

Willig, Robert A.

From: [REDACTED]
Sent: Monday, October 29, 2018 7:50 PM
To: Willig, Robert A.
Cc: rredding@pa.gov; tschaeffer@pa.gov; jsimmons@pahousegop.com
Subject: ACRE Complaint
Attachments: ACRE complaint.pdf; Attachement #1 Zoning Exemption Doc Final.pdf; Attachement #2 LCCD Zoning Exemption Request.pdf; Attachment #3 LCCD Stormwater Considerations.pdf; Attachment #4 Comments on Plan & O&M.pdf

Attorney Willig,

We spoke on the phone several weeks ago regarding storm water management. We are providing this correspondence to officially initiate a complaint against Upper Milford Township (uppermilford.net) in Lehigh County, Pennsylvania. We feel their zoning ordinances are too restrictive and are preventing us from installing NRCS, LCCD (Lehigh County Conservation District) recommended best management practices for storm water management. Basically the township is requiring us to do storm water management for our storm water management project.

Please see the attachments which is our official complaint regarding Upper Milford Township, Lehigh County, PA zoning ordinances which are restricting us from doing storm water best management practices.

Thank you,
[REDACTED]

Click [here](#) to report this email as spam.

October 29, 2018

Robert A. Willig, Esquire
Senior Deputy Attorney General
1251 Waterfront Place
Mezzanine Level
Pittsburgh, PA 15222

Dear Attorney Willig,

We spoke on the phone several weeks ago regarding storm water management. We are providing this correspondence to officially initiate a complaint against Upper Milford Township (uppermilford.net) in Lehigh County, Pennsylvania. We feel their zoning ordinances are too restrictive and are preventing us from installing NRCS, LCCD (Lehigh County Conservation District) recommended best management practices for storm water management. Basically the township is requiring us to do storm water management for our storm water management project.

Just to list a few complaints

- Storm water management – the coverage area when storm water regs apply
- The requirement for an O&M (Operations and Maintenance Agreement)
- Required “ultimate” setback for fencing along township roads (55 feet)
- Storm water review fees
- Township manager states township zoning hearing board was not allowed to give storm water relief
- Not providing any consideration for storm water quality improvements – the zoning ordinance only considers reducing quantity not quality

As we discussed on the phone, we are trying to relocate our unimproved animal heavy use area (AHUA) away from the creek to an improved AHUA away from any water source. The improved AHUA will provide ground water protection and storm water protection. These are the type of projects that are being recommended for the Chesapeake Bay watershed cleanup. We are trying to be proactive but the township staff personnel are being relentless in finding reasons why we should not be allowed permits to complete this project. This project has been recommended by NRCS, LCCD and will be designed and partially funded by NRCS with construction and use being overseen by NRCS and LCCD. Our zoning permit application for this project was submitted in April 2018.

Attachment #1 is a narrative describing the storm water/conservation improvements for which we are trying to gain permits.

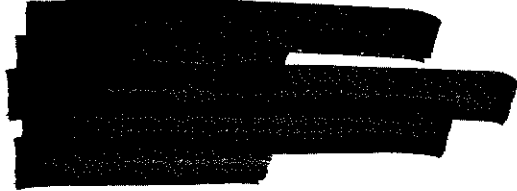
Attachment #2 is a letter from LCCD supporting the improvement/project.

Attachments #3 are storm water calculations provided by NRCS/LCCD to the township engineer but were not in the township engineer's format. The township engineer would not move forward until he placed the calculations on a worksheet acceptable to him.

The storm water pre and post discharge was then acceptable however now the township wants an O&M agreement which we responded to as Attachment #4.

Again we are trying to be proactive and good environmental stewards but the township ordinances are preventing us from doing so. We feel this to be a blatant violation of the ACRE law. Please advise us how to proceed in obtaining the permits necessary to complete these storm water management practices.

Sincerely,

A large black rectangular redaction box covering the signature and name of the sender.

