denied by the Township. Mr. Dehaven spoke of 500 vehicles per day driving through the  
6 community's private roads due to the detour, as well as the HOA purchasing barriers to deal with  
7 the increased traffic. Mr. Dehaven warned of the unsafe conditions as a result of the increased  
8 traffic.

9  
10 *Robert Ruggiero, 1728 Hibberd Lane*, commented that the Board has created a racetrack in his  
11 neighborhood (Applebrook Preserve). Mr. Ruggiero said the Board needs to address this unsafe  
12 situation immediately, and he urged the Board to use their common sense in this situation.

13  
14 **Old Business:**

15 **Consider Planning Commission recommendation to amend zoning requirements for**  
16 **swimming pools in Single Family Open Space Developments:** Mr. Brian Nagle, on behalf of  
17 the Robbins Family of the Sorrell Hill Community discussed the April 6, 2016 Planning  
18 Commission meeting and its recommendation to amend the accessory use requirement for  
19 swimming pools in Single Family Open Space Developments. Janet motioned to amend the  
20 accessory use requirements. The motion was not seconded. Senya informed Mr. Nagle and his  
21 clients that the motion to amend the accessory use requirement for swimming pools, (240-32Q)  
22 within Single Family Open Space Developments was rejected.

23  
24 **New Business:**

25 a. **Consider Additional Signage For The East Boot Road Detour:** Rick recommended  
26 the installation of the following signs at a cost of \$1,018:

- 27 • A second barricade sign on East Boot Road at North Chester Road.
- 28 • A second barricade sign on East Bood Road at Line Road
- 29 • A left arrow detour sign on East Boot Road just west of Line Road.
- 30 • A right arrow detour sign at the intersection of Clocktower Drive and East Boot
- 31 Road.
- 32 • A right arrow detour sign at the intersection of Throncroft Drive and East Boot
- 33 Road

34 Marty motioned to authorize this signage. Janet seconded.

35  
36 *Mr. Dehaven* requested to go on record that he asked for this signage a month ago and was  
37 denied by the Township. Mr. Dehaven further asked for more detour signage on Paoli Pike,  
38 before and after the entrance of Hibberd Lane, as well as "No Thru-way" signage. Senya  
39 commented that the current motion did not address "No Thru-way" signage.

40  
41 *Scott Schaffer, 803 Grist Mill Lane*, reminded the Board of a Township meeting in 2014 in which  
42 the Preserve at Applebrook HOA requested monetary assistance for the repaving of Hibberd  
43 Lane. This request was denied by the Township for the reason that Hibberd Lane is a private  
44 HOA road of the Preserve at Applebrook Community. Mr. Schaeffer also commented that the  
45 language of easement agreement between the HOA and the Township regarding Hibberd Road is  
46 very clear, and that the Township should install "No Thru-way" signs to rectify this situation.



1  
2 *Michael Simpson, 808 Grist Mill Lane*, commented on witnessing serious and dangerous  
3 incidents as a result of motorists racing through his neighborhood. He further urged the Board to  
4 act reasonably in dealing with this situation.

5  
6 *Paul Finnegan, 1734 Hibberd Lane*, urged the Board to consider the costs of one bad incident  
7 due to the speeding through his community.

8  
9 *Jean McGrail, 1703 Hibberd Lane*, shared with the Board personally witnessing motorists  
10 speeding through her community, shouting obscenities at residents of her community, and  
11 physically threatening assault. She has called 911 to report incidents, and warned the Board that  
12 a very serious accident is imminent in the current status.

13  
14 *Jim Craven, 826 Grist Mill Lane*, urged the Board to pass a resolution to install “No Thru-way”  
15 signage. He also commented that he has seen Police in the community to patrol traffic to no  
16 avail.

17  
18 *Michael Simpson, 808 Grist Mill Lane*, commented that due to the Board’s inaction, the Board  
19 has encouraged the traffic through his community and thus contributed to the problem.

20  
21 Marty amended the initial motion to add two detour signs on Paoli Pike before and after Hibberd  
22 Lane, and increase the funding to \$1,600. Janet seconded.

23  
24 Carmen asked to convene for a short executive session with the Township Solicitor. After an 18  
25 minute break, the Board meeting reconvened. Senya announced the following recommendation  
26 of the Board:

- 27 • A meeting will be scheduled at the earliest convenience between the Board, IMX and
- 28 both legal counsels for the Township and HOA to discuss a possible resolution.
- 29 • Temporary road closure signs and barriers would be installed immediately at the entrance
- 30 to Hibberd Lane at East Boot Road.
- 31 • Temporary road closure signs would be erected immediately at the entrance of Hibberd
- 32 Lane at Paoli Pike.
- 33 • All signs and barriers would remain in place for the duration of the East Boot Road
- 34 Bridge construction.

35  
36 *Agnes Finnegan, 1734 Hibberd Lane*, asked how one would distinguish a resident of her  
37 community. Senya commented that Hibberd Lane would be blocked at the East Boot Road  
38 entrance, so access would be limited to residents of her community.

39  
40 The Board voted unanimously in favor of Marty’s amended motion.

41  
42 Marty then motioned to authorize the Township to implement the plan of action and signage  
43 recommendations that resulted from the Board’s executive session, described above. Carmen  
44 seconded. The Board voted unanimously in favor of this motion.

1 *Diane Corvino, Grist Mill Lane*, recommended that a public notice of the above actions would be  
2 advisable. Senya agreed that an email blast on the matter could be arranged.

3  
4 *Ron Melancomp, 1707 Hibberd Lane*, stated for the record that many residents of the Clocktower  
5 and Hunt Country communities were very respectful of the residents of the Preserve at  
6 Applebrook during this difficult time.

7  
8 Mr. Brion, Township Solicitor, noted to the assembly that the Board of Supervisors acted  
9 diligently on behalf of all East Goshen residents, and that, likewise, these residents should reach  
10 out to one another in a neighborly fashion for the common good moving forward.

- 11  
12 b. **Consider Skid Steer Replacement:** Senya motioned to authorize the purchase of a  
13 Kubota skid steer from Eagle Power and Equipment in the amount of \$49,712, net of  
14 trade in. Marty seconded. The Board voted unanimously in favor of the motion.  
15
- 16 c. **Consider Awarding The Plank House HVAC Bid:** Plank House HVAC bids were  
17 received as follows:  
18 • Thermal Logistics \$6,218.00  
19 • Timothy Off Heating & AC \$7,113.60  
20 Janet motioned to award the bid to Thermal Logistics. Marty seconded. The Board  
21 voted unanimously in favor of the motion.  
22
- 23 d. **Consider Updating The Hershey Mill Dam Emergency Action Plan:** Marty suggested  
24 tabling this item to a future date to be determined. The Board agreed.  
25
- 26 e. **Consider Resolution Confirming Submission of a DVRPC Grant Application for the**  
27 **Paoli Pike Corridor Master Plan:** Marty motioned that the Board authorize the  
28 participation in the Delaware Valley Regional Planning Commission's 2017  
29 Transportation & Community Development Initiative Grant Program for funds to develop  
30 a Paoli Pike Corridor Master Plan. Janet seconded. The Board voted unanimously in  
31 favor of the motion.  
32
- 33 f. **Authorize Chairman to Execute Stormwater Agreements for 1348 Mark Drive and**  
34 **139 Dutton Mill Road:** Marty motioned to execute stormwater agreements for 1348  
35 Mark Drive and 139 Dutton Mill Road. Carmen seconded. The Board voted  
36 unanimously in favor of the motion.  
37
- 38 g. **Consider Authorizing advertising a Revision to the Property Maintenance Code**  
39 **Concerning Smoke Detectors:** This item was tabled in order to consider more  
40 information on the matter.  
41
- 42 h. **Consider Conducting a "Statistically Valid" Recreation Survey:** This item was  
43 tabled.  
44
- 45 i. **Consider Amending the Performance Evaluation Process:** This item was tabled.  
46

1 j. **Review Paoli Pike Trail and Playground Renovation Status Update:** This item was  
2 tabled.  
3

4 k. **Review Water Usage Analysis:** Senya thanked Jon for the analysis and asked whether  
5 he would recommend any changes to how the Township calculates sewer bills. Jon stated  
6 that he did not think changes were appropriate and the Board agreed.  
7

8 **Any Other Matter:**

- 9 a. Upon Rick's recommendation, Marty motioned to approve a donation to the Malvern Fire  
10 Company in the amount of \$12,931 for the upkeep and maintenance of apparatus.  
11 Carmen seconded. The Board voted unanimously in favor of the motion.  
12 b. Marty recommended that the Board refrain from making a decision about the Milltown  
13 Dam over the summer while residents tend to be on vacation. The Board agreed.  
14

15 **Approval of Minutes:** The Board reviewed and corrected the minutes from the following  
16 meetings:

- 17 c. March 22, 2016 ~ Marty motioned to approve. Carmen seconded. The Board voted  
18 unanimously in favor of the motion.  
19 d. April 12, 2016 ~ Carmen motioned to approve. Marty seconded. The Board voted  
20 unanimously in favor of the motion.  
21

22 **Treasurer's Report:**

23 *See attached Treasurer's Report for April 28, 2016.* The Board reviewed the Treasurer's Report  
24 and the current invoices. Carmen moved to graciously accept the Treasurer's Report and the  
25 Expenditure Register Report as recommended by the Treasurer. Marty seconded. The Board  
26 voted unanimously to approve the motion.  
27

28 **Correspondence, Reports of Interest:** The Board acknowledged receipt of the April 11, 2016  
29 letter from Verizon regarding Service Interruptions.  
30

31 **Adjournment:**

32 There being no further business, Marty motioned to adjourn the meeting at 9:05 pm. The Board  
33 voted unanimously to adjourn.  
34

35 Respectfully submitted,  
36 *Christina Rossetti Hartnett*  
37 *Recording Secretary*  
38

39 Attachment: *Treasurer's Report for April 28, 2016*  
40

**TREASURER'S REPORT  
2016 RECEIPTS AND BILLS**

**GENERAL FUND**

|                                     |                     |                         |                     |
|-------------------------------------|---------------------|-------------------------|---------------------|
| Real Estate Tax                     | \$13,551.46         | Accounts Payable        | \$285,632.89        |
| Earned Income Tax                   | \$139,800.00        | <u>Electronic Pmts:</u> |                     |
| Local Service Tax                   | \$7,600.00          | Credit Card             | \$2,025.41          |
| Transfer Tax                        | \$36,605.18         | Postage                 | \$1,000.00          |
| <i>General Fund Interest Earned</i> | \$0.00              | Debt Service            | \$31,162.13         |
| Total Other Revenue                 | \$100,991.59        | Payroll                 | \$149,866.46        |
| Total Receipts:                     | <u>\$298,548.23</u> | Total Expenditures:     | <u>\$469,686.89</u> |

**STATE LIQUID FUELS FUND**

|                           |               |               |               |
|---------------------------|---------------|---------------|---------------|
| Receipts                  | \$0.00        |               |               |
| <i>Interest Earned</i>    | \$0.00        |               |               |
| Total State Liquid Fuels: | <u>\$0.00</u> | Expenditures: | <u>\$0.00</u> |

**SINKING FUND**

|                        |               |                     |                     |
|------------------------|---------------|---------------------|---------------------|
| Receipts               | \$0.00        | Accounts Payable    | \$114,966.06        |
| <i>Interest Earned</i> | \$0.00        | Credit Card         | \$0.00              |
| Total Sinking Fund:    | <u>\$0.00</u> | Total Expenditures: | <u>\$114,966.06</u> |

**TRANSPORTATION FUND**

|                        |               |               |               |
|------------------------|---------------|---------------|---------------|
| Receipts               | \$0.00        |               |               |
| <i>Interest Earned</i> | \$0.00        |               |               |
| Total Sinking Fund:    | <u>\$0.00</u> | Expenditures: | <u>\$0.00</u> |

**SEWER OPERATING FUND**

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| Receipts               | \$227,922.99        | Accounts Payable    | \$153,486.78        |
| <i>Interest Earned</i> | \$0.00              | Debt Service        | \$31,892.43         |
| Total Sewer:           | <u>\$227,922.99</u> | Credit Card         | \$1,608.65          |
|                        |                     | Total Expenditures: | <u>\$186,987.86</u> |

