In the Supreme Court of Pennsylvania

NO. 9 MAP 2023

THE BOROUGH OF WEST CHESTER,

APPELLANT,

v.

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION, ET AL.,

APPELLEES.

REPRODUCED RECORD Volume 3 of 4 (1149a to 1746a)

DIRECT APPEAL FROM ORDER OF THE COMMONWEALTH COURT OF PENNSYLVANIA (DOCKET NO. 260 MD 2018) DATED JANUARY 4, 2023

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IN THE COMMONWEALTH COURT OF PENNSYLVANIA

- - -

THE BOROUGH OF WEST
CHESTER,
Petitioner,

: v. :NO. 260 MD 2018

PENNSYLVANIA STATE :
SYSTEM OF HIGHER :
EDUCATION and WEST :
CHESTER UNIVERSITY OF :
PENNSYLVANIA OF THE :
STATE SYSTEM OF HIGHER :
EDUCATION, :
Respondents. :

October 15, 2020

Oral deposition of MICHAEL A. PERRONE, C.B.O., taken pursuant to notice, was held at 201 Carter Drive, Room 312, West Chester, Pennsylvania, commencing at 9:30 a.m., on the above date, before Patricia Slater, a Court Reporter and Notary Public for the Commonwealth of Pennsylvania.

STREHLOW & ASSOCIATES, INC. 54 FRIENDS LANE, SUITE 116 NEWTOWN, PENNSYLVANIA 18940 (215) 504-4622

Michael A. Perrone, C.B.O. October 15, 2020

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1	APPEARANCES:	rage 2
2		
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6	MICHAEL A. PERRONE, C.B.O.		
7	(Witness Sworn.)		
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1	(It is hereby stipulated and	
2	agreed by and between counsel that	
3	signing, sealing, filing and	
4	certification are waived; and that	
5	all objections, except as to the	
6	form of questions, be reserved	
7	until the time of trial.)	
8		
9	MICHAEL A. PERRONE, C.B.O.,	
10	after having been duly sworn, was	
11	examined and testified as follows:	
12		
13	DIRECT EXAMINATION	
14		
15	BY MR. KOVATIS:	
16	Q. Good morning, Mr. Perrone.	
17	We've met previously, and again this	
18	morning. My name is Steve Kovatis. I am	
19	a deputy attorney general with the	
20	Commonwealth of Pennsylvania, and we are	
21	here in a litigation captioned The	
22	Borough of West Chester versus West	
23	Chester University and The Pennsylvania	-0 [4]
24	State System of Higher Education.	

Page 5 1 Are you familiar with that 2 litigation? 3 Α. Yes. 4 Q. Do you generally know what 5 the claims in that case are? 6 Α. Yes. 0. We are here today for a 8 deposition. Have you ever been deposed 9 before? 10 Α. Yes. 11 About how many times? 0. 12 Α. Um, I'd say ten, 13 approximately. 14 0. When was the most recent 15 time you were deposed before today? Um, probably four to five 16 Α. 17 years ago was probably the last time. 18 Before then, when was the 0. 19 most recent time? 20 Α. Um, to make it easy on you. I used to do consulting for insurance 21 22 companies on building code issues, like, 23 slip-and-falls, trips, things like that.

While I was involved with cases like

24

- 1 that, occasionally we prepared for
- 2 trials. I was sporadic over my
- 3 30-year-career.
- 4 Q. Were all of those
- 5 depositions in your professional capacity
- 6 as an employee?
- 7 A. No.
- 8 Q. Some were you in your
- 9 personal capacity?
- 10 A. When you say professional --
- 11 maybe I misspoke. Professional, working
- 12 for the Borough or my little side
- 13 business I had. Those two positions is
- 14 what I was doing depositions on. Nothing
- 15 personal like me being sued or anything
- 16 like that.
- 17 Q. Okay.
- 18 A. I hope that clears it up.
- 19 Q. So you have not been deposed
- 20 in a lawsuit in your personal capacity,
- 21 just as you as an individual?
- 22 A. Correct.
- Q. When you say "your side
- 24 business" what were you referring to?

- 1 A. Um, when you get to the
- 2 questions of what my employment history
- 3 is, I used to be the director of the
- 4 building department for the Borough of
- 5 West Chester for the 30 years. I was
- 6 also the president of BOCA International
- 7 (ph), which is building officials, code
- 8 administrators, internationally; national
- 9 organizations are building codes, fire
- 10 codes, all the plumbing codes, so as I
- 11 upped my credentials, people started
- 12 asking me for expert advice, so I became
- 13 an expert of certain building codes that
- 14 led to me helping. Let's say, like,
- 15 probably one of the bigger ones is the
- 16 City of Reading, they were being sued and
- 17 I helped them as an expert on the BOCA
- 18 property maintenance code.
- 19 Q. Okay. And you're right, we
- 20 will come back to that. But as we begin,
- 21 even though you have some experience
- 22 being deposed, I wanted to go over some
- 23 ground rules, refresh your recollection,
- 24 and make sure we are on the same page.

- 1 A. Fair enough.
- 2 Q. This is a deposition in a
- 3 civil case as you're aware of. At the
- 4 beginning of the deposition you took an
- 5 oath. Do you understand that is the same
- 6 oath that you give in a court of law?
- 7 A. Yes.
- 8 Q. And that oath is to tell the
- 9 truth and to answer my questions today.
- 10 Do you understand that?
- 11 A. To the best of my knowledge,
- 12 yes.
- 13 Q. To the best of your
- 14 knowledge and ability.
- Occasionally, questions may
- 16 call for you to estimate, but I don't
- 17 want you to speculate in answering any
- 18 questions. Do you understand the
- 19 difference between estimating and
- 20 speculating?
- 21 A. I believe so, yes.
- Q. What is your understanding
- 23 of that difference?
- 24 A. Speculation is to dream up

- 1 things, and estimating might be 12 as
- 2 opposed to 13.
- 3 Q. Right. For example, if I
- 4 were to ask you what is the length of
- 5 this table, you don't have a tape measure
- 6 to measure it, but you can estimate the
- 7 length of this table, right?
- 8 A. Yes.
- 9 Q. But if I were to ask you
- 10 what is the length of the table in the
- 11 room next door, you would have to
- 12 speculate because you can't see it.
- 13 A. Correct.
- 14 Q. As you can see, there is a
- 15 court reporter here. She is taking down
- 16 a transcript of everything that we say,
- 17 and that has a couple of features to it
- 18 that we should respect. One is, and
- 19 you've done a good job of this so far, I
- 20 would ask that you wait for me to ask my
- 21 question before you begin to answer, and
- 22 I will afford you the same and allow you
- 23 to finish any answer before I begin the
- 24 next question.

- 1 Does that make sense?
- 2 A. Yes.
- 3 Q. So sometimes you may think
- 4 you know where I'm going with a question
- 5 and it's natural to want to jump in. I
- 6 may stop you, and I apologize if that
- 7 comes off as rude, but it's only so we
- 8 can have a clean record. Does that make
- 9 sense?
- 10 A. Yes.
- 11 Q. In the same vein, if I
- 12 accidentally cut you off in an answer,
- 13 please say so and I will allow you to
- 14 finish whatever answer you want to give.
- 15 A. I'm good at that.
- 16 Q. Okay. I have no doubts.
- 17 We -- you are not chained to
- 18 the chair here. If at any point you need
- 19 a break for any reason, please feel free
- 20 to let me know and we can take a break.
- 21 All that I would ask is that if there is
- 22 a question pending, that you answer the
- 23 question that's pending and then we can
- 24 take a break; is that fair?

- 1 A. Sure, yes.
- 2 Q. With the exception that if
- 3 you need to consult with the Borough's
- 4 attorney to decide whether to invoke
- 5 attorney/client privilege, you can do so
- 6 prior to answering a question.
- 7 Does that make sense?
- 8 A. Yes.
- 9 Q. And again, you've done a
- 10 good job of this so far, because we have
- 11 a transcript being taken of all your
- 12 answers to questions have to be verbal.
- 13 You can't shake your head, say "uh-huh"
- 14 "uh-uh" those type of gestures and sounds
- 15 that are normal in conversation, but they
- 16 can't be written down in a transcript,
- 17 so, again, we may correct you or ask you
- 18 to articulate a yes or no to a question,
- 19 and that's why, solely for the
- 20 transcript.
- 21 Do you understood that?
- 22 A. Yes.
- Q. If at any point today you
- 24 don't understand one of my questions, you

- 1 should feel free to say so and ask me to
- 2 rephrase or restate a question and I will
- 3 be happy to do so. If you answer a
- 4 question, I will assume that you
- 5 understood the question and that your
- 6 answer is responsive to that question; is
- 7 that fair?
- 8 A. Yes.
- 9 Q. This is a standard question
- 10 that I ask everybody, so it's nothing
- 11 personal. Is there any -- have you taken
- 12 any medication today that would effect
- 13 your ability to understand my questions
- 14 or tell the truth?
- 15 A. No.
- 16 Q. Is there any reason today
- 17 that you would not be able to understand
- 18 my questions and tell the truth to my
- 19 questions?
- 20 A. Just my intellect, but if I
- 21 don't understand your question, I'll ask
- 22 you to rephrase it in a way I can
- 23 understand it.
- Q. Correct. As what you said,

- 1 if a question -- if you don't understand
- 2 a question, you should certainly say so.
- 3 Is there any personal reason
- 4 that you wouldn't be able to understand
- 5 questions generally today?
- A. Nope.
- 7 Q. How did you prepare for the
- 8 deposition today?
- 9 A. Um, I guess a week or so ago
- 10 I read the Court's decisions -- the
- 11 Commonwealth's Court's decision from last
- 12 year. I read some of the complaints and
- 13 responses to complaints back and forth.
- 14 I took a look at the original storm
- 15 protection ordinance that was passed a
- 16 few years ago. I looked at the storm
- 17 protection fee credits manual that the
- 18 Borough produced, I think in 2017 I think
- 19 it was. I looked at our credits for
- 20 heritage trees that was added to the code
- 21 about two years ago I guess it was now.
- Q. Did you say "heritage
- 23 trees"?
- 24 A. Heritage trees. I think my

- 1 -- you know, I was here the other day
- 2 when Mr. Bigsby was testifying and he
- 3 testified, I believe he called or stated
- 4 the University has a lot of historic
- 5 trees. We call them "heritage trees." I
- 6 think those terms are synonymous with one
- 7 another. The Borough does -- we have a
- 8 credit for people that maintain and keep
- 9 heritage trees as opposed to okay, they
- 10 are getting too big, let's cut them
- 11 down. We just kind of refreshed my
- 12 memory on all of that ordinance.
- 13 Q. Anything else that you
- 14 remember reviewing?
- 15 A. I took a look at the -- I
- 16 provided Mr. Gill with the Borough's
- 17 drain of the big map yesterday, so I kind
- 18 of looked at that. I think that's about
- 19 it.
- Q. And we will start with just
- 21 a yes or no to this, did you meet with
- 22 anyone to prepare for your deposition
- 23 today?
- 24 A. Mr. Gill.

- 1 Q. I don't want to know the
- 2 contents of any of those conversations.
- 3 Did you meet with anyone other than Mr.
- 4 Gill?
- 5 A. No.
- 6 - -
- 7 (Exhibit No. 1 was marked at this time.)
- 8 BY MR. KOVATIS:
- 9 Q. Mr. Perrone, you've been
- 10 handed what we have marked as
- 11 University-1. Take a look at it and I
- 12 want to ask if you recognize this or had
- 13 seen it before?
- 14 A. Yes, I do.
- 15 Q. Have you seen it before?
- 16 A. Yes.
- 17 Q. Did you review it in
- 18 preparation for your deposition today?
- 19 A. Um, yes, I did. I looked at
- 20 it, yeah.
- 21 Q. Is it your understanding
- 22 today that you are here to speak on
- 23 behalf of the Borough of West Chester?
- 24 A. Yes.

- 1 Q. There are -- on the last
- 2 page, page 4 of this document, there is a
- 3 list of topics. Do you see that?
- 4 A. Yes.
- 5 Q. Are you authorized to speak
- 6 on all ten of these topics on behalf of
- 7 the Borough?
- 8 A. Um --
- 9 O. And take a minute to look
- 10 them over if you'd like.
- 11 A. I don't think I'm -- I think
- 12 I'm authorized, but I'm not qualified.
- 13 It might be two different things. There
- 14 are some things in here that I know
- 15 generally about, but I don't know
- 16 specifics, if that makes sense.
- 17 Q. So I first want to know if
- 18 you are authorized, meaning if you can --
- 19 you can speak, at least to some extent,
- 20 on behalf of the Borough on all ten of
- 21 these?
- 22 A. Yes.
- Q. But what you're saying is
- 24 there may be information that's outside

- 1 of your knowledge within each of these
- 2 topics?
- 3 A. Correct.
- 4 Q. We will deal with that as we
- 5 get to it. I just wanted to make sure
- 6 that you can speak -- that there is
- 7 nothing in this that is outside of your
- 8 -- that you will be speaking as an
- 9 individual as opposed to on behalf of the
- 10 Borough. Does that make sense?
- 11 A. Yes.
- 12 Q. Let's talk about your -- we
- 13 mentioned it a little bit before, but we
- 14 can talk about your professional
- 15 background.
- By whom are you employed
- 17 today?
- 18 A. The Borough of West Chester.
- 19 Q. Do you have any other
- 20 employers today?
- 21 A. No.
- Q. What is your tile with the
- 23 Borough of West Chester?
- A. Borough Manager.

- 1 Q. And describe for me,
- 2 generally, your job duties as Borough
- 3 Manager?
- 4 A. I'm a Chief Executive
- 5 Officer of the Borough. I guess it's the
- 6 most distinct way of explaining it.
- 7 Q. What does that mean for your
- 8 daily duties?
- 9 A. I oversee the entire Borough
- 10 except for the police department
- 11 operations.
- 12 Q. How long have you held that
- 13 title with the Borough?
- A. You know, that's a good
- 15 question. I believe it was -- it's about
- 16 three years now, I think. It was late in
- 17 the fall of 2017, I believe, is when I
- 18 took over as the manager. I didn't have
- 19 a chance to look it up.
- 20 Q. That's okay. In those three
- 21 years, have you had any other jobs?
- 22 A. In those three years?
- 23 O. Yes.
- 24 A. No.

- 1 Q. Prior to becoming Borough
- 2 Manager, by whom were you employed?
- 3 A. The Borough of West Chester.
- 4 Q. What was your title then?
- 5 A. I was the Director of the
- 6 Building, Housing Codes and Enforcement
- 7 Department.
- 8 Q. When were your start and end
- 9 dates for that job?
- 10 A. I started employment with
- 11 the Borough in 1986 in that same
- 12 position.
- Q. You started in 1986 as
- 14 Director of Building, Housing and Code
- 15 Enforcement?
- 16 A. Correct.
- 17 Q. And you held that until
- 18 2017?
- 19 A. Yes.
- Q. Describe for me your job
- 21 duties as Director of Building, Housing
- 22 and Code Enforcement.
- 23 A. My tasks included the review
- 24 of all construction projects. I was the

- 1 zoning officer as part of that position,
- 2 so I did all zoning appeals, zoning
- 3 interpretations, I also did land
- 4 development applications, review of land
- 5 development applications, worked with our
- 6 engineers on land development
- 7 applications, storm water traffic, your
- 8 typical planning of whether it's
- 9 residential or nonresidential
- 10 developments. I always oversaw our
- 11 rental housing program, which is a big
- 12 thing in the Borough because we have a
- 13 large rental community here which we
- 14 inspect every rental property every year,
- and supervised all of those employees, a
- 16 handful of them. Over saw our plumbing,
- 17 mechanical, electric inspectors which
- 18 were outside agencies that we used for
- 19 those tasks. I think that's generally
- 20 what I did. And inspections, I guess I
- 21 didn't say that.
- 22 Q. Inspections meaning building
- 23 inspections?
- 24 A. Building inspections,

- 1 correct.
- 2 Q. For code and things like
- 3 that?
- 4 A. For building code
- 5 compliance, fire code compliance.
- 6 Q. Who has that title now, if
- 7 anyone?
- 8 A. Kevin Gore, G-O-R-E.
- 9 Q. Has Mr. Gore had that title
- 10 since 2017?
- 11 A. Um, maybe '18.
- 12 Q. Was there anybody between
- 13 you and he?
- 14 A. No.
- 15 Q. In your current position as
- 16 Borough Manager, do you have any people
- 17 that report directly to you?
- 18 A. Yes.
- 19 Q. Who are they?
- 20 A. The HR director. You want
- 21 names, too?
- Q. You can give me titles for
- 23 now and if we need names, we can get
- 24 them.

- 1 A. HR director, the director of
- 2 the building department, the finance
- 3 director, the IT manager, our parking
- 4 manager, our two sewer plant managers,
- 5 and our director of public works.
- 6 Q. The building department, is
- 7 that Mr. Gore?
- 8 A. Yes.
- 9 Q. Sewer plant manager, who is
- 10 that person?
- 11 A. We have two. We have two
- 12 different sewer plants. One is Taylor
- 13 Run. The manager there is Michael
- 14 Finley, and Goose Creek is -- the manager
- 15 is Sean Mitchell.
- 16 Q. Do any storm water issues
- 17 fall under the sewer plant manager
- 18 positions?
- 19 A. No. There -- these are
- 20 sanitary sewer plants. Our storm water
- 21 does run through the plants, because
- 22 those streams are used for the plants, so
- 23 you're not pumping in public water.
- 24 You're using stream water to purify the

Page 23 1 sewage before you put it back into the 2 streams. 3 The sewer plants are purely 4 for sewage, not for storm water sewage, 5 right? 6 Α. Correct. Public works, does that 8 involve any storm wanter management 9 issues?

- 10 A. Yes.
- 11 O. How so?
- 12 A. Um, that they -- they're
- 13 employees -- or our employees, public
- 14 works, they are responsible for
- 15 maintaining the storm piping underground
- 16 throughout the Borough, storm sewer
- inlets, any curbing, anything where the
- 18 storm water is passing through our
- 19 system, they're responsible to maintain,
- 20 fix, replace, whatever it may be.
- 21 Q. Who has that position now?
- 22 A. The director is Obie Lang.
- 23 Q. In your personal and
- 24 professional background, have you ever

- 1 received any legal training of any kind?
- 2 A. Um, very, very little.
- 3 Q. Describe for me what you
- 4 mean.
- 5 A. I attended classes on the
- 6 legal aspects of codes and enforcement,
- 7 right of entry, things to keep you out of
- 8 federal court when you do inspections.
- 9 O. When was that?
- 10 A. Back in the early '80s I
- 11 would say.
- 12 Q. Anything since then?
- 13 A. No.
- 14 Q. I mentioned at the beginning
- 15 the litigation that we are here on, a
- 16 particular case, a particular claim
- 17 that's made by the Borough of West
- 18 Chester.
- 19 When did you first become
- 20 involved in this legal case that might go
- 21 to court?
- 22 A. Um, I would say I think when
- 23 we got, I believe, we got a letter from
- 24 you or somebody from the Commonwealth

- 1 saying we weren't going to pay our fee.
- 2 I believe that's how it kind of started.
- 3 O. So when the Borough received
- 4 that letter, at that point, you were
- 5 involved in these issues that are the
- 6 subject of this litigation?
- 7 A. Yes, yes.
- 8 Q. Have you been involved
- 9 continuously since then?
- 10 A. Well, obviously, Mr. Gill
- 11 and his law firm handled it, but
- 12 administratively, yes.
- 13 - -
- 14 (Exhibit No. 2 was marked at this time.)
- 15 BY MR. KOVATIS:
- 16 Q. Mr. Perrone, the court
- 17 reporter has just handed you what we
- 18 marked as University-2.
- Just take a look at it
- 20 generally, and I'll just ask if you've
- 21 ever seen this document before.
- 22 A. Yes, I believe I have. Yep,
- 23 I have.
- Q. Do you understand this to be

- 1 a list of written questions that my
- 2 client served on the Borough?
- 3 A. Yes.
- 4 Q. Were you involved in
- 5 crafting the answers to these questions?
- 6 A. Um, yes, partially.
- 7 Q. Who else was involved in
- 8 developing these answers?
- 9 A. Um, I think Barbara -- I
- 10 forget if our finance director was there
- 11 or not. I know I met with Mr. Gill and
- 12 we tried to identify --
- 13 O. I don't want to know about
- 14 conversations you have had with Mr. Gill.
- 15 At this point, Mr. Gill was involved.
- 16 Who else at the Borough was involved?
- 17 A. I'm trying to recollect. I
- 18 know we met. I forget -- I don't recall.
- 19 Q. Okay.
- A. Maybe it will pop up in my
- 21 head later on.
- 22 Q. That's okay. Did you review
- 23 these answers for accuracy before they
- 24 were served?

- 1 A. Yes.
- 2 Q. Are the answers accurate to
- 3 the best of the Borough's knowledge?
- 4 A. Yes.
- 5 Q. We can put that aside for
- 6 now. We may come back to it later.
- 7 What is your understanding
- 8 of the Borough's claim in this case?
- 9 A. My understanding is that the
- 10 -- our claim is that we provide storm
- 11 water management benefits to property
- 12 owners, and go the -- it's basically a
- 13 fee for services that every property
- 14 owner -- every developed property owner
- 15 is required to pay.
- 16 Q. And as you mentioned, you
- 17 received a letter from West Chester
- 18 University, or to be more specific, the
- 19 State System of Higher Education.
- 20 Do you understand the
- 21 difference between those two?
- 22 A. Yes.
- Q. Let's run through what -- I
- 24 think we can probably agree to much of

- 1 this, but we will run through some of
- 2 these facts, just to be sure.
- West Chester University is
- 4 located, in part, in the Borough of West
- 5 Chester; is that correct?
- A. Correct.
- 7 Q. Are you familiar with the
- 8 terms "North Campus" and "South Campus"
- 9 at West Chester University?
- 10 A. Yes.
- 11 Q. Is any part of South Campus
- 12 located in the Borough?
- 13 A. No.
- 14 Q. Is the entirety of North
- 15 Campus located within the Borough of West
- 16 Chester?
- 17 A. As I understand it, yes.
- 18 O. West Chester?
- 19 - -
- 20 (Exhibit No. 3 was marked at this time.)
- 21 BY MR. KOVATIS:
- Q. Mr. Perrone, I will
- 23 represent to you that I found this
- 24 document on the West Chester Borough's

Page 29 1 website. 2 Do you recognize it? 3 Α. Yes. 4 Q. What is this document? 5 It's called an Official Map. Α. 6 Q. Is it? Is it an official 7 map? 8 Α. Yes. 9 0. It's a map of what? 10 Α. Well, if you're familiar 11 with the Pennsylvania Municipality 12 Planning Code, I'm sorry, I quess you may 13 be at least somewhat, that document -that law permits municipalities to create 14 15 an official map for planning purposes, 16 you know, for -- usually for the 17 acquisition of land over time, and you 18 pinpoint, you know, potentially where you 19 may want to put roads in, parks, fire 20 houses, you know, other public buildings 21 for the good of the community. 22 0. Is this a fair and accurate 23 representation of the Borough of West 24 Chester?

- 1 A. Yes.
- 2 Q. Do you know where West
- 3 Chester University is located on this
- 4 map?
- 5 A. Yes.
- 6 Q. Where? Can you generally
- 7 describe for me where West Chester
- 8 University is located on the map?
- 9 A. It's on the southern part of
- 10 the map bound by Sharpless Street on the
- 11 North, New -- South New Street on the
- 12 West. We will get into some exceptions.
- 13 South High Street on the east, Rosedale
- on the south, and then there are a couple
- other properties that bleed out on the
- 16 sides.
- 17 Q. Meaning, to the west of New
- 18 Street and to the east of High Street?
- 19 A. Yes.
- Q. Are there properties
- 21 located, to your knowledge, south of
- 22 Rosedale Avenue?
- 23 A. Yes. In West Goshen
- 24 Township.

- 1 Q. That would not be property
- 2 within the Borough of West Chester?
- 3 A. Correct.
- 4 Q. There is -- to the left of
- 5 the area you just identified as West
- 6 Chester University, there is a blue line.
- 7 Do you see that?
- 8 A. Yes.
- 9 Q. Do you recognize what that
- 10 blue line is?
- 11 A. Yes.
- 12 Q. What is that?
- 13 A. That's a stream called Plum
- 14 Run.
- 15 Q. Does Plum Run pass
- 16 underneath the campus of West Chester
- 17 University?
- 18 A. Yes.
- 19 Q. I don't see an equivalent
- 20 blue line on the other side, anywhere of
- 21 the University, does it come above ground
- 22 anywhere?
- 23 A. Um, there's a -- well, I'm
- 24 not 100 percent sure if it's called Plum

- 1 Run on the east side of New Street, but
- 2 there is a -- if you look at that map
- 3 where it says "North Campus Drive" south
- 4 of that is probably the lowest elevation
- 5 on the -- as I call it, the superblock,
- 6 which is the block we're referring to
- 7 here.
- 8 There is a -- somewhat of a
- 9 basin there, and it's piped above that,
- 10 Plum Run is. I believe the piping is,
- 11 like, you know, I 40 inches, 48 inches in
- 12 diameter, and that is piped from there
- 13 through the campus up to around Church
- 14 and Sharpless. I don't know exactly the
- 15 location, but in that general area.
- 16 Q. Is it above ground on the
- 17 other side of Church and Sharpless?
- 18 A. No. I believe that's the
- 19 beginning of Plum Run.
- 20 Q. That's the beginning of the
- 21 stream itself?
- 22 A. Correct.
- 23 Q. So the only part of Plum Run
- 24 within the Borough of West Chester is

- 1 located in that bottom corner between
- 2 West Nields Street and South New Street;
- 3 is that right?
- 4 A. I missed the first part of
- 5 your question.
- 6 Q. That's the only part of Plum
- 7 Run above ground within the Borough of
- 8 West Chester; is that right?
- 9 A. Above ground, yes.
- 10 Q. Do you know what direction
- 11 Plum Run runs in?
- 12 A. East to west, and, I guess,
- 13 north to south.
- Q. So it, essentially, begins
- 15 somewhere around Sharpless Street and
- 16 Church Street; is that fair to say?
- 17 A. Yes.
- 18 Q. And it ends somewhere
- 19 outside of the Borough of West Chester
- 20 down to the southwest of here; is that
- 21 right?
- 22 A. I'm not sure where it ends.
- 23 It goes -- my understanding through
- 24 municipalities below us and ultimately

- 1 goes to the Brandywine River.
- 2 Q. Is this the only portion of
- 3 Plum Run that we see here, is that the
- 4 only portion that the Borough manages?
- 5 A. Yes.
- Q. Or controls?
- 7 A. Yes.
- 8 Q. Are you familiar with the
- 9 term "Plum Run Watershed"?
- 10 A. No.
- 11 Q. Do you know the term
- 12 "watershed"?
- 13 A. Yes.
- Q. What does that mean to you?
- 15 A. It's an area that drains,
- 16 typically, into a particular stream.
- 17 Q. Does Plum Run -- is there a
- 18 Plum Run watershed?
- 19 A. No, not that I'm aware of.
- 20 I actually thought this was called the
- 21 Red Clay Watershed, I believe.
- 22 Q. What is your understanding
- 23 of what the Red Clay Watershed is?
- 24 A. I believe that's an

- 1 extension of Plum Run south of the
- 2 Borough or south and west of the Borough.
- 3 Q. So as you know, this case is
- 4 about storm water, right?
- 5 A. Correct.
- 6 Q. The storm water that falls
- 7 on West Chester University as it's
- 8 depicted in this map, that does not stay
- 9 on West Chester University's campus, so
- 10 where does it go to your knowledge?
- 11 A. It goes -- some goes into
- 12 the ground, some goes into our streets;
- 13 Church Street, Rosedale, Sharpless, some
- 14 flows probably a little east, to High
- 15 Street and the properties on the east
- 16 side of High Street, they probably go to
- 17 another watershed called Goose Creek on
- 18 the other side, and storm water
- 19 eventually gets to our curb lines, our
- 20 storm sewer inlets, and in our piping
- 21 systems.
- 22 O. Does some of the water flow
- 23 to West Goshen Township?
- 24 A. I would guess it does. I

- 1 haven't done a study. I haven't seen a
- 2 study that shows it, but I think common
- 3 sense will say some of it may, because we
- 4 have a common road, you know, Rosedale
- 5 Avenue.
- 6 Q. When you say that -- you
- 7 testified earlier that the water -- the
- 8 storm water would flow to Goose Creek, on
- 9 what do you base that conclusion?
- 10 A. There is a split between
- 11 Taylor -- Taylor Plumber, excuse me, and
- 12 Goose Creek. There is another stream to
- 13 the east and our storm sewer pipes hit
- 14 east also.
- 15 Q. From where?
- 16 A. From High Street. I know
- 17 from High over. I am not quite sure if
- 18 the piping on University Avenue between
- 19 Church and High goes that way. Perhaps
- 20 it does, and I'm not sure of the exact
- 21 location of the storm sewage inlets on
- 22 Rosedale. But if there were any there,
- 23 they're probably from University --
- 24 Church, excuse me, Church to High, they

- 1 probably run east.
- 2 Q. But you don't know that?
- 3 A. Um, no. I think we have
- 4 mapping that would probably identify
- 5 that.
- 6 Q. Is that the mapping that you
- 7 gave to Mr. Gill?
- 8 A. Yes.
- 9 O. How much water from the
- 10 University -- that falls on the
- 11 University's campus would go to Goose
- 12 Creek?
- 13 A. Um, 25 gallons a week. I'm
- 14 just kidding, I don't know.
- 15 Q. So we will take that -- we
- 16 will scratch that answer.
- MR. GILL: Please.
- 18 BY MR. KOVATIS:
- 19 Q. It is sometimes hard in a
- 20 transcript for that to come out cleanly.
- 21 I want to make sure we understand your
- 22 answer. How much water would go to Goose
- 23 Creek?
- A. I haven't calculated it. I

Page 38 1 don't know. Has the Borough calculated Q. 3 it? 4 Α. I don't believe so. 5 0. Is there any way to calculate it? 6 Α. Um. 8 Q. Meaning, the water from -- I just want to be clear in my question to 9 know how much water falls on the 10 11 University's campus ends up in Goose 12 Creek? 13 MR. GILL: The question for 14 the witness is: Is there any way 15 to calculate that volume of storm 16 water? 17 MR. KOVATIS: Correct. THE WITNESS: I don't know. 18 19 A civil engineer may be a better 20 person to ask that question. 21 BY MR. KOVATIS: 22 Is the Brandywine Creek 23 located within the Borough of West 24 Chester?

- 1 A. No.
- 2 Q. Is the Borough of West
- 3 Chester in any way responsible for the
- 4 maintenance of Brandywine Creek?
- 5 A. Not that I'm aware of.
- 6 Q. Does Blackhorse Run pass
- 7 through the Borough of West Chester?
- 8 A. Yes.
- 9 Q. Can you describe generally
- 10 where that is on University-3?
- 11 A. On University-3, I believe
- 12 that's -- you know, I don't know. I know
- 13 it's one of the smaller little areas in
- 14 the Borough where we have a drainage
- 15 area, too.
- 16 Q. What about Taylor Run, can
- 17 you identify that on University-3?
- 18 A. Taylor Run is up in the
- 19 northwest, up by Ashford Street, West
- 20 Ashford Street.
- 21 Q. And I quess I didn't ask you
- 22 to specifically identify Goose Creek on
- 23 the map, even though we were talking
- 24 about it. Can you just describe where

- 1 Goose Creek is located?
- 2 A. That one I'm very familiar
- 3 with, yes. That runs from West Goshen
- 4 Township to approximately East Gay Street
- 5 and runs southwest from there and
- 6 meanders all the way down to Rosedale
- 7 Avenue.
- 8 Q. Is that the blue line that
- 9 is in the southeast corner of this map?
- 10 A. Yes.
- 11 Q. Earlier in your testimony
- 12 when we were talking about West Chester
- 13 University's campus, you described, as I
- 14 recall it, a low point in the campus,
- 15 somewhere around North Campus Drive?
- 16 A. Yes. From an elevation
- 17 standpoint.
- 18 Q. Right. I guess, explain to
- 19 me what you mean by that?
- 20 A. That's from this piece of
- 21 the campus, that particular area, if you
- 22 stand out there and look, it appears to
- 23 be the low part, low point of that piece
- of the campus.

- 1 Q. So I think you said it in
- 2 terms of the block, I believe was the
- 3 term you used?
- 4 A. Superblock.
- 5 Q. What do you mean by
- 6 superblock?
- 7 A. Typically, we refer to that
- 8 as New Sharpless and Church and Rosedale,
- 9 it's where the, I guess, the most of the
- 10 dorms, are majority of the dorms and some
- 11 of the academic pieces of the campus are.
- 12 Q. So that spot on West
- 13 Chester's campus is the low part of the
- 14 superblock there, right?
- 15 A. I believe so, yes.
- 16 Q. So since I think we can all
- 17 agree water tends to flow down hill, is
- 18 that where storm water would tend to
- 19 collect on West Chester's campus that
- 20 falls on West Chester's campus on that
- 21 superblock?
- 22 A. Eventually, yes.
- O. Would storm water that falls
- 24 on the blocks around that superblock tend

Page 42 1 to flow toward that low point on the 2 superblock? 3 Α. You said the adjacent 4 property? 5 Ο. Correct. 6 Α. What do you mean? Which 7 ones? 8 0. Let's break it down, so West of New Street. So if storm water falls 9 to the West of New Street, in what 10 direction would that storm water flow? 11 12 Α. That would probably flow 13 west -- southwest. 14 Away from campus? 0. 15 Α. Yes. 16 0. If storm water were to fall 17 north of Sharpless Street, just north of 18 that superblock, in what direction would 19 it flow? 20 South and southwest. Α. 21 Q. Onto the campus of West 22 Chester University? 23 Α. Potentially, yes.

And I believe you said the

24

Q.

- 1 superblock was bounded by Church Street
- 2 that you were describing?
- 3 A. Yes.
- 4 Q. So storm water that falls
- 5 east of Church Street, including on --
- 6 other parts of North Campus, in what
- 7 direction would that flow, to your
- 8 knowledge?
- 9 A. That -- that could flow east
- 10 or west.
- 11 Q. Now, what about to the east
- 12 of High Street? Those properties --
- 13 storm water that flows on those
- 14 properties immediately to the east of
- 15 High Street, in what direction generally
- 16 would it flow?
- 17 A. East.
- 18 Q. Meaning away from the
- 19 University campus?
- 20 A. Yeah. Into the Goose Creek
- 21 watershed or creek area, whatever you
- 22 want to call it. Understanding that
- 23 there's University property on the east
- 24 side of High Street.

Page 44 1 Q. Understood. 2 You mentioned in preparation 3 for the deposition today that you looked 4 at the Ordinance that was passed. That's 5 the subject of this litigation. Do you recall that? 6 Α. Yes. 8 When, to your recollection, 0. 9 was that Ordinance passed? 2016. 10 Α. 11 12 (Exhibit No. 4 was marked at this time.) 13 BY MR. KOVATIS: Mr. Perrone, you've been 14 0. 15 handed University-4. Take a look at it 16 and tell me if you recognize it as the Ordinance that you're discussing? 17 18 Yes, it is. Α. 19 0. And this Ordinance 20 authorized what the Borough is calling in 21 this case "The Stream Protection Fee." 22 Do you understand that term? 23 Α. Yes. 24 What do you understand that Q.

- 1 term to mean?
- 2 A. The charge to property --
- 3 developed property owners. That fee is
- 4 to create the fee, have an administered
- 5 fee, there is also in here how to get
- 6 credits to reduce your fee, appeal your
- 7 fee, and then there is a list of tiers
- 8 that, right now, based on pervious
- 9 coverage how to calculate your fee. In
- 10 general terms, I believe that's most of
- 11 it.
- 12 Q. Prior to the Borough
- 13 enacting this Ordinance, was there any
- 14 kind of Stream Protection Fee?
- 15 A. No.
- Q. Prior to enacting this
- 17 Ordinance, was there a storm water system
- 18 in the Borough?
- 19 A. Yes.
- 20 O. How was that storm water
- 21 system funded?
- 22 A. Um, through the general
- 23 funding.
- Q. What is the general fund?

- 1 A. Tax revenue.
- 2 Q. So prior to this Ordinance?
- 3 A. I should say, let me add,
- 4 grant money from County, State, for, you
- 5 know, repairs, infrastructure,
- 6 improvements.
- 7 Q. So grant money, tax money,
- 8 what else went into the general fund?
- 9 A. That's probably it.
- 10 Q. When you say "tax money"
- 11 what kind of taxes pay for that?
- 12 A. Property taxes.
- Q. Anything else?
- 14 A. Potentially, earned income
- 15 taxes.
- 16 Q. Do you know if it did or
- 17 not?
- 18 A. I don't.
- 19 Q. But primarily property tax?
- 20 A. Well, I mean, our general
- 21 fund is made of the property tax, earned
- 22 income tax, so it's hard to say, you
- 23 know, 100 percent yes or no. I'm sure
- 24 monies, depending on whatever year it may

- 1 be, could be either one.
- 2 Q. Okay.
- 3 A. Or either percentages all
- 4 over the place.
- 5 Q. Prior to this Ordinance,
- 6 what sort of storm water management
- 7 systems did the Borough have?
- A. All the piping that's
- 9 underground today, the inlet boxes,
- 10 connections, headwalls, you know, most of
- 11 them have been in place here for a long
- 12 time.
- Q. Anything else?
- 14 A. Prior to the Ordinance? The
- 15 system has been here for, you know, a
- 16 long time.
- 17 Q. Describe for me what you
- mean by the "system"?
- 19 A. Any storm sewage inlets,
- 20 pipes, culverts, headwalls, anything that
- 21 transports water, you know, anywhere in
- 22 the Borough, through the Borough, through
- 23 the systems to our creeks, our streams.
- Q. Was pollution remediation

- 1 considered part of the storm water system
- 2 prior to this Ordinance?
- 3 A. I don't know 100 percent. I
- 4 mean, I know ever since I have some
- 5 general knowledge of the, you know, when
- 6 the Clean Streams Act was put into law
- 7 years and years and years ago, I believe
- 8 it was President Clinton that started
- 9 that, you know, there was -- I remember
- 10 the first phase of that. It was
- 11 educational, you know, I think every
- 12 municipality across the country was
- 13 required to put a marker or a decal or
- 14 some kind of thing on storm sewer inlets
- 15 that would basically tell you "don't
- 16 dump" you know, into the storm sewage.
- 17 Q. Is that the thing with the
- 18 little picture of a fish on it?
- 19 A. Yes. All over the United
- 20 States. I don't care where you go. That
- 21 was the start of it. To answer your
- 22 question, I believe that was part of
- 23 every municipalities plan to reduce
- 24 pollution in the streams.

1 Did the Borough consider that part of their storm water management 2 3 system? 4 Α. I'm not sure, but I -- part 5 of our answer to the wall, I guess. 6 Q. Yeah. Okay. MR. GILL: Can I object, 8 just say, for sake of clarity. 9 When you say "the system" do you 10 mean the physical plant or do you 11 mean the program -- educational 12 program or some -- can we 13 distinguish between the physical 14 system and something else, or is 15 your question about the physical 16 system? 17 MR. KOVATIS: Sure. We can 18 ask that. 19 BY MR. KOVATIS: 20 Ο. Prior to the Ordinance being 21 in place, did the Borough distinguish 22 between the physical storm water 23 management system and other measures to

manage storm water that might be in

24

- 1 place?
- 2 A. Um, within our system, yeah.
- 3 We've had storm water management
- 4 Ordinance's in place for many years
- 5 before this Ordinance took into affect.
- 6 Q. So prior to this Ordinance,
- 7 there was other storm water management
- 8 Ordinances?
- 9 A. Yes.
- 10 Q. Did they cover the physical
- 11 plans -- the physical storm water
- 12 management system?
- 13 A. No.
- Q. What did they cover?
- 15 A. The other storm management
- 16 order related to, actually, development
- or redevelopment of land. As an example,
- 18 let's say, when I was in the building
- 19 department, there were -- University was
- 20 rebuilding dormitories. As they
- 21 redeveloped those dormitories, there were
- 22 storm water management systems that would
- 23 be required to be put into place to help
- 24 mitigate runoff. That was prior to the

- 1 Ordinance in 2016.
- 2 Q. Did that Ordinance -- let's
- 3 take that example, when the University
- 4 was conducting building projects prior to
- 5 this Ordinance going into effect. The
- 6 Ordinance required the University to take
- 7 certain storm water remediation steps.
- 8 Is that what you're testifying to?
- 9 A. One of -- I don't know if
- 10 it's remediation. We're required to
- 11 provide storm water management systems.
- 12 Q. There were required to
- 13 provide storm water management systems.
- 14 Who actually provided those storm water
- 15 management systems? Was it the
- 16 University or was it the Borough?
- 17 A. The University paid to have
- 18 those installed.
- 19 Q. Did the Borough pay to do
- 20 anything to install those storm water
- 21 management systems?
- 22 A. No.
- 23 Q. In the prior stream
- 24 protection ordinances that you are

Page 52 1 discussing, did those require the Borough 2 to expend costs? 3 MR. GILL: Object as to the 4 form of the question. He didn't testify there were prior stream ordinances, he testified that 6 there were prior storm water 8 management ordinances. 9 MR. KOVATIS: I'm sorry. 10 Prior storm water management 11 ordinance. 12 BY MR. KOVATIS: 13 In those prior storm water management ordinances, did the Borough 14 15 incur costs as -- under those? Um, that particular 16 Α. 17 ordinance for redevelopments, I don't 18 believe so. 19 Q. Obviously, the Borough 20 incurred cost in terms of the piping, 21 right? 22 Α. Correct. 23 Let's talk about that. 0. So

you mentioned earlier that the piping has

24

- been in place for -- I can't remember
- 2 exactly what you said, quite a while?
- A. I mean, to guess 100 years
- 4 is probably, you know, a close
- 5 approximation.
- 6 Q. So to go back to my original
- 7 instructions, when you say "guess" you
- 8 are estimating here as opposed to
- 9 guessing or speculating, right?
- 10 A. Yes.
- 11 O. Your best estimate is about
- 12 100 years that these pipes have been in
- 13 place, right?
- 14 A. Yes.
- 15 Q. So tell me what you mean by
- 16 a pipe?
- 17 A. What do I mean by a pipe,
- 18 typically, they are round. They come in
- 19 certain lengths and you connect them
- 20 together to convey something in the them.
- 21 Q. So this is the underground
- 22 system underneath the Borough, right?
- 23 A. Yes.
- Q. Those were installed about

- 1 100 years ago for the first time; is that
- 2 right?
- 3 A. Yeah. I mean, the Borough's
- 4 celebrated over 200 years, and I think
- 5 the roadways were put in, you put storm
- 6 sewers in, you put sanitary sewers in.
- 7 Q. And those pipes connect to
- 8 inlet boxes?
- 9 A. Yes.
- 10 Q. Describe what an inlet box
- 11 is?
- 12 A. Inlet box is the connection
- 13 point for a pipe coming in, a pipe
- 14 typically going out, and it's open at the
- 15 end with typically a grate for water to
- 16 run into and then passes through the
- 17 pipes or a series of pipes to a lower
- 18 point.
- 19 Q. So when you walk down the
- 20 street, the thing you would see on the
- 21 street --
- 22 A. Yes.
- O. -- would be an inlet box?
- A. Correct.

- 1 Q. What is a headwall?
- 2 A. That is where, I guess, in
- 3 today's world of technology, usually a
- 4 concrete structure where a pipe will
- 5 discharge water, typically, to a creek, a
- 6 river, an ocean. Typically, it's the
- 7 upper end of a stream or a creek, and
- 8 then it could be open from there. It
- 9 could be, you know, further down. It
- 10 could be piped.
- In our case in the Borough,
- 12 because our Borough is so developed, we'd
- 13 have headwalls that we have open streams
- 14 and then they're piped again and roped
- 15 again, so we have -- kind of have a mix
- 16 match of those type of things.
- 17 Q. What about a culvert? What
- 18 is a culvert?
- 19 A. That's a depression in the
- 20 ground that would stop the volume and
- 21 that velocity of water, typically.
- 22 Q. Is that part of this piping
- 23 system?
- 24 A. Well, I believe that

- 1 depression that I was talking about
- 2 earlier on the University, that is a
- 3 culvert, actually.
- 4 Q. So prior to 2016, there was
- 5 a storm water management system in place
- 6 in the Borough, right?
- 7 A. There was a storm water
- 8 management ordinance.
- 9 Q. Ordinance, and there was a
- 10 system, right, that we've been
- 11 discussing?
- 12 A. Well, I never refer to it as
- 13 a storm management system. It's just our
- 14 storm sewage system.
- 15 Q. Storm sewage system?
- 16 A. Right.
- 17 Q. Why did the Borough enact
- 18 the stream protection ordinance that's in
- 19 front of you at University-4?
- 20 A. Um, I didn't make those
- 21 decisions. I was kind of on the
- 22 periphery of those meetings as to why,
- 23 but my little bit of knowledge I have of
- 24 that matter was there was a State wall

Page 57 1 that allowed municipalities to pose a fee for storm systems. I believe a couple 2 3 Counsel members had discussed it perhaps 4 in open meetings. And the Borough, we 5 had mandates for our MS4 permits to 6 purify the water, I guess, is the easy way of explaining or stating it or make 8 the water cleaner. And I think the term "unfunded mandate" was used, you know, by 9 10 local folks, so the fee was to help defray the cost of managing the 11 12 maintenance of our storm system. 13 MR. GILL: If I can, I asked 14 my office to run down the -- while 15 you were questioning regarding the 16 layout of the Borough's stream or 17 system, and my assistant is 18 outside with those plans. If you 19 wouldn't mind --20 MR. KOVATIS: We can take a five-minute break. 21 22 23 (A recess occurred.) 24

- 1 BY MR. KOVATIS:
- 2 Q. Mr. Perrone, we were just
- 3 speaking about the ordinance, the stream
- 4 protection ordinance that is in front of
- 5 you at University-4.
- 6 You mentioned you weren't
- 7 involved in the decisions as to why this
- 8 Ordinance was enacted. Who was involved
- 9 in that?
- 10 A. Um, Borough Counsel.
- 11 Q. Is that all?
- 12 A. Yeah. They're the ones
- 13 that, you know, recommend new laws,
- 14 amending laws and so forth.
- 15 Q. And on University-4, turn to
- 16 the second page of the document, it's the
- 17 first page of the Ordinance.
- 18 A. (Witness complies.)
- 19 Q. I want to direct your
- 20 attention to Section 2. It's entitled
- 21 "Statement of Findings."
- Do you see that?
- 23 A. Yes.
- Q. Tell me in your own words

- 1 what this statement, this section
- 2 describes?
- 3 A. It basically -- I think it
- 4 lays out issues that would be addressed
- 5 by passing this ordinance.
- 6 Q. So down in Section 2, Letter
- 7 D at the bottom of that page.
- 8 Do you see that?
- 9 A. Yes.
- 10 Q. It reads: "A comprehensive
- 11 program of storm water management is
- 12 fundamental to the public health safety
- 13 and general welfare to the residents of
- 14 the Borough."
- Do you see that?
- 16 A. Yes.
- 17 Q. Describe for me what that
- 18 means?
- 19 MR. GILL: I'm going to
- 20 object. We didn't agree on the
- 21 record to normal stipulations.
- MR. KOVATIS: Oh, that's
- true.
- MR. GILL: So we are all in

		Page 60
1	agreement that except as to form	
2	of questions, we are preserving	
3	all objections?	
4	MR. KOVATIS: Yes. That's	
5	agreed.	
6	MR. GILL: Then, go ahead.	
7	THE WITNESS: I think that	
8	statement is related to the storm	
9	water and any pollutants that it	
10	may have in it, and improving	
11	those quality of the watersheds	
12	for all of the residents.	
13	BY MR. KOVATIS:	
14	Q. In what ways does storm	
15	water management benefit the public	
16	health?	
17	A. Cleaner waters.	
18	Q. Anything else?	
19	A. Um, well, cleaner water,	
20	you're healthier, you don't get sick, so	
21	I'd say a general benefit to the	
22	Community.	
23	Q. All the benefits of having	
24	clean water, right?	

- 1 A. Sure.
- 2 Q. What about safety?
- 3 A. Um, well, to maintain your
- 4 storm sewer system, there is safety
- 5 aspects involved in piping under the
- 6 roads, the pipes collapse and the roads
- 7 have big giant sink holes in them, or,
- 8 you know, inlet boxes aren't maintained
- 9 or replaced periodically, you know, they
- 10 collapse and, you know, your
- 11 infrastructure falls down.
- 12 O. And that's related to
- 13 maintaining the pipes, right?
- 14 A. The streets, the curbs, the
- 15 drains, the pipes, the inlets; all of
- 16 those things, yes.
- 17 Q. Those infrastructure things?
- 18 A. Yes.
- 19 Q. That relates to the
- 20 maintenance of those things?
- 21 A. Maintenance and replacement,
- 22 yes.
- Q. Maintenance and replacement.
- 24 And maintenance and replacement is

- 1 something that had been going on for
- 2 about 100 years, you said?
- 3 A. When a system gets put in,
- 4 there is constant maintenance.
- 5 Q. So that was nothing new in
- 6 2016 that was done?
- 7 A. No.
- 8 Q. What about general welfare?
- 9 Is there anything storm water management
- 10 does to benefit that general welfare that
- 11 we haven't discussed?
- 12 A. I've never quite understood
- 13 what general welfare was for anything, to
- 14 be honest with you.
- 15 Q. So is there anything -- any
- 16 other benefit of the storm water
- 17 management system that we haven't
- 18 discussed?
- 19 A. Um, we haven't discussed how
- 20 it benefits, you know, specific
- 21 properties, I would say.
- Q. Does that fall within public
- 23 health safety and general welfare?
- 24 A. I think it could. You have

- 1 a global, you know, statement and if you
- 2 drill down a little bit, you would see
- 3 that, you know, the storm sewer systems
- 4 and ordinances you have in place, they
- 5 also have the benefit to, you know,
- 6 individual properties and individual
- 7 property owners.
- 8 Q. How so?
- 9 A. Um, so let's say Ms. Smith
- 10 is going to build a house and she has to,
- 11 you know, put in a storm management
- 12 system on her property and manage 100
- 13 percent of her water for every type of
- 14 storm, you know, manageable, and not
- 15 connect to the Borough's system. She
- 16 would be impacted by how much land she
- 17 would develop on her particular home. So
- 18 the house would get smaller, and the
- 19 storm sewage management system may get
- 20 larger. So in that case, there is a
- 21 benefit to, you know, each individual
- 22 property owner as you develop or we
- 23 develop.
- Q. Why, in your example, would

- 1 Ms. Smith have to manage all of the storm
- 2 water that falls on her property?
- 3 A. There would be ordinances
- 4 that require it.
- 5 Q. So, solely to comply with
- 6 the law?
- 7 A. Yes.
- 8 Q. There is no -- if that
- 9 ordinance didn't exist, would Ms. Smith
- 10 have to manage all of the storm water
- 11 that falls on her property?
- 12 A. Um, no. That is what those
- 13 ordinances are in place for. In fact,
- 14 probably 50 years ago, there weren't
- 15 those ordinances. That's why there is a
- 16 lot of existing properties that 100
- 17 percent of the water is running all over
- 18 the place.
- 19 Q. And in that world, 50 years
- 20 ago when those ordinances didn't exist,
- 21 what was the harm to individual property
- 22 owners from that storm water, if any?
- 23 A. I don't know, to be honest
- 24 with you.

- 1 Q. So let's flip the page and
- 2 look at Letter F in this section.
- 3 A. (Witness complies.)
- 4 Q. This talks about "The effect
- 5 of inadequate management of accelerated
- 6 storm water."
- 7 Do you see that?
- 8 A. Yes.
- 9 Q. It says that "It increase
- 10 flooding, contributes to erosion and
- 11 sedimentation, over taxes the capacity of
- 12 surface streams and storm sewers, greatly
- 13 increases the cost of public facilities
- 14 to convey and manage storm water,
- 15 undermines flood plain management and
- 16 flood reduction efforts in up stream and
- 17 down stream communities, reduces
- infiltration and ground water recharge,
- 19 increases non-point source pollution to
- 20 waterways, reduces ecological health of
- 21 the stream biota, and threatens public
- 22 health and safety."
- I want to talk about some of
- 24 these. How does inadequate management of

- 1 storm water increase erosion and
- 2 sedimentation?
- 3 A. Well, if you have inadequate
- 4 management of a system, maybe this goes
- 5 back to answer your previous question.
- 6 If you don't have rules in place, laws in
- 7 place to manage water, it's running
- 8 freely. There's no controlling the dirt
- 9 around the streams. That's ultimately --
- 10 or other pollutants, whether they are
- 11 oils, chemicals, or people washing cars,
- 12 and those chemicals are getting
- 13 eventually into our streams. So if you
- 14 manage them, you reduce -- and it's the
- 15 accelerant storm water runoff, you slow
- 16 down that water getting to the streams
- 17 and you manage it and clean it before it
- 18 bleeds slower or slowly into the storm
- 19 sewer system.
- 20 O. Which then the storm sewer
- 21 system leads to a waterway, right?
- 22 A. Eventually, yes.
- Q. So when that's discussing
- 24 erosion and sedimentation, is that

- 1 discussing erosion and sedimentation of
- 2 the storm sewer system or of the water
- 3 ways?
- 4 A. I think it's taking -- I
- 5 think it's talking about sedimentation
- 6 from point A to Z, you know, from where
- 7 you have rain hitting, whether it's a
- 8 dirt surface, a grass surface, or a
- 9 impervious surface, the water eventually
- 10 is going to come off, and with it may
- 11 bring sediment, chemicals, you know, dog
- 12 feces, those types of things.
- 13 Q. It brings it somewhere else,
- 14 right?
- 15 A. It washes it down. Gravity
- 16 is going to take care of it. It's going
- 17 to go from a higher point to a lower
- 18 point.
- 19 Q. And eventually leading to a
- 20 waterway?
- 21 A. Eventually leading to some
- 22 type of system and then a waterway.
- Q. So let's go back to Ms. Smith that
- 24 you mentioned. The effect of her

- 1 inadequate management of storm water on
- 2 her property would lead to erosion and
- 3 sedimentation somewhere down stream,
- 4 right?
- 5 A. Um, well, directly off her
- 6 property, and then into streets, maybe
- 7 other peoples properties, maybe, and then
- 8 ultimately, yeah, it would work its way
- 9 down into the stream.
- 10 Q. So Ms. Smith's inadequate
- 11 storm water management harms other
- 12 property owners, right?
- 13 A. Um, it could, yes.
- Q. And it harms the waterways?
- 15 A. Yes.
- 16 Q. Because it leads to all of
- 17 those pollutants getting into the
- 18 waterways, right?
- 19 A. Yes.
- 20 O. And excess water can also
- 21 cause erosion of the waterways, right?
- 22 A. Correct.
- Q. Meaning the stream banks may
- 24 fall, right?

- 1 A. Yeah. If you don't control
- 2 the volume and velocity of water, it
- 3 typically leads to erosion.
- 4 Q. How does preventing that
- 5 from happening benefit Ms. Smith?
- 6 A. Um, the erosion piece might
- 7 not directly benefit her. But the
- 8 benefit that I spoke of earlier was she
- 9 got to build or occupy more of her land
- 10 if she relies on the actual storm sewage
- 11 system. If she had to contain everything
- 12 on her property, her storm water
- 13 management system is very, very large
- 14 because she is not putting anything out
- 15 into the stream, into the inlets, into
- 16 the piping system.
- 17 Q. Assuming Ms. Smith fully
- 18 complies with whatever laws are in place,
- 19 she would not get a benefit from this
- 20 storm water system, right?
- 21 A. Um, yes. She still would
- 22 get a -- there is inlet boxes, let's say,
- 23 in front of her house, down the street,
- 24 there is pipes there. The maintenance of

- 1 those facilities she has to traverse on
- 2 the road, I would think. She is going to
- 3 get some of kind of benefit.
- 4 Q. Sure.
- 5 A. And she is going to get
- 6 benefit of the waters being cleaner,
- 7 ultimately.
- 8 Q. Absolutely. So she would
- 9 benefit from a generally cleaner and more
- 10 well-maintained community, right?
- 11 A. Yes.
- 12 Q. And you mentioned driving
- 13 down the road, so benefits just as a
- 14 motorist, just as any motorist would
- 15 benefit from there not being flooding on
- 16 the road, right?
- 17 A. There is general benefits
- 18 and there are specific benefits. I think
- 19 there is both.
- 20 Q. Okay. And what -- describe
- 21 what you mean by general and specific
- 22 benefits?
- 23 A. Driving down the road is
- 24 something she and others would enjoy.

- 1 The specifics on her individual property
- 2 are things that she is going to enjoy.
- 3 Q. What are the specific
- 4 benefits?
- 5 A. I think I already answered
- 6 that.
- 7 Q. Anything else to add?
- 8 A. No.
- 9 Q. In F, it also discusses that
- 10 inadequate management of storm water
- 11 greatly increases the cost of public
- 12 facilities to convey and manage storm
- 13 water.
- 14 What does that mean?
- 15 A. I'm not 100 percent sure.
- 16 It may indicate that if you don't manage
- 17 your systems, you don't maintain your
- 18 systems, if you don't, your pipes break,
- 19 your inlets get destroyed and you have
- 20 failure of your infrastructure, and
- 21 ultimately that costs more to replace
- 22 then it is to maintain.
- Q. If you're not sure, who
- 24 would know the answer to that question?

- 1 A. Probably the person that
- 2 drafted the ordinance.
- 3 Q. And that would be a member
- 4 of the Borough Counsel?
- 5 A. Um, well, no. There was a
- 6 subcommittee that was creating it, and we
- 7 have a consultant that helped. They
- 8 would probably be a good person or
- 9 persons to ask. I don't think many
- 10 politicians would understand that either.
- 11 Q. This ordinance, as you
- 12 mentioned, sets up a fee structure based
- on the amount of permeable or impermeable
- 14 surface of a piece of property.
- 15 Is that generally correct?
- 16 A. Yes.
- 17 Q. Describe for me, in your own
- 18 word, how that works?
- 19 A. How the fee structure works?
- 20 O. Correct.
- 21 A. It's based on square
- 22 footage. There is six tiers, which you
- 23 can see here in the ordinance. I think
- 24 it speaks for itself.

- 1 Q. When you say "see here in
- 2 the Ordinance" where are you looking at?
- A. I'm trying to find it here.
- 4 Page 7 of 12, Section 6B, Impervious area
- 5 property tiers. It breaks down the six
- 6 tiers based on square footage. Tier 1
- 7 being the smaller of the lots and tier 6
- 8 being the larger.
- 9 Q. And when you say "square
- 10 footage" you mean square footage of --
- 11 the phrase here is total impervious
- 12 surface?
- 13 A. Correct.
- Q. What does that mean, total
- 15 impervious surface?
- 16 A. Basically, anything that
- 17 water cannot pass through into the
- 18 ground.
- 19 Q. So is it fair to say that
- 20 under the ordinance, the higher you're
- 21 told impervious surface square footage,
- 22 the higher the fee assessment is?
- 23 A. Yes.
- 24 Q. Why?

- 1 A. That, I don't know. I
- 2 didn't set up the fee structure, and how
- 3 they -- with the -- how they came up with
- 4 the calculations, you know, I generally
- 5 remember there were different -- not
- 6 tiers of fees or lots, but that there was
- 7 tiers of how far the Borough wanted to go
- 8 in improvements to infrastructure and
- 9 maintenance of our system, and I think it
- 10 was, like, from low to very high, and I
- 11 think that committee I just spoke about,
- 12 I think they picked somewhere in the
- 13 middle, like, medium. But somebody on
- 14 that committee would probably be better
- 15 to ask that question than I.
- 16 Q. Let me try to rephrase it.
- 17 I don't want to know specifically why --
- 18 where the numbers come from or the
- 19 calculations, but as a general matter,
- 20 why is the fee higher if there is more
- 21 total impervious surface on the property?
- 22 A. Because you're adding more
- 23 storm water to our storm sewer inlets and
- 24 the piping systems and it ultimately goes

- 1 to the streams.
- 2 Q. Is it a function of the
- 3 benefit that each property owner receives
- 4 from the stream protection measures --
- 5 from the storm water management, I should
- 6 stay.
- 7 A. I don't understand that
- 8 question.
- 9 Q. So the fee is assessed --
- 10 you pay a higher fee if you have more
- 11 impervious surface on your property,
- 12 right?
- 13 A. Yes.
- 14 Q. So if you have a parking lot
- 15 that's 100 percent impervious surface,
- 16 you pay the highest rate, I assume; is
- 17 that fair?
- 18 A. No. Because it's still
- 19 broken into square footages, too. You
- 20 could have a small parking lot, 500
- 21 square feet, and you would still be in
- 22 tier 1. If you had a 10,000 square foot
- 23 parking lot, you would be in tier 6.
- Q. So that parking lot owner,

- 1 what is -- does that parking lot owner
- 2 receive a greater benefit of storm water
- 3 management measures than somebody who
- 4 just has on open field?
- 5 A. Well, someone that has an
- 6 open field does not pay any fee at all --
- 7 Q. Correct.
- 8 A. -- in this ordinance.
- 9 Because they will -- we can't calculate
- 10 water or guess if any water is going into
- 11 the system, so someone who does not put
- 12 water into the system, into our street,
- and into our inlets and piping systems,
- 14 they don't pay, and we have a number of
- 15 properties in the Borough that don't pay.
- Then we also, in the
- 17 ordinance, have credits that, you know,
- 18 give every property owner the opportunity
- 19 to reduce their fees. The goal is not to
- 20 raise, you know, excessive amounts of
- 21 money, it's to manage water, fix
- 22 infrastructure, educate the public on how
- 23 to maintain the water on their own
- 24 properties, and in order to do that, you

- 1 know, we allow rain barrels as, you know,
- 2 to put on your -- connect to your
- 3 downspout systems and that would reduce
- 4 your fee. There is other things in there
- 5 besides just the square footages, okay.
- 6 Q. And I'll come back to the
- 7 credits in a bit, but just about the fee
- 8 assessment itself, so if I own on open
- 9 field, I pay nothing, right, for this
- 10 fee?
- 11 A. Correct.
- 12 Q. Do I get a benefit from the
- 13 fee?
- 14 A. Um, do you get a benefit
- 15 from the fee for something you don't pay;
- 16 it's a good question. I think there is
- 17 a, you know, a piece of general -- as we
- 18 spoke earlier, general benefit of, you
- 19 know, the storm sewage system you drive
- 20 over. You're not going over collapsed
- 21 infrastructure, so, you know, there is
- 22 some.
- 23 Q. So certainly that property
- 24 owner will get the general benefit that

- 1 we talked about earlier, right?
- 2 A. Some of it, yes.
- 3 O. And that would be the exact
- 4 same benefit that the parking lot owner
- 5 would get?
- A. Yeah. I think we've
- 7 established there is specific and general
- 8 benefits to all.
- 9 Q. Right. And they would be
- 10 the same benefits if I owned an open
- 11 field versus if I owned a parking lot
- 12 that was a 100 percent impermeable,
- 13 right?
- 14 A. The general pieces, yes, but
- 15 not the specifics.
- 16 Q. So what benefit -- what
- 17 specific benefits does the parking lot
- 18 owner get that the field owner does not
- 19 get?
- 20 A. Well, it goes back to, you
- 21 know, how much can you come develop on
- 22 your lot. Okay. If you -- if there is a
- 23 -- if the Borough is all of those old,
- 24 you know, lots that are developed, you

- 1 know, that did not have any storm water
- 2 management systems. If it was a new
- 3 parking lot today, they would be required
- 4 to put in a storm water management
- 5 system. So the specific benefit that
- 6 parking lot owner would have would be if
- 7 he doesn't have to design for 100 percent
- 8 of every storm, he can have more parking.
- 9 If not, he is going to have to put a
- 10 system that potentially would eliminate
- 11 parking.
- 12 O. So the benefits -- so first
- 13 of all, what if I have a parking lot that
- 14 is 50 years old? Do I have to -- would I
- 15 get any benefits from this fee
- 16 assessment?
- 17 A. On your specific lot, no.
- 18 It's going to be the same as, you know,
- 19 everybody else's.
- 20 Q. So you mentioned if I were
- 21 -- so if I were constructing a new
- 22 parking lot, what are the requirements
- 23 that I would have to follow, that I would
- 24 have to meet, in terms of storm water

- 1 management in the Borough?
- 2 A. They're in our storm water
- 3 management ordinance, so if it's a
- 4 development or redevelopment, there is
- 5 different storms that you have to manage
- 6 on your sites.
- 7 Q. So that would be something
- 8 that the property owner would have to do
- 9 before or while building this new parking
- 10 lot, right?
- 11 A. Yeah. It's as part of
- 12 redevelopment or rebuilding something,
- 13 yes.
- Q. At the owner's expense,
- 15 right?
- 16 A. Yes, yes.
- 17 Q. So how does whether or not
- 18 the Borough put a storm water management
- 19 system in outside of that parking lot,
- 20 how does that benefit the parking lot
- 21 owner that's building a new parking lot?
- 22 A. Well, the storm water
- 23 management Ordinance does not require
- 24 full control or velocity of water for

- 1 every storm event. There is a -- an
- 2 engineer can probably answer the specific
- 3 numbers of this better then I can,
- 4 general rule, but the idea is you can
- 5 control on your lot to a certain storm
- 6 and frequency, but it's not 100 percent
- 7 of all storms. If you had to, the
- 8 benefit would be, you know -- excuse me,
- 9 let me strike that.
- 10 The benefit is that you can
- 11 build a bigger parking lot, design a
- 12 basin for a storm system that will put
- 13 water eventually into the Borough storm
- 14 sewer system as opposed to you retaining
- 15 everything on your own property and
- 16 infiltrating it all into the ground 100
- 17 percent of time and 100 percent of all
- 18 storms.
- 19 Q. If tomorrow the Borough were
- 20 to simply cap their inlet and deny access
- 21 to that parking lot owner of the Borough
- 22 storm water management system, is there
- 23 anything different they would have to do?
- 24 A. They would probably have to

- 1 figure out a way to maintain the water on
- 2 their property.
- 3 Q. Why?
- 4 A. Because there would be
- 5 nowhere for it to go.
- 6 Q. Why can't it just go into
- 7 the street?
- 8 A. That would probably create
- 9 flooding.
- 10 Q. Why is that flooding
- 11 something that the individual property
- 12 owner has to manage?
- 13 A. He doesn't have to. The
- 14 rule this is -- this is the hypothetical
- 15 that you can't answer, because you can't
- 16 anticipate because it's probably
- 17 unrealistic that somebody would tell --
- 18 the Borough would say, you can't be
- 19 connected to our system that you've been
- 20 connected to for 50 years.
- 21 Q. Right. So that's an
- 22 unrealistic hypothetical?
- 23 A. I think so. However, if a
- 24 new development was coming in and the

- 1 developer said I don't want to pay your
- 2 fee, I think I can control all of my
- 3 water on my site as a new project, I
- 4 think we would say, okay, show us the
- 5 engineering and we will consider that.
- 6 Q. What makes you say that?
- 7 A. Because we encourage credits
- 8 to reduce people fees, we have existing
- 9 undeveloped lots that pay no fee, so if
- 10 you developed a lot and you were not
- 11 doing -- putting any water into the
- 12 system, I think it would be reasonable to
- 13 think that the Borough would consider
- 14 reducing or eliminating the fee based on
- 15 this Ordinance, and it may require a
- 16 change to the ordinance to get to that
- 17 point, but I think the Borough would
- 18 consider it.
- 19 Q. Has the Borough said
- 20 anywhere that that is something they
- 21 would consider?
- 22 A. I think part of our appeals
- 23 process is, you know, does that, because
- 24 we've, you know, we zeroed out a couple

- 1 lots already that had filed appeals based
- 2 on heritage trees. People, you know,
- 3 brought in and said, you know, we have
- 4 heritage trees we are willing to keep and
- 5 maintain, and people with just smaller
- 6 lots that had fees about \$200 to \$250 had
- 7 been reduced to 0.
- 8 Q. Let's -- I think talking a
- 9 little bit about credits; is that right?
- 10 A. Yes.
- 11 Q. We haven't actually fleshed
- 12 this out, so this is -- you mentioned
- 13 Section 6 on page 7 of University-4 sets
- 14 out these tiers for having the fee, but
- 15 there is then a credit on the other side.
- 16 Explain to me what you mean
- 17 by a credit in this context?
- 18 A. If you do something to
- 19 reduce the amount of water running off
- 20 your property, you potentially can get a
- 21 credit of your fee.
- Q. Does the credit have a cap?
- 23 A. I think our original
- 24 ordinance, I think it was capped at 60.

- 1 The modification to our heritage tree
- 2 ordinance or tree ordinance, whatever you
- 3 want to call it, that has a cap on it,
- 4 but you can zero out. Our manual has not
- 5 been updated since that ordinance, the
- 6 heritage tree ordinance was passed. We
- 7 have -- we've reduced some lots up in the
- 8 northwest part of the Borough. I saw a
- 9 few examples that were reduced from about
- 10 \$600 down to about \$200, so way below the
- 11 60 percent range that people have gotten
- 12 credits for.
- 13 Q. I just want to clarify in
- 14 your answer there you said in the
- ordinance it's capped at 60, you mean 60
- 16 percent?
- 17 A. Originally, I think -- maybe
- 18 it's in the credit manual where the
- 19 reductions were. It might not be in the
- 20 ordinance where the credit is actually
- 21 capped. Section 10, you have to refer to
- 22 the, you know, there is a policy on that
- 23 manual. I think that when it was
- 24 originally drafted, I'm pretty sure the

- 1 max was 60 percent, and that has since
- 2 been changed because we've given people a
- 3 lot more then 60 percent.
- 4 Q. Where has that been changed?
- 5 Where is that change reflected, to your
- 6 knowledge?
- 7 A. In the tree ordinance under
- 8 heritage trees and credits for heritage
- 9 trees. And then, I guess, the actual
- 10 appeals that have been granted, and I
- 11 didn't do them. They were done
- 12 previously by our two -- two of our
- 13 consultants. I always get this wrong,
- 14 C2H2 -- whatever the firm --
- 15 Q. CH2M?
- 16 A. There you go, sorry.
- 17 Q. Doesn't exactly roll off the
- 18 tongue.
- 19 A. So two of the consultants
- 20 from there or one, one of the two, who
- 21 helped us draft this ordinance, they came
- 22 up with the 60 percent credit, all of
- 23 those types of regulations, and they used
- 24 to process the appeals when this

- 1 ordinance first started. I know they
- 2 were processing things that were greater
- 3 than 60 percent. I'm not sure how they
- 4 got there on the credits. I'm sure that
- 5 is something you can figure out.
- 6 Q. Okay. So you can get above
- 7 the 60 percent with heritage trees. Is
- 8 there any other way to get above that 60
- 9 percent, to your knowledge?
- 10 A. Yeah. That's what I was
- 11 just saying. There are lots up on -- up
- 12 in the northwest part of the Borough that
- have been reduced from approximately \$600
- 14 down to about \$200. That's obviously --
- 15 I'm not a math major, but reduced more
- 16 than 60 percent.
- 17 Q. And that was not based on
- 18 heritage trees?
- 19 A. No. That was the
- 20 consultants. They were the ones who
- 21 actually processed the appeals in the
- very beginning and we're now doing
- 23 inhouse for the past six months. They --
- 24 they approved those things some way, some

- 1 how.
- 2 Q. Do you know why?
- 3 A. I don't. I think -- I think
- 4 they probably have a rationale answer to
- 5 that.
- 6 Q. Is it the consultant that
- 7 made that decision or is it the Borough
- 8 that made that decision?
- 9 A. I think they -- I don't
- 10 think they are in the position to make
- 11 the decision. They maybe made a
- 12 recommendation to the Borough.
- 13 Q. So when a property owner
- 14 gets a credit for storm water remediation
- on their property, why do they get a
- 16 credit? Why do they have to pay less?
- 17 What's the rationale behind it?
- 18 A. Because they are helping to
- 19 reduce runoff and pouring into the street
- 20 and streams in our system.
- 21 Q. So it's because that
- 22 property then causes less harm overall,
- 23 right?
- 24 A. Yes.

Page 89 1 They don't, in fact, get Q. less of a benefit from the Borough storm 2 3 water management practices, right? 4 Α. No. They probably get a 5 better benefit for themselves, you know, you put rain barrels in, you're reusing 6 water. You can reuse it to water your 8 plants in the summer, gardens and those 9 types of things. 10 Q. They get a benefit from 11 their own measures, right? 12 Α. Yes, yep. 13 0. They don't get a greater 14 benefit from what the Borough is already 15 doing, right? 16 Α. Probably not. 17 Q. Do they get less --18 Α. I can't think of one. 19 0. Do they get less of a 20 benefit? 21 Α. No. 22 They get the same benefit? 0.

So is it fair to say that,

Yeah.

Α.

Q.

23

24

- 1 overall, the fee that is assessed under
- 2 the street protection ordinance is
- 3 related to the harm that the property
- 4 owner potentially causes?
- 5 A. I don't know if it's harm --
- 6 harm is done. I think maintaining a
- 7 system is part of what the fee is about.
- 8 If you can translate harm or -- not
- 9 maintaining to harm, I don't think I can
- 10 make that leap, but...
- 11 Q. Is the purpose of the system
- 12 to prevent harm?
- 13 A. It's to protect the health,
- 14 safety, and welfare, I think is the
- 15 ordinance statement.
- 16 Q. So the amount of the fee is
- 17 not directly related to the benefit each
- 18 homeowner receives from the storm water
- 19 protection measures of the Borough,
- 20 right?
- 21 A. No.
- 22 Q. Explain what you mean. It
- 23 is?
- 24 A. No, it's not.

Page 91 1 Q. It's not proportioned? 2 Α. No. 3 So just so we are clear, I 0. 4 used a negative in the question. I just 5 want to make sure your testimony here is clear. The amount of fee assessed on a 6 property is not directly related to the 8 amount of benefit each property owner gets; is that correct? 9 The amount of fee is based 10 Α. 11 on the coverage and the water you're 12 putting into the system. 13 Which is not directly related to the amount of benefit each 14 15 homeowner gets from the existence of the 16 storm water management measures, correct? 17 Α. Yes. MR. KOVATIS: Off the 18 19 record. 20 21 (A discussion off the record 22 occurred.) 23 24

Page 92 1 (A recess occurred.) 2 3 4 (Exhibit No. 5 was marked at this time.) 5 BY MR. KOVATIS: 6 Mr. Perrone, we are back 8 from the break, and you have just been handed what we had marked as 9 10 University-5. 11 This is hard to see on the 12 first page, but at the -- depending on 13 your perspective to the right or to the bottom there is subtly a number on there 14 15 and it looks like 001601. I'll represent 16 to you that this was produced by the 17 Borough in this litigations and given that Bates number. 18 19 Α. Can you point that to me? 20 I sure can. It's really 0. hard to see. It's in the picture right 21 22 there. 23 Do you see there is a number 24 there?

Page 93 1 Your eyes are better then 2 No, I don't. mine. 3 Let's do it this way. Flip 0. 4 to the back of that page. 5 (Witness complies.) Α. 6 Q. Do you see to the right there it's a little easier to see 001602? 8 Α. Yes, okay. 9 And in fact, in order to 0. 10 read that first number into the record, I actually cheated and looked at the second 11 12 page and subtracted one. I want to have 13 full disclosure for you. 14 MR. GILL: Just for clarity sake, the number I have on the 15 16 second page is 001638. 17 MR. KOVATIS: Uh-oh. Let's 18 go off. 19 20 (A discussion off the record 21 occurred.) 22 23 BY MR. KOVATIS: 24 Q. Now, Mr. Perrone, just to be

- 1 clear, the exhibit that you have begins
- 2 at page 001601 and ends at 001639; is
- 3 that correct?
- 4 A. Yes.
- 5 Q. Do you recognize what this
- 6 document is?
- 7 A. Yes.
- 8 Q. What is it?
- 9 A. This was a PowerPoint
- 10 presentation by our consultants. I don't
- 11 know if it was for a public meeting or
- 12 just a meeting in front of our Counsel,
- 13 but basically going over this new storm
- 14 protection fee program.
- 15 Q. On the first page of the
- 16 document it says: "Public meeting
- 17 February 2, 2017."
- 18 First of all, does that help
- 19 with your recollection whether it was a
- 20 public meeting or a counsel meeting?
- 21 A. Typically our counsel
- 22 meetings are in the middle of the month,
- 23 so February 2nd would indicate that it
- 24 was some type of special meeting. I'm

- 1 not sure if the public was involved or
- 2 not, to be honest with you.
- 3 Q. Okay. Why would the
- 4 consultants prepare this PowerPoint?
- 5 A. Excuse me? Why would they?
- 6 Q. Why did they, yes.
- 7 A. I don't know.
- 8 Q. Was it at the direction of
- 9 the Borough?
- 10 A. I don't know.
- 11 Q. When they -- did the
- 12 consultants present this or did the
- 13 Borough present this?
- 14 A. The consultants.
- 15 Q. Okay. CH2M. Were members
- 16 of -- any representatives of the Borough
- 17 present when the consultants presented
- 18 this?
- 19 A. I don't recall who was in
- 20 attendance.
- Q. Did the Borough review it
- 22 before the consultants presented it?
- A. I do not know.
- Q. Did anybody at the Borough

- 1 check to see if it was accurate before
- 2 the consultants presented it?
- A. I don't know.
- 4 Q. Can the Borough say that
- 5 it's accurate?
- 6 A. Um, no -- I don't know what
- 7 accurate means in this context, to be
- 8 honest with you. It's a PowerPoint
- 9 presentation presented by a consultant.
- 10 The consultant can probably testify to
- 11 what it is, and what they did, and who
- 12 saw it beforehand and what have you.
- 13 Q. Have you seen this before
- 14 today?
- 15 A. Yes. I'm not trying to be
- 16 difficult. I don't have a lot of
- 17 knowledge in the construction of the
- 18 document.
- 19 Q. I want to know the accurate
- 20 answers to the questions. That's all I'm
- 21 asking.
- Do you recall when you saw
- 23 this document?
- 24 A. Um, I've seen it -- over the

- 1 years I've seen it a number of times. It
- 2 was on our website for a while, I
- 3 believe. I may have been at the meeting
- 4 when it was presented.
- 5 Q. This document, to your
- 6 recollection, was on the Borough website?
- 7 A. I believe it may have been,
- 8 yes. We typically -- when we have
- 9 presentations, we typically put things on
- 10 our website, you know, for people who
- 11 can't get to the meetings or what have
- 12 you.
- Q. We, meaning the Borough?
- 14 A. Yes.
- 15 Q. So this, essentially, was a
- 16 Borough presentation?
- 17 A. I don't know if the Borough
- 18 presented it or the consultants presented
- 19 it.
- Q. Okay. If you could flip to
- 21 the 7th page -- this is a front and back
- 22 copy, but if you can flip to the 7th page
- 23 it's numbered 001613.
- A. (Witness complies.)

- 1 Q. Let me know when you're
- 2 there. 001613, that looks like it.
- 3 A. Yes.
- 4 Q. You see that page?
- 5 A. Yes.
- 6 Q. Do you recall seeing this
- 7 particular page before?
- 8 A. Um, yeah. I've seen it
- 9 before, yes.
- 10 Q. At the top, it says SWAAC
- 11 recommendation in an orange arrow.
- 12 Do you see that?
- 13 A. Yes.
- 14 Q. What is the SWAAC?
- 15 A. Um --
- 16 Q. You don't have to tell me
- 17 exactly what the letters stands for, you
- 18 can just tell me generally.
- 19 A. Like I said earlier, there
- 20 was a committee of stakeholders that
- 21 helped with the consultants to develop
- 22 the program, and I believe that's the
- 23 committee recommendation. The SWAAC was
- 24 the committee.