Cc: The Honorable Russell Redding, Secretary of Agriculture (via e-mail)
The Honorable Justin Simmons, State Representative (via e-mail)
Tim Schaeffer, DEP, Deputy Secretary, Office of Water Programs (via e-mail)

ZONING EXEMPTION REQUEST

Introduction

[REDACTED] own a farm located at [REDACTED] Upper Milford Township, which has two (2) dwellings, one (1) where they reside and the original farm house dating back to 1854 where their son, [REDACTED] his wife, [REDACTED] and daughter, [REDACTED] reside.

[REDACTED] purchased the adjacent +/- 30 acre farm property at [REDACTED] in 2016 which they had previously rented the land since [REDACTED] started farming in the 1970's. His parents had also previously rented and farmed the property since the 1940's.

The acquisition has provided the [REDACTED] the opportunity to install some long term Best Management Practices (BMP's) and long term water quality practices to be able to become better environmental stewards with the Livestock portion of their farming operation.

The [REDACTED] contacted the Natural Resources Conservation Services to provide recommendations as to what BMP's could be implemented. A site visit was conducted with members from the National Resource Conservation Service (NRCS), a division of USDA and the Lehigh County Conservation District (LCCD) noting conditions and recommendations.

Following the site visit, the team (NRCS and LCCD) provided several sketches of BMP's they are recommending. [REDACTED] met with Alan Brokate, Upper Milford Township's Zoning Officer, to ensure there were no issues associated with installing these BMP's.

To our amazement, it became quite evident that most of the Upper Milford zoning requirements for the BMP's required excessive setbacks for fencing and some type of engineering for storm water management for zoning approval. The township zoning and storm water management codes appear to be written to address land development or expansion of existing houses. The code appears to not take into consideration the fact that farms are usually on large tracts of land with a small ratio of disturbance to total area unlike development which has a large area of disturbance vs. total area. The Upper Milford code A150 does not provide any exception for installing BMP's which are being installed strictly for improving the environment, decreasing storm water runoff, and increasing water quality, even when BMP's are recommended, designed, overseen, and partially funded by the USDA -NRCS and LCCD.

Background

One of the most important criteria for raising livestock is to have a good source of water. When the settlers were homesteading, they would look for a creek to provide water for themselves and their livestock. They then would construct fences along property lines for grazing and allowing livestock constant access to the stream or other water source. This practice has been followed on our farm for the past 5 generations. The 1970's, with the growing population, brought a realization that better stewardship was needed because of nutrients being carried to the bays and oceans. This increase in nutrients was not only caused by farming practices but many municipalities having combination storm and sanitary sewer systems which during heavy rain storms allowed all of the effluents to be discharged directly to the streams and rivers, some municipalities

still have the systems today. In the 1970's or there about the USDA - NRCS started to recommend different farming practices to prevent soil erosion (no-till, contour strips, etc.) and recommend changes be made to livestock operations so less nutrients would be carried downstream.

Currently our beef cows are allowed free access to the stream in spring, summer, fall and early winter during daylight hours while grazing the pastures. When the pastures are depleted, we provide free access to hay in a heavy use area (HUA) close to the creek for access to water. The remaining pasture areas are typically closed off until the grass is high enough to restart grazing.

The free access hay area becomes tightly packed from the excess hay, and the cattle consolidating the soils to the point where it is nearly impervious. During rain events, nutrients and waste are then carried into the stream. At night and during the winter the cows are brought to a small shelter area by the barn with access to an area outside (sacrifice area, ½ acre) where the cattle have free access to water and hay. During the winter and heavy rain events, the sacrifice area becomes wet, muddy and packed to the point it is nearly impervious.

Best Management Practice Recommendations from USDA-NRCS and LCCD

*denotes BMP eliminating Environmental Concern

1. Install a new well with water hydrants/troughs at individual pastures

- * Eliminate cattle from needing access to stream for water which could cause possible stream bank erosion and may add sediment and nutrients to the stream

- * Eliminate cattle from creating hard packed trails (impervious area) to access water. The hard packed trails are bare soil that become eroded during storm water events

2. Install a fence along the stream 35' from the bank creating a permanent undisturbed vegetative filter strip

- * This would no longer permit livestock access to the creek to stand in the stream water while cooling off or drinking; Same as #1 above