**REFUSE FUND**

|                        |                    |               |                    |
|------------------------|--------------------|---------------|--------------------|
| Receipts               | \$76,670.64        |               |                    |
| <i>Interest Earned</i> | \$0.00             |               |                    |
| Total Refuse:          | <u>\$76,670.64</u> | Expenditures: | <u>\$75,863.90</u> |

**SEWER SINKING FUND**

|                           |               |               |                   |
|---------------------------|---------------|---------------|-------------------|
| Receipts                  | \$0.00        |               |                   |
| <i>Interest Earned</i>    | \$0.00        |               |                   |
| Total Sewer Sinking Fund: | <u>\$0.00</u> | Expenditures: | <u>\$5,353.00</u> |

**OPERATING RESERVE FUND**

|                               |               |               |               |
|-------------------------------|---------------|---------------|---------------|
| Receipts                      | \$0.00        |               |               |
| <i>Interest Earned</i>        | \$0.00        |               |               |
| Total Operating Reserve Fund: | <u>\$0.00</u> | Expenditures: | <u>\$0.00</u> |

**Events Fund**

|                        |               |               |               |
|------------------------|---------------|---------------|---------------|
| Receipts               | \$0.00        |               |               |
| <i>Interest Earned</i> | \$0.00        |               |               |
| Total Events Fund:     | <u>\$0.00</u> | Expenditures: | <u>\$0.00</u> |

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**EAST GOSHEN TOWNSHIP  
BOARD OF SUPERVISORS MEETING  
1580 PAOLI PIKE  
MAY 17, 2016 – 7:00 pm  
DRAFT MINUTES**

**The Board met in Executive Session at 6:30 p.m. to discuss a Personnel Matter**

**Present:** Chairman Senya D. Isayeff, Vice-Chairman Marty Shane, and Supervisors Janet Emanuel, Chuck Proctor, Carmen Battavio, Township Manager Rick Smith, Township CFO Jon Altshul, ABC Member Erich Meyer (Conservancy Board).

**Call to order & Pledge of Allegiance:**

Senya called the meeting to order at 7:08 pm and asked Erich Meyer to lead the assembly in the Pledge of Allegiance.

**Moment of Silence:**

Carmen called for a moment of silence to honor the members of the military who keep us safe both locally and abroad, and to honor those who have given the ultimate of their lives in defense of our nation.

**Recording of Meeting:** *None*

**Chairman's Report:**

- a. Senya announced that the Board met in Executive Session on May 4, 2016 with the solicitor to discuss a Police personnel matter.
- b. Senya announced that there would be no discussion on the Hershey Mill Dam topic at the meeting tonight due to insufficient notice.

**Emergency Services Report:**

Chief Bernot made the board aware of the following recent activity:

- Grandparent Scams
- International Scams
- Computer Infection Scams
- Extortion Scams, often initiated through Facebook friending
- Motorcycles being stolen from apartment complexes.
- Thefts from unlocked vehicles with visible personal belongings inside.
- 12 Traffic related complaints

Senya recognized *Dylan Goldman*, an East High School Freshman, present in the audience. Mr. Goldman, a member of Boy Scout Troop #21, is working towards the Citizenship in Community Badge and was interested in observing first-hand how the Township operates. The Board commended Mr. Dylan and offered any assistance in achieving the Badge.

Senya recognized *Mr. Rich Gostkowski* of Edward Jones, present in the audience.

1 Pauline Johnson, 1608 Highland Ave, expressed her frustration in being unable to safely enter  
2 the Applebrook Park walking trails, due to the Applebrook Golf Course access road gates always  
3 being closed and locked. Rick informed Ms. Johnson that the Township does not have control of  
4 those gates as they belong to the golf club. Carmen offered to Ms. Johnson that he would  
5 personally take her into the park to show her what entrances to use.  
6

7 **Fire Marshall Report:** Carmen reported on the May 8, 2016 dispatch to 26 Reservoir Road.  
8

9 **Financial Report April 2016:** Jon presented this report and noted the following:

- 10 • Net of pass-through accounts, as of April 30<sup>th</sup>, the general fund had a year-to-date surplus  
11 of \$395,868.
- 12 • The Parks and Recreation Department was \$82,545 over-budget due to invoices paid to  
13 Gannett Fleming for the Milltown Dam study and reclassified Park tree work.
- 14 • Earned Income Tax is now \$73,859 under budget.
- 15 • Local Services Tax continues to be strong with a positive budget variance of \$12,037.  
16

17 **Old Business:**

- 18 a. **Consider Resolution 2016-103 Adopting the 2015 Chester County Multi-**  
19 **Jurisdictional Hazard Mitigation Plan:** Marty motioned to approve Resolution 2016-  
20 103 adopting the 2015 Chester County Multi-Jurisdictional Hazard Mitigation Plan. Janet  
21 seconded. The Board voted 4-0 in favor of the motion. Carmen had temporarily left the  
22 room at the time of the vote.  
23
- 24 b. **Consider Ribbon Cutting event for the East Boot Road Bridge:** Rick explained that  
25 the bridge construction is targeted for completion by May 27, 2016. The Board discussed  
26 a ribbon cutting ceremony for the bridge opening on Saturday, June 4, 2016 at 10:00  
27 a.m., with light refreshments served. Jon added that this timing would work nicely as  
28 “Living History Day” at the Plank House is scheduled to begin at 11:00 a.m. on the same  
29 day. Marty motioned to schedule the East Boot Road Bridge Ribbon Cutting Ceremony  
30 for Saturday, June 4, 2016, 10:00 a.m., with light refreshments served. Carmen  
31 seconded. The Board voted unanimously in favor of the motion. Senya suggested  
32 naming the bridge. Carmen suggested enlisting the creative help of East Goshen  
33 Elementary students towards this end.  
34

35 **Any Other Matter:**

- 36 a. The May 13, 2016 Gannett Fleming Report on the Hershey’s Mill Dam cost estimates  
37 was tabled.  
38
- 39 b. Marty proposed that an East Goshen representative be appointed to the West Goshen  
40 Sewer Authority. He stated that East Goshen should have input on how the decisions are  
41 made there, given the amount of money we pay them to treat a portion of our sewage.  
42 Rick commented that Pennoni was reviewing the HRC study that West Goshen had  
43 commissioned. Senya suggested that the Board wait to receive the recommendations  
44 back from Pennoni before taking further action on this matter.  
45

- 1 c. The Board made plans to host the Department of Community & Economic Development  
2 for a Meet & Greet on Thursday, May 19, 2016, at 9:00 a.m. at the Township Building.  
3 Jon said he would make arrangements to have copies of all the Township's grant  
4 applications to DCED available prior to the meeting.  
5 d. Rick reported that our joint application with West Goshen and Westtown for PennDOT  
6 "Green Light Go" funding for interactive traffic signals along Route 3 had been  
7 approved.  
8 e. Marty expressed his gratitude to the Board and Jon for their efforts in nominating him  
9 and Rick Smith for the awards they received at the recent PSATS Convention.

10  
11 **Treasurer's Report:**

12 *See attached Treasurer's Report for May 12, 2016.* The Board reviewed the Treasurer's Report  
13 and the current invoices. Marty moved to graciously accept the Treasurer's Report and the  
14 Expenditure Register Report as recommended by the Treasurer, to accept the receipts and to  
15 authorize payment of the invoices just reviewed. Janet seconded. The Board voted unanimously  
16 to approve the motion.

17  
18 **Correspondence, Reports of Interest:** The Board acknowledged receipt of the following:

- 19 • The May 7, 2016 Commerce Connection Report  
20 • The 1<sup>st</sup> Quarter 2016 Sunoco Remediation Report  
21 • The April 25, 2016 Letter from John Good, Esquire  
22 • The Pennoni Letter regarding the Ridley Creek Sewer Plant  
23 • The Goshen Friends Letter of Invitation to an event on May 26, 2016  
24

25 **Adjournment:**

26 There being no further business, Marty motioned to adjourn the meeting at 8:05 pm. Carmen  
27 seconded. The Board voted unanimously to adjourn.

28  
29 Respectfully submitted,  
30 *Christina Rossetti Hartnett*  
31 *Recording Secretary*  
32

33 Attachment: *Treasurer's Report for May 12, 2016*  
34

1 EAST GOSHEN TOWNSHIP  
2 BOARD OF SUPERVISORS MEETING (BUDGET PLANNING MEETING)  
3 1580 PAOLI PIKE  
4 MAY 25, 2016 – 9:30am  
5 DRAFT MINUTES  
6

7 **Present:** Chairman Senya D. Isayeff, Vice-Chairman Marty Shane, and Supervisors Janet  
8 Emanuel, Chuck Proctor, Carmen Battavio, Township Manager Rick Smith, Township CFO Jon  
9 Altshul, Zoning Officer Mark Gordon, Parks & Recreation Director Jason Lang, Public Works  
10 Director Mark Miller, and ABC Member Tom Kilburn (Futurist Committee). The following  
11 members of Township staff were also present: Brian McCool, Barb Phillips and Tia Piccolo. The  
12 following members of the Goshen Fire Company were also present: Bob Hall, President; Ted  
13 Harrison III (Vice President); and Tom Stalnaker, Treasurer.

14  
15 **Call to order & Pledge of Allegiance:**

16 Senya called the meeting to order at 9:30am and asked Jason to lead the assembly in the Pledge  
17 of Allegiance.

18  
19 **Moment of Silence:**

20 Senya called for a moment of silence to honor the members of the military who keep us safe both  
21 locally and abroad, and to honor those who have given the ultimate of their lives in defense of  
22 our nation.

23  
24 **Recording of Meeting:** *None*

25  
26 **Update on Goshen Fire Company budget and budget forecast**

27 Bob Hall provided an overview of Goshen Fire Company's budget and financial position. He  
28 stressed that volunteer hours have been declining and paid firefighter hours have been increasing  
29 substantially over the past several months. However, he is hopeful that the Chief's plan to attract  
30 more volunteers will reverse these trends.

31  
32 Senya raised concern about the levels of contributions that other municipalities are making and  
33 wants to avoid East Goshen subsidizing service for other municipalities. He suggested that East  
34 Goshen convene a meeting of the other municipalities to review the current funding level and  
35 develop a plan or formula for ensuring that everyone is paying their fair share. Senya also asked  
36 Bob about whether the Fire Company had had any discussions about alternative uses for its Park  
37 Avenue property that would generate more revenue, such as a land swap with adjacent  
38 businesses. Bob agreed to take the matter up in an upcoming Fire Company meeting.

39  
40 Marty asked whether there has been any discussion of area fire companies merging. Bob said  
41 that this issue had not been discussed. Marty stated that with costs rising many fire companies  
42 will have no choice but to merge in order to remain solvent and recommended that the Fire  
43 Company give this matter consideration.

44  
45 **Consider Long Range Planning Memo**



1 Jon provided an overview of his May 20<sup>th</sup> memo to the Board, including his long-range cost  
2 assumptions about the two dams, the trail and the park; staff's recommendations about other  
3 Township capital expenses in 2017 including a new brine tank, alarm system, vehicle wash bay  
4 and iron worker tool; and the various "what if" scenarios outlined. He observed that the  
5 Township's financial policy adopted in 2013 requires the Township to maintain a general fund  
6 balance of 20% and an operating reserve balance of 5%, or 25% total, but that he recommends  
7 using a more conservative 30% as the threshold that should guide the Township's decision  
8 making.

9  
10 He also discussed some long-term considerations for the sewer fund and Municipal Authority,  
11 including staff's recommendation that the Township should repurpose the balance of the 2013  
12 loan proceeds for the proposed Reservoir Road pump station for East Goshen's share of capital  
13 improvements at the West Goshen Sewer Treatment Plant; the purchase of a tow mounted trailer;  
14 and a long-term plan for brick manhole and concrete asbestos lining to prevent future system  
15 deterioration and infiltration.

16  
17 Jon also stated that Rick had been approached by East Whiteland about possibly revisiting the  
18 intersection improvements at King Road and North Chester Road. Marty suggested that  
19 Immaculata University be involved in any future discussions as well. Rick will await a future  
20 meeting with stakeholders and follow up with the Board then.