- 1 Q. Were members of the Borough
- 2 Counsel on that committee?
- 3 A. I don't recall. I don't
- 4 think so. I could be wrong.
- 5 Q. Were any representatives of
- 6 the Borough on that committee?
- 7 A. Yes. I believe the Borough
- 8 manager at the time was.
- 9 Q. So that is -- that's the job
- 10 you currently hold?
- 11 A. Yes.
- 12 Q. Who was -- I guess I didn't
- 13 ask that before. Who was the believe
- 14 Borough manager?
- 15 A. That was Michael Cotter (ph)
- and prior to him was Ernie McNeely.
- 17 Q. And he would have been on
- 18 that committee?
- 19 A. I don't know if we have a
- 20 list of the committee members or not over
- 21 time, that I haven't seen. Mr. McNeely,
- 22 I don't know if this started early enough
- 23 for him to be on the committee or
- 24 involved in the committee.

1 Next to where it has that Ο. 2 SWAAC, that committee recommendation it 3 "Storm water fee based on 4 impervious area as the most equitable 5 approach to pay for storm water." Most 6 equitable approach is italicized and underlined. 8 Do you see that? 9 Α. Yes. 10 Q. What does that mean "most 11 equitable approach? 12 MR. GILL: We've identified 13 Courtney Finneran as one of the 14 potential witnesses or deponents. 15 She's the -- she was the point 16 person for CH2M in her role as a 17 consultant. 18 Mr. Perrone has already 19 testified that he can't recall 20 whether he was at the meeting 21 where this was -- University-5 was 22 presented, just as there were some 23 things that I asked Mr. Clark that 24 Mr. Bigsby might have been the

Page 101 1 better answer for. 2 My suspicion that Ms. Finneran or 3 some other member of the committee 4 might be better able to answer questions about this document 6 given Mr. Perrone's that he can't recall whether he was at the 8 meeting or not. 9 I don't know if he testified 10 about whether or not he played a 11 role in drafting the document. I 12 suspect he did not. 13 BY MR. KOVATIS: Did you play a role in 14 0. 15 drafting the document? 16 Α. No. 17 0. The stream protection ordinance, as we discussed, implemented a 18 Stream Protection Fee, right? 19 20 Α. Yes. A fee. If I say "fee" do 21 22 you understand what I mean? 23 Α. Yes. 24 Q. So the fee that came out of

- 1 this stream protection ordinance that we
- 2 looked at in University-4?
- 3 A. Yes.
- 4 Q. What -- we talked about what
- 5 -- strike that.
- 6 What projects are funded by
- 7 that fee?
- 8 A. Currently, we have a capitol
- 9 project that Plum Run restoring stream
- 10 banks. I'm not sure of every thing that
- 11 is going into it. I know it's an
- 12 expensive project, but our engineer, I
- 13 know he can probably explain it in
- 14 infinite detail, everything that is going
- 15 on there.
- I think we are just doing
- 17 phase 1 right now, which there is going
- 18 be a phase 1.
- 19 Q. I just want a general list
- 20 of the projects that are being funded by
- 21 this Stream Protection Fee?
- 22 A. Okay. There is just not
- 23 projects, there is also other costs.
- 24 Q. Okay.

- 1 A. Planting of trees in the
- 2 Borough, street sweeping to keep
- 3 pollutants out of our system, and then
- 4 we've done some underground facilities,
- 5 we've done some above ground facilities
- 6 to clean water before it gets into the
- 7 inlets. We've done a couple alleys that
- 8 we've restructured and graded to keep
- 9 water out of the Buck Run tributary you
- 10 were talking about yesterday. That's the
- 11 one north by Pepper Park (sic) on the
- 12 west side of the park.
- We have a couple projects
- 14 kind of north and west of the University
- 15 that cleanse water, rain water, above
- 16 ground, so you can see them. The fees
- 17 also were using for relining storm pipes.
- 18 It needs to be relined, and I think -- I
- 19 don't have a laundry list of them.
- I think we can probably
- 21 produce things that we've done and plan
- 22 to do. I think we might have all ready
- 23 produced that stuff.
- Q. So you mentioned the Plum

- 1 Run capitol project involving stream bank
- 2 renewal. Are there other stream bank
- 3 renewal projects that are being paid for
- 4 by this fee?
- 5 A. Um, just -- at that point, I
- 6 think that is the first one.
- 7 Q. There will be more
- 8 anticipated in the future?
- 9 A. Yeah. I think there is
- 10 probably a potential for probably some on
- 11 Goose Creek and then there is a another
- 12 small tributary at the north end of the
- 13 Borough. That's where property owners
- 14 have lost some land.
- 15 Q. Does the fee fund any
- 16 project that would deal with siltration
- 17 (sic)?
- 18 A. Removing of silt.
- 19 Q. Do you understand the term
- 20 "siltation"? Do you have an
- 21 understanding what that means?
- 22 A. No.
- Q. Okay. What about installing
- 24 rain gardens?

- 1 A. Yes. We've put a handful of
- 2 them in.
- 3 Q. What about vegetated curb
- 4 extensions?
- 5 A. Yes. We've done a couple of
- 6 those.
- 7 Q. First, I guess, I should go
- 8 back for rain gardens. Describe what a
- 9 rain garden is.
- 10 A. It collects water and you
- 11 actually put trees, bushes, plants that
- 12 can survive in a -- in a dry season, and
- 13 then if there is all of a sudden, you
- 14 know, a quick amount of water that comes
- 15 and stays there and saturates the soil
- and the roots, they will be able to stay
- 17 alive without being killed. That's
- 18 typically a rain garden. They come in
- 19 all different shapes and sizes, you know,
- 20 depending on who the designer of it is.
- 21 We have all kinds of different plants.
- 22 The idea is to collect the water and the
- 23 water to infiltrate.
- Q. Right after that I had

- 1 mentioned vegetated curb extensions. Do
- 2 you know what that means?
- 3 A. Yes.
- 4 Q. What's it mean?
- A. We've actually done a few.
- 6 You extend the curb line out into, say,
- 7 like, maybe a parking space or -- and you
- 8 have -- it's not a storm sewer inlet,
- 9 it's a pass through. You have curb --
- 10 concrete curb and you may have a piece of
- 11 steel, so it's consistent and it looks
- 12 like it would act as a curb, but the
- 13 water would move through the front of it
- 14 as opposed to having a wall blocking like
- 15 a typical circle. That water comes into
- 16 this bump out and runs through a series
- 17 of vegetation or rock, slows it down
- 18 somewhat, and then the water comes out
- 19 the back end. It doesn't -- it's not a
- 20 retention. It's more of a cleaning
- 21 device of pollutant from the street.
- 22 O. Does the fee fund bioswales?
- 23 A. I don't know if we installed
- 24 any of them.

- 1 Q. Do you know what they are?
- 2 A. They are the swales in the
- 3 ground that collect and slow down volumes
- 4 of water and silt at the same time.
- 5 Q. What about infiltration
- 6 trenches. Do you know what those are?
- 7 A. Infiltration, no. We have
- 8 -- we put a large basin at our hall, but
- 9 I don't recall that was a trench. It was
- 10 gigantic.
- 11 Q. I think you had mentioned
- 12 this earlier, impervious pavers. Do you
- 13 understand that impervious pavers are?
- 14 A. Yes.
- 15 Q. Can you just describe what
- 16 those are?
- 17 A. Water can pass through them,
- 18 basically, like the joints.
- 19 Q. As opposed to a concrete
- 20 sidewalk?
- 21 A. Yes, or asphalt.
- Q. Or asphalt.
- MR. GILL: By way of
- 24 clarification, you asked about

Page 108 1 impervious pavers, and I believe 2 the response was with regard to 3 pervious pavers. MR. KOVATIS: That was -- I 4 -- thank you for the 6 clarification. I meant pervious pavers. 8 THE WITNESS: It's a common 9 mistake. BY MR. KOVATIS: 10 11 0. So you were describing 12 pervious pavers? 13 Α. Yes. 14 0. That I mistakenly said 15 impervious pavers. 16 Pervious pavers allow the 17 water to pass through to the ground, 18 right? 19 Α. I mean, the water doesn't pass through the pavers, it goes through 20 21 the joints, the sand joints. 22 The sand joint in between Q. 23 the pavers? 24 A. Right.

- 1 Q. As opposed to an impervious
- 2 surface where the water would have to
- 3 flow somewhere to the side or somewhere
- 4 else, right?
- 5 A. Yes.
- 6 Q. For these projects -- all of
- 7 the projects that you listed and that
- 8 I've mentioned, are those projects that
- 9 take place on any private property?
- 10 A. Um, private property; Plum
- 11 Run is on private properties.
- 12 Q. So maybe we will do it that
- 13 way. We can run through this.
- 14 So the Plum Run stream bank
- 15 project, is that taking place on private
- 16 property?
- 17 A. Yes.
- 18 Q. Is that property -- first of
- 19 all, does it take place on West Chester
- 20 University property?
- 21 A. No.
- 22 Q. Is any part of that project
- 23 taking place on university property, at
- 24 all?

- 1 A. No.
- 2 Q. Are those private property
- 3 owners being billed for that project by
- 4 the Borough?
- 5 A. No.
- 6 Q. By anybody else, to your
- 7 knowledge?
- 8 A. No.
- 9 Q. Who is paying for those
- 10 projects?
- 11 A. The storm protection fee.
- 12 Q. Which is paid for by
- 13 everybody in the Borough, whether or not
- 14 they own property along Plum Run, right?
- 15 A. Yes.
- 16 Q. What about the tree planting
- 17 that you mentioned? Is there tree
- 18 planting occurring on private property or
- 19 is that occurring on public property?
- 20 A. We do a lot in the public
- 21 right of way. We do allow people to -- I
- 22 think they purchase our trees at a
- 23 reduced cost, but we buy them with storm
- 24 protection fee money. You can buy a tree

- 1 for private property, I believe. We
- 2 charge, you know, a fee -- if a tree cost
- 3 \$100 you would pay 50, but we don't plant
- 4 the tree.
- 5 Q. So tree planting, is that
- 6 this tree plan you are talking about or
- 7 does the Borough actually engage in
- 8 physical tree planting?
- 9 A. We actually do our own tree
- 10 planting in the public right of way.
- 11 Q. And in addition to that, you
- 12 subsidize private owner's ability to
- 13 purchase trees to put on their own
- 14 properties?
- 15 A. Yes.
- 16 Q. Has, to your knowledge, West
- 17 Chester University taken advantage of
- 18 that, at all? Have they purchased trees
- 19 from -- that have been subsidized by the
- 20 Borough?
- 21 A. I don't know.
- Q. What about street sweeping?
- 23 Is that -- those are all public streets?
- 24 A. Yes.

- 1 Q. Let me -- let go back to
- 2 University-3. It's the map that's in
- 3 front of you.
- 4 There are -- so we
- 5 identified earlier the West Chester
- 6 University campus in the middle bottom
- 7 part of that map. One of roads running
- 8 through north campus is South Church
- 9 Street. Do you see that?
- 10 A. Yes.
- 11 Q. Does the Borough -- let me
- 12 ask it open ended. Who owns and
- 13 maintains -- who owns that street?
- 14 A. We have a right of way. I
- 15 don't know if...
- 16 Q. Let me ask it a different
- 17 way. Who is responsible for maintaining
- 18 that street?
- 19 A. The Borough is.
- 20 Q. Does the Borough engage in
- 21 street sweeping along that street?
- 22 A. Yes. Except for the portion
- 23 where the -- there is an area where they
- 24 have food trucks that we -- the trucks

- 1 are there nonstop. They don't move. So
- 2 there is a piece of the road that doesn't
- 3 get cleaned.
- 4 Q. And just to clarify my own
- 5 question, when I say South Church Street,
- 6 I mean the portion of South Church Street
- 7 between Sharpless and East Rosedale
- 8 Avenue?
- 9 A. Correct.
- 10 Q. I just wanted to make sure
- 11 that was clear. So the --
- MR. GILL: Just by way of
- 13 clarification, at that point of
- intersection, it's West Rosedale
- Avenue.
- MR. KOVATIS: Fair enough.
- 17 THE WITNESS: Or better
- 18 known as the 6 or 700 block of
- 19 South Church.
- 20 BY MR. KOVATIS:
- Q. Okay. Even better. The 6
- 22 and 700 block of South Church.
- 23 Are there inlets along that
- 24 portion of South Church Street?

- 1 A. Off the top of my head, I
- 2 don't know. I would think there is, but
- 3 I'm not 100 percent sure.
- 4 Q. Do you know who maintains
- 5 those inlets?
- 6 A. If they are there, it would
- 7 be the Borough.
- 8 Q. What about University Avenue
- 9 that begins at South High Street and goes
- 10 toward the middle of campus?
- 11 Do you see that?
- 12 A. Yes.
- 13 Q. Does the Borough also manage
- 14 that street?
- 15 A. Um, we manage the piece from
- 16 High to Church.
- 17 Q. And the rest of it is
- 18 managed by the University?
- 19 A. The rest of it is -- it's
- 20 not a, I guess, a dedicated road. It's
- 21 not a right of way. It's private on the
- 22 superblock there.
- Q. Does the Borough engage in
- 24 street sweeping along that portion of

- 1 University Avenue between South Church
- 2 and South high?
- 3 A. Yes, I believe so.
- 4 Q. Does the Borough maintain
- 5 and manage the inlets to the extent any
- 6 exist along that portion of road?
- 7 A. Yes.
- 8 Q. There are -- are you aware
- 9 as to whether there are pipes underneath
- 10 West Chester's campus -- I should say
- 11 North Campus as depicted in that map?
- 12 A. Yes.
- 13 Q. There are pipes underneath
- 14 there?
- 15 A. Yes.
- 16 Q. As a general matter, do you
- 17 know who owns and maintains those pipes?
- 18 A. My understanding is the
- 19 large pipe. I think we talked about this
- 20 earlier, from the intersection of Church
- 21 and Sharpless that runs through the
- 22 campus down across to New Street, it's
- 23 either -- I forget, it's either 40 or
- 24 48-inch diameter pipe. We maintain that

Page 116 1 pipe. 2 And that pipe is, Q. 3 essentially, Plum Run, right? That's correct. 4 Α. 5 It carries Plum Run 0. 6 underneath the campus? 7 Α. Yes. 8 Ο. By campus, I mean the University campus? 9 10 Α. Yep. 11 0. So the Borough owns that 12 pipe, right? 13 Α. Yes. 14 Do you know if -- where the 0. 15 blue line begins on South New Street? 16 Do you see that? 17 Α. Yes. 18 Do you know if there is 19 something there called an "outfall"? 20 Α. Um, I know it's open there, 21 logically, there should be an outfall, 22 you know, after Goose goes under the road 23 that comes out the other side, yes. 24 Q. But --

- 1 A. To be honest with you, I
- 2 can't recollect if I've ever seen it.
- 3 I've been working the Borough here for 35
- 4 years.
- 5 Q. Do you know what an outfall
- 6 is?
- 7 A. Yeah. It's where the pipe
- 8 ends and opens up to the atmosphere.
- 9 Q. An open end of a pipe where
- 10 the water flows through, right?
- 11 A. Yes.
- 12 Q. And that begins the portion
- of Plum Run that is above ground, right?
- 14 A. Yes.
- 15 Q. Does the Borough have
- 16 responsibility to measure the water that
- 17 comes out of that outfall?
- 18 A. I don't know.
- 19 Q. Does the Borough, in any
- 20 way, manage or measure the water that
- 21 comes out of that outfall?
- MR. GILL: Object to form.
- THE WITNESS: I don't know.
- 24 BY MR. KOVATIS:

- 1 Q. Does the Borough manage any
- 2 outfalls in the Borough?
- 3 A. We have to do, as part of
- 4 our permit, we have to test the waters
- 5 whether they do it in outfalls or middle
- 6 of the stream, I'm not sure of the
- 7 methodology where they do it, our
- 8 engineers.
- 9 Q. What do you mean you have to
- 10 test the waters?
- 11 A. We have to, you know, report
- 12 back to PEP what's in our water. They
- 13 gave us MS4 permits and they say this
- 14 stream has this is in it and it's okay or
- 15 not, reduce this or that certain
- 16 chemical, that's what you test for.
- 17 Q. So as part of the Borough's
- 18 MS4 permit, they are required to test the
- 19 waters that are inside the Borough,
- 20 right?
- 21 A. Yes.
- 22 O. All the water?
- 23 A. Um --
- Q. Meaning public waterways?

- 1 A. I would say -- assume so,
- 2 yes.
- 3 O. If the University were to be
- 4 the one conducting the test on that
- 5 outfall, that would be something they
- 6 would do instead of the Borough, right?
- 7 A. Um, I don't know if it's
- 8 instead of, but maybe in conjunction with
- 9 or maybe both parties have to do it. I'm
- 10 not sure.
- 11 Q. But you don't know if the
- 12 Borough does any testing at that outfall?
- 13 A. I don't know.
- 14 Q. If the Borough did not do
- 15 testing at that outfall and the
- 16 University -- so if -- let me ask it this
- 17 way: Assuming there is an outfall there,
- 18 generally, would the Borough be obligated
- 19 to test the water at that outfall?
- 20 A. I think it's a hypothetical.
- 21 I would have to assume something. My
- 22 assumptions would have to be in line with
- 23 is that part of our MS permit. If it is,
- 24 then I would assume our consulting

October 15, 2020 Page 120 1 engineers who helped prepare our MS4 responses to PEP, they probably would 2 3 know better then I what the obligations 4 are of testing that outfall. MR. GILL: And in that 5 6 regard, Gillmore and Associates is the Borough responsible for MS4 8 related matters. Specifically 9 John Sartor, who is identified in 10 our interrogatory responses. And we are coordinating his this 11 12 availability. 13 MR. KOVATIS: Understood, 14 veah. Thanks. 15 BY MR. KOVATIS: 16 0. You had mentioned a project 17 that involved cleansing rain water above ground. I think you said north and west 18 19 of the University campus. 20 Do you recall that? 21 Α. Yes. 22 What were you talking about? Ο.

They were the like bump

outs, but they don't retain water. They

23

24

Α.

- 1 take water that's running down the curb
- 2 during storms and I think I explained
- 3 there is a curbing around it, but one
- 4 piece of the curb is open so water can
- 5 flow in. The water flows through -- let
- 6 me refer to University-5, maybe we can
- 7 get a picture of it for you. Maybe.
- 8 (Pause.)
- 9 I'm going to strike out
- 10 probably.
- 11 Q. That's okay.
- 12 A. It's similar -- it looks
- 13 like a rain garden, if you know what a
- 14 rain garden looks like. There is
- 15 planting, and there may be some large
- 16 rock. The water comes through at an open
- 17 end of the curb. The water flows
- 18 through. It's not -- the water is not
- 19 captured or retained, the water just runs
- 20 through a series of cleansing things
- 21 which might be vegetative things or
- 22 structural things like rock or stem. And
- 23 then the water comes out the other end.
- 24 And there is two or three north and west

- 1 of the campus.
- 2 Q. You said it doesn't stop or
- 3 retain the water, it just slows it down?
- 4 It just cleanses it?
- 5 A. The idea is to clean,
- 6 cleanse. Make it better. It comes it
- 7 bad, goes out better.
- 8 Q. We were talking -- we
- 9 started talking about the pipes
- 10 underneath the campus and we talked about
- 11 Plum Run, to pipe that is Plum Run.
- 12 Are there -- there are other
- 13 pipes underneath North Campus, right?
- 14 A. Um, yes.
- 15 Q. Are some of those pipes
- 16 owned by the University?
- 17 A. Yes.
- 18 Q. The pipes that are owned by
- 19 the University, does the Borough play any
- 20 role in managing those pipes?
- 21 A. No. But the pipe -- some of
- 22 the pipes, I believe, connect to the pipe
- 23 that is owned by the -- excuse me, owned
- 24 by the Borough that's underground.

Page 123 1 Q. Meaning Plum Run? 2 Α. Yes. 3 So those pipes connect into 0. 4 Plum Run? 5 Α. Yes. 6 Q. To your knowledge, are there pipes underneath South Church Street 8 between Sharpless and West Rosedale? 9 Α. Yes. 10 Q. To your knowledge, who owns 11 those pipes? 12 Α. The Borough. 13 0. And the Borough manages 14 those pipes? 15 Α. Yes. Where did those pipes lead? 16 0. South Church. I believe 17 Α. 18 they go south to Rosedale and I think 19 they head east towards Goose. 20 0. Are there pipes under the 21 University Avenue between South Church 22 and South High? 23 Again, I believe so. Α. I'm

24

not 100 percent sure.

- 1 Q. And do you know where those
- 2 pipes lead?
- 3 A. I believe they go east.
- 4 Q. Are you familiar with
- 5 something known as a Pollutant Reduction
- 6 Plan?
- 7 A. Um, I've seen the term. I
- 8 don't believe I've ever seen an actual
- 9 plan though.
- 10 Q. You don't look at those
- 11 plans?
- 12 A. I don't.
- 13 Q. Do you know if the fee, the
- 14 Stream Protection Fee, if that money is
- 15 used on projects that are mentioned in
- 16 mentioned in Pollutant Reduction Plans?
- MR. GILL: Are you --
- objection as to form.
- 19 Are you asking about the
- 20 Borough reduction plan or
- 21 reductions plans generally?
- 22 BY MR. KOVATIS:
- Q. Fair enough. The Borough's
- 24 Pollutant Reduction Plans?

- 1 A. Um, to my knowledge, which
- 2 is limited on this topic, if the
- 3 Pollutant Reduction Plan is part of our
- 4 MS4 -- PEP, some of our recommendations
- 5 for renewal of our permit would include
- 6 things that are paid for by the storm
- 7 protection fee, which if they're part of
- 8 the Pollutant Reduction piece, okay, I
- 9 think they are tied together. Again, Mr.
- 10 Sartor from Gillmore will probably know
- 11 more detail on that.
- 12 Q. The list of projects that
- 13 are funded by the fee that we've been
- 14 discussing, I want to put that in terms
- 15 of the general benefit and specific
- 16 benefit that we were talking about
- 17 earlier in your testimony.
- Do you remember the
- 19 distinction between those two?
- 20 A. I'll never forget it.
- Q. My question is this; do any
- 22 of those projects have a specific benefit
- 23 to West Chester University?
- A. Do any of those projects,

- 1 current projects, maybe not. But future
- 2 projects, you know, the maintenance of
- 3 that four-foot pipe that runs under the
- 4 campus, and the other pipes surrounding
- 5 round the campus.
- 6 The pipes that connect to
- 7 that four-foot pipe, which have, you
- 8 know, I think most -- I don't know if
- 9 all. I would say -- I should probably
- 10 say "most" there is a number of pipes
- 11 from redeveloping, especially from the
- 12 dormitory buildings and some of the new
- 13 business buildings that have been built
- 14 on the North Campus that are tied to the
- 15 Plum Run piping underneath the campus, so
- 16 there is some specific benefits for
- 17 maintaining those pipes there for the
- 18 University, so they don't have to
- 19 maintain them or manage them or claim
- 20 them.
- 21 Q. Any other -- other then pipe
- 22 maintenance, is there any other project
- 23 being funded by the fee that has a
- 24 specific benefit to West Chester

- 1 University?
- 2 A. I don't believe right now.
- 3 Q. Right. And you said not
- 4 "right now" I should clarify the
- 5 question. You said there is nothing, at
- 6 all, right now that has a specific
- 7 benefit contemplated in the future, pipe
- 8 maintenance could have a specific benefit
- 9 for West Chester University. Other then
- 10 pipe maintenance, is there any other
- 11 future contemplated projects that would
- 12 have a specific benefit to West Chester
- 13 University as we've been using the term
- 14 "specific benefit" in this deposition?
- 15 A. Not that I'm aware of at
- 16 this point. The program is new. We've
- only been operating since probably '17.
- 18 There is a list of projects, but that
- 19 doesn't mean that's it for, you know,
- 20 forever. Ten years from now we could be
- 21 doing something in Plum Run along the
- 22 campus.
- 23 Q. So in terms of pipe
- 24 maintenance, the specific benefit is that

- 1 it's maintaining the pipe that runs
- 2 underneath the campus, right?
- 3 A. Yes.
- 4 Q. Has that pipe been
- 5 maintained over the last 100 or so years?
- A. I'm sure it has been, yeah.
- 7 Q. What --
- 8 A. It's part of the Borough's
- 9 responsibility to take care of.
- 10 Q. That was going to be my next
- 11 question. The Borough is the one who was
- 12 maintaining it over these last 100 or so
- 13 years?
- 14 A. To the best of my knowledge,
- 15 yes.
- 16 Q. How did the Borough fund the
- 17 maintenance of that pipe?
- 18 A. From the general fund.
- 19 O. From tax rev?
- 20 A. Yes.
- 21 Q. And other grant money, you
- 22 said?
- 23 A. Yes.
- MR. KOVATIS: Why don't we

		Page 129
1	take a short break if that's okay?	
2	MR. GILL: Sure.	
3		
4	(A recess occurred.)	
5		
6	MR. KOVATIS: Back on the	
7	record.	
8	BY MR. KOVATIS:	
9	Q. Let's go back to the time	
10	period prior to the stream protection	
11	ordinance.	
12	Were landowners in the	
13	Borough asking the Borough to take	
14	additional action to address storm water?	
15	A. I don't know.	
16	Q. Correct me if I'm wrong. I	
17	believe you testified that a lot of these	
18	projects are the result of State and	
19	federal regulation, right?	
20	A. Yes. Some of them, yes.	
21	Q. Some of them?	
22	A. Yes.	
23	Q. Then what is the genesis of	
24	the other projects that aren't done	

- 1 solely to comply with State and federal
- 2 regulations?
- 3 A. Plum Run, we have complaints
- 4 about erosion, land, people losing parts
- 5 of their properties. There is some of
- 6 that up in the north end.
- We've also had complaints
- 8 about flooding in the Borough over the
- 9 years, especially with Goose Creek.
- 10 So it's more then just, you
- 11 know, governmental regulations or some
- 12 other complaints that have been out
- 13 there.
- 14 Q. Any other complaints other
- 15 then the erosion of Plum Run and the
- 16 flooding of Goose Creek that you're aware
- 17 of?
- 18 A. Those are the biggest ones,
- 19 yeah.
- Q. Were steps -- prior to the
- 21 stream protection ordinance, were steps
- 22 taken to address erosion of Plum Run?
- A. I don't believe so.
- Q. Were steps taken to address

- 1 flooding at Goose Creek?
- 2 A. Yes.
- 3 Q. What were those steps?
- 4 A. There has been a number of
- 5 projects in that watershed over the
- 6 years. I wasn't involved in them. I
- 7 just -- because I work in the Borough,
- 8 you see things. We've had storm pipes
- 9 that have been replaced under Franklin
- 10 Street, Adams Street kind of parallel to
- 11 Goose Creek to make the pipes bigger so
- 12 we can retain water there.
- The one project that I was
- 14 involved in, actually, with John Sartor,
- 15 was a new development of a parcel ground
- 16 at the corner of Adams and Market Street.
- 17 It was an old carpet store. The building
- 18 was, you know, flooded quite often, and
- 19 then I think there was a fire destroyed
- 20 the building, the guy went out of
- 21 business, we redeveloped it and raised
- 22 the building up -- or the elevation of
- 23 the ground up to the first floor level
- 24 by, let's say, maybe six feet and then

- 1 underneath the building became a huge
- 2 stone water collection area, retention
- 3 area, to take flood waters and retain it
- 4 right there.
- 5 There was another project
- 6 down on a -- public works facility, that
- 7 is on Lacy Street, across the other side
- 8 of Goose Creek behind our public works
- 9 facility that was a private developer
- 10 building a parking lot, and I -- in fact,
- 11 I think he may have paid for this
- 12 himself, so he could put additional
- 13 pavers. He put some stone forced paving
- in, so he can have a bigger parking lot
- 15 that would not flood as bad as it used
- 16 to.
- 17 There are a couple handful
- 18 of projects that I recall over the years
- 19 prior to this ordinance coming into
- 20 effect.
- 21 Q. For those projects that were
- 22 specifically on -- I assume, privately
- 23 owned property?
- 24 A. The last one I spoke of was

- 1 private land, yes.
- 2 Q. Did that landowner have to
- 3 contribute to the funding of that
- 4 project?
- 5 A. I forget the funding. They
- 6 may have done it themselves. I'm not --
- 7 I forget the financial aspects of it.
- 8 Q. Did the Goose Creek flooding
- 9 issue, to your knowledge, ever affect
- 10 West Chester University?
- 11 A. Um, I don't know if it
- 12 affects them on the West Goshen side or
- 13 -- I don't think they have any buildings
- 14 in the Borough at that point.
- 15 Q. I should clarify; in the
- 16 Borough, did any Goose Creek flooding
- 17 issue, to your knowledge, effect West
- 18 Chester University?
- 19 A. Not that I'm aware of.
- 20 Q. To your knowledge, did West
- 21 Chester University ever complain about
- 22 Goose Creek flooding in the Borough?
- A. Not that I'm aware of.
- Q. To your knowledge, did West

- 1 Chester University ever ask the Borough
- 2 to do anything about Goose Creek
- 3 flooding?
- A. Not that I'm aware of.
- 5 Q. With respect to the erosion
- 6 at Plum Run, to your knowledge, did that
- 7 effect West Chester University?
- 8 A. Um, physically, no, it
- 9 doesn't, but, you know, I'm not one of
- 10 the lawyers in the room, but if I was a
- 11 homeowner and they're contributing to my
- 12 land, I would smack a lawsuit on them and
- 13 have them fix it for me. Maybe that's my
- 14 hypothetical --
- 15 Q. Right. Just to be clear,
- 16 it's because -- are you -- let me ask it
- 17 more open ended. Are you saying that
- 18 because West Chester is upstream of Plum
- 19 Run?
- 20 A. Yes.
- 21 Q. When Plum Run leaches West
- 22 Chester's campus on New Street, do you
- 23 see that on University-3?
- 24 A. Yep.

- 1 Q. At that point Plum Run has
- 2 existed only underneath West Chester's
- 3 campus; is that right?
- 4 A. I missed half of that.
- 5 Q. At that point when Plum Run
- 6 is leaving West Chester's campus and
- 7 flowing south and west, has it only
- 8 existed underneath West Chester's campus
- 9 -- West Chester Universities campus?
- 10 A. I still don't -- I don't
- 11 understand the question.
- 12 Q. Let me ask it a different
- 13 way.
- 14 When there is water flowing
- 15 along Plum Run at that point along New
- 16 Street, has all of that water come from
- 17 West Chester University's campus?
- 18 A. All of the water, um, I
- 19 don't think all of it does, no.
- 20 O. Some of it has come from
- 21 elsewhere in the Borough?
- 22 A. There is New Street right
- 23 there and Sharpless Street, so some of
- 24 that water probably comes from there,

- 1 also.
- 2 Q. But when you say that the
- 3 landowners along Plum Run would point the
- 4 finger up at West Chester, why would they
- 5 blame West Chester for that erosion?
- 6 A. Because you have -- there is
- 7 a big four-foot diameter pipe that runs
- 8 in there and there is a lot of pipes from
- 9 the University's development over the
- 10 years that is tied to that pipe, and the
- 11 University doesn't manage 100 percent of
- 12 all the water for every conceivable storm
- 13 out there, so, you know, if I'm a
- 14 homeowner, I'm not an engineer at that
- 15 point or a lawyer at that point, you
- 16 know, you may go, there is the problem,
- 17 that's where it's coming from --
- 18 O. So for --
- 19 A. And there may be other
- 20 people it's coming from, also. Not just
- 21 the University.
- 22 O. So for erosion along Plum
- 23 Run -- let me ask it a different way.
- 24 For projects to remediate

- 1 the effects of erosion along Plum Run,
- 2 those projects may be necessary, in part,
- 3 because of West Chester University's
- 4 management of its storm water, right?
- 5 A. Or lack of.
- 6 Q. Lack of. So West Chester
- 7 doesn't benefit from those projects,
- 8 right? Let me -- doesn't have a specific
- 9 benefit from those projects.
- 10 A. You know, if the University,
- 11 over the years, has been able to hook up
- 12 to the four-foot pipe for redevelopment
- 13 over, say, the dorm buildings, that's
- 14 their specific benefit, and, you know,
- 15 the result of them putting in into the
- 16 stream -- into our stream, into our
- 17 piping system, is creating a problem down
- 18 the road, is there a specific benefit, I
- 19 -- you know, might be more of a legal
- 20 argument for the lawyers, but I think
- 21 from my point of view, maybe it's too
- 22 simplified, I would think, yeah. The
- 23 University is getting some type of
- 24 specific benefit from that.

- 1 Q. And I'm -- you mentioned the
- 2 piping, but I'm talking specifically
- 3 about the projects that deal with the
- 4 erosion along Plum Run?
- 5 A. That goes back to my, you
- 6 know, the erosion being caused by
- 7 somebody upstream. Why can't I go back
- 8 to that person down the stream and say,
- 9 Hey, listen, you have to fix it, you
- 10 know, there might not be a specific
- 11 benefit of the clean up that you caused,
- 12 okay.
- 13 It's like, you know, when
- 14 you're in a car accident, you destroy the
- 15 car. The person who destroyed the car
- 16 doesn't get a benefit. I get the benefit
- 17 when I get the new car, but how can you
- 18 get there. Maybe that is a bad analogy,
- 19 I don't know.
- 20 Q. The issue being in that
- 21 scenario, not conceding the point, that
- 22 West Chester University would be causing
- 23 the harm, right?
- 24 A. Potentially, they could be

- 1 part of the problem.
- 2 Q. The harm being erosion?
- 3 A. Right. And the other side
- 4 of the point is if the University had to
- 5 or did not, you know, hook up to the
- 6 system to cause the erosion, then the
- 7 harm to the University would be, they
- 8 would have to build these facilities on
- 9 their land. It would have less land to
- 10 build buildings on, and, you know, it's
- 11 almost like, you know, I would use the
- 12 term "taking of land" but if the storm
- 13 water management system says you have to
- 14 do this, and if you can't or you can't
- 15 connect to our system, the benefit is
- 16 you're going to be able to build more
- 17 buildings tying into the system then not
- 18 tying into the system.
- 19 Q. Meaning the pipe?
- 20 A. The pipes, yep.
- 21 Q. To the Borough's knowledge,
- 22 are there State grants that are available
- 23 to fund storm water related projects?
- A. I would imagine there are.

- 1 I know there is County grants that we
- 2 get, and they may be funded through the
- 3 State, because we've gotten DCNR grants
- 4 they are called. In fact, we got one --
- 5 we haven't used it yet for an alley off
- 6 of Goose Creek. So there's an example.
- 7 Q. Let me come at it a little
- 8 different way. So the Stream Protection
- 9 Fee goes into a fund, right?
- 10 A. Yes.
- 11 Q. Is that the only source of
- 12 money into that fund?
- A. We can get grant money.
- Q. Money can come in from
- 15 grants, right?
- 16 A. Yes.
- 17 Q. Has the Borough investigated
- 18 those grants that are available for them?
- 19 A. Oh, yeah. I just said we
- 20 got one for Greenview Alley. I think we
- 21 got a check for \$60,000 that we haven't
- 22 done yet. We have half the money for the
- 23 design, and that probably won't be done
- 24 until 2022. In fact, I think it was on

Page 141 1 my e-mail today to sign an extension for the grant. 2 3 0. What other grants are you aware of? 4 5 MR. GILL: Objection to 6 form. Do you mean grants that the 7 Borough has all ready obtained. 8 MR. KOVATIS: Yes. 9 THE WITNESS: For storm 10 protection? 11 BY MR. KOVATIS: 12 Q. Right. For storm water protection specifically that would go 13 14 into this fund? 15 Α. I'm not sure if there is 16 other ones out there. 17 MR. GILL: Again. I just 18 want to make sure I'm clear. 19 you mean grants that already have 20 been obtained and were deposited 21 into the fund? Is that your 22 question? 23 MR. KOVATIS: We can break 24 it down.

- 1 BY MR. KOVATIS:
- 2 Q. Have any grants been
- 3 obtained and deposited into the fund, as
- 4 of today?
- 5 A. Yes. The Greenview Alley
- 6 grant has, for sure. Other ones, I am
- 7 not sure. We had John O. Green Park.
- 8 The project is almost done. We did get
- 9 some grant money for that, that was
- 10 deposited into the storm protection fund.
- 11 That was a substantial -- I believe they
- 12 are the only two at this point.
- 13 Q. Any grant applications that
- 14 are currently pending?
- 15 A. Um, no. We can only apply
- 16 for so many grants at a time, and we've
- 17 been awarded a handful of them. We have
- 18 a large grant we got from Penn DOT called
- 19 a Green Light Go Grant that was \$688,000,
- 20 and we just got a grant for one of our
- 21 parks, which is a -- we got \$183,000, so
- 22 there -- when they see you get grants for
- 23 things, they kind of kick you out of the
- 24 ballpark for other things. You have to

- 1 pick and chose.
- I think most of the results
- 3 are the County. You can only have two
- 4 grant applications pending at one time.
- 5 Q. So those two, the Penn DOT
- 6 grant and the other grant you just
- 7 mentioned, they are not for storm water
- 8 management?
- 9 A. The one at the park, some of
- 10 that money will be used for swales and
- 11 some storm water management.
- 12 Q. Does that money get put into
- 13 this storm water management fund?
- 14 A. Not yet. We have not
- 15 received the money.
- 16 Q. When you receive it, is that
- 17 how it would work? Some of that money
- 18 would be put into the fund, or would it
- 19 just be funded directly from the grant?
- 20 A. Um, it would be funded
- 21 through the grant. We probably -- we
- 22 wouldn't physically put the money into
- 23 the account. We have separated how the
- 24 accounts are moving the money around, but

- 1 the accounting would show that a portion
- 2 of the grant money is used for storm
- 3 water protection.
- 4 Q. So are there storm water
- 5 projects that the Borough engages in that
- 6 are funded other then by this fund?
- 7 MR. GILL: Objection as to
- 8 form. This "fund" you mean the
- 9 stream --
- 10 MR. KOVATIS: The Stream
- 11 Protection fund.
- 12 BY MR. KOVATIS:
- 13 Q. The stream protection fund.
- 14 A. Currently?
- 15 Q. Currently.
- A. No. Not that I'm aware of.
- 17 We are pretty conscious because of the
- 18 public who are paying the fees. They
- 19 want to make sure that the money is going
- 20 towards projects, or maintenance, or, you
- 21 know, anything storm-related, they want
- 22 it paid from that fund.
- 23 Q. But some of those projects
- 24 may be funded by other outside grants

Page 145 that don't go into the fund? 1 Grants and the fee from the 2 3 residents, property owners. 4 Q. Okay. 5 We are not using other Α. 6 moneys to do projects besides what we can get eligible for. 7 8 MR. KOVATIS: Those are all 9 the questions I have for you, Mr. 10 Perrone. 11 MR. GILL: But I have some 12 questions. 13 THE WITNESS: Okay. 14 15 CROSS EXAMINATION 16 BY MR. GILL: 17 I want to make sure that the 18 19 record and my understanding are clear. 20 Money that is derived from the imposition of the Stream Protection 21 22 Fee is dedicated only to costs associated 23 with storm water management, correct?

24

A. Yes.

- 1 Q. And we will come back to
- 2 that in a moment, but the costs
- 3 associated with storm water management
- 4 include projects which are being done
- 5 pursuant to the Borough's MS4 permit,
- 6 correct?
- 7 A. Correct.
- 8 O. And to the extent not all
- 9 ready covered by the Borough's MS4
- 10 permit, those funds are also being
- 11 devoted to capital accumulation for
- 12 capital projects or for maintenance of
- 13 the existing Borough storm water
- 14 collection and conveying system, correct?
- MR. KOVATIS: Objection to
- form. Go ahead.
- 17 THE WITNESS: Yes.
- 18 BY MR. GILL:
- 19 Q. And by collection and
- 20 conveying system, the Borough collection
- 21 and conveying system, you described it
- 22 earlier as "a series of inlets, pipes,
- 23 culverts, and headwalls, anything which
- 24 transports storm water to streams."

Page 147 1 Is that the definition of 2 the Borough collection and conveying 3 system that you understand? 4 Α. Yes. Ο. So money is flowing in, 6 unintended money is flowing into the 7 stream protection fund from this Stream 8 Protection Fee, and 100 percent of those dollars are being for storm water related 9 10 purposes? 11 MR. KOVATIS: Objection to 12 form. 13 THE WITNESS: Yes. And we 14 also include labor costs and stuff 15 like that. If you would call that 16 administrative fees, so -- as an 17 example, our public works folks, 18 if they are doing inlet cleaning, 19 their time is -- will be 20 documented and we charge on that time to the storm protection fee 21 22 fund as opposed to the general 23 fund. 24 BY MR. GILL:

- 1 Q. Okay. And then there are
- 2 grants which the Borough receives,
- 3 correct?
- 4 A. Yes.
- 5 Q. And it might be the case
- 6 that some money from a grant is used for
- 7 storm water management purposes, correct?
- 8 A. Yes.
- 9 Q. But not -- there aren't
- 10 storm water specific grants, correct?
- 11 Let me rephrase that. The
- 12 Borough hasn't received any storm water
- 13 specific grants, correct?
- 14 A. I don't believe so. The
- 15 Greenview Alley project, that may be
- 16 related to storm systems. I don't
- 17 believe we're restructuring the alley. I
- 18 think we are restructuring the storm
- 19 water pipes under the alley.
- Q. But to confirm you said
- 21 those dollars from the Greenview Alley
- 22 grant will be -- I want to understand
- 23 mechanics. It's not necessarily the case
- 24 there is going to be a check deposited

- 1 into the bank account that is the stream
- 2 protection fund, correct?
- 3 A. Yes. There may or may not
- 4 be. That grant money may go in there.
- 5 Ultimately, we will pay the people or
- 6 whoever does the work. The money is
- 7 going to come from a grant to the
- 8 Borough, and it will be a check.
- 9 O. I understand.
- Just to start back off the
- 11 top ten. The general fund, again, just
- 12 way of clarification, does the general
- 13 fund draw a distinction -- strike that.
- 14 When -- does the general
- 15 fund draw a distinction between revenue
- 16 coming from property taxes and revenue
- 17 coming from earned income tax, or does
- 18 the Borough simply collect tax revenue
- 19 and it gets deposited into the general
- 20 fund without regard for where those funds
- 21 came from?
- 22 A. No. They are a specific
- 23 line up in our budget.
- Q. So the Borough knows how

- 1 much is coming in from property tax and
- 2 the Borough knows how much is coming in
- 3 from earned income tax?
- 4 A. Correct.
- 5 Q. And to clarify, the general
- fund is one part of the Borough's
- 7 financial house, correct?
- 8 A. Yes.
- 9 Q. And the stream protection
- 10 fund is a siloed or segregated part of
- 11 the Borough's financial house, correct?
- 12 A. Yes.
- 13 O. You mentioned that the
- 14 Borough's storm water collection and
- 15 conveying system has been in existence
- 16 for approximately 100 years.
- Do you recall that?
- 18 A. Yes.
- 19 Q. The entirety of the system
- 20 as it exists today hasn't been around for
- 21 100 years, correct?
- 22 A. No. Some was probably
- 23 longer, some has been less.
- Q. And if it's less, it's

- 1 because as the Borough grew and
- 2 development of what I'm assuming was
- 3 farmland, that storm infrastructure was
- 4 extended along with development, correct?
- 5 A. Correct.
- 6 Q. I'd like to talk a little
- 7 bit about benefits to property owners,
- 8 and Mr. Kovatis asked a series of
- 9 questions about the distinction between
- 10 specific benefits and general benefits.
- 11 Is onsite flooding
- 12 protection one of the specific benefits,
- 13 or is onsite -- excuse me, is onsite
- 14 flooding prevention one of the specific
- 15 benefits that a property owner can derive
- 16 from being connected to the Borough's
- 17 storm system?
- 18 A. Sure.
- 19 Q. In other words, by being
- 20 connected to the Borough's storm system,
- 21 or to use Mr. Kovatis' example, if the
- 22 Borough were to say you're no longer able
- 23 to connect to the storm system, that
- 24 property owner could potentially

Page 152 1 experience flooding on their property by virtually not being able to connect, 2 3 correct? 4 Α. Yes. Ο. And in that situation, one 6 of two things would have to happen, 7 either the property owner would have to 8 manage those backed up floodwater onsite, 9 correct? 10 MR. KOVATIS: Objection to 11 form.

12 THE WITNESS: Yes. They

13 would have to -- I think I

14 testified earlier that they would

15 have to provide their own storm

16 water management system onsite for

17 how many years and for as long a

18 duration the storm is.

19 BY MR. GILL:

20 Or they could wait until and

21 just let the storm water flow off of

22 their property into the Borough's streets

23 uncontrolled, correct?

24 A. Yes.

- 1 Q. You and Mr. -- Mr. Kovatis
- 2 asked you about and you answered
- 3 questions regarding a hypothetical
- 4 parking lot owner who owns an existing
- 5 parking lot and is connected to the
- 6 Borough's collection system.
- 7 Do you recall that?
- 8 A. Yes.
- 9 Q. Do you recall your testimony
- 10 that if the property owner were to build
- 11 a new parking that, that the new parking
- 12 lot would have to have storm water
- 13 controls and that those storm water
- 14 controls would connect to the Borough's
- 15 system.
- Do you recall that?
- 17 A. Yes.
- 18 Q. The existing parking lot
- 19 owner derives a benefit from connection
- 20 to the system, correct?
- 21 MR. KOVATIS: Objection to
- 22 form.
- MR. GILL: Let me restate
- the question.

October 15, 2020 Page 154 1 BY MR. GILL: 2 Is one of the benefits that 3 the existing parking lot owner derives 4 from connection to the Borough's system, 5 of prevention of flooding on his or her 6 property? MR. KOVATIS: Objection to 8 form. 9 THE WITNESS: Yes. 10 BY MR. GILL: 11 And to circle back around, 0. 12 if that connection to the Borough's 13 system were terminated, that property owner -- the existing parking lot 14 15 property owner would then have two 16 choices as you testified a moment ago; manage the storm water onside or allow it 17 18 to flood into the Borough streets, 19 correct? 20 MR. KOVATIS: Objection to 21 form.

THE WITNESS: Correct.

Q. To be clear, you weren't

22

23

24

BY MR. GILL:

- 1 part of the storm water assessment
- 2 advisory committee, if that's -- well,
- 3 whatever SWAAC stands for?
- 4 A. Correct.
- 6 group, correct?
- 7 A. Correct. I was not.
- 8 Q. So your testimony regarding
- 9 how the fee was calculated is based on
- 10 your speculation?
- 11 MR. KOVATIS: Objection to
- 12 form.
- 13 BY MR. GILL:
- 14 Q. Is your --
- 15 A. I think just from what I
- 16 read, you know, from the PowerPoint and
- 17 then the Ordinance and some background
- 18 material.
- 19 Q. But you don't have any
- 20 first-hand knowledge from participating
- 21 in the development of the stream
- 22 protection ordinance, you don't have any
- 23 first-hand knowledge of the factors which
- 24 went into the calculation of the fee,

Page 156 1 correct? 2 Α. Correct. 3 And you don't know what 0. 4 factors the committee analyzed in 5 recommending to Borough's counsel that 6 the fee be based on amount of impervious cover at a property, correct? 8 Α. Correct. 9 0. I'm sorry if I asked you 10 this already, the funds from the 11 treatment protection fee include -- I did 12 ask you this. The funds from the Stream 13 Protection Fee include -- are used for -the funds from the Stream Protection Fee 14 15 are used for purposes which include 16 maintenance and capital upgrades to the 17 existing storm collection system, 18 correct? 19 Α. Yes. 20 0. And for future expansion of 21 the storm collection system perhaps, as 22 well, correct? 23 Α. Yes. 24 Q. Does the Borough divide the

- 1 storm collection and conveying system
- 2 into districts, northwest quadrant,
- 3 southwest quadrant, or is it one system?
- A. One -- it's one system.
- 5 O. So there aren't service
- 6 districts -- of a service district for
- 7 the storm collection system in the north
- 8 part of town and a service district for
- 9 the storm collection system in the south
- 10 part of town?
- 11 A. No. There is one account
- 12 for the entire Borough system.
- 13 Q. To clarify what you said,
- 14 the Stream Protection Fee is only paid by
- 15 the owners of developed properties as
- 16 developed is defined in the stream
- 17 protection ordinance, correct?
- 18 A. Correct.
- 19 Q. So though the owner of an
- 20 undeveloped property may derive some
- 21 general benefit from the existence of the
- 22 storm system, they are not charged for
- 23 the fee, correct?
- A. Correct.

- 1 Q. To clarify, it's your
- 2 understanding that there are pipes within
- 3 -- there are storm collection and
- 4 conveyance pipes and inlets at North
- 5 Campus, which are owned by the University
- 6 or the State System of Higher Education,
- 7 collect?
- 8 A. Yes.
- 9 Q. And that storm water that
- 10 flows through those inlets and pipes
- 11 connects to pipes that the Borough owns,
- 12 correct?
- 13 A. Yes.
- 14 Q. The 48-inch pipe which runs
- 15 along the northern tier of campus that
- 16 we've talked about, made multiple
- 17 references to, that's not the only
- 18 Borough owned pipe that the University
- 19 system connects to, correct?
- 20 A. Correct.
- 21 Q. Do you know an individual by
- 22 the name of Mark Nixner (ph)?
- 23 A. Yes. He severs on our
- 24 planning commission currently, and what

Page 159 the heck, what's his title, I think it 1 2 was the Vice President at the University, 3 and he served on that committee on behalf of the University. 4 5 The SWACC or AAC committee? 0. 6 Α. Right. Ο. That's the one you're 8 referring to? 9 Α. Yes. And at the time that he was 10 11 severing on that committee, is it your 12 understanding that he was also an 13 incumbent executive at the University? 14 Yes. And a Borough 15 resident, too. All of the above. 16 Q. He hits on all points. MR. GILL: That's all I 17 18 have. 19 MR. KOVATIS: No further 20 questions from me. 21 22 (Witness excused.) 23 24 (Whereupon, the deposition

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1	concluded at or about 12:50 p.m.)	
2		
3		
4	CERTIFICATE	
5		
6		
7	I, hereby certify that the	
8	witness was duly sworn by me and that the	
9	proceedings is a true record of the	
10	testimony given by the witness.	
11		
12		
13	County Described Notes Debit	
14	Court Reporter - Notary Public	
15		
16	(The foregoing certification	
17	of this transcript does not apply	
18	to any reproduction of the same by	
19	any means, unless under the direct	
20	control and/or supervision of the	
21	certifying reporter.)	
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IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER,

Original Jurisdiction

Petitioner,

V.

PENNSYLVANIA STATE SYSTEM
OF HIGHER EDUCATION and

No. 260 MD 2018

WEST CHESTER UNIVERSITY OF PENNSYLVANIA OF THE STATE SYSTEM OF HIGHER EDUCATION, EXHIBIT University 12

Respondents.

NOTICE OF DEPOSITION

TO: The Borough of West Chester c/o Michael Gill, Esq.
BUCKLEY, BRION, MCGUIRE, & MORRIS LLP

PLEASE TAKE NOTICE that on October 7, 2020, at 10:00 a.m.,

Defendant West Chester University, by counsel, pursuant to Pennsylvania Rule of Civil Procedure 4007.1(e), will take the deposition of Plaintiff Borough of West Chester at Philips Memorial Building, West Chester University, 700 S. High Street, West Chester, PA 19383. The deposition will cover the topics listed on Exhibit A. This deposition may be recorded stenographically and/or by video before an officer authorized to administer oaths.

Dated: September 18, 2020

Respectfully submitted,

JOSH SHAPIRO Attorney General

BY:

STEPHEN R. KOVATIS (Pa. No.

209495)

Deputy Attorney General

COMMONWEALTH OF PENNSYLVANIA OFFICE OF ATTORNEY GENERAL 21 South 12th Street, 3rd Floor Philadelphia, PA 19107-3603 Telephone: (215) 560-2940

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skovatis@attorneygeneral.gov

KAREN M. ROMANO
Chief Deputy Attorney General
Civil Litigation Section

CERTIFICATE OF SERVICE

I hereby certify that on this day the foregoing Notice of Deposition was served upon the persons and in the manner indicated below:

Via U.S. Mail and email

Michael S. Gill, Esq.
BUCKLEY, BRION, MCGUIRE, & MORRIS LLP
118 West Market Street
West Chester, PA 19382
gillm@buckleyllp.com

Counsel for Petitioner Borough of West Chester

Dated: September 18, 2020

Stephen R. Kovatis

Exhibit A

- 1. The projects that will be funded by the Stream Protection Fee, as that term is defined in the Petition for Review.
- 2. The method used to determine the amount of the Stream Protection Fee, including the market value of the services provided, and how individual properties would be assessed.
- 3. The benefits to property owners, including but not limited to economic and environmental, that were considered by the Borough of West Chester in adopting the Stormwater Protection Ordinance and/or Stormwater Protection Fee, as those terms are defined in the Petition for Review.
- 4. The amount of stormwater runoff from West Chester University that is handled by the Borough of West Chester's stormwater system annually.
- 5. The locations at which stormwater from West Chester University reaches a waterway that passes through or connects to the Borough of West Chester.
- 6. All inspection, maintenance, and abatement performed by the Borough at the Plum Run outfall next to South New Street near the South New Street parking structure.
- 7. The process and the Borough's reasoning in enacting the Stream Protection

 Ordinance, including the Stream Protection Fee, which is attached to the Complaint as Exhibit C

 & E.
- 8. The Pollutant Reduction Plan of West Chester Borough, which is attached to the Complaint as Exhibit H.
- 9. The TMDL Plan for West Chester Borough Goose Creek MS4, which is attached to the Complaint as Exhibit I.
 - 10. Any MS4 of the Borough related to stormwater management.

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER,

Petitioner,

Original Jurisdiction

260 MD 2018

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION,

E

WEST CHESTER UNIVERSITY
OF PENNSYLVANIA OF THE
STATE SYSTEM OF HIGHER EDUCATION,



Respondents.

THE BOROUGH OF WEST CHESTER'S OBJECTIONS AND RESPONSES TO PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION'S AND WEST CHESTER UNIVERSITY OF PENNSYLVANIA OF THE STATE SYSTEM OF HIGHER EDUCATION'S INTERROGATORIES

Petitioner The Borough of West Chester (the "Petitioner"), by and through its attorneys, Buckley, Brion, McGuire & Morris LLP, hereby submits these General Objections and Specific Objections and Specific Responses to the Interrogatories by Respondent Pennsylvania State System of Higher Education and Respondent West Chester University of the State System of Higher Education (collectively, the "Respondents") dated February 4, 2020 (collectively, the "Interrogatories" and, each, an "Interrogatory").

A. General Objections.

1. Petitioner objects generally to the Interrogatories to the extent they seek information of which Petitioner, its agents, contractors, employees, and attorneys have no knowledge, said knowledge being in the control of a person or entity other than Petitioner.

- 2. Petitioner objects generally to the Interrogatories to the extent that they seek information not in the possession, custody, and/or control of Petitioner.
- 3. Petitioner objects generally to the Interrogatories to the extent that they seek information already in Respondents' possession, custody, and/or control, or to which Respondents have equal access.
- 4. Petitioner objects generally to the Interrogatories to the extent that they seek information which would require disclosure of confidential or other sensitive, proprietary information.
- 5. Petitioner has not completed either discovery or preparation for trial on this matter. Accordingly, these objections and responses are provided without prejudice to Petitioner's right to present additional facts, contentions, information, and/or documentation in discovery or at trial on this matter based on information hereafter obtained and/or reviewed, identified, or produced. Petitioner specifically reserves the right to supplement or amend these objections and responses or present additional facts and contentions at a later date.
- 6. Petitioner objects generally to the Interrogatories to the extent that they are vague, ambiguous, overly broad as to time and scope, unduly burdensome, oppressive, not relevant to the subject matter of this action, seek information concerning matters other than the subject matter of this action, are not reasonably calculated to lead to the discovery of admissible evidence, or seek information for an unreasonable and irrelevant period of time.
- 7. Petitioner objects generally to the Interrogatories to the extent that they seek information not yet required to be produced pursuant to the Pennsylvania Rules of Civil Procedure.
- 8. I etitioner objects generally to the Interrogatories to the extent that they seek information which is privileged, prepared in anticipation of trial on this matter, or is the mental

impression, conclusion, or legal theory of an attorney. Such information is protected from discovery by the attorney-client privilege, the attorney work product doctrine, or any other applicable privilege or doctrine. Nothing contained in these objections or the responses below is intended as, or shall in any way be deemed as, a waiver of any such privilege or doctrine.

- 9. Petitioner objects generally to the Interrogatories to the extent that any attempt to respond would be unduly burdensome, expensive, harassing, and oppressive.
- 10. Petitioner objects generally to the Interrogatories to the extent that they seek information which includes expert material, objects to any such request as premature, and expressly reserves the right to supplement, clarify, revise, or correct any or all responses to the Interrogatories, and to assert additional objections or privileges, in one or more subsequent supplemental response(s) in accordance with the time period(s) permitted for the exchange of expert discovery and reports.
- 11. Petitioner incorporates herein all General Objections and Specific Objections raised in Petitioner's Responses to Requests for Production of Documents dated of even date herewith.
- 12. Petitioner incorporates the foregoing general objections into each response below, as though fully set forth therein.

Subject to, and without waiver of, the foregoing General Objections, Petitioner responds to the Interrogatories as follows:

B. Specific Objections and Specific Responses.

1. Identify all persons who possess or may possess knowledge of any of the facts alleged in the Complaint and describe the nature and extent of each person's knowledge. For each person, provide all contact information known to you.

RESPONSE:

- Michael Perrone, Borough Manager
- Michael Cotter, Borough Manager (Former)
- Ernie B. McNeely, Borough Manager (Former)
- O'B Laing, Borough Public Works Director
- Michael Taggart, Borough Public Works Deputy Director (Former)
- Barbara Lioniti, Borough Finance Director
- Thomas Barbine, Borough Staff Accountant (Former)
- Courtney Finneran, Project Manager (CH2M Hill)
- John P. Sartor, PE (Borough Engineer (MS4-Related Matters))
 (Gilmore & Associates, Inc.)
- Nathan M. Cline, PE (Borough Engineer) (Pennoni Associates Inc.)
- Current and Former Members of Borough Council
- Members of Borough Stormwater Assessment Advisory Committee (Former)

Each of the foregoing may be contacted through undersigned Counsel for Petitioner.

2. Identify all persons whom you may call as a witness at the trial or any hearing for this Case and describe the nature and extent of each person's expected testimony. This response may be provided in the time and manner prescribed by the Pennsylvania Rules of Civil Procedure and any scheduling order in this Case.

RESPONSE:

Petitioner objects to Interrogatory No. 2 as premature. Trial witnesses will be identified in a time and manner prescribed by the Pennsylvania Rules of Civil Procedure, as directed by any Order of the Court, and/or at a reasonable time in advance of any trial scheduled in this matter.

5 1323a

- 3. For any expert who may testify at trial in this case:
 - a. Identify the expert, the subject matter on which the expert is expected to testify, the substance of the facts and opinions to which the expert is expected to testify, and a summary of the grounds for each opinion;
 - Identify each expert's education, training, and experience as it is relevant to the opinion(s) offered by the expert;
 - c. Identify each proceeding in which the expert has offered testimony, whether at trial, hearing, or deposition, in the last 20 years; and
 - d. State the expert's terms of compensation.

RESPONSE:

Petitioner objects to Interrogatory No. 3 as premature. Expert witnesses will be identified in a time and manner prescribed by the Pennsylvania Rules of Civil Procedure, as directed by any Order of the Court, and/or at a reasonable time in advance of any trial scheduled in this matter.

5 1324a

4. Identify all exhibits you may use at the trial or any hearing for this Case. This response may be provided in the time and manner prescribed by the Pennsylvania Rules of Civil Procedure and any scheduling order in this Case.

RESPONSE:

Petitioner objects to Interrogatory No. 4 as premature. Petitioner will identify exhibits responsive to Interrogatory No. 4 in the time and manner prescribed by the Pennsylvania Rules of Civil Procedure, as directed by any Order of the Court, and/or at a reasonable time in advance of any trial scheduled in this matter.

5. Identify all projects that will be funded by the Stream Protection Fee, as that term is defined in the Petition for Review.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 6 as being impermissibly vague and overbroad. By way of further response, and without waiving such objection and pursuant to Rule 4006.(b) of the Rules of Civil Procedure, Petitioner states that information responsive to Interrogatory No. 5 may be derived from a review of documents which Petitioner will present in this litigation including, without limitation, the following:

- Stormwater Management: Program Needs, Levels of Service, and Costs dated December 23, 2013 (001461 through 001515)
- Stormwater Assessment Advisory Committee Final Report Stormwater Management Assessment Fee Policy Options and Recommendations dated December 23, 2013 (001516 through 001598)
- 2017 SPF Project Highlights and Program Updates (001599 through 001600)
- West Chester Borough Stream Protection Fee Program Public Meeting of February 2, 2017 (001601 through 001639)
- Project Manual for Pine Alley Storm Sewer Rehabilitation dated
 October 25, 2016 (002264 through 002512)
- eBid eXchange Export West Chester Borough Chester County Pine Alley Storm Sewer Rehabilitation (002513)
- Gilmore & Associates, Inc. Payment Request Letters Regarding Pine Alley Storm Sewer Rehabilitation (002514 through 002527)
- Spreadsheet of Projects and Costs (002528)
- Plum Run Stream Restoration Bid Tabulation (002529 through 002530)
- Plum Run Stream Restoration Construction Plans (002531 through 002544)
- Pine Alley Storm Sewer Rehabilitation Plans (002545 through 002548)
- Project Manual for Pine Alley Storm Sewer Rehabilitation September 13, 2016 (002549 through 002762)

- Letter from Pennoni Regarding Spring Grove Lane Stormwater Improvements Project Bid Tabulation (June 15, 2019) (002763 through 002764)
- Spring Grove Lane Drainage Improvements Contract (002765 through 002984 (and 003180 through 003184))
- Green Infrastructure Technical Specifications (002985 through 003150)
- Green Infrastructure Cost Estimate Spreadsheet (003151)
- Total Site Development, Inc. Agreement Regarding Green Infrastructure Projects (003152 through 003175)
- Stream Protection Fee Capital Project Costs 2017-2019 Spreadsheet (003177)
- MS4 Reallocation YTD 2019 Spreadsheet (003178 through 003179)
- MOR Stream Protection Fee Spreadsheet (003185)
- TMDL Plan West Chester Borough Goose Creek MS4 TMDL Strategy dated September 2017, last revised July 2028 (000001 through 000092)
- NPDES Stormwater Discharges from MS4 West Chester Borough Chester Creek/Goose Creek Pollutant Reduction Plan dated September 2017, last revised July 2018 (000093 through 000175)
- NPDES Stormwater Discharges from MS4 West Chester Borough Brandywine Creek/Blackhorse Creek/Plum Run/Taylor Run Pollutant Reduction Plan dated September 2017, last revised July 2018 (000176 through 000238)
- NPDES Permit No. PAI130026 (003186 through 003221)
- NPDES Permit No. PAG130002 (003222 through 003283)
- Annual MS4 Status Report Period from July 1, 2018 to June 30, 2019 by Gilmore & Associates, Inc. (000847 through 001460)
- Annual MS4 Status Report Period from March 16, 2016 to June 30, 2018 by Gilmore & Associates, Inc. (00473 through 000846)
- Annual MS4 Status Report Period from March 15, 2014 to March 15, 2016 by Gilmore & Associates, Inc. (000239 through 000472)

- Documents Regarding John O. Green Memorial Park Improvements (003284 through 003699)
- Future Projects to be determined by Petitioner

6. Identify all projects that will be funded by the Stream Protection Fee that will occur on or improve the campus of West Chester University.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 6 as being impermissibly vague and overbroad. By way of further response, and without waiving such objection, Petitioner incorporates here its response to Interrogatory No. 5. By way of further response, and further without waiver of such objection, Petitioner operates the Borough Stormwater Collection and Conveyance System for the benefit of each developed property within the jurisdictional limits of Petitioner. With the Borough Stormwater Collection and Conveyance System, Petitioner, inter alia, (A) prevents flooding at properties within the jurisdictional limits of Petitioner, (B) precludes the need for individual property owners (including Respondents) from having to manage stormwater on-site (and to independently arrange for the discharge of such stormwater directly to Waters of the Commonwealth), and (C) accordingly, allows property owners (including Respondents) the maximally productive development of their property subject to compliance with other applicable law.

7. Identify all projects that will be funded by the Stream Protection Fee that will provide a benefit to West Chester University. Provide the fair market value of these services to West Chester University specifically.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 6 as being impermissibly vague and overbroad. By way of further response, and without waiving such objection, Petitioner does not discern any difference between Interrogatory No. 6 and the first sentence of Interrogatory No. 7 and incorporates herein its response to Interrogatory No. 6.

Further without waiving such objection, as to the second sentence of Interrogatory No. 7 Petitioner responds that the value which Respondents realize from use of the Borough Stormwater Collection and Conveyance System is at least equal to, inter alia, (A) the enhanced value of properties at North Campus as a result of the prevention of flooding at North Campus, (B) the capital expenditures which Respondents avoid as a result of not having to design and construct on-site stormwater management facilities or the means to discharge stormwater directly to Waters of the Commonwealth), and (C) the value of the real property at North Campus which Respondents may develop for their purposes instead of using such real property for stormwater management purposes.

8. Identify all persons with knowledge of and/or documents reflecting the projects that will be funded by the Stream Protection Fee.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 8 as being impermissibly vague and overbroad. By way of further response, and without waiving such objection, Petitioner incorporates here its response to Interrogatory No. 5 and, also, identifies the following individuals:

- Michael Perrone, Borough Manager
- O'B Laing, Borough Public Works Director
- Courtney Finneran, Project Manager (CH2M Hill)
- John P. Sartor, PE (Borough Engineer (MS4-Related Matters)) (Gilmore & Associates, Inc.)
- Nathan M. Cline, PE (Borough Engineer) (Pennoni Associates Inc.)
- Current and Former Members of Borough Council
- Members of Borough Stormwater Assessment Advisory Committee (Former)

9. Describe all benefits to property owners that were considered by the Borough of West Chester in adopting the Stormwater Protection Ordinance and/or Stormwater Protection Fee, as those terms are defined in the Petition for Review.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 9 as being impermissibly vague and overbroad. By way of further response, and without waiving such objection, Petitioner incorporates herein its response to Interrogatory No. 6 and its response to Interrogatory No. 7.

10. Identify all persons with knowledge of and/or documents reflecting the benefits to property owners that were considered by the Borough of West Chester in adopting the Stormwater Protection Ordinance and/or Stormwater Protection Fee, as those terms are defined in the Petition for Review.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 10 as being impermissibly vague and overbroad. By way of further response, and without waiving such objection, Petitioner identifies the following individuals:

- Michael Perrone, Borough Manager
- Michael Cotter, Borough Manager (Former)
- Ernie B. McNeely, Borough Manager (Former)
- O'B Laing, Borough Public Works Director
- Michael Taggart, Borough Public Works Deputy Director (Former)
- Courtney Finneran, Project Manager (CH2M Hill)
- John P. Sartor, PE (Borough Engineer (MS4-Related Matters)) (Gilmore & Associates, Inc.)
- Nathan M. Cline, PE (Borough Engineer) (Pennoni Associates Inc.)
- Current and Former Members of Borough Council
- Members of Borough Stormwater Assessment Advisory Committee (Former).

Further without waiving such objection, and pursuant to Rule 4006.(b) of the Rules of Civil Procedure, Petitioner states that information responsive to Interrogatory No. 10 may be derived from a review of documents which Petitioner will present in this litigation including, without limitation, the following:

- Stormwater Management: Program Needs, Levels of Service, and Costs dated December 23, 2013 (001461 through 001515)
- Stormwater Assessment Advisory Committee Final Report Stormwater Management Assessment Fee Policy Options and Recommendations dated December 23, 2013 (001516 through 001598)
- West Chester Borough Stream Protection Fee Program Public Meeting of February 2, 2017 (001601 through 001639)

Further without waiving such objection, Petitioner incorporates here its response to Interrogatory No. 6.

11. Describe the amount of stormwater runoff from West Chester University that is handled by the Borough of West Chester's stormwater system annually.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 11 as being impermissibly vague and overbroad. By way of further response, and pursuant to Rule 4006.(b) of the Rules of Civil Procedure without waiving such objection, Petitioner states that information responsive to Interrogatory No. 11 including, without limitation, regarding the volume of sheetflow of stormwater from portions of North Campus for which no stormwater management systems are in place, is within the knowledge of Respondents.

By way of further response, Petitioner states that information responsive to Interrogatory No. 11 may be derived from a review of documents which Petitioner will present in this litigation including, without limitation, the following:

- Gilmore & Associates, Inc. Review Letters Regarding The Commons (001705 through 001752)
- West Chester University Commons Storm Sewer Culvert Relocation Drawing C-161
 Drawing C-102
 (001753 through 001754)
- Gilmore & Associates, Inc. Review Letters Regarding Student Housing Building "C" (001755 through 001762)
- Gilmore & Associates, Inc. Review Letters Regarding Student Recreation Center (001763 through 001775)
- Gilmore & Associates, Inc. Review Letters Regarding Business & Public Affairs Center (001776 through 001788)
- Post-Construction Stormwater Management Plan Narrative West Chester University Business & Public Affairs Center January 23, 2012; Last Revised May 31, 2016 (001789 through 001882)
- Memoranda dated August 21, 2017 Regarding Post-Construction Inspections (Quad Improvements and Student Recreation Center) (001882 through 001885)

- Gilmore & Associates, Inc. Memorandum dated November 26, 2007
 Regarding West Chester University Dorms Phase 1A
 (001886)
- Gilmore & Associates, Inc. Review Letter Regarding University Student Housing, LLC – Phase 1B (001887 through 001888)
- Gilmore & Associates, Inc. Review Letter Regarding University Student Housing, LLC (001889 through 001894)
- Stormwater Management Documents & Calculations for University Student Housing, LLC Housing Renewal Initiative, Phase I (001895 through 002101)
- Supplemental Stormwater Management Documents & Calculations for University Student Housing, LLC Housing Renewal Initiative, Phase I (002102 through 002107)
- Post Construction Stormwater Management Plan Narrative West Chester University University Student Housing – Building "C" July 20, 2012; Last Revised October 9, 2012 (002108 through 002249)
- West Chester University President's Walk
 Overall Site Plan and Stormwater Management Plans
 (002250 through 002256)
- Pennoni Review Letters Regarding President's Walk (002257 through 002263)

12. Identify all outfalls that deposit stormwater from West Chester University into any waterway that passes through or connects to the Borough of West Chester.

RESPONSE:

Pursuant to Rule 4006.(b) of the Rules of Civil Procedure, Petitioner states that information responsive to Interrogatory No. 12 may be derived from a review of documents which Petitioner will present in this litigation including, without limitation, the following:

- NPDES Permit No. PAI130026 (003186 through 003221)
- NPDES Permit No. PAG130002 (003222 through 003283)
- Annual MS4 Status Report Period from July 1, 2018 to June 30, 2019 by Gilmore & Associates, Inc. (000847 through 001460)
- Annual MS4 Status Report Period from March 16, 2016 to June 30, 2018 by Gilmore & Associates, Inc. (00473 through 000846)
- Annual MS4 Status Report Period from March 15, 2014 to March 15, 2016 by Gilmore & Associates, Inc. (000239 through 000472)
- Gilmore & Associates, Inc. Review Letters Regarding The Commons (001705 through 001752)
- West Chester University Commons Storm Sewer Culvert Relocation Drawing C-161
 Drawing C-102
 (001753 through 001754)
- Gilmore & Associates, Inc. Review Letters Regarding Student Housing Building "C" (001755 through 001762)
- Gilmore & Associates, Inc. Review Letters Regarding Student Recreation Center (001763 through 001775)
- Gilmore & Associates, Inc. Review Letters Regarding Business & Public Affairs Center (001776 through 001788)
- Post-Construction Stormwater Management Plan Narrative West Chester University Business & Public Affairs Center January 23, 2012; Last Revised May 31, 2016 (001789 through 001882)

- Memoranda dated August 21, 2017 Regarding Post-Construction Inspections (Quad Improvements and Student Recreation Center) (001883 through 001885)
- Gilmore & Associates, Inc. Memorandum dated November 26, 2007
 Regarding West Chester University Dorms Phase 1A (001886)
- Gilmore & Associates, Inc. Review Letter Regarding
 University Student Housing, LLC Phase 1B (001887 through 001888)
- Gilmore & Associates, Inc. Review Letter Regarding University Student Housing, LLC (001889 through 001894)
- Stormwater Management Documents & Calculations for University Student Housing, LLC Housing Renewal Initiative, Phase I (001895 through 002101)
- Supplemental Stormwater Management Documents & Calculations for University Student Housing, LLC Housing Renewal Initiative, Phase I (002102 through 002107)
- Post Construction Stormwater Management Plan Narrative West Chester University
 University Student Housing – Building "C"
 July 20, 2012; Last Revised October 9, 2012
 (002108 through 002249)
- West Chester University President's Walk
 Overall Site Plan and Stormwater Management Plans
 (002250 through 002256)
- Pennoni Review Letters Regarding President's Walk (002257 through 002263)

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13. Identify all locations at which stormwater from West Chester University reaches a waterway that passes through or connects to the Borough of West Chester.

RESPONSE:

Objection. Permittee objects to Interrogatory No. 13 as being impermissibly vague and overbroad. By way of further response, and without waiving such objection, Petitioner states that information responsive to Interrogatory No. 13 including, without limitation, regarding sheetflow of stormwater from portions of North Campus for which no stormwater management systems are in place, is within the knowledge of Respondents. Further without waiving such objection, Petitioner states that North Campus is located partially within the Plum Run Watershed (which drains to Brandywine Creek) and partially within the Goose Creek Watershed.

14. Identify all persons with knowledge of the manner in which stormwater from West Chester University enters into any waterway that passes through or connects to the Borough of West Chester.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 14 as being impermissibly vague and overly broad. Petitioner does not understand what Respondents intend by the term "manner in which stormwater from West Chester University enters into any waterway" Subject to, and without waiver of stated objection, Petitioner states that information responsive to Interrogatory No. 14 is within the knowledge of Respondents. Subject, as aforesaid, Petitioner identifies the following individuals:

- Michael Perrone, Borough Manager
- O'B Laing, Borough Public Works Director
- Courtney Finneran, Project Manager (CH2M Hill)
- John P. Sartor, PE (Borough Engineer (MS4-Related Matters))
 (Gilmore & Associates, Inc.)
- Nathan M. Cline, PE (Borough Engineer) (Pennoni Associates Inc.)
- Current and Former Members of Borough Council
- Members of Borough Stormwater Assessment Advisory Committee (Former)

15. With respect to the Plum Run outfall next to South New Street near the South New Street parking structure, identify and describe the date of inspection(s) and result(s) of such inspection(s) performed by any representative of the Borough of West Chester.

RESPONSE:

Objection. Petitioner objects to Interrogatory No. 15 as being impermissibly vague.

Without waiving such objection, Petitioner presumes that the outfall to which Respondents refer is that which Respondents identified as "WCU-NC-001" on Document No. WCU00001 which Respondents produced in this litigation.

Further without waiving such objection, and pursuant to Rule 4006.(b) of the Rules of Civil Procedure, Petitioner states that information responsive to Interrogatory No. 15 may be derived from a review of documents which Petitioner will present in this litigation including, without limitation, the following:

- Annual MS4 Status Report Period from July 1, 2018 to June 30, 2019 by Gilmore & Associates, Inc. (000847 through 001460)
- Annual MS4 Status Report Period from March 16, 2016 to June 30, 2018 by Gilmore & Associates, Inc. (00473 through 000846)
- Annual MS4 Status Report Period from March 15, 2014 to March 15, 2016 by Gilmore & Associates, Inc. (000239 through 000472)

16. Identify all persons with knowledge of and/or documents reflecting the inspections performed by any representative of the Borough of West Chester of the Plum Run outfall next to South New Street near the South New Street parking structure.

RESPONSE:

Objection. Permittee objects to Interrogatory No. 16 as being impermissibly vague and overbroad.

Without waiving such objection, Petitioner presumes that the outfall to which Respondents refer is that which Respondents identified as "WCU-NC-001" on Document No. WCU00001 which Respondents produced in this litigation.

By way of further response, and without waiving such objection, Petitioner interprets Interrogatory No. 16 to refer to inspections which Petitioner performed for the purpose of maintaining the operational efficacy of the outfall to which Respondents refer. Subject to that caveat, Petitioner identifies the following individuals:

- Michael Perrone, Borough Manager
- O'B Laing, Borough Public Works Director
- John P. Sartor, PE (Borough Engineer (MS4-Related Matters)) (Gilmore & Associates, Inc.)
- Nathan M. Cline, PE (Borough Engineer) (Pennoni Associates Inc.)

Further without waiving such objection, and pursuant to Rule 4006.(b) of the Rules of Civil Procedure, Petitioner also identifies the Annual MS4 Status Report Period from July 1, 2018 to June 30, 2019 by Gilmore & Associates, Inc. (000847 through 001460)

Date: August 28, 2020

BUCKLEY, BRION, MCGUJRE & MORRIS LLP

By:

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118 West Market Street

Suite 300

West Chester, Pennsylvania 19382

Phone: 610.436.4400

Attorneys for The Borough of West Chester

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER,

Petitioner,

Original Jurisdiction

260 MD 2018

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION,

&

ν.

WEST CHESTER UNIVERSITY
OF PENNSYLVANIA OF THE
STATE SYSTEM OF HIGHER EDUCATION.

Respondents.

PROOF OF SERVICE

Undersigned counsel hereby certifies that Petitioner The Borough of West Chester's Response to Pennsylvania State System of Higher Education's and West Chester University of Pennsylvania of The State System of Higher Education's Interrogatories was served upon the following recipient in the manner set forth below.