- * Final stage for filtering sediment, manure and nutrients from storm water runoff prior to entering the stream

- * Decreases the velocity and volume of storm water, allowing a greater amount of storm water infiltration

3. Install 12' wide fenced stoned walkways between pastures and new heavy use area

- * Eliminates cattle from creating random hard packed trails

- * Enables the pasture to be completely segregated to allow a minimum 30-day rest and regrowth period as needed to maintain a minimum of 3" of grass/vegetation for filtering runoff, this in turn based on the Manning equation for sheet flow more than doubles the retention time for the storm water to infiltrate

- * Controlling excess water runoff from pastures

- * Overall increases time of rainwater retained on the property to increase the direct infiltration into the soil as opposed to sheet flow runoff reducing the amount of storm water leaving the property.

- * Reduces soil erosion by eliminating concentrated flows

- * Creates mini storm water retention areas. Trail bases are constructed using 3 in ballast

4. Install new 9,600SF covered heavy use area (HUA)

- * Eliminate the existing HUA near creek (~13,800SF), also eliminating concentrated manure, sediments and nutrients from entering stream
- * Roofed area eliminates storm water from coming in contact with concentrated cattle waste (manure); the storm water from new HUA will be controlled and directed to a stable outlet
- * Eliminate ½ Acre sacrifice lot used at night and during winter months
- * Provide livestock containment area for cattle during low pasture growth periods
- * Allows all pastures to be closed off and taken out of use to maintain a minimum of 3" of vegetation growth for reducing sheet flow run off volume and increasing infiltration
- * Greatly reduces the amount of all sediment, nutrients and animal waste the vegetative buffer needs to filter
- * Provides additional roofed confinement space to allow swine breeding herd to be relocated from pasture to roofed confinement area

Request

We are requesting to be exempt from the storm water and fencing provisions of the zoning ordinance because:

1. The ordinance as written is intended to address residential and commercial development with a high disturbance area compared to total lot area which will increase storm water runoff. The planned project is to decrease the amount of storm water leaving the [REDACTED] property and increase the quality of the water that does exit the property.
2. All of the intended disturbance is to provide BMP's recommended by, but not required by the NRCS-USDA and LCCD
3. All BMP's are designed, inspected, and partially funded by NRCS-USDA and LCCD
4. All construction and earth disturbance is being completed to install BMP's which will reduce storm water runoff in both velocity and volume , increase water quality, and remove heavy use areas from being exposed to storm water.
5. The total net new impervious HUA is less than 4000SF. New 9,600 SF roof area – 13,800 SF existing unroofed HUA = net change of +4,200SF (increase) of additional pervious area, this does not include the ½ acre sacrifice area.
6. Cattle walkways are constructed using a 3" ballast to create an internal water retention area and are to be considered nearly pervious.
7. In discussions with LCCD personnel, it was stated that in the northern parts of the county, Ag BMP's are exempt for storm water ordinances.

8. If these areas would be tilled (plowed and planted) the top 10 to 16 inches of earth would be inverted burying all residues and exposing bare earth. This tillage would be completed from property line to property line, without requiring any zoning, storm water, or soil erosion engineering or permits.
9. Installing fencing at the current 10 ft. setback from the adjacent property line would decrease pasture area by about $\frac{3}{4}$ of an acre. This would create a waste and unsightly area between the fence and the adjacent property line.

Conclusion

The end product of this owner elected, voluntary project, with designed and the construction overseen by NRCS-USDA and LCCD personnel is to create LESS impervious surface, LESS storm water leaving the [REDACTED] property, and HIGHER quality CLEANER water entering a tributary of the Leibert Creek. As previously stated the installation of these BMP's is the owner's election to be a good environmental steward of the lands in their control.



Lehigh County Conservation District

Lehigh County Agricultural Center, Suite 105
4184 Dorney Park Road, Allentown, PA 18104-5728
Telephone (610) 391-9583
FAX (610) 391-1131

Alan Brokate
Upper Milford Township
5671 Chestnut Street
PO Box 210
Old Zionsville, PA 18068

April 20, 2018

RE: [REDACTED] Zoning Exemption request

Dear Mr. Brokate,

[REDACTED] and his family approached the Lehigh County Conservation District in the fall of 2017 about implementing agricultural best management practices on his beef cattle farm. Primarily, [REDACTED] was concerned about the water quality of an unnamed tributary to Leibert Creek. Leibert Creek is an agriculture-impaired, HQ stream with a natural trout population. With water quality being a priority for LCCD, assisting [REDACTED] in addressing natural resource concerns is in our interests.