21  
22 **Consider conducting a statistically valid recreation survey**

23 Senya had a handful of edits to the format of the survey, which Jon agreed to update. Marty  
24 made a motion to authorize staff to conduct the survey with a sample of 833 residents. Chuck  
25 seconded the motion. The motion passed 4-0, as Carmen had temporarily left the room at the  
26 time of the vote. Jon stated that the Township may need to wait until after Labor Day to begin  
27 this survey, so as to avoid summer vacations.

28  
29 **Consider amending performance evaluations**

30 The Board expressed support for the new evaluation forms. Mark Gordon raised concerns about  
31 the form being too long and detailed and possibly detracting from nonexempt employees' regular  
32 job duties.

33  
34 **Any other matter**

35 The Board agreed to have a special Board meeting on Tuesday June 28 at 7:00pm to discuss both  
36 the Milltown Dam and the Hershey's Mill Dam. Rick will send a 1,000 letter to neighbors of  
37 both dams and look into renting the fire hall.

38  
39 Senya asked Rick to attend the May 26 groundbreaking ceremony at the Goshen Friends School,  
40 as neither he nor Marty will be available.

41  
42 Rick asked if the Board had any objections to him signing the new Memorandum of  
43 Understanding for the newly-promoted police lieutenant that contained the same language as had  
44 been agreed to for previous lieutenants. No objections were made.

1 Senya expressed an interest in receiving more data about false alarm violations in the Township.  
2 Mark Gordon agreed to provide that to him.

3

4 **Public Comment**

5 John Smith, 26 Lochwood Lane, expressed concern about the benefit of the trail.

6

7 **Adjournment**

8 There being no further business, Janet motioned to adjourn the meeting at 12:20 pm. Senya  
9 seconded. The Board voted unanimously to adjourn.

10

11 Respectfully submitted,

12 *Jon Altshul*

13 *Chief Financial Officer*

June 2, 2016

**TREASURER'S REPORT  
2016 RECEIPTS AND BILLS**

**GENERAL FUND**

|                                     |                     |
|-------------------------------------|---------------------|
| Real Estate Tax                     | \$85,941.59         |
| Earned Income Tax                   | \$220,300.00        |
| Local Service Tax                   | \$23,700.00         |
| Transfer Tax                        | \$0.00              |
| <i>General Fund Interest Earned</i> | \$0.00              |
| Total Other Revenue                 | \$157,396.57        |
| <b>Total Receipts:</b>              | <b>\$487,338.16</b> |

|                            |                     |
|----------------------------|---------------------|
| Accounts Payable           | \$419,345.30        |
| <u>Electronic Pmts:</u>    |                     |
| Credit Card                | \$8,887.61          |
| Postage                    | \$1,000.00          |
| Debt Service               | \$0.00              |
| Payroll                    | \$154,929.99        |
| <b>Total Expenditures:</b> | <b>\$584,162.90</b> |

**STATE LIQUID FUELS FUND**

|                                  |               |
|----------------------------------|---------------|
| Receipts                         | \$0.00        |
| <i>Interest Earned</i>           | \$0.00        |
| <b>Total State Liquid Fuels:</b> | <b>\$0.00</b> |

|                      |               |
|----------------------|---------------|
| <b>Expenditures:</b> | <b>\$0.00</b> |
|----------------------|---------------|

**SINKING FUND**

|                            |               |
|----------------------------|---------------|
| Receipts                   | \$0.00        |
| <i>Interest Earned</i>     | \$0.00        |
| <b>Total Sinking Fund:</b> | <b>\$0.00</b> |

|                            |                    |
|----------------------------|--------------------|
| Accounts Payable           | \$26,732.58        |
| <i>Credit Card</i>         | \$0.00             |
| <b>Total Expenditures:</b> | <b>\$26,732.58</b> |

**TRANSPORTATION FUND**

|                            |               |
|----------------------------|---------------|
| Receipts                   | \$0.00        |
| <i>Interest Earned</i>     | \$0.00        |
| <b>Total Sinking Fund:</b> | <b>\$0.00</b> |

|                      |               |
|----------------------|---------------|
| <b>Expenditures:</b> | <b>\$0.00</b> |
|----------------------|---------------|

**SEWER OPERATING FUND**

|                        |                     |
|------------------------|---------------------|
| Receipts               | \$209,921.23        |
| <i>Interest Earned</i> | \$0.00              |
| <b>Total Sewer:</b>    | <b>\$209,921.23</b> |

|                            |                    |
|----------------------------|--------------------|
| Accounts Payable           | \$17,805.81        |
| <i>Debt Service</i>        | \$0.00             |
| <i>Credit Card</i>         | \$1,577.34         |
| <b>Total Expenditures:</b> | <b>\$19,383.15</b> |

**REFUSE FUND**

|                        |                    |
|------------------------|--------------------|
| Receipts               | \$49,263.68        |
| <i>Interest Earned</i> | \$0.00             |
| <b>Total Refuse:</b>   | <b>\$49,263.68</b> |

|                      |                    |
|----------------------|--------------------|
| <b>Expenditures:</b> | <b>\$13,064.50</b> |
|----------------------|--------------------|

**SEWER SINKING FUND**

|                                  |               |
|----------------------------------|---------------|
| Receipts                         | \$0.00        |
| <i>Interest Earned</i>           | \$0.00        |
| <b>Total Sewer Sinking Fund:</b> | <b>\$0.00</b> |

|                      |               |
|----------------------|---------------|
| <b>Expenditures:</b> | <b>\$0.00</b> |
|----------------------|---------------|

**OPERATING RESERVE FUND**

|                                      |               |
|--------------------------------------|---------------|
| Receipts                             | \$0.00        |
| <i>Interest Earned</i>               | \$0.00        |
| <b>Total Operating Reserve Fund:</b> | <b>\$0.00</b> |

|                      |               |
|----------------------|---------------|
| <b>Expenditures:</b> | <b>\$0.00</b> |
|----------------------|---------------|

**Events Fund**

|                           |               |
|---------------------------|---------------|
| Receipts                  | \$0.00        |
| <i>Interest Earned</i>    | \$0.00        |
| <b>Total Events Fund:</b> | <b>\$0.00</b> |

|                      |               |
|----------------------|---------------|
| <b>Expenditures:</b> | <b>\$0.00</b> |
|----------------------|---------------|

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**EAST GOSHEN TOWNSHIP  
MEMORANDUM**

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**TO:** BOARD OF SUPERVISORS  
**FROM:** BRIAN MCCOOL  
**SUBJECT:** PROPOSED PAYMENTS OF BILLS  
**DATE:** 06-02-2016

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Please accept the attached Treasurer's Report and Expenditure Register Report for consideration by the Board of Supervisors. I recommend the Treasurer's Report and each register item be approved for payment.

Please note the attached Treasurer's Report includes three weeks of revenues and expenses.

General Fund expenses include a number of larger expenses which are listed below:

- \$237,055 for the monthly contribution to WEGO
- \$31,378 for the 3<sup>rd</sup> quarter workers comp premium
- \$35,587 for the May health insurance premium

General Fund revenues include the quarterly franchise fees from Verizon and Comcast totaling \$117,191. Real estate tax receipts were higher than usual due to the face amount due date of May 31<sup>st</sup> and a large interim invoice payment from Bellingham.

Please advise if the Board decides to make any changes or if the reports are acceptable as drafted.

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| Vendor | Req # | Budget# | Sub#       | Description  | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount  |
|--------|-------|---------|------------|--|----------------|----------|-----------|-----------|--------|---------|
| 01     |       |         |            | GENERAL FUND   |                |          |           |           |        |         |
| 2695   | 47429 | 1       | 01454 3100 | BRICKHOUSE ENVIRONMENTAL<br>PROFESSIONAL SERVICES<br>WATER QUALITY TESTING PARK FOUNTAINS  | 8729           | 05/25/16 |           | 05/25/16  |        | 315.00  |
|        |       |         |            |  |                |          |           |           |        | 315.00  |
| 2531   | 47431 | 1       | 01401 3000 | CHESTER COUNTY CHAMBER<br>GENERAL EXPENSE<br>ANNUAL MEMBERSHIP 6/1/16-5/31/17              | 27101          | 05/25/16 |           | 05/25/16  |        | 341.00  |
|        |       |         |            |  |                |          |           |           |        | 341.00  |
| 3488   | 47432 | 1       | 01409 3740 | CINTAS CORPORATION #287<br>TWP. BLDG. - MAINT & REPAIRS<br>WEEK END 5/18/19 CLEAN MATS     | 287559278      | 05/25/16 |           | 05/25/16  |        | 57.50   |
|        | 47432 | 2       | 01487 1910 | UNIFORMS<br>WEEK END 5/18/19 CLEAN UNIFORMS  | 287559278      | 05/25/16 |           | 05/25/16  |        | 261.67  |
|        | 47432 | 3       | 01487 1910 | UNIFORMS<br>CREDIT RE: C.LINDER UNIFORMS 1/6 -<br>3/9/16                                   | 287559278      | 05/25/16 |           | 05/25/16  |        | -105.54 |
|        |       |         |            |  |                |          |           |           |        | 213.63  |
| 2491   | 47434 | 1       | 01401 3210 | COMCAST 8499-10-109-0107472<br>COMMUNICATION EXPENSE<br>0107472 5/17-6/16/16 FW TV         | 050816         | 05/25/16 |           | 05/25/16  |        | 10.53   |
|        |       |         |            |  |                |          |           |           |        | 10.53   |
| 3250   | 47433 | 1       | 01401 3210 | COMCAST 8499-10-109-0107704<br>COMMUNICATION EXPENSE<br>0107704 5/23-6/22/16 PA & BOOT LED | 051316         | 05/25/16 |           | 05/25/16  |        | 105.75  |
|        |       |         |            |  |                |          |           |           |        | 105.75  |
| 1990   | 47435 | 1       | 01401 2100 | CRYSTAL SPRINGS<br>MATERIALS & SUPPLIES<br>SUGAR & COFFEE                                  | 3154612        | 051316   | 05/25/16  | 05/25/16  |        | 136.87  |
|        |       |         |            |  |                |          |           |           |        | 136.87  |
| 1790   | 47505 | 1       | 01413 3720 | DCED<br>UNIFORM CONSTRUCTION CODE FEES<br>RESUBMISSION 3QTR 2015 UCC REPORT                | 052516         | 05/25/16 |           | 05/25/16  |        | 928.00  |
|        |       |         |            |  |                |          |           |           |        | 928.00  |

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| Vendor | Req # | Budget# | Sub#       | Description  | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount   |
|--------|-------|---------|------------|--|----------------|----------|-----------|-----------|--------|----------|
| 3369   | 47436 | 1       | 01452 3210 | DELANEY, DONNA<br>FARMERS MARKET EXPENSE<br>MUSICAL ENTERTAINMENT 7/9/16   | 051616         | 05/25/16 |           | 05/25/16  |        | 250.00   |
|        |       |         |            |  |                |          |           |           |        | 250.00   |
| 418    | 47437 | 1       | 01430 2330 | EAGLE POWER AND EQUIPMENT<br>VEHICLE MAINT AND REPAIR<br>O-RINGS & SEALS   | T446426        | 05/25/16 |           | 05/25/16  |        | 24.36    |
|        | 47438 | 1       | 01430 2330 | VEHICLE MAINT AND REPAIR<br>CAB FILTERS  | T446539        | 05/25/16 |           | 05/25/16  |        | 82.50    |
|        |       |         |            |  |                |          |           |           |        | 106.86   |
| 437    | 47439 | 1       | 01438 2460 | EDENS TREE SERVICE INC<br>TREE REMOVAL<br>TREE REMOVAL-SCHOOL LN. & AMSTEL WY                                      | 6663           | 05/25/16 |           | 05/25/16  |        | 4,020.00 |
|        |       |         |            |  |                |          |           |           |        | 4,020.00 |
| 3687   | 47441 | 1       | 01367 3020 | ELLIOT, BARBARA<br>TRIPS<br>REFUND - NYC TRIP  | 051916         | 05/25/16 |           | 05/25/16  |        | 80.00    |
|        |       |         |            |  |                |          |           |           |        | 80.00    |
| 2631   | 47442 | 1       | 01452 3210 | GRAPHIC IMPRESSIONS OF AMERICA INC.<br>FARMERS MARKET EXPENSE<br>BANNER & TABLE CLOTH                              | 16-6298        | 05/25/16 |           | 05/25/16  |        | 485.00   |
|        |       |         |            |  |                |          |           |           |        | 485.00   |
| 569    | 47443 | 1       | 01409 3740 | GREAT VALLEY LOCKSHOP<br>TWP. BLDG. - MAINT & REPAIRS<br>REPLACE DOOR CLOSER - PW 2ND FL.                          | 2016001296     | 05/25/16 |           | 05/25/16  |        | 337.90   |
|        |       |         |            |  |                |          |           |           |        | 337.90   |
| 2717   | 47444 | 1       | 01433 2500 | HIGGINS & SONS INC., CHARLES A.<br>MAINT. REPAIRS.TRAFF.SIG.<br>TRAF.LIGHT REPAIR - W.CHESTER PK &<br>SUMMIT HOUSE | 41949          | 05/25/16 |           | 05/25/16  |        | 3,600.00 |
|        |       |         |            |  |                |          |           |           |        | 3,600.00 |