Stephen R. Kovatis, Esquire

Commonwealth of Pennsylvania Office of Attorney General
Senior Deputy Attorney General, Attorney-in-Charge
Civil Litigation Section, Eastern Regional Office
The Phoenix Building, 1600 Arch Street
Philadelphia, Pennsylvania 19103
(Service via Federal Express)

Date: August 28, 2020

BUCKLEY, B. ON, MCGUIRE & MODRIS LLP

By:

Michael S. Gill, Esquire Attorney ID No. 86140 gillm@buckleyllp.com

118 West Market Street, Suite 300 West Chester, Pennsylvania 19382

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Attorneys for The Borough of West Chester

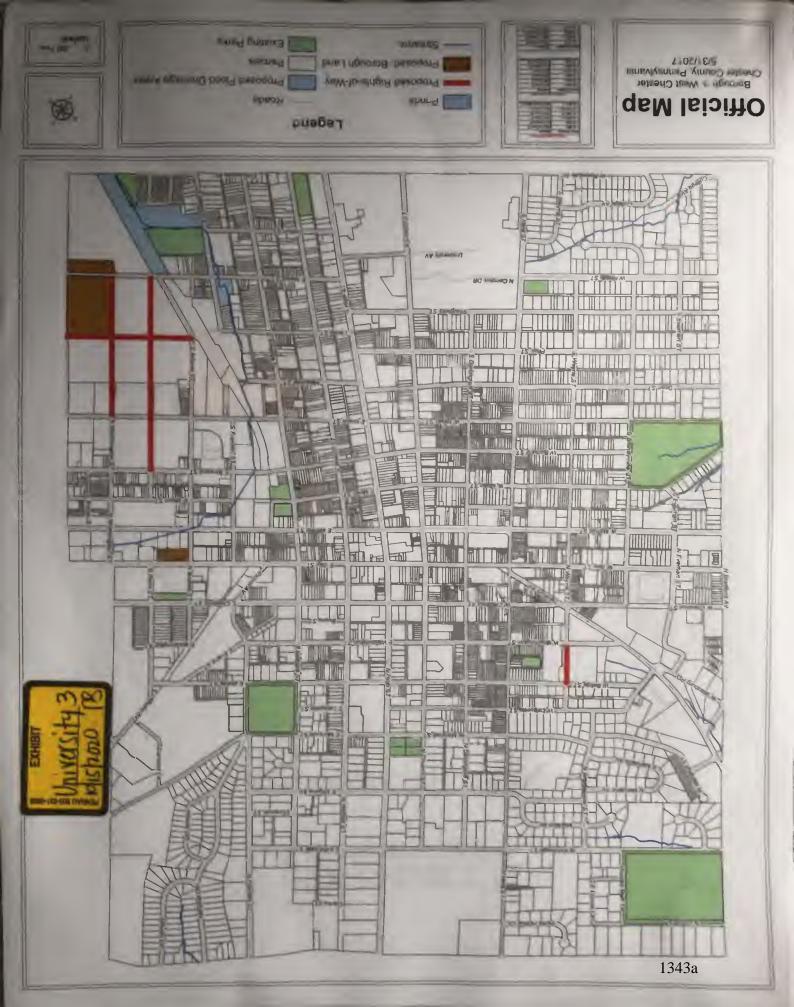


EXHIBIT C

[STREAM PROTECTION ORDINANCE]



ORDINANCE NO. 10 - 2016

BOROUGH OF WEST CHESTER

CHESTER COUNTY, PENNSYLVANIA

AN ORDINANCE OF THE BOROUGH OF WEST CHESTER, CHESTER COUNTY, PENNSYLVANIA, ESTABLISHING A USER FEE TO SUPPORT THE BOROUGH'S STORMWATER MANAGEMENT SYSTEM AND TO MEET THE BOROUGH'S REGULATORY REQUIREMENTS UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT.

WHEREAS, the Borough of West Chester has constructed, owns, operates and maintains and will continue to construct, own, operate and maintain an extensive public stormwater management system to collect and manage stormwater to protect the health, safety and welfare of its citizens;

WHEREAS, the Borough desires to assess an equitable fee for all developed properties that are connected with, use, are serviced by or are benefitted by such stormwater management system to provide a dedicated funding source for the ongoing expenses associated with the Borough's stormwater management system;

NOW THEREFORE, BE IT ENACTED AND ORDAINED by the Borough Council of the Borough of West Chester as follows:

SECTION 1. Title.

This Ordinance shall be known as "the Borough of West Chester's Stream Protection Fee Ordinance."

SECTION 2. Statement of Findings.

Borough Council finds that:

- A. The Borough of West Chester owns, operates, and maintains stormwater management facilities and infrastructure.
- B. The Borough currently incurs costs to operate and maintain the stormwater management facilities and infrastructure, much of which was constructed over 100-years ago.
- C. The collection and conveyance system for stormwater includes underground pipes, inlets, catch basins, culverts, streets, curbs and drains.
- D. A comprehensive program of stormwater management is fundamental to the public health, safety, and general welfare of the residents of the Borough.

- E. The Borough must adhere to increased regulatory requirements for managing the quantity and quality of stormwater runoff.
- F. Inadequate management of accelerated stormwater runoff increases flooding, contributes to erosion and sedimentation, overtaxes the capacity of surface streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodpiain management and flood reduction efforts in upstream and downstream communities, reduces infiltration and groundwater recharge, increases nonpoint source pollution to waterways, reduces ecological health of the stream biota, and threatens public health and safety.
- G. Inadequate planning and management of stormwater runoff resulting from land disturbance and development throughout a watershed can harm surface water resources by changing the natural hydrologic patterns, accelerating stream flows (which increase scour and erosion of stream beds and stream banks, thereby elevating sedimentation), destroying aquatic habitat, and elevating aquatic pollutant concentrations and loadings such as sediments, nutrients, heavy metals, and pathogens.
- H. Groundwater resources are also impacted through loss of recharge associated with the increased impervious area resulting from land development and redevelopment.
- I. Stormwater is an important water resource that provides infiltration and groundwater recharge for water supplies and baseflow of streams, which also protects and maintains surface water quality.
- J. Impacts from stormwater runoff can be minimized by reducing the volume of stormwater generated and by using project designs that maintain the natural hydrologic regime and sustain high water quality, infiltration, stream baseflow, and aquatic ecosystems.
- K. Public education on the control of pollution from stormwater is an essential component in successfully addressing stormwater.
- L. Federal and State regulations require the Borough to implement a program of stormwater controls. The Borough is required to obtain a permit and compty with its provisions for stormwater discharges from its Municipal Separate Storm Sewer System (MS4) under the National Pollutant Discharge Elimination System (NPDES).
- M. Non-stormwater discharges to municipal or other storm sewer systems can contribute to pollution of the Waters of the Commonwealth.
- N. The Borough's streams have been designated as impaired by PADEP and the Borough is required to control the discharge of certain pollutants into the streams through a Total Daily Maximum Load. Specifically, the following pollutant reduction requirements have been placed on the Borough (Source: <u>Draft MS4 Requirements Table</u> revised 08/05/2016):

Impaired Downstream Waters or Applicable TMDL Name	Cause of Impairment	Requirement
Chester Creek	Cause Unknown (5), Flow Alterations, Water/Flow Variability (4c)	Pathogens, Siftation
Goose Creek TMDL	Cause Unknown (4s)	Nutrients
Plum Run	Water/Flow Variability (4c)	Sittation

Taylor Run	Cause Unknown (4a), Other Habitat Alterations (4c)	Sillation
Brandywine Creek	n/a	Situation
Blackhorse Run	Other Habitat Alterations, Water/Flow Variability (4c)	Silitation

- O. On December 9, 2013 and February 10, 2014, the Stormwater Management Assessment Advisory Committee, hereinafter referred to as SWMAC, presented a report to the Borough Council on "Stormwater Management Assessment Fee Policy Options and Recommendations", which report summarized the Borough's stormwater program needs and policy options for funding those program needs.
- P. The SWMAC worked with Borough staff to define those program needs, level of service and costs, and evaluated alternative funding options that support the need for a dedicated funding source and recommended creation of an impervious area based fee, referred to as the Stream Protection Fee, or hereinafter referred to as the Fee, that would be paid by all owners of properties in the Borough in direct proportion to the amount of impervious area that is on their property using a system of tiers as presented in this Ordinance. In addition, the SWMAC recommended that the Borough establish a system of credits to incentivize property owners to build and maintain stormwater management systems on their property, and therefore reduce their fee.

SECTION 3. Statutory Authority.

The Borough is empowered to regulate and manage stormwater within the Borough by the following acts and laws:

- (i) The Act of October 4, 1978, P.L. 864 (Act 167) 32 P.S. Section 680.1 et seq., as amended, the "Storm Water Management Act";
- (ii) The Clean Water Act, 33 U.S. §1251 et seq.;
- (iii) Pa. Clean Streams Law, 35 P.S. §691.1 et seq.; and
- (iv) The Borough's Home Rule Charter.

SECTION 4. Interpretation.

For the purposes of this Ordinance, certain terms and words used herein shall be interpreted as follows:

A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender, and words of feminine gender include masculine gender.

- B. The word "includes" or "including" shall not limit the term to the specific example, but is intended to extend its meaning to all other instances of like kind and character.
- C. The word "person" includes an individual, partnership, public or private association or corporation, firm, trust, estate, Borough, governmental unit, public utility or any other legal entity whatsoever which is recognized by law as the subject of rights and duties. Whenever used in any section prescribing or imposing a penalty, the term "person" shall include the members of a partnership, the officers, members, servants and agents of an association, officers, agents and servants of a corporation, and the officers of a Borough.
- D. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.
- E. The words "used" or "occupied" include the words "intended, designed, maintained, or arranged to be used, occupied, or maintained."
- F. The definitions in this Ordinance are for the purposes of enforcing the provisions of this Ordinance and have no bearing on other municipal regulations or ordinances.

SECTION 5. Definitions.

Base Rate – the dollar rate per Base Unit per month calculated by the Director, and adopted by the Borough Council from time to time by Resolution.

Base Unit - one thousand (1,000) square feet of impervious surface.

BMP (Best Management Practice) — Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from Regulated Activities, to provide water quality treatment, infiltration, volume reduction, and/or peak rate control, to promote groundwater recharge, and to otherwise meet the purposes of this Ordinance. Stormwater BMPs are commonly grouped into one (1) of two (2) broad categories or measures: "structural" or "nonstructural." In this Ordinance, nonstructural BMPs or measures refer to operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural BMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff. Structural BMPs include, but are not limited to, a wide variety of practices and devices from large-scale retention ponds and constructed wetlands to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention

basins, and manufactured devices. Structural stormwater BMPs are permanent appurtenances to the Site.

Condominium Property is a Property subject to a condominium regime established under the Pennsylvania Uniform Condominium Act.

Customer - any Property Owner of a Property in the Borough.

Department - the Borough's Department of Public Works.

Design Manual - the 2006 Pennsylvania Stormwater Best Management Practices Manual, as revised from time to time, which serves as the official guide for stormwater management principles, methods, and practices in Pennsylvania.

Developed – Property where manmade changes have been made which add impervious surfaces to the property, which changes may include, but are not limited to, buildings or other structures for which a building permit must be obtained under the requirements of the Pennsylvania Building Code and this Code, mining, dredging, filling, grading, paving, excavation or drilling operations, or the storage of equipment or materials.

Development - a project that consists of subdividing land or adding buildings and other improvements to individual parcels of land.

Director - the Director of the Department of Public Works of West Chester Borough or the Director's designee.

Drainage Area - That land area contributing runoff to a single point (including but not limited to the point/line of interest used for hydrologic and hydraulic calculations) and that is enclosed by a natural or man-made ridge line.

Green Infrastructure (GI) - small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of development on water resources. Methods to design GI practices are specified in the Design Manual.

Impervious Surface – A surface that has been compacted or covered with a layer of material so that it prevents or is resistant to infiltration of water, including but not limited to, structures such as roofs, buildings, storage sheds; other solid, paved or concrete areas such as streets, driveways, sidewalks, parking lots, patios, decks, swimming pools, tennis or other paved courts; or athletic playfields comprised of synthetic turf materials. For the purposes of determining compliance with this Ordinance, highly compacted soils or stone surfaces used for vehicle parking and movement shall be

considered impervious. Surfaces that were designed to allow infiltration (i.e. areas of porous pavement) will be considered on a case-by-case basis by the Borough Engineer, based on appropriate documentation and condition of the material, etc.

Infiltration - the passage or movement of water into the soil surface.

NPDES – National Pollutant Discharge Elimination System, the Federal government's system for issuance of permits under the Clean Water Act, which is delegated to PADEP in Pennsylvania.

PADEP - Pennsylvania Department of Environmental Protection.

Property - each and every parcel of real estate located within West Chester Borough.

Property Owner - the owner of record for a given Property within the Borough, as registered in the Office of the Recorder of Deeds for Chester County, Pennsylvania.

Property Manager - a person, company or other entity hired by a property owner to manage a Property.

Stormwater - water that originates from precipitation.

Stormwater Management - the collection, conveyance, storage, treatment, and control of stormwater as needed to reduce accelerated stream channel erosion, flood damages and water pollution.

Stormwater Management Facility - an infiltration device, filtering device, stormwater pond, stormwater wetland, hydrodynamic structure, or other practice designed and constructed to control stormwater to reduce accelerated stream channel erosion and pollution of surface waters. A stormwater management facility does not include environmental site design practices or any nonstructural stormwater management systems.

Stream Protection Fee (SPF) - an assessment levied by the Borough to cover the cost of constructing, operating, and maintaining stormwater management facilities and to fund expenses related to the Borough's compliance with PADEP NPDES permit requirements under applicable state law based on the impact of stormwater runoff from impervious areas of developed land in the Borough.

Stormwater Management Fund - the fund established from the collection of the Stream Protection Fees authorized pursuant to this Ordinance.

Stormwater Management System - the system of collection and conveyance, including underground pipes, conduits, mains, inlets, culverts, catch basins, gutters, ditches, manholes, outfalls, dams, flood control structures, natural areas, structural and non-structural stormwater best management practices, channels, detention ponds, public streets, curbs, drains and all devices, appliances, appurtenances and facilities appurtenant thereto used for collecting, conducting, pumping, conveying, detaining, discharging and/or treating stormwater.

Structural Maintenance - the inspection, construction, reconstruction, modification, repair, and cleaning of any part of a stormwater management facility undertaken to assure that the facility remains in the proper working condition to serve its intended purpose and prevent failure. Structural maintenance does not include landscaping, grass cutting, or trash removal.

Watershed - the total drainage area contributing runoff to a single point.

Undeveloped Land - any land that has not been altered from its natural state and which contains no impervious surfaces, or, if previously developed, land that has been allowed to return to its natural state with no impervious surfaces.

SECTION 6. Imposition of Stream Protection Fee.

- A. For the use of, benefit by and the services rendered by the Stormwater Management System, including its operation, maintenance, repair, replacement and improvement of said system and all other expenses, a Stream Protection Fee ("Fee") as described, defined, and calculated herein is hereby imposed upon each and every Developed Property within the Borough that is connected with, uses, is serviced by or is benefitted by the Borough's Stormwater Management System, either directly or indirectly, and upon the owners of such Developed Property as set forth herein.
- B. Impervious Area Property Tiers: For purposes of determining the appropriate assessment rate for the Fee, all Properties are assigned to one of the following tiers ("Tier" or "Tiers"):
 - 1. Tier 1: For Properties where the total impervious surface area is greater than zero square feet and less than or equal to 1,000 square feet.
 - 2. Tier 2: For Properties where the total impervious surface area is greater than 1,000 square feet and less than or equal to 1,500 square feet.
 - 3. Tier 3: For Properties where the total impervious surface area is greater than 1,500 square feet and less than or equal to 2,000 square feet.
 - 4. Tier 4: For Properties where the total impervious surface area is greater than 2,000 square feet and less than or equal to 2,500 square feet.
 - 5. Tier 5: For Properties where the total impervious surface area is greater than 2,500 square feet and less than or equal to 3,000 square feet.
 - 6. Tier 6: For Properties where the total impervious surface area is greater than 3,000 square feet.

C. Impervious Area Property Tiers were developed using impervious estimates based on Chester County's geographic information system (GIS) impervious cover data layer from 2010.

SECTION 7. Billing and Payment.

- A. The Director will prepare the necessary data for collecting the Fee from Property Owners subject to the Fee, including the identification of every parcel of Property to be charged and the amount of the Fee.
- B. Prior to receipt of the first bill for the Fee, all Properties will be issued an assessment notice by the Borough with the Property's estimated Fee and the basis of that Fee.
- C. The Fee fixed and established by this Ordinance shall be effective as to all Developed Properties that use, are served by or benefitted by the Stormwater Management System existing as of the effective date of this Ordinance. The first billing pursuant to this Ordinance shall be on or about, October 1,2016 and shall cover the fourth quarter of 2016 Thereafter for subsequent years, the Fee imposed by this Ordinance shall be assessed and billed by the Borough effective as of January 1st each calendar year. Property owners shall have the option to pay the Fee in full within 30 days following the date on which the bill was mailed and receive a 2% discount of the fee. Alternatively, Owners may pay the fee on a quarterly basis at face amount of the bill and upon a schedule designated by Council.
 - D. Bills for the Fee or charges shall be paid by the owner of the property and mailed to the address listed in the Chester County tax records for the property served by the Stormwater Management System, unless and until a different address is specified, in writing, by the owner of such property to the Borough. Failure of the owner to receive a bill as a result of an incorrect address or otherwise shall not excuse payment of the Fee or charges or extend the time for payment thereof. It shall be incumbent upon all owners of Developed Property who are subject to the Fee to provide the Borough with the correct billing address or any changes thereto.
 - E. All Fees not paid within 21 days of the date of the bill shall be deemed to be delinquent and shall be subject to a penalty of 1 1/2% per month. All delinquent Fees, together with interest, penalties, charges and costs thereof, shall constitute a municipal claim against the property or properties served by the Stormwater Management System from the date the same first became due and payable. If such Fees, penalties and charges are not timely paid, the Borough shall file a municipal lien against the property served pursuant to the procedure established in the Pennsylvania Municipal Lien Law and such lien shall be collected in the manner provided for by law for the filing and collecting of such municipal liens. The Borough is further authorized to collect reasonable attorney's fees that it incurs in the collection of any delinquent accounts. In addition, the Borough may collect all delinquent Fees, penalties, interest and charges, including attorney's fees, by referring such delinquent claims to a collection agency, by filing an action in assumpsit, or in any manner or by proceeding otherwise provided by law. Any fees that the Borough incurs in exercising its legal

remedies shall be added to the amount of the delinquent account. All of the Borough's remedies shall be cumulative.

- G. The Borough shall deposit all payments collected under this Section into the Borough Stormwater Management Fund.
- H. When Developed Properties are altered such that the amount of Impervious Surface on the Property increases or decreases, the Fee will by revised as of the date of the issuance of a building permit for the proposed improvements which will alter the amount of Impervious Surface on the Property. A bill will be issued in the next billing cycle and will be prorated for the number of days in which service was provided.

SECTION 8. Calculation of the Stream Protection Fee.

A. The Stream Protection Fee shall be calculated by multiplying the Base Rate by the percentage amount listed herein for the appropriate Tier as follows:

- 1. The Fee for each Tier 1 Property is 50 percent of the applicable Base Rate.
- 2. The Fee for each Tier 2 Property is 125 percent of the applicable Base Rate.
- 3. The Fee for each Tier 3 Property is 175 percent of the applicable Base Rate.
- The Fee for each Tier 4 Property is 225 percent of the applicable Base Rate.
- 5. The Fee for each Tier 5 Property is 275 percent of the applicable Base Rate.
- B. The Stream Protection Fee for each Tier 6 Property shall be computed based on the actual impervious area on the Property. The Director shall compute the Stream Protection Fee by dividing the actual impervious area of the Property by the number of Base Units, and then multiplying the result by the Base Rate.
- C. The Base Rate utilized by the Director shall be the Base Rate as established from time to time by Resolution of Borough Council.
- D. If the property is a Condominium Property, the Director shall calculate the Stream Protection Fee to be billed in equal shares to the condominium units owners by dividing the total number of Base Units by the number of individual condominium units and then multiplying that by the Base Rate to determine the amount billable to each condominium unit owner or in such other manners as may be promulgated by the Director in policies and procedures based on square footage, types of condominium units or other similar classification and calculations.

SECTION 9. Stormwater Management Fund.

- A. All sums collected from the payment of Stream Protection Fees shall be deposited into the West Chester Borough Stormwater Management Fund.
 - B. The Stormwater Management Fund shall be used by the Borough for:
 - 1. Implementation and management of a program to manage stormwater within the Borough.
 - Constructing, operating, and maintaining the Borough's Stormwater Management System.
 - Debt service for financing stormwater capital projects.
 - 4. Payment for other project costs and performance of other functions or duties authorized by law in conjunction with the maintenance, operation, repair, construction, design, planning and management of Stormwater facilities, programs and operations.

SECTION 10. Stormwater Credits.

- A. The Borough may provide a system of credits against Stream Protection Fees for Properties on which stormwater facility construction or maintenance substantially mitigates the peak discharge or runoff pollution flowing from such Properties or substantially decreases the Borough's cost of maintaining the Stormwater Management System.
- B. The Borough has developed written policies and procedures to implement the credit system, known as the Stream Protection Fee Program Rebate and Credit Policies and Procedures Manual ("Credit Manual"). The Credit Manual may be updated from time to time by the Borough Council.

SECTION 11. Appeals.

A. The Borough has developed written policies and procedures to implement the appeal process, known as Stream Protection Fee Program Appeal Policies and Procedures Manual ("Appeals Manual"). The Appeals Manual may be updated from time to time by the Borough Council.

- A. A Property Owner who believes the provisions of this Ordinance have been applied in error may appeal in accordance with the provisions of this Section and as described in greater detail in the Appeals Manual.
- B. An appeal of the assigned Tier and/or the Fee must be filed in writing to the Borough Manager or his designee within thirty (30) days of receipt of the notice of the assigned Tier or Fee. The appeal must state in detail the basis and reasons for the appeal.
- C. Using information provided by the appellant, the Borough Manager, or his designee, shall conduct a technical review of the conditions of the Property and respond to the appeal in writing within sixty (60) days. In response to an appeal, the Borough Manager may adjust the Fee applicable to the property in accordance with the provisions of this Ordinance.
- D. Any person aggrieved by a decision of the Borough Manager relevant to the provisions of this Ordinance may appeal to the Court of Common Pleas of Chester County, Pennsylvania.
- E. Borough Council may, from time to time, by Resolution, establish fees for the processing and handling of an appeal.

SECTION 12. Rules and Regulations.

Borough Council or the Director may promulgate policies and procedures, appeal applications and other forms relating to the interpretation, enforcement and application of the provisions of this Ordinance.

SECTION 13. Limitation on Borough's Liability for Fallure of Supply of Stormwater Services

- A. Floods from runoff may occur that exceed the capacity of stormwater facilities constructed and maintained by funds made available pursuant to this Ordinance. This Ordinance does not imply that property subject to the fees and charges established herein will be free from stormwater flooding or flood damage. The Borough shall not be liable to any person for any flood damage. Further, payment of a Stream Protection Fee to the Borough does not relieve a Property Owner from any local, State or Federal requirements to obtain flood insurance or other laws applicable to the Property.
- B. The Borough, by taking any action pursuant to this Ordinance, does not waive, reduce, lessen or impair the lawful police powers vested in the Borough under applicable Federal, State and local laws and regulations.

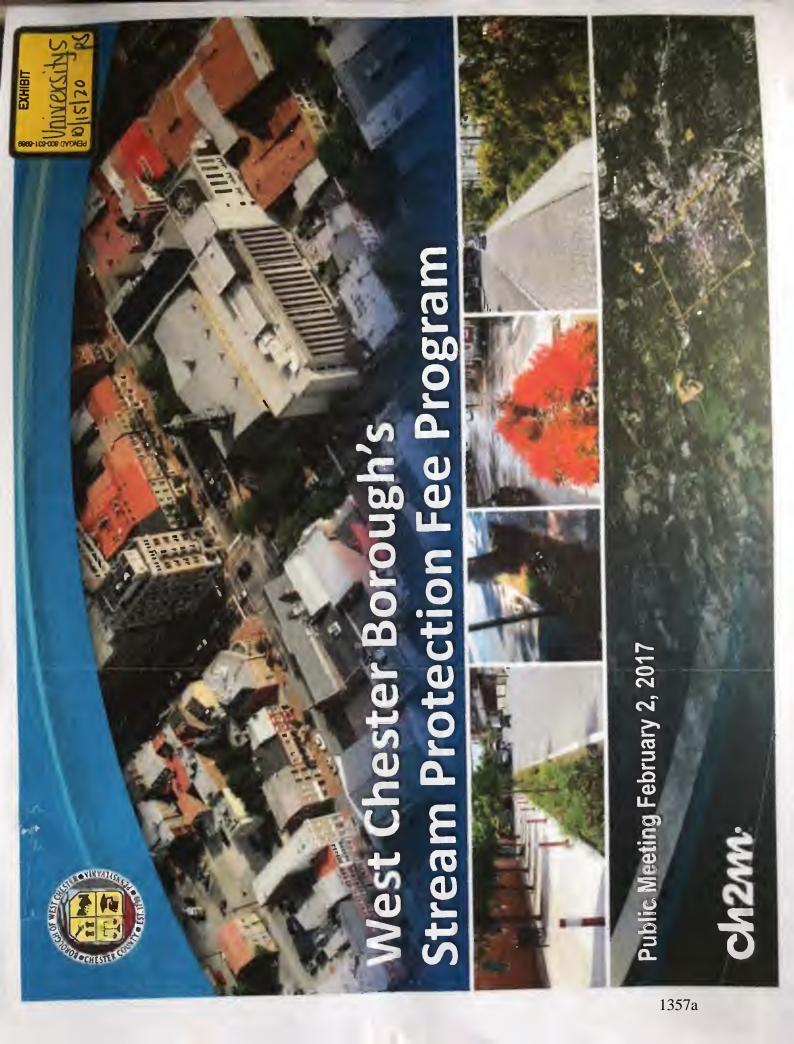
C. The failure of the Borough to insist on timely performance or compliance shall not constitute a waiver of the Borough right to later insist on the same. Further, the failure of a waiver or estoppel of its right to enforce any provision of this Ordinance on any occasion shall not operate as occasion, nor shall the failure to enforce any prior ordinance or rule or regulation relating to sewer services, water services, stormwater services, sewer charges, water charges or the Stream Protection Fee, act as a waiver or estoppel against enforcement of this chapter or any other provision of applicable law.

SECTION 14. Severability. If any sentence, clause, section or part of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections or parts hereof. It is hereby declared as the intent of Council of the Borough of West Chester that this Ordinance would have been adopted had such unconstitutional, illegal or invalid sentence, clause, section or part thereof not been included therein.

SECTION 15. Repealer. All Ordinances or parts of Ordinances conflicting with any provision of this Ordinance are hereby repealed insofar as the same affects this Ordinance.

SECTION 16. Effective Date. This Ordinance shall become effective upon enactment as provided by law.

ENACTED AND ORDAINED THIS 29	DAY OF, 2016.
ATTEST:	COUNCIL FOR THE BOROUGH OF WEST CHESTER
BY:	Ellen Koopman, President
APPROVED THIS 20th DAY OF	JU/, 2016.
	Carolyn T. Comitta, Mayor



- Stormwater Runoff What is it?
- •Why is it a problem?
- •How is the Borough going to address it?
- •Who is paying the fee?
- •How can I reduce my fee?
- •Questions from Audience

001602











Stormwater Runoff - Why is it a problem?

- Pollutants from the Borough affect our local streams
 - Goose Creek
 - Taylor Run
 - Blackhorse Run
 - Plum Creek
- Excessive amounts of runoff impact our health, safety, and welfare
 - Flooding
 - Stream bank erosion
- Strains our historic infrastructure
 - Pipes, inlets, and other stormwater infrastructure require inspections, cleaning, and rehabilitation and replacement





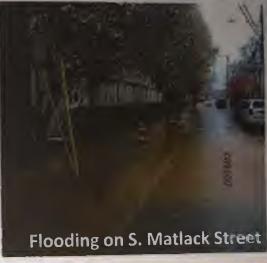






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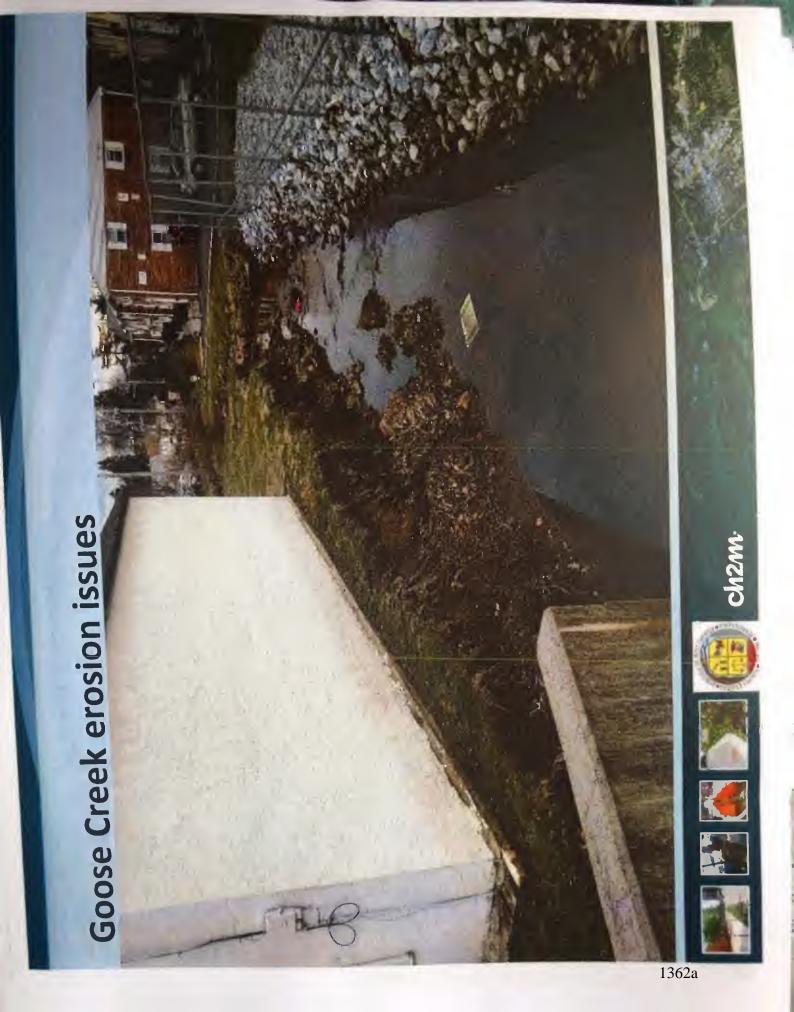


Impervious surfaces generate excess runoff that washes pollution into nearby storm inlets which usually outfall directly to our streams



Our inlets and culverts require frequent cleaning to remain effective



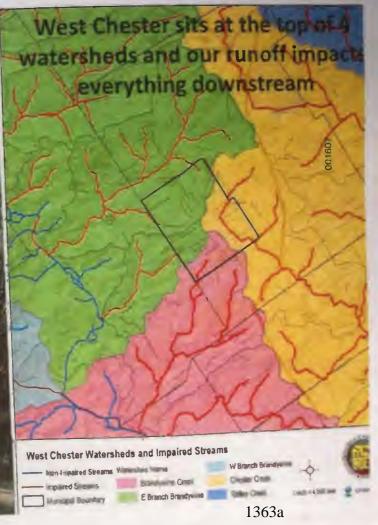


All of our local streams are "Impaired" (red on the map)

Regulatory Mandate: comply with a stormwater ("MS4") permit issued by the PA Dept. of Environmental Protection

(DEP) that requires us to reduce pollution in all of the watersheds so the streams can become fishable and swimmable





Regulatory: Municipal Separate Stormwater System (MS4)

Requirements

- New Stormwater MS4 Permit application to PADEP by September 2017 requires:
 - 10% reduction in Sediment over 5 years
 - 54% reduction in Phosphorus (Goose Creek)
- The new permit must define specific projects to show that pollution reduction can and will be achieved in 5 years!
 - Ignoring this regulation is not an option
- More info on Pollution Reduction Plans will be shared later this summer









Infrastructure Needs: West Chester's stormwater infrastructure, built in the early 1900's, and our streams,

need repair and maintenance

 Cost of providing municipal services is increasing faster than revenue in General Fund



Base 5-year CIP Items (prepared in 2013)	Estimated Cost
Equipment	
Replace 1997 Sewer Jet, 44-30 (30% for SW)	\$36,000
Replace Street Sweep of 44-40	\$210,000
Plpes	
Replace Fine Alley Brick Sewer	\$195,000
Replace N, High St. (Virginia-Ashbridge)	\$150,000
Replace West Union St. (Ourlington New)	\$250,000
Reline New St. (Union-Holly Alley)	\$75,000g
Replace Wollerton Alley (New-Darlington)	\$90,0008
Reline W. Washington (Hannum-New)	\$160,000
Replace Hoopes Alley (Everhard-Outfall)	\$115,000
Reline N. High St. (Chestnut to Washington)	\$218,750
Stream Improvements	
E. Barnard St. Culvert Replacement	\$250,000
Franklin at Linden Culvert Replacement	\$290,000
Plum Run (College-Bradford)	\$687,500
Goose Creek (Franklin-Nields)	\$375,000
TOTAL (nearest \$1,000)	\$3,102,000











Stormwater Runoff - How should the Borough address it?

- Stormwater Assessment Advisory Committee (SWAAC) was formed in 2013 to recommend to Borough Council how to address the problem & fund it
- Included representatives from:
 - Residential
 - Business
 - Institutions (Chester County Hospital)
 - Non-Profits (Church)
 - West Chester University
 - Chester County
 - Borough Council and Staff



Met 7 times between July 2013 and October 2015 on funding options and policy issues











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019100

Public Outreach process

Outreach Effort	# Of Meetings	Dates	
Advisory Committee	7	2013 – 2015	
Council Committees and Worksessions	10 (est.)	2013 – 2016	
Public Meetings	3	2014 Winter/Spring	
Comprehensive Plan Open House	2	2015	
SPF Open House	1	2016 April	
Public Meetings	1	2017 February	001611
Stakeholder Meetings	8	2014, 2016	8
Public Hearing on Ordinance	2	2016, May and June	
Facebook, website, articles, etc.	>>	2013 - 2017	



1367a

How can we address the problems and regulatory requirements related to stormwater?

- Develop a rigorous stormwater program
 - Repair and rehabilitation projects
 - Regulatory compliance activities
 - Community improvements
 - Urban Forestry
 - Integrated infrastructure (e.g., drainage improvements integrated with road work)
 - Green infrastructure (e.g., rain gardens, stormwater tree trenches, vegetated roofs)
 - Stream restoration
 - Flood reduction projects
 - This requires a dedicated, long-term funding mechanism



Bioswale in curb extension also provides traffic common and ADA improvements



Green Alley with permeable pavers

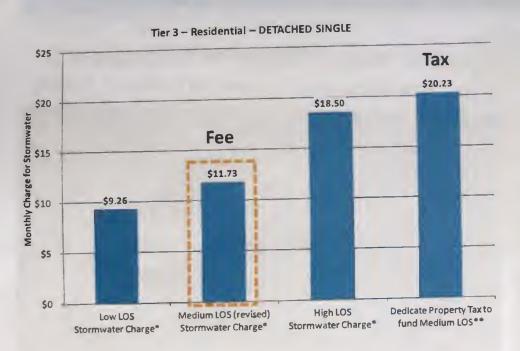




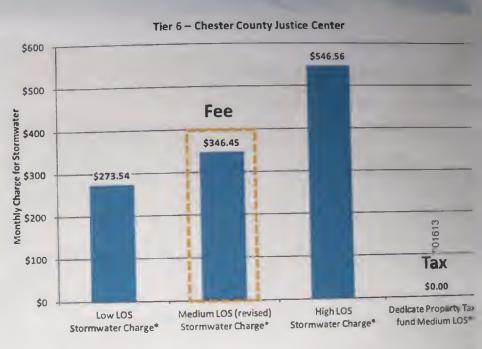
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WAAC Recommendation

Stormwater fee based on impervious area as the most equitable approach to pay for stormwater



Typical residential owner would pay a fee of \$11.73/month or additional taxes of \$20



A large tax-exempt property would pay a fee of \$346/month or additional taxes of \$0









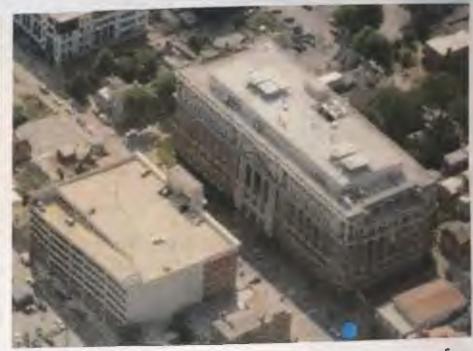




Stormwater fee based on impervious area as the most equitable approach to pay for stormwater



Typical residential owner would pay a fee of \$11.73/month or additional taxes of \$20



A large tax-exempt property would pay a fee of \$346/month or additional taxes of \$0

Increasing property taxes or sewer bills is not fair because they are not directly linked to how much stormwater a property generates











West Chester Borough is not alone in looking at a stormwater fee: municipalities across the country are increasingly relying on them

- Over 1,600 stormwater utilities
 exist across the country*
- In PA, 7 are collecting (up from 3 in 2013):
- West Chester, Philadelphia, Lancaster, Meadville, Mount Lebanon, and Radnor are collecting revenues
- Enabling legislation introduced in 2015 (HB 1325)
- A lot of local interest from neighboring municipalities



* Source: Western Kentucky University Stormwater Utility Survey, 2016



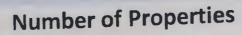




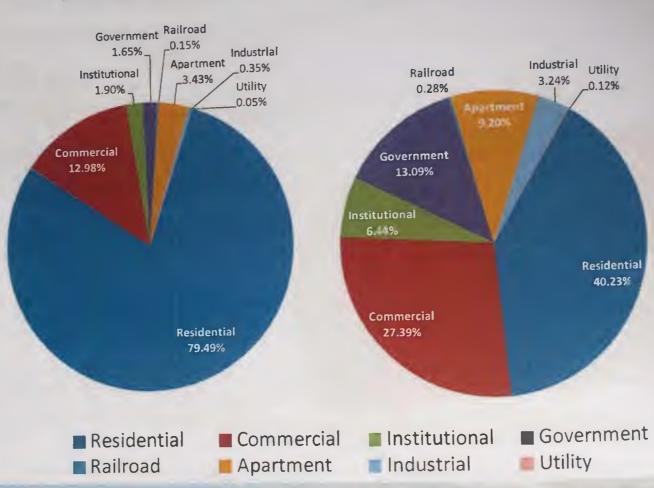




Impervious Area by Stormwater Class



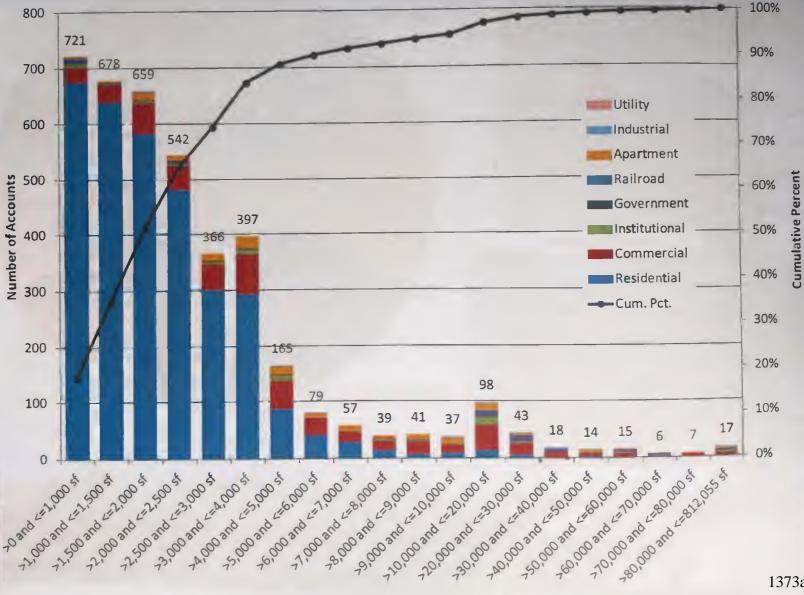
Impervious Area





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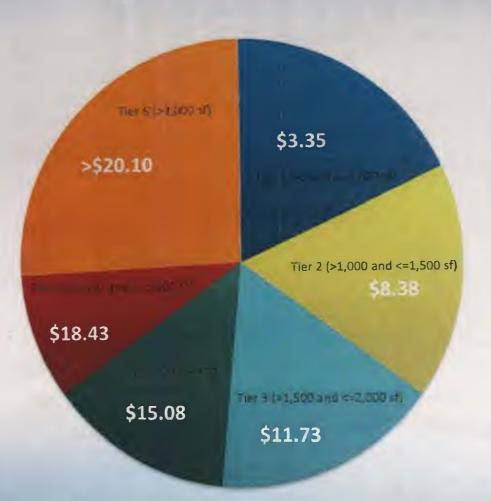
How were the Tiers developed?



1373a

WMAAC Recommendation

Six "tiers" based on amount of impervious area. A property's tier determines the monthly charge.



Tier	Amount of Square Feet of Impervious Area	Percent of Total Accounts
Tier 1	>0 and <=1,000 sf	18%
Tier 2	>1,000 and <=1,500 sf	17%
Tier 3	>1,500 and <=2,000 sf	16%
Tier 4	>2,000 and <=2,500 sf	14%
Tier 5	>2,500 and <=3,000 sf	9%
Tier 6	>3,000 sf	26%

 Each Tier is charged based on the recommended monthly fee of \$6.70/1,000 ft2 of Impervious Area using the midpoint of the range

Median Monthly Fee:

Residential: \$11.73

• Commercial: \$25.87











ch2m.

Develop an incentive program for all property owners to be able to reduce their fees

- Maximum credit is 60% of the fee no one can receive 100% credit
- Residential properties can receive a
 Rebate (one time cash back) and/or a
 Credit (recurring fee reduction)
- Nonresidential properties (which includes multi-family-res) can receive a Credit only (up to 60% max).
- Manual, Application and Forms online
- Existing projects that installed an approved stormwater Best
 Management Practice (BMP) can apply for a credit













Types of BMPs that are eligible for a rebate or a credit



- Water quality treatment BMPs (filters, etc.)
- Flood control BMPs

....and more





Permeable pavers







ch2m

Green Infrastructure

Credit/Rebate (updates since January 2017)

- Application due to Public Works by September 30, 2017
- If approved, credit/rebate will be retroactively applied to 2017 bills
- Three-year cycle (2017, 2018, 2019)
- Application Fee waived for 2017
- Need to sign an Operations and Maintenance Agreement









Appeals (updates since January 2017)

- Council approved a one-year waiver for all AppealApplication fees
- Required documentation:
 - Google Earth Aerial measure
 tool send screen shot
 - Photographs with graph paper measurements
 - "Plot plan" if you have one

STREAM PROTECTION FEE APPEAL APPLICATION

The Borough has established a Stream Protection Fee (SPF) and all developed piricell in the 2000 and are required to pay the fee, which is based on the impervious coverage of the parcellare in the paper als Manual and the are entitled to appeal the user fee in accordance with the procedure in the Appeals Manual and the Stream Protection Fee Ordinance 2015-##

Submit completed form

or mail to. Borough of West Chester Storm - ater Program 401 E. Goy Street, West Chester, PA 19380

Applicati	on Date.	SPF Account 10	
Owner N		Mailing Address.	
	Address:		
		Fmail Address.	- 2
Phone N	umber.	LIIONANGE	900
Reason	for Appeal (Check all that	apply):	•
3	Incorrect parcel informati	on	
	Inaccurate impervious are	ea calculation	
	Inaccurate Tier category	assignment	
	Mathematical error		
Special	Condition Appeal		
If the ap	the standard this app	eal, both reasons below must be true:	a salaman
	The stormwater runoff in	npact on the stormwater system or service of impervious area; and	
0	Applicant's parcel or a po	ortion thereof drains completely outside of	of the Borough
Suppor	ting Documentation C	hecklist (provide all items listed below)	
	C		
		age or similar information detailing actua	
	currently on-site	correct impervious area/ associated with	the propert fo and an
	Requested value for the	correct impervious area, asset 2)	

appeal is being requested (provide in Description, page 2)













Ruler	3-1	100	-		×
Line	Path	Polygon	Circle	3D path	3D 1
Measure	e the dista	nce or area	of a geome	tric shape (on the ground
Perimet	er:		247.21 F	eet	•
Area:			2,110.11 Square Feet		
Mouse Navigation		Sav	/e	Clear	
1	WE A		5.1		



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What is the SPF funding? Capital Projects/O&M/Administration

- Pipe replacement and relining projects (Barnard St Culvert; Pine Alley relining)
- Equipment
- Matching funds received for \$220,000 County Grant funding for 3 Green Streets to serve as demonstration sites
 - Pine Alley (along with a planned pipe relining project)
 - Everhart and Nields (in conjunction with repaving project)
 - Hoopes Alley (significant streambank erosion issue)
- GI Projects planned for constructed in 2017
 - GI Demonstration at Borough Hall
 - GI Enhancements to Veteran's Park
- List for 2018 and beyond...



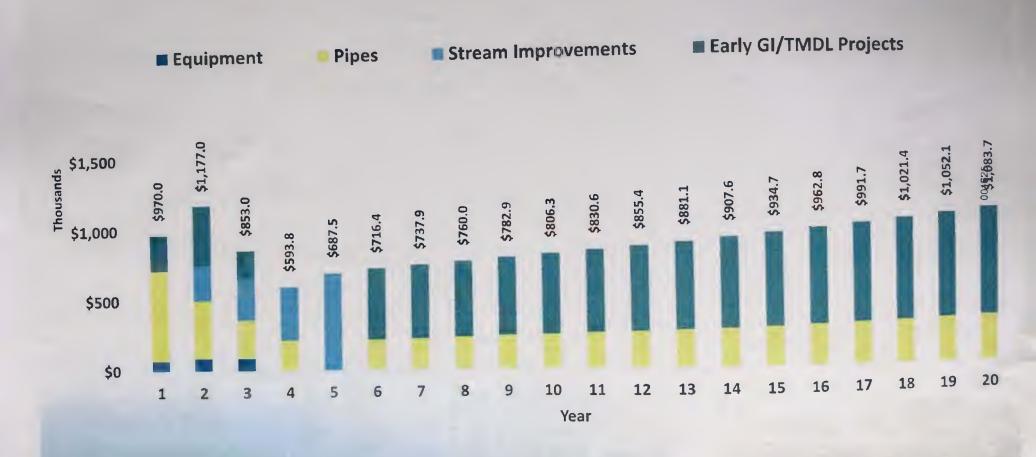








What is being funded? CIP components of the Fee by Project Category (escalated \$)







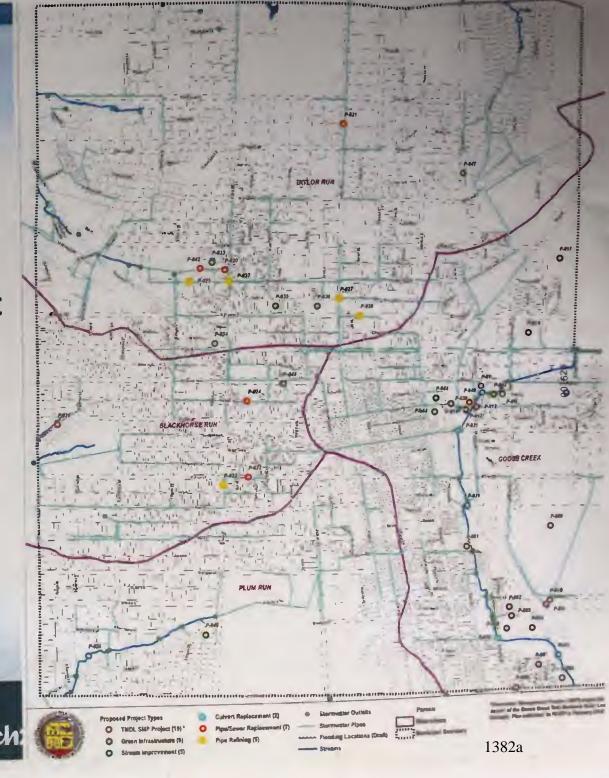






50 Potential Projects

- •Green Infrastructure
- Stream Improvement
- Pipe Relining and Replacements





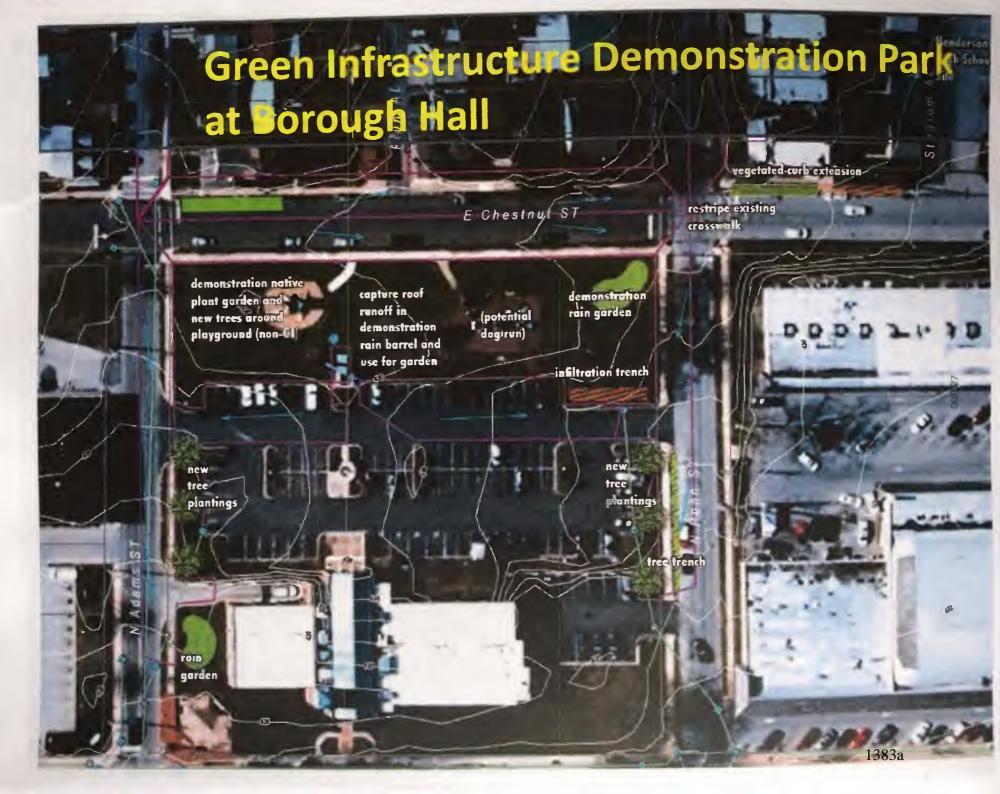












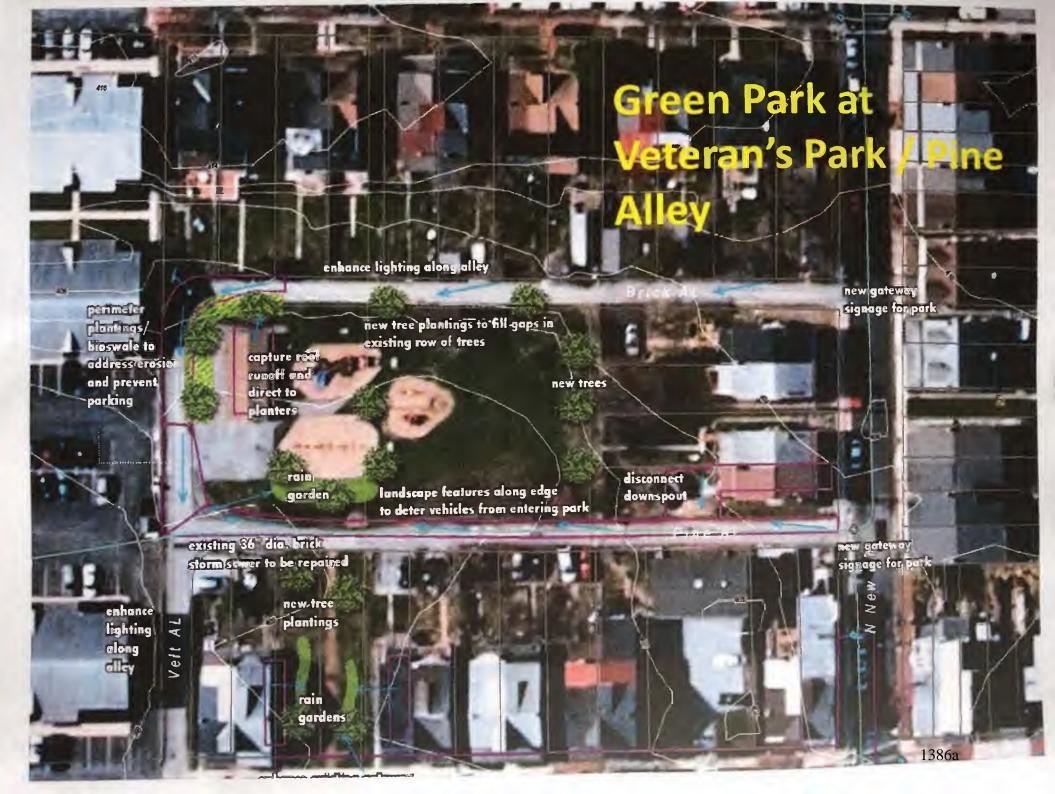
Fugett Park/Borough Hall: Existing Conditions





Fugett Park/Borough Hall: Proposed Rain Garden





Veterans Park/Pine Alley: Existing Play Area













Veterans Park/Pine Alley: Proposed Features



















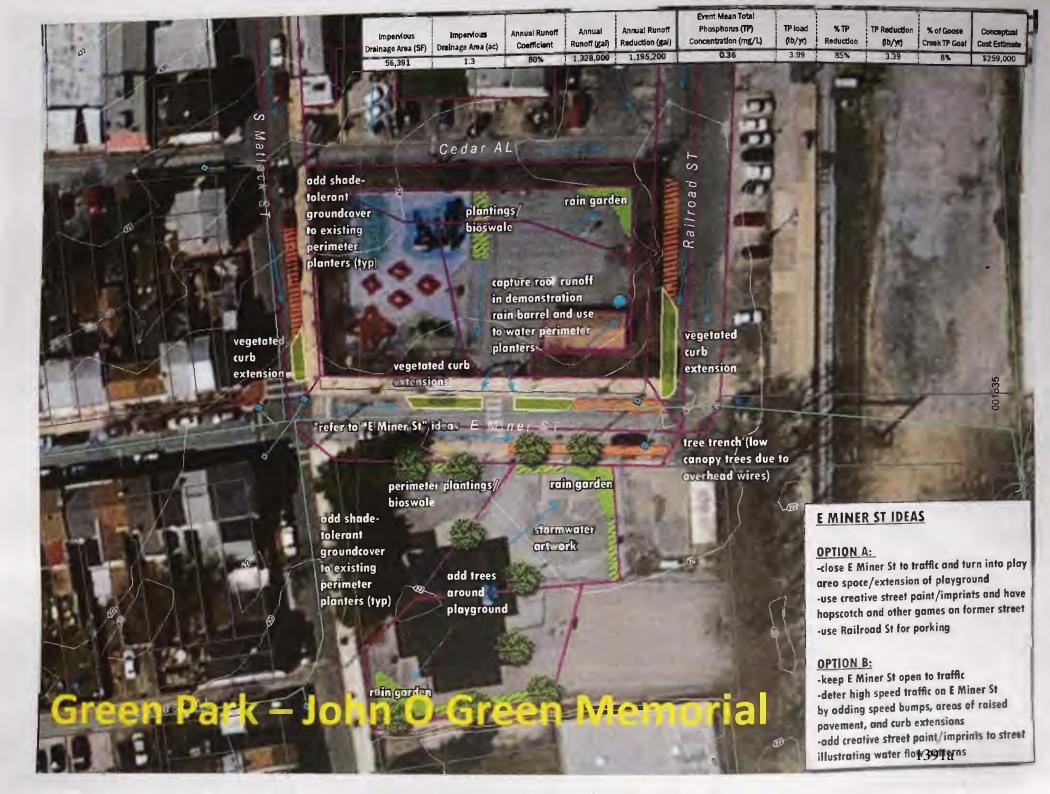




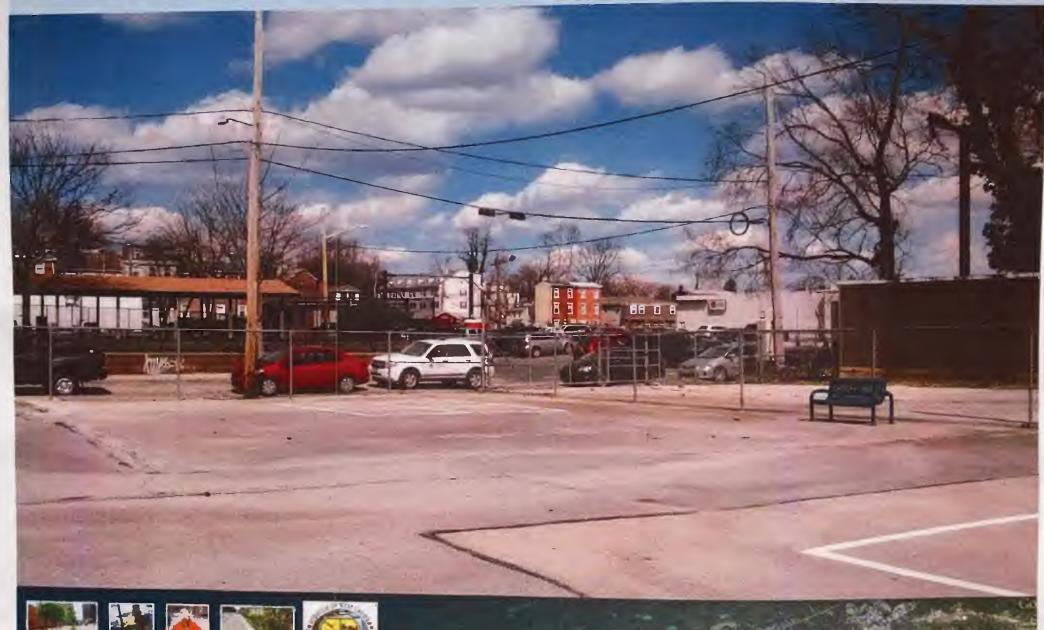


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John O. Green Memorial Park: Existing Play Area













John O. Green Memorial Park: Proposed Rain Garden













- Plant a Tree! February 10th deadline for free Street Trees from Borough (to be planted in April by Public Works) - Qualify for Rebate and Credit!
- Website, search "Stormwater" or "Stream Protection Fee"
- Sustainability Advisory Committee
 - Meeting last Thursday of every month
 - Hosting a future Credit/Rebate Workshop in the spring
- Attend Public Works Committee Meetings
- Sign up for Alerts on Borough Website















Michael Cotter: mcotter@west-chester.com

Questions or Comments











IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER, :

Original Jurisdiction

Petitioner,

•

V.

No. 260 MD 2018

PENNSYLVANIA STATE SYSTEM

OF HIGHER EDUCATION and

:

WEST CHESTER UNIVERSITY OF

PENNSYLVANIA OF THE STATE

SYSTEM OF HIGHER

EDUCATION,

.

Respondents.

•

UNSWORN AFFIDAVIT OF TODD MURPHY

I, Todd Murphy, being duly sworn, hereby aver as follows:

- 1. I am currently the Vice President for Finance and Administration at West Chester University ("University").
- 2. In my role, I oversee various issues, including matters related to facilities.
- 3. I am generally familiar with this lawsuit, and I submit this unsworn affidavit in support of the University's Motion for Summary Judgment in the above-captioned matter.

- 4. The University owns and maintains a system of inlets and pipes, known as the MS4 system, to collect and convey stormwater runoff on its campus.
- 5. The University's MS4 system includes both North Campus and South Campus. Attached as Exhibit A is a document numbered WCU000001 that shows the MS4 system on North Campus.
- 6. WCU000001 shows five outfalls from the University's MS4 on North Campus. Four of those outfalls are located in West Goshen Township. The only outfall located in the Borough is labeled WCU-NC-001 and located next to the New Street parking structure.
- 7. The University maintains a permit for its MS4 system, which requires the University, at its own expense, to limit certain pollutants in stormwater and manage stormwater runoff.
- 8. Pursuant to its obligations for its MS4 permit, the University monitors and inspects the outfall located next to the New Street parking structure, along with the outfalls located in West Goshen Township. Based on those inspections, the University, at its own expense, takes any necessary remedial measures to limit pollutants and manage excess runoff generally.
- 9. Although the stormwater in the outfall next to the New Street parking structure likely contains runoff from both North Campus and the Borough, the

University has never attempted to bill the Borough for its expenses in inspecting and managing that stormwater.

I verify that the statements above are true and correct to the best of my knowledge, information, and belief. I understand that false statements herein are made subject to the penalties of 18 Pa. C.S. § 4904, relating to unsworn falsification to authorities.

Date: 7/15/21	
---------------	--

Todd Murphy

Exhibit A



IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER,

Original Jurisdiction

Petitioner,

•

V.

No. 260 MD 2018

PENNSYLVANIA STATE SYSTEM

OF HIGHER EDUCATION and

:

WEST CHESTER UNIVERSITY OF

PENNSYLVANIA OF THE STATE

SYSTEM OF HIGHER

EDUCATION,

.

Respondents.

:

UNSWORN AFFIDAVIT OF JOHN VILLELLA

I, John Villella, being duly sworn, hereby aver as follows:

- 1. I am currently the Vice President for University Affairs at West Chester University ("University").
- 2. In my role, I oversee various aspects of the University's operation, including issues related to facilities.
- 3. I am generally familiar with this lawsuit, and I submit this unsworn affidavit in support of the University's Motion for Summary Judgment in the above-captioned matter.

- 4. The University is a member institution of the Pennsylvania State System of Higher Education.
- 5. The University operates a physical campus in Pennsylvania, generally divided into North Campus and South Campus. Part of North Campus is located in the Borough of West Chester ("Borough").
- 6. The University began receiving invoices from the Borough in or around 2017 related to the Borough's new ordinance related to stormwater.
- 7. Attached as Exhibit A is a collection of those invoices for the year 2019 for properties on North Campus that are owned by the University, by the State System of Higher Education, or by the Pennsylvania Department of General Services.
 - 8. These invoices total \$117,168.04.
- 9. No state entity currently pays property tax on any of these properties pursuant to the Commonwealth's tax immunity.

I verify that the statements above are true and correct to the best of my knowledge, information, and belief. I understand that false statements herein are

made subject to the penalties of 18 Pa. C.S.	§ 4904, relating to unsworn
falsification to authorities.	
Date: 07/16/2021	
\bigcirc	ha. Villalla

Exhibit A

RETURN SERVICE REQUESTED

 West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	71,045.78
Annual Assessment Due	71,045.78

3593 01/02 R414-005 STOCK : F-G2

ACCOUNT NUMBER	1-12-0243	, W
CUSTOMER	COMMONWEALTH OF PA	
**************************************	175 UNIVERSITY AVENUE	
-SERVICE ADDRESS	WEST CHESTER PA 19382	
BILL DATE	11/05/2019	

	SERVIC	E FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020	Annual St	ream Protection	6	883,654	17,761.44	
TOTA:	L CURRENT (CHARGES				71,045.78

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-12-0243
SERVICE ADDRESS	175 UNIVERSITY AVENUE
- ANNUAL FEE	71,045.78
ANNUAL FEE IF PAID BY 1/31/2020	69,624.88
QUARTERLY FEE	17,761.44
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

 West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	19,221.21
Annual Assessment Due	19,221.21

3604 01/02 R414-005 STOCK + F-G2

ACCOUNT NUMBER	1-12-0250	,
CUSTOMER	COMMONWEALTH OF PA	
	25 W ROSEDALE AV	
SERVICE ADDRESS	WEST CHESTER PA 19382	
BILL DATE	12/30/2019	

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	6	239,070	4,805.30	19,221.2
TOTAL CURRENT CHARGES				19,221.21

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-12-0250
SERVICE ADDRESS	25 W ROSEDALE AV
ANNUAL FEE	19,221.21
ANNUAL FEE IF PAID BY 1/31/2020	18,836.79
QUARTERLY FEE	4,805.30
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

 West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	7,706.48
Annual Assessment Due	7,706.48

3594 01/02 R414-005 STOCK = F-G2

ACCOUNT NUMBER	1-12-0243-MH	
CUSTOMER	COMMONWEALTH OF PENNSYLVANIA	
	50 SHARPLESS ST	
SERVICE ADDRESS	MCCARTHY HALL	
	WEST CHESTER PA 19383	
BILL DATE	12/30/2019	
trus		

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	б	95,852	1,926.62	7,706.48
TOTAL CURRENT CHARGES				7,706.48

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-12-0243-MH
SERVICE ADDRESS	50 SHARPLESS ST
ANNUAL FEE	7,706.48
ANNUAL FEE IF PAID BY 1/31/2020	7,552.36
QUARTERLY FEE	1,926.62
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

 West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	7,706.48
Annual Assessment Due	7,706.48

3595 01/02 R414-005 STOCK = F-G2

ACCOUNT NUMBER	1-12-0244	
CUSTOMER	COMMONWEALTH OF PA	
	25 UNIVERSITY AV	
SERVICE ADDRESS	WEST CHESTER PA 19382	
BILL DATE	12/30/2019	

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	6	95,852	1,926.62	A STATE OF THE PARTY OF THE PAR
TOTAL CURRENT CHARGES				7,706.48

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-12-0244
SERVICE ADDRESS	25 UNIVERSITY AV
ANNUAL FEE	7,706.48
ANNUAL FEE IF PAID BY 1/31/202	7,552.36
QUARTERLY FEE	1,926.62
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

 West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	2,395.94
Annual Assessment Due	2,395.94

3596 01/02 R414-005 STOCK = F-G2

ACCOUNT NUMBE	R 1-12-0244-1	
CUSTOME	R COMMONWEALTH OF PA	
	675 S CHURCH ST	
SERVICE ADDRES	S WEST CHESTER PA 19382	
BILL DAT	E 12/30/2019	

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	6	29,800	598.98	
TOTAL CURRENT CHARGES				2,395.94

Please detach below perforation and return with payment

- ACCOUNT NUMBER	1-12-0244-1
SERVICE ADDRESS	675 S CHURCH ST
ANNUAL FEE	2,395.94
ANNUAL FEE IF PAID BY 1/31/2020	2,348.02
OUARTERLY FEE	598.98
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

 West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	2,244.88
Annual Assessment Due	2,244.88

3599 01/02 R414-005 STOCK = F-02

ACCOUNT NUMBER	1-09-1066	
CUSTOMER	COMMONWEALTH OF PA	
SERVICE ADDRESS	25 SHARPLESS ST WEST CHESTER PA 19382	
BILL DATE	12/30/2019	

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	6	27,921	561.22	2,244.88
TOTAL CURRENT CHARGES				2,244.88

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-09-1066
SERVICE ADDRESS	25 SHARPLESS ST
ANNUAL FEE	2,244.88
ANNUAL FEE IF PAID BY 1/31/2020	2,199.98
QUARTERLY FEE	561.22
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

 West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	1,376.84
Annual Assessment Due	1,376.84

3590 01/02 R414-005 STOCK = F-G2

TOTAL CURRENT CHARGES

ACCOUNT NUMBER CUSTOMER SERVICE ADDRESS	1-09-1085 WEST CHESTER UNIVERSITY OF PA 15 SHARPLESS ST WEST CHESTER PA 19382				
BILL DATE	12/30/2019				
SERVICE FOR	The manufacture of the same of	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream P	rotection	6	17,125	344.21	1,376.84

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-09-1085
SERVICE ADDRESS	15 SHARPLESS ST
ANNUAL FEE	1,376.84
ANNUAL FEE IF PAID BY 1/31/2020	1,349.31
QUARTERLY FEE	344.21
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

West Chester Borough
Stream Protection Fee
401 E Gay St
West Chester, PA 19380

1,376.84

RETURN SERVICE REQUESTED

 West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	991.46
Annual Assessment Due	991.46

3502 01/02 R414-005 STOCK # F-G2

ACCOUNT NUMBER	1-12-0253
CUSTOMER	COMMONWEALTH OF PA
	615 S HIGH ST
SERVICE ADDRESS	WEST CHESTER PA 19382
The state of the s	
BILL DATE	12/30/2019

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	6	12,332	247.87	991.46
TOTAL CURRENT CHARGES				991.46

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-12-0253
SERVICE ADDRESS	615 S HIGH ST
ANNUAL FEE	991.46
ANNUAL FEE IF PAID BY 1/31/2020	971.63
QUARTERLY FEE	247.87
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	711.39
Annual Assessment Due	711.39

3599 01/02 R414-005 STOCK + F-G2

ACCOUNT NUMBER	1-13-0001	7 17 CMC77711 77 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18		110mm_0, 5.5.5.5
CUSTOMER	WEST CHESTER UNIVERSITY OF PA	A OF THE STATE		
SERVICE ADDRESS	701 S HIGH ST WEST CHESTER PA 19382			
BILL DATE	12/30/2019			
SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stroam D	rotogtion 6	0 040	177 05	711 20

	SERVICE FOR	ŢIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020	Annual Stream Protection	6	8,848	177.85	administration of the state of
TOTA	CURRENT CHARGES				711.39

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-13-0001
SERVICE ADDRESS	701 S HIGH ST
ANNUAL FEE	711.39
ANNUAL FEE IF PAID BY 1/31/2020	697.17
QUARTERLY FEE	177.85
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT 379.47

Annual Assessment Due 379.47

3600 01/02 R414-005 STOCK : F-G2

ACCOUNT NUMBER	1-13-0002
CUSTOMER	WEST CHESTER UNIVERSITY OF PA OF THE STATE
	703 S HIGH ST
SERVICE ADDRESS	WEST CHESTER PA 19382
BILL DATE	12/30/2019

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	6	4,720	94.87	379.4
TOTAL CURRENT CHARGES				379.47

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-13-0002
SERVICE ADDRESS	703 S HIGH ST
ANNUAL FEE	379.47
ANNUAL FEE IF PAID BY 1/31/2020	371.88
QUARTERLY FEE	94.87
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

WEST CHESTER UNIVERSITY OF PA STATE SYSTEM OF HIGH

201 Carter Drive Suite 500

WEST CHESTER, PA 19382-4998

ունիրի ինկաներին արդեմին ինուներիրը և ինդակներին

03603

2020 ASSESSMENT 281.06

Annual Assessment Due 281.06

3603 01/02 R414-005 STOCK = F-G2

ACCOUNT NUMBER	1-12-0247
CUSTOMER	WEST CHESTER UNIVERSITY OF PA STATE SYSTEM
	624 S HIGH ST
SERVICE ADDRESS	WEST CHESTER PA 19382
BULL DATE	12/30/2019

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	6	3,496	70.26	281.0
TOTAL CURRENT CHARGES				281.06

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-12-0247
SERVICE ADDRESS	624 S HIGH ST
ANNUAL FEE	281.06
ANNUAL FEE IF PAID BY 1/31/20	20 275.44
QUARTERLY FEE	70.26
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT	221.16
Annual Assessment Due	221.16

3598 01/02 R414-005 STOCK : F-G2

ACCOUNT NUMBER	1-13-0008
CUSTOMER	WEST CHESTER UNIVERSITY OF PA OF THE STATE
SERVICE ADDRESS	702 S WALNUT ST WEST CHESTER PA 19382
BILL DATE	12/30/2019

SERVICE FOR	TIER	IMPERVIOUS AREA (S	F) QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	5	2,659	55.29	management of the second of th
TOTAL CURRENT CHARGES				221.16

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-13-0008
SERVICE ADDRESS	702 S WALNUT ST
ANNUAL FEE	221.16
ANNUAL FEE IF PAID BY 1/31/202	0 216.74
QUARTERLY FEE	55.29
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

2020 ASSESSMENT 2,704.93

Annual Assessment Due 2,704.93

3601 01/02 R414-005 STOCK * F-G2

ACCOUNT NUMBER	1-13-0003
CUSTOMER	WEST CHESTER UNIVERSITY OF PA THE STATE SY
SERVICE ÄDDRESS	733 S HIGH ST WEST CHESTER PA 19382
BILL DATE	12/30/2019

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	6	33,643	676.23	2,704.93
TOTAL CURRENT CHARGES				2,704.93

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-13-0003
SERVICE ADDRESS	733 S HIGH ST
ANNUAL FEE	2,704.93
ANNUAL FEE IF PAID BY 1/31/2020	2,650.84
QUARTERLY FEE	676.23
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).

RETURN SERVICE REQUESTED

WEST CHESTER UNIVERSITY
201 Carter Drive
Suite 500
WEST CHESTER, PA 19382-4998
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West Chester Borough Stream Protection Fee Annual Notice of Assessment

The Stream Protection Fee provides a dedicated funding source for the expenses associated with the Borough's Stormwater Management System.

Annual Assessment Due	180.96
2020 ASSESSMENT	180.96

1597 01/02 R414-005 STOCK = F-G2

ACCOUNT NUMBER	1-12-0245	
CUSTOMER	WEST CHESTER UNIVERSITY	
SERVICE ADDRESS	15 UNIVERSITY AV WEST CHESTER PA 19382	
BILL DATE	12/30/2019	

SERVICE FOR	TIER	IMPERVIOUS AREA (SF)	QUARTERLY FEE	ANNUAL FEE
2020 Annual Stream Protection	4	2,071	45.24	180.96
TOTAL CURRENT CHARGES		· · · · · · · · · · · · · · · · · · ·		180.96

Please detach below perforation and return with payment

ACCOUNT NUMBER	1-12-0245
SERVICE ADDRESS	15 UNIVERSITY AV
ANNUAL FEE	180.96
ANNUAL FEE IF PAID BY 1/31/2020	177.34
QUARTERLY FEE	45.24
QUARTERLY FEE DUE	3/31/2020

To pay for full year (with 2% discount), remit this stub with amount shown above. To pay quarterly (no discount), remit each payment stub with the amount due by the quarterly due date(s).



Daniel Shoag
Department of Economics
Case Western Reserve University
11119 Bellflower Rd
Cleveland, OH 44106
216-368-0208

June 3. 2021

Stephen R. Kovatis
Senior Deputy Attorney General
PENNSYLVANIA OFFICE OF ATTORNEY GENERAL
The Phoenix Building
1600 Arch Street
Philadelphia, PA 19103

RE: The Borough of West Chester v. Pa. State System of Higher Education, et al., No. 260 MD 2018 (Pa. Cmwlth.)

Dear Mr. Kovatis.

I. SCOPE OF ENGAGEMENT

I have been engaged by you as counsel for the Pennsylvania State System of Higher Education and West Chester University in the case of *The Borough of West Chester vs.*Pennsylvania State System of Higher Education and West Chester University of the Pennsylvania State System of Higher Education. You asked me whether the field of economics makes any distinction between taxes and fees-for-service in local government finance and, if so, whether I can provide an opinion based on my experience and training as to whether the charge (the "Stream Protection Fee") described in Ordinance No. 10-2016 of the Borough of West Chester (the "Stream

Protection Ordinance") is a tax or a fee-for-service. This letter provides an economic analysis and conclusion and should not be construed as a legal analysis, a matter on which I have no opinion.

This report is organized as follows: In Section II I present my qualifications as an expert.

In Section III, I describe important conceptual distinctions between taxes and fees used by economic theorists. And in Section IV, I discuss how the West Chester storm sewer assessment relates to these distinctions.

II. QUALIFICATIONS

I am an economics professor. I have been teaching public finance and state and local economics at Case Western Reserve University and Harvard University for the past 10 years. I received my BA, MA, and Ph D. in economics from Harvard University My statistical research has been published in major academic journals, including the *Quarterly Journal of Economics* and the *Review of Economics and Statistics*, and has been featured in, among other outlets, *The New York Times*, *Bloomberg*, *The Washington Post* and *The Wall Street Journal*. In 2012, I was selected as one of Forbes' "30 Under 30 in Law & Policy."

I have worked as a visiting scholar at the Federal Reserve Bank of Boston and as a visiting professor at Tel Aviv University, and I was selected by the Stanford University Center on Poverty and Inequality as a "rising new scholar."

I have received research grants from the U.S. Department of Transportation, the Russell Sage Foundation, and the Laura and John Arnold Foundation. In 2017, I was awarded a prize for Best Paper on State, Local, and Regional Economic and Fiscal Issues at the Brooking's Conference on Municipal Finance.

I co-founded and co-chaired the more than 200-person HumTech conference in Boston, and I co-edited the peer-reviewed conference proceedings volumes. I have worked as an economic consultant for over a decade.

My qualifications, publications, and expert engagements are summarized in detail in my curriculum vitae, which is attached to this report as Exhibit A.

III. Taxes and Fees in Economic Theory

There is a literature in which economists study the distinctions between fees and taxes as they pertain to economic theory. This literature highlights several conceptual differences in the motivation, administration, and application of fees relative to taxes. Important distinctions in this literature include (A) whether the payment is voluntary or compulsory, (B) whether the public good or service being finance is excludable or non-excludable, (C) whether the payment is equivalent to the market value of the benefit, (D) whether the payment is required for allocative efficiency, and (E) whether the revenue is earmarked. These dimensions represent general themes compiled from my survey of the field.¹

It is important to note that fees and taxes both raise revenue for governments, and the economics literature is not always careful in distinguishing between these two methods of raising revenue. For example, an economics paper may use these terms interchangeably when referring to the same ordinance. Additionally, researchers may aggregate revenue streams into categories that use the terms "taxes" and "fees" for reasons other than economic theory. For example, a paper analyzing a dataset may adopt the data providers' categorization of revenue sources even if such classification is not motivated by economic theory. I base my evaluation on the literature that studies the relevant distinctions between taxes and fees in economic theory and uses these terms in a way that is meaningful for this analysis.

¹ Individual papers in this literature may not study all these dimensions, nor does every study provide a consistent definition or treatment. Though I will quote several papers as examples, my opinions are based on my general expertise and are not dependent on any specific article or book.

Before proceeding, it is worthwhile to define several important concepts in economic theory. A good or service is said to be "non-rival" if the use of good or service by one party does not reduce the ability of other parties to use or consume it. For example, a television episode can be watched by multiple parties without impairing the ability of others to enjoy it. A good or service is said to be "non-excludable" if it is consumption cannot be limited to a group of consumers, most often paying customers. For example, national defense is non-excludable, in that it is impossible to protect only some residents of a town. A non-rival, non-excludable good or service is called a "pure public good." Goods or services that satisfy one of these criteria, such as public goods that are rival but not excludable, are often called "impure public goods."

III.A. Voluntary Purchase

The public finance literature that studies the conceptual distinction between a tax and a fee begins from a concept of voluntary purchase. The *New Palgrave Dictionary of Economics* discusses the distinction as follows:

"How is a user fee distinguished from two related concepts, a benefit tax and a price? There is a legal and constitutional difference between fees and taxes levied by governments, but the issue here is the economic content of the terms. A benefit tax is any tax levied proportionately to benefits received by the taxpayer from a commodity or service provided by a government. The appropriate distinction is that a fee is paid only if the consumer decides freely to consume the commodity or service, whereas the taxpayer may be forced to pay a benefit tax even though he or she is not free to decide whether to consume the commodity or service."

² Edward Mills "User Fees" in *The New Palgrave Dictionary of Economics*. (Steven Durlauf and Lawrence E. Blume editors) Springer, 2016 (accessed May 2021).

III.B. Excludable Public Good

Related to this discussion, economists often accept that fees can only be levied on an excludable public good. For example, Fuest and Kolmar (2007), writing in the *Journal of Public Economics* write, "[p]ublic goods are characterized by non-excludability, so that user-fee financing is impossible." Similarly, in his textbook *Public Finance: Principles and Policy*, John Anderson writes:

"A user fee is a specific fee charged to the user of a public good or service. Rather than rely on general tax revenue to fund the provision of a good or service, the government charges only those who directly use the good or service." (emphasis added)

As before, this definition implies that fees are used to finance goods and services that are not used by everyone, or in short, are excludable. Indeed, in their 2005 *Journal of Public Economic Theory* article entitled "Taxes or Fees? The Political Economy of Providing Excludable Public Goods", Swope and Janeba⁵ model the difference between these two sources as the voluntary purchase of an excludable public good.

III C. Market Value of the Benefit

Economists often classify payments as user fees in circumstances where the costs being assessed are comparable to the benefit being received. This is often called the "benefit principle" or the "benefit-received principle." The Anderson textbook defines this as "a principle of financing the provision of public goods and services based on the concept that those persons who

³ Fuest, Clemens, and Martin Kolmar. "A Theory of User-Fee Competition." *Journal of Public Economics* 91.3-4 (2007): 497-509.

⁴ Anderson, John E. Public Finance. Cengage Learning, 2012.