[REDACTED] has informed me that zoning ordinances in Upper Milford may be an obstacle for implementing these practices. He has also mentioned that he will be applying for an exemption to those ordinances. In order to help you make a decision regarding [REDACTED] zoning exemption request, I would like to inform you of the effects of the practices that [REDACTED] would like to implement.

[REDACTED] has plans to build an Animal Heavy Use Area (AHUA), this AHUA will allow [REDACTED] to better manage his pasture by having a place where the animals can be kept when pasture conditions are not ideal for grazing. By keeping his animals in the AHUA during wet periods, winter, or drought, this will prevent the cattle from trampling the grass and exposing the topsoil to erosion, where it can be carried by storm water to the unnamed tributary. In addition, the AHUA will allow longer grass length, which leads to better infiltration of storm water. All storm water from the AHUA will be collected through rain gutters on the roof and released via an underground outlet to a rock apron. This will result in a storm water rate reduction.

The new AHUA will be placed more than 500 feet upstream from the unnamed tributary and will replace the current animal area that is adjacent to the unnamed tributary. The current animal area has been compacted from years of animal use, and will be replanted in grass and will be excluded from future animal use. This will also increase infiltration as storm water from the current animal area is not collected and allowed to run across the ground into the unnamed tributary.

[REDACTED] will also be installing animal walkways that will provide a stabilized surface to allow the cattle to move from the AHUA to various fields. These walkways will reduce erosion due to animal traffic, reducing sedimentation to the Leibert Creek. When designed with storm water infiltration in mind, other townships have allowed these walkways to be considered pervious.



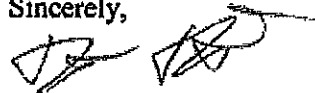
recycled paper

Other practices that LCCD is assisting [REDACTED] with include a prescribed grazing plan (that is contingent on the AHUA and the animal walkways), interior fencing to allow more paddocks, a watering system, stream bank fencing that will establish a buffer of at least 35 feet from the stream, and a nutrient management plan.

Interior fencing and a grazing plan will allow [REDACTED] pasture to have longer grass height and increase infiltration and reduce nutrients in storm water runoff. The watering system and stream bank fencing will exclude [REDACTED] cattle from the stream, allowing a vegetated buffer to grow. Current science has shown that vegetated buffers of at least 35 feet reduce sedimentation, reduce nutrients, increase infiltration, and cool the water. The nutrient management plan will allow [REDACTED] to spread his manure in a more precise manner, which will target those fields most in need of nutrients and avoid fields that may have a current surplus of nutrients.

[REDACTED] will also have an Erosion and Sediment Control Plan developed by Natural Resource Conservation Service employees that he must implement during construction of the practices. Lehigh County Conservation District is of the opinion that the result of constructing and implementing these practices is a positive net effect on the water quality of Leibert Creek and the environment as a whole. If you have any questions regarding this letter, please feel free to contact me via email at dpainter@lehighconservation.org or by phone at 610-391-9583 extension 26.

Sincerely,



Damian Painter
Agricultural Resource Conservationist
Lehigh County Conservation District



Lehigh County Conservation District

Lehigh County Agricultural Center, Suite 105
4184 Dorney Park Road, Allentown, PA 18104-5728
Telephone (610) 391-9583
FAX (610) 391-1131

July 16, 2018

[REDACTED]

SUBJECT: Township Stormwater Considerations

Dear [REDACTED]

The following information may be helpful as you seek a permit to install an animal waste management system as part of your Conservation Plan. The Conservation Plan was developed by the Lehigh County Conservation District in partnership with the USDA—Natural Resource Conservation Service (NRCS). A roofed animal heavy use area (AHUA) (totaling 9600 square feet) is being designed by NRCS engineers to provide additional improved area for the confinement of animals. Currently, you have a pasture that is being used as an unimproved AHUA. A new AHUA will allow you to confine your animals in an improved area which will result in the current outside barnyard to be retired and will prevent denuding of the pasture. This will enable the prevention of erosion on your fields and sediment from entering the unnamed tributary to Liebert Creek.