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| Vendor | Req # | Budget# | Sub#       | Description  | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount   |
|--------|-------|---------|------------|--|----------------|----------|-----------|-----------|--------|----------|
| 3688   | 47445 | 1       | 01432 2500 | HOWARD, LISA & NEAL<br>SNOW - MAINTENANCE & REPAIRS<br>REIMBURSEMENT FOR DAMAGED MAILBOX | 042516         | 05/25/16 |           | 05/25/16  |        | 25.00    |
|        |       |         |            |  |                |          |           |           |        | 25.00    |
| 2087   | 47446 | 1       | 01401 3740 | KDI INC.<br>MAINTENANCE & REPAIRS<br>LEXMARK/XM1145 CONTR. OVERAGE 2/9-<br>5/8/16        | 560496         | 05/25/16 |           | 05/25/16  |        | 5.44     |
|        |       |         |            |  |                |          |           |           |        | 5.44     |
| 2442   | 47447 | 1       | 01437 2460 | KENT AUTOMOTIVE<br>GENERAL EXPENSE - SHOP<br>JOBBER DRILL BIT SET                        | 9304070898     | 05/25/16 |           | 05/25/16  |        | 304.48   |
|        | 47448 | 1       | 01437 2460 | GENERAL EXPENSE - SHOP<br>JOBBER DRILL BIT SET   | 9304064454     | 05/25/16 |           | 05/25/16  |        | 304.48   |
|        |       |         |            |  |                |          |           |           |        | 608.96   |
| 765    | 47449 | 1       | 01434 3610 | LENNI ELECTRIC CORPORATION<br>STREET LIGHTING<br>STREET LIGHT UPGRADE                    | 160501         | 05/25/16 |           | 05/25/16  |        | 640.00   |
|        |       |         |            |  |                |          |           |           |        | 640.00   |
| 808    | 47450 | 1       | 01402 3110 | MAILLIE FALCONIERO & CO.<br>AUDITING EXPENSE<br>2015 EXAMINATION FINANCIAL STMTS.        | 1000056050     | 05/25/16 |           | 05/25/16  |        | 9,791.00 |
|        |       |         |            |  |                |          |           |           |        | 9,791.00 |
| 3689   | 47453 | 1       | 01367 3100 | MANN, ELIZABETH<br>SUMMER PROGRAM<br>REFUND DUE TO WEEK 2 OVERPAYMENT                    | 051316         | 05/25/16 |           | 05/25/16  |        | 10.00    |
|        |       |         |            |  |                |          |           |           |        | 10.00    |
| 829    | 47454 | 1       | 01409 3840 | MASTER'S TOUCH<br>DISTRICT COURT EXPENSES  | 25953          | 05/25/16 |           | 05/25/16  |        | 58.00    |
|        | 47455 | 1       | 01409 3740 | EXTERM.SERVICE MAY 2016 DC&POL<br>TWP. BLDG. - MAINT & REPAIRS                           | 26088          | 05/25/16 |           | 05/25/16  |        | 190.00   |
|        | 47456 | 1       | 01409 3740 | EXTERM.SERV. 2ND QTR. 2016 BLKSMTH<br>TWP. BLDG. - MAINT & REPAIRS                       | 25954          | 05/25/16 |           | 05/25/16  |        | 104.00   |
|        | 47457 | 1       | 01454 3740 | EXTERM.SERVICE MAY 2016 TWP.&PW<br>EQUIPMENT MAINT. & REPAIR                             | 26089          | 05/25/16 |           | 05/25/16  |        | 84.00    |
|        |       |         |            |  |                |          |           |           |        | 436.00   |

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|--------|-------|--------------|------------|-------------------------------------|----------------|----------|-----------|-----------|--------|-----------|
| 01     |       | GENERAL FUND |            |                                     |                |          |           |           |        |           |
| 1022   |       |              |            | PATTERSON, MICHAEL J.               |                |          |           |           |        |           |
|        | 47470 | 1            | 01409 3740 | TWP. BLDG. - MAINT & REPAIRS        | 016C009        | 05/25/16 |           | 05/25/16  |        | 700.00    |
|        |       |              |            | REPLACE BLACKSMITH SHOP FENCE       |                |          |           |           |        |           |
|        | 47473 | 1            | 01454 3740 | EQUIPMENT MAINT. & REPAIR           | 016C008        | 05/25/16 |           | 05/25/16  |        | 550.00    |
|        |       |              |            | REPLACE WOODEN BLINDS PARK RESTROOM |                |          |           |           |        |           |
|        |       |              |            |                                     |                |          |           |           |        | 1,250.00  |
| 1052   |       |              |            | PENNONI ASSOCIATES INC.             |                |          |           |           |        |           |
|        | 47475 | 1            | 01436 3130 | STORMWATER ENGINEERING              | 688426         | 05/25/16 |           | 05/25/16  |        | 3,954.50  |
|        |       |              |            | SERVICE THRU 4/24/16 FOREST LN      |                |          |           |           |        |           |
|        | 47476 | 1            | 01436 3130 | STORMWATER ENGINEERING              | 688425         | 05/25/16 |           | 05/25/16  |        | 157.50    |
|        |       |              |            | SERVICE THRU 4/24/16 STORM SEWER    |                |          |           |           |        |           |
|        |       |              |            | LINING                              |                |          |           |           |        |           |
|        | 47477 | 1            | 01408 3130 | ENGINEERING SERVICES                | 688417         | 05/25/16 |           | 05/25/16  |        | 2,946.25  |
|        |       |              |            | SERVICE THRU 4/24/16 GRANT ASSIST   |                |          |           |           |        |           |
|        | 47478 | 1            | 01436 3130 | STORMWATER ENGINEERING              | 688416         | 05/25/16 |           | 05/25/16  |        | 28.75     |
|        |       |              |            | SERVICE THRU 4/24/16 GEN. CONSULT.  |                |          |           |           |        |           |
|        | 47479 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688421         | 05/25/16 |           | 05/25/16  |        | 215.00    |
|        |       |              |            | SERVICE THRU 4/24/16 SORRELL HILL   |                |          |           |           |        |           |
|        | 47480 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688419         | 05/25/16 |           | 05/25/16  |        | 227.50    |
|        |       |              |            | SERVICE THRU 4/24/16 SUNNY RIDGE    |                |          |           |           |        |           |
|        | 47481 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688423         | 05/25/16 |           | 05/25/16  |        | 1,123.75  |
|        |       |              |            | SERV. THRU 4/24/16 MOSER 943 CORNW  |                |          |           |           |        |           |
|        | 47482 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688432         | 05/25/16 |           | 05/25/16  |        | 757.50    |
|        |       |              |            | SERV. THRU 4/24/16 MOSER 947 CORNW. |                |          |           |           |        |           |
|        | 47483 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688431         | 05/25/16 |           | 05/25/16  |        | 297.50    |
|        |       |              |            | SERV. THRU 4/24/16 MOSER 957 CORNW. |                |          |           |           |        |           |
|        | 47484 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688429         | 05/25/16 |           | 05/25/16  |        | 228.75    |
|        |       |              |            | SERV. THRU 4/24/16 MOSER 957A CORNW |                |          |           |           |        |           |
|        | 47485 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688422         | 05/25/16 |           | 05/25/16  |        | 1,843.75  |
|        |       |              |            | SERV. THRU 4/24/16 NEW KENT APT.    |                |          |           |           |        |           |
|        | 47486 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688420         | 05/25/16 |           | 05/25/16  |        | 42.50     |
|        |       |              |            | SERV. THRU 4/24/16 RENEHAN          |                |          |           |           |        |           |
|        | 47487 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688418         | 05/25/16 |           | 05/25/16  |        | 355.00    |
|        |       |              |            | SERV. THRU 4/24/16 GOSHEN MEADOWS   |                |          |           |           |        |           |
|        | 47488 | 1            | 01408 3131 | ENGINEER. & MISC. RECHARGES         | 688430         | 05/25/16 |           | 05/25/16  |        | 241.25    |
|        |       |              |            | SERV. THRU 4/24/16 KATHERINE LANE   |                |          |           |           |        |           |
|        |       |              |            |                                     |                |          |           |           |        | 12,419.50 |
| 1080   |       |              |            | PIMER, COLLEEN M.                   |                |          |           |           |        |           |
|        | 47489 | 1            | 01414 3100 | COURT REPORTERS                     | 051316         | 05/25/16 |           | 05/25/16  |        | 278.50    |
|        |       |              |            | TRANSCRIPT SS PETER & PAUL CYO 4/28 |                |          |           |           |        |           |
|        |       |              |            |                                     |                |          |           |           |        | 278.50    |

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|--------|-------|---------|------------|---|----------------|----------|-----------|-----------|--------|----------|
| 1087   |       |         |            | PIPE XPRESS INC.  |                |          |           |           |        |          |
|        | 47490 | 1       | 01409 3740 | TWP. BLDG. - MAINT & REPAIRS<br>PIPING - GEOTHERMAL PIT           | 78964          | 05/25/16 |           | 05/25/16  |        | 1,181.26 |
|        | 47491 | 1       | 01409 3740 | TWP. BLDG. - MAINT & REPAIRS<br>PIPING - GEOTHERMAL PIT           | 79040          | 05/25/16 |           | 05/25/16  |        | 95.28    |
|        | 47492 | 1       | 01409 3740 | TWP. BLDG. - MAINT & REPAIRS<br>PIPING - COUPLINGS GEOTHERMAL PIT | 79526          | 05/25/16 |           | 05/25/16  |        | 82.84    |
|        |       |         |            |   |                |          |           |           |        | 1,359.38 |
| 3590   |       |         |            | PORRECA SR., TIMOTHY  |                |          |           |           |        |          |
|        | 47493 | 1       | 01452 3210 | FARMERS MARKET EXPENSE<br>OUTDOOR CONCERT                         | 051616         | 05/25/16 |           | 05/25/16  |        | 600.00   |
|        |       |         |            |   |                |          |           |           |        | 600.00   |
| 1876   |       |         |            | RANSOME RENTAL COMPANY LP   |                |          |           |           |        |          |
|        | 47494 | 1       | 01438 3840 | EQUIPMENT RENTAL<br>STANDARD TRACK RENTAL 4/22-5/5/16             | K19082-01      | 05/25/16 |           | 05/25/16  |        | 1,145.00 |
|        |       |         |            |   |                |          |           |           |        | 1,145.00 |
| 3645   |       |         |            | SCORSONE, PATRICIA  |                |          |           |           |        |          |
|        | 47495 | 1       | 01367 3020 | TRIPS<br>REFUND - UNABLE TO ATTEND NYC TRIP                       | 051216         | 05/25/16 |           | 05/25/16  |        | 80.00    |
|        |       |         |            |   |                |          |           |           |        | 80.00    |
| 2121   |       |         |            | SHERWIN-WILLIAMS CO.  |                |          |           |           |        |          |
|        | 47496 | 1       | 01409 3740 | TWP. BLDG. - MAINT & REPAIRS<br>PAINT - BLACKSMITH SHOP           | 4586-9         | 05/25/16 |           | 05/25/16  |        | 32.48    |
|        |       |         |            |   |                |          |           |           |        | 32.48    |
| 3120   |       |         |            | STTC SERVICE TIRE TRUCK CTRS INC.                                 |                |          |           |           |        |          |
|        | 47498 | 1       | 01430 2330 | VEHICLE MAINT AND REPAIR<br>4 NEW TIRES - TRUCK 12                | S51166-17      | 05/25/16 |           | 05/25/16  |        | 634.68   |
|        |       |         |            |   |                |          |           |           |        | 634.68   |
| 3690   |       |         |            | SUNDO, ROSE   |                |          |           |           |        |          |
|        | 47506 | 1       | 01367 3100 | SUMMER PROGRAM<br>REFUND DUE TO WEEK 2 OVERPAYMENT                | 051316         | 05/25/16 |           | 05/25/16  |        | 10.00    |
|        |       |         |            |   |                |          |           |           |        | 10.00    |