Swope, Kurtis J., and Eckhard Janeba. "Taxes or fees? The Political Economy of Providing Excludable Public Goods." *Journal of Public Economic Theory* 7.3 (2005): 405-426.

received." Economists often distinguish between the similar concepts of "benefit taxes" and "user fees" based on whether the benefit being provided to the payer is commensurate with charge. For example, Bird (2001)⁶ divides these charges into three categories: minor service fees (which I ignore here)⁷, public prices, and special benefit taxes. He writes:

Public prices refer to the revenues received by local governments from the sale of private goods and services (other than the cost-reimbursement just described). All sales of locally provided services to identifiable private agents—from public utility charges to admission charges to recreation facilities—fall under this general heading. In principle, such prices should be set at the competitive private level, with no tax or subsidy element included unless doing so is the most efficient way of achieving public policy goals, and even then, it is best to account for the tax-subsidy element separately.

A third category of charge revenue may be called specific-benefit taxes. Such revenues are distinct from service fees and public prices because they do not arise from the provision or sale of a specific good or service to an identifiable private agent. Unlike prices that are voluntarily paid—although like fees paid for services that may be required bylaw—taxes represent compulsory contributions to local revenues. Nonetheless, specific-benefit taxes are (at least in theory) related in some way to benefits received by the taxpayer in contrast to such general-benefit taxes as fuel taxes levied on road users as a class or local general business or property taxes viewed as a price paid for local collective goods (see below). Examples abound in local finance: special assessments, land value increment taxes, improvement taxes, front footage levies, supplementary property taxes related to the provision of sewers or street-lighting, development exactions and charges, delineation levies, and so on. Most such charges are imposed either on the assessed value of real property or on some characteristic of that property—its area, its frontage, its location."

⁶ Richard M. Bird "Subnational Revenues: Realities and Prospects" in *Proceedings of Decentralization and Accountability of the Public Sector, Annual World Bank Conference on Development in Latin America and the Caribbean.* World Bank. 2000.

Bird explains these minor service fees as follows. "Service fees include such items as license fees (marriage, business, dog, vehicle) and various small charges levied by local governments for performing specific services - registering this or providing a copy of that -- for identifiable individuals (or businesses) ...on the whole there is seldom much harm, or much revenue, in thus recovering the cost of providing the service in question." Ibid.

In other words, benefit taxes and public price user fees are distinguished, in part, by their proximity to competitive prices for the benefit derived.

Similarly, Mills in his New Palgrave Dictionary entry explains (a segment of which I have previously quoted):

A benefit tax is any tax levied proportionately to benefits received by the taxpayer from a commodity or service provided by a government. The appropriate distinction is that a fee is paid only if the consumer decides freely to consume the commodity or service, whereas the taxpayer may be forced to pay a benefit tax even though he or she is not free to decide whether to consume the commodity or service. If the term 'benefit tax' is restricted to taxes whose amounts are no greater than the value to the taxpayer of the commodity or service consumed, the important distinction disappears."

To rephrase, a fee is one that would be paid voluntarily in a private transaction. Benefit taxes, therefore, as a distinct concept, must refer to assessment beyond the market value of the benefit conferred. As a distinct concept, then, fees are generally commensurate with the market value of the specific benefit.

III.D. Allocative Efficiency

Another common theme in the literature regarding user fees is their necessity to achieve "allocative efficiency." If a government supplied good or service is rivalrous, an agent's consumption may impose a societal cost. Absent a user fee, agents may choose to consume too much of this good or service. For example, they may consume this good or service even when the benefit to themselves is below the marginal cost of its provision. Bird explains:

The primary economic rationale for user charges, as we discussed earlier, is to encourage the efficient use of resources within the public sector. Economic theory demonstrates that for the purposes of efficiency the best charges are those that are equal to the marginal cost of supplying the good or service in question—the marginal cost price, for short. If the user charges for a service are set below the marginal cost price, and demand is elastic—that is,

sensitive to prices—then society will consume more of that service than it otherwise would.8

Thus, a user fee is often (e.g., "primary rationale") created to modify the behavior or consumption of public goods and services by agents in the economy. In other words, a user fee is often associated with reducing **deadweight loss due to overconsumption** of a good or service. The late University of Michigan economist Ed Gramlich echoed similar sentiments in a 1990 article⁹, writing:

"When public capital satisfies only local needs with no distributional implications, orthodox microeconomic reasoning says it is efficient to provide the service with user fees. Were this not done, taxpayers would be taxed on a basis that is only coincidentally correlated with their own taste for the service. Economic inefficiency is minimized in switching to a regime where all consumers equate their marginal benefits with marginal costs."

Another way in which user fees are often thought to improve allocative efficiency is by providing information to governments about demand for public goods and services. Professors Fox and Edmiston highlight this role in their 2000 paper, writing:

"Infrastructure investments often require very large capital outlays. Good estimates of willingness to pay are important for infrastructure investments such as roads and public utilities because the large investments, once in place, generally cannot be transferred to "more profitable" locations. An appropriate peak-load charge not only allocates scarce resources efficiently but has the added benefit of allowing public service consumers to reveal their preferences for additional output. The user charge communicates an approximate marginal benefit of capacity expansion. Information on marginal valuation of capacity expansion can be compared with estimates of the cost of capacity expansion to help guide the investment decision." 10

⁸ Bird, Richard M. "User charges in Local Government Finance." The Challenge of Urban Government (2001): 171-182.

⁹ Gramlich, Edward M. "How should public infrastructure be financed?" Is There a Shortfall in Public Capital Investment? Proceedings of a Conference Federal Reserve Bank of Boston. 1990.

¹⁰ Fox, William, and Kelly Edmiston. "User charge financing of urban public services in Africa." Andrew Young School of Policy Studies Working Paper (2000)

In other words, fees often have the property that the number of people opting to pay them is a useful demand signal.

III.E. Earmarked Revenues

Another trait used to distinguish taxes and fees in the economics is whether the revenue generated are **earmarked** for the provision of the specific purpose or good. Many economists argue, like Bird and Tsiopoulos, that "most revenues other than general tax revenues—a category that includes benefit taxes, fees, user charges, and prices—should be earmarked." Under this view, earmarked revenue is more likely to fall under the user fee or charge category than unearmarked revenue. Many economists, however, note that this feature alone is not determinative. Bös in his *Journal of Public Economics* article writes:

[E]armarked taxation is not an application of a user-fee principle, where the individual consumer pays a price for some publicly provided good as he does for privately provided goods. Whereas the application of a user-fee principle increases welfare by allowing the individual consumers to choose their preferred quantity of publicly provided goods, this is not necessarily the case with earmarked taxation.¹¹

Similarly, Nesbit and Kreft (2009) write, "earmarking is not a user-fee principle," again expressing that this feature is not a determinative distinction between taxes as fees.

IV. The Application of Economic Theory Regarding Taxes and Fees to the Stream Protection Ordinance

In this section, I relate the above discussion to the details regarding the Stream Protection Ordinance as conveyed in the materials provided by counsel. I have no technical expertise as

Dieter Bös, "Earmarked taxation: welfare versus political support," Journal of Public Economics, Volume 75, Issue 3, 2000, Pages 439-462,

¹² Nesbit, Todd M., and Steven F. Kreft. "Federal grants, earmarked revenues, and budget crowdout: state highway funding." *Public Budgeting & Finance* 29.2 (2009): 94-110.

pertains to stormwater management. I have made no independent assessment of the reliability of these materials or the claims therein. The materials I reviewed include:

- Borough of West Chester's ("Borough's") Petition for Review, dated April 13, 2018, with Exhibits A-I;
- The Stream Protection Ordinance and adopting resolution, attached as Exhibits C & D to Petition for Review:
- West Chester Borough Pollutant Reduction Plan, attached as Exhibit H to Petition for Review;
- West Chester Borough TMDL Plan, attached as Exhibit I to Petition for Review;
- State System of Higher Education and West Chester University's (collectively, "University's") Brief in Support of Preliminary Objections, dated July 23, 2018;
- Borough's Brief in Opposition to West Chester's Preliminary Objections, dated August 27, 2018;
- University's Reply Brief in Support of its Preliminary Objections, dated Sept. 10, 2018;
- Opinion of the Court, dated July 15, 2019;
- University's Answer with New Matter, dated Aug. 14, 2019;
- Borough's Answer to New Matter, dated Sept. 16, 2019;
- Borough's Responses to University's Interrogatories, dated Aug. 28, 2020;
- Deposition of Michael Perrone, with exhibits, dated Oct. 15, 2020;
- Deposition of Nate Cline, with exhibits, dated Dec. 21, 2020;
- Deposition of Tom Clark, with exhibits, dated Oct. 12, 2020;
- Deposition of Gary Bixby, with exhibits, dated Oct. 13, 2020;
- Map of University North Campus, WCU000001; and
- The West Chester Borough Stream Protection Fee Program Non-Residential Credit Policies and Procedures Manual, dated November 2017.

IV.A. Voluntary Purchase

The first-dimension distinguishing user fees from taxes in economic theory discussed above was voluntary purchase. Based on my review of these materials, I understand that the Stream Protection Ordinance is not, in full, voluntary. While credits can be sought against this assessment,

the "West Chester Borough Stream Protection Fee Program Non-Residential Credit Policies and Procedures Manual" states:

"The maximum credit that any one property can receive is 60% percent of their fee. No property will receive 100% credit or reduction of the fee, and the maximum is set at 60% because the Borough needs to fund programmatic elements, public stormwater facilities, and perform standard maintenance, repair, and rehabilitation of publicly owned stormwater facilities. Even if a property manages 100% of the stormwater runoff on their site, the Borough still has obligations under its MS4 permit and needs to maintain the public drainage system to protect the health and safety of the public."

I understand that Mr. Perrone testified that some lots were able to zero-out their obligations, though this is not mentioned in the ordinance. From the testimony, this credit beyond the 60% threshold seems to be relevant only to those lots with heritage trees. In general, then, opting not to use stormwater facilities provided by the Borough in any capacity may still not fully exempt a property owner from the assessment. In this regard, the Storm Water assessment seems more consistent with the economics literature's categorization of compulsory taxes relative to the voluntary purchase characteristic of user fees.

IV.B. Excludable Public Good

The second-dimension distinguishing user fees discussed above was their role in financing excludable public goods. The Stream Protection Ordinance at issue discusses, as motivation, many benefits that are clearly not excludable. These include "the ecological health of stream biota",

¹³ Mr. Perrone's testimony appears to conflict with the West Chester credit manual. Additional information reconciling these statements could lead me to revisit this issue.

¹⁴ I understand the term heritage trees to refer to large tree with unique value that for all practical purposes cannot be moved. This appears consistent with Mr. Perrone's testimony (p.13-14).

¹⁵A similar sentiment can be found in a popular introductory economics textbook, which reads, "[m]any public sanitation systems and storm sewers were funded by government because they

"public health", the impact on "upstream and downstream communities". Moreover, my understanding of Michael Perrone's deposition (pages 77-78), is that property owners not subject to this assessment—such as the owner of an open field—will also access the general benefits provided for by this ordinance. In fact, Mr. Perrone states (p.79) that some assessment payers may solely recoup non-excludable benefits, with no individually specific consumption of a good or service. He states that the benefit to a hypothetical pre-existing parking lot owner would "be the same as, you know, everybody else's," despite this person paying the assessment. Therefore, this ordinance does not seem designed to fund solely excludable public goods and services, unlike the general treatment of user fees in the relevant economics literature.

IV.C. Market Value of the Benefit

As discussed above, another aspect of the general treatment of fees, relative to taxes, in the economics literature is their comparability to the market values of the purchased benefits. It is conceptually useful to divide the benefits provided by the Borough's storm water system to West Chester University into those provided prior to this ordinance and into those benefits provided as a result of projects funded by the assessment. As regards the former, Mr. Perrone testified that many—if not most—of these projects do not provide any specific benefits to West Chester University (p.124-125). As to the market value of the benefits provided by the Borough's storm water system as it existed prior to the ordinance, the deposition of Mr. Bixby indicates that the benefit to West Chester Borough using the system may be small (p.131-132), and that the University would not feel compelled to deal with situation immediately (p.212) were it cut off from the Borough system. While I cannot make an independent assessment of this assertion, this

have the key traits of public goods." OpenStax Economics, Principles of Economics. OpenStax CNX. May 18, 2016 http://cnx.org/contents/69619d2b-68f0-44b0-b074-a9b2bf90b2c6@11.330

statement indicates that the assessment placed on the university may not be linked to equivalent market value it receives.

Moreover, the tiered assessment system may be evidence that pricing is not directly linked to the market value of benefits or cost. For example, the Borough's Petition for Review Exhibits J. K, and L shows different properties in this case were assessed at different rates per impervious square foot. I am not aware of research showing that the stormwater generated per square foot of impervious surface at 15 University Ave yields different costs or benefits than the stormwater generated per square foot of impervious surface at 25 University Ave. Finally, Mr. Perrone states (pages 90-91) that the amount of the assessment is not directly related to the benefits a property owner receives.

IV.D. Allocative Efficiency

The next distinguishing feature discussed above was the use of user fees from taxes as an allocative efficiency target. This target was achieved by making users of public goods and services internalize the cost or harm of their use, as well as creating demand signals regarding a public good or service for policy makers. The West Chester Borough's storm water assessment does indeed display some of these features. At the margin, the assessment might encourage new construction to use less impervious surface. Additionally, the storm water credit might incentivize the use of stormwater "best management practices." That being said, much if not most of the moncy being

I understand that West Chester University has its own MS4 permit, which already provides incentives for the University to use less impervious surfaces. Further, Mr. Bixby testified that the university has an internal goal related to storm water management (p.52). These two facts indicate there are already existing incentives in place. I have no opinion as to whether the Borough's assessment would have a material additional impact on the University's impervious surface use or use of best management practices given the existing incentives.

levied from West Chester University is for buildings constructed prior to the introduction of this assessment. In general, the investment associated with constructing facilities are large relative to the size of this assessment, and existing facilities may be costly to change. As such, it is likely that this part of the assessment does not target providing efficient incentives at the margin, but rather targets raising revenue. Further, since this portion of the assessment is levied on past decisions, it also may not provide reliable signal of demand. This point is expressed in the testimony of Mr. Perrone, who when asked about whether an assessment corresponded to harm responded:

"I don't know if its harm—harm is done. I think maintaining a system is part of what the fee is about. If you can translate harm—not maintaining harm, I don't think I can make that leap." (p. 90)

IV.E. Earmarked Revenue

Another relevant feature of fees, relative to taxes, was whether the revenue was carmarked for the provision of the relevant good or service. While this feature was not determinative, earmarking was more common for user charges than for general taxation. In this case, the ordinance does stipulate that funds can only be used for purposes related to storm water management. Still, as Mr. Perrone stated, most if not all the projects that have been funded by the assessment provided no direct service to West Chester University (p. 126-127). It is therefore a complicated question, involving parsing the bounds and interdependence of stormwater efforts, to determine whether the funds levied in this case are earmarked for the provision a service that directly benefits West Chester University.

V. Conclusion

In summary, after my analysis, I can conclude to a reasonable degree of professional certainty, that the Stream Protection Ordinance better satisfies the economic definition of a tax

rather than a user fee. This conclusion is supported by the sum of my considerations as discussed above. I reviewed evidence that the assessment is (a) not fully voluntary, (b) does not solely fund the consumption of excludable goods, (c) is not directly tied to the market value of the goods and services provided, (d) is not designed primarily to achieve allocative efficiency, and (e) may not be fully earmarked for the provision of services to West Chester University. In the letter, I also outlined how each of these considerations relates to the differential treatment of user fees and taxes by economists.

If you have any further questions, please do not hesitate to contact me.

Yours,

Daniel Show, PhD

IN THE COMMONWEALTH COURT OF PENNSYLVANIA NO. 260 MD 2018

THE BOROUGH OF WEST CHESTER
Petitioner,
V.
THE PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION AND WEST CHESTER UNIVERSITY OF PENNSYLVANIA OF THE STATE SYSTEM OF HIGHER EDUCATION
Respondents.

EXPERT REPORT

July 1, 2021

Hank Fishkind, Ph.D., President Fishkind Litigation Services, Inc. 3504 Lake Lynda Drive, Suite 107 Orlando, Florida 32817 (407) 382-3256 Fishkindls.com

IN THE COMMONWEALTH COURT OF PENNSYLVANIA NO. 260 MD 2018

I.0 Introduction

- 1.0 Fishkind Litigation Services, Inc. ("FLS") was retained by Buckley, Brion, McGuire and Morris LLP ("Counsel") on behalf of the Petitioner to analyze the economic characteristics of the Stream Protection Fee ("SPF") enacted by the Petitioner and to respond to the expert report of Dr. Shoag.
- 2.0 In addition, counsel requested that I prepare this expert report, testify at deposition and/or trial if requested, and provide litigation support.
- 3.0 I conducted the research in this engagement; I drafted this opinion and will offer the testimony. Other members of my firm provided clerical support. My resume is attached as Exhibit #1, and my court experience as an expert is provided in Exhibit #2. The materials reviewed and relied upon in rendering this opinion are presented in Exhibit #3. A list of all publications I have authored in the last 10 years is provided in Exhibit #4.
- 4.0 My standard hourly fees apply in this engagement. These are as follows:

Dr. Fishkind \$450/hour for office work, and \$900/hour for testimony at trial or deposition

My compensation is in no way tied to the outcome of this case.

II.0 Qualifications to Provide Expert Opinion in this Matter

- I am qualified to provide the Court with this expert opinion because of my education and my experience. I am an economist and President of Fishkind Litigation Services, Inc. ("FLS"). FLS assists clients in litigation with expert economic, accounting, financial consultation, and expert testimony. My clients include state and municipal governments, the U.S. Department of Justice, Fortune 500 Companies, and major property developers, including both plaintiffs and defendants in litigation.
- 6.0 My resume is included as Exhibit #1 which documents my qualifications. I have a Ph.D. in economics with specialties in Urban and Regional Economics and in Econometrics.
- 7.0 For many years I was a Research Economist with the Bureau of Economic and Business Research at the University of Florida, and from

time-to-time I served as its Acting Director and its Associate Director. During my work at the Bureau, I conducted numerous economic studies. I designed, launched, and administered the Bureau's monthly economic confidence index which involved sample surveys of Floridians. I also designed and executed the Bureau's economic forecasting program. I have served on the State of Florida's Governor's Council of Economic Advisors under two different administrations.

- 8.0 While I was employed at the Bureau, I was also a faculty member in the Department of Economics at the University of Florida. I achieved the rank of Associate Professor and obtained tenure before I decided to leave the University and work as an economic consultant and financial advisor in the private sector.
- 9.0 In 2008 I formed Fishkind & Associates, Inc. ("FA") as a full-service, economic and financial consulting firm. One of FA's specialties was assisting our public and private clients in: (a) forming all types of special taxing districts and utilities; (b) designing systems of user fees, special assessments, benefit taxes, and impact fees; and (c) using these vehicles to raise revenues and collateralize debt issues. FA assisted its clients in raising over \$5 billion in tax exempt bonds to support their projects.
- 10.0 In 2019 I sold FA's advisory business, district management, and market research segments to Public Financial Management ("PFM"). PFM is the largest financial advisor to state and local governments, school boards, and special districts (*i.e.*, airport authorities, toll road systems and utilities) in the U.S. I continue to be employed by PFM as a Director and lead the firm's economic research and real estate consulting practices nationwide.
- 11.0 I was a founding board member of Engle Homes, a publicly traded (NASDAQ) homebuilding company until it was sold to TOUSA. I was also a founding board member of Summit Properties, which was a large, national apartment Real Estate Investment Trust (REIT) traded on the NYSE until the company was sold to Camden Properties. As a board member of these real estate development companies, I served on their asset allocation and audit committees, among other assignments. For Summit, I also was the chairman of their compensation committee.
- 12.0 I was also a Board Member of the ABT family of mutual funds until the group was sold to Evergreen Funds. I conceived of and launched two mutual funds for ABT: the Florida High Yield Fund and the Florida Intermediate Term High Yield Fund.

- 13.0 I have particular expertise in public finance and in the establishment of systems for user fees, impact fees, special assessments and benefit taxes as noted above in paragraphs 9-10. I have authored over 100 reports in support of user fees, impact fees, special assessments and benefit taxes. Many of these reports were incorporated in offering statements used in debt issuances. I have testified on these matters as an expert witness in excess of 50 times.
- 14.0 More generally, I have been qualified as an expert witness to provide economic testimony on more than 50 occasions by both the federal and state courts in Florida and in federal courts in Tennessee, Washington, D.C., and the U.S. Court of Federal Claims. I have also served as a court-appointed expert to provide valuation reports to the U.S. Tax Court. Exhibit #2 lists my court experience over the last five years.

III.0 Summary of Expert Opinions

- 15.0 As an economic matter, the SPF is a bona fide fee for service for the following reasons:
 - A. The purpose of the SPF is exclusively to cover the Petitioner's cost of constructing, operating, maintaining, and managing its stormwater management facilities.
 - B. The SPF is not a general revenue raising imposition.
 - C. The payment of the SPF provides a direct benefit to the fee-payer by relieving them of some or all of the costs of managing their stormwater runoff on their own property or otherwise arranging for the discharge of stormwater runoff to a receiving watercourse.
 - D. The SPF is designed to be proportional to the benefit that the feepayer receives from the Petitioner's stormwater system.
 - E. The SPF is deposited in a Stormwater Management Fund for the sole purpose of funding the Petitioner's stormwater system.
- 16.0 Respondents' expert, Dr. Shoag, concluded that the SPF is a tax, because it is: "(a) not fully voluntary, (b) does not solely fund the consumption of excludable goods, (c) is not directly tied to the market value of the goods and services provided, (d) is not primarily to achieve allocative efficiency, and (e) may not be fully earmarked for the provision of services to West Chester University."

- 17.0 I disagree with Dr. Shoag's conclusions for a variety of reasons. First, although I agree that the SPF is not fully voluntary, this alone does not make the SPF a tax. There are many examples of mandatory fees that courts have ruled are fees and not taxes. For example, courts have approved stormwater utility fees and similar mandatory fees to fund municipal stormwater systems in Georgia and Florida.¹
- 18.0 Second, Dr Shoag argues that the SPF is not directly tied to the market value of the goods and services provided, thus making it a tax. This conclusion is incorrect. The SPF funds the Petitioner's stormwater system which relieves the owners of developed property from managing on-site all of the stormwater runoff at their properties (and, then, directly discharging that runoff to a receiving watercourse without use of the Petitioner's system). The Petitioner's system thereby reduces costs for the owners of developed properties and makes more of their property developable by allowing them to reduce or eliminate the size of their onsite stormwater systems that would otherwise be required under law. The ability to discharge stormwater runoff into the Petitioner's stormwater system also prevents on-site flooding and limits liability to downstream property owners for unmanaged channelization of runoff.
- 19.0 Furthermore, owners of developed properties are allowed to apply for credits against their SPF by constructing or maintaining onsite facilities that mitigate peak discharge or runoff pollution. In addition, developed property owners can appeal their SPF. Through these mechanisms, fee-payers can determine the value of the services and the cost of the SPF and make economic decisions mirroring the market value of the stormwater services they receive.
- 20.0 In the particular circumstance of the Respondents, NTM Engineering determined that if West Chester University did not utilize Petitioner's stormwater system, the Respondents would have to construct a University-specific stormwater system at a cost of \$4.2 million and incur operating costs of \$45,600 per year.² These costs are far greater than the annual SPF on the Respondents' properties.

¹ City of Gainesville v. State of Florida, (September 4, 2003), Florida Supreme Court, Case No.: SC02-1696 and McLeod v. Columbia County, (June 28, 2004), Georgia Supreme Court, Case No.: S04A0696 ² NTM Engineering, Inc. (June 2021), "Discrete Benefits Provided to West Chester University by the West Chester Borough Stormwater Management System".

- 21.0 Third, Dr. Shoag concludes that the SPF was not primarily designed to achieve allocative efficiency. This is incorrect. The SPF is designed to allow the Petitioner to maintain a stormwater management system which discharges to receiving watercourses in compliance with applicable law. By providing these services funded through the SPF, allocative efficiency is achieved.
- 22.0 Finally, Dr. Shoag contends that the SPF may not be fully earmarked for the provision of services to West Chester University thereby making the SPF a tax. This is incorrect.
- 23.0 There is no doubt that 100% of SPF funds are deposited into the Stormwater Management Fund, which is used exclusively to fund the Petitioner's stormwater management system. Therefore, the funds are clearly and fully earmarked. The notion that each fee-payer's funds should be individually segregated and earmarked exclusively for the benefit of each individual fee-payer is unnecessary for the purposes of the fee and clearly unworkable. I know of no fee system that utilizes individualized, fee-payer, earmarked, trust funds.

IV.0 Fees and Taxes Compared

24.0 Economic theory and court decisions are in close alignment concerning the differences between fees and taxes. Table 1 summarizes the economic features that distinguish a tax from a fee according to Dr. Shoag, with the addition of the "Purpose" criterion, which I have added.³

Table 1. Economic Characteristics of a Tax and a Fee

Characteristic	Tax	Fee
Purpose to Raise General Revenue	Yes	No
Voluntary Payment	No	Yes
Direct Benefit Provided for Payment	No	Yes
Payment Proportional to Benefit	No	Yes
Excludability/Public Good	No	Yes
Improves Efficiency/Merit Good	No	Yes
Earmarked	No	Yes

³ Hyman (2010), Page 414.

- 25.0 For the most part I agree with Dr. Shoag that what I label as "Table 1" is a comprehensive and exhaustive list of those criteria which distinguish a tax from a fee⁴, with the notable addition of the "Purpose" criterion. The purpose for the imposition is an important factor in distinguishing a tax from a fee. Taxes are imposed primarily to raise general revenues. Taxes are also used to discourage certain activities such as smoking, but their primary role is to raise general revenues. This is not the case for fees.
- 26.0 Taxes are mandatory impositions. In most cases fees are (at least in part) voluntary payments made to obtain a good or service. However, in certain situations the mandatory requirement to pay a fee in return for a good or service does not convert the fee into a tax. For example, if the consumption of the good or service is required by law, such as in the case of trash collection, mandatory payments to collect and properly dispose of the trash are consistent with the mandatory imposition being a fee and not a tax.
- 27.0 This distinction ties directly into the next property of the imposition, whether or not there is a direct benefit to the payer. Taxes provide no direct benefit to the tax payer. By contrast, payment of a fee is connected to a direct benefit to the fee-payer.
- 28.0 Refining the benefit characteristic further, in a fee-based system, the benefit to the fee-payer is proportional to the amount of the fee paid. This relationship does not apply to taxes which are often imposed based on ability to pay (income or property taxes for example) or unrelated to any benefit (sales taxes for example).
- 29.0 Generally, when a good or service is purchased via a fee, the fee-payer retains exclusive use of the purchase. In other words, the fee-paying owner of the good can exclude others from using it. Because of these features, such goods are termed private goods. By contrast, the goods and service typically funded through taxes are termed public goods because: (a) everyone benefits from the provision of the good and none can be excluded if the good is provided; and (b) one person's consumption of the good does not reduce the availability of the good to everyone else. National defense is the classic example of a public good.

⁴ Dr. Shoag (June 3, 2021), Expert Report in letter form to Mr. Kovatis.

- 30.0 However, it is important to recognize that in many situations the distinctions between public and private goods becomes blurred. For example, trash collection and disposal services provide special benefits to each fee-payer and more general benefits for both fee-payers and others in the community.
- 31.0 Taxes provide general funding to governments for the provision of primarily public goods and services. Fee-based funding for particular goods and services are sometimes imposed to promote or to discourage the consumption of particular goods and services. For example, variable-rate user fees are imposed in some jurisdictions to control traffic congestion.
- 32.0 Finally, taxes fund general governmental services, and they are typically not earmarked for particular uses. While it is true that some taxes are deposited into trust funds designated for particular uses, such designations are typically more aspirational than legally mandated. By contrast, fees are almost universally earmarked for their intended purposes.
- 33.0 Court decisions distinguishing fees from taxes concur with these economic conclusions. For example, in McLeod v. Columbia County, the Georgia Supreme Court found as follows.⁵

"Although states differ on how they distinguish between fees and taxes, certain common factors exist. First, taxes are a means for the government to raise general revenue and usually are based on ability to pay without regard to direct benefits which may inure to the payor or to the property taxed. Fees, on the other hand, are intended to be and should be clearly described as a charge for a particular service provided. Second, fees should apply based on the contribution to the problem. Third, fee-payers, unlike taxpayers, should receive some benefit from the service for which they are paying, although the benefits may be indirect or immeasurable. Although some jurisdictions have held that the benefits must be direct and exclusive, i.e., that the benefits must profit the particular person on whom the fee is imposed and may not assist the general public, the trend seems to be in favor of upholding fees that confer intangible benefits on both those who are assessed and those who are not."

⁵ McLeod v. Columbia County, (June 28, 2004), Georgia Supreme Court, Case No.: S04A0696.

34.0 The Florida Supreme Court⁶ ruling on controversy over a stormwater fee similar to the SPF found that the fee applies to residential and non-residential developed property, but not to undeveloped property, which actually contributes to the absorption of stormwater runoff. The properties charged with the fee receive a special benefit from the stormwater services funded through the fee. The stormwater services were designed to implement federal and state policies through the collection, conveyance, and management of stormwater runoff contributed by the developed properties which are subject to the SPF. Finally, the cost of the stormwater services was properly apportioned based primarily on the impervious surface area of the developed properties.

V.0 The SPF is a Fee and not a Tax

35.0 Based on the criteria summarized in Table 1 and discussed above, the SPF is a fee and not a tax. Table 2 summarizes the basis for this conclusion. As shown in Table 2 and discussed in more detail below, the SPF has all the hallmarks of a fee and is clearly distinguishable from a tax.

Table 2. Features Demonstrating that the SPF is a Fee and not a Tax

Characteristic	SPF	Consistent with Fee Characteristic
Purpose to Raise General Revenue	No	Yes
Voluntary Payment	No	Maybe
Direct Benefit Provided for Payment	Yes	Yes
Payment Proportional to Benefit	Yes	Yes
Excludability/Public Good	No	Maybe
Improves Efficiency/Merit Good	Yes	Yes
Earmarked	Yes	Yes

36.0 First, the SPF was not imposed to generate general revenue for the Petitioner. The SPF was enacted strictly to fund the Petitioner's stormwater management system. This is consistent with a fee, not a tax.

⁶ Gainesville v. State of Florida, Op. Cit.

- 37.0 Second, the SPF is a partially mandatory imposition which is more like a tax and not a fee. However, as noted previously, simply because the SPF is mandatory, this feature alone does not render it a tax. As discussed below, the other features of the SPF make a fee clearly distinguishable from a tax. Furthermore, as shown above, courts in other states have found that mandatory, stormwater fees, are indeed fees and not taxes.
- 38.0 Although counsel reports that Pennsylvania courts have yet to rule on whether a partially mandatory stormwater fee is a tax or a fee, Pennsylvania courts have determined mandatory license fees are not taxes. For example, in National Biscuit Co. v. Philadelphia⁷, the court found that the mandatory license fee was not a tax, but instead a fee for the following reasons: (a) it was only imposed on the type of business subject to the regulation and licensing authority using its police powers; (b) supervision was by the licensing authority; (c) payment of the fee was a condition required for the licensee to conduct their business; and (d) the legislative purpose to exact the fee is to reimburse the licensing authority for its costs essentially paying for the service rendered.
- 39.0 The criteria used by the Pennsylvania Supreme Court to conclude that the mandatory licensing fee was not a tax, but instead was a bona fide fee, are very similar to the properties of the SPF at issue in this case.
- 40.0 Similarly, in Philadelphia v. Southeastern Pennsylvania Transp. Authority,⁸ the court distinguished between a fee and a tax as follows. "The common distinction is that taxes are revenue-producing measures authorized under the taxing power of government; while license fees are regulatory measures intended to cover the cost of administering a regulatory scheme authorized under the police power of government."
- 41.0 The Pennsylvania Supreme Court also found that a mandatory fee can be charged to cover the cost for services which the municipality renders "to particular persons or groups of persons within the" municipality.⁹
- 42.0 Third, the SPF funds the stormwater system that provides a direct benefit to the fee-payers. The system relieves or reduces the fee-payers cost to attenuate and treat their stormwater runoff as required by state and federal law.

⁷ National Biscuit Co. v. Philadelphia (June 26, 1953), Supreme Court of Pennsylvania

⁸ Philadelphia v. Southeastern Pennsylvania Transp. Authority (April 4, 1973), Commonwealth Court of Pennsylvania, Case No.: 481 C.D. 1972.

⁹ Supervisors of Manheim Township v. Workman (June 30, 1944), Supreme Court of Pennsylvania, Case No.: 185.

- 43.0 This is particularly true for the Respondents. NTM has determined that the cost to the Respondents to develop its own stormwater collection, conveyance, and management system would be \$4.2 million with an annual operating cost of \$45,600.10 This is far greater than the annual cost of the Respondents' SPF of \$132,089.11
- 44.0 More generally, the amount of the fee is proportional to the benefits provided. The fee is based upon the amount of impermeable surface on developed properties. Non-developed properties do not pay the fee since their properties will absorb stormwater. Likewise, properties which do not discharge to the Petitioner's system are not considered "developed" per the revised Appeal Manual." The more impermeable surface a developed property has, the more stormwater will runoff of that property and need to be treated by the Petitioner's system.
- 45.0 Importantly, developed property owners are allowed to develop onsite systems to attenuate their stormwater runoff and thereby generate credits. This would reduce their SPF obligation. Such opportunities are not available in the context of taxation.
- 46.0 In addition, owners of developed property can appeal their fee. In these ways, the fee-payer can make an economic decision and balance the cost of the fee to their alternatives.
- 47.0 Fourth, in general the payment of a fee in return for a good or service entitles the fee-payer to enjoy the benefits of the good or service and non-payers are excluded from such benefits. In other words, in most cases a fee-based transaction is similar to the purchase of any other privately provided good or service.
- 48.0 However, in some circumstances the purchase of a good or service motivated by private decision making with the expectation of having exclusive benefit from the purchase, also creates positive spillover effects, or general benefits. These general benefits may provide value to non-payers, but these general benefits are incidental to the direct benefits provided to the fee-payers. Since the SPF is designed to provide benefits to the fee-payers, incidental benefits conferred on nonpayers does not convert the fee into a tax.

¹⁰ NTM, Op. Cit.

¹¹ The fee amount is from the Affidavit of Ms. Lionti. Assuming the Respondent issued tax-exempt bonds to fund the capital cost for the onsite system, the annual debt service alone would be approximately \$245,400.

- 49.0 Fifth, the SPF clearly adds to market efficiency. The public provision of stormwater collection, conveyance, and management is more cost efficient than provision by each individual owner of developed property. This is particularly true in the Borough since much of the property was developed many years ago under different laws and standards governing stormwater runoff. For many older properties it will be difficult, expensive, and in some cases probably impossible to meet current requirements for stormwater collection, conveyance, and management. Finally, public provision of stormwater collection, conveyance, and management can exploit economies of scale not available to each private owner of developed property.
- 50.0 The Respondents' situation provides a clear example. As noted above, if the Respondents were to develop their own stormwater system for ultimate discharge to a receiving watercourse instead of using the Petitioner's system, Respondents would incur costs more than two-times higher than its SPF.
- 51.0 Finally, funds collected from the SPF are specifically earmarked and 100% of the funds are deposited into the Stormwater Management Fund. Expenditures from the Fund are limited to the construction, operations, maintenance and management of the Petitioner's stormwater system.

VI.0 Critique of Dr. Shoag's Report

52.0 Dr. Shoag has concluded that the SPF is a tax. Table 3 provides summarizes the differences between my opinion and Dr. Shoag's.

Table 3. Opinions Concerning Whether the SPF is a Fee or a Tax

Characteristic	Fishkind	Shoag	Consistent with Fee Characteristic
Purpose to Raise General Revenue	No	?	Yes
Voluntary Payment	No	No	Maybe
Direct Benefit Provided for Payment	Yes	No	Yes
Payment Proportional to Benefit	Yes	No	Yes
Excludability/Public Good	No	No	No
Improves Efficiency/Merit Good	Yes	No	Yes
Earmarked	Yes	No	Yes

- 53.0 Dr. Shoag did not address the purpose of the SPF in his analysis. The purpose for an imposition is foundational to assessing whether it is a fee or a tax. Taxes are levied to raise revenues to fund general governmental purposes. Fees, on the other hand, are imposed to offset the costs associated with particular services. Clearly, this factor indicates that the SPF is a fee.
- 54.0 Dr. Shoag and I agree that payment of the SPF is mandatory. While in isolation this might point to a tax and not a fee, there are a number of other considerations that must be weighed. In particular, in this case owners of developed properties must treat their stormwater runoff pursuant to federal and state laws. Therefore, owners of developed properties cannot voluntarily choose not to incur stormwater management costs. Their only choice (after choosing to develop their property or maintain impervious coverage on already developed sites) is whether to invest in onsite management or to utilize the Petitioner's stormwater system. In addition, as discussed below, the other features of the SPF have the hallmarks of a fee not of a tax.
- 55.0 Which brings us to the next point: is there a direct benefit to the feepayer from the SPF. The clear answer is yes. By paying the fee the owner of a developed property is relieved from providing onsite stormwater collection, conveyance, and management. Likewise, those owners can maximize the development potential of their properties and, also, avoid on-site flooding. Furthermore, proper runoff management prevents claims from downstream property owners of improper channelization of stormwater.
- 56.0 Furthermore, the construction of the SPF imposes fees in proportion to the impermeable surface of the developed properties, which is consistent with volume of stormwater runoff from those properties that the Petitioner's system will treat. This allocation system is widely used in similar public finance applications and in stormwater utility systems.
- 57.0 Dr. Shoag argues that the benefits funded by the SPF may not be consistent with the costs citing the deposition of Mr. Perrone at pages 90-91. However, this is not a fair reading of Mr. Perrone's testimony. On this point Mr. Perrone testified as follows.

- Q. So just so we are clear, I used a negative in the question. I just want to make sure your testimony here is clear. The amount of fee assessed on a property is not directly related to the amount of benefit each property owner gets; is that correct?
- A. The amount of fee is based on the coverage and the water you're putting into the system.
- Q. Which is not directly related to the amount of benefit each homeowner gets from the existence of the storm water management measures, correct?
 - A. Yes.
- 58.0 Mr. Perrone is explaining that the amount of the fee is based on the coverage of impermeable surface which is directly proportional to the volume of stormwater runoff the Petitioner's system would treat from each property. This in no way means that the benefit any property receives is disconnected from the fee amount. As noted previously, fee-payers can decide if it is in their best economic interest to: (a) pay the SPF, or (b) invest in their own onsite collection, conveyance, and management systems.
- 59.0 If an owner of a developed property chooses to pay the SPF, they are making a rational economic choice that such payment is more cost-advantageous than construction and maintenance of on-site systems which would discharge directly to receiving watercourses without ever interacting with the Petitioner's system. The choice is made by balancing the benefits they would receive against the costs for each option. Most owners of developed properties will choose the SPF option for all of the reasons described above.

- 60.0 Dr. Shoag goes on to claim that the value of the benefits to the Respondents are less than the cost based on the opinion of Mr. Bixby. This is not persuasive in light of the report by NTM and materials provided by the Respondents in discovery which show the discharge of significant amounts of stormwater into the Petitioner's system. 12 Furthermore, if indeed Mr. Bixby's opinion that the Respondents generates *de minimis* stormwater runoff flowing into the Petitioner's system is correct, then the Respondents could have readily availed itself of the credit and appeal options in the SPF ordinance. The fact that they did not do so, undercuts confidence in Mr. Bixby's opinion.
- 61.0 Dr. Shoag also claims that the SPF is not a fee because it funds a service that is essentially a public good and not a private good. Since the SPF generates public benefits, and because stormwater attenuation is not an excludable private good, Dr. Shoag concludes this characterizes the SPF as a tax. However, this conclusion fails to take into account that stormwater collection, conveyance, and management creates both public and private benefits. Furthermore, in this case the SPF provides substantial special benefits to the fee-payer by relieving them of providing onsite stormwater collection, conveyance, and management.
- 62.0 Dr. Shoag also contends that the SPF does not improve market efficiency. He argues that most of the money from the SPF is generated by properties developed prior to the introduction of the SPF. Therefore, the SPF cannot provide "efficient incentives at the margin, by rather targets raising revenue."
- 63.0 However, this observation completely misses the point. As discussed above, the public provision of stormwater collection, conveyance, and management exploits economies of scale allowing it to provide stormwater services to the fee-payers at a substantial savings to them. The proof is clear on this point because the vast majority of developed property owners have decided to pay the fee and not to invest in their own onsite facilities. Furthermore, the NTM study demonstrates that this is particularly true for the Respondents. Therefore, it is clear that the SPF improves market efficiency consistent with the hallmark of a fee.
- 64.0 Finally, Dr. Shoag claims that the SPF is not sufficiently earmarked, because: (a) "the ordinance does not stipulate that funds can only be used for purposes related to storm water management" and (b) no funds are specifically designated for the provision of services that directly benefits the Respondents.

¹² WCU000818-820 and WCU000001.

- 65.0 Neither of these arguments is true. First, the ordinance clearly specifies that all of the moneys generated by the SPF must be deposited into the Stormwater Management Fund. Furthermore, the ordinance states that the SPF provides "a dedicated funding source for the ongoing expenses associated with the Borough's stormwater management system."
- 66.0 Second, the notion that the SPF does not provide a special benefit to the Respondents is demonstrably false. Regardless of whether any particular stormwater project undertaken by the Petitioner directly benefits the Respondents, the Respondents receives a special benefit by dint of being relieved from costly investment in its own onsite system, maximization of the development potential at the University campus, and flood control.

VII.0 Conclusions

- 67.0 The SPF exhibits the hallmarks of a fee and is clearly distinguishable from a tax. The purpose of the SPF is to offset the cost of providing a stormwater system that confers special benefits on the fee-payers. The SPF provides these benefits to fee-payers in proportion to the costs imposed on the public system. Furthermore, the system provides a lower cost alternative to onsite collection, conveyance, and management. Finally, all funds generated by the SPF are deposited into the Stormwater Management Fund for use exclusively to offset the costs associated with the construction, operations, maintenance, and management of the Petitioner's stormwater collection, conveyance, and management system.
- 68.0 Should additional information become available material to my report, I will request permission to update the report accordingly. However, at this juncture my report is complete.



SELECT CLIENT LIST

Akstman Bell Roper Boştman Rigei Burr Formen Coleman Yovenovich de la Parte & Gilbert Fulmer Lezoy Albec Fisher Rushmet Poley Lardner Hill Ward Henderson Holland & Knight Morgan & Morgan Nabore Giblia Pendag Law Smolker Bartlett Tobia Reyes Weiss Handler Cornwell AEGON Baron Collier BP Comess/CSR/Rinker City of Mismi Colonial Properties Trust Collier Enterprises Falcone Group Fannie Mac Florida Power Corporation Forrest City Enterprises FPL King Ranch Kitson & Partners Major Central FL Attraction Co. Mossic Newland Communities Perry Capital Rayonier Starwood Land Ventures State of Florida State of Pennsylvania

U.S. Department of Justice The Villages

Waste Management, Inc.

Henry H. Fishkind, Ph.D.

President

hankf@fishkindls.com

PROFESSIONAL SYNOPSIS

With over 30 years of experience in economic analysis and forecasting, Dr. Henry Fishkind is widely regarded as one of Florida's premier economists and financial advisors. Dr. Fishkind's career began in the public sector where he worked as an economist and associate professor at the University of Florida. In 1980, Dr. Fishkind became the associate director for programs at the University of Florida's Bureau of Economic and Business Research. During his renure at the university, Dr. Fishkind served from 1979-1981 on the governor's economic advisory board. He began his career as a private sector consultant when he became president of M.G. Lewis Econometrics in Winter Park, Florida. In 1988, Dr. Fishkind formed Fishkind & Associates, Inc. as a full service economic and financial consulting firm. In 2019, Dr. Fishkind sold the financial advisory, consulting, and real estate advisory portions of his business while keeping the expert witness portion. Fishkind Litigation Services, Inc.

From 2001-2003 Dr. Fishkind was a member of Governor Bush's Council of Bronomic Advisors, and also served on the board of directors of Engle Homes, Summit Properties, and ABT Funds until the companies were sold.

AREAS OF EXPERTISE

Expert Witness
Economic Analysis
Econometric Modeling
Project Finance & Feasibility
Privacy & Intellectual Property
Fiscal Impact Analysis
Real Estare Economics

PROFESSIONAL EXPERIENCE

Chairman, FLSAFE

Managing Partner, Woodbridge Vintage Chips
1994 - 2007
President, Fishkind & Associates, Inc./Fishkind
Litigation Services, Inc.
President, M.G. Lewis Econometrics, Inc.
1984 - 1987
Associate Director for Programs,
Bureau of Economics & Business Research,
University of Florida

Economist/Associate Professor, University of Florida
1975 - 1983

EDUCATION

Indiana University, Doctor of Philosophy, Economics, 1975 Syracuse University, BA. Economics, 1971

> Fishkind Litigation Services, Inc. 3504 Lake Lynda Drive, Suite 107, Orlando, FL 32817 407.382.3256



Exhibit #2 – Court Experience

DEPOSITIONS AND TESTIMONY	2016-2017-2018-2019-2020-2021						
HENRY H. FISHKIND, PH.D., FISHKIND LITIGATION SERVICES, INC.	2010-2017-2010-2013-2020-2021						
CASE NAME	Court	Case Number	Represented	Opinion	Deposition	Testified	Affidavit
Amorin et al. v. Gypsum Co., LTD, et al.	United States District Court Southern District of Florida	1:11-CV-22408-MGC	Defendant	yes	yes		
Beach Group Investments, LLC v. State of Florida Department of Environmental Protection	In the Circuit Court of the Nineteenth Judicial Circuit in and for St. Lucie County, State of Florida, Civil Division	2011-CA-000702	Plaintiff	yes	yes	yes	
Benz Research and Development Corporation v. Armin Ebrahimpour, Mark' Ennovy Personalized Care et al.	In the Circuit Court of the Twelfth Judicial Circuit in and for Sarasota County, Florida, Civil Division	2011CA004732NC	Defendant	yes	yes	yes	
Blaine et al. v. North Brevard County Hospital District	United States District Court Middle District of Florida Orlando Division	6:18-cv-487-ORL-22DCI	Plaintiff	yes	yes		
Blume v. Blume	In the Circuit Court of the Twentieth Judicial Circuit in and for Collier County, Florida, Civil Action	16-DR-823	Respondent	yes	no	yes	
Brevard County, Florida et al. v. The State of Florida et al.	In the Circuit Court of the Eighteenth Judicial Circuit, in and for Brevard County, Florida	05-2018-CA-018298	Plaintiff	yes	yes	yes	
Cafifa Media Group, LLC v. Star Over Orlando, Inc. et al.	American Arbitration Association	01-18-0003-2715	Respondent	yes	no	yes	
Castro v. United States of America	United States District Court Middle District of Florida	2:15-cv-378-FtM-38CM	Defendant	yes	yes	no	
Citrosuco North America, Inc. v. Brown International Corporation, LLC			Claimant	yes	no	yes	

Michael Corona, Christina Mathis, et al. v. Sony Pictures Entertainment, Inc.	United States District Court Central District of California	2:14-CV-09600-RGK-SH	Plaintiff	ves	ves	no	ves
Consolidated Citrus, LP, vs. Martin County, and 1000 Friends of Florida Inc.	State of Florida Division of Administrative Hearings	13-3393GM; 13-3395GM; 13- 3397GM; 13-3413GM; 14- 0118GM;14-0132GM; 14-0135GM	Respondent	yes	yes	yes	,
Deer Valley Realty, Inc. v. SB Hotel Associates	In the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida	12-10560 CACE (07)	Defendant	yes	yes	yes	
FD Destiny et al v. AVP Destiny et al	In the Circuit Court of the 15th Judicial Circuit in and for Palm Beach County, Florida, General Jurisdiction Division	502009 CA029903XXXXMB	Defendant	yes	yes	yes	
Dual Diagnosis Treatment Center, Inc. et al. v. City of San Clemente	United States District Court Central District of California - Southern Division	SACV15-01611 CJC (JCGx)	Plaintiff	yes	yes		
Dunn v Green	In The Circuit Court of the First Judicial Circuit in and for Santa Rosa County, Florida	2011-000775-CA	Plaintiff	yes	yes		
Edwards CDS v. City of Delray Beach	United States District Court Southern District of Florida, West Palm Beach	9:15-cv-81405-DMM	Plaintiff	yes	yes		
Embree et al. v. Wyndham Worldwide Corporation et al.	In The United States District Court For The Western District of Arkansas	16-5015 TLB	Defendant	yes	yes		
Eveleigh et al. v. Eveleigh et al.	In the Circuit Court, Fourth Judicial Circuit, in and for Duval County, Florida	16-2014-CP-001607	Defendant	yes	no	yes	
Far East Suncare, Ltd. V. SolSkyn Personal Care, LLC	American Arbitration Association	01-18-0002-5957	Respondent	yes	yes	yes	
FCC Marsh, LLC v. Ashton Tampa Residential, LLC	In the Circuit Court of the Twelfth Judicial Circuit in and for Collier County, Florida Civil Action	16-CA-1143	Plaintiff	yes	yes		
Federal Deposit Insurance Corp. as Receiver for Peoples First Bank, v. Greg M. Brudnicki	In the United States District Court Northern District of Florida Panama City Division	5:12-cv-00398-RS-GRL	Defendant	yes	yes	no	
Federal Deposit Insurance Corp. as Receiver for Orion Bank of Naples, v. James Aultman, et al.	In the United States District Court For the Middle District of Florida, Ft. Myers Division	2:13-cv-FtM-99SPC	Plaintiff	yes	no	no	

Federal Deposit Insurance Corp. as Receiver for Wakulla Bank, v. Walter C. Dodson, et al.	In the United States District Court For the Northern District of Florida, Tallahassee Division	4:13-cv-00416-MW-CAS	Defendant	ves	ves	no	
Fiddler's Creek Bankruptcy	United States Bankruptcy Court, Middle District of Florida, Fort Myers Division	9:10-bk-03846-ALP	Debtors	yes	yes	yes	
Fiddler's Creek Community Development CDD 2 v. U.S. Bank	In the Circuit Court of the 20th Judicial Circuit in and for Collier County, Florida, Civil Division	11-CA-3947 and 13-CA-1143	Plaintiff	yes	yes		
Fiddler's Creek, LLC v. Naples Lending Group, et al.	United States Bankruptcy Court, Middle District of Florida, Fort Myers Division	2:14-cv-379-FtM-29CM	Plaintiff	yes	yes	yes	
Flagstone Island Gardens, LLC et al. v. City of Miami	In the Circuit Court of the 11th Judicial Circuit in and For Miami-Dade County, Florida, Complex Business Litigation	2017-013829-CA-01 (44)	Defendant	yes	yes		
Florida East Coast Railway v. Norfolk Southern Railway	American Arbitration Association	33 125 00161 13	Respondent	yes	yes	yes	
Florida Power & Light Co. Turkey Point Units 6 & 7 Power Plant Siting Application No. PA 03-45A3	State of Florida Division of Administrative Hearings	DOAH Case No.: 09-3575EPP; OGC Case No.: 09-3107	FPL	yes	yes	yes	
Giddens v. N Square, Inc. et al	In The Circuit Court of the Twentieth Judicial Circuit in and for Collier County, Florida Circuit Civil	15-CA-883	Plaintiff	yes	yes		
Grand Venezia COA, Inc. v. Clearwater Cay Community Development District et al	In the Sixth Judicial Circuit in and for Pinellas County, Florida	16-001584-CI	Defendant			yes	
Hobe Sound Ranch, Ltd. V. Martin County	In the Circuit Court of the Nineteenth Judicial Circuit in and for Martin County, Florida Civil Division	2018-CA-000710	Plaintiff	yes	yes		yes
Hernando County Property Appraiser et al v. CEMEX Construction Materials Florida, LLC et al	In the Circuit Court of the Fifth Judicial Circuit in and for Hernando County, Florida	CA11-1249	Defendant			yes	
Home Builders Association of West Florida, Inc. et al. v. The Board of County Commissioners, Santa Rosa County, Florida et al.	In The Circuit Court of the First Judicial Circuit in and for Santa Rosa County, Florida	2020-CA-000201	Defendant			yes	
Intelitrac v. UMB Financial Corporation, et al.	In the District Court, 95th Judicial District, Dallas County, Texas	DC-17-00035	Plaintiff	yes	yes		

Island Estate Group, LLC et al. v. Michael J. Carroll, Sr. et							
al.	American Arbitration Association	01-20-0001-6804	Respondent	yes	yes		
Ivonne Aurea Garcia	United States Bankruptcy Court Southern District of Florida	12-11839-LMI	Respondent	yes	no	no	
John J. Jerue v. Drummond Company, Inc.	United States District Court for the Middle District of Florida Tampa Division	8:17-CV-00587-EAK-AEP	Defendant	yes	yes		
KG Development, LLC et al. v. St. John's County v. South Anastasia Communities Association, Inc.	In the Circuit Court for the Seventh Judicial Circuit in and for St. Johns County, Florida	CA15-1184	Plaintiff	yes	yes		
Kosberg et al. v. Town of Palm Beach	In the Circuit Court of the Fifteenth Judicial Circuit, in and for Palm Beach County, Florida	502017CA008420XXXXMB AO	Plaintiff	yes	yes		
Kroma Makeup EU, LLC v. Boldface Licensing + Branding, LLC et al.	In the United States District Court, Middle District of Florida, Orlando Division	6:14-cv-01551-PGB-GJK	Defendant	yes	yes		
Lake Point Phase I, et al. v. South Florida Water Management District et al.	Fifteenth Judicial Circuit in and for Martin County, Florida	2013-001321-CA	Plaintiff	yes	yes	yes	yes
Las Olas Company, Inc. et al. v. Florida Power & Light Company	In the Circuit Court of the Seventeenth Judicial Circuit in and For Broward County, Florida	CACE 19-019911 (18)	Defendant	yes	yes	yes	
Lemon Bay Cove, LLC v. United States of America	In the United States Court of Claims	1:17-cv-00436-MCW	Plaintiff	yes	yes	yes	yes
Lincoln Rock, LLC v. City of Tampa	United States District Court Middle District of Florida Tampa Division	8:15-cv-01374-JSM-TBM	Plaintiff	yes	yes		
Lynn Hartenberger & Nancy Stevens v. High Desert Investment Corp	Thirteenth Judicial District County of Sandoval State of New Mexico	D-1329-CV-2012-02350	Defendant	yes	yes	no	
Majorca Isles Master Association et al v. D.R. Horton, Inc. et al	In the United States Bankruptcy Court for the Southern District of Florida, Miami Division	12-19056-AJC	Plaintiff	yes	no	yes	
Malbec Investments v. Grande Palisades Loan Holdings	In The Circuit Court of the Ninth Judicial Circuit in and for Orange County, Florida	2014-CA-9320-O	Defendants	yes	yes	no	
Marion County v. G&C Enterprise of Ocala	In the Circuit Court of the Fifth Judicial Circuit in and for Marion County, Florida	12-2339-CA-G; Parcel: 32	Petitioner	yes	yes	no	
Matthew Ellison v James D. Salter	In the Circuit Court, Third Judicial Circuit, in and for Taylor County, Florida	2011-371-CA	Plaintiff	yes	yes	no	

Metalonis, David C. v. Eastgroup Properties, Inc. et al.	In the Circuit Court of the 11th Judicial Circuit in and For Miami-Dade County, Florida, Complex Business Litigation Section	2017-24767-CA-01 (Div. 44)	Plaintiff	yes	yes		
Mizner Court Holdings et al. v. Broken Sound et al.	In the Circuit Court for the Fifteenth Judicial Circuit in and for Palm Beach County, Florida	15-CA-864-AB	Plaintiff	yes	yes		
Mounts et al. v USA	United States District Court Middle District of Florida Orlando Division	6:15-cv-11-Orl-41KRS	Defendant	yes	no	yes	
Nerbonne et al. v Kaltenbacher, et al.	In the Circuit Court of the Twelfth Judicial Circuit in and for Sarasota County	2015-CA-003070NC	Defendant	yes	yes	yes	
Nutrimatix, Inc. v. Xymogen, Inc.	In the United State District Court Middle District of Florida, Orlando Division	6:15-CV-790-OR-37DAB	Defendant	yes	yes	yes	
Ocean Concrete, Inc. et al. v. Indian River County et al.	In the Circuit Court of the Nineteenth Judicial Circuit in and for Indian River County, Florida	20071589-CA-17	Defendant	yes	yes	yes	
Omni Healthcare, Inc. v. Mark Mendolla	In the Circuit Court of the Eighteenth Judicial Circuit in and for Brevard County, Florida	05-2010-CA-13591	Defendant	yes	yes	yes	
Opperman et al. v. Path, Inc. et al.	United States District Court Northern District of California	13-cv-00453-JST	Plaintiff	yes		yes	
OSM-1, LLC v. Viera East Community Development District	In the Circuit Court of the Eighteenth Judicial Circuit in and for Brevard County, Florida	05-2019-CA-057538-XXXX-XX	Defendant	yes	yes		yes
Palm Partners LLC v. City of Oakland Park	United States District Court Southern District of Florida	14-21242-CIV-MOORE/MCALILEY	Plaintiff	yes	yes	no	
Patricia Chandler v. Curtis Chandler	In the County Court of the Twentieth Judicial Circuit in and for Collier County Florida (Civil Division)	13-0817-DR	Respondent	yes	yes	no	
The Richman Group of Florida, Inc. v. Pinellas County, Florida et al.	In the Circuit Court of the Sixth Judicial Circuit in and for Pinellas County, Florida	14-005608-CI-15	Plaintiff	yes	yes	yes	
River Cross Land Company, LLC v. Seminole County	United States District Court Middle District of Florida Orlando Division	6:18-cv-1646-ORL-22KRS	Defendant	yes	yes		
Jacob T. Rodgers v. William Stormant et al.	In the Circuit Court of the 8th Judicial Circuit, in and for Alachua County, Florida	2016-CA-659	Defendant	no	no	yes	no

Sensor Systems, LLC et al. v. Blue Barn Holdings, Inc. et al.	United States District Court Middle District of Florida Tampa Division	8:19-cv-02581-SCB-AAS	Plaintiff	yes	yes		
Shaw Farms & Land Company of Florida, LLC et al v. Broward County et al v. Baker Concrete et al	In the Circuit Court of the 17th Judicial Circuit in and for Broward County, Florida	CACE-15-011648 (09)	Defendant	yes	yes	no	
Shepard, John et al. v. MQ Realty, LLC et al.	In the Circuit Court of the Twelfth Judicial Circuit in and for Manatee County, Florida, Civil Division	2015-CA-4307	Plaintiff	yes	yes	yes	
Shim et al. v Buechel et al.	In the Circuit Court of the Ninth Judicial Circuit in and for Orange County, Florida	2013-CA-1449-O	Defendant	yes	yes	no	
Shumake v. McManus et al.	Before the American Arbitration Association	01-15-0004-6990	Claimant	yes	yes	no	
Sparks et al. v. Smith et al.	In the Circuit Court of the Eighteenth Judicial Circuit in and for Brevard County, Florida	05-2005-CA-008716	Defendant	yes	no	yes	
St. Andrews Holdings, LTD. v. Alain J. Morot-Gaudry, et al.	In the Circuit Court of the Eleventh Judicial Circuit in and For Miami-Dade County, Florida	12-33641 CA 40	Plaintiff	yes		yes	yes
Stock Development LLC v. Lely CDD	In The Circuit Court of the Twentieth Judicial Circuit in and for Collier County, Florida Civil Division	11-2013-CA-001507-0001-XX	Plaintiff	yes	yes	no	
Summit Construction Management Group, LLC v. City of Oviedo	In the Circuit Court of the Eighteenth Judicial Circuit in and for Seminole County, Florida	2017-CA-001062	Defendant	yes	yes		yes
Svenson v Google et al.	United States District Court for the Northern District of California, San Jose Division	5:13-cv-04080-BLF	Plaintiff	yes	yes	no	
T.H. Old Town Associates Ltd.	United States Bankruptcy Court Middle District of Florida Orlando Division	6:13-bk-04147-KSJ	Debtors	yes	yes	no	
Town Center at Doral LLC, et al	United States Bankruptcy Court, Southern District of Florida, Miami Division	11-35884-RAM	Debtors	yes	yes	yes	
Unicorp Colony Units, LLC v. Colony Beach & Tennis Club Association, Inc. et al.	In the Circuit Court of the Twelfth Judicial Circuit in and for Sarasota County, Florida	2018 CA 000360 NC	Plaintiff		yes		

Travelers Indemnity Company et al v. Attorneys' Title Insurance et al.	United States District Court Middle District of Florida Ft. Myers Division	2:13-CV-00670-FtM-38CM	Plaintiff	yes	yes		
Universal Health Care Group, Inc., et al. v. Warburg Pincus, LLC et al.	United States Bankruptcy Court Middle District of Florida Tampa Division	8:13-bk-01520 / 8:13-bk-05952	Defendant	yes	yes		yes
Veranda Condominium I, LLC et al. v. Wachovia Mortgage Corporation	In the Circuit Court of the 17th Judicial Circuit, in and for Broward County, Florida	10-38942 (02)	Plaintiff	yes	yes	no	
Walt Disney Parks and Resorts US, Inc. v. Rick Singh et al.	In the Court of the Ninth Judicial Circuit of Florida in and for Orange County Civil Division	2016-CA-005297-O	Plaintiff	yes	yes	yes	yes
Waters Edge Recovery, LLC v. City of Stuart	United States District Court Southern District of Florida	13-14491-cv-Martinez-Lynch	Plaintiff	yes	yes	yes	
Westra Construction Corp. v. City of Sarasota	In the Circuit Court of the Twelfth Judicial Circuit in and for Sarasota County, Florida	2013-CA-1728 NC Division: A	Plaintiff	yes	yes	yes	

Exhibit #3 – Materials Reviewed or Relied Upon

Documents Filed with the Court:

Action for Declaratory Judgment

Binders 1, 2, 4, 5, 6

Brief of Petitioner the Borough of West Chester in Opposition to Respondents'

Preliminary Objection

Campus Base Plan

Memorandum Opinion by Judge Fizzano Cannon

Petitioner the Borough of West Chester's Response to Respondents' Preliminary Objection

Petitioner's Reply to Respondents' New Matter

Respondents' Answer with New Matter

Respondents' Brief in Support of Their Preliminary Objection to Petitioner's

Action for Declaratory Judgment

Respondents' Preliminary Objection to Petitioner's Action for Declaratory

Judgment

Respondents' Reply Brief in Further Support of Their Preliminary Objection to

Petitioner's Action for Declaratory Judgment

Pleadings Index

Depositions & Exhibits:

Tom Clark, October 12, 2020

Gary Bixby, October 13, 2020

Nate Cline, December 21, 2020

Michael A. Perrone, C.B.O., October 15, 2020

Production:

Binder 3

Budgets, 2017-2021

Engineer Reports and Maps, WCU000825-WCU000881

NTM Engineering, Inc. (June 2021), "Discrete Benefits Provided to West Chester University by the West Chester Borough Stormwater Management System"

Opposing Expert:

2021-06-03 Letter to Borough encl Expert Report of Daniel Shoag, Ph.D.

CV of Daniel Shoag, Ph.D.

2021-06-03 Final Report of Daniel Shoag, Ph.D.

References/Case Law:

Fuest, Clemens, Kolmar, Martin, "A Theory of User-Fee Competition," <u>Journal of Public Economics 91</u>, (2007), 497-509

Swope, Kurtis J., Janeba, Eckhard, "Taxes or Fees? The Political Economy of Providing Excludable Public Goods," <u>Journal of Public Economic Theory</u>, (2005), 405-426

Brisman, Avi, "Considerations in Establishing a Stormwater Utility," <u>Southern</u> <u>Illinois University Law Journal</u>, (2002)

Church of Peace v. City of Rock Island, Appellate Court of Illinois, Third District, May 12, 2005, Filed, No. 3-04-0480

Clement & Muller, Inc. v. Tax Review Bd., Commonwealth of Pennsylvania, May 11, 1995, Filed, No. 1696 C.D. 1994, No. 1697 C.D. 1994

City of Gainesville v. State of Florida, et al. Supreme Court of Florida, No. SC02-1696, September 4, 2003

McLeod v. Columbia County, Supreme Court of Georgia, June 28, 2004, Decided, S04A0696

National Biscuit Co. v. Philadelphia, Supreme Court of Pennsylvania, Argued June 1-June 26, 1953, No Number in Original

Philadelphia v. Southeastern Pennsylvania Transp. Authority, Commonwealth Court of Pennsylvania, April 4, 1973, Decided, No. 481 C.D. 1972

Sarasota County v. Sarasota Church of Christ, Supreme Court of Florida, December 21, 1995, Decided, No. 84,414

Southwest Delaware County Municipal Authority v. Aston, Supreme Court of Pennsylvania, Arqued January 20 – March 17, 1964, No Number in Original

State v. Biddeford Internet Corp., Superior Court of Maine, October 5, 2016 Decided, Docket No.: BCD-CV-14-56

Supervisors of Manheim Tp. V. Workman, Supreme Court of Pennsylvania, May 22, - June 30, 1944, No. 185

White v. Commonwealth, Medical Professional Liability Catastrophe Loss Fund, Commonwealth Court of Pennsylvania, March 7, 1990, Decided, No. 2839 C.D. 1987

Wilkes-Barre v. Ebert, Commonwealth Court of Pennsylvania, December 15, 1975, Decided, No. 102 C.D. 1975

Hyman, David (2011), <u>Public Finance, Mason, Ohio: South-Western Cengage</u> <u>Learning</u>

Exhibit #4 Publications

REFEREED PROFESSIONAL ARTICLES

(With Byron Walden) "Correctly Calculating the Present Value of Future Medical Costs in Personal Injury Cases", The Value Examiner, Jan/Feb 2015, pp.24, 25 and 35.

(With Stanley K. Smith) "Elderly Migration into Rapidly Growing Areas: A Time Series Approach, "Review of Regional Studies, Spring, 1985, pp. 11-27.

(With Blaine Roberts) "An Empirical Note on Employment Forecasts," Monthly Labor Review, March, 1978, pp. 105-108.

- (With Blaine Roberts) "The Role of Monetary Forces in Regional Economic Activity: An Econometric Simulation Analysis," <u>Journal of Regional Science</u>, April, 1979, pp. 15-29.
- (With Jerome Milliman and Richard Ellson) "A Pragmatic Econometric Approach to Assessing Economic Impacts of Growth or Decline in Urban Areas," <u>Land Economics</u>, February, 1978, pp. 442-460.
- The Regional Impact of Monetary Policy: An Econometric Simulation Study of Indiana 1958-1973," <u>Journal of Regional Science</u>, April, 1977, pp. 77-88.
- "Manitoba Interlake Area A Review," <u>Journal of Regional Sciences</u>, April, 1977, pp. 151-153.

BOOKS AND MONOGRAPHS

- (With Jerome Milliman) "An Econometric Approach to Regional Stagnation," in Peter Friedrich's and Walter Buhr's (editors) <u>Planning Under Regional Stagnation</u>, Baden-Baden, West Germany: Nomos-Verland, 1982.
- (With Neil Sipe) A Primer on Impact Fees in Florida, Tallahassee, Florida: Florida Home Builders Association, 1981.
- "The Impacts of Growth Management Policies on New Home Prices," in Thomas Black's (editor) <u>Urban Land Markets: Price Indices, Supply Measurers and Public Policy Effects, Washington, D.C.: Urban Land Institute, 1980, pp. 215-232.</u>
- "The Geographic Incidence of Monetary Policy: An Econometric Analysis," in Peter B. Corbin's and Murray Sabin's (editors) <u>Geographic Aspects of Inflationary Processes, Volume 2</u>, New York: Redgrave Publishing Company, 1976, pp. 17-42.
- (With Ernst Stromsdorder and Kamran Moayed-Dadkhan) <u>Cost Analysis of Manpower Programs: An Analysis of the Art,</u> Bloomington, Indiana: Indiana University, 1973 (mimeographed).

NONREFERRED JOURNALS AND NEWSLETTER

"Econocast," published each quarter November, 1984 - 1994.

"The Florida Outlook", published each quarter 1977-1994 in The Florida Outlook.

Economic Indicators, published monthly, 1979-1982.

Quarterly Forecasts for Florida and its counties on the Internet at Fishkind.com since 1998.

Fund Newsletters for 27 Florida Counties, published monthly 2006-2009

"Econocast Weekly" Dr. Fishkind's weekly economic commentary

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Expert Report

Discrete Benefits Provided to West Chester University by the West Chester Borough Stormwater Management System

West Chester Borough, Chester County, PA

Prepared For:

West Chester Borough 401 East Gay Street West Chester, PA 19380

June 2021

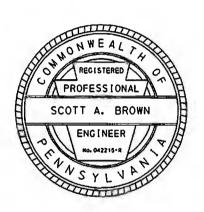


Engineer's Certification

Expert Report Discrete Benefits Provided to West Chester University by the West Chester Borough Stormwater Management System

West Chester Borough, Chester County, PA

"I do hereby certify pursuant to the penalties of 18 PA C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying report, has been prepared in accordance with accepted engineering practice, and is true and correct."

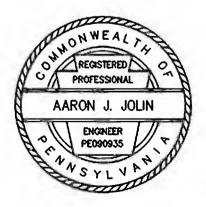


By:

Date:

e: <u>June 3, 2021</u>

"I do hereby certify pursuant to the penalties of 18 PA C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying report, has been prepared in accordance with accepted engineering practice, and is true and correct."



By:

Date:

June 3, 2021

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Expert Report

Discrete Benefits Provided to West Chester University by the West Chester Borough Stormwater Management System

EXECUTIVE SUMMARY

NTM Engineering, Inc. (NTM) analyzed the discrete benefits West Chester University and the Pennsylvania State System of Higher Education (collectively referred to in this report as the University or WCU) derived from utilizing the West Chester Borough (Borough) owned and operated Stormwater Management System instead of implementing non-municipal options which the University might have for the collection and conveyance of stormwater from its developed property within the Borough. We conducted that investigation in the context of ongoing litigation between the Borough and the University regarding the obligation of the University to pay the Stream Protection Fee for use of the Borough Stormwater Management System.

As with all properties, during rain events stormwater falls upon University-owned real property located within the jurisdictional limits of the Borough (which is referred to in this report as "North Campus"). As do the owners of all developed properties for their lots, the University must collect that stormwater and ensure that most of it is conveyed away from North Campus to a receiving watercourse. To meet that responsibility, on an annual basis the University discharges an enormous volume of stormwater to the Borough Stormwater Management System.

The Borough Stormwater Management System includes Borough owned, operated, and maintained roads, storm drains, inlets, curbs, gutters, and other conveyance components. To analyze the discrete benefits which the University derives from its use of that system, we evaluated options which the University would have to meet its responsibility to collect stormwater and convey it to a receiving watercourse other than the University's current use of the Borough Stormwater Management System.

We begin with the assumption that, if the University did not use the Borough Stormwater Management System, the University would need to otherwise capture and manage all annual stormwater runoff from North Campus which currently drains to that system.

In this report, NTM presents five (5) conceptual options for capture and management of the stormwater runoff from North Campus which the Borough currently manages (fully or in part) through components of the Borough Stormwater Management System for the benefit of the University. The sixth option which we mention here is the University's continued use of the Borough Stormwater Management System and continued enjoyment of the benefits which the University derives from not having to otherwise address stormwater runoff from North Campus. We completed our analysis using industry standard methodology, programs, and practices, and selected for further development the option (other than payment of the Stream Protection Fee) which would be most economical and beneficial for the University.

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We also considered the feasibility of implementation for each option. There, we evaluated the complexity, spatial constraints, general costs, permitting requirements, and overall practicality of each option. The most economically beneficial option for the University (other than continued use of the Borough Stormwater Management System) is Option 3 (*i.e.* design and implementation of a separate University-owned stormwater management system). The design of Option 3 was advanced to a master plan level of detail based on industry standard analysis. Importantly, Option 3 would require substantial additions to, and reworking of, the existing University stormwater management infrastructure and drainage patterns and would necessitate disturbances of almost all portions of North Campus which are adjacent to Borough streets.

Our opinion of the probable costs for the initial design and construction of Option 3 is \$4,200,000.00, with estimated annual operation and maintenance costs of \$45,600.00. Our design and cost estimates are based on best available data and, in all cases, are based on assumptions which FAVOR the University. As a result, our estimated costs are conservatively low. Those costs, however, still represent a significant required infrastructure investment by the University if it were to seek to replace the benefits which now accrue from the Borough's acceptance of stormwater runoff from North Campus and conveyance of that stormwater to a receiving watercourse on behalf of the University. Our analysis demonstrated, conversely, that the Borough's operation and maintenance of the Borough Stormwater Management System allows the University to realize the significant benefit of not having to make that capital or operational investment.

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Discrete Benefits Provided to West Chester University by the Borough Stormwater Management System

I. Authors

This report was prepared by Mr. Scott Brown, PE, D.WRE, and Mr. Aaron Jolin, PE. Mr. Brown is a Senior Engineering Manager at NTM Engineering, Inc. and was the principal author of this report. He has over 40 years of experience as a licensed professional engineer with focus in the areas of stormwater management and drainage design. Mr. Brown's unique expertise and achievements in water resource engineering were acknowledged by the American Academy of Water Resource Engineers in 2013 through award of the credential Diplomat, Water Resource Engineer.

Mr. Jolin provided senior technical support and analysis for this report. Mr. Jolin specializes in design and regulatory permitting of drainage, stormwater management, and erosion and sedimentation control systems. He has over 14 years of experience and has been a licensed professional engineer for over 9 years.

Mr. Brown's Curriculum Vitae and Mr. Jolin's Curriculum Vitae are included in Appendix F.

II. Background

On July 20, 2016, Borough Council (the governing body of the Borough) enacted the Stream Protection Ordinance (Ordinance No. 10-2016).

As defined in the Stream Protection Ordinance, the 'Borough Stormwater Management System' is the system of collection and conveyance, including underground pipe, manholes, outfalls, dams, flood control structure, natural areas, structural and non-structural stormwater best management practices, channels, detention ponds, public streets, curbs, drains and all devices, appliances appurtenances and facilities appurtenant thereto used for collecting, conducting, pumping, conveying, detaining, discharging and/or treating stormwater. The Stormwater Management System is entirely owned and operated by the Borough.

Pursuant to the Stream Protection Ordinance, the Borough charges a service fee (the "Stream Protection Fee") to the owners of all "developed" properties in the Borough.¹ Importantly, the Borough does not charge that service fee to the owners of properties which are not "developed"

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Pursuant to the Stream Protection Ordinance, a developed property is

property where manmade changes have been made which add impervious surfaces to the property, which changes may include, but are not limited to, buildings or other structures for which a building permit must be obtained under the requirements of the Pennsylvania Building Code and this Code, mining, dredging, filling, grading, paving, excavation or drilling operations, or the storage of equipment or materials.

and which, therefore, do not have impervious surface from which development-related stormwater drains to the Borough Stormwater Management System

The Borough deposits all revenue which it collects from payment of the Stream Protection Fee into the West Chester Borough Stormwater Management Fund. In turn, the Borough uses the Stormwater Management Fund for, amongst other stormwater related purposes, "constructing, operating, and maintaining the Borough Stormwater Management System".

The University is primarily divided into two areas - North Campus and South Campus (See map in **Appendix A**, Exhibit A-1). Portions of North Campus are located in the Borough (See map in **Appendix A**, Exhibit A-2). According to discovery documents WCU000819-820 (Attached in **Appendix B**), the area of North Campus within the Borough is 60.3 acres, where 54.1 Acres (31.5 acres of which is impervious) drains through the Borough Stormwater Management System and, ultimately, discharges to an Unnamed Tributary (UNT) of Plum Run (See map in **Appendix A**, Exhibit A-2). As noted on Exhibit A-6, other portions of North Campus drain to the Borough Stormwater Management System and, ultimately, discharge to other receiving watercourses.

In January of 2018, the Pennsylvania State System of Higher Education informed the Borough that "the University will not be paying the storm water management fee invoices that the Borough sent to the University." The basis for that refusal is the Pennsylvania State System of Higher Education's claim that the Stream Protection Fee "is a tax, from which the University, as a Commonwealth entity, is immune." The Borough then started litigation to challenge that refusal.

In an Opinion dated July 15, 2019, the Commonwealth Court noted that

questions remain . . . as to . . . whether the . . . that the Borough Stormwater System provides a discrete benefit to [the University and the Pennsylvania State System of Higher Education], as opposed to generally aiding the environment and the public at large [and] whether the value of the [Borough] Stormwater System to [the University and the Pennsylvania State System of Higher Education] is reasonably proportional to the amount of the" Stream Protection Fee.

NTM Engineering, Inc. considered whether, and to what extent, the Borough Stormwater Management System provides a discrete benefit to the University. NTM examined the University's ability to otherwise capture and manage all annual stormwater runoff from North Campus which currently drains to the Borough Stormwater Management System as a means of measuring the benefits which the University enjoys from its present use of that system. NTM then completed its analysis using industry standard methodology, programs, and practices, and selected for further development the option (other than payment of the Stream Protection Fee) which would be most economical and beneficial for the University.

III. Design Criteria for Options to Manage Stormwater Runoff

NTM began with the assumption that, if it did not benefit from its connection to the Borough Stormwater Management System, the University would need to otherwise capture and manage all annual stormwater runoff from North Campus which currently drains to that system.

By virtue of its ability to access the Borough Stormwater Management System, the University need not design and implement a system of its own which would otherwise need to control (by capturing, storing, reusing, conveying, infiltrating, or other method) all annual runoff (peak rate and volume) up to and including the largest regulatory storm - the 100-yr/24-hour design storm (7.55 inches in 24 hours).

NTM analyzed 10 years of locally available rainfall data to calculate that more than 32,500,000 gallons of stormwater runoff are generated annually by the portion of North Campus draining to the UNT Plum Run Outfall (See **Appendix A**, Exhibit A-1 for location of outfall; See **Appendix B** for annual runoff calculations). This is according to land area delineations which the University produced during the discovery process (WCU000819- WCU000820) which states the University has 22.6 acres of pervious area and 31.5 acres of impervious area to the outfall. We also note that in a 24-hour period, a single 100-year/24-hour design storm (maximum design event per stormwater standard of practice) generates approximately 9,000,000 gallons of runoff from the portion of North Campus considered in the land uses above (See **Appendix B** for calculations).

IV. Options for Management of Stormwater Runoff

We considered the following options which would be available to the University in lieu of the ability to discharge stormwater runoff from North Campus through the Borough Stormwater Management System (and note the existence of a sixth option . . . continued enjoyment of the benefits of connection to the Borough Stormwater Management System and payment of the Stream Protection Fee):

Option 1 - Water Reuse: Design and construct infrastructure to provide for capture, conveyance, storage, treatment, and re-use of all stormwater runoff from North Campus. This would include constructing building plumbing and campus-wide irrigation systems capable of reusing all stormwater runoff from North Campus.

Option 2 – Storage and Infiltration: Design and construct a capture, conveyance, and storage system capable of infiltrating/injecting all annual stormwater runoff into the ground on-site.

Option 3 - University Owned and Operated Stormwater Management System: Design and construct a storm runoff capture and conveyance system separate from the Borough Stormwater Management System and designed to convey stormwater (up to and including a 100-year/24-hour storm) to one or more off-campus surface water outfall(s) at a receiving watercourse. The most obvious outfall would be to the unnamed tributary (UNT) to Plum Run in the Borough adjacent to the New Street Parking Garage (designated as UNT1 Plum Run in **Appendix A**, Figure A-1).