The proposed AHUA has gutters and an underground outlet pipe proposed to direct water away from animal and equipment traffic. The pipe will outlet into a rock apron that will dissipate and disperse the water from the pipe. The pipe will outlet into a 0.5 acres stream bank buffer, extending 35 feet off both sides of the stream (Tributary of Liebert Creek). Livestock will be excluded from the buffer to allow for growth of vegetation, which improves water quality by capturing sediment and nutrients and lowering water temperatures.

Other practices included in your conservation plan are a watering system, walkways, nutrient management, and a prescribed grazing plan that includes rotational grazing. In addition, your plan calls for the removal of animals from your current barnyard and return it to a non-grazed meadow condition. By utilizing these tools, you can improve your pasture and the vegetated cover. Improved pastures lead to improved infiltration and that is reflected in decreased curve numbers.

Attached are weighted Pre- and Post- curve number chart for the proposed BMP's in the locations described above. A map of the area is also attached. By improving your pasture, adding the ~~buffer~~ buffer, and retiring the current barnyard the curve number will decrease from 73 to 64. By using EFH-2, an NRCS rainfall runoff and discharge tool, I was able to determine that runoff will be decreased once these practices are completed. Even with the addition of the roof

5/16/18 [REDACTED]

as impervious cover, runoff goes from 1.05" in current conditions to 0.65" after completion of all practices. Completing this project as designed will provide both water quality benefits and water runoff volume reduction.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Painter', with a long horizontal line extending to the right.

Damian Painter
Lehigh County Conservation District
Agricultural Resource Conservationist

Enc: Soil Map
Hydrologic Soil Map
Weighted Curve Number Table
Table A-4 (Runoff Curve Numbers from TR-55)

From [REDACTED]

	1 yr 24 hr Storm (2.68")	2 yr 24 hr Storm (3.23")	5 yr 24 hr Storm (4.05")	10 yr 24 hr Storm (4.73")	25 yr 24 hr Storm (5.72")
Pre-Condition Retention (in) CN=74*	1.98	2.2	2.43	2.59	2.78
Post-Condition Retention (in) CN=65*	2.32	2.65	3.01	3.28	3.59
Increase (in)	0.34	0.45	0.58	0.69	0.81

The 2-yr storm event (3.23") will result in 3.07" of runoff from the proposed impervious surface (CN=98). Runoff from the new impervious surfaces:

$$3.07"/12" \times 9600 \text{ sf} = 2456 \text{ cu ft of runoff}$$

Increased retention during the same storm event over the 5.1 acres after BMP implementation:

$$45"/12" \times 5.1 \text{ acres} \times 43,560 \text{ sf} = 8330 \text{ cu ft}$$

In summary, the stormwater retention provided by these water quality BMP's far exceeds the runoff generated

↑
System #2



NOAA Atlas 14, Volume 2, Version 3

Location name: Upper Milford Twp.
Pennsylvania, USA*

Latitude: [REDACTED]

* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.332 (0.300-0.366)	0.394 (0.357-0.435)	0.462 (0.418-0.509)	0.512 (0.463-0.563)	0.571 (0.513-0.627)	0.615 (0.549-0.676)	0.668 (0.585-0.723)	0.693 (0.616-0.768)	0.747 (0.653-0.825)	0.786 (0.682-0.870)
10-min	0.528 (0.478-0.583)	0.629 (0.570-0.694)	0.740 (0.669-0.814)	0.818 (0.739-0.900)	0.909 (0.816-0.999)	0.975 (0.870-1.07)	1.04 (0.925-1.14)	1.10 (0.972-1.21)	1.18 (1.03-1.30)	1.23 (1.07-1.38)
15-min	0.660 (0.598-0.726)	0.790 (0.716-0.872)	0.933 (0.844-1.03)	1.03 (0.932-1.14)	1.15 (1.03-1.26)	1.23 (1.10-1.35)	1.31 (1.17-1.44)	1.39 (1.22-1.53)	1.48 (1.29-1.63)	1.54 (1.34-1.71)
30-min	0.903 (0.817-0.996)	1.09 (0.988-1.20)	1.32 (1.20-1.46)	1.49 (1.35-1.64)	1.70 (1.52-1.86)	1.85 (1.65-2.03)	2.00 (1.78-2.20)	2.15 (1.90-2.37)	2.34 (2.05-2.59)	2.49 (2.18-2.76)
60-min	1.12 (1.02-1.24)	1.37 (1.24-1.51)	1.69 (1.53-1.86)	1.94 (1.75-2.13)	2.26 (2.03-2.48)	2.50 (2.23-2.75)	2.76 (2.45-3.02)	3.01 (2.66-3.31)	3.35 (2.93-3.70)	3.62 (3.14-4.01)
2-hr	1.34 (1.21-1.49)	1.63 (1.47-1.81)	2.03 (1.82-2.26)	2.34 (2.10-2.61)	2.78 (2.47-3.08)	3.13 (2.77-3.47)	3.50 (3.08-3.88)	3.89 (3.40-4.32)	4.46 (3.84-4.95)	4.90 (4.18-5.47)
3-hr	1.48 (1.32-1.65)	1.79 (1.60-2.00)	2.23 (1.99-2.49)	2.57 (2.29-2.87)	3.04 (2.69-3.39)	3.42 (3.02-3.81)	3.83 (3.35-4.26)	4.26 (3.69-4.74)	4.86 (4.17-5.43)	5.36 (4.56-6.01)
6-hr	1.86 (1.67-2.08)	2.24 (2.02-2.51)	2.77 (2.49-3.11)	3.21 (2.88-3.59)	3.84 (3.41-4.28)	4.36 (3.84-4.85)	4.92 (4.30-5.47)	5.53 (4.79-6.15)	6.42 (5.47-7.15)	7.16 (6.02-7.99)
12-hr	2.28 (2.05-2.57)	2.75 (2.48-3.09)	3.42 (3.08-3.84)	3.99 (3.57-4.47)	4.82 (4.27-5.37)	5.53 (4.89-6.15)	6.31 (5.49-7.02)	7.47 (6.17-7.97)	8.46 (7.14-9.40)	9.56 (7.94-10.6)
24-hr	2.68 (2.47-2.93)	3.23 (2.88-3.53)	4.05 (3.73-4.41)	4.73 (4.34-5.15)	5.72 (5.22-6.21)	6.66 (5.96-7.11)	7.45 (6.74-8.08)	8.45 (7.67-9.14)	9.89 (8.76-10.7)	11.1 (9.73-12.0)
2-day	3.13 (2.87-3.44)	3.78 (3.46-4.15)	4.74 (4.34-5.20)	5.52 (5.04-6.05)	6.64 (6.03-7.27)	7.57 (6.85-8.27)	8.57 (7.70-9.36)	9.84 (8.61-10.5)	11.2 (9.89-12.2)	12.4 (10.9-13.6)
3-day	3.30 (3.03-3.61)	3.98 (3.65-4.35)	4.98 (4.56-5.44)	5.79 (5.30-6.32)	6.95 (6.33-7.57)	7.91 (7.17-8.61)	8.93 (8.05-9.71)	10.0 (8.99-10.9)	11.6 (10.3-12.6)	12.9 (11.4-14.0)
4-day	3.47 (3.19-3.78)	4.18 (3.85-4.58)	5.21 (4.79-5.68)	6.06 (5.55-6.59)	7.25 (6.62-7.88)	8.24 (7.50-8.95)	9.30 (8.41-10.4)	10.4 (9.37-11.3)	12.0 (10.7-13.1)	13.4 (11.8-14.5)
7-day	4.09 (3.76-4.44)	4.90 (4.54-5.33)	6.06 (5.60-6.50)	6.99 (6.46-7.58)	8.35 (7.67-9.04)	9.47 (8.67-10.2)	10.7 (9.72-11.5)	12.0 (10.8-12.9)	13.8 (12.4-14.9)	15.3 (13.6-16.6)
10-day	4.69 (4.37-5.06)	5.60 (5.21-6.04)	6.82 (6.34-7.35)	7.80 (7.24-8.40)	9.18 (8.49-9.87)	10.3 (9.49-11.1)	11.4 (10.5-12.3)	12.7 (11.6-13.6)	14.4 (13.0-15.4)	15.7 (14.2-16.9)
20-day	6.33 (5.92-6.78)	7.51 (7.03-8.04)	8.95 (8.36-9.57)	10.1 (9.40-10.8)	11.6 (10.8-12.4)	12.8 (11.9-13.7)	14.0 (13.0-15.0)	15.3 (14.1-16.3)	17.0 (15.5-18.2)	18.3 (16.7-19.8)
30-day	7.90 (7.45-8.36)	9.30 (8.77-9.86)	10.8 (10.2-11.5)	12.0 (11.3-12.7)	13.6 (12.8-14.4)	14.8 (13.9-15.7)	16.0 (14.9-16.9)	17.1 (16.0-18.2)	18.7 (17.3-19.9)	19.8 (18.3-21.1)
45-day	10.0 (9.48-10.6)	11.7 (11.1-12.4)	13.5 (12.8-14.2)	14.8 (14.0-15.6)	16.5 (15.6-17.4)	17.7 (16.7-18.7)	18.9 (17.8-19.9)	20.0 (18.9-21.2)	21.5 (20.2-22.7)	22.5 (21.1-23.8)
60-day	12.0 (11.4-12.7)	14.1 (13.3-14.8)	16.0 (15.2-16.9)	17.5 (16.6-18.5)	19.4 (18.3-20.4)	20.7 (19.6-21.9)	22.0 (20.8-23.2)	23.2 (21.9-24.5)	24.7 (23.2-26.1)	25.9 (24.2-27.3)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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24
Upper Milford Township
ATTN: Township Supervisors & Manager
PO Box 210
Old Zionsville PA 18068