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|--------|-------|---------|------------|--|----------------|----------|-----------|-----------|--------|----------|
| 3604   |       |         |            | SUPERIOR PLUS ENERGY SERVICES                      |                |          |           |           |        |          |
|        | 47499 | 1       | 01430 2320 | VEHICLE OPERATION - FUEL<br>719.1 GALLONS DIESEL   | 36895          | 05/25/16 |           | 05/25/16  |        | 1,132.51 |
|        | 47500 | 1       | 01430 2320 | VEHICLE OPERATION - FUEL<br>257.3 GALLONS GASOLINE | 229761         | 05/25/16 |           | 05/25/16  |        | 449.66   |
|        | 47501 | 1       | 01430 2320 | VEHICLE OPERATION - FUEL<br>115.6 GALLONS GASOLINE | 944903         | 05/25/16 |           | 05/25/16  |        | 201.39   |
|        | 47502 | 1       | 01430 2320 | VEHICLE OPERATION - FUEL<br>457.7 GALLONS DIESEL   | 740867         | 05/25/16 |           | 05/25/16  |        | 697.58   |
|        |       |         |            |  |                |          |           |           |        | 2,481.14 |

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|--------|-------|---------|------------|--|----------------|----------|-----------|-----------|--------|----------|
| 03     |       |         |            | SINKING FUND   |                |          |           |           |        |          |
| 1022   |       |         |            | PATTERSON, MICHAEL J.  |                |          |           |           |        |          |
|        | 47471 | 1       | 03454 7400 | CAPITAL REPLACEMENT - PARK & REC<br>TENNIS COURT FENCE - REMOVE OLD &<br>INSTALL NEW | 016C007        | 05/25/16 |           | 05/25/16  |        | 1,500.00 |
|        | 47472 | 1       | 03454 7400 | CAPITAL REPLACEMENT - PARK & REC<br>FENCING MATERIAL                                 | 016C007-2      | 05/25/16 |           | 05/25/16  |        | 4,500.00 |
|        |       |         |            |  |                |          |           |           |        | 6,000.00 |
| 1896   |       |         |            | SPRINGER BROTHERS INC  |                |          |           |           |        |          |
|        | 47497 | 1       | 03454 7400 | CAPITAL REPLACEMENT - PARK & REC<br>REPLACE HICKS PAVILION ROOF                      | 15645          | 05/25/16 |           | 05/25/16  |        | 3,686.00 |
|        |       |         |            |  |                |          |           |           |        | 3,686.00 |
| 2921   |       |         |            | WALSH, EDWARD B. & ASSOCIATES INC.   |                |          |           |           |        |          |
|        | 47504 | 1       | 03457 7450 | CAPITAL - HERSHEY MILL REPAIR<br>PROF.SERVICE APRIL 2016 H.M. DAM                    | 62137          | 05/25/16 |           | 05/25/16  |        | 202.50   |
|        |       |         |            |  |                |          |           |           |        | 202.50   |



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|--------|-------|---------|------------|--|----------------|----------|-----------|-----------|--------|--------|
| 3678   |       |         |            | NETCARRIER TELECOM INC. 67888                                    |                |          |           |           |        |        |
|        | 47466 | 1       | 05420 3602 | C.C. COLLECTION -UTILITIES<br>5/1/16 - 5/31/16                   | 375642         | 05/25/16 |           | 05/25/16  |        | 47.40  |
|        |       |         |            |  |                |          |           |           |        | 47.40  |
| 2827   |       |         |            | PECO - 04725-43025   |                |          |           |           |        |        |
|        | 47474 | 1       | 05420 3602 | C.C. COLLECTION -UTILITIES<br>04725-43025 4/7-5/6/16 WYLPEN PUMP | 050916         | 05/25/16 |           | 05/25/16  |        | 667.92 |
|        |       |         |            |  |                |          |           |           |        | 667.92 |
| 2439   |       |         |            | VERIZON -7041  |                |          |           |           |        |        |
|        | 47503 | 1       | 05422 3601 | R.C. COLLEC.-UTILITIES<br>MAY 7 - JUNE 6, 2016                   | 050716-7041    | 05/25/16 |           | 05/25/16  |        | 192.14 |
|        |       |         |            |  |                |          |           |           |        | 192.14 |

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| Vendor              | Req # | Budget# | Sub#       | Description                | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount    |
|---------------------|-------|---------|------------|----------------------------|----------------|----------|-----------|-----------|--------|-----------|
| 06                  |       |         |            | REFUSE                     |                |          |           |           |        |           |
| 241                 |       |         |            | C.C. SOLID WASTE AUTHORITY |                |          |           |           |        |           |
|                     | 47430 | 1       | 06427 4502 | LANDFILL FEES              | 43835          | 05/25/16 |           | 05/25/16  |        | 7,257.65  |
|                     |       |         |            | WEEK 5/9/16 - 5/14/16      |                |          |           |           |        |           |
|                     |       |         |            |                            |                |          |           |           |        | 7,257.65  |
|                     |       |         |            |                            |                |          |           |           |        | 76,929.68 |
| 0 Printed, totaling |       |         |            |                            |                |          |           |           |        | 76,929.68 |

FUND SUMMARY

| Fund | Bank Account | Amount    | Description     |
|------|--------------|-----------|-----------------|
| 01   | 01           | 50,440.41 | GENERAL FUND    |
| 03   | 03           | 9,888.50  | SINKING FUND    |
| 05   | 05           | 9,343.12  | SEWER OPERATING |
| 06   | 06           | 7,257.65  | REFUSE          |
|      |              | 76,929.68 |                 |

PERIOD SUMMARY

| Period | Amount    |
|--------|-----------|
| 1605   | 76,929.68 |
|        | 76,929.68 |

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|--------|-------|--------------|------------|-----------------------------|----------------|----------|-----------|-----------|---------|--------------------------------|
| 01     |       | GENERAL FUND |            |                             |                |          |           |           |         |                                |
| 1471   |       |              |            | WESTTOWN-EAST GOSHEN POLICE |                |          |           |           |         |                                |
|        | 47513 | 1            | 01410 5300 | POLICE GEN.EXPENSE          | 060106         | 06/01/16 | 06/01/16  | 06/01/16  | 11362 p | 237,054.68                     |
|        |       |              |            | JUNE 2016 CONTRIBUTION      |                |          |           |           |         |                                |
|        |       |              |            |                             |                |          |           |           |         | 237,054.68                     |
|        |       |              |            |                             |                |          |           |           |         | 237,054.68                     |
|        |       |              |            |                             |                |          |           |           |         | 1 Prepays, totaling 237,054.68 |
|        |       |              |            |                             |                |          |           |           |         | 0 Printed, totaling 0.00       |

FUND SUMMARY

| Fund | Bank Account | Amount     | Description  |
|------|--------------|------------|--------------|
| 01   | 01           | 237,054.68 | GENERAL FUND |
|      |              | 237,054.68 |              |

PERIOD SUMMARY

| Period | Amount     |
|--------|------------|
| 1606   | 237,054.68 |
|        | 237,054.68 |



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| Vendor | Req # | Budget#      | Sub#       | Description                          | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount   |
|--------|-------|--------------|------------|--------------------------------------|----------------|----------|-----------|-----------|--------|----------|
| 01     |       | GENERAL FUND |            |                                      |                |          |           |           |        |          |
| 2226   |       |              |            | 21ST CENT.MEDIA-PHILLY #884433       |                |          |           |           |        |          |
|        | 47514 | 1            | 01401 3400 | ADVERTISING - PRINTING               | 1004663        |          |           | 06/02/16  |        | 247.20   |
|        |       |              |            | NOTICE - FOREST LANE CULVERT         |                |          |           |           |        |          |
|        | 47514 | 2            | 01401 3400 | ADVERTISING - PRINTING               | 1004796        |          |           | 06/02/16  |        | 340.44   |
|        |       |              |            | NOTICE - SEALED BIDS MILLING MACH.   |                |          |           |           |        |          |
| -----  |       |              |            |                                      |                |          |           |           |        | 587.64   |
| 1903   |       |              |            | ALTHOUSE, GARY                       |                |          |           |           |        |          |
|        | 47518 | 1            | 01413 3000 | GENERAL EXPENSE                      | 052716         | 06/02/16 |           | 06/02/16  |        | 80.00    |
|        |       |              |            | ICC CERT RENEWAL REIMBURSEMENT       |                |          |           |           |        |          |
| -----  |       |              |            |                                      |                |          |           |           |        | 80.00    |
|        |       |              |            |                                      |                |          |           |           |        |          |
| 68     |       |              |            | AMS APPLIED MICRO SYSTEMS LTD.       |                |          |           |           |        |          |
|        | 47519 | 1            | 01452 3000 | GENERAL EXPENSE                      | 62192          | 06/02/16 |           | 06/02/16  |        | 2,500.00 |
|        |       |              |            | SET-UP FOR P&R PRICE QUOTE           |                |          |           |           |        |          |
| -----  |       |              |            |                                      |                |          |           |           |        | 2,500.00 |
| 1657   |       |              |            | AQUA PA                              |                |          |           |           |        |          |
|        | 47520 | 1            | 01409 3600 | TWP. BLDG. - FUEL, LIGHT, WATER      | 052516 BS      | 06/02/16 |           | 06/02/16  |        | 17.00    |
|        |       |              |            | 000309801 030901 4/25-5/23/16 BS     |                |          |           |           |        |          |
|        | 47521 | 1            | 01409 3600 | TWP. BLDG. - FUEL, LIGHT, WATER      | 052016 FR      | 06/02/16 |           | 06/02/16  |        | 192.00   |
|        |       |              |            | 000309820 0309820 4/20-5/18/16 FR    |                |          |           |           |        |          |
|        | 47522 | 1            | 01409 3600 | TWP. BLDG. - FUEL, LIGHT, WATER      | 052016 TB      | 06/02/16 |           | 06/02/16  |        | 119.90   |
|        |       |              |            | 000309828 0309828 4/20-5/18/16 TB    |                |          |           |           |        |          |
|        | 47524 | 1            | 01409 3605 | PW BLDG - FUEL, LIGHT, SEWER & WATER | 052016 PW      | 06/02/16 |           | 06/02/16  |        | 159.90   |
|        |       |              |            | 000496917 0309798 4/20-5/18/16 PW    |                |          |           |           |        |          |
| -----  |       |              |            |                                      |                |          |           |           |        | 488.80   |
| 82     |       |              |            | ASSOCIATED TRUCK PARTS               |                |          |           |           |        |          |
|        | 47529 | 1            | 01430 2330 | VEHICLE MAINT AND REPAIR             | 59145          | 06/02/16 |           | 06/02/16  |        | 143.48   |
|        |       |              |            | LED LIGHTS - TRUCK #46               |                |          |           |           |        |          |
|        | 47530 | 1            | 01430 2330 | VEHICLE MAINT AND REPAIR             | 58772          | 06/02/16 |           | 06/02/16  |        | 19.46    |
|        |       |              |            | PIN PLUG TRUCK #7                    |                |          |           |           |        |          |
| -----  |       |              |            |                                      |                |          |           |           |        | 162.94   |
| 102    |       |              |            | B&D COMPUTER SOLUTIONS               |                |          |           |           |        |          |
|        | 47531 | 1            | 01401 3120 | CONSULTING SERVICES                  | 00003040       | 06/02/16 |           | 06/02/16  |        | 2,000.00 |
|        |       |              |            | MAY 2016                             |                |          |           |           |        |          |
| -----  |       |              |            |                                      |                |          |           |           |        | 2,000.00 |