Option 4 - Restore the Historic Drainageway: The University could daylight/restore the existing (now underground) stream which runs through North Campus and provide additional conveyance measures capturing and conveying all contributory drainage areas of the University to outfall into the restored surface waters (See **Appendix A**, Exhibits 3, 4, and 5 for identification of the historic drainageway location). We note that this option would likely require Borough permission to remove the existing (Borough-owned) pipe through which the underground stream flows.

Option 5 - Remove all Development on Campus: The University could eliminate North Campus from consideration as a "developed" property (as that term is defined in the Stream Protection Ordinance) by removing from North Campus all impervious surface (as defined in the Stream Protection Ordinance). This would involve restoring the surface cover condition for North Campus to meadow or woods.

V. Feasibility of Options to Manage Stormwater Runoff

NTM Engineering, Inc. (NTM) considered the feasibility of implementing each of the foregoing options based on complexity, spatial constraints, general costs, permitting requirements, availability of information for analysis, and overall practicality. We determined that options requiring programmatic building removals, or modifications due to space needs for option facilitation, are impractical due to University programing needs and associated costs.

NTM selected Option 3 (Design and construction of a University Owned and Operated Stormwater Management System) as the best, most feasible, and least costly option by which the University could replicate the stormwater management-related benefits it receives from its current connection to, and use of, the Borough Stormwater Management System. Overall, Option 3 provides a standard industry approach which could be most reasonable to implement. We discuss below our justification for not selecting other options.

NTM ruled out Option 1 **(Water Reuse)** because of complexity and cost. The most viable reuse options would include landscape irrigation and non-potable water uses in buildings – for example, toilet flushing. This option would require construction of the same or very similar perimeter and trunk line stormwater collection and conveyance facilities as Option 3. In addition, Option 1 would require surface and/or subsurface storage, water treatment, and pumping facilities to manage the over 32,000,000 gallons of runoff generated annually by North Campus (See **Appendix B** for annual runoff volume calculation). Based on the total annual runoff volume to be managed, reuse systems would need to be extensive enough to provide an average demand of more than 89,000 gallons per day. This would require retrofitting most North Campus buildings with reuse plumbing systems as well as landscape irrigation systems for most green spaces in this portion of campus.

NTM ruled out Option 2 **(Storage and Infiltration)** due to cost and space requirements. Option 2 would require construction of the same perimeter stormwater collection and conveyance system as Option 3 and would also likely require pump facilities and additional conveyance to distribute the stored stormwater to separate infiltration and/or irrigation systems. Due to

regulatory loading ratios² imposed on infiltration facilities and actual site infiltration capacity, the required infiltration facility size would likely exceed available green space on campus. Considering current regulatory guidance specifying a minimum loading ratio of 8:1 (total tributary drainage area to infiltration area) the University would need to dedicate a minimum footprint of 6.76 acres for infiltration facilities (assuming infiltration capability in the first place). Restrictions posed by shallow bedrock may result in additional limitations on available infiltration area. Injection wells could be considered as an alternative; however, use of injection wells would be challenging from a permitting perspective.³

NTM recognizes that the University could consider pumping water to parts of North Campus outside the Borough or to South Campus to provide additional areas for infiltration, irrigation, or reuse functions under Option 1 and/or Option 2. That approach, however, would add to project complexity and cost. Using opportunities on South Campus would also require significant easement acquisition for piped conveyance facilities. Maps in **Appendix A** illustrate the locations of North Campus and South Campus with respect to each other and municipal boundaries.

In addition to proposing more complex and costly designs, both Options 1 and 2 would face resistance from permitting agencies with the most significant challenge being the diminution of the volume of water which reaches UNT1 Plum Run by removing from the watershed of that tributary stormwater which naturally falls within the watershed. Based upon our experience, we conclude that permitting agencies would resist any plan which contemplates pumping water to areas outside natural watershed boundaries (for example from UNT1 Plum Run to UNT2 Plum Run – See Figure A-1 in **Appendix A**).

NTM ruled out Option 4 (**Restore the Historic Drainageway**) because of site constraints, project and permitting complexity, and costs, all as demonstrated by the aerial photos in **Appendix A**, Exhibits A-3, A-4, and A-5. This option would require relocation or removal of campus buildings and roadways, construction of required pedestrian and vehicular bridges, utility relocation, and construction of the same perimeter capture and conveyance facilities as identified in Option 3. The associated costs would substantially exceed the cost of Option 3. This option would also result in a reduction of developable space at North Campus, increased costs for building demolition and relocation, and possible land acquisition.

NTM ruled out Option 5 (Removal of all Development on Campus) because it would result in the University ceasing educational operations at North Campus. This option is unrealistic but was

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Loading ratios define the regulatory surface area needed for infiltration facilities based on their tributary impervious and total drainage areas.

Injection wells are stormwater drainage wells such as dry wells, bored wells, infiltration galleries, or improved sinkholes designed to accept storm runoff. Injection wells differ from infiltration trenches and or surface/subsurface infiltration impoundments in that their depth is greater than their widest surface dimension. In addition to State and Local stormwater regulations, injection wells are subject to federal requirements under the Safe Drinking Water Act via EPA's Underground Injection Control Program.

included to illustrate an approach where the University could avoid the benefits which accrue to it by virtue of connection to the Borough Stormwater Management System.

VI. Option 3 Analysis and Design Approach

Overview

Any fully comprehensive analysis of the costs associated with Option 3 for purposes of construction in accordance with industry standards would require preparation of a detailed hydrologic and hydraulic (H&H) analysis and development of complete construction documents covering all aspects of the design. In particular, development of fully complete construction documents for North Campus would require, but not necessarily be limited to, the following:

- Complete topographic and physical survey of all site features including, but not limited to, buildings, roadways, sidewalks and other impervious surfaces, tree locations, and locations and dimensions of all physical features.
- Site boundary survey.
- Existing storm drain and utility survey defining horizontal and vertical location and feature size.
- Subsurface Utility Engineering (SUE) investigation to define the horizontal and vertical location of all subsurface utilities. This often includes the need for test-pits, dye testing, CCTV, and other exploratory measures. These studies define potential conflicts with newly designed elements and often result in the need for existing utility relocation and associated engineering design.
- Subsurface building foundation investigations.
- Building roof drainage system investigations.
- Geotechnical and soil evaluations including infiltration testing for any associated stormwater management facilities.
- Acquisition of complete stormwater management facility design and as-built reports and plans including stage storage curves, outlet structures configurations, drainage area information, and modeling assumptions for all existing on-site facilities.

To obtain the information outlined above and undertake a complete engineering design for any of the options identified above would be costly. Furthermore, the necessary field investigations and design activities would require more than one year. Those activities would likely interfere with ongoing University functions.

Therefore, in the interests of time and cost, and in consideration of the University's logistical needs, we prepared an advanced conceptual level analysis and design based on the best available information to establish the costs associated with Option 3. The level of detail in this analysis is comparable to a feasibility or master plan level of design. Given that level of analysis, we took a conservative approach to estimating design values and costs. By conservative, we mean that, where assumptions had to be made, they were made to the benefit of the University (*i.e.* assumptions were made that would reduce the comparative costs associated with developing an implementable option to provide to the University the same stormwater management benefits

which the University now enjoys by virtue of the ability to discharge stormwater to the Borough Stormwater Management System).

Data and Information Review

NTM Engineering, Inc. utilized the best available information from discovery and online sources as a basis for developing the analysis and concept design which we present here. We provide at **Appendix C** a list (together with source references) of the information which we consulted. Throughout the document review, we encountered contradictory and/or incomplete information. We made every effort to substantiate the information which we used in our analysis. Additional discussion regarding information and analysis that are known to exist, but were not available as part of discovery, is also reviewed in **Appendix C**.

Modeling Approach and Assumptions

NTM Engineering, Inc. utilized standard industry approaches and assumptions for analysis, including hydrologic and hydraulic modeling and conceptual design. Every effort was made to provide substantiation for the assumptions which we used in the analysis. Where reliance on professional judgment was required to establish modeling or analysis parameters, our approach was to err toward providing the benefit of the doubt to the University in the form of reduced capital costs. For example, when selecting modeling parameters, we erred toward assumptions which would provide reductions in peak flows and volumes. While this may have resulted in under sizing the conceptual stormwater management system which the University could build to replace its use of the Borough Stormwater Management System - with associated reduced costs - it resulted in a conservatively low estimate of option cost and associated comparative benefit which the University enjoys by virtue of the Borough Stormwater Management System. In the context of this litigation, our conservative approach favors the University. A list of modeling assumptions is provided in **Appendix C**.

Modeling Results and Concept Design

A full readout of the modeling results (from AutoCAD Storm and Sanitary Analysis) is in **Appendix C** with a drainage area map and a schematic storm drain plan in **Appendix A**, Exhibit A-6. **Table 1** lists the results of the land use analysis for core portions of North Campus. The table includes areas of North Campus which drain to the Borough Stormwater Management System (SMS) at locations other than the outfall to the UNT of Plum Run which (again, conservatively) are not considered as part of our analysis of Option 3. Importantly, any attempt by the University to replicate the benefits which it enjoys by virtue of its ability to discharge stormwater to the Borough Stormwater Management System would need to account for those areas which do not now discharge to the UNT of Plum Run.

Table 2 provides the land uses and drainage area breakdown which we used to develop our model. The assumptions are summarized in **Appendix C**. We modeled runoff from impervious areas which are currently being managed by University-owned stormwater control facilities (typically surface or subsurface basins or other facilities) associated with recent redevelopment

Table 1: Area of West Chester University-North Campus within the Borough- Draining to the Borough Stormwater Management System*

Drainage Area Description	Total Drainage Area (ac.)	Impervious Area (ac.)
Area of North Campus draining to Borough SMS discharging to UNT of Plum Run in the Borough (Area Studied)	44.12	24.37
Area of North Campus draining to Borough SMS in Goose Creek Watershed	0.52	0.52
Area of North Campus draining to Borough SMS -Rosendale Ave	7.95	3.20
Total Area of North Campus Draining to Borough of West Chester Stormwater Management System	52.59	28.09

^{*}excludes the parking garages on the corner of Sharpless and South New Street and Sharpless and South Church Street, any properties east of Reynolds Alley and any properties east of South High Street owned by the University

Table 2: Option 3 Study Area and Modeling Values for WCU North Campus Conveyed to the Borough's Stormwater Management System and Outfall to Unnamed Tributary (UNT) of Plum Run in the Borough

Drainage Area	Total Area	Impervious ot 1 (ac.)	Impervious Taken as Meadow (ac.)	Impervious Taken as Open Space	Meadow Restoration (ac)	Impervious Area Modeled (ac.)	Total Open Space Modeled (ac.)	Total Meadow Modeled (ac.)
A1	2.08	1,37	0.00	1.02	0.00	0.35	1.73	0.00
A1.5	0.12	0.10	0.00	0.00	0.00	0.10	0.02	0.00
A2	2.23	0.83	0.00	0.00	0.06	0.83	1.33	0.06
A3	2.24	0.82	0.00	0.00	0.04	0.82	1.37	0.04
B1	1.15	0.17	0.00	0.00	0.00	0.17	0.97	0.00
B1.5	0.45	0.09	0.00	0.00	0.03	0.09	0.33	0.03
B2	1.55	1.26	0.00	0.00	0.00	1.26	0.29	0.00
В3	14.51	9.33	0.91	2.44	0.36	5.98	7.26	1.27
B4	2.60	1.88	0.77	0.00	0.25	1.11	0.47	1.02
B5	0.32	0.15	0.00	0.00	0.02	0.15	0.16	0.02
В6	0.39	0.12	0.00	0.00	0.04	0.12	0.23	0.04
В7	0.70	0.70	0.70	0.00	0.00	0.00	0.00	0.70
B8	0.23	0.07	0.00	0.00	0.12	0.07	0.05	0.12
B9	1.74	1.08	0.00	0.00	0.02	1.08	0.64	0.02
B10	2.26	0.93	0.00	0.00	0.00	0.93	1.33	0.00
B11	0.77	0.20	0.00	0.00	0.02	0.20	0.55	0.02
B12	2.70	1.44	0.00	0.59	0.00	0.85	1.84	0.00
B13	2.37	1.56	0.00	0.00	0.00	1.56	0.82	0.00
B14	5.71	2.27	0.00	0.00	0.00	2.27	3.44	0.00
TOTAL	44.12	24.37	2.39	4.05	0.95	17.93	22.85	3.34

or new construction on North Campus. In those instances, we used land use curve numbers consistent with the runoff reduction expected by the applicable stormwater ordinance under

which that redevelopment or new construction was permitted. Refer to **Appendix A**, Exhibit 6 for the mapped location of the tabulated drainage areas.

As a result of the modeling approach for crediting existing stormwater control measures which the University maintains, 4.05 acres of existing impervious area was reduced to Open Space Good - HSG C and 2.39 acres of existing impervious reduced to Meadow Good- HSG C. These modifications resulted in a reduction in surface runoff to pre-development conditions – another assumption benefitting the University's position.

The storm drain sizes which would be required to manage conveyance of the 100-yr storm for the University in lieu of its use of the Borough Stormwater Management System range from 18 inches to 54 inches, with the largest sizes located at the outfall crossing New Street. The concept design contemplates two (2) new trunk lines parallel to the main Borough line, draining through the superblock section of North Campus, as more fully depicted in **Appendix A** on Exhibit A-6. Based on review of the information we obtained, and vertical constraints due to the location of the existing storm drain, other utilities, and required connections to existing University storm drains, the two parallel trunk storm line approach appeared to be the only way to achieve gravity flow without introducing pumps or undertaking significant additional utility relocations. The two (2) new University-owned trunk lines would need to extend across both South New Street and South Church Street in two (2) locations.

There are significant constraints associated with designing and installing a new system within an already developed area. Based on the level of detail in the information available for use as a basis for conceptual design, we completed pipe sizing for only the two (2) new main trunk lines. In other words, we did not complete pipe sizing for any of the smaller lateral lines which would be necessary for the University to realize the same storm drainage benefits which it presently enjoys through its connection to the Borough Stormwater Management System.

A significant portion of the storm runoff draining from North Campus to the Borough Stormwater Management System is also conveyed via Borough-owned and Borough-maintained street gutter systems. By definition, these gutter systems are also a part of the Borough Stormwater Management System. Replicating the University's beneficial use of the Borough roadway gutter systems would require construction of an alternate means of capture and conveyance for these flows. The alternate means of capture and conveyance used in our analysis area are as follows:

- Where site constraints allow, swales and yard inlets would be used as perimeter capture elements. These perimeter capture elements would consist of grading in swales and installing yard inlets with 12" HDPE conveyance pipes with connections to the dual trunk storm sewer lines. This was considered to be the least costly means of providing capture.
- Where University driveways and sidewalk areas presently drain to the Borough streets, trench drains connected to a perimeter 12" HDPE line would be used to provide the necessary capture and conveyance.

• Where University property slopes steeply toward the Borough street, and swale grading would be difficult, options for either a knee wall with inlets or curb and trench drains connected to 12" HDPE conveyance pipe would be used. We believe this approach to be the least intrusive and least costly option.

The conceptual approach outlined above is illustrated in **Appendix A**, Exhibit 6. More detailed calculations based on extensive field survey and investigations beyond the scope of this effort would be required to size the perimeter conveyance and capture elements to completely control runoff from all storm design events up to and including 100-year events. It is likely that such an analysis would identify that portions of this system would need to be larger than the pipe sizes identified in the assumptions above.

Additional assumptions used in this analysis include:

- Existing storm drain conveyance measures currently owned and maintained by the University are conservatively assumed to have adequate capacity to manage up to a 100-year event.
- Our concept design and opinion of probable cost considers only limited utility relocation impacts. Our assessment of existing utilities based on available discovery information indicates that multiple utility relocations would, at a minimum, be required where perimeter storm drains are installed and where University conveyance facilities would need to cross Borough right-of-way. In these locations, there are multiple utilities (sewer, water, gas, electrical, lighting, etc.) which may be in direct conflict with the placement of a new and separate gravity stormwater management conveyance system. Additional information and detailed analysis would be needed to identify the extent and actual cost of utility relocations which could include sheeting and shoring requirements which our estimate does not consider.

VII. Opinion of Probable Cost

Capital Costs

The total initial capital cost for Option 3 is estimated to be approximately \$4,200,000.00. In other words, in order to meet is responsibility to collect stormwater and convey it to a receiving watercourse other than the University's current use of the Borough Stormwater Management System, the University would need to expend at least \$4,200,000.00. We provide a detailed cost breakdown in **Appendix D**.

We estimated costs utilizing unit pricing from PennDOT's ECMS low bid price index, considering District 6 projects or another closest District with relative item pricing. That is a standard method for preparation of opinions of probable cost for public construction projects in PennDOT District 6 (in which the University is located).

The estimate considers pricing for long life concrete pipes for the trunk lines and HDPE for the perimeter control lines. We estimated pavement and sidewalk replacement quantities based on

our conceptual design and estimated disturbances required for installation of the required facilities, as shown by mapping in **Appendix B**. The pricing does not consider any tree protection, landscaping, potential for sidewalk replacements where sidewalks extend onto University property, or traffic control requirements.

Where pricing was not available for specific items, an estimate of probable costs was assumed based on professional opinion. For example, the existing Borough-owned outfall to Plum Run would need to be redesigned and replaced to accommodate new storm drain outfalls. The structure is not a standard PennDOT item and special design/construction methods (*e.g.* cast-in-place concrete, bypass pumping, and coffer dams) would be required for installation. We estimated cost for these non-standard elements using costs from projects of similar complexity.

Design, survey, subsurface utility investigations, permitting, erosion and sedimentation control, mobilization, and contingencies were assumed using typical industry standard percentages. It is possible these costs have been underestimated considering that the conceptual project would span the entirety of North Campus and would likely need to be split into several different construction phases over multiple years.

Operation and Maintenance Costs

With the additional infrastructure the University would be required to construct under Option 3 to recreate the same stormwater discharge benefits which the University enjoys from its connection to the Borough Stormwater Management System, the University would have additional operation and maintenance costs. These costs would include, but are not limited to, maintenance, repair, and cleaning of perimeter inlets and drains. To approximate these costs, NTM reviewed the estimated annual budgetary cost data for the Borough Stormwater Management System which the Borough used when calculating the Stream Protection Fee. We used that information as the basis for estimating operations, maintenance, and other associated costs the University would incur with the new Option 3 system. See Appendix E for calculation methodology.

We determined those operations and maintenance costs would be \$35,600.00 per mile of pipe. Applying this unit cost to the estimated Option 3 system length of 1.28 miles results in an annual operation and maintenance cost of \$45,600.00.

Annualized Total Cost

A representative total annual cost can be arrived at by considering annualization of the capital costs identified above. Applying a 100-year design life and a 3% long term inflation rate – a value which, again, benefits the University – to the capital costs results in an annualized capital cost of \$132,900.00 (using standard financial compounding factors). Adding this to the annual operation and maintenance costs results in a total annualized cost of \$178,500.00.

VIII. Conclusion

NTM analyzed the discrete benefit provided to West Chester University by the Borough of West Chester owned and operated stormwater management system using the best available information. The analysis included areas of North Campus draining to UNT1 Plum Run, as shown by Exhibit A-6 in **Appendix A**. Based on the analysis presented here, it is estimated that the University saves not less than \$4,200,000.00 in up-front capital cost and annual maintenance, operations, and replacement costs of approximately \$45,600.00 by virtue of the University's ability to use the Borough owned and operated Stormwater Management System.

Annualizing the capital costs and adding to the operation and maintenance costs results in a total annual cost the University would have to incur if it did not have access to the Borough Stormwater Management System. The ability to avoid that cost (\$178,500.00 per year) represents a discrete benefit West Chester University and the Pennsylvania State System of Higher Education derive from utilizing the West Chester Borough owned and operated Stormwater Management System.

As explained in the Modeling Approach and Assumptions in **Appendix C** and illustrated in **Appendix A**, Exhibit A-6, the analysis excludes some property owned by the University within the Borough which drains to portions of the Borough owned and operated Stormwater Management System. Had these properties been included in the analysis, benefit to the West Chester University and Pennsylvania State System of Higher Education would have been greater.

Maps and Aerial Photos

West Chester Borough Chester County



Exhibit A-1 Overview Map of West Chester Campus



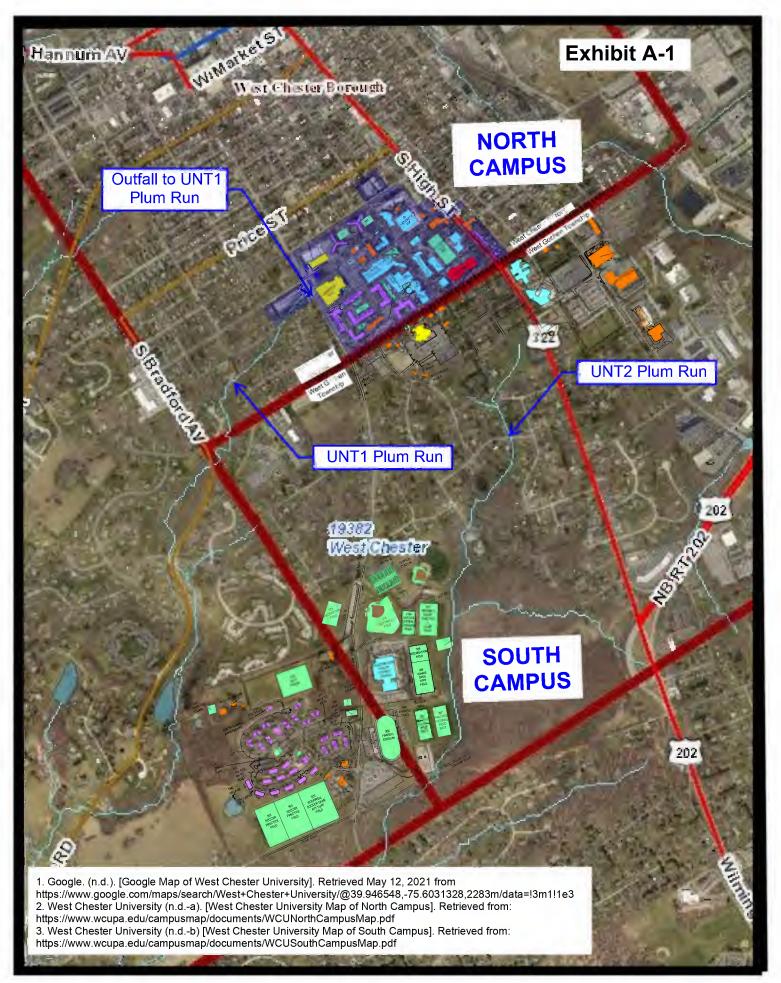


Exhibit A-2 West Chester North Campus in the Borough of West Chester



https://www.wcupa.edu/campusmap/documents/WCUNorthCampusMap.pdf

Exhibit A-3 Aerial Photo of North Campus from Between 1937-1942 Showing Historic Stream Bed



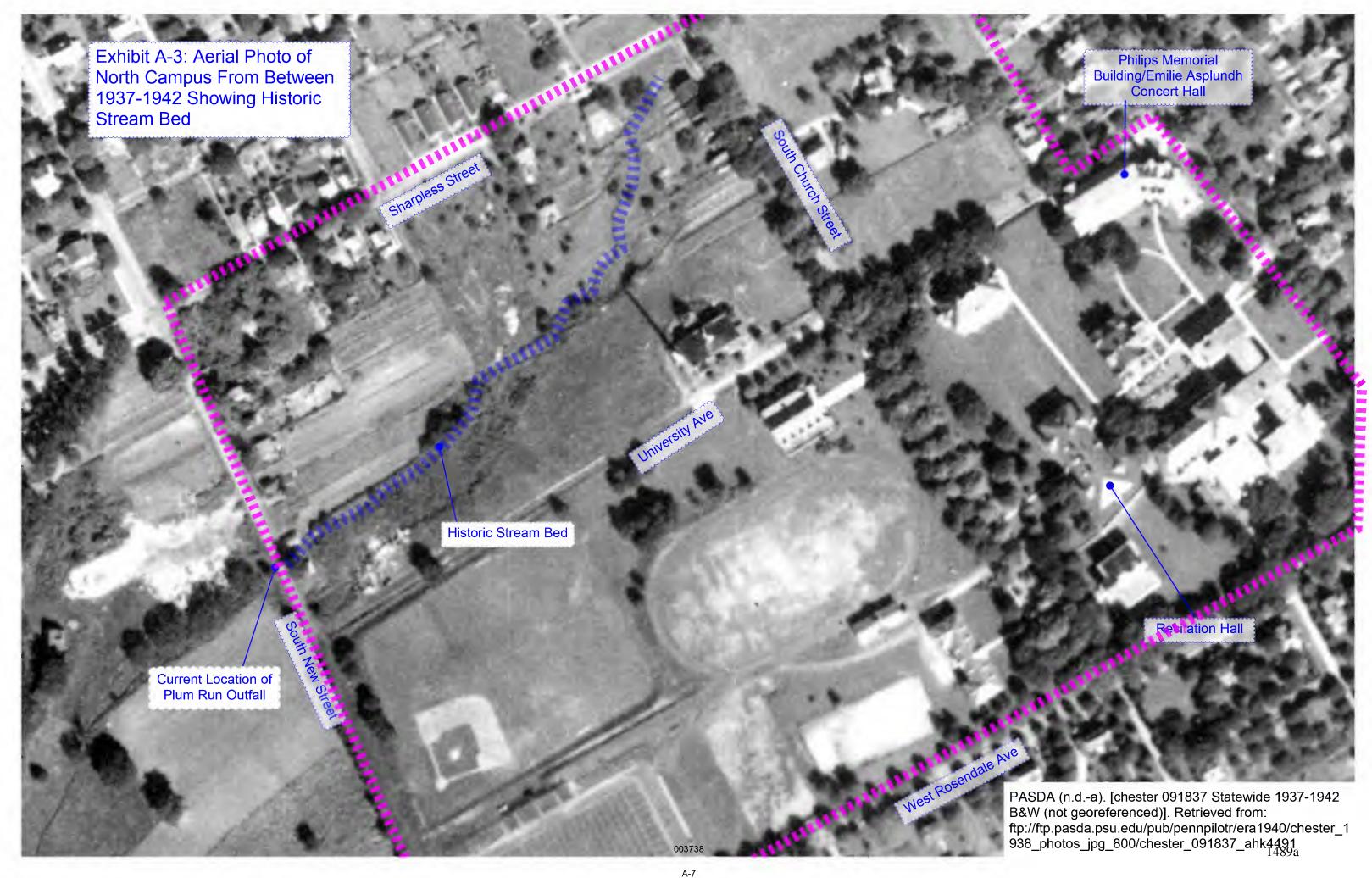


Exhibit A-4 Aerial Photo of North Campus From 2018 w/ Historic Stream Bed Added



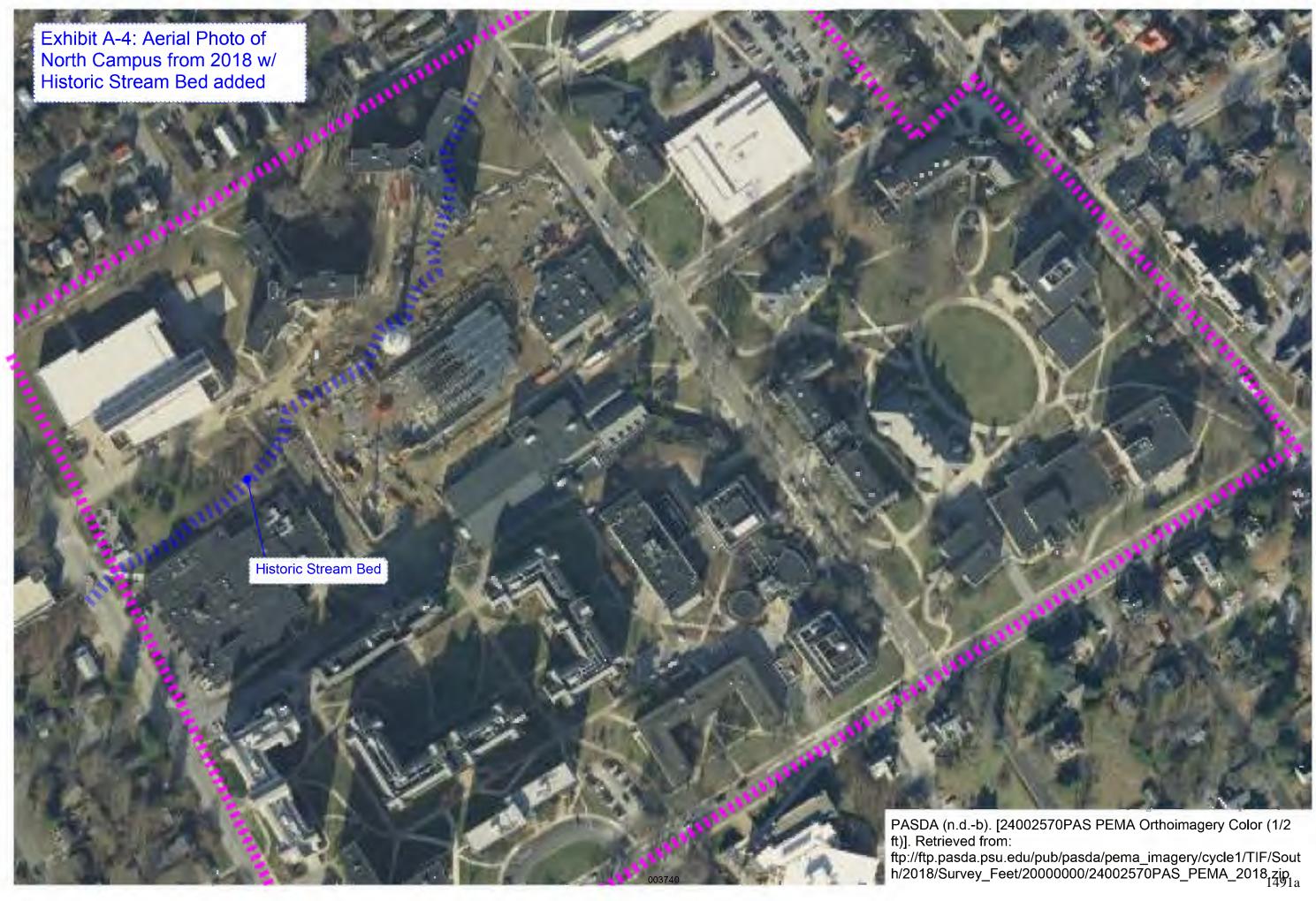


Exhibit A-5 Aerial Photo of North Campus from Between 1937-1942 Showing Historic Stream Bed w/ Overlay



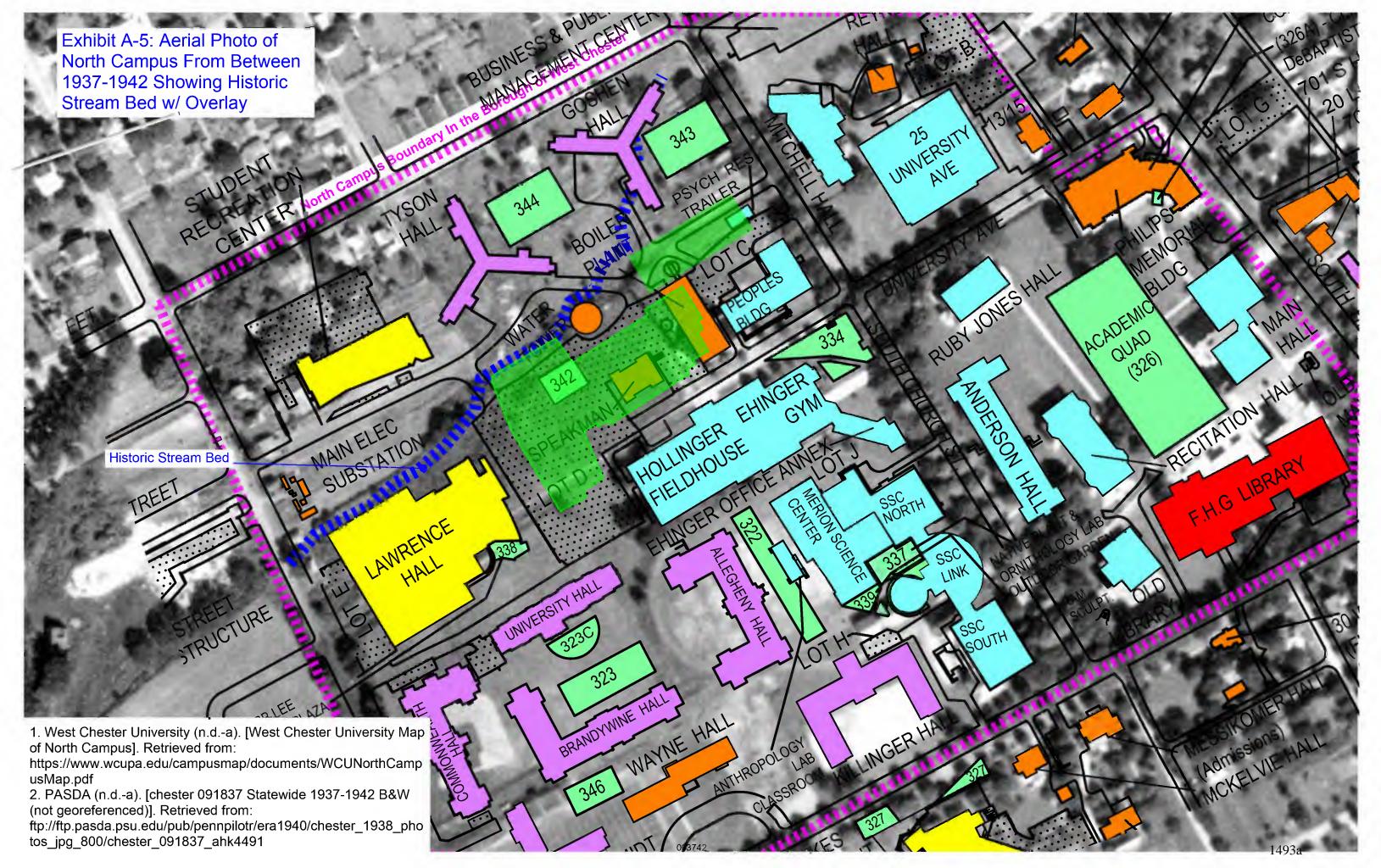
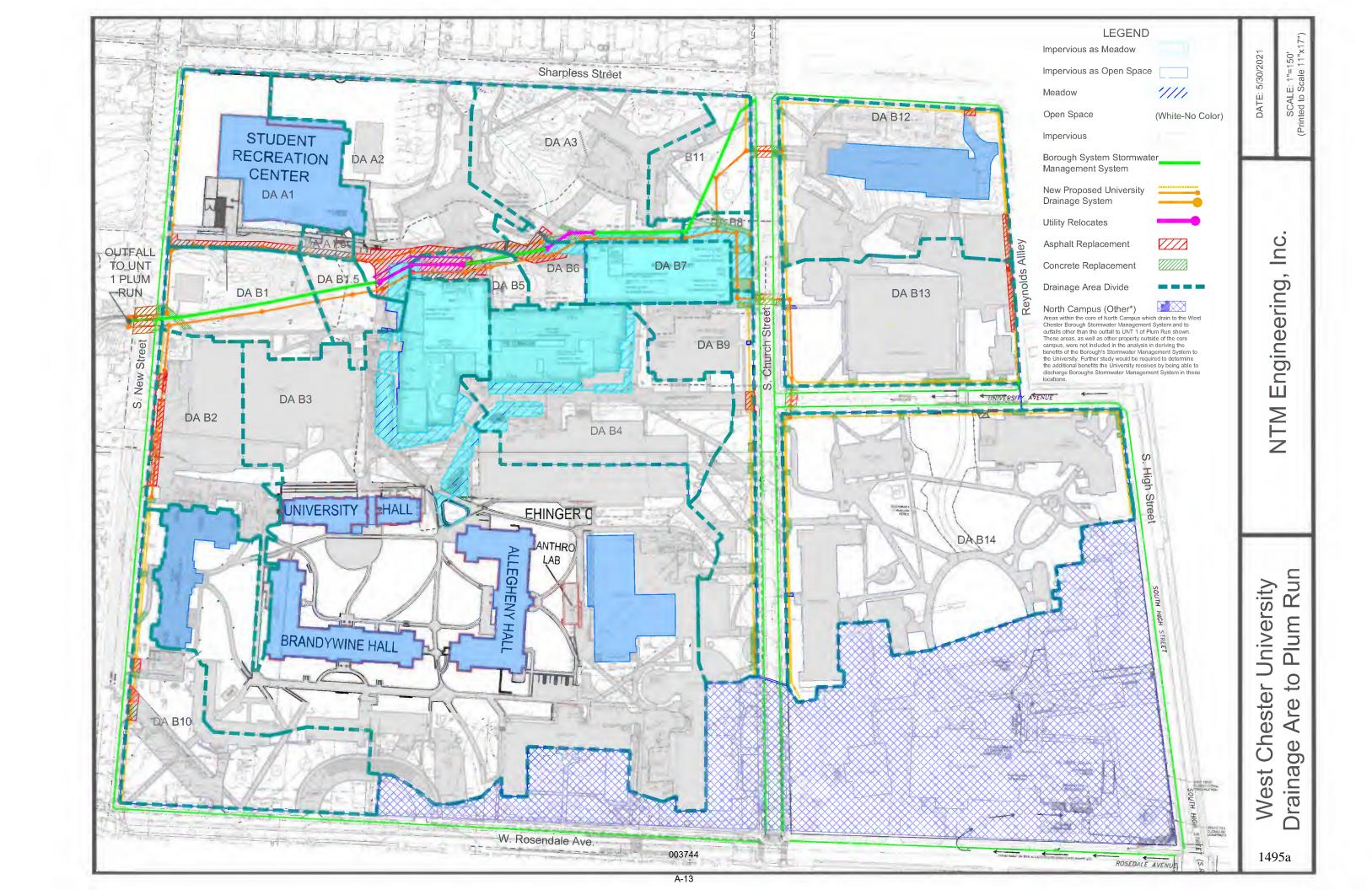


Exhibit A-6 Drainage Area Map and Conceptual Design for Option 3





Appendix B

Miscellaneous Calculations

West Chester Borough Chester County



Appendix B

Calculation of Annual Runoff



Calculation of Annual Runoff

To calculate the average annual runoff for the West Chester University Campus to the Outfall of Plum Run in the West Chester Borough (in accordance with discovery document WCU000819-820-stating 54.1 acres, 31.5 acres of which is impervious), continuous simulation monitoring would be the choice methodology. As the apparatus and data are not currently in place (to our knowledge), the following methodology was utilized to estimate the average annual runoff.

The SCS Runoff Equation was applied to the past 10 years of daily (24-hr) rainfall data for two land use conditions, Open Space in Good Condition - HSG C and Impervious - HSG C. (Note: This is the same industry standard methodology described by Worksheet 4 of the PA DEP NPDES Worksheet-used for determining volumetric runoff.)

Open Space in Good C HSG C	ondition	Impervious Are HSG C	ea
SCS Curve Number CN	74	SCS Curve Number CN	98
Maximum Retention S ((1000-10CN)/CN)	3.51	Maximum Retention S ((1000-10CN)/CN)	0.20
Initial Abstraction Ia (0.2*S) (inches)	0.70	Initial Abstraction Ia (inches)	0.04

For any daily rainfall event, if a 24 hour precipitation exceeded the initial abstraction for the landuse, Q (Runoff-Inches)= $(P-.2*S)^2/((P+.8S)$

Using data from CoCoRahs (Community Collaboration Rainfall Snow and Hall Network) for the past 10 years, daily rainfall totals for Chester County were analyzed to determine the potential runoff for the assumed land use. Analysis results estimated that 3.12 inches of runoff by Open Space and 35.77 inches of runoff by Impervious Surfaces are generated annually. Considering land areas noted by the WCU, the resulting annual runoff is calculated as 32,508,672 gallons per year.

Annual Runoff Calculated for Campus	Annual Runoff Average (inches)	Area (acres)	Total Runoff (gallons)
Open Space Good HSG C	3.12	22.60	1,914,570
Impervious HSG C	35.77	31.50	30,594,102
		Total-gallons	32,508,672

Note: This methodology may underestimate the total runoff. Storm events often occur at shorter durations with higher intensity rainfall, which generates significantly more runoff that a rainfall event considered over 24 hours. As any underestimation of the runoff favors WCU, in context of the case theory, the approach is considered acceptable, however further analysis, including factors of safety, would need to be completed for any design option considered by WCU.

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nate West Chester - Penn	sylva nia							
	Jan	Feb	Mar	Apr	May	Jun		
werage high in °F	39	42	51	63	73	82		
werage low in °F	19	20	28	38	48	58		
v. precipitation in inch	3.45	3.22	4.30	3.79	4.21	3.79		
v. snowfall in inch	8	11	2	1	0	0	Average weather West Chest	er, PA
	Jul	A	£	Oct	Mari	Dec	Annual high temperature	64°F
	Jui	Aug	Sep	Oct	Nov	Dec	Annual low temperature	40°F
verage high in °F	87	85	78	66	55	44		
verage low in °F	63	61	53	40	31	23	Average annual precip.	47.84 inch
werage low in *F	63	61	55	40	31	23	Av. annual snowfall	27 inch
v. precipitation in inch	4.09	3.79	5.14	4.15	3.78	4.13		

Appendix B

Calculation of Runoff for a 100-year 24-hour Storm



Calculation of Runoff for a 100-year 24-hour Storm

24 Hour 100-Yr Storm* Runoff Calculated for Campus	Q (Runoff)= (P- .2S)^2/(P+.8S)** (inches)	Area (acres)	Total Runoff (gallons)
Open Space Good HSG C	4.52	22.60	2,773,672
Impervious HSG C	7.31	31.50	6,252,247
*Precipitation (P) = 7.55 inches i	n 24 hours	Total-gallons	9,025,919

^{**} S for Open Space and Impervious are 3.51 and 0.20 respectively- as previously calculated

Appendix B

Reference Data for Annual Rainfall



Avg Date Preci	Open	Date	Avg Run Precip Op	Date	Precip	unoff rom Date	Avg Preci	Open	Date F	Precip	open	ate	Avg Precip	Open	Date	Avg Precip	Runoff From Open	Date	Avg Precip	Runoff From Open	Date	Avg Precip	Open	Date I	Avg Runoff From Open	
4/5/2020 4/6/2020 4/7/2020	Space (i	0 4/5/2019 0 4/6/2019 0 4/7/2019	0 0 16 0	o 4/6/2018 o 4/7/2018	0.06 0.02 0	o 4/6/20 0 4/7/20	17 00	<u>4</u> 0	4/5/2016 4/6/2016 4/7/2016	0.14 0 0		4/5/2015 4/6/2015 4/7/2015	0 0		1/5/2014 4/6/2014 4/7/2014	0.05 0		4/6/2013 4/7/2013	0.01 0		4/6/2012 4/6/2012 4/7/2012	0 0		4/5/2011 4/6/2011 4/7/2011	0.14 0 0.13 0	
4/8/2020 0.3 4/9/2020 0.0 4/10/2020 0.0 4/11/2020)3	0 4/8/2019 0 4/9/2019 0 4/10/2019 0 4/11/2019	0.16 0 0	o 4/8/2018 o 4/9/2018 o 4/10/2018 o 4/11/2018	0	o 4/8/20 o 4/9/20 d 4/10/2	17 0.0 17 017		4/8/2016 4/9/2016 4/10/2016 4/11/2016	0.46 0.02 0.35	0 0 0	4/8/2015 4/9/2015 4/10/2015 4/11/2015	0.07 0.05 0.06 0.01	0 0	4/8/2014 4/9/2014 4/10/2014 4/11/2014	0.51 0.01 0	0	4/8/2013 4/9/2013 4/10/2013 4/11/2013	0 0 0 0.29	0 0 0	4/8/2012 4/9/2012 4/10/2012 4/11/2012	0 0	0	4/8/2011 4/9/2011 4/10/2011 4/11/2011	0.01 0 0.76 0.000943 0 0	
4/12/2020 4/13/2020 1 4/14/2020 1.1	0.0444	4/12/2019 78 4/13/2019 82 4/14/2019	0 0.43 0.01	o 4/12/2018 o 4/13/2018 o 4/14/2018	0 0 0	o 4/12/2 o 4/13/2 o 4/14/2	017 017 017	<u>)</u> a	4/12/2016 4/13/2016 4/14/2016	0 06 0.23 0	o o	4/12/2015 4/13/2015 4/14/2015	0 0 0.04	0 0 0	4/12/2014 4/13/2014 4/14/2014	0 01 0 0	0	4/12/2013 4/13/2013 4/14/2013	0 13 0.73 0	0 0.000222 0	4/12/2012 4/13/2012 4/14/2012	0.01 0.01 0.01	0	4/12/2011 4/13/2011 4/14/2011	0 0 0.98 0.020402 0.1 0	
4/15/2020 0.0 4/16/2020 4/17/2020 4/18/2020 0.0	0	0 4/15/2019 0 4/16/2019 0 4/17/2019 0 4/18/2019	0.44 0.01 0	o 4/15/2018 o 4/16/2018 o 4/17/2018 o 4/18/2018	0 1.41 0.24 0.01	0 4/15/2 118839 4/16/2 0 4/17/2 0 4/18/2	017 017 0.0		4/15/2016 4/16/2016 4/17/2016 4/18/2016	0 0 0	0	4/15/2015 4/16/2015 4/17/2015 4/18/2015	0.11 0 0.12 0	0	4/15/2014 4/16/2014 4/17/2014 4/18/2014	0.06 2.1 0	0.398208 0	4/15/2013 4/16/2013 4/17/2013 4/18/2013	0 0.01 0	0	4/15/2012 4/16/2012 4/17/2012 4/18/2012	0.02 0.01 0 0.02	0	4/15/2011 4/16/2011 4/17/2011 4/18/2011	0 0 0 0 1.81 0.265843	
4/19/2020 0.0 4/20/2020 4/21/2020 4/22/2020 0.1	0	0 4/19/2019 0 4/20/2019 0 4/21/2019 0 4/22/2019	0 1 0.36 0	0 4/19/2018 2332 4/20/2018 0 4/21/2018 0 4/22/2018	0.02 0.03 0	o 4/19/2 o 4/20/2 o 4/21/2 o 4/22/2	017 017 0.2		4/19/2016 4/20/2016 4/21/2016 4/22/2016	0 0 0	0	4/19/2015 4/20/2015 4/21/2015 4/22/2015	0 1.19 0.57	0.059566	4/19/2014 4/20/2014 4/21/2014 4/22/2014	0 0 0	0	4/19/2013 4/20/2013 4/21/2013 4/22/2013	0.1 1 01 0	0.024847 0	4/19/2012 4/20/2012 4/21/2012 4/22/2012	0.09 0 0 0.33	0	4/19/2011 4/20/2011 4/21/2011 4/22/2011	0 0 0.12 0 0 0	
4/23/2020 0.0 4/24/2020 0.8 4/25/2020 0.2	0.0045 0.0045	0 4/23/2019	0 0 01 0 0.25	o 4/23/2018 o 4/24/2018 o 4/25/2018 o 4/26/2018	0	o 4/23/2 o 4/24/2 o 4/25/2 o 4/26/2	017 0.1 017 017 0.1	<u>6</u> a <u>0</u> a	4/23/2016 4/24/2016 4/25/2016 4/26/2016	0.03 0.19 0 0.02	o o	4/23/2015 4/24/2015 4/25/2015 4/26/2015	0.14 0 0	0 0 0	4/23/2014 4/24/2014 4/25/2014 4/26/2014	0.08 0 0 0 0.42	0	4/23/2013 4/24/2013 4/25/2013 4/26/2013	0 0	0 0 0	4/23/2012 4/24/2012 4/25/2012 4/26/2012		0.603425 0 0	4/23/2011 4/24/2011 4/25/2011 4/26/2011	0.24 0 0.2 0 0.02 0	1
4/27/2020 0.2 4/28/2020 0.0 4/29/2020	23	4/27/2019 0 4/28/2019 0 4/29/2019	0.82 0.00 0.01 0.03	4/27/2018 0 4/28/2018 0 4/29/2018	0.21 0.04 0.2	o 4/27/2 o 4/28/2 o 4/29/2	017 0.0 017 017 0.2	1 a 2 a 7 a	4/27/2016 4/28/2016 4/29/2016	0.12 0 0.18	0 0	4/27/2015 4/28/2015 4/29/2015	0	0 -	4/27/2014 4/28/2014 4/29/2014	0.01 0 0.05	0	4/27/2013 4/28/2013 4/29/2013	0 0 0.13	0	4/27/2012 4/28/2012 4/29/2012	0.12 0 0.01	0 0	4/27/2011 4/28/2011 4/29/2011	0 0 0 0 0.02 0 0.15 0	} }
4/30/2020 5/1/2020 1.0 5/2/2020 0.0 5/3/2020 0.1)1 12	0 4/30/2019 47 5/1/2019 0 5/2/2019 0 5/3/2019	0 03 0 0	o 4/30/2018 o 5/1/2018 o 5/2/2018 o 5/3/2018	0 0 0	o 4/30/2 o 5/1/20 o 5/2/20 o 5/3/20	17 17 0.0 17	<u>)</u> 0	4/30/2016 5/1/2016 5/2/2016 5/3/2016	0.04 0.21 0.27 0.57	0 0 0	4/30/2015 5/1/2015 5/2/2015 5/3/2015	0 0	0 0	4/30/2014 5/1/2014 5/2/2014 5/3/2014	1 23 4.53 0.2 0		4/30/2013 5/1/2013 5/2/2013 5/3/2013	0 38 0 0	0 0 0	4/30/2012 5/1/2012 5/2/2012 5/3/2012	0.21 0.1 0.28	0 0	4/30/2011 5/1/2011 5/2/2011 5/3/2011	0 01 0 0 0 0 0	
5/4/2020 0.0 5/5/2020 5/6/2020 5/7/2020 0.1	0	5/4/2019 5/5/2019 5/6/2019 5/7/2019	0.08 0.38 1.13 0.04	o 5/7/2018	0 0 0 06 0.08	o 5/4/20 o 5/5/20 o 5/6/20 o 5/7/20	17 0. 17 0.9 17 0.0	0.012748 B 0	5/7/2016	0.25 0.02 0.33 1.16	0 0 0.052864	5/4/2015 5/5/2015 5/6/2015 5/7/2015	0 0.18 0.02	0 0 0	5/4/2014 5/5/2014 5/6/2014 5/7/2014	0.04 0 0	0	5/4/2013 5/5/2013 5/6/2013 5/7/2013	0 0 0	0	5/4/2012 5/5/2012 5/6/2012 5/7/2012	0.01 0.57 0.01 0	0	5/4/2011 5/5/2011 5/6/2011 5/7/2011	0.38 0 0.31 0 0 0 0.1 0	1
5/8/2020 5/9/2020 0.5 5/10/2020 5/11/2020 0.0	0	5/8/2019 5/9/2019 5/10/2019 5/11/2019	0.54 0.01 0.01 0.21	o 5/8/2018 o 5/9/2018 o 5/10/2018 o 5/11/2018	0 0 0 0.18	o 5/8/20 o 5/9/20 o 5/10/2 o 5/11/2	17 017	4 a 0 a 0 a	5/8/2016 5/9/2016 5/10/2016 5/11/2016	0.15 0 0.02 0.02	0	5/8/2015 5/9/2015 5/10/2015 5/11/2015	0 0 0	0	5/8/2014 5/9/2014 5/10/2014 5/11/2014	0.02 0 0 0.37	0	5/8/2013 5/9/2013 5/10/2013 5/11/2013	0.41 0.44 0.01 1.3	0	5/8/2012 5/9/2012 5/10/2012 5/11/2012	0.06 0.45 0.24 0	0	5/8/2011 5/9/2011 5/10/2011 5/11/2011	0 05 0 0 0 0 0	
5/12/2020 0 0 5/13/2020 5/14/2020 5/15/2020 0.0	0	0 5/12/2019 0 5/13/2019 0 5/14/2019 0 5/15/2019	0.43 0.96 0.69 0.02	o 5/12/2018 7666 5/13/2018 o 5/14/2018 o 5/15/2018	0.63 0.51 0.89 0.01	0 5/12/3 0 5/13/3 009558 5/14/3 0 5/15/3	017 0.7 017 0.8	9 0.002152 5 0.005988	5/12/2016 5/13/2016 5/14/2016 5/15/2016	0 01 0 0 11 0 11	0	5/12/2015 5/13/2015 5/14/2015 5/15/2015	0 17 0 0	0	5/12/2014 5/13/2014 5/14/2014 5/15/2014	0.09 0.12 0.02	0	5/12/2013 5/13/2013 5/14/2013 5/15/2013	0.31 0 0 0.04	0	5/12/2012 5/13/2012 5/14/2012 5/15/2012	0 0 0 0.43	0	5/12/2011 5/13/2011 5/14/2011 5/15/2011	0 0 0 0 0.05 0 0.38 0	
5/16/2020 5/17/2020 5/18/2020 5/19/2020	0 0 0	0 5/16/2019 0 5/17/2019 0 5/18/2019 0 5/19/2019	0.02 0.01 0.05 0	o 5/16/2018 o 5/17/2018 o 5/18/2018 o 5/19/2018	0.6 1.38 0.15 0.58	0 5/16/2 109762 5/17/2 0 5/18/2 0 5/19/2	017 017		5/16/2016 5/17/2016 5/18/2016 5/19/2016	0 0 14 0.02	0	5/16/2015 5/17/2015 5/18/2015 5/19/2015	0.27 0.02 0.9	0	5/16/2014 5/17/2014 5/18/2014 5/19/2014	0.11 1.72 0		5/16/2013 5/17/2013 5/18/2013 5/19/2013	0.05 0.02 0 0.13	0	5/16/2012 5/17/2012 5/18/2012 5/19/2012	1.06 0 0	0	5/16/2011 5/17/2011 5/18/2011 5/19/2011	0.66 0 0.47 0 0.35 0 0.05 0	
5/20/2020 5/21/2020 5/22/2020 5/23/2020 1.2	0 0 0 23 0.069	5/20/2019 5/21/2019 5/22/2019 5/23/2019	0.01 0 0	o 5/20/2018 o 5/21/2018 o 5/22/2018 o 5/23/2018	0.39 0.02 0 0.48	o 5/20/2 o 5/21/2 o 5/22/2 o 5/23/2	017 0.0 017 0.0	<u>2</u> a	5/20/2016 5/21/2016 5/22/2016 5/23/2016	0.01 0.79 0.06	0.002152	5/20/2015 5/21/2015 5/22/2015 5/23/2015	0.1 0 0.04 0	0	5/20/2014 5/21/2014 5/22/2014 5/23/2014	0.03 0.16 0.2	0	5/20/2013 5/21/2013 5/22/2013 5/23/2013	0.03 0.03 0 0.03	0	5/20/2012 5/21/2012 5/22/2012 5/23/2012	0.16 0.02 0.01	0	5/20/2011 5/21/2011 5/22/2011 5/23/2011	0.38 0 0.26 0 0 0 0.06 0	} }
5/24/2020 0 5/25/2020 5/26/2020 0.0 5/27/2020	0	5/24/2019 5/25/2019 5/26/2019 5/27/2019	0.24 0 0.05 0.05	o 5/24/2018 o 5/25/2018 o 5/26/2018 o 5/27/2018	0 0	o 5/24/2 o 5/25/2 o 5/26/2 o 5/27/2	017 0.0 017 0.3 017 1.2	9 0.064227	5/24/2016 5/25/2016 5/26/2016 5/27/2016	0 19 0 0	0 0 0	5/24/2015 5/25/2015 5/26/2015 5/27/2015	0 0 0 0.04	0 0	5/24/2014 5/25/2014 5/26/2014 5/27/2014	0 0 0	0	5/24/2013 5/25/2013 5/26/2013 5/27/2013		0	5/24/2012 5/25/2012 5/26/2012 5/27/2012	0.02 0.09 0 0.06	0	5/24/2011 5/25/2011 5/26/2011 5/27/2011	0 01 0 0 0 0 0	
5/28/2020 0.0 5/29/2020 0.0 5/30/2020 0.1 5/31/2020)4	5/28/2019 5/29/2019 5/30/2019 5/31/2019	0 0.66 0.51 0.28	o 5/28/2018 o 5/29/2018 o 5/30/2018 o 5/31/2018	0.16 0.01 0 0.07	o 5/28/2 o 5/29/2 o 5/30/2 o 5/31/2	017 0.2 017 0.0	1 a 2 a	5/28/2016 5/29/2016 5/30/2016 5/31/2016	0 0.01 0.68 0	0	5/28/2015 5/29/2015 5/30/2015 5/31/2015	0.37 0 0	0	5/28/2014 5/29/2014 5/30/2014 5/31/2014	0.44 0.16 0.1		5/28/2013 5/29/2013 5/30/2013 5/31/2013	0.02 0.21 0	0	5/28/2012 5/29/2012 5/30/2012 5/31/2012	0 0 0.52 0.01	0	5/28/2011 5/29/2011 5/30/2011 5/31/2011	0 0 0 0 0	ŀ
6/1/2020 6/2/2020 6/3/2020 0.0 6/4/2020 0.6		6/1/2019 6/2/2019 6/3/2019 6/4/2019	0 0.16 0.23	o 6/1/2018 o 6/2/2018 o 6/3/2018 o 6/4/2018	0.03	o 6/1/20 o 6/2/20 o 6/3/20 o 6/4/20	17 17 17		6/1/2016 6/2/2016 6/3/2016 6/4/2016	0 0 0.27 0.3	0 0	6/1/2015 6/2/2015 6/3/2015 6/4/2015	0.67 1.02 0.13 0.02	0 0.026417 0	6/1/2014 6/2/2014 6/3/2014 6/4/2014	0 0 0 0.17	0	6/1/2013 6/2/2013 6/3/2013 6/4/2013	0 0.49 0.12	0 0 0	6/1/2012 6/2/2012 6/3/2012 6/4/2012	0 0.92 0 0.22	0 0.012748 0	6/1/2011 6/2/2011 6/3/2011 6/4/2011	0 0 0 0 0 0	
6/5/2020 0.5 6/6/2020 0.4 6/7/2020 6/8/2020	54	6/5/2019 6/6/2019 6/7/2019 6/8/2019	0 0.34 0.01 0	o 6/5/2018 o 6/6/2018 o 6/7/2018 o 6/8/2018	0	o 6/5/20 o 6/6/20 o 6/7/20 o 6/8/20	17 17 0.3 17 0.1	6 a	6/5/2016 6/6/2016 6/7/2016 6/8/2016	0 03 0.53 0 0 05	0 0 0	6/5/2015 6/6/2015 6/7/2015 6/8/2015		o o o	6/5/2014 6/6/2014 6/7/2014 6/8/2014		0	6/5/2013 6/6/2013 6/7/2013 6/8/2013	0 0 147	0 0 0.137874	6/5/2012 6/6/2012 6/7/2012 6/8/2012	0.2 0 0 0.02	0	6/5/2011 6/6/2011 6/7/2011 6/8/2011	0 1 0.06 0 0	
6/9/2020 6/10/2020	0 0 3	6/9/2019 6/10/2019 6/11/2019 6/12/2019	0.26	0 6/9/2018 0 6/10/2018 3212 6/11/2018 0 6/12/2018	0 0 18 0.2	0 6/9/20 0 6/10/2 0 6/11/2 0 6/12/2	17 017 017	<u>0</u> 0 0 0	6/9/2016 6/10/2016 6/11/2016 6/12/2016	0.22 0 0	0 0 0	6/9/2015 6/10/2015 6/11/2015 6/12/2015	0.89 0 0	0	6/9/2014 6/10/2014 6/11/2014 6/12/2014	0.07 0.39 0.25 0.18	0	6/9/2013 6/10/2013 6/11/2013 6/12/2013	0.47 1.44	0 0 0.128212	6/9/2012 6/10/2012 6/11/2012 6/12/2012	0 0 0	0 0	6/9/2011 6/10/2011 6/11/2011 6/12/2011	0 0 0.1 0 0.06 0 0.71 1.82E-05	ŀ
6/13/2020 6/14/2020 6/15/2020 6/16/2020	0 0 0	6/13/2019 6/14/2019 6/15/2019 6/16/2019	0.62 0.43 0	o 6/13/2018 o 6/14/2018 o 6/15/2018 o 6/16/2018	0 0	o 6/13/2 o 6/14/2 o 6/15/2 o 6/16/2	017 017 017	<u>0</u> a a <u>0</u> a	6/13/2016 6/14/2016 6/15/2016 6/16/2016	0 0 0 0.28	0 0	6/13/2015 6/14/2015 6/15/2015 6/16/2015	0.04 0.03 0.53	o o	6/13/2014 6/14/2014 6/15/2014 6/16/2014	0.99	0.021839 0 0	6/13/2013 6/14/2013 6/15/2013 6/16/2013	0 0.58	0 0 0	6/13/2012 6/14/2012 6/15/2012 6/16/2012		0.186615 0 0	6/13/2011 6/14/2011 6/15/2011 6/16/2011	0.03 0 0 0 0.05 0	} }
6/17/2020 6/18/2020 0.0 6/19/2020 6/20/2020 0.1	0	6/17/2019 6/18/2019 6/19/2019 6/20/2019	0.29 0.08 0.08	o 6/17/2018 o 6/18/2018 o 6/19/2018 o 6/20/2018	0 0 0.01	o 6/17/2 o 6/18/2 o 6/19/2 o 6/20/2	017 0.0 017 0.3 017	3 o 2 o 0 o	6/17/2016 6/18/2016 6/19/2016 6/20/2016	0 36 0 0	0 0 0	6/17/2015 6/18/2015 6/19/2015 6/20/2015	0.05 0.91 0.38 0.04	0 0.011636 0	6/17/2014 6/18/2014 6/19/2014 6/20/2014	0 0 0.84	0 0 0.00522	6/17/2013 6/18/2013 6/19/2013 6/20/2013	0 11 0.55 0.5	0	6/17/2012 6/18/2012 6/19/2012 6/20/2012	0	0	6/17/2011 6/18/2011 6/19/2011 6/20/2011	0 46 0.34 0 0	
6/21/2020 0.0 6/22/2020 6/23/2020 0.0 6/24/2020 0.0	0 0 07	6/21/2019 6/22/2019 6/23/2019 6/24/2019	0.67 0.14 0	o 6/21/2018 o 6/22/2018 o 6/23/2018 o 6/24/2018	0.07 0.02 0.07	o 6/21/3 o 6/22/3 o 6/23/3 o 6/24/3	017 017 0.1 017 0.0	0 1 1 0	6/21/2016 6/22/2016 6/23/2016 6/24/2016	0.01 0.01 0.07 0.75	003	6/21/2015 6/22/2015 6/25/2 015 6/24/2015	0.55 0.01 0	o o	6/21/2014 6/22/2014 6/23/2014 6/24/2014	0	0	6/21/2013 6/22/2013 6/23/2013 6/24/2013	0 0 0	0 0 0	6/21/2012 6/22/2012 6/23/2012 6/24/2012	0	0	6/21/2011 6/22/2011	0.23 0.19 150 1 _{0.14} 3a °	

6/26/2020 0.05 o 6/26	5/2019 0.05 0 6/25/2018 0.21 6/2019 0 0 6/26/2018 0 7/2019 0 0 6/27/2018 0	0 6/25/2017 0 0 6/25/2016 0 0 0 6/26/2017 0 0 6/26/2017 0 0 6/27/2017 0 16 0 6/27/2016 0	0 6/25/2015 0 0 6/25/2014 0 0 6/26/2015 0.19 0 6/26/2014 0.47 0 6/27/2015 0.29 0 6/27/2014 0	0 6/25/2013	0 6/25/2011 0.07 0 6/26/2011 0 0 0 6/27/2011 0 0
6/28/2020 0.05 0.6/28 6/29/2020 0.14 0.6/29 6/30/2020 0 0.6/30	8/2019 0 0 6/28/2018 0.43 9/2019 0.08 0 6/29/2018 0.01 0/2019 0.49 0 6/30/2018 0	0 6/28/2017 0 0 6/28/2010 0.18 0 6/29/2017 0 0 6/29/2010 0.04 0 6/30/2017 0 0 6/30/2010 0	0 6/28/2015 1.97 0 6/29/2015 0 6/29/2014 0 0 6/30/2015 0 6/30/2014 0	0 6/28/2013 0.96 0.017666 6/28/2012 0 0 6/29/2013 1.32 0.09252 6/29/2012 0.17 0 6/30/2013 0 0 6/30/2012 0.11	0 6/28/2011 0 0 0 6/29/2011 0.18 0 0 6/30/2011 0
7/2/2020 0.02 0.7/2/ 7/3/2020 0 7/3/ 7/4/2020 0.02 0.7/4/		o 7/1/2017 0 0 7/1/2016 0 0 7/1/2016 0 0 0 7/1/2016 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 7/1/2015 0.82 0.03838 7/1/2014 0 0 7/2/2015 0 0 7/2/2014 0 0 0 7/3/2015 0.03 0 7/3/2014 0 3 0 7/4/2015 0 0 0 7/4/2014 0.26	o 7/1/2013 1.13 0.046517 7/1/2012 0 o 7/2/2013 0.17 0 7/2/2012 0 o 7/3/2013 0.02 o 7/3/2012 0 o 7/4/2013 0.27 o 7/4/2012 0.01	o 7/1/2011 0 0 0 0 7/2/2011 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7/6/2020 0 0 7/6/ 7/7/2020 0.84 0.00522 7/7/3	/2019 0.22 7/5/2018 0.01 /2019 0.11 0.7/6/2018 0.12 /2019 0.68 0.7/7/2018 0.17 /2019 0.09 0.7/8/2018 0	o 7/5/2017 0.21 o 7/5/2016 0.48 o 7/6/2017 0.01 o 7/6/2016 0 0 7/7/2017 0.47 o 7/7/2016 0 0 7/8/2017 0.64 o 7/8/2016 0	o 7/5/2015 0.08 o 7/5/2014 0 o 7/6/2015 0 o 7/6/2014 0 o 7/7/2015 0.03 o 7/7/2014 0 o 7/8/2015 0 o 7/8/2014 0	o 7/5/2013 0 o 7/5/2012 0 o 7/6/2013 0 o 7/6/2012 0 o 7/7/2013 0 o 7/7/2012 0 o 7/8/2013 0.31 o 7/8/2012 0.06	o 7/5/2011 0 0 0 7/6/2011 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7/9/2020 0 03 0 7/9/ 7/10/2020 0.1 0 7/10/ 7/11/2020 2.56 0.643101 7/11	/2019 0 15 0 7/9/2018 0 0/2019 0 0 7/10/2018 0 1/2019 0.24 0 7/11/2018 0	o 7/9/2017 0 02 o 7/9/2016 0 03 o 7/10/2017 0 o 7/10/2016 0.63 o 7/11/2017 0 o 7/11/2016 0	o 7/9/2015 0 39 o 7/9/2014 0 18 o 7/10/2015 0.5 o 7/10/2014 0 o 7/11/2015 0 o 7/11/2014 0.61	o 7/9/2013 0.42 o 7/9/2012 0 o 7/10/2013 0.01 o 7/10/2012 0.04 o 7/11/2013 0.06 o 7/11/2012 0	0 7/9/2011 0.78 0.001696 0 7/10/2011 0.01 0 0 7/11/2011 0
7/13/2020 0.09 0 7/13 7/14/2020 0 0 7/14 7/15/2020 0 7/15	2/2019 1.84 0.278624 7/12/2018 0 3/2019 0 0 7/13/2018 0 4/2019 0 0 7/14/2018 0 5/2019 0 0 7/15/2018 0	o 7/12/2017 0 0 7/12/2016 0 7/13/2017 0.01 0 7/13/2016 0 7/14/2017 0.4 0 7/15/2017 1.21 0.064227 7/15/2016 0	0 7/12/2015 0 0 7/12/2014 0 0 7/13/2015 0 0 7/13/2015 0 0 7/13/2015 0.31 0 7/14/2015 0.32 0.03338 7/15/2014 0.29	07/12/2013 0.05 07/12/2012 0 07/13/2013 2.49 0.693425 7/13/2012 0 07/14/2013 0.03 07/14/2012 0.36 07/15/2013 0 0 7/15/2012 0.37	o 7/12/2011 0.1 0 o 7/13/2011 0 0 o 7/14/2011 0 0 o 7/15/2011 0
7/17/2020 0.02 0.7/17 7/18/2020 0 7/18	6/2019 0 07/16/2018 0.5 7/2019 0.05 07/17/2018 0 8/2019 0.54 07/18/2018 1.19 9/2019 0.7 07/19/2018 0	a 7/16/2017 0 7/17/2016 0 7/17/2017 0 7/17/2016 0 1 7/17/2016 0 1 7/18/2017 0.18 7/18/2016 0 5 7/19/2017 0 7/19/2016 0 5	o 7/16/2015	o 7/16/2013 0 o 7/16/2012 0.62 o 7/17/2013 0 o 7/17/2012 0 o 7/18/2013 0 o 7/18/2012 0 o 7/19/2013 0.01 o 7/19/2012 0.03	o 7/16/2011 0 0 0 0 7/17/2011 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7/21/2020 0 0 7/21 7/22/2020 0.06 0 7/22	0/2019 0 0 7/20/2018 0 1/2019 0 0 7/21/2018 0 0 7/21/2018 0 0 7/22/2018 1.78 0.25 0.25 0.224892 7/23/2018 1.43 0.12		0 7/20/2015 0 0 7/20/2014 0.01 0 7/21/2015 0 0 7/21/2014 0 0 7/22/2015 0.03 0 7/22/2014 0 0 7/23/2015 0 0 7/23/2014 0	0 7/20/2013 0 0 7/20/2012 0.51 0 7/21/2013 0.07 0 7/21/2012 0.09 0 7/22/2013 0.05 0 7/22/2012 0 0 7/23/2013 1.39 0.112755 7/23/2012 0	0 7/20/2011 0.14 0 7/21/2011 0 0 7/22/2011 0 0 7/23/2011 0 0
7/24/2020 0.66 0 7/24 7/25/2020 0.05 0 7/25 7/26/2020 0 0 7/26	4/2019 0.02 o 7/24/2018 1.09 0.03		0 7724/2015 0 0 7724/2014 0.55 0 7725/2015 0 0 7725/2014 0 0 7726/2015 0 0 7726/2014 0 0 7727/2015 0.4 0 7727/2014 0.05	o 7/24/2013 0.07 o 7/24/2012 0.02 o 7/25/2013 0 o 7/25/2012 0 o 7/26/2013 0 o 7/26/2012 0	
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8/1/2020 0.06 0 8/1/ 8/2/2020 0.02 0 8/2/ 8/3/2020 0 0 8/3/	1/2019 0 0/3/31/2018 0.01 /2019 0.09 0/2019 0.05 /2019 0.17 0/2018 0.05 /2019 0.07 0/2018 0.06	0 8/1/2017 0 0 8/1/2016 0 0 8/2/2017 0 0 8/2/2016 0 11 0 8/3/2017 0.31 0 8/3/2016 0	0.074003 7/31/2015 0.67 0 7/31/2014 0 0 8/1/2015 0 0 8/1/2015 0 0 8/2/2015 0 0 8/3/2014 0.45 0 8/3/2015 0 0 8/3/2014 0.11	0 7/31/2013 0 0 7/31/2012 0.02 0 8/1/2013 0.31 0 8/2/2013 1.3 0.05/051 8/2/2012 0.11 0 8/3/2013 0 0 8/3/2012 0	o 7/31/2011 0 0 o 8/1/2011 0.01 0 o 8/2/2011 0.13 0 o 8/3/2011 0.03 0
8/5/2020 4.76 2.17592 8/5/3 8/6/2020 0.05 0 8/6/		4882 8/4/2017 0.03 0 8/4/2016 0 0 8/5/2017 0.63 0 8/5/2016 0 0 8/6/2017 0 0 8/6/2016 0 0 8/7/2017 0.18 0 8/7/2016 0.01	0 8/4/2015 0.2 0 8/4/2014 0.02 0 8/5/2015 0 0 8/5/2014 0 0 8/6/2015 0 0 8/6/2014 0 0 8/7/2015 0.06 0 8/7/2014 0.01	0 8/4/2013 0.03 0 8/4/2012 0.03 0 8/5/2013 0 0 8/5/2012 0.14 0 8/6/2013 0 0 8/6/2012 0.31 0 8/7/2013 0.06 0 8/7/2012 0	0 8/4/2011 0.43 0 0 8/5/2011 0.02 0 0 8/6/2011 0 0 0 8/7/2011 0.15 0
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8/24/2020 0.54 0.8/24 8/25/2020 0.01 0.8/25 8/26/2020 0.01 0.01	3/2019 0.14 08/23/2018 0 4/2019 0.21 08/24/2018 0 5/2019 0 08/25/2018 0 6/2019 0 08/26/2018 0	o 8/23/2017 0.97 a.019011 8/23/2016 0 8/24/2017 0.01 o 8/24/2016 0 0 8/25/2017 0.01 o 8/25/2016 0 0 8/26/2017 0 o 8/26/2016 0	a 8/23/2015 0.07 a 8/23/2014 0.0 b 8/24/2015 0 a 8/24/2015 0 a 8/25/2015 0 a 8/25/2014 0.0 a 8/26/2015 0 a 8/26/2014 0.0 a 8/2	8/23/2013 0.13 8/23/2012 0 8/24/2013 0 8/24/2012 0 6/25/2013 0 8/25/2012 0 6/26/2013 0 8/26/2012 0	a 8/23/2011 0 a 8/24/2011 0 a 6 8/25/2011 0 a 6 8/26/2011 0.87 0.007674
8/28/2020 0 0 8/28 8/29/2020 0.48 0 8/29 8/30/2020 0.17 0 8/30	7/2019 0 08/27/2018 0 8/2019 0 08/28/2018 0 9/2019 0.02 08/29/2018 0 0/2019 0 08/30/2018 0	08/27/2017 0 08/27/2016 0 08/28/2017 0 08/28/2016 0 08/29/2017 0 08/29/2016 0 08/30/2017 0.6 08/30/2016 0	0 8/27/2015	0 8/27/2013 0 0 8/27/2012 0.63 0 8/28/2013 0 0 8/28/2012 0.44 0 8/29/2013 1.14 0.48593 8/29/2012 0.03 0 8/30/2013 0.48 0 8/30/2012 0	o 8/30/2011 0 o
9/1/2020 0.08 0.9/1/ 9/2/2020 0.03 0.9/2/	1/2019 0 08/31/2018 0 1/2019 0 09/1/2018 1.22 1/2019 0 09/2/2018 0.04 1/2019 0.25 09/3/2018 0	0 8/31/2017	0 8/31/2015 0 0 8/31/2014 0 0 9/1/2015 0.02 0 9/1/2014 1.08 0 9/2/2015 0 0 9/2/2014 0.13 0 9/3/2015 0 0 9/3/2014 0.34	o 9/2/2013 0 o 9/2/2012 0.03	a 9/1/2011 0 a
9/5/2020 0 0 9/5/ 9/6/2020 0 0 9/6/	/2019 0 9/4/2018 0.13 /2019 0.06 9/5/2018 0 /2019 0 9/6/2018 0 /2019 0 9/6/2018 0 /2019 0 0 9/7/2018 0	0 9/4/2017 0.01 0 9/4/2016 0 0 9/5/2017 0 0 9/5/2016 0 0 9/6/2017 0.53 0 9/6/2016 0 0 9/7/2017 0.39 0 9/7/2016 0		9/4/2013 0 9/4/2012 1.58 9/5/2013 0 9/5/2012 0.24 9/6/2013 0 9/6/2012 0.01 0.028031 9/7/2013 0 9/7/2012 0	0 9/5/2011 0.07 0 0 9/6/2011 1.85 0.282933
9/8/2020 0 0 9/8/ 9/9/2020 0 0 9/9/ 9/10/2020 0.19 0 9/10	/2019 0 0 9/8/2018 1.11 0.04 /2019 0 0 9/9/2018 1.11 0.04	2487 9/8/2017 0 09/8/2016 0 2487 9/9/2017 0 09/9/2016 0 1503 9/10/2017 0 09/10/2016 0.01 09/11/2017 0 09/11/2016 0	0 9/8/2015 0 0 9/8/2014 0 0 9/9/2015 0 0 9/9/2014 0 0 9/10/2015 0.2 0 9/10/2014 0 0 9/10/2014 0 0 9/10/2014 0 0 9/10/2014 0 0 0 9/10/2014 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	o 9/8/2013 0.01 o 9/8/2012 0 o 9/9/2013 0 o 9/9/2012 0.52 o 9/10/2013 0 o 9/10/2012 0	0 9/8/2011 0.84 0.00522 0 9/9/2011 0.22 0 0 9/10/2011 0.01 0
9/12/2020 0.01 0.9/12 9/13/2020 0 0.01 9/14/2020 0 0.01	100 100	0 9/12/2017 0 0 9/12/2016 0 0 9/13/2017 0 0 9/13/2016 0 0 9/13/2017 0 0 9/13/2016 0 0 9/14/2017 0.13 0 9/15/2016 0 0 9/15/2017 0.01 0 9/15/2016 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 9/12/2015 0 0 9/12/2014 0 0 9/13/2015 0 49 0 9/13/2014 0 0 9/14/2015 0 0 9/14/2014 0.28	0 9/12/2013 0 0 9/12/2012 0 0 9/13/2013 0.43 0 9/13/2013 0 0 9/14/2012 0 0 9/14/2013 0 0 9/14/2012 0	0 9/12/2011 0.17 0 0 9/13/2011 0 0 0 9/14/2011 0
9/16/2020 0 9/16	6/2019 0 0 9/15/2018 0 7/2019 0 0 9/17/2018 0	9/16/2017 0.01 09/16/2016 0 9/17/2017 0.01 09/17/2016 0		o 9/16/2013 0 o 9/16/2012 0	9/16/2011 10 -12 4 0 0