10/11/18
RECEIVED
OCT 11 2018
J. F. D. 10:54 AM

Township Supervisors and Bud Carter,

RE: Comments on the township engineer's stormwater plan and O&M agreement.
[REDACTED]

The following are our comments regarding the proposed relocation of our unimproved animal heavy use area to a new improved animal heavy use area (AHUA). The township is not allowing any stormwater credits for the relocation which is providing groundwater and stormwater quality protection.

- We disagree with the one location the township engineer is using for stormwater credit because it is in a different watershed/drainage area than the proposed AHUA. We feel that even though both these areas will be improved to good pasture/meadow conditions, all the "required" improvement areas should be on the opposite side of the driveway where the improved AHUA will be located. See attachment #1.
- Based on the above we have recalculated the area required to meet the pre and post stormwater needs (attachment #2). We have used 9600 sq ft impervious instead of the 13,597 sq ft because NRCS (Natural Resource Conservation Service, a division of the USDA – a Federal Agency) states the walkways (erosion prevention, change flow prevention bmp's) are considered as pervious areas. Attachment #3 is an outline area showing the 31,210 sq ft necessary (meadow type D soil) to meet post stormwater requirement.
- Attachment #4 is a calculation showing some of the pasture area being improved, which shows an excess of 51,574 sq ft being improved in that pasture for which we should be given a stormwater credit going forward with additional retainage of 3487.5 cu ft (26,088 gal). Attachment #5 is the outlined area that is being improved in this pasture and used for stormwater retention. This is approximately 2 acres of the 21 acres that is being improved.

The following comments pertain to the O&M agreement

- We feel that an O&M agreement is not warranted because this improvement does not meet the MS4 level of requirement, i.e. no stormwater goes to any municipal structure or any other structure (earth or manmade), all the stormwater leaves the property by the same path and manor as pre construction.
- The stormwater O&M agreement is written for residential or commercial construction which installs some type of physical element that can be inspected,

measured and is a static element, i.e. will be the same today, tomorrow and next year.