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|--------|-------|------------|------------|--|----------------|----------|-----------|-----------|--------|----------|
| 119    | 47532 | 1          | 01401 3210 | BEE.NET INTERNET SERVICES<br>COMMUNICATION EXPENSE<br>JUNE 2016 BEE MAIL ACCTS.  | 201606011      | 06/02/16 |           | 06/02/16  |        | 315.00   |
|        |       |            |            |  |                |          |           |           |        | 315.00   |
| 176    | 47535 | 1          | 01433 2500 | BRITE STRIPE<br>MAINT. REPAIRS.TRAFF.SIG.<br>INTERSECTION WALNUT HILL STRIPING   | EG1601         | 06/02/16 |           | 06/02/16  |        | 450.00   |
|        |       |            |            |  |                |          |           |           |        | 450.00   |
| 197    | 47538 | 1          | 01404 3140 | BUCKLEY BRION MCGUIRE & MORRIS<br>LEGAL - ADMIN<br>LEGAL SERV. 3/22-4/22/16 HIBBERD LN<br>-APPLEBROOK                    | 9970           | 06/02/16 |           | 06/02/16  |        | 8,286.60 |
| 47539  | 1     | 01404 3140 |            | LEGAL - ADMIN<br>LEGAL SERV. 4/15-5/18/16  | 10062          | 06/02/16 |           | 06/02/16  |        | 1,020.30 |
| 47539  | 2     | 01414 3141 |            | LEGAL - ZONING HEARING BOARD<br>LEGAL SERV. 4/15-5/18/16   | 10062          | 06/02/16 |           | 06/02/16  |        | 191.90   |
|        |       |            |            |  |                |          |           |           |        | 9,498.80 |
| 3433   | 47540 | 1          | 01408 3130 | BURNS ENGINEERING INC.<br>ENGINEERING SERVICES<br>PROF.SERVICE - APR. 2016 AIRPORT &<br>PAOLI INTERSECTION INVESTIGATION | 2016-050.00 2  | 06/02/16 |           | 06/02/16  |        | 989.25   |
|        |       |            |            |  |                |          |           |           |        | 989.25   |
| 3488   | 47543 | 1          | 01409 3740 | CINTAS CORPORATION #287<br>TWP. BLDG. - MAINT & REPAIRS<br>WEEK END 4/13/16 CLEAN MATS                                   | 287542394      | 06/02/16 |           | 06/02/16  |        | 57.50    |
| 47543  | 2     | 01487 1910 |            | UNIFORMS<br>WEEK END 4/13/16 CLEAN UNIFORMS  | 287542394      | 06/02/16 |           | 06/02/16  |        | 425.05   |
| 47543  | 3     | 01487 1910 |            | UNIFORMS<br>CREDIT FOR RIPPED SHIRT CHARGE   | 287542394      | 06/02/16 |           | 06/02/16  |        | -165.00  |
| 47544  | 1     | 01409 3740 |            | TWP. BLDG. - MAINT & REPAIRS<br>WEEK END 4/20/16 CLEAN MATS  | 287545769      | 06/02/16 |           | 06/02/16  |        | 57.50    |
| 47544  | 2     | 01487 1910 |            | UNIFORMS<br>WEEK END 4/20/16 CLEAN UNIFORMS  | 287545769      | 06/02/16 |           | 06/02/16  |        | 291.67   |
| 47545  | 1     | 01409 3740 |            | TWP. BLDG. - MAINT & REPAIRS<br>WEEK END 5/25/16 CLEAN MATS  | 287562750      | 06/02/16 |           | 06/02/16  |        | 57.50    |
| 47545  | 2     | 01487 1910 |            | UNIFORMS<br>WEEK END 5/25/16 CLEAN UNIFORMS  | 287562750      | 06/02/16 |           | 06/02/16  |        | 261.67   |
|        |       |            |            |  |                |          |           |           |        | 985.89   |

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|--------|-------|---------|------------|---|----------------|----------|-----------|-----------|--------|-----------|
| 296    | 47546 | 1       | 01401 3210 | COMCAST 8499-10-109-0028306<br>COMMUNICATION EXPENSE<br>0028306 JUNE 2016                         | 052016         | 06/02/16 |           | 06/02/16  |        | 70.00     |
|        |       |         |            |   |                |          |           |           |        | 70.00     |
| 2912   | 47547 | 1       | 01430 2320 | CONTINENTAL FIRE & SAFETY INC.<br>VEHICLE OPERATION - FUEL<br>5 FIVE GALLON CONTAINER RACING FUEL | F2740          | 06/02/16 |           | 06/02/16  |        | 405.00    |
|        |       |         |            |   |                |          |           |           |        | 405.00    |
| 317    | 47548 | 1       | 01438 2450 | CONTRACTOR'S CHOICE<br>MATERIALS & SUPPLIES-HIGHWAYS<br>STIHL 4180-120-0610 CARB                  | 00201426       | 06/02/16 |           | 06/02/16  |        | 41.95     |
|        |       |         |            |   |                |          |           |           |        | 41.95     |
| 3613   | 47549 | 1       | 01486 1560 | DELAWARE VALLEY HEALTH TRUST<br>HEALTH, ACCID. & LIFE<br>JUNE 2016 MEDICAL & RX                   | 11405          | 06/02/16 |           | 06/02/16  |        | 34,640.20 |
|        | 47549 | 2       | 01213 1000 | DENTAL INSURANCE W/H<br>JUNE 2016 DENTAL  | 11405          | 06/02/16 |           | 06/02/16  |        | 946.96    |
|        |       |         |            |   |                |          |           |           |        | 35,587.16 |
| 439    | 47550 | 1       | 01430 2330 | EDWARDS AUTOMOTIVE REPAIR<br>VEHICLE MAINT AND REPAIR<br>PA EMISSION INSPECT. 2000 RANGER         | 5599           | 06/02/16 |           | 06/02/16  |        | 50.00     |
|        | 47551 | 1       | 01430 2330 | VEHICLE MAINT AND REPAIR<br>PA EMISSION INSPECT. 2009 RANGER                                      | 5600           | 06/02/16 |           | 06/02/16  |        | 50.00     |
|        |       |         |            |   |                |          |           |           |        | 100.00    |
| 3693   | 47552 | 1       | 01452 2010 | ELMWOOD PARK ZOO<br>SUMMER PROGRAM FIELD TRIPS<br>YTH CAMP FIELD TRIP                             | 3641           | 06/02/16 |           | 06/02/16  |        | 1,163.75  |
|        |       |         |            |   |                |          |           |           |        | 1,163.75  |
| 2142   | 47553 | 1       | 01438 2450 | FLAGGER FORCE<br>MATERIALS & SUPPLIES-HIGHWAYS<br>FLAG CREW 4/27/16                               | 180143         | 06/02/16 |           | 06/02/16  |        | 704.48    |
|        |       |         |            |   |                |          |           |           |        | 704.48    |

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|--------|-------|---------|------------|---|----------------|----------|-----------|-----------|--------|----------|
| 3624   | 47554 | 1       | 01367 3100 | FOSBENNER, ADAM & LAUREN<br>SUMMER PROGRAM<br>REFUND - CANCEL WK.1&2 SR.CAMP                                  | 052416         | 06/02/16 |           | 06/02/16  |        | 50.00    |
|        |       |         |            |   |                |          |           |           |        | 50.00    |
| 3352   | 47556 | 1       | 01430 2600 | GAP POWER RENTALS PLUS LLC<br>MINOR EQUIP. PURCHASE<br>200W INVERTER/GENERATOR                                | 1231234        | 06/02/16 |           | 06/02/16  |        | 2,323.00 |
|        |       |         |            |   |                |          |           |           |        | 2,323.00 |
| 551    | 47560 | 1       | 01430 2330 | GOLDEN EQUIPMENT COMPANY<br>VEHICLE MAINT AND REPAIR<br>STEEL GB SEGMENTS                                     | 16-39502       | 06/02/16 |           | 06/02/16  |        | 687.48   |
|        |       |         |            |   |                |          |           |           |        | 687.48   |
| 3131   | 47558 | 1       | 01401 3840 | GREAT AMERICA FINANCIAL SERVICES<br>RENTAL OF EQUIP. -OFFICE<br>JUNE 2016 LANIER MP C5503                     | 18796294       | 06/02/16 |           | 06/02/16  |        | 305.00   |
|        |       |         |            |   |                |          |           |           |        | 305.00   |
| 569    | 47559 | 1       | 01409 3740 | GREAT VALLEY LOCKSHOP<br>TWP. BLDG. - MAINT & REPAIRS<br>6 KEYS   | CO20160722     | 06/02/16 |           | 06/02/16  |        | 30.50    |
|        |       |         |            |   |                |          |           |           |        | 30.50    |
| 594    | 47562 | 1       | 01409 3740 | HAMMOND & MCCLOSKEY INC.<br>TWP. BLDG. - MAINT & REPAIRS<br>CLEAR JAMMED FLOAT ELEVATOR PIT                   | 7718           | 06/02/16 |           | 06/02/16  |        | 145.00   |
|        |       |         |            |   |                |          |           |           |        | 145.00   |
| 2717   | 47563 | 1       | 01433 2500 | HIGGINS & SONS INC., CHARLES A.<br>MAINT. REPAIRS.TRAFF.SIG.<br>TRAF.LIGHT MAINTENANCE - STRASBURG<br>& ELLIS | 42073          | 06/02/16 |           | 06/02/16  |        | 270.84   |
|        | 47564 | 1       | 01433 2500 | MAINT. REPAIRS.TRAFF.SIG.<br>TRAF.LIGHT MAINTENANCE - PAOLI PK.<br>& HIBBERD                                  | 42011          | 06/02/16 |           | 06/02/16  |        | 97.50    |
|        |       |         |            |   |                |          |           |           |        | 368.34   |

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|--------|-------|---------|------------|---|----------------|----------|-----------|-----------|--------|----------|
| 638    |       |         |            | HOME DEPOT CREDIT SERVICES  |                |          |           |           |        |          |
|        | 47565 | 1       | 01409 3740 | TWP. BLDG. - MAINT & REPAIRS  | 051316         | 06/02/16 |           | 06/02/16  |        | 80.52    |
|        |       |         |            | PAINT - BLACKSMITH SHOP & PICTURE HANGING KITS  |                |          |           |           |        |          |
|        | 47565 | 2       | 01437 2460 | GENERAL EXPENSE - SHOP  | 051316         | 06/02/16 |           | 06/02/16  |        | 357.19   |
|        |       |         |            | BRACKETS, ROLLER SHADES, BATTERIES, ROUTER BITS, HOOKS & RAIL, TOOL BAG ELEC.TAPE, COAX CABLE & LIGHT BULBS |                |          |           |           |        |          |
|        | 47565 | 3       | 01454 3740 | EQUIPMENT MAINT. & REPAIR   | 051316         | 06/02/16 |           | 06/02/16  |        | 114.32   |
|        |       |         |            | DOOR SWEEP & GLUE - MEN'S RESTROOM, BALUSTERS & SCREWS - PICNIC TABLES                                      |                |          |           |           |        |          |
| -----  |       |         |            |   |                |          |           |           |        | 552.03   |
| 641    |       |         |            | HOOBER INC.   |                |          |           |           |        |          |
|        | 47566 | 1       | 01430 2330 | VEHICLE MAINT AND REPAIR  | SI146964       | 06/02/16 |           | 06/02/16  |        | 367.86   |
|        |       |         |            | BLADES FOR WOOD MOWERS  |                |          |           |           |        |          |
|        | 47567 | 1       | 01430 2330 | VEHICLE MAINT AND REPAIR  | SI146965       | 06/02/16 |           | 06/02/16  |        | 341.90   |
|        |       |         |            | BLADE KITS, KNOBS & LUGS  |                |          |           |           |        |          |
| -----  |       |         |            |   |                |          |           |           |        | 709.76   |
| 739    |       |         |            | KNOX EQUIPMENT RENTALS INC.   |                |          |           |           |        |          |
|        | 47568 | 1       | 01438 3840 | EQUIPMENT RENTAL  | 01-356218-02   | 06/02/16 |           | 06/02/16  |        | 236.50   |
|        |       |         |            | SAW & BLADE RENTAL 5/17-5/18/16   |                |          |           |           |        |          |
| -----  |       |         |            |   |                |          |           |           |        | 236.50   |
| 1631   |       |         |            | KRAFF'S COACHES   |                |          |           |           |        |          |
|        | 47569 | 1       | 01452 3020 | TRIPS   | 14447          | 06/02/16 |           | 06/02/16  |        | 1,597.00 |
|        |       |         |            | BALANCE DUE NYC TRIP  |                |          |           |           |        |          |
| -----  |       |         |            |   |                |          |           |           |        | 1,597.00 |
| 765    |       |         |            | LENNI ELECTRIC CORPORATION  |                |          |           |           |        |          |
|        | 47570 | 1       | 01434 3610 | STREET LIGHTING   | 160512         | 06/02/16 |           | 06/02/16  |        | 2,016.00 |
|        |       |         |            | LED UPGRADES-LOCHWOOD & STRASBURG, RT.352 & WHITE CHIMNEY & RT.3 & WATERVIEW                                |                |          |           |           |        |          |
|        | 47571 | 1       | 01409 3840 | DISTRICT COURT EXPENSES   | 160493         | 06/02/16 |           | 06/02/16  |        | 492.84   |
|        |       |         |            | DISTRICT COURT DOORBELL   |                |          |           |           |        |          |
|        | 47573 | 1       | 01434 3610 | STREET LIGHTING   | 160520         | 06/02/16 |           | 06/02/16  |        | 640.00   |
|        |       |         |            | LED UPGRADE SARATOGA & PAOLI PK.  |                |          |           |           |        |          |
|        | 47574 | 1       | 01434 3610 | STREET LIGHTING   | 160532         | 06/02/16 |           | 06/02/16  |        | 117.00   |
|        |       |         |            | STREETLIGHT MAINT. APRIL-JUNE 2016  |                |          |           |           |        |          |
| -----  |       |         |            |   |                |          |           |           |        | 3,265.84 |