9/18/2020 0	09/18/2019 0		26417 9/18/2017 0		o 9/18/2015 0	o 9/18/2014 0	o 9/18/2013 0	0 9/18/2012 0.57	o 9/18/2011 0.02 o
9/19/2020 0 9/20/2020 0	0 9/19/2019 0 0 9/20/2019 0	o 9/19/2018 0.47 o 9/20/2018 0	o 9/19/2017 0.05 o 9/20/2017 0.05	9/20/2016 0.89	0.009558 9/20/2015 0	o 9/19/2014 0.02 o 9/20/2014 0	o 9/19/2013 0 o 9/20/2013 0	0 9/20/2012 0	0.003224 <mark>9/19/2011 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</mark>
9/21/2020 0 9/22/2020 0	o 9/21/2019 0 o 9/22/2019 0	0 9/21/2018 0 0 9/22/2018 0.02	o 9/21/2017 0 o 9/22/2017 0			o 9/21/2014 0 o 9/22/2014 0.08	0 9/21/2013 0 0 9/22/2013 1.34 0.09	0 9/21/2012 0 9813 9/22/2012 0	0 9/21/2011 0.07 0 0 9/22/2011 0.06 0
9/23/2020 0 9/24/2020 0	o 9/23/2019 0 o 9/24/2019 0.02	9/23/2018 0.02 9/24/2018 0.58	o 9/23/2017 0 o 9/24/2017 0		0 9/23/2015 0 0 9/24/2015 0	o 9/23/2014 0 o 9/24/2014 0	9/23/2013 0 9/24/2013 0	o 9/23/2012 0.19 o 9/24/2012 0	0 9/23/2011 0.02 0 0 9/24/2011 2.97 0.890243
9/25/2020 0 9/26/2020 0.43	o 9/25/2019 0 o 9/26/2019 0	9/25/2018 0.19 9/26/2018 0.72 9	o 9/25/2017 0		o 9/25/2015 0 o 9/26/2015 0	9/25/2014 0.49 9/26/2014 0.35	o 9/25/2013 0 o 9/26/2013 0	9/25/2012 0 9/26/2012 0	9/25/2011 0.01 a 9/26/2011 0 a
9/27/2020 0.4 9/28/2020 0.25	9/27/2019 0.04 0 9/28/2019 0	0 9/27/2018 0 35	g 9/27/2017 C	9/27/2016 0.05		o 9/27/2014 0 o 9/28/2014 0	o 9/27/2013 0 o 9/28/2013 0	9/27/2012 0.32 9/28/2012 0.08	9/27/2011 0 0 9/28/2011 0.61
9/29/2020 0 9/30/2020 1.21 0.06422	0 9/29/2019 0.16 17 9/30/2019 0	o 9/29/2018 0.01 o 9/30/2018 0	9/29/2017 0 9/30/2017 0	9/29/2016 0.58	0 9/29/2015 0	o 9/29/2014 0 o.186615 9/30/2014 0.03	o 9/29/2013 0 o 9/30/2013 0	9/29/2012 0.02 9/30/2012 0	o 9/29/2011 0.37 o 9/30/2011 0.28
10/1/2020 0 10/2/2020 0.16	0 10/1/2019 0 0 10/2/2019 0	0 10/1/2018 0 0 10/2/2018 0	0 10/1/2017 0 0 10/2/2017 0	0 10/1/2016 0 13	0 10/1/2015 0.07 0 10/2/2015 0.66	o 10/1/2014 0 o 10/2/2014 0	o 10/1/2013 0 o 10/2/2013 0	0 10/1/2012 0.01 0 10/2/2012 0.01	o 10/1/2011 0.03 o 10/2/2011 0.47
10/3/2020 0.01	0 10/3/2019 0.06	0 10/3/2018 0.27	o 10/3/2017 C	o 10/3/2016 0.02	o 10/3/2015 1.39	0.112755 10/3/2014 0	o 10/3/2013 0	0 10/3/2012 0.85	0.005988 10/3/2011 0.26
10/4/2020 0 10/5/2020 0.04	0 10/4/2019 0.09 0 10/5/2019 0	0 10/4/2018 0.01 0 10/5/2018 0.08	o 10/4/2017 0 o 10/5/2017 0	0 10/5/2016 0		o 10/4/2014 0.36 o 10/5/2014 0.07	o 10/4/2013 0 o 10/5/2013 0	0 10/4/2012 0.02 0 10/5/2012 0.02	o 10/4/2011 0.01 o o 10/5/2011 0
10/6/2020 0.03 10/7/2020 0	0 10/6/2019 0 0 10/7/2019 0.09	0 10/6/2018 0.02 0 10/7/2018 0	a 10/6/2017 0.01 a 10/7/2017 0	0 10/7/2016 0	o 10/7/2015 0	o 10/6/2014 0 o 10/7/2014 0.01	o 10/6/2013 0 o 10/7/2013 0.01	o 10/6/2012 0 o 10/7/2012 0.02	a 10/6/2011 0 a 10/7/2011 0
10/8/2020 0 10/9/2020 0	0 10/8/2019 0.38 0 10/9/2019 0.08	0 10/8/2018 0 0 10/9/2018 0.02	a 10/8/2017 0.06 a 10/9/2017 0.16	0.08	o 10/9/2015 0	o 10/8/2014 0.61 o 10/9/2014 0	o 10/8/2013 0.58 o 10/9/2013 0	0 10/8/2012 0.11 0 10/9/2012 0.04	a 10/8/2011 0 a 10/9/2011 0
10/10/2020 0 10/11/2020 0	0 10/10/2019 0.08 0 10/11/2019 0	0 10/10/201 0.01 0 10/11/201 0.01	o 10/10/2017 0.83	3 0.004504 10/10/201 0.06 0 10/11/201 0	0 10/10/201 0.51 0 10/11/201 0.04	o 10/10/201 0 o 10/11/201 0 35	o 10/10/201; 0.19 o 10/11/201; 2.86 0.82:	0 10/10/201 0.05 1624 10/11/201 0	0 10/10/2011 0 0 0 10/11/2011 0
10/12/2020 0.91 0.01163 10/13/2020 0.19	6 10/12/2019 0 0 10/13/2019 0	0 10/12/201 0.71 1 0 10/13/201 0.07	0.4 0.010/13/2017 0.4 0.010/13/2017 0.02			0 10/12/201 0.14 0 10/13/201 0.01	o 10/12/201 0.69 o 10/13/201 0.01	0 10/12/2011 0 0 10/13/2011 0	o 10/12/2011 0.09 o 10/13/2011 0.31
10/14/2020 0.01 10/15/2020 0	o 10/14/2019 0 o 10/15/2019 0	0 10/14/201 0.05 0 10/15/201 0.06	o 10/14/2017 0.07 o 10/15/2017 0.02		o 10/14/201 0 o 10/15/201 0	0 10/14/201 0.06 0 10/15/201 0	o 10/14/201; 0 o 10/15/201; 0	0 10/14/2011 0 0 10/15/2011 0	0 10/14/2011 0.16 0 0 10/15/2011 0.4
10/16/2020 0 10/17/2020 0.27	0 10/16/2019 0 0 10/17/2019 1 6 0.18:	0 10/16/201 0.17	0 10/16/2017 0.08 0 10/17/2017 0	0 10/16/201 0	0 10/16/201 0		0 10/16/201; 0 0 10/17/201; 0	10/10/1001	0.000943 10/16/2011 0.08 0 0 10/17/2011 0
10/18/2020 0 10/19/2020 0	0 10/18/2019 0 0 10/19/2019 0	0 10/18/201 0 0 10/19/201 0.01	0 10/18/2017 0 0 10/19/2017 0	0 10/18/201 0	0 10/18/201 0 0 10/19/201 0.01	o 10/18/201 0 o 10/19/201 0	o 10/18/201; 0.08 o 10/19/201; 0	o 10/18/201 0 o 10/19/201 0.65	o 10/18/2011 0 o o 10/19/2011 0.23
10/20/2020 0.01 10/21/2020 0.01	0 10/20/2019 0 0 10/21/2019 0.58	0 10/20/201 0.11 0 10/21/201 0.05	10/20/2017 0 10/21/2017 0	0 10/20/201 0	0 10/20/201 0	o 10/20/201 0 o 10/21/201 0.02	o 10/20/201; 0.11 o 10/21/201; 0	o 10/20/2011 0.41 o 10/21/2011 0	o 10/20/2011 0.36 o 10/21/2011 0
10/22/2020 0.02	0 10/22/2019 0.02	0 10/22/201 0	a 10/22/2017 C	0 10/22/201 0.13	0 10/22/201 0	o 10/22/201 0.31	o 10/22/201; 0	o 10/22/2011 0 o 10/23/2011 0	a 10/22/2011 0 a
10/23/2020 0 01 10/24/2020 0	0 10/23/2019 0.65 0 10/24/2019 0	0 10/23/201 0 0 10/24/201 0	o 10/24/2017 0.11	0 10/24/201 0.01	0 10/24/201 0	o 10/23/201 0.33 o 10/24/201 0.03	o 10/23/2011 0.01 o 10/24/2011 0	o 10/24/201; 0.01	o 10/23/2011 0 o o 10/24/2011 0
10/25/2020 0 10/26/2020 0.11	0 10/25/2019 0 0 10/26/2019 0	0 10/25/201 0 0 10/26/201 0	o 10/25/2017 0.4 o 10/26/2017 0	o 10/26/201 0		o 10/25/201 0 o 10/26/201 0	o 10/25/2011 0 o 10/26/2011 0	o 10/25/201 0 o 10/26/201 0	o 10/25/2011 0.03 o 10/26/2011 0
10/27/2020 0.08 10/28/2020 0.01	0 10/27/2019 0.37 0 10/28/2019 1.35 0.10		o 10/28/2017 C	o 10/28/201 0.43	0 10/28/201 0.04	o 10/27/201 0 o 10/28/201 0	o 10/27/2011 0 o 10/28/2011 0	0 10/27/201 0 0 10/28/201 0.05	0 10/27/2011 0.06 0 0 10/28/2011 0.15 0
	0 10/29/2019 0.01 2 10/30/2019 0.01	0 10/29/201 0.06 0 10/30/201 0.01	o 10/29/2017 0 12 o 10/30/2017 2.33	0.51584 10/30/201 0	0 10/30/201 0	0 10/30/201 0.06	o 10/29/2011 0 o 10/30/2011 0		0.02332 10/29/2011 0.18 0 1.859165 10/30/2011 0.84 0.00522
10/31/2020 0.04 11/1/2020 0.01	0 10/31/2019 0.55 0 11/1/2019 1.03 0.021	0 10/31/201 0 8031 11/1/2018 0	o 10/31/2017 0.01		0 11/1/2015 0	o 10/31/201 0 o 11/1/2014 0.18	o 10/31/201 0.06 o 11/1/2013 0.06	0 10/31/201: 0.45 0 11/1/2012 0.01	0 10/31/2011 0 0 0 11/1/2011 0
11/2/2020 0.43 11/3/2020 0	o 11/2/2019 0 o 11/3/2019 0	0 11/2/2018 0.01 0 11/3/2018 1.32	o 11/2/2017 0 09252 11/3/2017 0		o 11/2/2015 0 o 11/3/2015 0	o 11/2/2014 0.35 o 11/3/2014 0	o 11/2/2013 0.22 o 11/3/2013 0	o 11/2/2012 0 o 11/3/2012 0	o 11/2/2011 0 o o 11/3/2011 0
11/4/2020 0 11/5/2020 0	o 11/4/2019 0 o 11/5/2019 0	o 11/4/2018 0.01 o 11/5/2018 0.06	o 11/4/2017 0 o 11/5/2017 0.3		o 11/4/2015 0 o 11/5/2015 0.03	o 11/4/2014 0 o 11/5/2014 0	o 11/4/2013 0 o 11/5/2013 0	o 11/4/2012 0 o 11/5/2012 0	o 11/4/2011 0 o o 11/5/2011 0
11/6/2020 0 11/7/2020 0	o 11/6/2019 0 o 11/7/2019 0	o 11/6/2018 0.46 o 11/7/2018 0.65	o 11/6/2017 0 o 11/7/2017 0.01	o 11/6/2016 0	o 11/6/2015 0.01 o 11/7/2015 0	o 11/6/2014 0.49 o 11/7/2014 0.22	o 11/6/2013 0 o 11/7/2013 0	o 11/6/2012 0 o 11/7/2012 0	o 11/6/2011 0 o o 11/7/2011 0
11/8/2020 0 11/9/2020 0	0 11/8/2019 0.14 0 11/9/2019 0	o 11/8/2018 0 o 11/9/2018 0	o 11/8/2017 0.41	0 11/8/2016 0	o 11/8/2015 0 o 11/9/2015 0	o 11/8/2014 0.01 o 11/9/2014 0	o 11/8/2013 0.1 o 11/9/2013 0	0 11/8/2012 0.15 0 11/9/2012 0	o 11/8/2011 0 o o 11/9/2011 0
11/10/2020 0 11/11/2020 0	0 11/10/2019 0 0 11/11/2019 0	o 11/10/201 0.82 o.		0 11/10/201 0.37	0 11/10/201 0.3	o 11/10/201 0 o 11/11/201 0	o 11/10/201; 0 o 11/11/201; 0	o 11/10/201; 0 o 11/11/201; 0	o 11/10/2011 0 o o 11/11/2011 0.1
	6 11/12/2019 0.14 0 11/13/2019 0.03	o 11/12/201 O o 11/13/201 0.87 o.	o 11/12/2017 0	0 11/12/201 0	o 11/12/201: 0	o 11/12/201 0 o 11/13/201 0	o 11/12/201; 0 o 11/13/201; 0	o 11/12/2011 0 o 11/13/2011 0.38	o 11/12/2011 0 o o 11/13/2011 0
11/14/2020 0.04 11/15/2020 0	0 11/14/2019 0 0 11/15/2019 0	o 11/14/201 0.05 o 11/15/201 0.07	o 11/14/2017 0.02	0 11/14/201 0	o 11/14/201 0 11/15/201 0	o 11/14/201 0.18 o 11/15/201 0	o 11/14/201; 0 o 11/15/201; 0	o 11/14/201; 0.08 o 11/15/201; 0	o 11/14/2011 0 o o 11/15/2011 0
11/16/2020 0 28	0 11/16/2019 0	o 11/16/201 1.3 a.	87051 11/16/2017 0.01	o 11/16/201 0	o 11/16/201 0	o 11/16/201 0	o 11/16/201 0.05	o 11/16/201; 0 o 11/17/201; 0	a 11/16/2011 0.27 a
11/17/2020 0 11/18/2020 0.01	0 11/17/2019 0 0 11/18/2019 0	0 11/18/201 0	o 11/18/2017 C	o 11/18/201 0	o 11/18/201 0	o 11/18/201 0.75 o.c	o 11/17/201	o 11/18/2011 0	o 11/17/2011 0.36 o 11/18/2011 0
11/19/2020 0 11/20/2020 0	0 11/19/2019 0 0 11/20/2019 0	o 11/19/201 0 o 11/20/201 0	o 11/19/2017 0.43	0 11/20/201 0.1	o 11/19/201 0 o 11/20/201 1	0 11/19/201 0 0.02332 11/20/201 0	o 11/19/2011 0 o 11/20/2011 0	o 11/19/2011 0 o 11/20/2011 0	o 11/19/2011 0 o o 11/20/2011 0
11/21/2020 0 11/22/2020 0	0 11/21/2019 0 0 11/22/2019 0	o 11/21/201 0 o 11/22/201 0	o 11/21/2017 0 o 11/22/2017 0 03	0 11/22/201 0	0 11/22/201: 0	o 11/21/201 0 o 11/22/201 0	o 11/21/2011 0 o 11/22/2011 0	o 11/21/201 0 o 11/22/201 0	0 11/21/2011 0.31 0 0 11/22/2011 0.2 0
11/23/2020 0.41 11/24/2020 0		0 11/23/201 0 4921 11/24/201 0	o 11/23/2017 0 o 11/24/2017 0	o 11/24/201 0			0 11/23/201 0.04 00407 11/24/201 0	o 11/23/201; 0 o 11/24/201; 0	0 11/23/2011 1.69 0.217017 0 11/24/2011 0.05 0
11/25/2020 0 11/26/2020 0.33	o 11/25/2019 0.08 o 11/26/2019 0	o 11/25/201 2.02 a. o 11/26/201 0	59802 11/25/2017 0 0 11/26/2017 0	o 11/26/201 0	o 11/26/201 0	o 11/25/201 0 o 11/26/201 0.24	o 11/25/201; 0 o 11/26/201; 0	0 11/25/201: 0 0 11/26/201: 0	o 11/25/2011 0 o o 11/26/2011 0
	0 11/27/2019 0 0 11/28/2019 0	o 11/27/201 0.58 o 11/28/201 0	o 11/27/2017 0 o 11/28/2017 0	0 11/28/201 0		o 11/27/201 1.07 o.d	34921 11/27/201; 2.48 0.59: 0 11/28/201; 0.16	7822 11/27/201 0.3 0 11/28/201 0.39	o 11/27/2011 0 o o 11/28/2011 0
11/29/2020 0 11/30/2020 0.28	o 11/29/2019 0 o 11/30/2019 0	0 11/29/201 0 0 11/30/201 0	o 11/29/2017 0 o 11/30/2017 0		0 11/29/201 0.11 0.034921 11/30/201 0.02	o 11/29/201 0 o 11/30/201 0	o 11/29/201; 0 o 11/30/201; 0	o 11/29/201 0 o 11/30/201 0	o 11/29/2011 0.04 o o 11/30/2011 0.89 o.co9558
12/1/2020 2.1 0.39820	s 12/1/2019 0	o 12/1/2018 0.01 E-05 12/2/2018 0.53	12/1/2017 0.03 12/2/2017 0	12/1/2016 1.36	0.103878 12/1/2015 0.25	o 12/1/2014 0	o 12/1/2013 0 o 12/2/2013 0	o 12/1/2012 0 o 12/2/2012 0	o 12/1/2011 0 o o 12/2/2011 0 o
12/3/2020 0 12/4/2020 0	0 12/3/2019 0.02 0 12/4/2019 0	o 12/3/2018 0.07 o 12/4/2018 0	0 12/3/2017 0 0 12/4/2017 0	o 12/3/2016 0	0 12/3/2015 0.2	o 12/3/2014 0.25 o 12/4/2014 0.14	o 12/3/2013 0 o 12/4/2013 0	0 12/3/2012 0.02 0 12/4/2012 0	o 12/3/2011 0 o o 12/4/2011 0
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12/8/2020 0.03 12/7/2020 0 12/8/2020 0	0 12/7/2019 0.03 0 12/8/2019 0	o 12/7/2018 0 o 12/8/2018 0	o 12/7/2017 C	0.77	0.001292 12/7/2015 0 0 12/8/2015 0	0 12/6/2014 0.22 0 12/7/2014 0.6 0 12/8/2014 0		0 12/6/2012 0 0522 12/7/2012 0 0 12/8/2012 0.43	o 12/7/2011 0.22 o
12/9/2020 0	0 12/9/2019 0.14	0 12/9/2018 0	a 12/9/2017 0.03	0 12/9/2016 0	o 12/9/2015 0	o 12/9/2014 0.2	o 12/9/2013 0.82 a.oa	3838 12/9/2012 0.03	o 12/9/2011 0 o
12/10/2020 0 12/11/2020 0	0.001 0 12/11/2019 0.38	0 12/11/201 0 0 12/11/201 0	o 12/10/2017 0.31 o 12/11/2017 0		00 37752 201 0.03	a 12/10/201 0.08 a 12/11/201 0.05	o 12/10/201 0.09 o 12/11/201 0.2	o 12/10/201 0.35 o 12/11/201 0.2	12/10/2011 156 5a °

12/12/2020 0 12/13/2020 0 12/14/2020 0.07	o 12/13/2019 0 o 12/	/12/201 0 0 12/12/2017 0 /13/201 0 0 12/13/2017 0 /14/201 0 0 12/14/2017 0.08	0 12/12/201 0 45 0 12/13/201 0 0 12/14/201 0	0 12/12/201: 0 0 12/13/201: 0 0 12/14/201: 0	o 12/12/201 0.02 o 12/13/201 0 o 12/14/201 0	o 12/12/201 0 o 12/13/201 0 o 12/14/201 0	o 12/12/201 0 o 12/13/201 0 o 12/14/201 0	0 12/12/2011 0 0 0 12/13/2011 0 0
12/15/2020 0.84 0.0 12/16/2020 0 12/17/2020 0.99 0.02	00522 12/15/2019 0.08 0 12/1 0 12/16/2019 0 12/1 21839 12/17/2019 1.01 0.024847 12/1	/15/201 0.26 0 12/15/2017 0 /16/201 1.04 0.29689 12/16/2017 0.16 /17/201 0.4 0 12/17/2017 0	0 12/15/201 0 0 12/16/201 0 0 12/17/201 0.26	0 12/15/201: 0.27 0 12/16/201: 0 0 12/17/201: 0	o 12/15/201 0 o 12/16/201 0 o 12/17/201 0.16	o 12/15/201; 1.1 o 12/16/201; 0 o 12/17/201; 0.02	040533 12/15/2011 0 0 12/16/2011 0 0 12/17/2011 0.13	0 12/15/2011 0 0 0 12/16/2011 0.07 0 0 12/17/2011 0
12/18/2020 0 12/19/2020 0 12/20/2020 0	0 12/19/2019 0 0 12/2 0 12/20/2019 0 0 12/2	/18/201 0 0 12/18/2017 0 /19/201 0 0 12/19/2017 0 /20/201 0 0 12/20/2017 0	0 12/18/201 0.39 0 12/19/201 0.05 0 12/20/201 0	0 12/18/201	o 12/19/201 0 o 12/20/201 0	o 12/18/2011 0.03 o 12/19/2011 0 o 12/20/2011 0	0 12/18/201	0 12/18/2011 0 0 0 12/19/2011 0 0 0 12/20/2011 0
12/21/2020 0 12/22/2020 0.07 12/23/2020 0 12/24/2020 0	0 12/22/2019 0 0 12/2 0 12/23/2019 0 0 12/2	\(\frac{1}{221/201} \) 1.81 0.265843 12/21/2017 0 0.12/201 0.13 0 12/22/2017 0.21 0.23/201 0.21 0.24/2017 0.21 0.24/201 0.07 0.24/2017 0.5	0 12/21/201 0 0 12/22/201 0 0 12/23/201 0 0 12/24/201 0 24	o 12/21/201; 0 o 12/22/201; 0.03 o 12/23/201; 0.05 o 12/24/201; 1.39 0.11	o 12/21/201 0 o 12/22/201 0 o 12/23/201 0.15 2755 12/24/201 0.42	o 12/21/2011 0 o 12/22/2011 0.01 o 12/23/2011 0.42 o 12/24/2011 0.44	0 12/21/2011 2.09 0.39 0 12/22/2011 0.03 0 12/23/2011 0 0 12/24/2011 0	0.05 0 0.12/22/2011 0.11 0 0.12/23/2011 1.24 0.071503 0.12/24/2011 0
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1/31/2021 0 02 2/1/2021 0.41 2/2/2021 0.58	0 1/31/2020 0 0 1/3 0 2/1/2020 0.07 0 2/1/ 0 2/2/2020 0.07 0 2/2/	31/2019 0 01 0 1/31/2018 0 07 1/2019 0 0 2/1/2018 0 2/2019 0.08 0 2/2/2018 0.17	o 1/31/2017 0.01 o 2/1/2017 0 o 2/2/2017 0	o 1/31/2016 0 o 2/1/2016 0 o 2/2/2016 0.11	o 1/31/2015 0.01 o 2/1/2015 0 o 2/2/2015 0.59	o 1/31/2014 0 o 2/1/2014 0 o 2/2/2014 0	0 1/31/2013 1.59 0.179 0 2/1/2013 0 0 2/2/2013 0	9296 1/31/2012 0 0 0 2/1/2012 0.02 0 0 2/2/2012 0
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3/3/2021 0 3/4/2021 0 3/5/2021 0 3/6/2021 0	o 3/3/2020 0.1 o 3/4/ o 3/4/2020 0.23 o 3/5/	3/2019 0 0 3/3/2018 0.29 4/2019 0.82 0.00388 3/4/2018 0 5/2019 0 0 3/5/2018 0 5/2019 0 0 3/6/2018 0	0 3/3/2017 0 0 3/4/2017 0 0 3/5/2017 0 0 3/6/2017 0	0.3/2/2016 0.16 0.3/3/2016 0 0.0787474916 0.08 0.3/5/2016 0.01	o 3/3/2015 0 o 3/4/2015 0.55 o 3/5/2015 0.67 o 3/6/2015 0.63	o 3/3/2014 0.21 o 3/4/2014 0.04 o 3/5/2014 0 o 3/6/2014 0	0 3/3/2013 0 0 3/4/2013 0 0 3/5/2013 0 0 3/6/2013 0.1	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

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3/28/2021 0.1 3/29/2021 0.1		0.02	03/29/2019		٥	3/28/2018 3/29/2018	0.02	o 3/28/2017 o 3/29/2017	0.48			0.47		3/28/2015	0.01	03/28/201		0	3/28/2013	0	0 3/28/2012		0
3/30/2021	0 0 3/29/2020	1.07		0	0	3/30/2018	0.09	0 3/30/2017	0.48			0.47		3/30/2015	0.01	03/30/201				0	0 3/29/2012	0.01	0
3/31/2021	0 0 3/30/2020	0.02	0.034921 3/30/2019			3/31/2018	0.01	03/31/2017	0.31		/2016	0.09		3/31/2015	0	03/31/201			3/31/2013	0	0 3/30/2012	0.01	U
4/1/2021 0.4		0.02	0 4/1/2019	0.08		4/1/2018	0.12	0 4/1/2017		0.118839 3/31/		-0		4/1/2015	0.05	04/1/2014		0.004504	4/1/2013	0.06	0 3/31/2012	0.2	0
4/2/2021 0.		0.03	0 4/2/2019	0.00		4/2/2018	0.23	0 4/2/2017	- 1-71			0.01		1/2/2015	0.00	0 4/2/2014		1 .	4/2/2013	0.00	0 4/1/2012	0.01	0
4/3/2021	0 0 4/2/2020	0.00	0 4/3/2019	0		4/3/2018	0.04	0 4/3/2017	0			0.25		4/3/2015	0	0 4/3/2014		1 ,	4/3/2013	0	0 4/2/2012	0.23	0
4/4/2021	0 0 4/3/2020	0	0 4/4/2019	0		4/4/2018	0.15	0 4/4/2017	0.25			0.12		1/4/2015	0.12	0 4/4/2014		1 0	4/4/2013	0	0 4/3/2012	0.20	0
4/5/2021	0 0 4/4/2020	0.01	0 4/5/2019	0		4/5/2018	0.06	0 4/5/2017	0.01			0		4/5/2015	0	0 4/5/2014			4/5/2013	0.01	0 4/4/2012	0	0
Cumulative Runof	ff																						
(Q) For 1 Year of																							
Daily Rain Events			1.422009		2.935977		1.	313634		1.095486		1.	.794757			3.150675		4.007924	•		3.736672	6.	79216
(Inches)																							
(

Average Yearly Runoff (inches) 3.122313

003756 1507a

	Avg	Runoff		٨٧g	Runoff		A g	Runoff From		Avg	Runoff From	Avg	Runoff From		Avg	Runoff From	1	Avg	Runoff		Avg	Runoff From		Avg	Runoff From	Avg	
Date	Precip in.	Impervior	Date	Precip in	Imperviou s (🖦)	Date	Precip in	Imperviou s (n.)		Precip n.	Imperviou Date	Precip in.	Imperviou s (in.)	ate	Precip in.	Imperviou	Date	Precip in	mperviou s (in.)	Date	Precip in₌	Imperviou s ('n.)	Date	Precip in.	Imperviou s (in.)	Date Prein.	Imperviou s (in)
4/5/2020	0		1/5/2019	0 16	0	1/5/2018	0.06	0.001818 4/5/2		0.01	0 15/2016	-	0.033333	1/5/2015	0	0	/5/2014	0.05			0.01	0	1/5/2012	0	0		0.033333
4/6/2020 4/7/2020	0		4/6/2019 4/7/2019	0.16	0.045	4/6/2018 4/7/2018	0.02			0.04	2.41E-34 4/6/2016 0 784783 4/7/2016	0	. 0	4/6/2015 4/7/2015	0	0	4/6/2014 4/7/2014	0	0	4/6/2013 4/7/2013	0	0	4/6/2012 4/7/2012	0	0	4/6/2011 C	0.027931
4/8/2020 4/9/2020	0.39	0.22272	4/8/2019	0.16		4/8/2018 4/9/2018	0	o 4/8/2 o 4/9/2		0.01	o 4/8/2016 o 4/9/2016	0.46 0.02	0.284516	4/8/2015 4/9/2015	0.07		4/8/2014	0.51 0.01	0.329701	4/8/2013 4/9/2013	0	0	4/8/2012 4/9/2012	0			0.01 0 0.76 0.563478
4/10/2020	0.03	0.00181	4/9/2019	0		4/10/2018				0	0 4/10/2016		0.188431		0.05		4/9/2014 4/10/2014	0.01	0	4/9/2013 4/10/2013	0	0	4/10/2012	0	0	4/10/2011	0.563478
4/11/2020	0		4/11/2019	0		4/11/2018	0	o <mark>4/11/</mark>	2017	0	0 4/11/2016		0	4/11/2015	0.01		4/11/2014	0	0	4/11/2013	0.29		4/11/2012	0		4/11/2011	0 0
4/12/2020 4/13/2020	1.4	1.18564	4/12/2019 4/13/2019	0.43		4/12/2018 4/13/2018	0	. 0 4/12/ 0 4/13/		0	o 4/12/2016 o 4/13/2016		0.092564	4/12/2015 4/13/2015	0		4/12/2014 4/13/2014	0.01	0	4/12/2013 4/13/2013	0.13		4/12/2012	0.01		4/12/2011 4/13/2011	0.775088
4/14/2020	1.12	0.9112	4/14/2019	0.01		4/14/2018	0			0	0 4/14/2016		0	4/14/2015	0.04		4/14/2014	0	0	4/14/2013	0	0	4/14/2012	0.01			0.1 0.013846
4/15/2020 4/16/2020	0.06	0.00181	4/15/2019 4/16/2019	0.44		4/15/2018 4/16/2018	1.41	0 4/15/ 1.195478 4/16/		0	o 4/15/2016 o 4/16/2016		. 0	4/15/2015 4/16/2015	0.11		4/15/2014 4/16/2014	0.06 2.1		4/15/2013 4/16/2013	0	0	4/15/2012 4/16/2012	0.02		4/15/2011 4/16/2011	0 0
4/17/2020	0		4/17/2019	0		4/17/2018	0.24	0.1 4/17/		0.01	0 4/17/2016		. 0	4/17/2015	0.12		4/17/2014	0	0	4/17/2013	0.01	0	4/17/2012	0			.81 1.590305
4/18/2020 4/19/2020	0.07	0.00391	4/18/2019 4/19/2019	0		4/18/2018 4/19/2018	0.01	. 0 4/18/ 0 4/19/		0.09	0.01 4/18/2016 0 4/19/2016		. 0	4/18/2015 4/19/2015	0	0	4/18/2014 4/19/2014	0	0	4/18/2013 4/19/2013	0.1	0.013846	4/18/2012 4/19/2012	0.02		4/18/2011 4/19/2011	0 0
4/20/2020	0		4/20/2019			4/20/2018	0.03			0 20	0 4/20/2016		0	4/20/2015	1.19		4/20/2014	0	0	4/20/2013	1.01	0.804188	4/20/2012	0	0		0.022857
4/21/2020 4/22/2020	0.15	0.03903	4/21/2019 4/22/2019	0.36		4/21/2018 4/22/2018	0	0 4/21/ 0 4/22/			0.138889 4/21/2016 0.071111 4/22/2016		. 0	4/21/2015 4/22/2015	0.57	0.384795	4/21/2014 4/22/2014	0	0	4/21/2013 4/22/2013	0	0	4/21/2012 4/22/2012	0.33	0.171633	4/21/2011 4/22/2011	0 0
4/23/2020	0.01	0.53040	4/23/2019	0 01		4/23/2018	0		2017 2017	0.16	0.045 4/23/2016		0.064286	4/23/2015	0.14		4/23/2014	0.08	0.006667	4/23/2013		0	4/23/2012	2.49	2.265094		0.24 0.1
4/24/2020 4/25/2020	0.83	0.63040	4/24/2019	0.01		4/24/2018 4/25/2018	0.62				0.057647 4/25/2016		0.064286	4/24/2015 4/25/2015	0	0	4/24/2014 4/25/2014	0	0	4/24/2013 4/25/2013		0	4/24/2012 4/25/2012	0.03	0		0.2 0.071111
4/26/2020	0.18	0.05764	4/26/2019			4/26/2018 4/27/2018	0.04 0.21		2017	0.73	0.534944 4/26/2016		0.022857	4/26/2015 4/27/2015	0		4/26/2014 4/27/2014	0.42	0.248966	4/26/2013 4/27/2013		0	4/26/2012 4/27/2012	0.01		4/26/2011 4/27/2011	0 0
4/27/2020 4/28/2020	0.23	0.09256	4/28/2019	0.02		4/28/2018		2.41E-34 4/28/		0.01	0 4/28/2016		0.022857	4/28/2015	0		4/28/2014	0.01	0	4/28/2013	0	0	4/28/2012	0.12			0.02
4/29/2020 4/30/2020	0		4/29/2019	0.03		4/29/2018 4/30/2018	0.2	0.071111 4/29/		0.27	0.123023 4/29/2016		0.057647 2.41E-34	4/29/2015	0	0	4/29/2014 4/30/2014	0.05 1.23	0.000476 1.018777	4/29/2013 4/30/2013	0.13		4/29/2012	0.01	0		0.15 0.039032
5/1/2020	1.01	0.80418	5/1/2019	0.03		5/1/2018	0	0 5/1/2		0	0 5/1/2016	0.04		5/1/2015	0	0	5/1/2014	4.53	4.298529	5/1/2013	0.38	0.214074	5/1/2012	0.21	0.078108	5/1/2011	0 0
5/2/2020	0.01	0 02285	5/2/2019	0	0	5/2/2018	0	0 5/2/2			0.000476 5/2/2016		0.123023	5/2/2015	0	0	5/2/2014	0.2	0.071111	5/2/2013	0	0	5/2/2012	0.1 0.28		5/2/2011	0 0
5/3/2020 5/4/2020	0.12	0 02285	5/3/2019 5/4/2019			5/3/2018 5/4/2018	0	0 5/3/2 0 5/4/2		0	o 5/3/2016 o 5/4/2016		0.384795 0.107561	5/3/2015	0	0	5/3/2014 5/4/2014	0.04	2.41E-34	5/3/2013 5/4/2013	0	0	5/3/2012 5/4/2012	0.28	0.130909	5/3/2011 5/4/2011	0.38 0.214074
5/5/2020	0		5/5/2019			5/5/2018 5/6/2018	0.06	0 5/5/2 0.001818 5/6/2		0.1	0.013846 5/5/2016 0.717037 5/6/2016	0.02	0	5/5/2015	0.10	0.057647	5/5/2014 5/6/2014	0	0	5/5/2013	0	0	5/5/2012 5/6/2012	0.57 0.01	0.384795		0.155106
5/6/2020 5/7/2020	0.15	0.03903	5/7/2019	0.01	0.921008	5/7/2018	0.08			0.92	0.006667 5/7/2016		0.171633 0.950303	5/6/2015 5/7/2015	0.18	0.057647	5/7/2014	0	0	5/6/2013 5/7/2013	0	0	5/7/2012	0.01	0	5/6/2011	0.1 0.013846
5/8/2020	0 51	0.00070	5/8/2019		0.357143	5/8/2018	0				2.41E-34 5/8/2016		0.039032	5/8/2015	0	0	5/8/2014	0.02	0	5/8/2013	0.41		5/8/2012	0.06	1		0.000476
5/9/2020 5/10/2020	0.51	0.32970	5/9/2019	0.01	0	5/9/2018 5/10/2018	0		2017	0	o 5/9/2016 o 5/10/2016	0.02	. 0	5/9/2015 5/10/2015	0	0	5/9/2014 5/10/2014	0	0	5/9/2013 5/10/2013	0.44	0.266667	5/9/2012 5/10/2012	0.45 0.24	0.275574	5/9/2011	0 0
5/11/2020	0.03		5/11/2019			5/11/2018		0.057647 5/11/		0	0 5/11/2016 0.013846 5/12/2016		. 0	5/11/2015	0.17	0	5/11/2014	0.37	0.205472	5/11/2013	1.3		5/11/2012	0	0	5/11/2011	0 0
5/12/2020 5/13/2020	0.06	0.00181	5/13/2019			5/12/2018 5/13/2018	0.63		2017		0.592105 5/13/2016		. 0	5/12/2015 5/13/2015	0.17	0.051212	5/12/2014 5/13/2014	0.09	0.01	5/12/2013 5/13/2013	0.31	0.155106 0	5/12/2012 5/13/2012	0	0	5/12/2011	0 0
5/14/2020 5/15/2020	0.09		5/14/2019	0.69	0.497059	5/14/2018 5/15/2018	0.89		2017 2017	0.85	0.649604 5/14/2016		0.018148 0.018148	5/14/2015 5/15/2015	0	0	5/14/2014 5/15/2014	0.12	0.022857	5/14/2013 5/15/2013	0.04	0	5/14/2012	0.43	0		0.05 0.000476
5/16/2020	0.09	0.0	5/16/2019	0.02	0	5/16/2018		0.412632 5/16/		0.01	05/16/2016		0.018148	5/16/2015	0	0	5/16/2014	0.02	0.018148	5/16/2013	0.04		5/16/2012	1.06			0.214074
5/17/2020 5/18/2020	0		5/17/2019 5/18/2019	0.01		5/17/2018 5/18/2018		1.165974 5/17/ 0.039032 5/18/		0	o 5/17/2016 o 5/18/2016		0 033333	5/17/2015 5/18/2015	0.27	0.123023	5/17/2014 5/18/2014	1.72	1.501277	5/17/2013 5/18/2013	0.02	0	5/17/2012 5/18/2012	0	0		0.47 0.293492 0.35 0.188431
5/19/2020	0		5/19/2019	0.03		5/19/2018	0.13		2017	0	0 5/19/2016		0 033333	5/19/2015	0.02	0.697736	5/19/2014	0	0	5/19/2013	0.13	0.027931	5/19/2012	0	0		0.05 0.000476
5/20/2020 5/21/2020	0		5/20/2019	0.01		5/20/2018 5/21/2018	0.39		2017 2017	0.03	o 5/20/2016 o 5/21/2016		. 0	5/20/2015 5/21/2015	0.1	0.013846	5/20/2014 5/21/2014	0.03	0	5/20/2013 5/21/2013	0.03	0	5/20/2012 5/21/2012	0.16	0		0.38 0.214074 0.26 0.115238
5/22/2020	0		5/22/2019	0	0	5/22/2018	0	0 5/22/	2017	0.07	0.003913 5/22/2016	0.79	0.592105	5/22/2015	0.04	2.41E-34	5/22/2014	0.16	0.045	5/22/2013	0	0	5/22/2012	0.02	0.043	5/22/2011	0 0.113238
5/23/2020 5/24/2020	1.23	1.01877	5/23/2019	0.24		5/23/2018 5/24/2018	0.48		2017 2017		0.064286 5/23/2016 0.006667 5/24/2016		0.001818 0.064286	5/23/2015 5/24/2015	0	0	5/23/2014 5/24/2014	0.2	0.071111	5/23/2013 5/24/2013	0.03	0.46878	5/23/2012 5/24/2012	0.01	0		0.06 0.001818
5/25/2020	0	0.01364	5/25/2019	0.24		5/25/2018	0		2017		0.222727 5/25/2016		0.064286	5/25/2015	0	0	5/25/2014	0	0	5/25/2013	0.09	0.46878	5/25/2012	0.02	0.01	5/25/2011	0 0
5/26/2020 5/27/2020	0.04	2.41E-3	5/26/2019	0.05		5/26/2018 5/27/2018	0 14		2017 2017	1.21 0	0.999197 5/26/2016	0	. 0	5/26/2015 5/27/2015	0.04	0 2.41E-34	5/26/2014 5/27/2014	0	0	5/26/2013 5/27/2013	0	0	5/26/2012 5/27/2012	0.06	0.001818	5/26/2011 5/27/2011	0 0
5/28/2020	0.04	2.41E-3	5/28/2019	0.03	0.000476	5/28/2018	0.14			0.01	0 5/28/2016		. 0	5/28/2015	0.04	0.205472	5/28/2014	0.44	0.266667	5/28/2013	0.02		5/28/2012	0.00	0.001818	5/28/2011	0 0
5/29/2020 5/30/2020	0.04	2.41E-3	5/29/2019	0.66		5/29/2018 5/30/2018	0.01		2017 2017	0.21	0.078108 5/29/2016		0.487619	5/29/2015 5/30/2015	0	0	5/29/2014 5/30/2014	0.16	0.045 0.013846	5/29/2013 5/30/2013	0.21	0.078108	5/29/2012	0.52	0.338824	5/29/2011	0 0
5/31/2020	0.13	0.00428	5/31/2019	0.28		5/31/2018	0.07	0.003913 5/31/	2017	0.05	0.000476 5/31/2016	0.00	0.467619	5/31/2015	ő	0	5/31/2014	0.1	0.013840	5/31/2013	0	0	5/31/2012	0.01	0.338824	5/31/2011	0 0
6/1/2020 6/2/2020	0		6/1/2019	0.16		6/1/2018 6/2/2018	0.03	0 6/1/2		0	o 6/1/2016 o 6/2/2016	0	. 0	6/1/2015 6/2/2015	0.67 1.02	0.478193	6/1/2014 6/2/2014	0	0	6/1/2013 6/2/2013	0	0	6/1/2012 6/2/2012	0.92		6/1/2011	0 0
6/3/2020	0.03		6/3/2019	0.23	0.092564	6/3/2018	1.06	0.852787 6/3/2	017	0	0 6/3/2016	0.27	0.123023	6/3/2015	0.13	0.027931	6/3/2014	0	0	6/3/2013	0.49		6/3/2012	0	0	6/3/2011	0 0
6/4/2020 6/5/2020	0.63	0.44063	6/4/2019	0		6/4/2018 6/5/2018	0.47	0.293492 6/4/2		0	o 6/4/2016 o 6/5/2016			6/4/2015 6/5/2015	0.02		6/4/2014 6/5/2014	0.17 0.16		6/4/2013 6/5/2013	0.12		6/4/2012			6/4/2011 6/5/2011	0 0.1 0.013846
6/6/2020		0.28451	6/6/2019	0.34	0.18	6/6/2018	0.08	0.006667 6/6/2	017	0.36	0.196923 6/6/2016	0.53	0.347971	6/6/2015	0.01	0	6/6/2014	0.10	0	6/6/2013	0	0	6/6/2012	0	0	6/6/2011	0.06 0.001818
6/7/2020 6/8/2020	0		6/7/2019 6/8/2019	0.01		6/7/2018 6/8/2018	0			0.16	0.045 6/7/2016 0 6/8/2016			6/7/2015 6/8/2015	0		6/7/2014 6/8/2014	0		6/7/2013 6/8/2013			6/7/2012	0.02		6/7/2011	0 0
6/9/2020	0		6/9/2019	0	0	6/9/2018	0	o 6/9/2	017	0	0 6/9/2016	0.22	0.085263	6/9/2015	0.89	0.688095	6/9/2014		0.003913	6/9/2013	0	0	6/9/2012	0	0	6/9/2011	0 0
6/10/2020 6/11/2020	0.3		6/10/2019			6/10/2018 6/11/2018		0 6/10/ 1.580408 6/11/		0	o 6/10/2016 o 6/11/2016			6/10/2015 6/11/2015	0		6/10/2014 6/11/2014	0.39		6/10/2013 6/11/2013			6/10/2012	0	1		0.1 0.013846
6/12/2020		0.17163	6/12/2019	0	0	6/12/2018	0.03	0 6/12/	2017	0	0 6/12/2016	0	0	6/12/2015	0	0	6/12/2014	0.18	0.057647	6/12/2013	0.01	0	6/12/2012	0.01	0	6/12/2011	0.515977
6/13/2020 6/14/2020	0		6/13/2019			6/13/2018 6/14/2018				0	o 6/13/2016 o 6/14/2016			6/13/2015 6/14/2015			6/13/2014 6/14/2014	0.99 0.15		6/13/2013 6/14/2013			6/13/2012 6/14/2012	1.61		6/13/2011 C	0.03
6/15/2020	0		6/15/2019	0	0	6/15/2018	0	o 6/15/	2017	0	0 6/15/2016	0	. 0	6/15/2015	0.53	0.347971	6/15/2014	0	0	6/15/2013	0.02		6/15/2012	0	0	6/15/2011	0.000476
6/16/2020 6/17/2020	0		6/16/2019			6/16/2018 6/17/2018				0.03	o 6/16/2016 o 6/17/2016			6/16/2015 6/17/2015	0.05		6/16/2014 6/17/2014	0		6/16/2013 6/17/2013		0.018149	6/16/2012	0		6/16/2011 6/17/2011	0 0
6/18/2020	0.04		6/18/2019	0.08	0.006667	6/18/2018	0	o 6/18/	2017	0.32	0.163333 6/18/2016	0	0	6/18/2015	0.91	0.707383	6/18/2014	0	0	6/18/2013	0.55	0.366338	6/18/2012	0	0	6/18/2011	0.34 0.18
6/19/2020 6/20/2020	0.15	0.03903	6/19/2019			6/19/2018 6/20/2018				0 68	0 6/19/2016			6/19/2015 6/20/2015			6/19/2014 6/20/2014			6/19/2013 6/20/2013			6/19/2012 6/20/2012	0.01		6/20/2011	0 0
6/21/2020	0.03		6/21/2019	0.67	0.478193	6/21/2018	0.07	0.003913 6/21/	2017	0	0 6/21/2016	0.01	00374	6 /21/2015	0.55	0.366338	6/21/2014	0	0	6/21/2013	0	0	6/21/2012	0		6/2 1/5008 a 0	.23 0.092564
6/22/2020	0		6/22/2019	0.14	0.033333	6/22/2018	0.02	0 6/22/	2017	0.11	0.018148 6/22/2016	0.01	. 0	6/22/2015	0.01	0	6/22/2014	0.02	0	6/22/2013	0) 0	6/22/2012	0	0	[6/22/20Y1] C	.19 0.064286

Column C	6/23/2020	0.07	0.00391	3 6/23/2019	0	- 0	6/23/2018	0.07	0.003913 6/23/2017	0.01	0 6/23/201	d 0.07	0.003913	6/23/2015	0	0 6/23/2014 0	0	6/23/2013	ol	0 6/23/2012	0.25	0.107561 6/23/2011	0	1 0
Section Control Cont			0.00331		_	-													0.03		0	0 6/24/2011		0.033333
Company Comp																	0						0.07	0.003913
March Marc					_					_			- (0.293492				0.02		0	0
Second Column					_	-		-					0.057647				0				0		0	0
The column Column							6/29/2018														0.17		0.18	0.057647
Second Column		0															0		0		0.11			0
Part													0.004399				0				0		0	0
Marche 19						_		_					0.064286				0.146957				1 0		0.02	1 0
The column The		0.02						0.92		0.01							0.115238				0.01			0
Proceedings		0															0		0		0		0	0
Property Property			0.6														0		_		0			0
Proceedings		0.04	0.6					0.17	-				- (0				0.06			1 0
Table Tabl		0.03						0							0.39		0.057647				0			0.582553
					-	- "							0.440633				0				0.04		0.01	0
The column Column			2.33470										- (_		0.421948				0		0 1	0 013946
Trigger Trig			0.0												_		0				0			0.013846
The color of the		0						0					0.284516	7/14/2015		0.155106 7/14/2014 0.29	0.138889				0.36		0	0
Trigger Go		0			_	-		-					_ (0				0	0
Transfer December Transfer December December		0.02				_							0.019149				0.171633				0.62		0	0
The part of the													0.010140				0		_		0		0	0
Temporary Temp	7/19/2020					-	7/19/2018	0	0 7/19/2017	0	o 7/19/201		0.320606	7/19/2015	_		0	7/19/2013	.01					0
Transport Column Column		0.02				-							- (0		0				0.14	0.033333
Teaching Teach T		0.06	0.00181		_	-			- 112 1120 11				- (_		0				0.09		0	0
Table Tabl																	0				Ö		0	0
Teaching Teaching						-											0.366338		0.0		0.02			0
		0.05	0.00047			-									_		0		0		0			0
Transport Color		0			_	-							0.302		_		0.000476				0.54			0.930769
7.500.000 0																			0.0		0		0	0
Fig. Property Pr		0											0.86252		_		0		0.6					1
STATE Color Colo		0 17	0.05131										1 03036		_		0		0					0.013846
					_	-							1.036303				0		0.31 0.1					0
Second 1	8/2/2020			08/2/2019		0.051212	8/2/2018	0.22	0.085263 8/2/2017	0	0 8/2/2016	0.11	0.018148	8/2/2015	_	0 8/2/2014 0.45	0.275574	8/2/2013	1.3 1.0	87397 8/2/2012	0.11	0.018148 8/2/2011		0.027931
65/20/20 4.76						0.003913							. (0			0
Beford Dec D						_ 0							- (0.03					0.257797
BPG/020 0.99 0.98 0.97018 0.97018 0.98 0.987018 0.98 0.9886 0.98															_		0		0					1 0
Regroup 1	8/7/2020		0.0	18/7/2019	_	_	8/7/2018		o <mark>8/7/2017</mark>		0.057647 8/7/2016	0.01		8/7/2015	0.06	0.001818 8/7/2014 0.01		8/7/2013			0	o <mark>8/7/2011</mark>		0.039032
SPICACION CONTRIVEN CONT			1.35312										- (_						1 0		0.01	0
Billing Dec Billing De		_	0.08526			0.033333		0.14					- (0.2		0.98	0.775088
691492020 0.82 0.8248 69142019 0.9 0		0			0	0		0.09											0				0	0
SH-14/2020 O.17 O.113 O.113 SH-14/2019 O.15 O.113 O.113 SH-14/2019 O.15 O.113						-													0		0.05		0	0
ST-15/202 0 ST-15/201 0 0 ST-1						-							0.039032								1 0		1 16	0 050303
Section Sect			0.03121										2.41E-34		_				0		0.92			1
March Marc			0.18843		_	-	8/16/2018								0				0		0.01		0.23	0.092564
B492020						-			- 0.11.2011										0		1 20		0	0
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R23/2020 O S24/2019 O S24/2019 O O S24/2018 O O	8/21/2020			0 8/21/2019		-	8/21/2018	_	0 8/21/2017		0 8/21/201	6 0		8/21/2015		0.784783 8/21/2014 0	0	8/21/2013		0 8/21/2012	0.06		0	0
824/2020 0.54 0.57448 824/2019 0.2 0.78168 824/2018 0 0.825/2018 0 0.825/2017 0.0 0.825/2017 0.0 0.825/2017 0.0 0.825/2015 0.0 0.825/2015 0.0 0.825/2013 0.0		0						0.89					0.60166				0.018148				0		0.54	0.357143
825/2020 0 0 825/2019 0 0 825/2018 0 0 825/2017 0 0 825/2016 0 0 825/2015 0 0 826/2013		0.54	0 35714			-		0		_			- (0.07		0.018148		0.0		0		0	0
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	8/25/2020	0		08/25/2019	0	0	8/25/2018	0	0 8/25/2017		0 8/25/201	6 0		8/25/2015		0 8/25/2014 0	0	8/25/2013	0	0 8/25/2012	0	0 8/25/2011	0	0
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		0.17		2 9/3/2019				0	0 9/3/2017	1.06	0.852787 9/3/2016	6 0		9/3/2015	0	0 9/3/2014 0.34	0.18	9/3/2013			1.19	0.97963 9/3/2011		0
$ \frac{9/6/2020}{9/7/2020} 0 0 \\ 9/8/2019 0 0 \\ 9/8/2019 0 0 0 9/8/2019 0 0 \\ 9/8/2020 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2018 1.11 \\ 9/8/2020 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2019 0 0 0 9/8/2018 1.11 \\ 9/8/2020 0 0 0 9/8/2019 0 0 0 0 9/8/2019 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 $	9/4/2020		0.10756		0	0	9/4/2018			0.01	0 9/4/2016	6 0		9/4/2015		0.033333 9/4/2014 0	0	9/4/2013	0	0 9/4/2012				0
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9/10/2020 0.19 0.064286 9/10/2019 0 0 9/10/2018 1.24 1.028571 9/10/2017 0 0 9/10/2016 0.01 0 9/10/2015 0.2 0.071111 9/10/2014 0 0 9/10/2013 0 0 9/10/2012 0 0 9/10/2012 0 0 9/10/2011 0.01	9/8/2020	0		09/8/2019	0	0	9/8/2018	1.11	0.901496 9/8/2017	0	0 9/8/2016	6 0		9/8/2015	0	0 9/8/2014 0	0	9/8/2013	.01	0 9/8/2012	0	0 9/8/2011	0.84	0.64
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9/13/2020	0		9/13/2019	0.17	0.051212	9/13/2018	0.18	0.057647	9/13/2017	0	- (9/13/2016	0	0 9/13/201	5 0.49	0.311538	9/13/2014	. 0	0	9/13/2013	0.43	0.257797	9/13/2012	0	o	9/13/2011	0	0
9/14/2020	0	(9/14/2019	0	- "	9/14/2018			9/14/2017			9/14/2016	0			0	9/14/2014	0.28	1	9/14/2013	0	0	9/14/2012	0		9/14/2011	0	0
9/15/2020 9/16/2020	0		9/15/2019	0.05		9/15/2018			9/15/2017 9/16/2017	0.01		9/15/2016	0				9/15/2014 9/16/2014	0.1		9/15/2013	0		9/15/2012	0		9/15/2011	0.13	0.027931
9/17/2020	0		9/17/2019	0		9/17/2018			9/17/2017	0.01		9/17/2016	Ö				9/17/2014	0.1	1	9/17/2013	0.08		9/17/2012	0		9/17/2011	0.15	0.027931
9/18/2020	0	(9/18/2019	0	0	9/18/2018	1.02	0.813898	9/18/2017	0		9/18/2016	0	0 9/18/201	5 C	0	9/18/2014	0		9/18/2013	0	0	9/18/2012			9/18/2011	0.02	0
9/19/2020	0		9/19/2019	0		9/19/2018			9/19/2017	0.05		9/19/2016 9/20/2016	0.9	9 0.697736 9/19/201 9 0.688095 9/20/201		0	9/19/2014	0.02		9/19/2013	0		9/19/2012	0.81		9/19/2011	0	0
9/20/2020 9/21/2020	0		9/20/2019	0		9/20/2018			9/20/2017 9/21/2017	0.05		9/20/2016	0.89			1 0	9/20/2014	. 0		9/20/2013 9/21/2013	0		9/20/2012 9/21/2012	0		9/20/2011 9/21/2011	0.07	0.003913
9/22/2020	0		9/22/2019	Ö		9/22/2018			9/22/2017	0		9/22/2016	Ö				9/22/2014	0.08		9/22/2013	1.34		9/22/2012	Ö		9/22/2011	0.06	0.001818
9/23/2020	0	(9/23/2019	0		9/23/2018			9/23/2017	0		9/23/2016	0			0	9/23/2014	0	0	9/23/2013	0		9/23/2012	0.19		9/23/2011	0.02	0
9/24/2020	0	(9/24/2019	0.02		9/24/2018			9/24/2017 9/25/2017	0		9/24/2016	0			0	9/24/2014	0 10	0	9/24/2013	0		9/24/2012	0		9/24/2011	2.97 0.01	2.74278
9/25/2020 9/26/2020	0.43	0.257797	9/26/2019	0		9/26/2018			9/26/2017	0		9/26/2016	0				9/25/2014	0.49		9/26/2013	0		9/26/2012	0		9/25/2011	0.01	1 0
9/27/2020	0.4	0 231429	9/27/2019					,	9/27/2017	0		9/27/2016		0.000476 9/27/201		0	9/27/2014	0		9/27/2013	0		9/27/2012			9/27/2011	0	0
9/28/2020	0.25	0.107561	9/28/2019	0	-	9/28/2018			9/28/2017	0		9/28/2016	0			0	9/28/2014	0		9/28/2013	0		9/28/2012	0.08		9/28/2011	0.61	0.421948
9/29/2020 9/30/2020	1.21	0.999197	9/29/2019	0.16		9/29/2018	0.01		9/29/2017 9/30/2017	0	-	9/29/2016		3 0.394054 9/29/201 3 2.205444 9/30/201		1 202500	9/29/2014	0.03		9/29/2013	0		9/29/2012	0.02		9/29/2011	0.37	0.205472 0.130909
10/1/2020	0	0 33313	10/1/2019	l ö	_	10/1/2018			10/1/2017	0		10/1/2016		3 0.027931 10/1/201			10/1/2014	0.03		10/1/2013	0		10/1/2012	0.01		10/1/2011	0.03	0.130909
10/2/2020	0.16	0.045	10/2/2019	0	0	10/2/2018	0	0	10/2/2017	0		10/2/2016	0.07	7 0.003913 10/2/201				0	0	10/2/2013	0	0	10/2/2012	0.01	0	10/2/2011	0.47	0.293492
10/3/2020	0.01	(10/3/2019		0.001818	10/3/2018			10/3/2017	0		10/3/2016	0.02					0	0	10/3/2013	0		10/3/2012	0.85		10/3/2011	0.26	0.115238
10/4/2020 10/5/2020	0.04	2.41F-34	10/4/2019	0.09		10/4/2018			10/4/2017 10/5/2017	0		10/4/2016	0			2.41E-34	10/4/2014	0.36		10/4/2013 10/5/2013	0	0	10/4/2012 10/5/2012	0.02		10/4/2011 10/5/2011	0.01	0
10/6/2020	0.03	2.410-34	10/6/2019	0		10/6/2018		0.000007	10/6/2017	0.01	-	10/6/2016	Ö			0	10/6/2014	0.07	0.003913	10/6/2013	0	0	10/6/2012	0.02		10/6/2011	0	0
10/7/2020	0	(10/7/2019	0.09		10/7/2018		0	10/7/2017	0		10/7/2016	0			0	10/7/2014	0.01	0	10/7/2013	0.01	0	10/7/2012	0.02		10/7/2011	0	0
10/8/2020	0	(10/8/2019			10/8/2018		0	10/8/2017	0.06		10/8/2016	0			0	10/8/2014	0.61	0.421948	10/8/2013	0.58	0.394054	10/8/2012	0.11		10/8/2011	0	0
10/9/2020 10/10/2020	0		10/9/2019		0.006667	10/9/2018	0.02		10/9/2017 10/10/2017	0.16 0.83		10/9/2016		3 0.006667 10/9/201 6 0.001818 10/10/20		0.329701	10/9/2014	0	0	10/9/2013	0.19	0.064286	10/9/2012 10/10/2012	0.04		10/9/2011	- 0	1 0
10/11/2020	0		10/11/2019	0.00		10/11/201		0	10/11/2017	0.50		10/11/201	0.00				10/11/201	0.35	0.188431	10/11/2013			10/11/2012	0.00		10/11/2011	0	0
10/12/2020	0.91		10/12/2019	0		10/12/201			10/12/2017	0.4		10/12/201	0			0	10/12/201	0.14	0.033333	10/12/2013		0.497059	10/12/2012	0		10/12/2011	0.09	0.01
10/13/2020	0.19	0.064286	10/13/2019	0	-	10/13/201	0.07		10/13/2017 10/14/2017	0.02	0.003913	10/13/201	0.01			0	10/13/201	0.01	0.001818	10/13/2013	0.01	0	10/13/2012	0	0	10/13/2011	0.31	0.155106 0.045
10/15/2020	0.01		10/15/2019	0		10/15/201	0.06		10/15/2017	0.02		10/15/201	0.01			0 0	10/15/201	0.00	0.001818	10/15/2013	0	0	10/15/2012	0	0	10/15/2011	0.4	0.231429
10/16/2020	0	(10/16/2019	0	0	10/16/201			10/16/2017			10/16/201	0	0 10/16/20	1. C	0	10/16/201	1.2	0.989412	10/16/2013	0		10/16/2012	0.76	0.563478	10/16/2011	0.08	0.006667
10/17/2020	0.27	0.123023	10/17/2019		1.382727	10/17/201	0	0	10/17/2017	0		10/17/201	0			0	10/17/201	0	0	10/17/2013	0		10/17/2012	0	0	10/17/2011	0	0
10/18/2020 10/19/2020	0	,	10/18/2019	0		10/18/201	0.01	0	10/18/2017 10/19/2017	0		10/18/201	0	_			10/18/201	0	0	10/18/2013 10/19/2013	0.08	0.006667	10/18/2012	0.65	0 459383	10/18/2011	0.23	0.092564
10/20/2020	0.01	,	10/20/2019			10/20/201	0.11	0.018148	10/20/2017	0		10/20/201	Ö			0	10/20/201	Ö	0	10/20/2013	0.11	0.018148	10/20/2012			10/20/2011	0.36	0.196923
10/21/2020	0.01	(10/21/2019		0.394054		0.05	0.000476	10/21/2017	0		10/21/201	0			0	10/21/201	0.02		10/21/2013	0	0	10/21/2012	0		10/21/2011	0	0
10/22/2020	0.02	(10/22/2019			10/22/201	0	0	10/22/2017	0 0		10/22/201		0.027931 10/22/20		9	10/22/201	0.31		10/22/2013	0.01		10/22/2012	0		10/22/2011	0	0
10/23/2020 10/24/2020	0.01		10/23/2019		0.459383	10/23/201	0	0	10/23/2017 10/24/2017		0.018148	10/23/201	0.02			0 0	10/23/201	0.33	0.171633	10/23/2013 10/24/2013	0.01	0	10/23/2012	0.01		10/23/2011	- 0	1 0
10/25/2020	0	(10/25/2019	Ō		10/25/201	0		10/25/2017		0.231429		0			0	10/25/201	0	0	10/25/2013	0	0	10/25/2012	0		10/25/2011	0.03	0
10/26/2020	0.11	0.018148	10/26/2019	0	-	10/26/201	0	0	10/26/2017	0		10/26/201	0			0	10/26/201	0	0	10/26/2013	0	0	10/26/2012	0	0	10/26/2011	0	0
10/27/2020 10/28/2020	0.08	0.006667	10/27/2019		0.205472	10/27/201	0.9		10/27/2017	0		10/27/201	0 43	0 10/27/20 3 0.257797 10/28/20		2.41E-34	10/27/201	0	0	10/27/2013	0	0	10/27/2012	0.05	0 000476	10/27/2011	0.06	0.001818 0.039032
10/29/2020	0.38	0.214074	10/29/2019			10/29/201	0.06		10/29/2017	_	0.02285		0.43	_			10/29/201	1 0	0	10/29/2013	0		10/29/2012	0.03		10/29/2011	0.18	0.057647
10/30/2020	1.71		10/30/2019			10/30/201		0	10/30/2017		2.106064		0			0	10/30/201	0.06	0.001818	10/30/2013	0	0	10/30/2012	4.35		10/30/2011	0.84	0.64
10/31/2020	0.04	2.41E-34	10/31/2019		0.366338		0		10/31/2017	0.01		10/31/201	0.28			0	10/31/201	0 10	0	10/31/2013	0.06		10/31/2012	0.45		10/31/2011	0	0
11/1/2020 11/2/2020	0.01	0.257797	11/1/2019	1.03	0.823613	11/1/2018			11/1/2017	0		11/1/2016	0			0 0	11/1/2014	0.18		11/1/2013 11/2/2013		0.001818 0.085263	11/1/2012 11/2/2012	0.01	0	11/1/2011 11/2/2011	- 0	l n
11/3/2020	0.10	(11/3/2019	Ö	-	11/3/2018			11/3/2017	0		11/3/2016	Ö	_		0	11/3/2014	0.50	0	11/3/2013	0	0	11/3/2012	0	0	11/3/2011	0	0
11/4/2020	0	(11/4/2019	0		11/4/2018			11/4/2017	0		11/4/2016				0	11/4/2014	0	0	11/4/2013	0		11/4/2012	0		11/4/2011	0	0
11/5/2020 11/6/2020	0	(11/5/2019	0		11/5/2018			11/5/2017 11/6/2017	0.3	0.14695	11/5/2016	0				11/5/2014	0.49	0 211 520	11/5/2013 11/6/2013	- 0	0	11/5/2012	0		11/5/2011	0	0
11/7/2020	0		11/7/2019	0		11/7/2018			11/7/2017	0.01		11/7/2016	Ö			5	11/7/2014	0.49		11/7/2013	0	0	11/7/2012	0		11/7/2011		1 0
11/8/2020	0		11/8/2019	_	0.033333	11/8/2018	0	0	11/8/2017	0.41	0.24017	11/8/2016	0	0 11/8/201	5 C	0	11/8/2014	0.01	0	11/8/2013		0.013846	11/8/2012	0.15	0.039032	11/8/2011	0	0
11/9/2020	0		11/9/2019	0		11/9/2018			11/9/2017	0 00		11/9/2016				0	11/9/2014	0	0	11/9/2013	0	0	11/9/2012	0		11/9/2011	0	0
11/10/2020 11/11/2020	0	,	11/10/2019	0		11/10/201	0.82		11/10/2017 11/11/2017	0.02		11/10/201	0.37	7 0.205472 11/10/20 0 11/11/20			11/10/201 11/11/201	0		11/10/2013 11/11/2013	0		11/10/2012	0		11/10/2011	0.1	0.013846
11/12/2020	1.51	1.293952	11/12/2019	0.14		11/12/201	0		11/12/2017	0	-	11/12/201	0	0 11/12/20	1\$ C	0	11/12/201	0	0	11/12/2013	0	0	11/12/2012	0	0	11/12/2011	0	0
11/13/2020	0.19		11/13/2019	0.03		11/13/201			11/13/2017	0.16		11/13/201	0			0.039032		0		11/13/2013	0		11/13/2012			11/13/2011	0	0
11/14/2020	0.04	2.41E-34	11/14/2019	0	-	11/14/201	0.05		11/14/2017 11/15/2017	0.02	-	11/14/201 11/15/201	0	0 11/14/20 0 11/15/20		0	11/14/201	0.18	1	11/14/2013 11/15/2013	0		11/14/2012	0.08		11/14/2011 11/15/2011	- 0	0
11/15/2020	0.28		11/16/2019			11/16/201			11/16/2017	0.01		11/16/201	0		-	0 0	11/16/201	0		11/16/2013	0.05		11/16/2012	0		11/16/2011	0.27	0.123023
11/17/2020	0	(11/17/2019	0	0	11/17/201	0.02		11/17/2017	0		11/17/201	0	0 11/17/20	1. C		11/17/201	0.37		11/17/2013	0.01	0	11/17/2012	0	0	11/17/2011	0.36	0.196923
11/18/2020	0.01		11/18/2019			11/18/201			11/18/2017	0 10		11/18/201	0			0	11/18/201			11/18/2013	0.09		11/18/2012			11/18/2011	0	0
11/19/2020 11/20/2020	0		11/19/2019			11/19/201			11/19/2017 11/20/2017	0.43		11/19/201	0.1	0 11/19/20 1 0 013846 11/20/20			11/19/201			11/19/2013 11/20/2013	0		11/19/2012	0		11/19/2011 11/20/2011	0	0
11/21/2020	0		11/21/2019			11/21/201			11/21/2017	0		11/21/201	0.1				11/21/201			11/21/2013	0		11/21/2012			11/21/2011	0.31	0.155106
11/22/2020	0		11/22/2019	0	0	11/22/201	0		11/22/2017	0.03		11/22/201	0	0 11/22/20	1\$ C	0	11/22/201	0	0	11/22/2013	0	0	11/22/2012	0		11/22/2011	0.2	0.071111
11/23/2020 11/24/2020	0.41		11/23/2019			11/23/201			11/23/2017 11/24/2017	0		11/23/201	0				11/23/201			11/23/2013 11/24/2013	0.04		11/23/2012			11/23/2011		1.471622 0.000476
11/25/2020	0		11/24/2019			11/24/201			11/24/2017	0		11/24/201	0				11/24/201			11/24/2013	0		11/24/2012	0		11/24/2011	0.03	0.000476
11/26/2020	0.33		11/26/2019	0	0	11/26/201	0	0	11/26/2017	0		11/26/201	0	0 11/26/20	1 C	0 0	11/26/201	0.24	0.1	11/26/2013	0	0	11/26/2012	0	0	11/26/2011	0	0
11/27/2020	0		11/27/2019			11/27/201			11/27/2017	0		11/27/201	0				11/27/201			11/27/2013			11/27/2012			11/27/2011	0	0
11/28/2020 11/29/2020	0		11/28/2019			11/28/201 11/29/201			11/28/2017 11/29/2017	0		11/28/201	0.08	0 11/28/20 3 0.006667 11/29/20			11/28/201			11/28/2013 11/29/2013	0.16		11/28/2012 11/29/2012	0.39		11/28/2011 11/29/2011	0.04	0 2.41E-34
11/30/2020	0.28	0 130909	11/30/2019			11/30/201		0	11/30/2017	0		11/30/201	1.07	0.86252 11/30/20	1 0.02	2 0	11/30/201	0		11/30/2013	0		11/30/2012	0	0	11/30/2011	0.89	
12/1/2020	2.1		12/1/2019	0		12/1/2018			12/1/2017	0.03		12/1/2016		1.146316 12/1/201			12/1/2014			12/1/2013	0		12/1/2012	0	0	12/1/2011	0	0
12/2/2020 12/3/2020	0		12/2/2019			12/2/2018			12/2/2017 12/3/2017	0		12/2/2016	0	0037 5 52/2/201	0.73		12/2/2014			12/2/2013 12/3/2013	0		12/2/2012 12/3/2012		0	12/2/20110	a o	0
12/0/2020	- 0	,	2.0.2013	1 0.02	- "		0.07	2.003313	.2.0.2011		- '	- 12/0/2010		, 0[12/0/201	0.2	J 0.071111	121012014	J U.Z.J	1 0.101201	121012013		U	121012012	0.02	્ય	.LIOIEUT I		U

12/4/2020	0	c	12/4/2019	0	. 0	12/4/2018	0	o	12/4/2017	0		12/4/2016	0	0 12/4/2015	0] 0	12/4/2014	0.14	0.033333	12/4/2013	0	٥	12/4/2012	0	٥	12/4/2011	0	0
12/5/2020	1.09	0.882	12/5/2019		0.022857	12/5/2018	0		12/5/2017	0		12/5/2016		0.039032 12/5/2015	0	0	12/5/2014	0	0	12/5/2013	0	0	12/5/2012	0		12/5/2011	0	0
12/6/2020 12/7/2020	0.03	C	12/6/2019	0.03		12/6/2018	0		12/6/2017 12/7/2017	0.24		12/6/2016 12/7/2016	0.01	0 12/6/2015 0.573011 12/7/2015	0	0	12/6/2014	0.22		12/6/2013 12/7/2013	0.2 0.		12/6/2012 12/7/2012	0		12/6/2011 12/7/2011	0.04	2.41E-34 0.085263
12/8/2020	0		12/8/2019	0.03	. 0	12/7/2018	0		12/8/2017	0		12/8/2016	0.77		0	,	12/8/2014	0.0	0.412632	12/8/2013	0.84	0.64	12/8/2012	0.43	-	12/8/2011	2.16	1.937241
12/9/2020	0	c	12/9/2019	0.14	0.033333		0		12/9/2017	0.03		12/9/2016	0		0	0	12/9/2014	0.2	0.071111	12/9/2013	0.82 0.	.620816	12/9/2012	0.03		12/9/2011	0	0
12/10/2020	0	C	12/10/2019		0.668835	12/10/201	0		12/10/2017		0.155106	12/10/201	0		0.03	0	12/10/201	0.08		12/10/2013	0.09		12/10/2012	0.35		12/10/2011	0	0
12/11/2020 12/12/2020	0	C	12/11/2019			12/11/201	0		12/11/2017 12/12/2017	0		12/11/201 12/12/201	0 45	0 12/11/201 0.275574 12/12/201	0	0	12/11/201	0.05		12/11/2013 12/12/2013	0.2 0.		12/11/2012 12/12/2012	0.2		12/11/2011 12/12/2011	0	0
12/13/2020	0	c	12/13/2019	0.03		12/13/201	0		12/13/2017	0		12/13/201	0.40		0	,	12/13/201	0.02		12/13/2013	0		12/13/2012	0		12/13/2011	0	0
12/14/2020	0.07	0.003913	12/14/2019			12/14/201	0	0	12/14/2017	0.08	0.006667	12/14/201	0	0 12/14/201	0	0	12/14/201	. 0	0	12/14/2013	0	0	12/14/2012	0	0	12/14/2011	0	0
12/15/2020	0.84	0.64	12/15/2019		0.006667	12/15/201			12/15/2017	0		12/15/201	0		0.27	0.123023	12/15/201	0		12/15/2013	1.1 0.		12/15/2012	0		12/15/2011	0	0
12/16/2020 12/17/2020	0.99	0.784783	12/16/2019	1.01	0.804188	12/16/201	1.04	0.833333	12/16/2017 12/17/2017	0.16		12/16/201	0.26	0 12/16/201 0 0.115238 12/17/201	0	0	12/16/201	0.16		12/16/2013 12/17/2013	0.02		12/16/2012 12/17/2012	0 13		12/16/2011 12/17/2011	0.07	0.003913
12/18/2020	0.55	0.704703	12/18/2019			12/18/201	0.4		12/18/2017	0		12/18/201	0.39		0.88	0.678462		0.10		12/18/2013	0.03		12/18/2012			12/18/2011	0	0
12/19/2020	0	C	12/19/2019	0		12/19/201	0	0	12/19/2017	0		12/19/201	0.05		0	0	12/19/201	. 0		12/19/2013	0		12/19/2012	0.03		12/19/2011	0	0
12/20/2020	0	C	12/20/2019			12/20/201	0	0	12/20/2017	0		12/20/201	0		0	0	12/20/201	0		12/20/2013	0		12/20/2012	0		12/20/2011	0	0
12/21/2020 12/22/2020	0.07	0.003913	12/21/2019	0		12/21/201	0.13		12/21/2017 12/22/2017	0		12/21/201 12/22/201	0		0.03	0	12/21/201	1 0		12/21/2013 12/22/2013	0.01		12/21/2012 12/22/2012	2.09 0.03		12/21/2011 12/22/2011	0.05	0.000476 0.018148
12/23/2020	0.01	0.003313	12/23/2019	0		12/23/201	0.10	0.027331	12/23/2017		0.078108		0		0.05	0.000476	12/23/201	0.15		12/23/2013			12/23/2012	0.00		12/23/2011	1.24	1.028571
12/24/2020	0	C	12/24/2019	0		12/24/201			12/24/2017	0.5		12/24/201	0.24		1.39	1	12/24/201	0.42		12/24/2013	0.44 0.	.266667	12/24/2012	0		12/24/2011	0	0
12/25/2020	2.08	1.857857	12/25/2019	0		12/25/201	0	0	12/25/2017	0.16		12/25/201	0.16		0.04	2.41E-34	12/25/201	0.5		12/25/2013	0		12/25/2012	0.2		12/25/2011	0	0
12/26/2020 12/27/2020	0.04	2.41E-34	12/26/2019	0	. 0	12/26/201	0	0	12/26/2017 12/27/2017	0		12/26/201 12/27/201	0.01		0.3		12/26/201	0		12/26/2013 12/27/2013	0		12/26/2012 12/27/2012	1.12		12/26/2011 12/27/2011	0	0
12/28/2020	0	c	12/28/2019		. 0	12/28/201	0.68	0.487619	12/28/2017	Ö		12/28/201	0.0		0.11	0.018148	12/28/201	0		12/28/2013	0		12/28/2012	0		12/28/2011	1.23	1.018777
12/29/2020	0	C	12/29/2019			12/29/201	0.66	0.46878	12/29/2017	0		12/29/201		0.013846 12/29/201	0.81	0.611237	12/29/201	0.01		12/29/2013	0.02		12/29/2012	0		12/29/2011	0	0
12/30/2020 12/31/2020	0.06	0.001818	12/30/2019			12/30/201	0	0	12/30/2017	0.04		12/30/201		0.039032 12/30/201	0.07 0.18	0.003913	12/30/201	0		12/30/2013	1.15 o.		12/30/2012			12/30/2011	0.01	0
1/1/2021	0.05		12/31/2019	0.23	0.092564	12/31/201		0.592105	12/31/2017 1/1/2018	0.03		12/31/201 1/1/2017	0		0.18	0.057647	12/31/201	0		12/31/2013 1/1/2014	0		12/31/2012 1/1/2013	0		12/31/2011 1/1/2012	0.01	0
1/2/2021	0.98		1/2/2020	0	0	1/2/2019	0	0	1/2/2018	0		1/2/2017		0.057647 1/2/2016	Ö	0	1/2/2015	0		1/2/2014	0		1/2/2013	0	-	1/2/2012	0.05	0.000476
1/3/2021	0.06	0.001818	1/3/2020		0.018148	1/3/2019	0	0	1/3/2018	0		1/3/2017	0.18		0	0	1/3/2015	0		1/3/2014	0.51 0.		1/3/2013	0		1/3/2012	0	0
1/4/2021	0.29	0.138889	1/4/2020		0.071111 2.41E-34	1/4/2019	0 27		1/4/2018 1/5/2018	0.09	0.01	1/4/2017	0.56	0.375556 1/4/2016 0 1/5/2016	0	0	1/4/2015	0.95		1/4/2014 1/5/2014	0		1/4/2013	0		1/4/2012 1/5/2012	0	0
1/6/2021	0.01	0	1/6/2020	0.04	. 2.410-34	1/6/2019			1/6/2018	0.12		1/6/2017		0.033333 1/6/2016	0	,	1/6/2015	0.05		1/6/2014	0.56 o.		1/6/2013	0.02		1/6/2012	- 0	0
1/7/2021	0	C	1/7/2020	0.03		1/7/2019	0	0	1/7/2018	0		1/7/2017	0	0 1/7/2016	0	0	1/7/2015	0.11		1/7/2014		.001818	1/7/2013	0	0	1/7/2012	0	0
1/8/2021	0	C	1/8/2020		0.018148				1/8/2018	0		1/8/2017		2.41E-34 1/8/2016	0	0	1/8/2015	0	0	1/8/2014	0		1/8/2013	0		1/8/2012	0	0
1/9/2021	0	0	1/9/2020	0.03		1/9/2019	0.2	0.071111	1/9/2018 1/10/2018	0.06	0.001818	1/9/2017 1/10/2017	0		0.02 1.15		1/9/2015	0.03		1/9/2014 1/10/2014	0.01		1/9/2013	0		1/9/2012 1/10/2012	0	0
1/11/2021	0	0	1/11/2020	0		1/11/2019		0	1/11/2018	0		1/11/2017		0.130909 1/11/2016	0.1	0.013846	1/11/2015	0		1/11/2014			1/11/2013	0		1/11/2012	0	0
1/12/2021	0		1/12/2020	0.2	0.071111	1/12/2019	0		1/12/2018			1/12/2017	0.23	0.092564 1/12/2016	0	0	1/12/2015	0.11		1/12/2014	0.68 0.		1/12/2013	0.45		1/12/2012	1.33	1.116846
1/13/2021	0 00	C	1/13/2020	0		1/13/2019		0.039032	1/13/2018			1/13/2017	0		0	0	1/13/2015		0.375556	1/13/2014	0 00		1/13/2013	0.01		1/13/2012	0.11	0.018148
1/14/2021	0.03		1/14/2020	0.04		1/14/2019	0	0	1/14/2018 1/15/2018	0		1/14/2017	0.04	0 11 11 11 12 0 1 0	0	0	1/14/2015	0	0	1/14/2014	0.03 0.29 o.		1/14/2013	0.03		1/14/2012 1/15/2012	0.01	0
1/16/2021	0.35	0.188431	1/16/2020	0.03		1/16/2019	0		1/16/2018	Ö		1/16/2017	0.0		0.25	0.107561	1/16/2015	0		1/16/2014			1/16/2013	1.02		1/16/2012	0.01	0
1/17/2021	0	C	1/17/2020	0		1/17/2019	0		1/17/2018			1/17/2017	0		0	0	1/17/2015	0		1/17/2014	0		1/17/2013			1/17/2012	0.08	0.006667
1/18/2021 1/19/2021	0	C	1/18/2020	0 27		1/18/2019	0.07		1/18/2018 1/19/2018	0.04	2.41E-34	1/18/2017	0.45	5 0.275574 1/18/2016 0 1/19/2016	0.03	0	1/18/2015	0.99		1/18/2014	0.01		1/18/2013 1/19/2013	0		1/18/2012 1/19/2012	0.22	0.085263
1/20/2021	0	0	1/20/2020	0.37		1/20/2019			1/20/2018	0		1/20/2017	0		0	0	1/20/2015	0.99		1/20/2014	0		1/20/2013	0		1/20/2012	- 0	0
1/21/2021	0	c	1/21/2020	0	0	1/21/2019	0.07		1/21/2018	0		1/21/2017	0.19	0.064286 1/21/2016	0	0	1/21/2015	0	0	1/21/2014	0	0	1/21/2013	0	0	1/21/2012	0.35	0.188431
1/22/2021	0	C	1/22/2020	0	. 0	1/22/2019	0	0	1/22/2018	0		1/22/2017	0.01		0	0	1/22/2015	0.05	0.000476	1/22/2014	0.41 0.		1/22/2013	0.02		1/22/2012	0.08	0.006667
1/23/2021	0	C	1/23/2020	0	. 0	1/23/2019	0.59	0.403333	1/23/2018 1/24/2018	0.25 0.16		1/23/2017	0.11	0.018148 1/23/2016 0.45 1/24/2016	1.09 1.41	0.882 1.195478	1/23/2015	0.72	0.525455	1/23/2014 1/24/2014	0		1/23/2013 1/24/2013	0		1/23/2012 1/24/2012	0.01	0.085263
1/25/2021	0	c	1/25/2020		0.784783	1/25/2019	0.9		1/25/2018	0.10		1/25/2017	0.04		0	0	1/25/2015	0.12		1/25/2014	0		1/25/2013	0		1/25/2012	0.22	0.005205
1/26/2021	0	C	1/26/2020	1.11		1/26/2019	0	0	1/26/2018	0		1/26/2017	0	0 1/26/2016	0	0	1/26/2015	0.08	0.006667	1/26/2014	0.08 0.	.006667	1/26/2013	0.04	2.41E-34	1/26/2012	0	0
1/27/2021	0.15	0.039032	1/27/2020	0	. 0	1/27/2019		0	1/27/2018	0 11		1/27/2017	0		0	0	1/27/2015	0.1		1/27/2014	0		1/27/2013	0 01		1/27/2012	0.14	0.033333
1/28/2021	0		1/28/2020	0	. 0	1/28/2019		0	1/28/2018 1/29/2018	0.11	0.018148	1/28/2017	0		0	0	1/28/2015	0		1/28/2014	0.03		1/28/2013	0.01		1/28/2012 1/29/2012	0.15	0.039032
1/30/2021	0	c	1/30/2020	0		1/30/2019		0.138889	1/30/2018	0.01	C	1/30/2017	0.01		0	0	1/30/2015	0.01		1/30/2014	0		1/30/2013	0	0	1/30/2012	0	0
1/31/2021	0.02	C	1/31/2020	0	. 0	1/31/2019	0.01		1/31/2018		0.003913	1/31/2017	0.01		0	0	1/31/2015	0.01		1/31/2014	0		1/31/2013	1.59		1/31/2012	0	0
2/1/2021	0.41 0.58	0.240175	2/1/2020		0.003913	2/1/2019	0.08		2/1/2018 2/2/2018	0 17	0.051212	2/1/2017	0		0.11	0.018148	2/1/2015	0.59		2/1/2014 2/2/2014	0		2/1/2013 2/2/2013	0		2/1/2012 2/2/2012	0.02	0
2/3/2021	0.05	0.000476	2/3/2020	0.07	0.003913	2/3/2019	0.08		2/3/2018	0.17	0.031212	2/3/2017	0		0.11		2/3/2015	0.39		2/3/2014	0.7 0.		2/3/2013	0.08		2/3/2012	0	0
2/4/2021	0	C	2/4/2020	0.02	0	2/4/2019	0	0	2/4/2018	0		2/4/2017	0		0.77		2/4/2015	0		2/4/2014			2/4/2013	0.01		2/4/2012	0	0
2/5/2021	0.05		2/5/2020			2/5/2019	0		2/5/2018			2/5/2017	0	0 2/5/2016		4	2/5/2015	0		2/5/2014			2/5/2013	0		2/5/2012	0.03	0
2/6/2021 2/7/2021	0.01		2/6/2020			2/6/2019	0 31		2/6/2018 2/7/2018	0 04		2/6/2017	0		0.01		2/6/2015	0		2/6/2014 2/7/2014	0.18 0.		2/6/2013 2/7/2013	0.02		2/6/2012 2/7/2012	0	0
2/8/2021	0.10		2/8/2020			2/8/2019			2/8/2018			2/8/2017	0.16		0		2/8/2015	0		2/8/2014	0		2/8/2013			2/8/2012	0	0
2/9/2021	0	C	2/9/2020	0	0	2/9/2019	0.01	0	2/9/2018	0		2/9/2017	0.56	0.375556 2/9/2016	0.16	0.045	2/9/2015	0	0	2/9/2014	0	0	2/9/2013	0.27	0.123023	2/9/2012	0.15	0.039032
2/10/2021	0		2/10/2020			2/10/2019			2/10/2018	0		2/10/2017					2/10/2015			2/10/2014			2/10/2013	0 24		2/10/2012	0 17	0
2/11/2021 2/12/2021	0.25		2/11/2020			2/11/2019 2/12/2019			2/11/2018 2/12/2018			2/11/2017	0		0		2/11/2015	0		2/11/2014 2/12/2014	0		2/11/2013 2/12/2013			2/11/2012 2/12/2012	0.17	0.051212 0.01
2/13/2021	0		2/13/2020			2/13/2019			2/13/2018	0.1		2/13/2017		0.085263 2/13/2016			2/13/2015			2/13/2014			2/13/2013	0	0	2/13/2012	0	0
2/14/2021	0.03	C	2/14/2020	0.09	0.01	2/14/2019	0		2/14/2018	0	C	2/14/2017	0	0 2/14/2016	0		2/14/2015		0	2/14/2014			2/14/2013			2/14/2012	0	0
2/15/2021	0.78		2/15/2020	0		2/15/2019 2/16/2019			2/15/2018 2/16/2018			2/15/2017	0		0.36		2/15/2015 2/16/2015	0.1		2/15/2014 2/16/2014	0 08 0		2/15/2013 2/16/2013	0 15		2/15/2012	0.01	0
2/16/2021 2/17/2021	0.78		2/17/2020	0		2/17/2019			2/16/2018			2/16/2017 2/17/2017	0				2/17/2015			2/17/2014	0.08 0.		2/17/2013	0.15		2/16/2012 2/17/2012	0.09	0.01
2/18/2021	0.24	0.1	2/18/2020	0	0	2/18/2019	0.22	0.085263	2/18/2018	0.38	0.214074	2/18/2017	0	0 2/18/2016	0	0	2/18/2015	0	0	2/18/2014	0.14 0.	.033333	2/18/2013	0	0	2/18/2012	0	0
2/19/2021	0.49		2/19/2020	0		2/19/2019			2/19/2018	0		2/19/2017	0			4	2/19/2015	0		2/19/2014	0.03		2/19/2013	0		2/19/2012	0	0
2/20/2021 2/21/2021	0.06		2/20/2020	0		2/20/2019			2/20/2018 2/21/2018	0.03		2/20/2017 2/21/2017	0	_	0		2/20/2015	0		2/20/2014 2/21/2014	0.17 o.		2/20/2013 2/21/2013	0.2		2/20/2012	0	0
2/22/2021	0.03		2/22/2020	0		2/22/2019			2/22/2018	0.03	C	2/22/2017		003762622/2016	0.06		2/22/2015			2/22/2014			2/22/2013				_ 0	0
2/23/2021			2/23/2020	0		2/23/2019			2/23/2018			2/23/2017	О	02/23/2016	0		2/23/2015			2/23/2014	0	0	2/23/2013	0.07	0.003913	2/22/2012 2/28/2012	a 0	0