- With this agricultural project, grass is being utilized to retain the stormwater. The existing grass is grazed to about 1/2" in length. With the installation of the improved AHUA the pasture can be isolated and the grass kept at an average minimum of 3". The grass is then allowed to grow to a height of approximately 12" at which point the cattle are allowed to graze it back down to an average height again of 3". This is a very dynamic stormwater management plan which has nothing physical for the township personnel to inspect or which they would be able to correct.
- The only soil that will be disturbed is to install the ground water protection area. All other areas will have no grade changes so the stormwater can flow the same as preconstruction but at a reduced velocity due to the longer grass length. Again a longer grass length is achievable because the cattle can be penned in the improved AHUA.
- The O&M agreement defines soil amenities; none will be used on this project. The soil's porosity will be increased by:
 - A. The Natural Resource Conservation Service, a division of the USDA – a Federal Agency (NRCS) grazing specialist will recommend species of grasses in a mixture and at a specific rate that have a root structure that will help to "loosen" the soil to break the compaction.
 - B. The cattle will be penned in the improved AHUA during wet conditions so as to not increase compaction. Grasses and the increased organic matter in the soil will increase the amount of earthworms which will loosen the soil and increase soil porosity.
 - C. The cattle will be penned in the improved AHUA during freeze thaw cycles which will also help loosen the soils. We will be aiding and allowing nature to go through its normal process to add porosity, so once again there is nothing to measure or inspect.
- We will be signing a contract with NRCS in order to receive a grant. NRCS personnel who are trained specialists in their specific area of expertise will be designing and overseeing the installation and inspecting the use of the project to insure it complies with NRCS standards.



1/3 AC. CRIBICE LOT
TO BE RESTORED TO MEADOW
USING SOIL AMENDMENT
(TILLING METHOD)

1/3 AC. HEAVY USE AREA
TO BE RESTORED TO MEADOW
USING SOIL AMENDMENT
(TILLING METHOD)

LIMIT OF RESTORATION
0.6 AC.

AREA OF INCREASED RISK
OF DISTURBANCE
0.6 AC.

ATTACHED TO...

P-2 Year Rainfall

3.22 in

From NOAA

Existing

Cover Type/Condition	Soil Type	Area (SF)	Area (ac)**	CN	S	la (0.2*S)	Q Runoff (in)	Runoff Volume ft^3
Meadow	B	30791	0.71	58	7.24	1.45	0.35	893.64
Pasture (Poor)	D	31210.3	0.72	89	1.24	0.25	2.10	5461.30
Total		62001.3	1.42					6354.94

Proposed

Cover Type/Condition	Soil Type	Area (SF)	Area (ac)**	CN	S	la (0.2*S)	Q Runoff (in)	Runoff Volume ft^3
Impervious	B	9600	0.22	98	0.20	0.04	2.99	2389.93
Meadow	B	21191	0.49	58	7.24	1.45	0.35	615.02
Meadow	D	31210.3	0.72	78	2.82	0.56	1.29	3349.99
Total		62001.3	1.42					6354.94

Difference in runoff 0.00 cuft

0.00 gal

ATTACHMENT #2



ATTACHMENT #3

Existing

Cover Type/Condition	Soil Type	Area (SF)	Area (ac)**	CN	S	la (0.2*S)	Q Runoff (in)	Runoff Volume ft^3)
Meadow	B	30791	0.71	58	7.24	1.45	0.35	893.64
Pasture (Poor)	D	82764	1.90	89	1.24	0.25	2.10	14482.37
Total		113555	2.61					15376.01

Proposed

Cover Type/Condition	Soil Type	Area (SF)	Area (ac)**	CN	S	la (0.2*S)	Q Runoff (in)	Runoff Volume ft^3)
Impervious	B	9600	0.22	98	0.20	0.04	2.99	2389.93
Meadow	B	21191	0.49	58	7.24	1.45	0.35	615.02
Meadow	D	82764	1.90	78	2.82	0.56	1.29	8883.56
Total		113555	2.61					11888.50

Increase in Water Retention 3487.50 cuft

26,088 GAL



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Desktop

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Sep 27, 2018-9:14am

ATTACHMENT #5