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|--------|-------|---------|------------|--------------------------------------|----------------|----------|-----------|-----------|--------|-----------|
| 3182   |       |         |            | LEONARD INC., A.M.                   |                |          |           |           |        |           |
|        | 47575 | 1       | 01437 2460 | GENERAL EXPENSE - SHOP               | CI16085166     | 06/02/16 |           | 06/02/16  |        | 31.19     |
|        |       |         |            | MAJESTIC HI VIS BIBS CLASS 3         |                |          |           |           |        |           |
|        | 47576 | 1       | 01487 1910 | UNIFORMS                             | CI16084513     | 06/02/16 |           | 06/02/16  |        | 591.95    |
|        |       |         |            | RAIN JACKETS, SAFETY GLASSES & BOOTS |                |          |           |           |        |           |
| -----  |       |         |            |                                      |                |          |           |           |        | 623.14    |
| 3536   |       |         |            | LONG, SHARON                         |                |          |           |           |        |           |
|        | 47577 | 1       | 01367 3100 | SUMMER PROGRAM                       | 052716         | 06/02/16 |           | 06/02/16  |        | 10.00     |
|        |       |         |            | REFUND RE: OVERPAYMENT WEEK 2 CAMP   |                |          |           |           |        |           |
| -----  |       |         |            |                                      |                |          |           |           |        | 10.00     |
| 1817   |       |         |            | LOWES BUSINESS ACCOUNT/GECF          |                |          |           |           |        |           |
|        | 47578 | 1       | 01437 2460 | GENERAL EXPENSE - SHOP               | 051716         | 06/02/16 |           | 06/02/16  |        | 45.27     |
|        |       |         |            | MAGNETIC SAVAGE & RAPID LOAD BITS    |                |          |           |           |        |           |
| -----  |       |         |            |                                      |                |          |           |           |        | 45.27     |
| 3535   |       |         |            | MATHERS PRODUCTION LLC.              |                |          |           |           |        |           |
|        | 47579 | 1       | 01452 3210 | FARMERS MARKET EXPENSE               | 4224           | 06/02/16 |           | 06/02/16  |        | 160.00    |
|        |       |         |            | ADVERTISING - FARMER'S MARKET        |                |          |           |           |        |           |
| -----  |       |         |            |                                      |                |          |           |           |        | 160.00    |
| 3694   |       |         |            | MCCARTHY, MARITA                     |                |          |           |           |        |           |
|        | 47580 | 1       | 01367 3240 | PARK FEES                            | 052416         | 06/02/16 |           | 06/02/16  |        | 100.00    |
|        |       |         |            | REFUND - PAVILION RENTAL 5/21        |                |          |           |           |        |           |
| -----  |       |         |            |                                      |                |          |           |           |        | 100.00    |
| 864    |       |         |            | METROPOLITAN COMMUNICATIO            |                |          |           |           |        |           |
|        | 47581 | 1       | 01437 2460 | GENERAL EXPENSE - SHOP               | IN000103468    | 06/02/16 |           | 06/02/16  |        | 125.00    |
|        |       |         |            | LED MINI BAR                         |                |          |           |           |        |           |
| -----  |       |         |            |                                      |                |          |           |           |        | 125.00    |
| 2750   |       |         |            | MRM WORKER'S COMP. FUND              |                |          |           |           |        |           |
|        | 47582 | 1       | 01486 3500 | INSURANCE COVERAGE -PREM.            | 1516PRJ183     | 06/02/16 |           | 06/02/16  |        | 31,378.20 |
|        |       |         |            | POL.#1516-352 INSTALL. 4 OF 4        |                |          |           |           |        |           |
| -----  |       |         |            |                                      |                |          |           |           |        | 31,378.20 |
| 1641   |       |         |            | NAPA AUTO PARTS                      |                |          |           |           |        |           |
|        | 47583 | 1       | 01430 2330 | VEHICLE MAINT AND REPAIR             | 2-663995       | 06/02/16 |           | 06/02/16  |        | 55.03     |
|        |       |         |            | IND BELTS & FHP BELT                 |                |          |           |           |        |           |
|        | 47584 | 1       | 01430 2330 | VEHICLE MAINT AND REPAIR             | 2-659564       | 06/02/16 |           | 06/02/16  |        | -45.00    |
|        |       |         |            | CORE RETURNS                         |                |          |           |           |        |           |
| -----  |       |         |            |                                      |                |          |           |           |        | 10.03     |

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| Vendor | Req # | Budget#      | Sub#       | Description  | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount   |
|--------|-------|--------------|------------|--|----------------|----------|-----------|-----------|--------|----------|
| 01     |       | GENERAL FUND |            |  |                |          |           |           |        |          |
| 827    |       |              |            | NEW ENTERPRISE STONE & LIME INC.   |                |          |           |           |        |          |
|        | 47585 | 1            | 01436 2450 | STORMWATER MATERIALS & SUPPLIES<br>94.83 TONS R-4 RIP RAP STONE  | 6320896        | 06/02/16 |           | 06/02/16  |        | 2,016.09 |
|        | 47586 | 1            | 01436 2450 | STORMWATER MATERIALS & SUPPLIES<br>47.20 TONS R-4 RIP RAP STONE  | 6317940        | 06/02/16 |           | 06/02/16  |        | 1,003.47 |
|        |       |              |            |  |                |          |           |           |        | 3,019.56 |
| 1554   |       |              |            | OFFICE DEPOT   |                |          |           |           |        |          |
|        | 47587 | 1            | 01401 2100 | MATERIALS & SUPPLIES<br>MESSAGE BOOKS & FILE POCKETS   | 841464151001   | 06/02/16 |           | 06/02/16  |        | 71.56    |
|        | 47588 | 1            | 01401 2100 | MATERIALS & SUPPLIES<br>WHITE INDEX CARDS  | 840929066001   | 06/02/16 |           | 06/02/16  |        | 6.91     |
|        | 47589 | 1            | 01401 2100 | MATERIALS & SUPPLIES<br>PLASTIC BINDING  | 840928986001   | 06/02/16 |           | 06/02/16  |        | 47.68    |
|        | 47590 | 1            | 01401 2100 | MATERIALS & SUPPLIES<br>INDEX MAKERS & BLACK VERTICAL FILES  | 839495918001   | 06/02/16 |           | 06/02/16  |        | 37.22    |
|        | 47591 | 1            | 01401 2100 | MATERIALS & SUPPLIES<br>TONER  | 839750114001   | 06/02/16 |           | 06/02/16  |        | 67.99    |
|        |       |              |            |  |                |          |           |           |        | 231.36   |
| 1645   |       |              |            | PA RURAL WATER   |                |          |           |           |        |          |
|        | 47593 | 1            | 01487 4600 | TRAINING & SEMINARS-EMPLY<br>PRWA TRAINING SEMINAR -S. BIONDI,<br>K. MILLER, M. ENNIS, M. HOLMES & E.<br>KILGORE | 40344          | 06/02/16 |           | 06/02/16  |        | 600.00   |
|        |       |              |            |  |                |          |           |           |        | 600.00   |
| 1022   |       |              |            | PATTERSON, MICHAEL J.  |                |          |           |           |        |          |
|        | 47594 | 1            | 01454 3740 | EQUIPMENT MAINT. & REPAIR<br>E.G.PARK TRAIL FENCE LINE RD. NEAR<br>PAOLI PIKE                                    | 016C009-2      | 06/02/16 |           | 06/02/16  |        | 3,520.00 |
|        | 47595 | 1            | 01454 3740 | EQUIPMENT MAINT. & REPAIR<br>E.G. PARK TRAIL FENCE E. BOOT ROAD  | 016C010        | 06/02/16 |           | 06/02/16  |        | 1,940.00 |
|        | 47596 | 1            | 01454 3740 | EQUIPMENT MAINT. & REPAIR<br>E.G.PARK TRAIL FENCE PARK ENTRY<br>NEAR BALLFIELD C                                 | 016C011        | 06/02/16 |           | 06/02/16  |        | 1,480.00 |
|        |       |              |            |  |                |          |           |           |        | 6,940.00 |
| 1555   |       |              |            | PECO - 45168-01609   |                |          |           |           |        |          |
|        | 47599 | 1            | 01409 3840 | DISTRICT COURT EXPENSES<br>45168-01609 4/23-5/24/16 GAS  | 052616         | 06/02/16 |           | 06/02/16  |        | 636.28   |
|        | 47599 | 2            | 01409 3605 | PW BLDG - FUEL,LIGHT,SEWER & WATER<br>45168-01609 4/23-5/24/16 ELECTRIC  | 052616         | 06/02/16 |           | 06/02/16  |        | 745.98   |
|        |       |              |            |  |                |          |           |           |        | 1,382.26 |





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| Vendor | Req # | Budget#    | Sub#       | Description   | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount   |
|--------|-------|------------|------------|---|----------------|----------|-----------|-----------|--------|----------|
| 2445   | 47608 | 1          | 01409 3740 | PROTECTION BUREAU, THE<br>TWP. BLDG. - MAINT & REPAIRS<br>SERVICE RE: BURGLAR ALARM | 181858         | 06/02/16 |           | 06/02/16  |        | 222.50   |
|        |       |            |            |   |                |          |           |           |        | 222.50   |
| 2108   | 47609 | 1          | 01487 1910 | SIDELINES SPORTSWEAR & PROMOTIONS<br>UNIFORMS<br>FOREST GREEN SHIRTS - C.PROCTOR    | 5043           | 06/02/16 |           | 06/02/16  |        | 124.44   |
|        |       |            |            |   |                |          |           |           |        | 124.44   |
| 3604   | 47610 | 1          | 01430 2320 | SUPERIOR PLUS ENERGY SERVICES<br>VEHICLE OPERATION - FUEL<br>109.7 GALLONS GASOLINE | 644341         | 06/02/16 |           | 06/02/16  |        | 206.20   |
| 47611  | 1     | 01430 2320 |            | VEHICLE OPERATION - FUEL<br>345.3 GALLONS DIESEL                                    | 445308         | 06/02/16 |           | 06/02/16  |        | 546.85   |
| 47612  | 1     | 01430 2320 |            | VEHICLE OPERATION - FUEL<br>746.5 GALLONS DIESEL                                    | 132497         | 06/02/16 |           | 06/02/16  |        | 1,250.39 |
|        |       |            |            |   |                |          |           |           |        | 2,003.44 |
| 2422   | 47613 | 1          | 01436 2450 | SWERP INC.<br>STORMWATER MATERIALS & SUPPLIES<br>SUPPLEE VALLEY STORM SEWER LINING  | 051816 FINAL   | 06/02/16 |           | 06/02/16  |        | 985.00   |
|        |       |            |            |   |                |          |           |           |        | 985.00   |
| 2813   | 47614 | 1          | 01452 3711 | TELTHORSTER, RUBY<br>PILATES<br>SPRING 2016 INSTRUCTION                             | 052516         | 06/02/16 |           | 06/02/16  |        | 355.30   |
|        |       |            |            |   |                |          |           |           |        | 355.30   |
| 2273   | 47617 | 1          | 01409 3605 | VERIZON - 0527<br>PW BLDG - FUEL, LIGHT, SEWER & WATER<br>MAY 15 - JUNE 14, 2016    | 051516-0527    | 06/02/16 |           | 06/02/16  |        | 185.64   |
|        |       |            |            |   |                |          |           |           |        | 185.64   |
| 2942   | 47618 | 1          | 01401 3210 | VERIZON WIRELESS<br>COMMUNICATION EXPENSE<br>APRIL 21 -MAY 20, 2016                 | 9765717401     | 06/02/16 |           | 06/02/16  |        | 983.79   |
|        |       |            |            |   |                |          |           |           |        | 983.79   |