[[1			
2/24/2021	0		0 2/24/2020	0				2/24/2018			2/24/2017	0			0.347971 2/24/2015	0		/24/2014	0.01		2/24/2013		0.01384	2/24/2012	0.26	0.115238
2/25/2021	0		0 2/25/2020	0.02		0.05	0.000476	2/25/2018			2/25/2017	0		1.6		0		/25/2014	0		2/25/2013	0		2/25/2012	0.09	0.01
2/26/2021	0		0 2/26/2020		0.071111 2/26/2019	0	C	2/26/2018		0.057647	2/26/2017		0.431282 2/26/2016	0.01		0		/26/2014	0.01		2/26/2013	0		2/26/2012	0	C
2/27/2021	0.35	0.18843			0.403333 2/27/2019	0	0	2/27/2018	0	0	2/27/2017	0		0		0.01		/27/2014	0.06	0.00181	2/27/2013			2/27/2012	0	0
2/28/2021	0.07	0.00391	3 2/28/2020	0		0	O	2/28/2018	0	0	2/28/2017	0		0	0 2/28/2015	0		/28/2014	0		2/28/2013	0.04	2.41E-3	2/28/2012	0	0
3/1/2021	1.17	0.96007	5 2/29/2020	0	- 01 11 E 0 1 0			3/1/2018	0	0	3/1/2017	0.15		0	0 3/1/2015	0		/1/2014	0		3/1/2013	0.01		2/29/2012	0	C
3/2/2021	0.01		0 3/1/2020	0			0.394054	3/2/2018			3/2/2017	0.01	0 3/1/2016	0			0.338824		0		3/2/2013	0		3/1/2012	0.98	0.775088
3/3/2021	0		0 3/2/2020	0		0	0	3/3/2018	-	0.138889	3/3/2017	0		0.16		0		/3/2014	0.21	0.07810	3/3/2013	0		3/2/2012	0.01	C
3/4/2021	0		0 3/3/2020		0.013846 3/4/2019		0.620816	3/4/2018	0	0	3/4/2017	0		0			0.366338		0.04	2.41E-3	4 3/4/2013	0		3/3/2012	0.22	0.085263
3/5/2021	0		0 3/4/2020		0.092564 3/5/2019	0	C	3/5/2018	0		3/5/2017	0		0.08				/5/2014	0		3/5/2013	0		3/4/2012	0.04	2.41E-34
3/6/2021	0		0 3/5/2020	0		0	0	3/6/2018	0		3/6/2017	0		0.01		0.63		/6/2014	0		3/6/2013			3/5/2012	0	0
3/7/2021	0		0 3/6/2020	0		0	0	3/7/2018			3/7/2017	0.02		0	0 3/7/2015	0		/7/2014	0		3/7/2013		0.05121	3/6/2012	0	0
3/8/2021	0		0 3/7/2020	0.37	0.205472 3/8/2019	0	0	3/8/2018	0.63	0.440633	3/8/2017	0.04	2.41E-34 3/7/2016	0	0 3/8/2015	0	0 3	/8/2014	0		3/8/2013	0.01		3/7/2012	0	0
3/9/2021	0		0 3/8/2020	0		0.01	0	3/9/2018	0	0	3/9/2017	0		0	0 3/9/2015	0		/9/2014	0		3/9/2013	0.01		3/8/2012	0	0
3/10/2021	0		0 3/9/2020	0.01	0 3/10/2019	0.69	0.497059	3/10/2018	0	0	3/10/2017	0.06	0.001818 3/9/2016	0	0 3/10/2015	0	0 3	/10/2014	0		3/10/2013	0		3/9/2012	0.05	0.000476
3/11/2021	0		0 3/10/2020	0	0 3/11/2019	0.08	0.006667	3/11/2018	0	0	3/11/2017	0.28	0.130909 3/10/2016	0	0 3/11/2015	0.64	0.45	/11/2014	0		3/11/2013	0.01		3/10/2012	0	C
3/12/2021	0		0 3/11/2020	0.04	2.41E-34 3/12/2019	0	0	3/12/2018	0	0	3/12/2017	0	0 3/11/2016	0	0 3/12/2015	0	0 3	/12/2014	0		3/12/2013	0.16	0.04	3/11/2012	0	C
3/13/2021	0		0 3/12/2020	0.01	0 3/13/2019	0	0	3/13/2018	0.11	0.018148	3/13/2017	0	0 3/12/2016	0	0 3/13/2015	0	03	/13/2014	0.33	0.17163	3/13/2013	0.96	0.75571	3/12/2012	0	C
3/14/2021	0		0 3/13/2020	0.33	0.171633 3/14/2019	0	0	3/14/2018	0	0	3/14/2017	1.27	1.057972 3/13/2016	0	0 3/14/2015	0.71	0.515977	/14/2014	0		3/14/2013	0	1 .	3/13/2012	0.07	0.003913
3/15/2021	0		0 3/14/2020	0.01	0 3/15/2019	0	0	3/15/2018	0	0	3/15/2017	0.7	0.506512 3/14/2016	0.89	0.688095 3/15/2015	0.46	0.284516	/15/2014	0		3/15/2013	0		3/14/2012	0	C
3/16/2021	0.01		0 3/15/2020	0.06	0.001818 3/16/2019	0.22	0.085263	3/16/2018	0	0	3/16/2017	0.01	0 3/15/2016	0.26	0.115238 3/16/2015	0	03	/16/2014	0.04	2.41E-3	4 3/16/2013	0	1 .	3/15/2012	0	0
3/17/2021	0.01		0 3/16/2020	0	0 3/17/2019	0	0	3/17/2018	0	0	3/17/2017	0	0 3/16/2016	0.04	2.41E-34 3/17/2015	0	03	/17/2014	0.16	0.04	3/17/2013	0.08	0.00666	3/16/2012	0.04	2.41E-34
3/18/2021	0.13	0.02793	3/17/2020	0.06	0.001818 3/18/2019	0	d	3/18/2018	0	0	3/18/2017	0	0 3/17/2016	0	0 3/18/2015	0	03	/18/2014	0.01		3/18/2013	0	1	3/17/2012	0	0
3/19/2021	0.87	0.66883	5 3/18/2020	0.01	0 3/19/2019	0	C	3/19/2018	0	0	3/19/2017	0.01	0 3/18/2016	0.01	0 3/19/2015	0	03	/19/2014	0		3/19/2013	0.75	0.55395	3/18/2012	0	0
3/20/2021	0		03/19/2020	0.82	0.620816 3/20/2019	0	0	3/20/2018	0	0	3/20/2017	0		0		0.01		/20/2014	0.65	0.45938	3/20/2013	0.02		3/19/2012	0	0
3/21/2021	0		0 3/20/2020	0.02		0.05	0.000476	3/21/2018	0.41	0.240175	3/21/2017	0.01	0 3/20/2016	0.02	0 3/21/2015	0.53	0.347971	/21/2014	0		3/21/2013	0		3/20/2012	0	0
3/22/2021	0		0 3/21/2020	0.02		2.01		3/22/2018	_			0		0.02		0		/22/2014	0		3/22/2013	0		3/21/2012	0	0
3/23/2021	0		0 3/22/2020	0.02		0.04		3/23/2018	0.00	0	3/23/2017	0		0.02	0 3/23/2015	0	<u> </u>	/23/2014	0		3/23/2013	0		3/22/2012	0	0
3/24/2021	0.02		03/23/2020		0.001818 3/24/2019	0.01		3/24/2018	0	0	3/24/2017	0		0	0 3/24/2015	0		/24/2014	0		3/24/2013	0		3/23/2012	n	
3/25/2021	1.8	1.58040	8 3/24/2020		0.515977 3/25/2019	0		3/25/2018	0	0	3/25/2017	0		0	0 3/25/2015	0		/25/2014	0		3/25/2013	0.13	0.02793	3/24/2012	ň	
3/26/2021	0.03	1.300+0	03/25/2020	0.01			0.130000	3/26/2018	0.01	0	3/26/2017	0		0		0.04		/26/2014	0.07	0.00391	3/26/2013		0.021407	3/25/2012	0.17	0.051212
3/27/2021	0.00		03/26/2020		0.000476 3/27/2019	0.20	0.130303	3/27/2018	0.01	0	3/27/2017	0.07		0.01				/27/2014	0.01	0.003.71	3/27/2013	0.01	0.21407	3/26/2012	0.17	0.051212
3/28/2021	0.06	0.00101	8 3/27/2020	0.03		0		3/28/2018	0.02	0	3/28/2017	0.16		0.01	03/28/2015	0.00		/28/2014	0		3/28/2013	0.01		3/27/2012	0	
3/29/2021	0.62		2 3/28/2020	0.02		0		3/29/2018	0.02	0.01	3/29/2017	0.10		0.47		0.01		/29/2014	0.07	0.00391	3/29/2013	0		3/28/2012	0	
3/30/2021	0.02	0.43126	03/29/2020	1.07		0		3/30/2018	0.03	0.01	3/30/2017	0.40		0.09		0.01		/30/2014	1.07	0.8625	2 3/30/2013	0		3/29/2012	0.01	
3/31/2021	0		03/30/2020	0.02		0		3/31/2018		0.022052	3/31/2017		0.155106 3/30/2016	0.09	0.013/30/2015	0		/31/2014	0.83	0.63040	4 3/31/2013	0		3/30/2012	0.01	
4/1/2021	0.46	0.28451	6 3/31/2020		0.013846 4/1/2019		0.000000	4/1/2018	0.12	0.022857	4/1/2017	1.41		0		0.05	0.000476 4		0.83	0.630404	4/1/2013	0.06	0.00181	3/31/2012	0.2	0.071111
4/1/2021	0.46	0.28451	04/1/2020	0.03		0.08	U.UU6667	4/1/2018		0.002531	4/1/2017	1.41		0.01	0 4/2/2015	0.05		/2/2014	0		4/1/2013	0.06		4/1/2012	0.2	0.0/1111
4/3/2021	0.01		04/1/2020	0.03		0		4/3/2018			4/3/2017	0		0.01		0		/3/2014	0.04			0		4/1/2012	0.01	0.003555
4/4/2021	Ü			_												-						·			0.23	0.092564
	0		0 4/3/2020	0 01		0		4/4/2018			4/4/2017		0.107561 4/3/2016	0.12			0.022857 4		0.12		4/4/2013	0		4/3/2012	0	0
4/5/2021	0		04/4/2020	0.01	0 4/5/2019	0	C	4/5/2018	0.06	0.001818	4/5/2017	0.01	0 4/4/2016	0	0 4/5/2015	0	0[4	/5/2014	0.05	0.00047	4/5/2013	0.01		4/4/2012	0	0
Cumulative F	Runoff																									
(Q) For 1 Ye	ar of	40.425=	•		22.02227		40 50555			20 24555			24 50500		22.25052	_				40.000:-			22.45==			40.001
Daily Rain E	vents	40.1297	9		33.03327		49.69633			29.31586			24.60699		32.26052	3	33.10527			42.33315	•		33.16771			40.00191
(Inches																										
,	′																									

Average Yearly Runoff (inches) 35.76508

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Appendix B

WCU000819 through WCU000820



West Chester University Campus

Pervious vs. Impervious Coverage Storm Water Run-off Calculation

	S ⊦		Acres
Campus Pervious Area Feeding West Chester Borugh Plum Run Outfall:		983,671	22.6
Campus Impervious Area Feeding West Chester Borugh Plum Run Outfall:		1,371,897	31.5
Campus TOTAL Area Feeding West Chester Borough Plum Run Outfall:		2,355,568	54.1

Run-off Volume Calculation

2 year: 3.26 in / 24 hr 5 year: 4.10 in/ 24 hr

Volume = SF impervious x rainfall depth/ 12

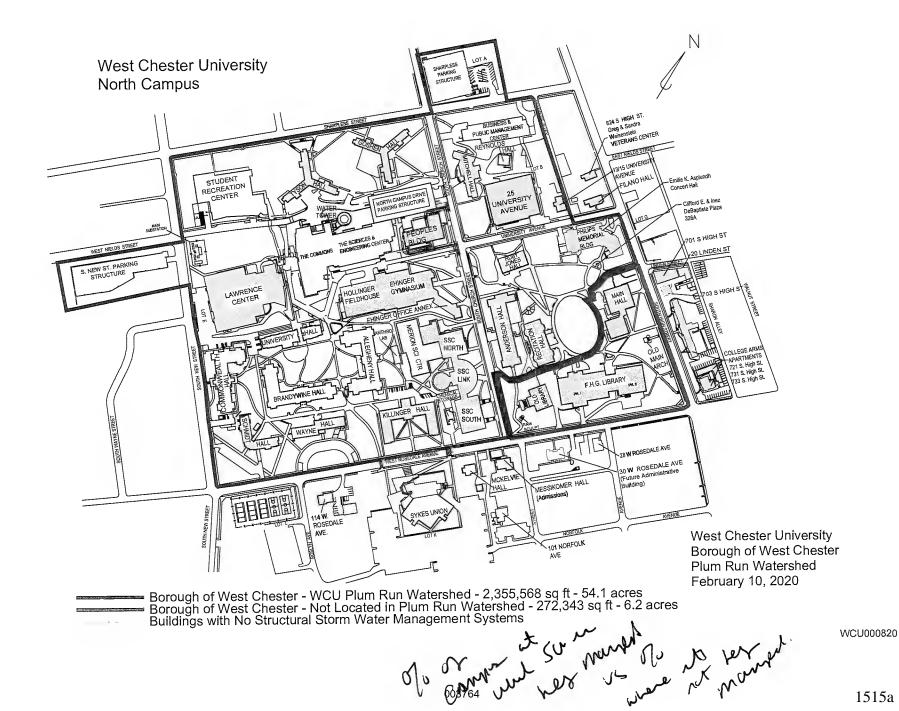
1,371,897 sf x 3.26/12 = 1,371,897 sf x 4.10/12 = 372,699 CF 468,731 CF

explan to other plan plan plan.

WCU000819

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Appendix C

Option 3 Analysis

West Chester Borough Chester County



Appendix C

Data and Information Review



Data and Information Review

NTM Engineering, Inc. reviewed the following information for development of the analysis:

- West Chester Borough's current and past stormwater ordinances https://ecode360.com/6469923
- Superblock Survey Sheets The survey sheets date back to 2007 and include the area bounded by West Rosedale Avenue, South New Street, South Church Street, and Sharpless Avenue. While 2007 may seem recent, the University completed substantial development on North Campus after the survey, including development of the Student Recreation Center, the Commons, the Parking Facility, Commonwealth Hall, Brandywine Hall, and Allegheny Hall. WCU000871-875
- Civil Site and PCSM Plans for The Commons and Parking Facility- (new utility routings and site layout/buildings.) WCU000878-880
- Development Plans for President's Walk (It is our understanding this development project is not advancing). We reviewed the existing conditions plan and grading plan and used those resources for drainage modeling assumptions on the eastern half of North Campus-east of South Church Street). WCU000848
- Civil Site Layout Plan and Grading Plan for West Chester University Student Housing Building "C" (provided by the Borough via counsel)
- Site Layout Plan and Grading Plan for West Chester University Business and Public Affairs Center (provided by the Borough via counsel)
- PASDA Aerial photographs (to review a history of development on campus)

PASDA (n.d.-a). [chester 091837 Statewide 1937-1942 B&W (not georeferenced)]. Retrieved from:

ftp://ftp.pasda.psu.edu/pub/pennpilotr/era1940/chester 1938 photos jpg 800/chest er 091837 ahk4491

PASDA (n.d.-b). [24002570PAS PEMA Orthoimagery Color (1/2 ft)]. Retrieved from: ftp://ftp.pasda.psu.edu/pub/pasda/pema imagery/cycle1/TIF/South/2018/Survey F eet/20000000/24002570PAS PEMA 2018.zip

- Campus Base Plan (dated 7/19/2020- this map appears to have been made with GIS or AutoCAD and has the most recent sidewalks and drive configurations. This layout shows all new buildings (even if not fully constructed) and apparent storm drain information. An attempt was made to obtain the GIS or CAD file; however it was not available.) Based on existing topography and field review, there appears to be clear discrepancies with connectivity for storm drains in several areas. For instance, Brandywine Hall shows a connection to a stormwater facility in front (south) of Wayne Hall. For this connectivity to occur, the infiltration facility would need to be 18-20 feet deep. Based on downstream connectivity to the inlet, the configuration shown is not possible. WCU000001
- West Chester Borough Stormwater BMP list w/ dates (from the MS4 Permit) 001304-00136
- West Chester Campus Map and Data WCU000817-WCU000824

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- West Chester Campus Maps
 - 1. West Chester University (n.d.-a). [West Chester University Map of North Campus]. Retrieved from:

https://www.wcupa.edu/campusmap/documents/WCUNorthCampusMap.pdf

2. West Chester University (n.d.-b) [West Chester University Map of South Campus]. Retrieved from:

https://www.wcupa.edu/campusmap/documents/WCUSouthCampusMap.pdf

- West Chester Stream Protection Ordinance https://www.west-chester.com/DocumentCenter/View/13320/2016-Ordinance
- West Chester Borough MS4 Permit PRP https://west-chester.com/DocumentCenter/View/4288/WC-BrandywineBlackhorsePlumTaylor-PRP Combined-1
- West Chester University MS4 Permit and PRP WCU000002-WCU000816
- NOAA Atlas 14 https://hdsc.nws.noaa.gov/hdsc/pfds/pfds map_cont.html
- PA StreamStats https://streamstats.usgs.gov/ss/
- Google. (n.d.). [Google Map of West Chester University]. Retrieved May 12, 2021 from https://www.google.com/maps/search/West+Chester+University/@39.946548,-75.6031328,2283m/data=!3m1!1e3
- ChescoViews https://arcweb.chesco.org/cv3/Default CV.html
- We conducted a field visit on Wednesday May 5, 2021, to confirm general surface drainage area patterns. Existing roof drain tie-ins from buildings to on-campus storm drain conveyance networks could not be reviewed/confirmed in the field. The field visit was conducted during a rain event; therefore, surface drainage patterns were very clearly visible. The area of the Commons was not accessible due to construction, however muddy runoff was visible from the perimeter fence and the outfall to Plum Run was discharging sediment laden runoff, which we thought to originate from the construction site. Subsurface drainage facilities were not reviewable in the field. The University did not provide a representative familiar with the system, to answer questions about the existing system connectivity, or review the condition of inlets, manholes and other subsurface utilities.

Other information reviewed but not used because of age or utility includes:

- PASDA 2' Contours (2006-2008)
- Chester County GIS Buildings Layer (2015) (already partially outdated because of recent development on campus)
- West Chester County GIS (Various Layers sidewalks were not available on campus)
- West Chester Borough GIS Maps (e.g. storm drain)

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• Various maps provided with some level of conflicting information (*e.g.* the drainage area map showing the Plum Run drainage divided on North Campus or within the Superblock is not correct based on the plans and storm drain conveyance maps reviewed.)

Information not available for review (which would have helped with analysis) includes:

- Approved stormwater management analysis/reports, as-built plans, and drainage area maps for development on campus (since 2004)
- Design information on existing stormwater management facilities not installed as part of a land development project
- University GIS or CAD land use information

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Appendix C

Modeling Approach and Assumptions



Modeling Approach and Assumptions

NTM Engineering, Inc. used the following methodology and general modeling assumptions for development of the H&H models and design.

- We superimposed/aggregated relevant available plan and topographic information provided as PDFs to generate an overall up-to-date layout of West Chester University Campus (See Exhibit A-6).
- Using available topography and existing storm drain maps, we delineated campus subdrainage areas.
- We conducted a field visit on Wednesday May 5, 2021, to confirm general surface drainage area patterns. Existing roof drain tie-ins from buildings to on-campus storm drain conveyance networks could not be reviewed/confirmed in the field. The field visit was conducted during a rain event; therefore, surface drainage patterns were very clearly visible. The area of the Commons was not accessible due to construction, however muddy runoff was visible from the perimeter fence and the outfall to Plum Run was discharging sediment laden runoff, which we thought to originate from the construction site. Subsurface drainage facilities were not reviewable in the field. The University did not provide a representative familiar with the system to answer questions about the existing system connectivity or review the condition of inlets, manholes, and other subsurface utilities.
- The modeling and design consider the area of North Campus which drains to the unnamed tributary of Plum Run located in the Borough (See Appendix A, Exhibit A-6). There are additional North Campus drainage areas which flow to the south and to the east, respectively, to Borough ROW and conveyance facilities (which, again, are part of the Borough Stormwater Management System) and ultimately to a different branch of Plum Run or Goose Creek. Modeling of these areas and analysis of the subsequent benefits which the University derives from draining to the Borough Stormwater Management System was not completed as part of this study; however, as more fully discussed in the Conclusion, the University would incur additional costs to provide a similar approach and replication of the existing benefits which the Borough Stormwater Management System provides to the University.
- Because full reports and documentation for existing stormwater facilities were not available, we did not complete detailed modeling for existing stormwater management facilities or storage areas on North Campus. To consider the benefits of the existing University-owned stormwater facilities and resulting potential flow reduction to separate University-owned storm drain conveyance facilities which would replicate the current benefits which arise from connection to the Borough Stormwater Management System, we reviewed the current and previous West Chester Borough stormwater ordinances for stormwater design standards. Stormwater management is designed to reduce a post development peak rate flow resulting from changes in land use, back to an existing or theoretical land use state.

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The modeling completed considers that development on North Campus, where stormwater facilities are present, would reduce the peak rates as follows:

- O Buildings completed after 2013 are assumed to have, as a result of stormwater regulations in affect at the time, reduced post development runoff back to existing condition rates, characterized by a drainage area land use of meadow in good condition (hydrologic soil group C soils).
- o Buildings completed between 2004 and 2013 are assumed to have, as a result of stormwater regulations in affect at the time, reduced post development runoff back to existing condition rates, characterized by a drainage area land use of open space in good condition (hydrologic soil group C soils).
- We modeled portions of North Campus which the University developed prior to implementation of a stormwater management ordinance based on actual land use conditions (hydrologic soil group C soils).
- The conceptual design considers, to the extent possible, the layout and depth of existing storm drain and other utilities where/when known.
- The model does not include a pre/post analysis which would consider potential rate increases due to increased capacity conveyance. This would typically be completed as part of final design and permitting.
- AutoDesk Storm and Sanitary Sewer Analysis were utilized for modeling and design.
 Basin Modeling was considered as follows:
 - SCS TR-20 methodology was used for hydrologic modeling to consider full capture volumes created by typical design events.
 - Time of Concentration values were calculated using sheet flow calculations based on available topographic data and considering a manning's value of 0.240 for dense grass, shallow concentrated flow considering grass channel and open channel flow- pipe flowing full, where applicable impervious area was not separated out for consideration of flash flows which occur in high impervious environment. The approach may underestimate peak flows in some cases. This approach is conservative from the perspective of the case and benefits WCU.
 - Soils Hydrologic Soil Group (HSG) C Many urban areas have experienced significant soil compaction and are better represented as HSG D. HSG D represents less well drained soils and creates more runoff. This approach may underestimate peak flows. However, as it relates to case context, this approach reduces resulting costs benefiting WCU.
 - Land Use CN-Value

Open Space Meadow: 71

Open Space: 74Impervious: 98

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- O Drainage area sub-watershed sizes are based on best available information or an estimated project area.
- o Storm Drain Modeling Routing Conditions: Steady State.
- o 100-year Design Storm- 7.55 Inches

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Appendix C

Autodesk Storm and Sanitary Analysis



Project Description

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-20
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Steady Flow
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Eab 23 2021	00.00.00
End Analysis On	Feb 23, 2021	23:00:00
Start Reporting On	Feb 23, 2021	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	300	seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins	19
Nodes	34
Junctions	32
Outfalls	2
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	32
Channels	0
Pipes	32
Pumps	0
Oritices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN Rain Ga	ige Data	Data Source	e Rainfall	Rain	State	County	Return	Rainfall	Rainfall
ID	Source	ID	Type	Units			Period	Depth	Distribution
							(years)	(inches)	
1	Time Serie	es NOAA C	Cumulative	inches					User Defined

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Subbasin Summary

SN Subbasin ID	Area	Peak Rate Factor		Total Rainfall	Total	Total	Peak Runoff	Time of Concentration
ID.		1 dotor	Number	Kumum	Ranon	Volume	rtanon	Concentration
	(ac)			(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1 DA A1	2.08	484.00	78.04	7.47	4.91	10.20	11.94	0 00:09:43
2 DA A1.5	0.12	484.00	94.00	7.47	6.75	0.81	0.98	0 00:06:00
3 DA A2	2.22	484.00	82.89	7.47	5.46	12.12	13.77	0 00:09:58
4 DA A3	2.24	484.00	82.84	7.47	5.45	12.21	13.31	0 00:11:14
5 DA B1	1.14	484.00	77.58	7.47	4.85	5.53	5.50	0 00:14:52
6 DA B1.5	0.45	484.00	78.60	7.47	4.97	2.24	2.69	0 00:08:43
7 DA B10	2.26	484.00	83.88	7.47	5.57	12.59	12.09	0 00:15:21
8 DA B11	0.77	484.00	80.16	7.47	5.15	3.96	4.55	0 00:09:55
9 DA B12	2.69	484.00	81.58	7.47	5.31	14.28	15.63	0 00:11:12
10 DA B13	2.38	484.00	89.73	7.47	6.25	14.88	14.25	0 00:14:08
11 DA B14	5.71	484.00	83.54	7.47	5.53	31.59	31.95	0 00:13:34
12 DA B2	1.55	484.00	93.51	7.47	6.70	10.38	12.41	0 00:06:00
13 DA B3	14.51	484.00	83.63	7.47	5.54	80.43	77.97	0 00:15:00
14 DA B4	2.60	484.00	83.07	7.47	5.48	14.24	13.86	0 00:14:58
15 DA B5	0.33	484.00	84.73	7.47	5.67	1.87	2.43	0 00:06:00
16 DA B6	0.39	484.00	73.79	7.47	4.43	1.73	2.31	0 00:06:18
17 DA B7	0.70	484.00	74.00	7.47	4.45	3.12	4.19	0 00:06:00
18 DA B8	0.24	484.00	79.50	7.47	5.07	1.22	1.63	0 00:06:00
19 DA B9	1.74	484.00	88.86	7.47	6.15	10.70	10.07	0 00:15:00

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Node Summary

SN Element			Ground/Rim		Surcharge	Ponded		Max HGL		Min	Time of		Total Time
ID	Type	Elevation	(Max)	Water	Elevation	Area	Inflow	Elevation	Surcharge	Freeboard	Peak	Flooded	Flooded
			Elevation	Elevation				Attained	Depth	Attained	Flooding	Volume	
									Attained		Occurrence		
		(ft)	(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1 S1.01	Junction	374.00	386.00	374.00	386.00	0.00	201.55	377.15	0.00	8.85	0 00:00	0.00	0.00
2 S1.02	Junction	376.56	382.56	376.56	382.56		180.75	379.54	0.00	3.02	0 00:00	0.00	0.00
3 S1.03	Junction	378.95	384.95	378.95	385.00		175.42	381.87	0.00	3.08	0 00:00	0.00	0.00
4 S1.04	Junction	379.74	389.00	379.74	385.74	0.00	172.89	382.62	0.00	6.38	0 00:00	0.00	0.00
5 S1.05	Junction	380.40	386.40	380.40	386.40	0.00	97.08	382.88	0.00	3.52	0 00:00	0.00	0.00
6 S1.06	Junction	381.29	392.00	381.29	387.29	0.00	97.08	384.09	0.00	7.91	0 00:00	0.00	0.00
7 S1.07	Junction	381.74	392.00	381.74	387.74	0.00	95.28	384.54	0.00	7.46	0 00:00	0.00	0.00
8 S1.08	Junction	382.94	388.94	382.94	388.94	0.00	81.80	385.13	0.00	3.81	0 00:00	0.00	0.00
9 S1.09	Junction	383.30	389.30	383.30	389.30	0.00	79.93	385.49	0.00	3.81	0 00:00	0.00	0.00
10 S1.10	Junction	384.30	390.30	384.30	390.30	0.00	79.93	386.40	0.00	3.90	0 00:00	0.00	0.00
11 S1.11	Junction	385.03	391.00	385.03	391.00	0.00	79.93	387.13	0.00	3.87	0 00:00	0.00	0.00
12 S1.12	Junction	389.90	395.90	389.90	395.90	0.00	76.78	391.92	0.00	3.98	0 00:00	0.00	0.00
13 S1.13	Junction	392.00	398.00	392.00	398.00	0.00	75.56	394.01	0.00	3.99	0 00:00	0.00	0.00
14 S1.14	Junction	392.77	398.77	392.77	398.77	0.00	55.51	394.68	0.00	4.09	0 00:00	0.00	0.00
15 S1.15	Junction	395.30	401.30	395.30	401.30	0.00	45.70	396.95	0.00	4.35	0 00:00	0.00	0.00
16 S1.16	Junction	397.35	403.35	397.35	403.35	0.00	45.70	399.00	0.00	4.35	0 00:00	0.00	0.00
17 S1.17	Junction	400.40	406.40	400.40	406.40	0.00	31.65	401.99	0.00	4.41	0 00:00	0.00	0.00
18 S1.18	Junction	402.00	413.00	402.00	413.00	0.00	31.65	403.57	0.00	9.43	0 00:00	0.00	0.00
19 S1.19	Junction	394.42	400.42	394.42	400.42	0.00	20.05	395.60	0.00	4.82	0 00:00	0.00	0.00
20 S1.20	Junction	396.30	402.30	396.30	402.30	0.00	15.61	397.48	0.00	4.82	0 00:00	0.00	0.00
21 S1.21	Junction	398.00	402.00	398.00	402.00	0.00	15.61	399.18	0.00	2.82	0 00:00	0.00	0.00
22 S1.22	Junction	384.00	394.00	384.00	394.00	0.00	11.73	384.85	0.00	9.15	0 00:00	0.00	0.00
23 S2.01	Junction	377.25	384.60	377.25	384.60	0.00	39.18	379.21	0.00	5.39	0 00:00	0.00	0.00
24 S2.02	Junction	378.42	390.20	378.42	390.20	0.00	39.18	380.38	0.00	9.82	0 00:00	0.00	0.00
25 S2.03	Junction	378.85	393.00	378.85	393.00	0.00	39.18	380.81	0.00	12.19	0 00:00	0.00	0.00
26 S2.05	Junction	380.13	396.00	380.13	396.00	0.00	27.55	381.63	0.00	14.37	0 00:00	0.00	0.00
27 S2.06	Junction	371.74	394.00	381.74	394.00	0.00	27.55	383.24	0.00	10.76	0 00:00	0.00	0.00
28 S2.07	Junction	382.38	392.00	382.38	392.00	0.00	26.82	383.86	0.00	8.14	0 00:00	0.00	0.00
29 S2.08	Junction	382.87	390.00	382.87	390.00	0.00	26.82	384.35	0.00	5.65	0 00:00	0.00	0.00
30 S2.09	Junction	383.85	389.50	383.85	389.50	0.00	26.82	385.32	0.00	4.18	0 00:00	0.00	0.00
31 S2.10	Junction	385.35	392.00	385.35	392.00	0.00	13.27	386.73	0.00	5.27	0 00:00	0.00	0.00
32 S2.11	Junction	382.90	388.90	382.90	388.90	0.00	13.27	386.93	0.00	1.97	0 00:00	0.00	0.00
33 Outfall 1		373.00					201.55	376.15					
34 Outfall 2		373.00					39.18	374.00					

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Link Summary

SN Element ID	Element Type	From (Inlet) Node		ŭ	Inlet Invert Elevation	Invert	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capaci ty	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth		Total Time Reported Surcharged Condition
				(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)		(min)
1 P1.01	Pipe	S1.01	Outfall 1	66.76	374.00	373.00	1.5000	54.000	0.0130	201.55	240.68	0.84	16.94	3.15	0.70	0.00 Calculated
2 P1.02	Pipe	S1.02		183.09	376.56	374.00	1.4000	54.000	0.0130		232.53	0.78	16.16	2.98	0.66	0.00 Calculated
3 P1.03	Pipe	S1.03		170.47	378.95	376.56	1.4000	54.000	0.0130		232.85	0.75	16.08	2.92	0.65	0.00 Calculated
4 P1.04	Pipe	S1.04		56.03	379.74	378.95	1.4100	54.000	0.0130		233.50	0.74	16.07	2.88	0.64	0.00 Calculated
5 P1.05	Pipe	S1.05	S1.04	64.98	380.40	379.74	1.0200	48.000	0.0130	97.08	144.77	0.67	12.34	2.40	0.60	0.00 Calculated
6 P1.06	Pipe	S1.06	S1.05	97.20	381.29	380.40	0.9200	48.000	0.0130	97.08	137.45	0.71	11.85	2.48	0.62	0.00 Calculated
7 P1.07	Pipe	S1.07	S1.06	47.82	381.74	381.29	0.9400	42.000	0.0130	95.28	97.60	0.98	11.55	2.80	0.80	0.00 Calculated
8 P1.08	Pipe	S1.08	S1.07	86.34	382.94	381.74	1.3900	42.000	0.0130	81.80	118. 61	0.69	13.29	2.14	0.61	0.00 Calculated
9 P1.09	Pipe	S1.09	S1.08	29.24	383.30	382.94	1.2300	42.000	0.0130	79.93	111.64	0.72	12.61	2.19	0.63	0.00 Calculated
10 P1.10	Pipe	S1.10	S1.09	68.28	384.30	383.30	1.4600	42.000	0.0130	79.93	121.76	0.66	13.49	2.07	0.59	0.00 Calculated
11 P1.11	Pipe	S1.11	S1.10	52.03	385.03	384.30	1.4000	42.000	0.0130	79.93	119.17	0.67	13.27	2.10	0.60	0.00 Calculated
12 P1.12	Pipe	S1.12	S1.11	135.23	389.90	385.03	3.6000	30.000	0.0130	76.78	77.84	0.99	18.07	2.02	0.81	0.00 Calculated
13 P1.13	Pipe	S1.13	S1.12	59.72	392.00	389.90	3.5200	30.000	0.0130	75.56	76.92	0.98	17.85	2.01	0.80	0.00 Calculated
14 P1.14	Pipe	S1.14	S1.13	36.49	392.77	392.00	2.1100	30.000	0.0130	55.51	59. 58	0.93	13.78	1.91	0.76	0.00 Calculated
15 P1.15	Pipe	S1.15	S1.14	119.79	395.30	392.77	2.1100	30.000	0.0130	45.70	59.61	0.77	13.38	1.64	0.66	0.00 Calculated
16 P1.16	Pipe	S1.16	S1.15	98.60	397.35	395.30	2.0800	30.000	0.0130	45.70	59.1 4	0.77	13.30	1.65	0.66	0.00 Calculated
17 P1.17	Pipe	S1.17	S1.16	146.13	400.40	397.35	2.0900	24.000	0.0130	31.65	32.68	0.97	11.84	1.59	0.79	0.00 Calculated
18 P1.18	Pipe	S1.18	S1.17	74.66	402.00	400.40	2.1400	24.000	0.0130	31.65	33.12	0.96	11.99	1.57	0.78	0.00 Calculated
19 P1.19	Pipe	S1.19	S1.13	98.76	394.42	392.00	2.4500	24.000	0.0130	20.05	35.41	0.57	11.62	1.08	0.54	0.00 Calculated
20 P1.20	Pipe	S1.20	S1.19	78.24	396.30	394.42	2.4000	18.000	0.0130	15.61	16.28	0.96	10.49	1.18	0.79	0.00 Calculated
21 P1.21	Pipe	S1.21	S1.20	71.46	398.00	396.30	2.3800	18.000	0.0130	15.61	16.20	0.96	10.44	1.18	0.79	0.00 Calculated
22 P1.22	Pipe	S1.22	S1.01	299.67	384.00	374.00	3.3400	18.000	0.0130	11.73	19.19	0.61	11.39	0.85	0.57	0.00 Calculated
23 P2.01	Pipe	S2.01	Outfall 2	70.50	373.71	373.00	1.0100	36.000	0.0130	39.18	163.76	0.24	19.00	1.00	0.33	0.00 Calculated
24 P2.02	Pipe	S2.02	S2.01	117.10	378.42	377.25	1.0000	30.000	0.0130	39.18	41.00	0.96	9.50	1.96	0.78	0.00 Calculated
25 P2.03	Pipe	S2.03	S2.02	43.21	378.85	378.42	1.0000	30.000	0.0130	39.18	40.92	0.96	9.49	1.96	0.78	0.00 Calculated
26 P2.04	Pipe	S2.05	S2.03	127.13	380.13	378.85	1.0100	30.000	0.0130	27.55	41.16	0.67	8.98	1.50	0.60	0.00 Calculated
27 P2.06	Pipe	S2.06	S2.05	161.78	381.74	380.13	1.0000	30.000	0.0130	27.55	40.92	0.67	8.94	1.50	0.60	0.00 Calculated
28 P2.07	Pipe	S2.07	S2.06	63.62	382.38	381.74	1.0100	30.000	0.0130	26.82	41.1 4	0.65	8.92	1.47	0.59	0.00 Calculated
29 P2.08	Pipe	S2.08	S2.07	49.15	382.87	382.38	1.0000	30.000	0.0130	26.82	40.95	0.65	8.89	1.48	0.59	0.00 Calculated
30 P2.09	Pipe	S2.09	S2.08	97.65	383.85	382.87	1.0000	30.000	0.0130	26.82	41.09	0.65	8.91	1.47	0.59	0.00 Calculated
31 P2.10	Pipe	S2.10	S2.09	149.69	385.35	383.53	1.2200	24.000	0.0130	13.27	22.65	0.59	7.49	1.10	0.55	0.00 Calculated
32 P2.11	Pipe	S2.11	S2.10	39.49	385.55	385.35	0.5100	24.000	0.0130	13.27	16.10	0.82	5.72	1.38	0.69	0.00 Calculated

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Subbasin Hydrology

Subbasin: DA A1

Input Data

Area (ac)	2.08
Peak Rate Factor	484.00
Weighted Curve Number	78.04
Rain Gage ID	*

Composite Curve Number

	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
Paved parking & roofs	0.35	С	98.00
> 75% grass cover, Good	1.73	С	74.00
Composite Area & Weighted CN	2.08		78.04

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation:

 $Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))$

Where:

Tc = Time of Concentration (hr)

n = Manning's roughness

Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)

Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation:

V = 16.1345 * (Sf^0.5) (unpaved surface) V = 20.3282 * (Sf^0.5) (paved surface)

V = 20.3282 * (Sf*0.5) (paved surface)
V = 15.0 * (Sf*0.5) (grassed waterway surface)
V = 10.0 * (Sf*0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf*0.5) (cultivated straight rows surface)
V = 7.0 * (Sf*0.5) (short grass pasture surface)
V = 5.0 * (Sf*0.5) (woodland surface)
V = 2.5 * (Sf*0.5) (forest wheavy litter surface)

Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)

Lf = Flow Length (ft) V = Velocity (ft/sec)

Sf = Slope (ft/ft)

Channel Flow Equation:

 $V = (1.49 * (R^{2/3})) * (Sf^{0.5})) / n$ R = Aq / Wp Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)

Lf = Flow Length (ft)

R = Hydraulic Radius (ft)

Aq = Flow Area (ft²) Wp = Wetted Perimeter (ft) V = Velocity (ft/sec)

Sf = Slope (ft/ft)

n = Manning's roughness

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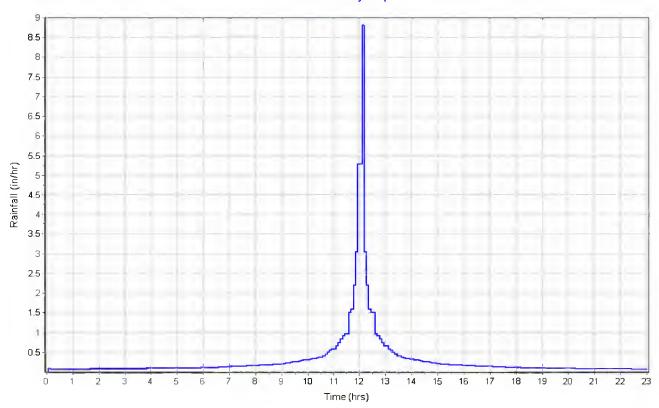
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	A	В	Ċ
Manning's Roughness :	.240	.240	0.00
Flow Length (ft):	100	100	0.00
Slope (%):	6.67	6.67	0.00
2 yr, 24 hr Rainfall (in):	3.26	3.26	0.00
Velocity (ft/sec):	0.19	0.19	0.00
Computed Flow Time (min):	8.73	8.73	0.00
	Flowpath	Flowpath	Flowpath
Shallow Concentrated Flow Computations	À	В	Ċ
Flow Length (ft):	230	230	0.00
Slope (%):	6.67	6.67	0.00
Surface Type :	Grassed waterway	Grassed waterway	Unpaved
Velocity (ft/sec) :	3.87	3.87	0.00
Computed Flow Time (min):	0.99	0.99	0.00
Total TOC (min)9.72			

Subbasin Runoff Results

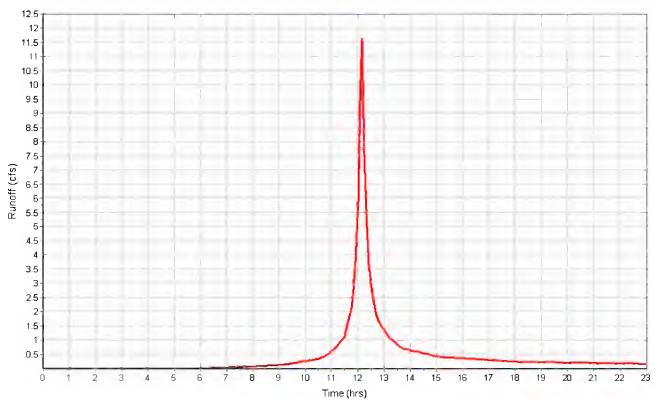
Total Rainfall (in)	7.47
Total Runoff (in)	4.91
Peak Runoff (cfs)	11.94
Weighted Curve Number	78.04
Time of Concentration (days hh:mm:ss)	0.00:09:43

0**0**3760 1531a





Runoff Hydrograph



0**0378**1 1532a

Subbasin: DA A1.5

Input Data

Area (ac)	0.12
Peak Rate Factor	
Weighted Curve Number	94.00
Rain Gage ID	*

Composite Curve Number

iiposite cuive ivullibei			
	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.02	С	74.00
Paved parking & roofs	0.10	С	98.00
Composite Area & Weighted CN	0.12		94.00

Time of Concentration

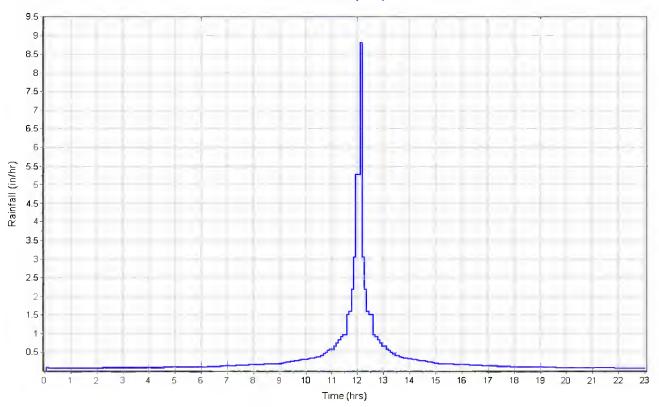
User-Defined TOC override (minutes): 6

Subbasin Runoff Results

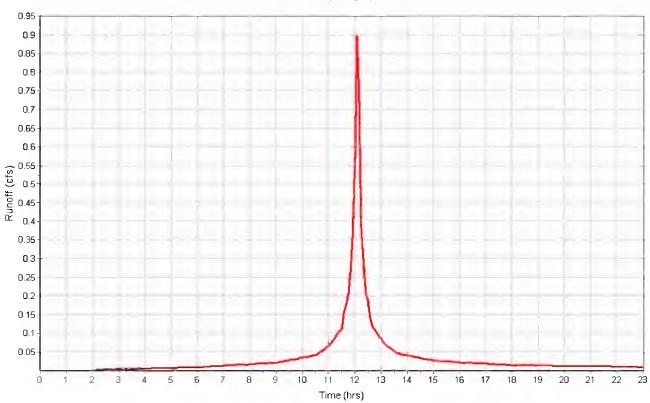
Total Rainfall (in)	7.47
Total Runoff (in)	6.75
Peak Runoff (cfs)	0.98
Weighted Curve Number	94.00
Time of Concentration (days hh:mm:ss)	0 00:06:00

0**0**3782 1533a





Runoff Hydrograph



0**0379**3 1534a

Subbasin : DA A2

Input Data

Area (ac)	2.22
Peak Rate Factor	
Weighted Curve Number	82.89
Rain Gage ID	*

Composite Curve Number

nposite Curve Number			
	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	1.33	С	74.00
Paved parking & roofs	0.83	С	98.00
Meadow, non-grazed	0.06	С	71.00
Composite Area & Weighted CN	2.22		82.89

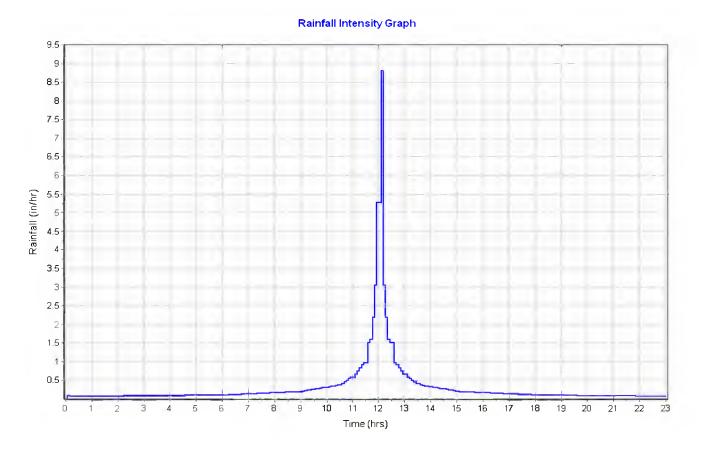
Time of Concentration

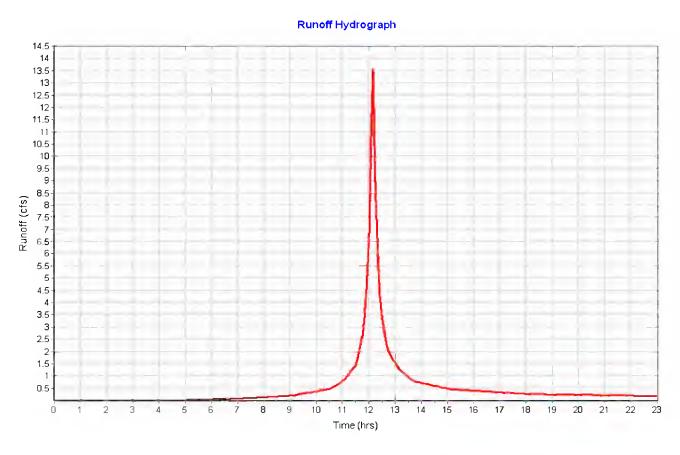
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	A	В	С
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	100	0.00	0.00
Slope (%):	7	0.00	0.00
2 уг, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec) :	0.19	0.00	0.00
Computed Flow Time (min):	8.57	0.00	0.00
	Flowpath	Flowpath	Flowpath
Shallow Concentrated Flow Computations	Α	В	С
Flow Length (ft):	235	0.00	0.00
Slope (%):	3.4	0.00	0.00
Surface Type :	Grassed waterway	Unpaved	Unpaved
Velocity (ft/sec) :	2.77	0.00	0.00
Computed Flow Time (min) : Total TOC (min)9.98	1.41	0.00	0.00

Subbasin Runoff Results

Total Rainfall (in)	7.47
Total Runoff (in)	5.46
Peak Runoff (cfs)	13.77
Weighted Curve Number	82.89
Time of Concentration (days hh:mm:ss)	0 00:09:59

0**0**3**2**84 1535a





Subbasin : DA A3

Input Data

Area (ac)	2.24
Peak Rate Factor	
Weighted Curve Number	82.84
Rain Gage ID	*

Composite Curve Number

nposite Curve Number			
· v	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	1.37	С	74.00
Paved parking & roofs	0.83	С	98.00
Meadow, non-grazed	0.04	С	71.00
Composite Area & Weighted CN	2.24		82.84

Time of Concentration

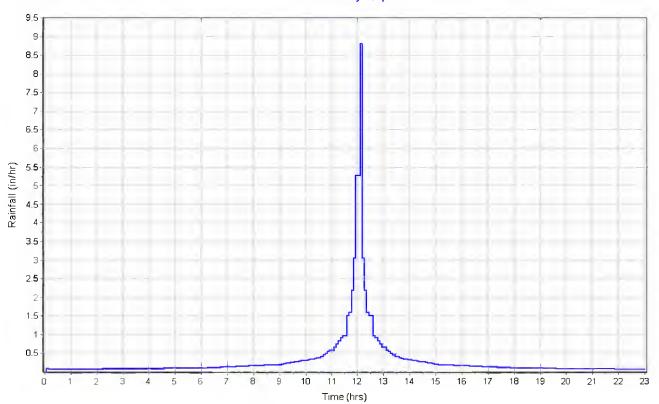
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	A	В	C
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	100	0.00	0.00
Slope (%):	4.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec) :	0.16	0.00	0.00
Computed Flow Time (min):	10.22	0.00	0.00
	Flowpath	Flowpath	Flowpath
Shallow Concentrated Flow Computations	Á	В	Ċ
Flow Length (ft):	209	0.00	0.00
Slope (%):	5.2	0.00	0.00
Surface Type :	Grassed waterway	Unpaved	Unpaved
Velocity (ft/sec) :	3.42	0.00	0.00
Computed Flow Time (min):	1.02	0.00	0.00
Total TOC (min)11.24			

Subbasin Runoff Results

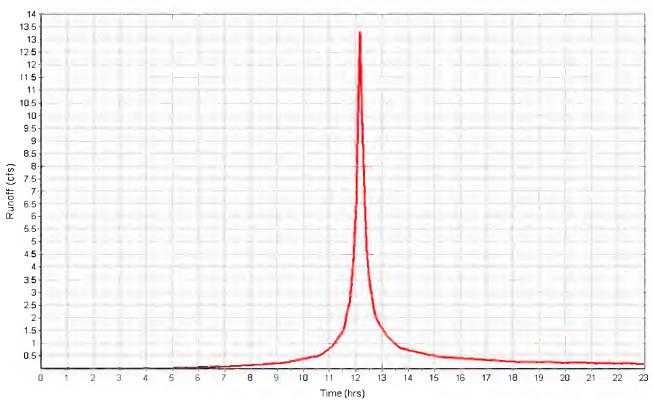
Total Rainfall (in)	7.47
Total Runoff (in)	5.45
Peak Runoff (cfs)	13.31
Weighted Curve Number	82.84
Time of Concentration (days hh:mm:ss)	0.00:11:14

0**0322**6 1537a





Runoff Hydrograph



0**032**87 1538a

Subbasin : DA B1

Input Data

Area (ac)	1.14
Peak Rate Factor	484.00
Weighted Curve Number	77.58
Rain Gage ID	*

Composite Curve Number

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v 4/8.	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.97	С	74.00
Paved roads with curbs & sewers	0.17	С	98.00
Composite Area & Weighted CN	1.14		77.58

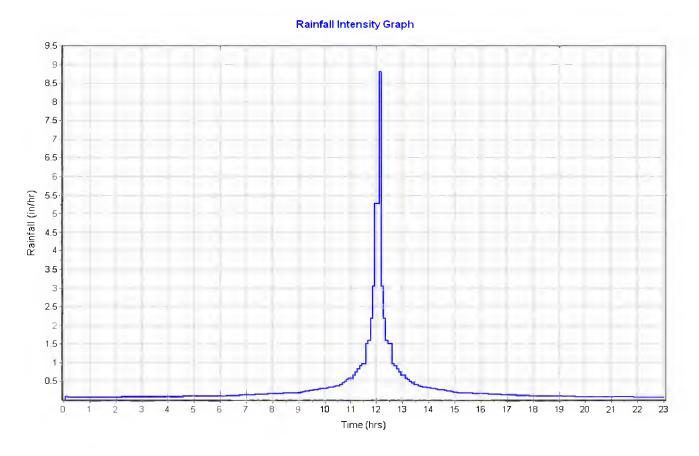
Time of Concentration

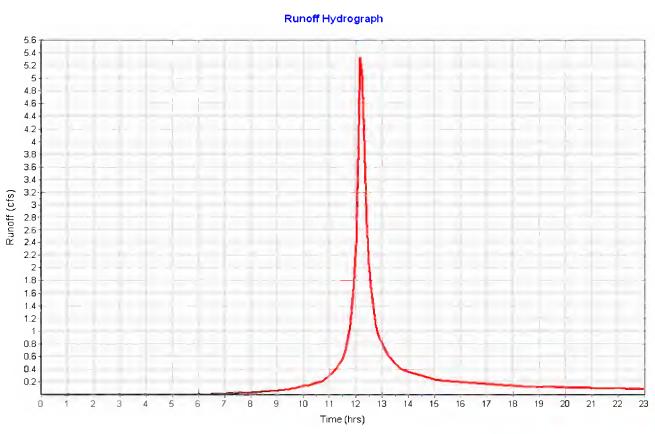
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	À	В	Ċ
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	100	0.00	0.00
Slope (%):	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec) :	0.12	0.00	0.00
Computed Flow Time (min):	14.14	0.00	0.00
	Flowpath	Flowpath	Flowpath
Shallow Concentrated Flow Computations	A	В	C
Flow Length (ft):	120	0.00	0.00
Slope (%):	3.33	0.00	0.00
Surface Type :	Grassed waterway	Unpaved	Unpaved
Velocity (ft/sec) :	2.74	0.00	0.00
Computed Flow Time (min):	0.73	0.00	0.00
Total TOC (min)14.87			

Subbasin Runoff Results

Total Rainfall (in)	7.47
Total Runoff (in)	4.85
Peak Runoff (cfs)	5.50
Weighted Curve Number	77.58
Time of Concentration (days hh:mm:ss)	0 00:14:52

0**0328**8 1539a





Subbasin : DA B1.5

Input Data

Area (ac)	0.45
Peak Rate Factor	
Weighted Curve Number	78.60
Rain Gage ID	*

Composite Curve Number

	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.33	С	74.00
Paved roads with curbs & sewers	0.09	С	98.00
Meadow, non-grazed	0.03	С	71.00
Composite Area & Weighted CN	0.45		78.60

Time of Concentration

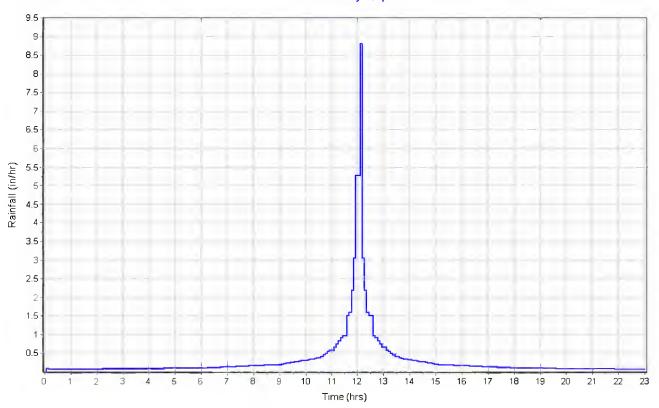
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	Α	В	С
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	67	0.00	0.00
Slope (%):	3	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec) :	0.13	0.00	0.00
Computed Flow Time (min):	8.73	0.00	0.00
Total TOC (min)8.73			

Subbasin Runoff Results

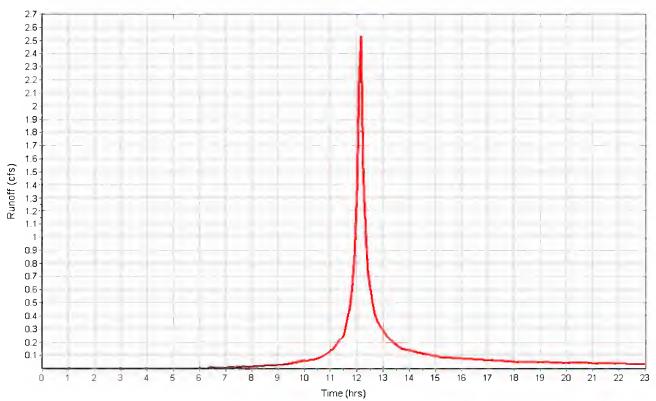
Total Rainfall (in)	7.47
Total Runoff (in)	4.97
Peak Runoff (cfs)	2.69
Weighted Curve Number	78.60
Time of Concentration (days hh:mm:ss)	0 00:08:44

0**032**00 1541a





Runoff Hydrograph



Input Data

Area (ac)	2.26
Peak Rate Factor	
Weighted Curve Number	83.88
Rain Gage ID	*

Composite Curve Number

	Alea	3011	Cuive
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	1.33	С	74.00
Paved roads with curbs & sewers	0.93	С	98.00
Composite Area & Weighted CN	2.26		83.88

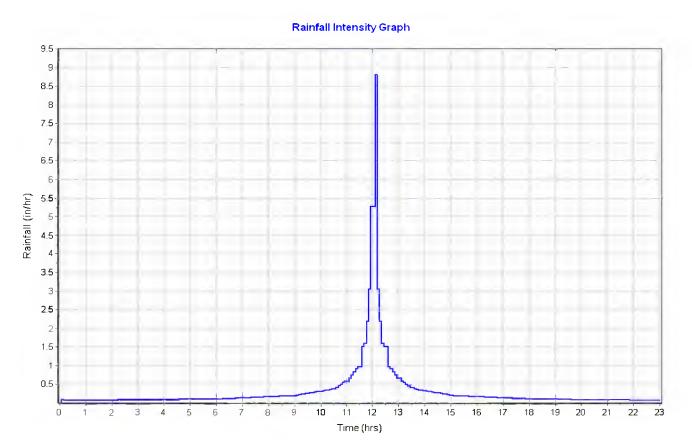
Time of Concentration

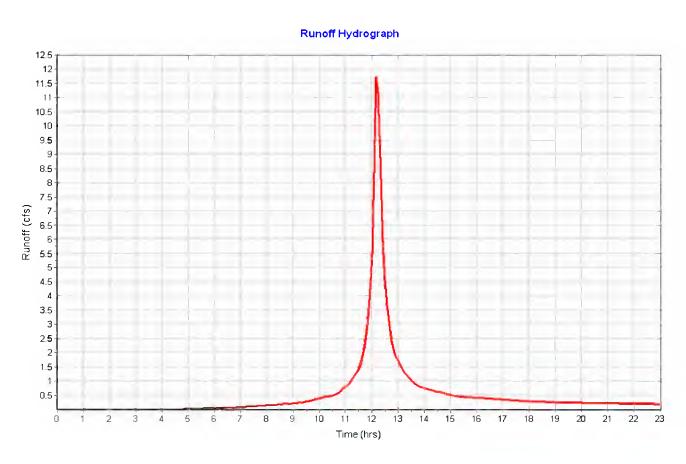
Sheet Flow Computations Manning's Roughness: Flow Length (ft): Slope (%): 2 yr, 24 hr Rainfall (in): Velocity (ft/sec):	Flowpath A .240 100 2.5 3.26 0.13 12.93	Flowpath B 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Flowpath C 0.00 0.00 0.00 0.00 0.00 0.00
Computed Flow Time (min) :	12.93	0.00	0.00
	Flowpath	Flowpath	Flowpath
Shallow Concentrated Flow Computations	A	В	C
Flow Length (ft):	96	0.00	0.00
Slope (%):	2.5	0.00	0.00
Surface Type :	Grassed waterway	Unpaved	Unpaved
Velocity (ft/sec) :	2.37	0.00	0.00
Computed Flow Time (min):	0.68	0.00	0.00
	Flowpath	Flowpath	Flowpath
Channel Flow Computations	A	В	C
Manning's Roughness :	.013	0.00	0.00
Flow Length (ft):	954	0.00	0.00
Channel Slope (%):	4	0.00	0.00
Cross Section Area (ft²):	.785	0.00	0.00
Wetted Perimeter (ft):	3.14	0.00	0.00
Velocity (ft/sec) :	9.10	0.00	0.00
Computed Flow Time (min): Total TOC (min)15.35	1.75	0.00	0.00

Subbasin Runoff Results

Total Rainfall (in)	7.47
Total Runoff (in)	5.57
Peak Runoff (cfs)	12.09
Weighted Curve Number	83.88
Time of Concentration (days hh:mm:ss)	0.00:15:21

0**0329**2 1543a





Input Data

Area (ac)	0.77
Peak Rate Factor	
Weighted Curve Number	80.16
Rain Gage ID	*

Composite Curve Number

	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.55	С	74.00
Paved roads with curbs & sewers	0.20	С	98.00
Meadow, non-grazed	0.02	C	71.00
Composite Area & Weighted CN	0.77		80.16

Time of Concentration

	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	A	В	С
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	85	0.00	0.00
Slope (%):	3.5	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec) :	0.14	0.00	0.00
Computed Flow Time (min):	9.92	0.00	0.00
Total TOC (min)9.92			

Subbasin Runoff Results

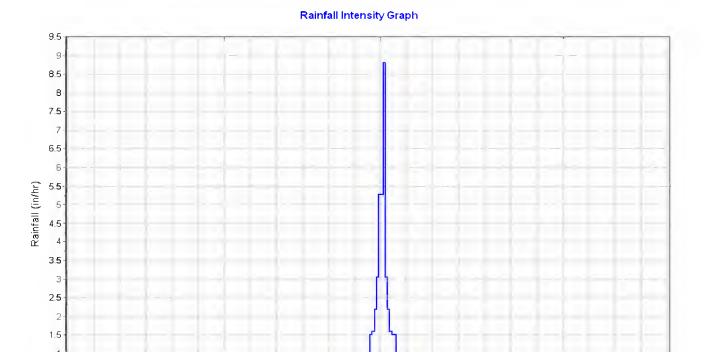
Total Rainfall (in)	7.47
Total Runoff (in)	5.15
Peak Runoff (cfs)	4.55
Weighted Curve Number	80.16
Time of Concentration (days hh:mm:ss)	0 00:09:55

0**0**3394 1545a

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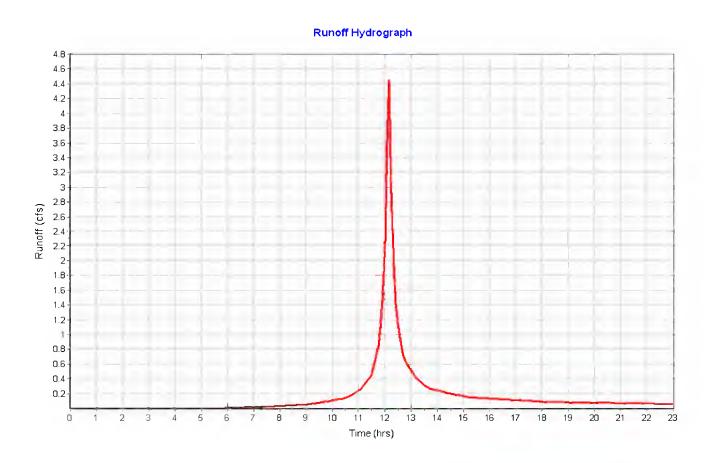


8

10

12 13 14 15 16 17 18

Time (hrs)



23

Input Data

Area (ac)	2.69
Peak Rate Factor	484.00
Weighted Curve Number	81.58
Rain Gage ID	*

Composite Curve Number

nposite Curve Number			
	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	1.84	С	74.00
Paved roads with curbs & sewers	0.85	С	98.00
Composite Area & Weighted CN	2.69		81.58

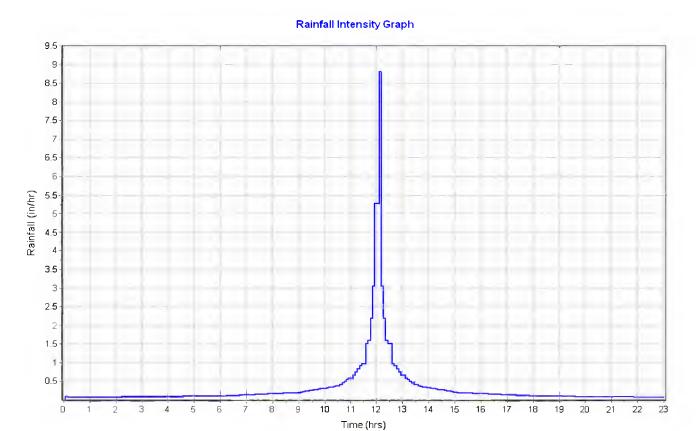
Time of Concentration

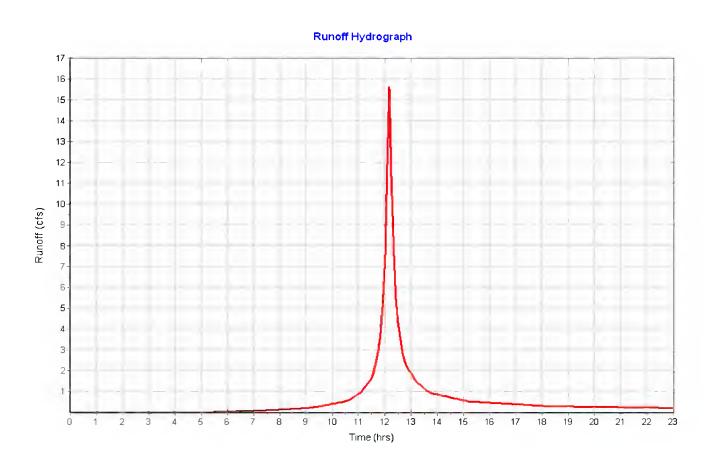
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	Α	В	С
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	82	0.00	0.00
Slope (%):	2.4	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec):	0.12	0.00	0.00
Computed Flow Time (min):	11.21	0.00	0.00
Total TOC (min)11.21			

Subbasin Runoff Results

Total Rainfall (in)	7.47
Total Runoff (in)	5.31
Peak Runoff (cfs)	15.63
Weighted Curve Number	81.58
Time of Concentration (days hh:mm:ss)	0 00:11:13

0**033**26 1547a





Input Data

Area (ac)	2.38
Peak Rate Factor	
Weighted Curve Number	89.73
Rain Gage ID	*

Composite Curve Number

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	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.82	С	74.00
Paved roads with curbs & sewers	1.56	С	98.00
Composite Area & Weighted CN	2.38		89.73

Time of Concentration

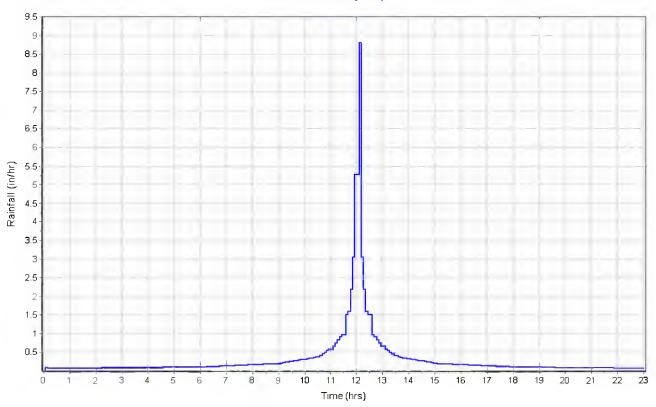
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	Α	В	С
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	100	0.00	0.00
Slope (%):	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec):	0.12	0.00	0.00
Computed Flow Time (min):	14.14	0.00	0.00
Total TOC (min)14.14			

Subbasin Runoff Results

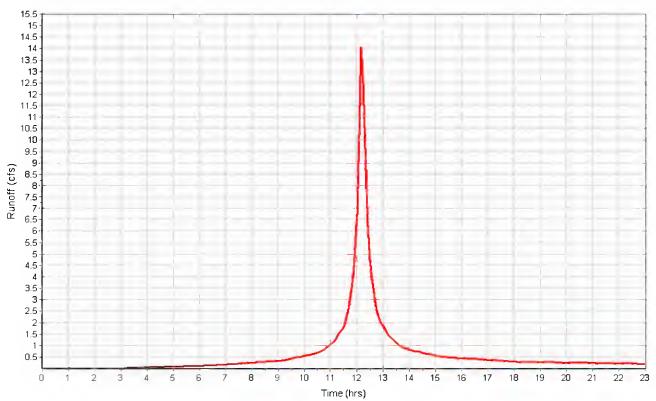
Total Rainfall (in)	7.47
Total Runoff (in)	6.25
Peak Runoff (cfs)	14.25
Weighted Curve Number	89.73
Time of Concentration (days hh:mm:ss)	0 00:14:08

0**0339**8 1549a





Runoff Hydrograph



0**0339**9 1550a

Input Data

Area (ac)	5.71
Peak Rate Factor	484.00
Weighted Curve Number	83.54
Rain Gage ID	*

Composite Curve Number

nposite Curve Number			
	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	3.44	С	74.00
Paved roads with curbs & sewers	2.27	С	98.00
Composite Area & Weighted CN	5.71		83.54

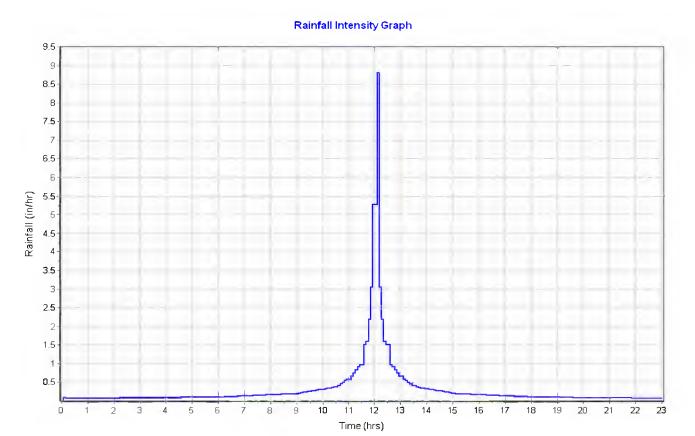
Time of Concentration

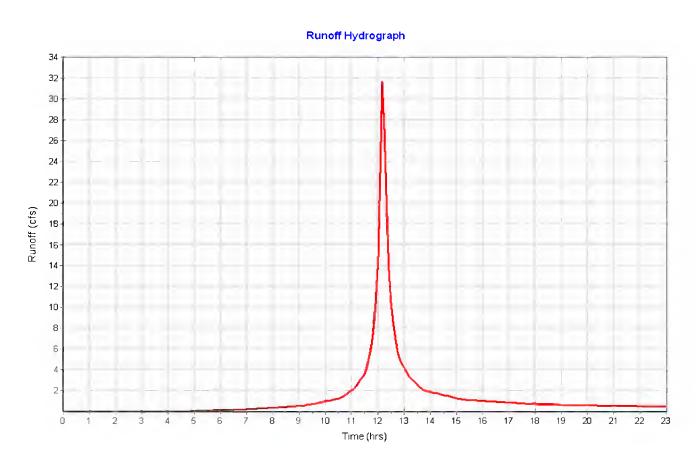
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	Á	В	Ċ
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	100	0.00	0.00
Slope (%):	3	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec):	0.14	0.00	0.00
Computed Flow Time (min):	12.02	0.00	0.00
	Flowpath	Flowpath	Flowpath
Shallow Concentrated Flow Computations	A	В	C
Flow Length (ft):	300	0.00	0.00
Slope (%):	4.6	0.00	0.00
Surface Type :	Grassed waterway	Unpaved	Unpaved
Velocity (ft/sec) :	3.22	0.00	0.00
Computed Flow Time (min):	1.55	0.00	0.00
Total TOC (min)13.57			

Subbasin Runoff Results

Total Rainfall (in)	7.47
Total Runoff (in)	5.53
Peak Runoff (cfs)	31.95
Weighted Curve Number	83.54
Time of Concentration (days hh:mm:ss)	0 00:13:34

0**0**3860 1551a





Input Data

Area (ac)	1.55
Peak Rate Factor	484.00
Weighted Curve Number	93.51
Rain Gage ID	*

Composite Curve Number

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	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.29	С	74.00
Paved parking & roofs	1.26	С	98.00
Composite Area & Weighted CN	1.55		93.51