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| Vendor | Req # | Budget# | Sub#       | Description   | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount    |
|--------|-------|---------|------------|---|----------------|----------|-----------|-----------|--------|-----------|
| 2868   |       |         |            | VERIZON-1420  |                |          |           |           |        |           |
|        | 47616 | 1       | 01409 3840 | DISTRICT COURT EXPENSES<br>MAY 16 - JUNE 15, 2016   | 051616-1420    | 06/02/16 |           | 06/02/16  |        | 80.47     |
|        |       |         |            |   |                |          |           |           |        | 80.47     |
| 1470   |       |         |            | WESTTOWN TOWNSHIP   |                |          |           |           |        |           |
|        | 47619 | 1       | 01410 5310 | REGIONAL POLICE BLDG INTEREST<br>MAY 2016 INTEREST  | 053116         | 06/02/16 |           | 06/02/16  |        | 1,380.62  |
|        | 47619 | 2       | 01410 5320 | REGIONAL POLICE BLDG PRINCIPAL<br>MAY 2016 PRINCIPAL  | 053116         | 06/02/16 |           | 06/02/16  |        | 9,166.67  |
|        |       |         |            |   |                |          |           |           |        | 10,547.29 |
| 1983   |       |         |            | YALE ELECTRIC SUPPLY CO   |                |          |           |           |        |           |
|        | 47620 | 1       | 01409 3740 | TWP. BLDG. - MAINT & REPAIRS<br>PVC ELBOWS & COUPLING, JUNCTION BOX<br>ADAPTERS, LOCKNUTS, SPLICE KIT,<br>CONDUITS & CORD CONNECTOR | S105584583.001 | 06/02/16 |           | 06/02/16  |        | 88.28     |
|        | 47621 | 1       | 01409 3740 | TWP. BLDG. - MAINT & REPAIRS<br>BLINE STRAPS, HUBS, EXTENSION RING<br>& CONDUIT NIPPLE  | S105588044.001 | 06/02/16 |           | 06/02/16  |        | 40.89     |
|        |       |         |            |   |                |          |           |           |        | 129.17    |
| 3506   |       |         |            | ZEO GROUP, THE  |                |          |           |           |        |           |
|        | 47622 | 1       | 01452 5150 | AMPHITHEATER CONCERTS<br>SCREEN & PROJECTOR - 8/26/16   | OR44510        | 06/02/16 |           | 06/02/16  |        | 819.45    |
|        |       |         |            |   |                |          |           |           |        | 819.45    |
| 1512   |       |         |            | ZEP SALES & SERVICE   |                |          |           |           |        |           |
|        | 47623 | 1       | 01430 2330 | VEHICLE MAINT AND REPAIR<br>ZEP-O-SHINE, BIG ORANGE-E & MORADO<br>SUPER CLEANER BUNDLE  | 9002244371     | 06/02/16 |           | 06/02/16  |        | 1,479.55  |
|        |       |         |            |   |                |          |           |           |        | 1,479.55  |







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| Vendor | Req # | Budget# | Sub#       | Description                    | Invoice Number | Req Date | Check Dte | Recpt Dte | Check# | Amount                         |
|--------|-------|---------|------------|--------------------------------|----------------|----------|-----------|-----------|--------|--------------------------------|
| 06     |       | REFUSE  |            |                                |                |          |           |           |        |                                |
| 197    |       |         |            | BUCKLEY BRION MCGUIRE & MORRIS |                |          |           |           |        |                                |
|        | 47536 | 2       | 06427 3140 | LEGAL SERVICES                 | 9930           | 06/02/16 |           | 06/02/16  |        | 813.00                         |
|        |       |         |            | LEGAL SERV. 3/31-4/21/16       |                |          |           |           |        |                                |
|        | 47537 | 2       | 06427 3140 | LEGAL SERVICES                 | 10063          | 06/02/16 |           | 06/02/16  |        | 544.79                         |
|        |       |         |            | LEGAL SERV. 4/25-5/14/16       |                |          |           |           |        |                                |
|        |       |         |            |                                |                |          |           |           |        | 1,357.79                       |
| 241    |       |         |            | C.C. SOLID WASTE AUTHORITY     |                |          |           |           |        |                                |
|        | 47541 | 1       | 06427 4502 | LANDFILL FEES                  | 43917          | 06/02/16 |           | 06/02/16  |        | 4,449.06                       |
|        |       |         |            | WEEK 5/16/16 - 5/21/16         |                |          |           |           |        |                                |
|        |       |         |            |                                |                |          |           |           |        | 4,449.06                       |
|        |       |         |            |                                |                |          |           |           |        | 162,963.83                     |
|        |       |         |            |                                |                |          |           |           |        | 0 Printed, totaling 162,963.83 |

FUND SUMMARY

| Fund | Bank Account | Amount     | Description     |
|------|--------------|------------|-----------------|
| 01   | 01           | 131,850.21 | GENERAL FUND    |
| 03   | 03           | 16,844.08  | SINKING FUND    |
| 05   | 05           | 8,462.69   | SEWER OPERATING |
| 06   | 06           | 5,806.85   | REFUSE          |
|      |              | 162,963.83 |                 |

PERIOD SUMMARY

| Period | Amount     |
|--------|------------|
| 1606   | 162,963.83 |
|        | 162,963.83 |





# CHARLES H. MACDONALD ELECTRIC INC

ELECTRICAL CONSTRUCTION

INDUSTRIAL, INSTITUTIONAL AND COMMERCIAL ELECTRICAL INSTALLATIONS

EMERGENCY MAINTENANCE AND BUILDING SERVICES

LICENSES: PHILADELPHIA: #14719, NEW JERSEY: #1265000, DELAWARE: #TI-0004445, MARYLAND: #12818  
April 27, 2016

Township of East Goshen  
Mr. Jason Lang, Director of Recreation  
1580 Paoli Pike  
West Chester, PA 19380

MAY 9 4 2016

Mr. Lang,

Good afternoon. We are thrilled at the opportunity to be a platinum sponsor of the 2015 Community Days. Thank you for this opportunity for us to give back to the community. On any signage, please utilize Charles H MacDonald Electric Inc.

On another note, Jason, I would like to make a suggestion for the safety of the pedestrians and general public that cross over Paoli Pike while using the East Goshen Park. I feel that a tunnel under Paoli Pike would be a viable option. I know I reached out to Marty Shane and his response was:

"We have looked into tunneling or bridging at the entrance to the Park where the blinking light is. Both alternatives are expensive with potential liability issues. In either case, they must also meet ADA requirements".

I am in construction and it is my experience that construction can be designed and built to meet any requirements including the ADA requirements. In regards to the liability issues, I would think we have a greater one without addressing it. My company works for several of the area institutions and the tunnel system is what they utilize to protect students crossing major roads such as Paoli Pike.

If you would like for me to attend a meeting, let me know when and where the meeting is and I will be attend to voice my opinion of the safety of the crossing.

Thank you for your consideration,

  
Charles H. MacDonald, III



30 S VALLEY RD • SUITE 310 • PAOLI, PA 19301

PHONE: (610) 993-9866 • FAX: (610) 993-9867

E-MAIL: CMACDONALB@MACDONALDELECTRIC.COM • WEBSITE: WWW.MACDONALDELECTRIC.COM







May 31, 2016

**Board of Supervisors  
East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380-6199**

RE: Mars Drinks North America  
PaDEP Operating Air Permit Application

Dear Sir/Madam,

Please be advised, Mars Drinks North America, West Chester, Pennsylvania facility is filing an application for its initial 5 year State Only Air Operating Permit with the Bureau of Air Quality, Pennsylvania Department of Environmental Protection, Southeast Regional Office in Norristown, PA.

Sources at the facility include a coffee roaster and ancillary equipment, approved under Plan Approval 15-0142, and two (2) emergency generators.

This letter satisfies the municipal notification provisions required by 25 Pa. Code 127.413. There is a 30-day comment period starting with receipt of this letter.

Should you have any questions, please contact me at the following address:

Richard Clemen  
1301 Wilson Drive  
West Chester Pa 19341  
Cell: 610-442-0398  
E-Mail: Richard.Clemen@effem.com

Respectfully Submitted,

Jeff Pierce  
North America Supply Director

A handwritten signature in black ink, appearing to be "JP", written over a horizontal line.

BOARD OF SUPERVISORS  
EAST GOSHEN TOWNSHIP  
CHESTER COUNTY  
1580 PAOLI PIKE, WEST CHESTER, PA 19380-6199

FYI

May 20, 2016

Dear Property Owner:

On Monday, June 27, 2016, at 7:30 P.M. prevailing time, at the East Goshen Township Building, 1580 Paoli Pike, West Chester, Pennsylvania, the East Goshen Township Zoning Hearing Board will conduct a public hearing on the appeal of Thomas Kevin Carney from the determination of the Zoning Officer with respect to the property located at 1325 Park Avenue, East Goshen Township, Chester County, Pennsylvania (Tax Parcel No. 53-6-45).

In particular, on April 5, 2016 the Zoning Officer issued a Zoning Ordinance Violation Enforcement Notice with respect to 1325 Park Avenue because the Township believed a home occupation or home related business was being conducted at the property without township approvals and/or permits. It is from this Enforcement Notice that the Applicant has filed the appeal.

If any person who wishes to attend the hearing has a disability and/or requires an auxiliary aid, service or other accommodation to observe or participate in the proceedings, he or she should contact the Township Building at 610-692-7171, to discuss how those needs may be accommodated.

The Zoning Hearing Board Application is available for review at the Township building during normal business hours.

Please give me a call if you have any questions or need additional information.

Sincerely,



Mark A. Gordon  
Township Zoning Officer

CC: All Township Authorities, Boards and Commissions

**BOARD OF SUPERVISORS**  
EAST GOSHEN TOWNSHIP  
CHESTER COUNTY  
1580 PAOLI PIKE, WEST CHESTER, PA 19380-6199

**FYI**

May 20, 2016

Dear Property Owner:

The purpose of this letter is to inform you that Gunnison Development Co., LLC equitable owner of 1420 E. Strasburg Rd., West Chester, PA 19380 has submitted a Subdivision and Land Development application for the property. The applicant is proposing to subdivide the 5.079 acre parcel into three lots and build two new single family homes. The full application and plans are available for review at the Township building. The new development will be served by public water and public sewer

Pursuant to Township policy, property owners within 1000 feet of the subject property are notified of subdivision and land development applications. **The meeting dates for this matter are listed below and subject to change without further written notice:**

**June 1, 2016 – Planning Commission (7:00 PM)**

**June 8, 2016 Conservancy Board (7:00 PM)**

**July 6, 2016 – Planning Commission (7:00 PM)**

**August 3, 2016 – Planning Commission (7:00 PM)**

**August 16, 2016 – Board of Supervisors (7:00 PM)**

All meetings are held at the Township Building and are open to the public. The Subdivision and Land Development Application is available for review at the Township building during normal business hours. If any person who wishes to attend the meetings has a disability and/or requires an auxiliary aid, service or other accommodation to observe or participate, he or she should contact East Goshen Township at 610-692-7171 to discuss how those needs may be accommodated.

Please give me a call if you have any questions or need additional information.

Sincerely,



Mark A. Gordon  
Township Zoning Officer

CC: All Authorities, Boards and Commissions