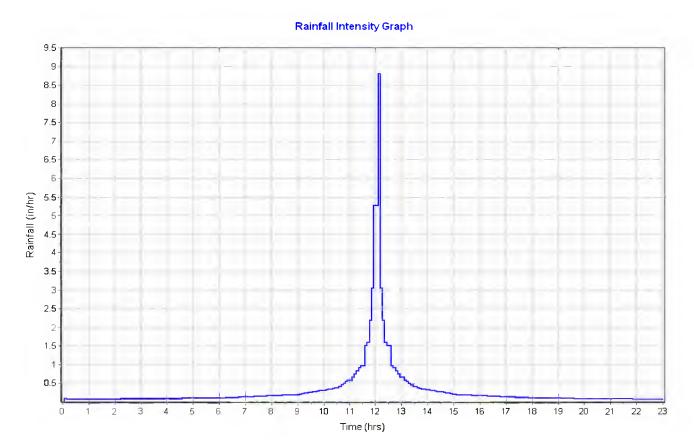
Time of Concentration

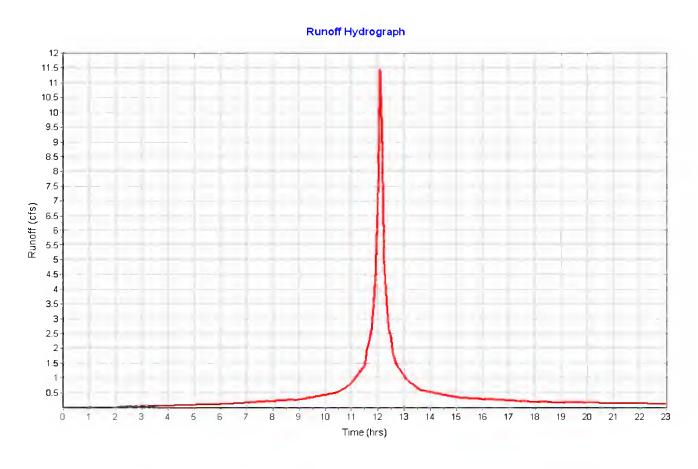
User-Defined TOC override (minutes): 6

Subbasin Runoff Results

Total Rainfall (in)	7.47
Total Runoff (in)	6.70
Peak Runoff (cfs)	12.41
Weighted Curve Number	93.51
Time of Concentration (days hh:mm:ss)	0 00:06:00

0**0**3802





Input Data

Area (ac)	14.51
Peak Rate Factor	484.00
Weighted Curve Number	83.63
Rain Gage ID	*

Composite Curve Number

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	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	7.26	С	74.00
Paved parking & roofs	5.98	С	98.00
Meadow, non-grazed	1.27	С	71.00
Composite Area & Weighted CN	14.51		83.63

Time of Concentration

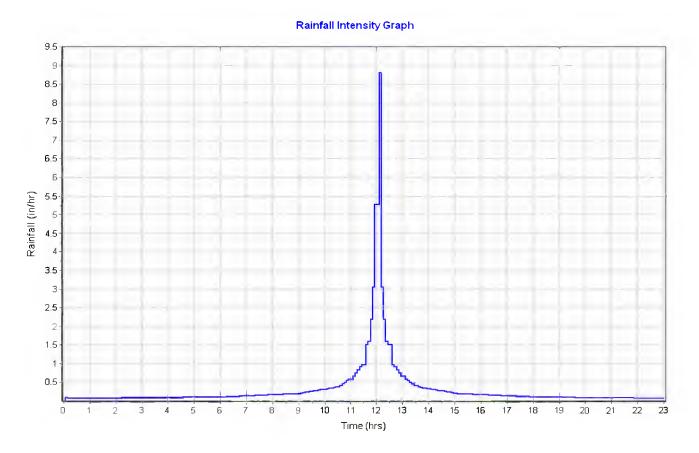
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	Ä	B	Ċ
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	100	0.00	0.00
Slope (%):	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec) :	0.12	0.00	0.00
Computed Flow Time (min):	14.14	0.00	0.00
	Flowpath	Flowpath	Flowpath
Channel Flow Computations	A	В	С

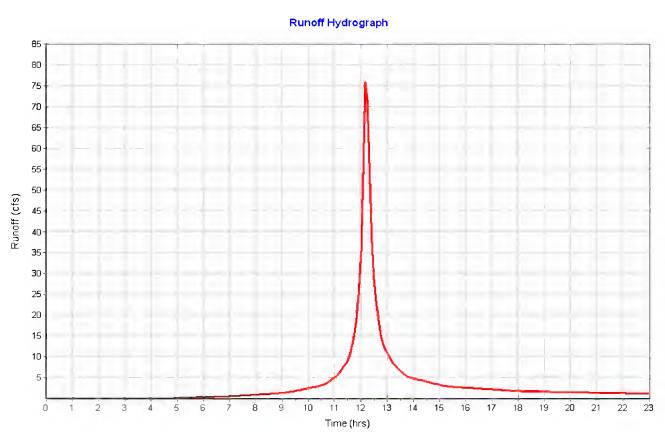
	Flowpath	Flowpath	Flowpath
Channel Flow Computations	Α	В	С
Manning's Roughness :	.013	0.00	0.00
Flow Length (ft):	657	0.00	0.00
Channel Slope (%):	3	0.00	0.00
Cross Section Area (ft²):	3.14	0.00	0.00
Wetted Perimeter (ft):	6.28	0.00	0.00
Velocity (ft/sec) :	12.51	0.00	0.00
Computed Flow Time (min):	0.88	0.00	0.00
Total TOC (min)15.01			

Subbasin Runoff Results

Total Rainfall (in)	7.47
Total Runoff (in)	5.54
Peak Runoff (cfs)	77.97
Weighted Curve Number	83.63
Time of Concentration (days hh:mm:ss)	0 00:15:01
Peak Runoff (cfs)	77.97 83.63

0**038**04 1555a





Input Data

Area (ac)	2.60
Peak Rate Factor	484.00
Weighted Curve Number	83.07
Rain Gage ID	*

Composite Curve Number

iposite Curve Number			
	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.47	С	74.00
Paved parking & roofs	1.11	C	98.00
Meadow, non-grazed	1.02	C	71.00
Composite Area & Weighted CN	2.60		83.07

Time of Concentration

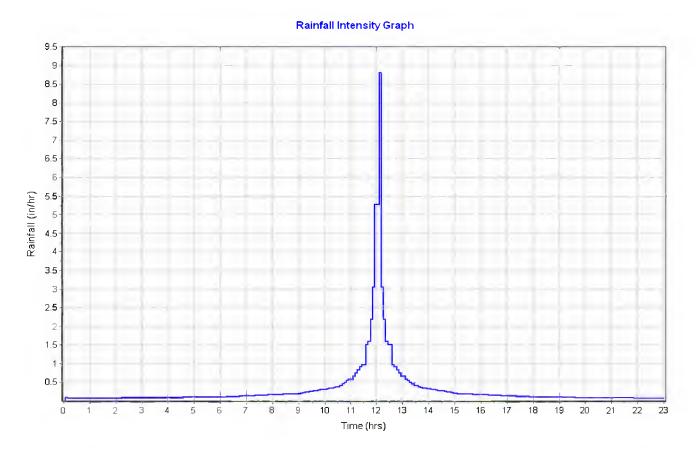
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	À	B	Ċ
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	100	0.00	0.00
Slope (%):	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec):	0.12	0.00	0.00
Computed Flow Time (min):	14.14	0.00	0.00
	Flowpath	Flowpath	Flowpath
Channel Flow Computations	Δ	B	Ċ

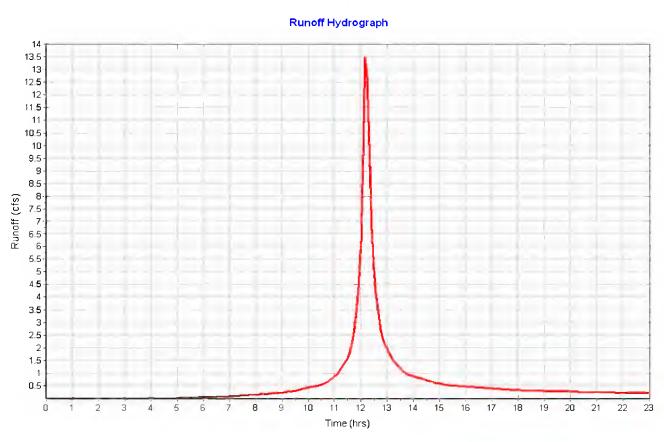
	Flowpath	Flowpath	Flowpath
Channel Flow Computations	Α	В	С
Manning's Roughness :	.013	0.00	0.00
Flow Length (ft):	590	0.00	0.00
Channel Slope (%):	4	0.00	0.00
Cross Section Area (ft²):	1.76	0.00	0.00
Wetted Perimeter (ft):	4.71	0.00	0.00
Velocity (ft/sec) :	11.89	0.00	0.00
Computed Flow Time (min):	0.83	0.00	0.00
Total TOC (min)14.97			

Subbasin Runoff Results

Total Rainfall (in)	.47
Total Runoff (in)	.48
Peak Runoff (cfs)	3.86
Weighted Curve Number83	3.07
Time of Concentration (days hh:mm:ss) 0	00:14:58

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Input Data

Area (ac)	0.33
Peak Rate Factor	
Weighted Curve Number	84.73
Rain Gage ID	*

Composite Curve Number

	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.16	С	74.00
Paved roads with curbs & sewers	0.15	С	98.00
Meadow, non-grazed	0.02	С	71.00
Composite Area & Weighted CN	0.33		84.73

Time of Concentration

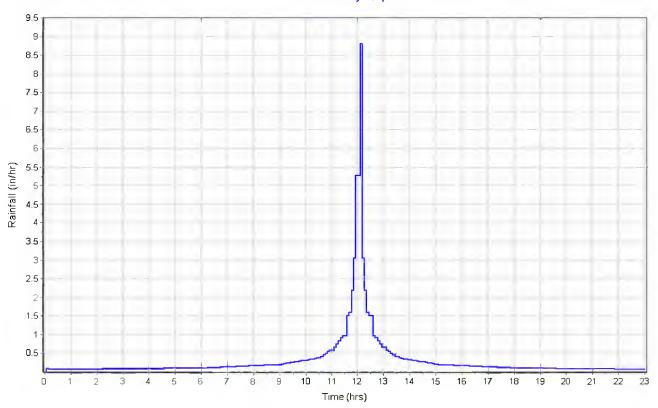
User-Defined TOC override (minutes): 6

Subbasin Runoff Results

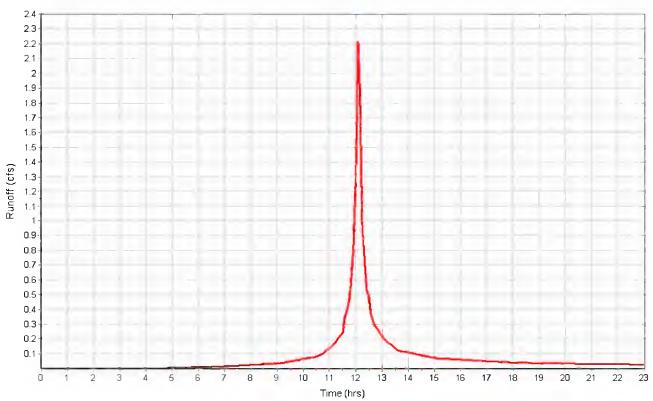
Total Rainfall (in)	7.47
Total Runoff (in)	5.67
Peak Runoff (cfs)	2.43
Weighted Curve Number	84.73
Time of Concentration (days hh:mm:ss)	0 00:06:00

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Runoff Hydrograph



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Input Data

Area (ac)	0.39
Peak Rate Factor	484.00
Weighted Curve Number	73.79
Rain Gage ID	*

Composite Curve Number

iposite Curve Number			
· v	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.23	С	74.00
Paved parking & roofs	0.12	С	98.00
- N. V.	0.04	-	0.00
Composite Area & Weighted CN	0.39		73.79

Time of Concentration

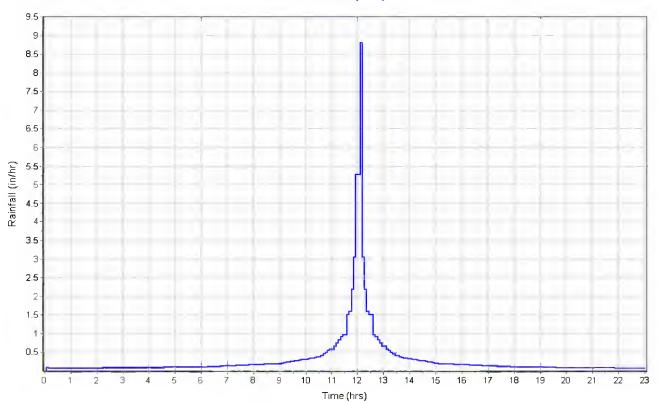
	Flowpath	Flowpath	Flowpath
Sheet Flow Computations	A	В	С
Manning's Roughness :	.240	0.00	0.00
Flow Length (ft):	100	0.00	0.00
Slope (%):	15	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.26	0.00	0.00
Velocity (ft/sec) :	0.26	0.00	0.00
Computed Flow Time (min):	6.31	0.00	0.00
Total TOC (min)6.31			

Subbasin Runoff Results

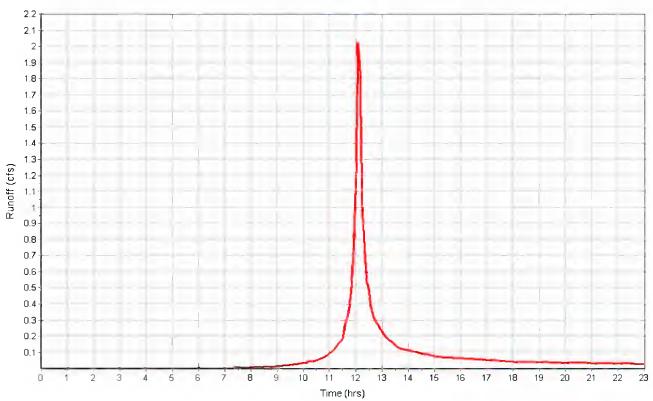
Total Rainfall (in)	7.47
Total Runoff (in)	4.43
Peak Runoff (cfs)	2.31
Weighted Curve Number	73.79
Time of Concentration (days hh:mm:ss)	0 00:06:19

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Runoff Hydrograph



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Input Data

Area (ac)	0.70
Peak Rate Factor	
Weighted Curve Number	74.00
Rain Gage ID	*

Composite Curve Number

	Alea	3011	Cuive
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.70	С	74.00
Composite Area & Weighted CN	0.70		74.00

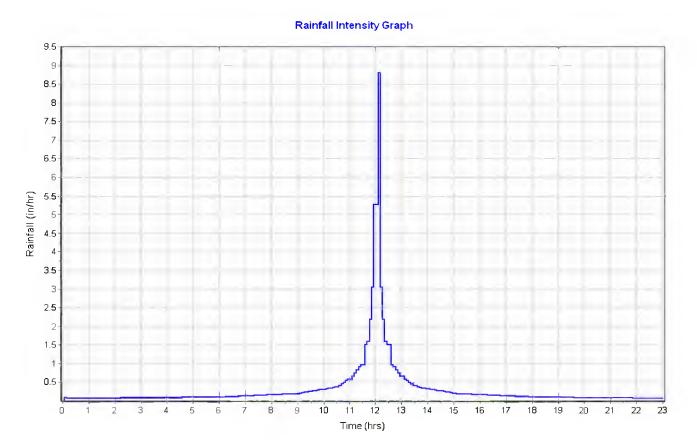
Time of Concentration

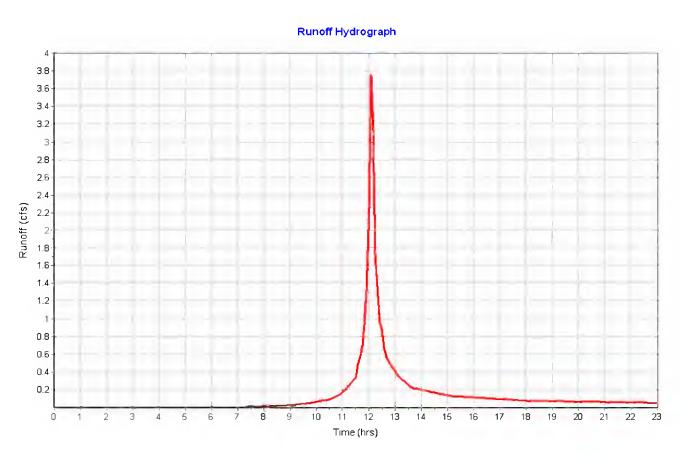
User-Defined TOC override (minutes): 6

Subbasin Runoff Results

Total Rainfall (in)	17
Total Runoff (in)	1 5
Peak Runoff (cfs) 4.1	9
Weighted Curve Number	.00
Time of Concentration (days hh:mm:ss) 0 0	00:06:00

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Input Data

Area (ac)	0.24
Peak Rate Factor	
Weighted Curve Number	79.50
Rain Gage ID	

Composite Curve Number

iiposite oui ve ivaliibei			
	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.05	С	74.00
Paved parking & roofs	0.07	С	98.00
Meadow, non-grazed	0.12	С	71.00
Composite Area & Weighted CN	0.24		79.50

Time of Concentration

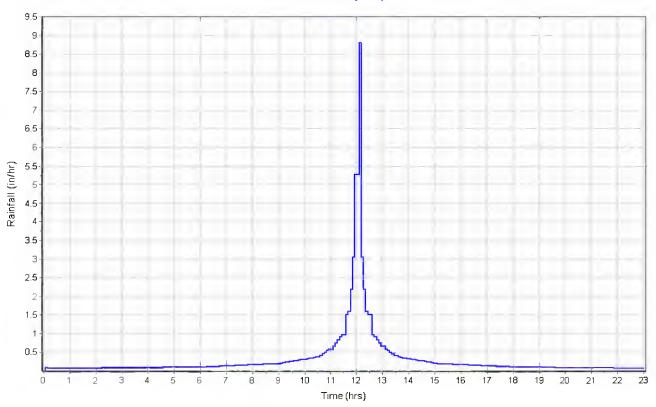
User-Defined TOC override (minutes): 6

Subbasin Runoff Results

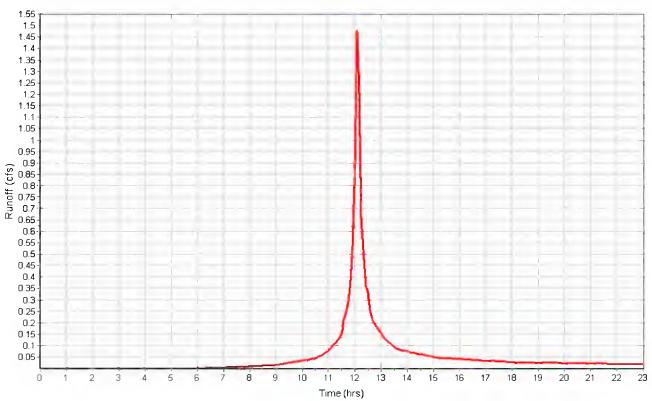
Total Rainfall (in)	7.47
Total Runoff (in)	5.07
Peak Runoff (cfs)	1.63
Weighted Curve Number	79.50
Time of Concentration (days hh:mm:ss)	0 00:06:00

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Runoff Hydrograph



Input Data

Area (ac)	1.74
Peak Rate Factor	484.00
Weighted Curve Number	88.86
Rain Gage ID	*

Composite Curve Number

	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
> 75% grass cover, Good	0.64	С	74.00
Paved roads with curbs & sewers	1.08	С	98.00
Meadow, non-grazed	0.02	С	71.00
Composite Area & Weighted CN	1.74		88.86

Time of Concentration

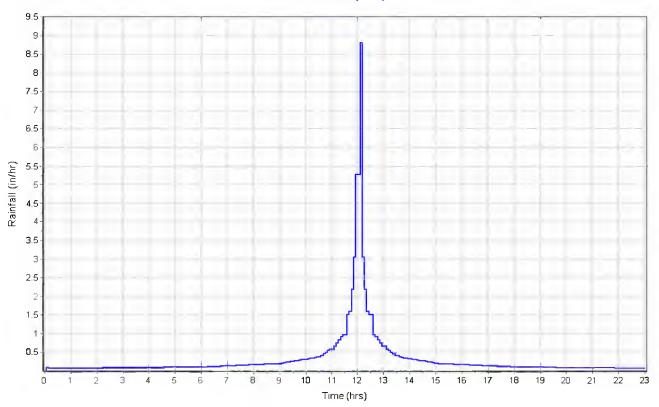
User-Defined TOC override (minutes): 15

Subbasin Runoff Results

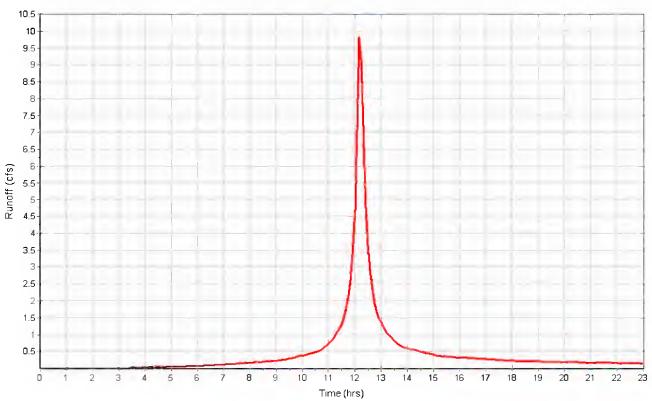
Total Rainfall (in)	7.47
Total Runoff (in)	6.15
Peak Runoff (cfs)	10.07
Weighted Curve Number	88.86
Time of Concentration (days hh:mm:ss)	0 00:15:00

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Junction Input

	•								
SN Element	Invert	Ground/Rim	Ground/Rim	Initial	Initial	Surcharge	Surcharge	Ponded	Minimum
ID	Elevation	(Max)	(Max)	Water	Water	Elevation	Depth	Area	Pipe
		Elevation	Offset	Elevation	Depth				Cover
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft²)	(in)
1 S1.01	374.00	386.00	12.00	374.00	0.00	386.00	0.00	0.00	0.00
2 S1.02	376.56	382.56	6.00	376.56	0.00	382.56	0.00	0.00	0.00
3 S1.03	378.95	384.95	6.00	378.95	0.00	385.00	0.05	0.00	0.00
4 S1.04	379.74	389.00	9.26	379.74	0.00	385.74	-3.26	0.00	0.00
5 S1.05	380.40	386.40	6.00	380.40	0.00	386.40	0.00	0.00	0.00
6 S1.06	381.29	392.00	10.71	381.29	0.00	387.29	-4.71	0.00	0.00
7 S1.07	381.74	392.00	10.26	381.74	0.00	387.74	-4.26	0.00	0.00
8 S1.08	382.94	388.94	6.00	382.94	0.00	388.94	0.00	0.00	0.00
9 S1.09	383.30	389.30	6.00	383.30	0.00	389.30	0.00	0.00	0.00
10 S1.10	384.30	390.30	6.00	384.30	0.00	390.30	0.00	0.00	0.00
11 S1.11	385.03	391.00	5.97	385.03	0.00	391.00	0.00	0.00	0.00
12 \$1.12	389.90	395.90	6.00	389.90	0.00	395.90	0.00	0.00	0.00
13 S1.13	392.00	398.00	6.00	392.00	0.00	398.00	0.00	0.00	0.00
14 S1.14	392.77	398.77	6.00	392.77	0.00	398.77	0.00	0.00	0.00
15 S1.15	395.30	401.30	6.00	395.30	0.00	401.30	0.00	0.00	0.00
16 S1.16	397.35	403.35	6.00	397.35	0.00	403.35	0.00	0.00	0.00
17 S1.17	400.40	406.40	6.00	400.40	0.00	406.40	0.00	0.00	0.00
18 S1.18	402.00	413.00	11.00	402.00	0.00	413.00	0.00	0.00	0.00
19 S1.19	394.42	400.42	6.00	394.42	0.00	400.42	0.00	0.00	0.00
20 S1.20	396.30	402.30	6.00	396.30	0.00	402.30	0.00	0.00	0.00
21 S1.21	398.00	402.00	4.00	398.00	0.00	402.00	0.00	0.00	0.00
22 S1.22	384.00	394.00	10.00	384.00	0.00	394.00	0.00	0.00	0.00
23 S2.01	377.25	384.60	7.35	377.25	0.00	384.60	0.00	0.00	0.00
24 S2.02	378.42	390.20	11.78	378.42	0.00	390.20	0.00	0.00	0.00
25 S2.03	378.85	393.00	14.15	378.85	0.00	393.00	0.00	0.00	0.00
26 S2.05	380.13	396.00	15.87	380.13	0.00	396.00	0.00	0.00	0.00
27 S2.06	371.74	394.00	22.26	381.74	10.00	394.00	0.00	0.00	0.00
28 S2.07	382.38	392.00	9.62	382.38	0.00	392.00	0.00	0.00	0.00
29 S2.08	382.87	390.00	7.13	382.87	0.00	390.00	0.00	0.00	0.00
30 S2.09	383.85	389.50	5.65	383.85	0.00	389.50	0.00	0.00	0.00
31 S2.10	385.35	392.00	6.65	385.35	0.00	392.00	0.00	0.00	0.00
32 S2.11	382.90	388.90	6.00	382.90	0.00	388.90	0.00	0.00	0.00

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Junction Results

SN Element	Peak		Max HGL		Max		Average HGL	•	Time of	Time of		Total Time
ID	Inflow	Lateral	Elevation		Surcharge		Elevation	Depth	Max HGL		Flooded	Flooded
		Inflow	Attained	Attained	Depth	Attained	Attained	Attained	Occurrence	Flooding	Volume	
					Attained					Occurrence		
	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(days hh:mm)	(days hh:mm)	(ac-ın)	(mın)
1 S1.01	201.55	11.42	377.15	3.15	0.00	8.85	374.44	0.44	0 12:15	0 00:00	0.00	0.00
2 S1.02	180.75	5.33	379.54	2.98	0.00	3.02	376.98	0.42	0 12:15	0 00:00	0.00	0.00
3 S1.03	175.42	2.53	381.87	2.92	0.00	3.08	379.36	0.41	0 12:15	0 00:00	0.00	0.00
4 S1.04	172.89	75.82	382.62	2.88	0.00	6.38	380.15	0.41	0 12:15	0 00:00	0.00	0.00
5 S1.05	97.08	0.00	382.88	2.48	0.00	3.52	380.75	0.35	0 12:15	0 00:00	0.00	0.00
6 S1.06	97.08	2.21	384.09	2.80	0.00	7.91	381.66	0.37	0 12:15	0 00:00	0.00	0.00
7 S1.07	95.28	13.48	384.54	2.80	0.00	7.46	382.10	0.36	0 12:15	0 00:00	0.00	0.00
8 S1.08	81.80	2.02	385.13	2.19	0.00	3.81	383.25	0.31	0 12:15	0 00:00	0.00	0.00
9 S1.09	79.93	0.00	385.49	2.19	0.00	3.81	383.61	0.31	0 12:15	0 00:00	0.00	0.00
10 S1.10	79.93	0.00	386.40	2.10	0.00	3.90	384.60	0.30	0 12:15	0 00:00	0.00	0.00
11 S1.11	79.93	3.75	387.13	2.10	0.00	3.87	385.33	0.30	0 12:15	0 00:00	0.00	0.00
12 S1.12	76.78	1.48	391.92	2.02	0.00	3.98	390.16	0.26	0 12:15	0 00:00	0.00	0.00
13 S1.13	75.56	0.00	394.01	2.01	0.00	3.99	392.26	0.26	0 12:15	0 00:00	0.00	0.00
14 S1.14	55.51	9.80	394.68	1.91	0.00	4.09	393.03	0.26	0 12:15	0 00:00	0.00	0.00
15 S1.15	45.70	0.00	396.95	1.65	0.00	4.35	395.53	0.23	0 12:15	0 00:00	0.00	0.00
16 S1.16	45.70	14.05	399.00	1.65	0.00	4.35	397.58	0.23	0 12:15	0 00:00	0.00	0.00
17 S1.17	31.65	0.00	401.99	1.59	0.00	4.41	400.60	0.20	0 12:15	0 00:00	0.00	0.00
18 S1.18	31.65	31.65	403.57	1.57	0.00	9.43	402.20	0.20	0 12:15	0 00:00	0.00	0.00
19 S1.19	20.05	4.44	395.60	1.18	0.00	4.82	394.57	0.15	0 12:15	0 00:00	0.00	0.00
20 S1.20	15.61	0.00	397.48	1.18	0.00	4.82	396.44	0.14	0 12:15	0 00:00	0.00	0.00
21 S1.21	15.61	15.61	399.18	1.18	0.00	2.82	398.14	0.14	0 12:15	0 00:00	0.00	0.00
22 S1.22	11.73	11.73	384.85	0.85	0.00	9.15	384.13	0.13	0 12:15	0 00:00	0.00	0.00
23 S2.01	39.18	0.00	379.21	1.96	0.00	5.39	377.49	0.24	0 12:15	0 00:00	0.00	0.00
24 S2.02	39.18	0.00	380.38	1.96	0.00	9.82	378.66	0.24	0 12:15	0 00:00	0.00	0.00
25 S2.03	39.18	11.63	380.81	1.96	0.00	12.19	379.09	0.24	0 12:15	0 00:00	0.00	0.00
26 S2.05	27.55	0.00	381.63	1.50	0.00	14.37	380.33	0.20	0 12:15	0 00:00	0.00	0.00
27 S2.06	27.55	0.90	383.24	11.50	0.00	10.76	381.94	10.20	0 12:15	0 00:00	0.00	0.00
28 S2.07	26.82	0.00	383.86	1.48	0.00	8.14	382.58	0.20	0 12:15	0 00:00	0.00	0.00
29 S2.08	26.82	0.00	384.35	1.48	0.00	5.65	383.07	0.20	0 12:15	0 00:00	0.00	0.00
30 S2.09	26.82	13.55	385.32	1.47	0.00	4.18	384.05	0.20	0 12:15	0 00:00	0.00	0.00
31 S2.10	13.27	0.00	386.73	1.38	0.00	5.27	385.53	0.18	0 12:15	0 00:00	0.00	0.00
32 S2.11	13.27	13.27	386.93	4.03	0.00	1.97	385.73	2.83	0 12:15	0 00:00	0.00	0.00

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Pipe Input

SN Element	Length	Inlet	Inlet	Outlet	Outlet	Total	Average Pipe	Pipe	Pipe	Manning's	Entrance	Exit/Bend	Additional	Initial Flap	No. of
ID		Invert	Invert	Invert	Invert	Drop	Slope Shape	Diameter or		Roughness	Losses	Losses	Losses	Flow Gate	Barrels
				Elevation				Height							
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(%)	(in)	(in)					(cfs)	
1 P1.01	66.76	374.00	0.00	373.00	0.00	1.00	1.5000 CIRCULAR		54.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
2 P1.02	183.09	376.56	0.00	374.00	0.00	2.56	1.4000 CIRCULAR		54.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
3 P1.03	170.47	378.95	0.00	376.56	0.00	2.39	1.4000 CIRCULAR		54.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
4 P1.04	56.03	379.74	0.00	378.95	0.00	0.79	1.4100 CIRCULAR		54.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
5 P1.05	64.98	380.40	0.00	379.74	0.00	0.66	1.0200 CIRCULAR		48.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
6 P1.06	97.20	381.29	0.00	380.40	0.00	0.89	0.9200 CIRCULAR		48.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
7 P1.07	47.82	381.74	0.00	381.29	0.00	0.45	0.9400 CIRCULAR		42.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
8 P1.08	86.34	382.94	0.00	381.74	0.00	1.20	1.3900 CIRCULAR		42.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
9 P1.09	29.24	383.30	0.00	382.94	0.00	0.36	1.2300 CIRCULAR		42.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
10 P1.10	68.28	384.30	0.00	383.30	0.00	1.00	1.4600 CIRCULAR		42.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
11 P1.11	52.03	385.03	0.00	384.30	0.00	0.73	1.4000 CIRCULAR		42.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
12 P1.12	135.23	389.90	0.00	385.03	0.00	4.87	3.6000 CIRCULAR		30.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
13 P1.13	59.72	392.00	0.00	389.90	0.00	2.10	3.5200 CIRCULAR	30.000	30.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
14 P1.14	36.49	392.77	0.00	392.00	0.00	0.77	2.1100 CIRCULAR	30.000	30.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
15 P1.15	119.79	395.30	0.00	392.77	0.00	2.53	2.1100 CIRCULAR	30.000	30.000	0.0130	0.2000	0.8000	0.0000	0.00 No	1
16 P1.16	98.60	397.35	0.00	395.30	0.00	2.05	2.0800 CIRCULAR	30.000	30.000	0.0130	0.2000	0.8000	0.0000	0.00 No	1
17 P1.17	146.13	400.40	0.00	397.35	0.00	3.05	2.0900 CIRCULAR	24.000	24.000	0.0130	0.2000	0.8000	0.0000	0.00 No	1
18 P1.18	74.66	402.00	0.00	400.40	0.00	1.60	2.1400 CIRCULAR	24.000	24.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
19 P1.19	98.76	394.42	0.00	392.00	0.00	2.42	2.4500 CIRCULAR	24.000	24.000	0.0130	0.2000	0.8000	0.0000	0.00 No	1
20 P1.20	78.24	396.30	0.00	394.42	0.00	1.88	2.4000 CIRCULAR	18.000	18.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
21 P1.21	71.46	398.00	0.00	396.30	0.00	1.70	2.3800 CIRCULAR	18.000	18.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
22 P1.22	299.67	384.00	0.00	374.00	0.00	10.00	3.3400 CIRCULAR	18.000	18.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
23 P2.01	70.50	373.71	-3.54	373.00	0.00	0.71	1.0100 CIRCULAR	36.000	36.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
24 P2.02	117.10	378.42	0.00	377.25	0.00	1.17	1.0000 CIRCULAR	30.000	30.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
25 P2.03	43.21	378.85	0.00	378.42	0.00	0.43	1.0000 CIRCULAR	30.000	30.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
26 P2.04	127.13	380.13	0.00	378.85	0.00	1.28	1.0100 CIRCULAR	30.000	30.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
27 P2.06	161.78	381.74	10.00	380.13	0.00	1.61	1.0000 CIRCULAR	30.000	30.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
28 P2.07	63.62	382.38	0.00	381.74	10.00	0.64	1.0100 CIRCULAR	30.000	30.000	0.0130	0.2000	0.5000	0.0000	0.00 No	1
29 P2.08	49.15	382.87	0.00	382.38	0.00	0.49	1.0000 CIRCULAR	30.000	30.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
30 P2.09	97.65	383.85	0.00	382.87	0.00	0.98	1.0000 CIRCULAR	30.000	30.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
31 P2.10	149.69	385.35	0.00	383.53	-0.32	1.82	1.2200 CIRCULAR	24.000	24.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1
32 P2.11	39.49	385.55	2.65	385.35	0.00	0.20	0.5100 CIRCULAR	24.000	24.000	0.0130	0.2000	0.6000	0.0000	0.00 No	1

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Pipe Results

SN Element ID	Peak Flow	Time of Peak Flow	Design Flow	Peak Flow/ Design Flow	Peak Flow Velocity		Peak Flow Depth			Froude Reported Number Condition
I.D	1 1011	Occurrence	Cupacity	Ratio	volocity	111110	Борин	Total Depth	Caronargea	Transcr Condition
								Ratio		
	(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1 P1.01	201.55	0 12:15	240.68	0.84	16.94	0.07	3.15	0.70	0.00	Calculated
2 P1.02	180.75	0 12:15	232.53	0.78	16.16	0.19	2.98	0.66	0.00	Calculated
3 P1.03	175.42	0 12:15	232.85	0.75	16.08	0.18	2.92	0.65	0.00	Calculated
4 P1.04	172.89	0 12:15	233.50	0.74	16.07	0.06	2.88	0.64	0.00	Calculated
5 P1.05	97.08	0 12:15	144.77	0.67	12.34	0.09	2.40	0.60	0.00	Calculated
6 P1.06	97.08	0 12:15	137.45	0.71	11.85	0.14	2.48	0.62	0.00	Calculated
7 P1.07	95.28	0 12:15	97.60	0.98	11.55	0.07	2.80	0.80	0.00	Calculated
8 P1.08	81.80	0 12:15	118.61	0.69	13.29	0.11	2.14	0.61	0.00	Calculated
9 P1.09	79.93	0 12:15	111.64	0.72	12.61	0.04	2.19	0.63	0.00	Calculated
10 P1.10	79.93	0 12:15	121.76	0.66	13.49	0.08	2.07	0.59	0.00	Calculated
11 P1.11	79.93	0 12:15	119.17	0.67	13.27	0.07	2.10	0.60	0.00	Calculated
12 P1.12	76.78	0 12:15	77.84	0.99	18.07	0.12	2.02	0.81	0.00	Calculated
13 P1.13	75.56	0 12:15	76.92	0.98	17.85	0.06	2.01	0.80	0.00	Calculated
14 P1.14	55.51	0 12:15	59.58	0.93	13.78	0.04	1.91	0.76	0.00	Calculated
15 P1.15	45.70	0 12:15	59.61	0.77	13.38	0.15	1.64	0.66	0.00	Calculated
16 P1.16	45.70	0 12:15	59.14	0.77	13.30	0.12	1.65	0.66	0.00	Calculated
17 P1.17	31.65	0 12:15	32.68	0.97	11.84	0.21	1.59	0.79	0.00	Calculated
18 P1.18	31.65	0 12:15	33.12	0.96	11.99	0.10	1.57	0.78	0.00	Calculated
19 P1.19	20.05	0 12:15	35.41	0.57	11.62	0.14	1.08	0.54	0.00	Calculated
20 P1.20	15.61	0 12:15	16.28	0.96	10.49	0.12	1.18	0.79	0.00	Calculated
21 P1.21	15.61	0 12:15	16.20	0.96	10.44	0.11	1.18	0.79	0.00	Calculated
22 P1.22	11.73	0 12:15	19.19	0.61	11.39	0.44	0.85	0.57	0.00	Calculated
23 P2.01	39.18	0 12:15	163.76	0.24	19.00	0.06	1.00	0.33	0.00	Calculated
24 P2.02	39.18	0 12:15	41.00	0.96	9.50	0.21	1.96	0.78	0.00	Calculated
25 P2.03	39.18	0 12:15	40.92	0.96	9.49	0.08	1.96	0.78	0.00	Calculated
26 P2.04	27.55	0 12:15	41.16	0.67	8.98	0.24	1.50	0.60	0.00	Calculated
27 P2.06	27.55	0 12:15	40.92	0.67	8.94	0.30	1.50	0.60	0.00	Calculated
28 P2.07	26.82	0 12:15	41.14	0.65	8.92	0.12	1.47	0.59	0.00	Calculated
29 P2.08	26.82	0 12:15	40.95	0.65	8.89	0.09	1.48	0.59	0.00	Calculated
30 P2.09	26.82	0 12:15	41.09	0.65	8.91	0.18	1.47	0.59	0.00	Calculated
31 P2.10	13.27	0 12:15	22.65	0.59	7.49	0.33	1.10	0.55	0.00	Calculated
32 P2.11	13.27	0 12:15	16.10	0.82	5.72	0.12	1.38	0.69	0.00	Calculated

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Appendix D

Opinion of Probable Cost

West Chester Borough Chester County



CONTRACT NUMBER:		21000					
COST ESTIMATE:		Concept					
TYPE OF CONTRACT:		Expert Witness					
LOCATION:		WĊU					
ESTIMATE BY:		Aaron Jolin, PE					
DATE OF ESTIMATE		5/20/2021					
WORK SCOPE:							
WORK SCOPE.		WCU Concept S	torm Drain	System			
		And Associated		Joseph			
COST BASIS:		PennDOT ECMS	S District 6				
TOTAL COST:		Design/Permitti	ng/Genera	I/Construction	\$ 4,201,969.59		
CONTINGENCY:		Contingency: 5%	<u> </u>				
<u>GONTINGENOT.</u>							
ASSUMPTIONS:		Borrow fill material not required for pipe installation					
		Pipe cost include	es installat	ion 			
ESTIMATE:							
	PennDOT Item						
Item	Number	Qty Unit	s	Unit Cost	Total	Division Totals	
STORM DRAIN TRUNK SYSTEM CONSTRUCTION							
TYPE A 18" REINFORCED CONCRETE PIPE (7'-3' FILL 100-YR LIFE S/T.B.)	0601-7509	150 LF		\$ 149.00			
TYPE A 24" REINFORCED CONCRETE PIPE (7'-3' FILL 100-YR LIFE S/T.B.)	0601-7517	510 LF		\$ 175.00			
TYPE A 30" REINFORCED CONCRETE PIPE (7'-3' FILL 100-YR LIFE S/T.B.)	0601-7043	1111 LF		\$ 245.00			
TYPE A 36" REINFORCED CONCRETE PIPE (15'-3' FILL 100-YR LIFE S/T.B.)	0601-7536	71 LF		\$ 300.00			
TYPE A 42" REINFORCED CONCRETE PIPE (10'-3' FILL 100-YR LIFE S/T.B.)	0601-7541	284 LF		\$ 335.00			
TYPE A 48" REINFORCED CONCRETE PIPE (7'-3' FILL TRENCH BOX)	0601-7546	162 LF		\$ 345.00			
TYPE A 54" REINFORCED CONCRETE PIPE (<15" DEPTH)	0601-7551	476 LF		\$ 735.00			
TYPE M INLET TOP UNIT AND BICYCLE SAFE GRATE	0605-2731	16 EA		\$ 1,100.00			
TYPE 6 INLET BOX, HEIGHT = 10'</td <td>0605-2862 0605-2858</td> <td>6 EA</td> <td></td> <td>\$ 9,000.00 \$ 7,000.00</td> <td></td> <td></td>	0605-2862 0605-2858	6 EA		\$ 9,000.00 \$ 7,000.00			
TYPE 5 INLET BOX, HEIGHT =10' TYPE 4 INLET BOX, HEIGHT </= 10'</td <td>0605-2854</td> <td>6 EA</td> <td></td> <td>\$ 7,000.00</td> <td></td> <td></td>	0605-2854	6 EA		\$ 7,000.00			
SPECIAL ENDWALL- TEAR DOWN AND REBUILD	NO NUMBER	19 EA		\$ 100,000.00			
ROCK APRON	0851-0003	75 S		\$ 150.00			
FLOWABLE BACKFILL, TYPE D (INCLUDES PLUGGING PIPE)	4220-0030	64 C		\$ 220.00			
PIPE REMOVAL/DEMOLITION (CLASS 2 EXCAVATION)	0204-0001	358 C		\$ 30.00			
THE TREMOVALUE TOTAL (OB 100 2 EXONVATION)		DRAIN TRUNK				\$ 1,241,155.00	
PERIMETER CAPTURE/CONVEYANCE							
NYLOPLAST DRAIN BASINS WITH GRATES	NO NUMBER	83 EA	<u> </u>	\$ 1,200.00	\$ 99,600.00		
TRAFFIC RATED TRENCH DRAIN	NO NUMBER	574 LF		\$ 350.00			
TOTAL TO TAKE DE TREMOIT DIVAN	110 HOMBER	OIT LI		ψ 550.00	Ψ 200,300.00		

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	PennDOT Item								
Item	Number	Qty	Units			Unit Cost		Total	Division Totals
12" THERMOPLASTIC GROUP I (15'-1.5' FILL DEPTH)	0601-0311	4009	LF		\$	90.00	\$	360,810.00	
CURB-TRENCHDRAIN or KNEEWALL-SWALE	NO NUMBER	1023	LF		\$	240.00	\$	245,520.00	
CLASS 2 EXCAVATION (0.14 cy/lf OF PERIMETER WORK)	0204-0001	358	CY		\$	30.00	\$	10,740.00	
SEEDNG AND SOIL SUPPLEMENTS - FORMULA D	0804-0011	580	LB		\$	13.00	\$	7,540.00	
SEEDING - FORMULA E	0804-0004	90	LB		\$	20.00	\$	1,800.00	
TEMP SHORT TERM MATTING TYPE 2A	0806-0110	7000	SY		\$	2.00	\$	14,000.00	
TOPSOIL FURNISHED AND PLACED	0802-0001	732	CY		\$	93.50	\$	68,442.00	
	TOTAL - PERIMT	ER CAPTU	RE/CONV	EYAN	CE				\$ 1,009,352.00
UTILITY RELOCATION (BASED ON KNOWN INFORMATION)									
REPLACE BOROUGH INLETS WITH SOLID TOPS AND MANHOLE COVERS	NO NUMBER	5	EA.		\$	4,500.00	\$	22,500.00	
10" PVC SEWER	NO NUMBER	188	LF		\$			28,200.00	
SANITARY SEWER MANOLE - 4' DIAM, 4-8' DEEP	NO NUMBER	3	EA.		\$			12,000.00	
TYPE A 48"x78" ELLIPTICAL CONCRETE PIPE (3-2' TYPE B TRENCH BOX)	0601-6429	258	LF		\$			232,200.00	
TYPE 12 STORMWATER MANHOLE >10 <20' Height	0605-3072	6	EA.		\$			240,000.00	
	TOTAL - UTILITY	RELOCAT			_	,	Ť		\$ 534,900.00
			T						, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
PAVING AND SIDEWALK RESTORATION									
2" SUPERPAVE ASPHALT MIX 12.5 MM SRL-G	0411-0353	3290	SY		\$	23.27	\$	76,558.30	
6" SUPERPAVE BASE 25MM	0311-0026	1645	SY		\$	38.00	\$	62,510.00	
SIDEWALK (EXCLUDES SIDEWALK REPLACEMENT REQUIRED FOR KNEE WALLS/TRENCH DRAINS)	0676-0001	1254	SY		\$	93.50	\$	117,249.00	
CURB AND GUTTER	0641-0005	80	LF		\$	85.00	2	6,800.00	
SAW-CUTTING AND OVERLAY SEALING	0515-0001	3215	LF		\$			22,505.00	
TACK COAT	0460-0001	4800	SY		\$			2,400.00	
MILLING 2"	0491-0013	2400	SY		\$			8,592.00	
CRUSHED AGGREGATE BASE COURSE (6")	0310-0003	2400	SY		\$			20,208.00	
ondones he shall add the form	TOTAL- PAVING				Ψ	0.12	Ψ	20,200.00	\$ 316,822.30
	TOTAL - NET CO	NSTRUCTI	ON COST	S					\$ 3,102,229.30
OTHER PROJECTED COSTS					<u> </u>		<u> </u>		
OTHER DEMOLITION AND HAUL OFF (1%)	NA	1	LS			31,022.29		31,022.29	
PERMITTING COSTS (2%)	NA	1	LS			62,044.59		62,044.59	
ENGINEERING, SURVEY, SUE, EASEMENT, CONSTRUCTION ADMIN (15%)	NA	1	LS			465,334.40			
STAGED MOBILIZATION (8%)	NA	1	LS			248,178.34			
E&S COSTS (3%)	NA	1	LS			93,066.88			
				TOT	AL	- OTHER CO	ST	S	\$ 899,646.50
				1	<u> </u>				
						<u> DTAL:</u>			A
				et Cos					\$ 4,001,875.80
						ted Continger			\$ 200,093.79
				otal E	stir	nated Cost:	===		\$ 4,201,969.59

Appendix E

Operation and Costs Calculations

West Chester Borough Chester County



Operations and Costs Calculations Methodology

To determine the additional annual operations and costs associated with Option 3, NTM Engineering reviewed the Borough of West Chester Stream Protect Fee Report's projected budgets to determine an annual cost per linear mile of storm drain. West Chester's fee schedule is based on an annual budget of 1.3 million dollars with the breakdown as shown below (taken from the 2017 West Chester Stream Protection Fee Report).

Table 1 below "Medium revised" shows the breakdown of cost estimates for program elements which the current impervious coverage fee (SPF) was projected to support annually, with the projected 6.70/1000 SF/month to fee based rate to generate the estimated \$1.3m shown in the "Medium Revised" column.

Level of Service Cost Estimate Summary	Level of	Service	Cost	Estimate	Summary
--	----------	---------	------	----------	---------

	_	Estimated Average Annual Costs							
	Law	Medium (revision)	Medium (angles)	High					
Operating Costs									
Operations and Maintenance	\$324,660	3837,000	\$357,000	\$387,54					
NPDES Permit Activities	\$10,880	583,100	\$33,100	\$59,586					
Administrative	\$33,600	\$51,060	\$51,660	\$82,94					
Urban Forestry/Parks	\$0	\$400,000	\$89,080	\$178,52					
Professional Services	\$42,300	\$77,300	\$77 300	\$112,30					
Total Operating	\$411 440	5508,160	\$608,140	\$820,88					
Capital Costs									
Equipment	\$49,200	\$49,300	\$49,200	\$49,20					
Pipes	\$250,750	\$150,750	\$250,750	\$250,750					
Stream Improvements	\$320,500	5125,500	\$320,500	\$320,500					
Additional Candidate Project	\$0	565,000	\$285,600	\$571,000					
Total Capital	\$620,450	\$663,450	\$906,050	\$1,191,450					
Total Operating and Capital	\$1,031,890	\$1,285,300	\$1,514,190	\$2,012,330					

Items not considered relative to West Chester University Costs were removed for consideration of calculating West Chester University's average annual costs as shown below.

Calculation for Average Annual Operating and Capital Costs (per mile of storm drain)

\$ 1,289,590.00
1,007,070.00
23
\$ 56,069.13
\$ 819,010.00
\$ 35,609.13
1.2827
\$ 45,675.83
\$ \$ \$

West Chester University's additional annual costs associated with Option 3 would be \$45,675.83.

Appendix F

Expert Witness CVs

West Chester Borough Chester County



Scott A. Brown, MS, PE, D.WRE

Senior Project Manager



Professional Experience

Mr. Brown offers over 42 years of professional civil engineering experience specializing in urban drainage design, stormwater management, erosion and sedimentation control, hydrologic and hydraulic (H&H) analysis of river and watershed systems including floodplain analysis, and environmental agency coordination. His background also incudes experience in sustainable site design, utility design, and environmental permitting including construction period and municipal stormwater NPDES permitting and waterway encroachment permitting. Mr. Brown has been involved with municipal land development plan reviews for code compliance and is actively involved in the development and delivery of stormwater management and drainage design professional training courses and seminars. He was a member of the PA DEP Best Management Practices Manual Technical Oversight Committee and is a Certified PennDOT Instructor, who teaches PennDOT's Highway Drainage Design, Stormwater Design & NPDES Permits, and Introduction to Highway Hydraulics courses. Mr. Brown's unique expertise and achievements in water resource engineering were acknowledged by the American Academy of Water Resource Engineers in 2013 through award of the credential Diplomat, Water Resource Engineer. His specific project experience is outlined below.

Forensic Engineering

PTC Southern Beltway Section 55B, Peitragallo Gordon Alfano Bosick & Raspanti, LLP, Washington County, PA-Principal Investigator and Expert in a dispute between a property owner and the Pennsylvania Turnpike Commission and their design and construction contractors. The question before the court is whether the Pennsylvania Turnpike Commission and it's contractors are responsible for damages resulting from storm runoff during the construction period. Responsibilities included review of case history and related background information including design reports, plans, correspondence. construction schedules. specifications. communications, and other relevant documentation. Responsibilities also included analysis of regional and local rainfall data and development of an expert report of findings.

APEX at Kutztown Apartment Complex Infiltration Facility Failure, Kutztown University, Kutztown, PA—Project Manager and Expert for investigation of Infiltration Area 2 failure including the basin overflow spillway at the APEX Student Apartment Complex. The investigation included design drawing and engineering calculations review and assessment, construction contractor interviews, field permeability data analysis, and field observations. The investigation revealed clear errors and omissions by the project's design engineer.

Barger versus Dalesford Estates Community, Tredyffrin

Township, Chester County, PA—Project Manager and Technical Expert for stormwater management

Total Years of Experience: 42

Education:

MS, Civil Engineering – Hydrology and Hydraulics, The Pennsylvania State University, 1979

BS, Civil Engineering, The Pennsylvania State University, 1977

Licenses/Certifications:

Professional Engineer: PA No. PE042215R, 1991 NJ No. 24GE04685100, 2007 OH No. PE58163, 2014 VA No. 0402013334, 1982 WV No. 018145, 2009

National Council of Examiners for Engineering and Surveying (NCEES) Record No. 39398, 2010

ASCE Diplomat, Water Resources Engineer, 00632, 2013

Certified PennDOT Instructor, 2007

Key Qualifications:

- Principal Author, Federal Highway Administration Publication HEC-22, Urban Drainage Design
- Co-author, Residential Site
 Development Standards for the
 Pennsylvania Housing Research
 Center
- Develops and teaches multiple stormwater management and drainage design courses and seminars
- Served as PA DEP Pennsylvania Stormwater Technical Work Group Design Standards Subcommittee Member
- Specializes in urban drainage design, stormwater management, and erosion and sediment control
- Expertise in H&H analysis of river and watershed systems, including floodplain analysis
- Diplomat, Water Resources Engineer

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evaluations and basin operation and maintenance issues related to sinkhole development in and adjacent to a stormwater basin located on the Barger property.

Galen Oaks Townhouse Basement Flooding Investigation, State College, PA—*Project Manager and Expert* for the defense in litigation of basement flooding issues in the Galen Oaks townhouse community. The investigation included site drainage issue field investigation including consideration of the subsurface movement of moisture through soils, potential impacts from site stormwater infiltration practices, and the impact of connecting roof drains to subsurface foundation drains. The outcome was a settlement with the builder/developer to make necessary site improvement to rectify problems.

Mill Creek Square Sink Hole Investigation, Lancaster County, PA—Project Manager and Technical Expert for the cause evaluation of a sinkhole collapse in a stormwater infiltration/detention facility at a commercial facility along the Route 30 corridor just outside Lancaster City. The failure caused significant damage to adjacent residential properties.

Pittston Aqueduct Failure, Pittston, PA—*Project Manager and Expert* for hydraulics and stormwater for plaintiff in litigation related to building damage from the collapse of an over 100-year-old stone arch aqueduct in the City of Pittston. The investigation included hydrologic and hydraulic analysis and modeling to recreate the storm event that caused the failure to assist in determination of the aqueduct collapse cause. The analysis supported the conclusion that pressure and turbulence in the pipe at the failure location were sufficient to cause dislodging of individual arch stones resulting in failure.

Borough of Sunbury Water Treatment Plant Holding Lagoon Failure, Borough Sunbury, PA—Project Manager and Expert for the defense in litigation against the Borough of Sunbury claiming flood losses caused in part by a holding pond embankment failure at the Borough's water treatment facility during Shamokin Creek flooding. The investigation involved stream system modeling (HEC-RAS), stream stability evaluation, and investigation of embankment failure mode. The outcome was a settlement in favor of the Borough of Sunbury based on the technical report's findings.

Stormwater Management/Drainage/Stormwater NPDES Permitting

Pennsylvania Stormwater Technical Work Group, Department of Environmental Protection, Harrisburg, PA—Subcommittee Member who participated on the Design Standards and Special Management Area Subcommittees providing recommendations to the PA DEP relative to needed revisions to the Pennsylvania Stormwater BMP Manual. Provided leadership and input for development of alternative design standard recommendations and assisted in drafting revisions to multiple sections of the "Special Management Areas" chapter.

Luzerne County Transportation Authority Transit Maintenance and Operations Facility, PennDOT Bureau of Public Transportation, City of Wilkes-Barre, Luzurne County, PA – Project Manager and Technical Lead for NTM's resopnsibilities as part of the design team. This project involves development of construction documents for all site improvements including roadway, parking, utility, and transit and maintenance facility design. NTM's resonsibilities include storm conveyance system and stormwater management analysis and design, erosion and sedimentation control design, and NPDES permitting.

PTC 195 Sections A2 and A3 Roadway and Interchange Reconstruction and Widening, The Pennsylvania Turnpike Commission, Bucks County, PA— Project Manager and Technical Lead for NTM's responsibilities on the project. The project involves development of construction and permit documents for reconstruction and widening of 1.3 miles of the Pennsylvania Turnpike mainline and major interchange ramp modifications at the Bensalem Interchange. NTM's responsibilities include stormwater management, drainage design, and preparation of NPDES permit documents. Challenges included restrictive township stormwater requirements, limited right-of-way, and NPDES permit requirement changes mid-project.

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PTC Milepost 320 – 326 Roadway Reconstruction Stormwatrer, E&S, and NPDES Permit Third Party Review, The Pennsylvania Turnpike Commission, Chester County and Montgomery County, PA—Project Manager and Technical Lead for NTM's responsibilities on the project. NTM was brought in to the projects Final Design phase as a "third-party reviewer." The project extends from PA 29 in Phoenixville/Malvern Chester County to the Falley Forge exit in Montgomery Copunty. NTM's responsibilities include independently reviewing the previous stormwater design and NPDES permit submissions, evaluating the proposed design and providing improvement recommendations, and in-depth quality review of the fiinal NPDES permit package. The work included providing recommendations for achieving regulatory compliance within 12 separate sub watersheds all tributaries to special protection and impaired waters. Challenges included the carbonate nature of the watersheds, limited right-of-way, and significant public interest.

PTC Milepost 320 – 326 Roadway Reconstruction NPDES Permit Envionrmental Hearing Board (EHB) Litigation, Buckley Brion McGuire & Morris L.L.P, Chester and Montgomery Counties, PA—Technical Expert providing consultation and expert witness services to the Pennsylvania Turnpike Commission and Pennsylvania Department of Environmental Protection defense team. Mr. Brown was a key participant in negotiations with the Appellant's technical team. Mr. Brown's knowledge and expertise in stormwater management analysis/design and NPDES permitting were key factors in achieving a negotiated settlement to the EHB litigation brought by Valley Forge Chapter of Trout Unlimited and the National Parks Conservation Association.

4-091 Transportation Improvement Study Milepost 333 to Milepost 351, Pennsylvania Turnpike Commission, Bucks and Montgomery Counties, PA—/*Project Manager* and technical lead for NTM's services under a prime's agreement for a Transportation Improvement Study anticipating mainline widening from the Mid-County Interchange to the Bensalem Interchange. NTM's responsibilities included identify stormwater control facility land area needs to achieve regulatory compliance considering applicable 25 Pa Code §102.8 and PADEP stormwater requirements, municipal stormwater ordinances, and Pennsylvania Stormwater Management Act 167 Plans. Work also involved consideration of interchange improvements and overhead bridge replacements.

SR 0080 Woodland Interchange Reconstruction, Clearfield County, PA—*Project Manager.* This project involves reconstruction of the SR 80 bridges over SR 970 and ramp improvements at the Woodland Interchange. NTM is providing preliminary drainage system design including facility video inspection, condition assessment, and capacity analysis, final design, and construction period services. Mr. Brown is providing design oversight, QA/QC, and project management for NTM's project responsibilities.

SR 0183 Bridge Over Norfolk Southern Raliway Replacement, City of Reading, PA – *Project Manager*. This project involves the replacement of the SR 0183 bridge over the Norfolk Southern Railroad on a new vertical alignment. NTM's responsibilities include final drainge design and stormwater management evaluations. Final drainage design included evaluation of conveyance capacity for diverted flows through a portion of the City Storm conveyance system to the Schuylkill River. Mr. Brown's role includes design oversight, QA/QC, and project management for NTM's project responsibilities.

Stormwater Reuse Study, The Pennsylvania State University, University Park Campus, Centre County, PA—*Project Manager.* This project involved the development of a guidance document to assist project design professionals in the evaluation of stormwater reuse options for University Building projects. A key element of this study was development of a stormwater harvesting calculator based on local rainfall records for the the University Park Campus. Consideration was given to existing campus stromwater polanning and karst geology issues, as well as to maintaining uniformity in guidelines for harvesting and use facilities and equipment. Mr. Brown was responsible for project management and technical review and oversight.

Project Management and Review Assistance for Projects in Berks County, PA, PennDOT District 5-0. — **Review Engineer.** This project involved project management and review assistance for highway and bridge projects in Berks County. NTM responsibilities include Project Management, Erosion and Sedimentation Control Plan reviews, Hydraulic and Hydrologic Study reviews, Stormwater Management reviews, and permit document reviews. Mr. Brown provided senior technical review services on this project.



Centre Region MS4 Partners Pollutant Reduction Plan (PRP) Development, Centre County, PA—*Project Manager* for development of a joint municipal PRP for Penn State University, State College Borough, and College, Ferguson, Patton, and Harris Townships. The project includes development of a multi-municipal sewershed map, pollutant load modeling using the process based MapShed model, pollutant load evaluation, selection of BMPs, development of an implementation plan for mitigation of the regulatory pollutant load reduction, and assistance with the public participation elements of the plan.

Pennsylvania Turnpike Commission MS4 Compliance Support, Statewide, PA – *Project Manager,* for this project providing MS4 permit compliance support to the Pennsylvania Turnpike Commisson. NTM's responsibilities incude developing internal compliance documentation, training program develoment, training program delivery, standards review, internal document updates, and develoment of new standards and maintenance documents associated with the following minimum control measures: public education and outreach; construction site stormwater runoff control; post-construction stormwater management; pollution prevention and good housekeepoing practices; and pollutant reduction plans. Mr. Brown's role also includes technical oversight and QA/QC responsibilities.

Egypt Hollow Road Bridge (T-468) Replacement, Grove Township, Warren County, PA – *Project Manager.* This project involved the replacement of the Egypt Hollow Road Bridge over Akeley Run. NTM provided H&H and waterway permitting, and Erosion & Sediment Pollution Control Plan development and permitting services. Mr. Brown's role included design oversight, QA/QC, and project Management for NTM's project responsibilities.

McClelland Avenue Bridge (T-405) Replacement, Polk Borough, Venango County, PA – *Project Manager*. This project involved the replacement of the McClelland Avneue Bridge over Sandy Run. NTM provided H&H and waterway permitting services, wetland delineation, and Erosion & Sediment Pollution Control Plan development and permitting services. Mr. Brown's role included design oversight, QA/QC, and project Management for NTM's project responsibilities.

Permit and Policy Assistance, PennDOT BOMO, Harrisburg, PA—Senior Technical Support providing review and technical input for development a Combined Pollution Reduction Plan (PRP)/Total Maximum Daily Load (TMDL) Plan for PennDOT's 2016-2021 MS4 Permit renewal application. The effort included developing a technical approach, methodology, and cost estimates for implementing the proposed Chesapeake Bay PRP.

Suburban Avenue Drainage Improvements, Centre County, PA— *Project Manager and Design Engineer* for the design of an improved drainage system to alleviate flooding along Suburban Avenue. The project included design of 375 linear feet of enlarged storm drain piping. An inovative drop inlet structure was designed at the upstream end of the conveyance pipe to maximize pipe capacity while meeting restrictive depth and cover condition requirements. Mr. Brown was the project manager technical design lead for this project. (2014 – 2015)

Stormwater Basin Failure/Sinkhole Remediation Retrofit Plan, Pine Hall Development/Old Gatesburg Road, Ferguson Township, Centre County, PA—*Principle Investigator* for development of stormwater quantity and quality control alternatives for retrofitting several stormwater infiltration basins that failed through lack of infiltration followed by sinkhole formation. In conjunction with a geotechnical engineer, retrofit alternatives were developed to enhance infiltration while controlling sinkhole development within these basins. (2012-2013)

3-214 General Consulting Engineer (GCE) Services, Pennsylvania Turnpike Commission, Systemwide, PA— *Project Manager*. This project involves conducting condition assessments of all Pennsylvania Turnpike Commission Infrastructure including roads, bridges, buildings, etc. NTM's role includes review and assessment of all drainage and stormwater infrastructure. The work involves field evaluations, conducting interviews with maintenance staff, and review of existing records to assess drainage and stormwater infrastructure condition and make recommendations for maintenance or other infrastructure upgrades. Under the same contract, NTM is assisting with developing internal PTC training for its Design Operations Manual. Mr. Brown provides senior oversight and QA/QC for the drainage and stormwater infrastructure condition assessments.



3-241 Roadway Reconstruction Mileposts 320-326, Pennsylvania Turnpike Commission, Chester and Montgomery Counties, PA—*Project Manager/Quality Assurance Reviewer* providing stormwater and permitting support services for the PTC's Roadway Reconstruction from PA 29 at Milepost 320 in Phoenixville/Malvern, Chester County, to the Valley Forge exit at Milepost 326, Montgomery County. This section of the Turnpike runs through Valley Creek Watershed, a high-quality karst waterway. Responsible for evaluating the proposed stormwater management design and providing improvement recommendations to meet NPDES permit requirements while respecting the Karst nature of the watershed. Also responsible for providing an indepth quality review of the final NPDES permit package.

SR 3014 Atherton Street Corridor Highway Improvement Projects, PennDOT, District 2-0, Centre County, PA—*Project Manager.* This project includes Preliminary Design, Final Design, and Construction Consultation for various betterment improvement projects along SR 3014 in Patton, College, and Ferguson Townships and the Borough of State College. The improvements include pavement rehabilitation, drainage upgrades, signal upgrades, curb and sidewalk replacement, and the replacement of the cross draiange structure at Big Hollow Run. Critical design elements include drainage issues, utility coordination, public involvement, and maintenance and protection of traffic. NTM's responsibilities include drainage design, stormwater management design, erosion and sedimentation (E&S) control design, waterway hydrologic and hydraulic analysis (H&H), NPDES and waterway permitting, and box culvert design. Mr. Brown's responsibilities included project management for NTM's portions of the project. He also provided senior design guidance and QA/QC for drainage and E&S design.

Fritz Island Wastewater Treatment Plant Upgrade, City of Reading Wastewater Treatment Plan, Berks County, PA—Project Manager for assisting with the design of the Fritz Island Wastewater Treatment Plant upgrade. NTM developed the Erosion and Sediment Pollution Control (E&SPC) Plan and Post-Construction Stormwater Management (PCSM) Plan and provided a flood Impact assessment and NPDES and waterway permitting documents for this \$100 million sewer treatment plant upgrade for the City of Reading. The Fritz Island Wastewater Treatment Plant is located on approximately 118 acres of Fritz Island, which is bounded by the Schuylkill River main channel and a flood relief channel. NTM developed a multi-stage E&SCP Plan to accommodate the need to keep the existing treatment plant in services during an anticipated three-year construction period. NTM selected stormwater best practices to avoid mobilization of contaminants, minimize maintenance, and meet regulatory requirements. The final management practices included seven bioretention basins, several land-scape restoration areas, and multiple grass-lined swales. Critical waterway permit elements included developing wetland and waterway impact mitigation plans, coordinating a Red Belly Turtle mitigation plan, and conducting a waterway H&H analysis to assess floodplain impacts. The hydraulic analysis involved developing a split flow model of the Schuylkill River to accurately assess the island's flood conditions. In addition to demonstrating that the proposed development activities would not impact flood levels in the Schuylkill River, the H&H model would be used to ensure that future plant flooding was minimized.

Ferguson Township Stormwater Management Engineer, Ferguson Township, Centre County, PA— Stormwater Management Engineer for Ferguson Township, providing review of land development plans and zoning requests to ensure compliance with the Township Stormwater Management Ordinances. Provided primary authorship of multiple revisions to the Township Stormwater Ordinance to address MS4 compliance and potential impacts to local groundwater and the environment resulting from accelerated sinkhole formation in the karst Spring Creek Watershed. Also provides surface drainage recommendations related to sinkhole repair in the Township, and advises the Board of Supervisors on stormwater management and drainage issues. (2007 – Current)

Selders Lane Drainage Improvements, Ferguson Township, Centre County, PA— *Project Manager and Design Engineer* for the design of an improved drainage system to alleviate flooding along Selders Lane. The project included design of 375 linear feet of enlarged storm drain piping, enlarged box culvert under Rosemont Drive, and 350 inear feet of conveyance channel. An inovative drop inlet structure was designed at the upstream end of the conveyance pipe to maximize pipe capacity while meeting restrictive depth and cover condition requirements. Mr. Brown was the project manager technical design lead for this project.



Hydraulics Laboratory Support, Federal Highway Administration, Washington, DC—Manager and Principle Investigator for highway drainage design investigations at the Federal Highway Administration Turner Fairbank Highway Research Center. Resposible for design and implementation of laboratory experiments related to highway drianage design.

Spring Creek Stormwater Management Plan, Centre County Planning Office, Centre County, PA—*Project Manager* for stormwater management planning for the Spring Creek Watershed in accordance with Pennsylvania Act 167. The project included developing an innovative technical standards and criteria to control stormwater runoff from a new development in this predominantly limestone underlain watershed.

Spring Creek Watershed Water Quality Investigation, Centre County Planning Office, Centre County, PA— *Project Manager* to select BMPs for treatment and control of urban runoff within this high quality watershed with significant karst influences.

Clearfield County Stormwater Management Plan, Clearfield County Planning Office, Clearfield County, PA— Project Manager for a stormwater management planning project covering 12 watersheds in Clearfield County. All planning and analysis was in compliance with Pennsylvania Act 167 requirements.

Houserville Storm Drainage Improvements, College Township Department of Public Works, Centre County, PA—*Project Manager* for the design of storm sewer conveyance improvements to alleviate nuisance flooding and general drainage problems within this 50-year-old neighborhood. Services included a significant public involvement initiative as well as design of and preparing construction documents for over 3000 linear feet of storm sewer piping and other conveyance components.

Stormwater Runoff Remediation, Friends Hospital, Philadelphia, PA—*Project Manager* for technical and conceptual design support for this storm runoff remediation project in the City of Philadelphia. The project goal was to reduce runoff to facilitate stormwater utility fee reductions for the owner.

Municipal Stormwater Discharge Permit Compliance Activities, Narberth Borough and Lower Merion Township, Montgomery County, PA—Project Manager responsible for the permit document development, annual reporting, and compliance issues associated with stormwater discharge (MS4) permits for both Narberth Borough and Lower Merion Township from 2006 through 2013. Services included illicit discharge detection monitoring and developing a Polychlorinated Biphenyl (PCB) Total Maximum Daily Loads (TMDL) Plan for municipal stormwater discharges to the Schuylkill River. Was responsible for completing the 20013-2018 MS4 permit renewal application.

TMDL Plan, Lower Merion Township, Montgomery County, PA—*Project Manager* for development of a Polychlorinated Biphenyl (PCB) Total Maximum Daily Loads (TMDL) Plan for discharges to the Schuylkill River. The plan included a strategy for detecting and mitigating possible pollutant loads in the municipal stormwater system. The TMDL Plan was submitted as part of the Township's 2013-2018 MS4 Permit renewal application.

TMDL Strategy, Lower Merion Township, Montgomery County, PA— *Project Manager* for development of a Schuylkill River Polychlorinated Biphenyl (PCB) Total Maximum Daily Loads (TMDL) strategy to address how Lower Merion Township will identify possible sources of PCBs within the Township and, if identified, how to mitigate those PCBs. The TMDL Strategy was submitted as part of the Township's 2013-2018 MS4 Permit renewal application.

Resort and Water Park, Kalahari, Monroe County, PA—*Project Manager* for stormwater design and NPDES permitting for this 158-acre resort and waterpark located in Toby Township in the Swiftwater Creek watershed (classified as exceptional value) and immediately adjacent to several exceptional value wetlands. The project included design of 18 surface and subsurface infiltration and stormwater management BMPs to ensure that the hydrologic character of the sensitive exceptional wetlands and stream would not be impacted.

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Stormwater Management Master Plan and Drainage Study, Mercer Borough, Mercer County, PA—*Project Manager* for a Stormwater Management Master Plan and drainage improvements study for the Borough of Mercer.

American Revolution Center Stormwater Management Plan, Montgomery County, Montgomery County, PA—Engineer for the stormwater management design and analysis for a proposed museum and educational conference center development on 78 acres of fallow farmland and woodland along the Schuylkill River in Lower Providence Township. The stormwater management practices included use of pervious pavers, rain gardens, green roofs, and woodland and meadow landscape restoration.

Pennsylvania Fish and Boat Commission Stream Dredging & Maintenance, Pennsylvania Department of General Services for, Erie County, PA—*Project Manager* for preparing PA DEP and U.S. Army Corps of Engineers permit applications for stream dredging and other maintenance operations covering five Pennsylvania Fish and Boat facilities located at the mouth of tributaries to Lake Erie.

SCI German Township Site Design and NPDES Permitting, Pennsylvania Department of General Services, Fayette County, PA—*Project Manager* and design lead for drainage, stormwater management, and erosion and sediment control design and permitting for a 158-acre prison.

SCI German Township Texas Eastern Gas Transmission Line Relocation Permitting, Pennsylvania Department of General Services, Fayette County, PA—Project Manager for erosion and sediment control permitting (ESCGP-1) to relocate a 2,450-linear-foot gas transmission line.

SCI Graterford East and West Prison Expansion NPDES Permit Documents, Pennsylvania Department of General Services, Montgomery County, PA—*Quality Assurance Reviewer* for permit compliance and the design of all stormwater infrastructure. Stormwater elements included multiple stormwater management practices designed to mimic, to the maximum extent practicable, existing site hydrology particularly as it related to maintaining groundwater sources feeding wetlands and stream corridor buffer areas. The site's storm runoff feeds headwater areas to the Perkiomen and Skippack Creek Watersheds in Skippack Township.

Bigler Sports Complex Stormwater Management Study, The Pennsylvania State University, University Park, PA—*Project Manager* for this stormwater management study to investigate and define stormwater alternatives for planned development in and surrounding a 15-acre sports complex. Services included complex modeling to define runoff characteristics from both under-drained and non-under-drained fields.

Fox Hollow/Park Avenue Drainage Improvements, The Pennsylvania State University, University Park, PA—*Project Manager* for the design of comprehensive stormwater management improvements project for the Fox Hollow/Park Avenue watershed on the University Park campus. The project included developing a watershed hydrologic response model, assessing infrastructure needs within the watershed, developing a stormwater management plan and technical standards manual, and final design of several infrastructure improvement projects. This watershed's karst nature posed unique challenges for developing the plan's water quality and infiltration components.

Pine Hall Drainage Improvements Study, The Pennsylvania State University, University Park, PA—*Project Manager* for developing a Stormwater Master Plan and an Infrastructure Improvements Plan for drainage improvements within the Pine Hall drainage basin in Ferguson Township. The project included geotechnical investigations and design for a regional infiltration BMP.

Convenience Store & Daycare, Trapasso, Monroe County, PA—Quality Assurance Reviewer for the site design and NPDES permitting for a two-lot land development on a steeply sloping site with multiple point of discharge study locations in Pocono Township. Critical elements included non-surface water discharges and meeting conflicting agency regulatory requirements.

Hotel, Trapasso, Monroe County, PA—*Quality Assurance Reviewer* for the site design and NPDES permitting for an infill project to develop a hotel on an existing restaurant site in Pocono Township. The development required



coordination of existing and proposed features to create a relatively seamless transition between old and new. The stormwater controls designs had to work around the infrastructure that was to remain while maintaining access to the existing building.

Institutional Stormwater Discharge Permit Compliance Activities, Veterans Administration Medical Center, Martinsburg, WV—*Project Manager* for developing municipal separate storm sewer (MS4) NPDES permit documents for this 175-acre campus. The effort included developing a stormwater management program to address public education and participation, erosion and sediment control for new construction standards, stormwater management standards, illicit discharge monitoring, and good housekeeping operation and maintenance practices. The program was designed to ensure compliance with local, state, and federal regulations.

H&H and Waterway Studies

Texas Creek Road Bridge Replacement, Anadarko Petroleum Corporation, Lycoming County, PA—*Project Manager* for waterway analysis and permitting to reconstruct bridges over Texas Creek and Hugh's Run and a connecting township road in Pine Township. Services included H&H and scour analyses as well as preparing plans and reports in support of a joint permit application for waterway encroachments related to the project. Services also included preparing a NPDES construction and post-construction stormwater management permit plans and reports.

Lincoln Woods Floodplain Impact Study, BETN Investment Company, Montgomery County, PA—*Project Manager* in charge of a Wissahickon Creek floodplain encroachment study associated with permitting for restoring a 50-foot-high by 500-foot-long retaining wall, supporting ground around the Lincoln Woods Apartment complex in Springfield Township. The work involved developing a hydraulic model to assess floodplain and floodway impacts. The study's results were submitted in support of a waterway encroachment permit for the retaining wall restoration.

River Meander Migration Analysis, Bureau of Indian Affairs, Washington, DC—*Engineer* for a study to establish the meander migration patterns and migration history for a section of the Missouri River.

100-200 Berwyn Place Pond Dredging, Brandywine Realty Group, Chester County, PA—*Project Manager* for design and permit maintenance dredging for a 2-acre in-line pond/stormwater management basin on a 29-acre office complex on Cassett Road in Tredyffrin Township.

100-200 Berwyn Place Stream Restoration, Brandywine Realty Group, Chester County, PA—*Project Manager* for the design and permitting of stream restoration improvements to control erosion and reduce sediment discharged to an in-line pond in Tredyffrin Township. Services included H&H analysis, permitting, and preparing construction documents for waterway improvements, including cross-vanes and vegetative plantings to stabilize the waterway.

Mountain Run, City of Culpepper, Culpepper, VA—*Engineer* for a detailed floodplain alteration study. Services included applying to FEMA for processing of a flood boundary map amendment.

Design of Riprap Revetments, Federal Highway Administration, Washington, DC—*Engineer* for developing revised design guidelines for the design of riprap revetments.

Stream Channel Degradation and Aggradation, Federal Highway Administration, Washington, DC— *Engineer* for evaluating highway and bridge stability problems related to stream channel instabilities at over 100 sites nationwide.

Streambank Stabilization Measures, Federal Highway Administration, Washington, DC—*Engineer* for investigating the effectiveness of streambank stabilization methods and evaluating flow control structures used at highway bridges.

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Allegheny River Floodplain Encroachment Study for Route 6 Bridge Rehabilitation, Hawbaker Engineering, LLC, Port Allegany, PA—Project Manager for a river floodplain study to identify flood levels for a 2.33-year event. This study was used to define areas outside these flood limits for use as contractor stockpile areas. (2008)

Buck Run Floodway Determination and Encroachment Study, Hawbaker Engineering LLC, Mifflin County, PA—*Project Manager* for a floodway determination study for Buck Run in Derry Heights, Brown Township. The study's goal was to establish the Buck Run floodway adjacent to a proposed roadway embankment. This study was submitted to and approved by the PA DEP as part of the waterway permit for the proposed roadway embankment construction.

Burnham Interchange Floodway Encroachment Study, Hawbaker Engineering LLC, Mifflin County, PA— *Project Manager* for this floodway encroachment study to establish floodway impacts associated with interchange improvements at the Route 322 interchange at Burnham in Brown Township. The resulting report was submitted to the PA DEP and approved as part of the waterway permit for the interchange improvements.

Millers Run Floodplain Encroachment Study, Hawbaker Engineering, LLC, Williamsport, PA—Project Manager for a river floodplain study to identify development activities impacts n project flood levels for adjacent levees. The resulting report was submitted to the PA DEP as part of the waterway permit for land development activities proposed adjacent to Millers Run.

Sandy Lick Creek Floodplain Study, Hawbaker Enginering, LLC, Clearfield County, PA— *Project Manager* for a study to assess flood level impacts resulting from the construction of a sand unloading and storage facility to be located partially in the Sandy Lick Creek floodplain. The results indicated that construction would have no impact on the 100-year floodplain in Sandy Township. The report was submitted to the PA DEP as part of the project's waterway permit application and approved.

Turkey Run Floodplain Encroachment Study, Hawbaker Engineering, LLC, Lycoming County, PA—*Project Manager* for a floodplain encroachment study to evaluate impacts associated with installation of a new culvert at SR 2014. Services involved H&H analysis of the existing and replacement culverts to assess impacts to flood levels along Turkey Run. The study was submitted to and approved by the PA DEP as part of the waterway permit for the proposed improvements.

Kalahari Resort and Water Park Water Balance Assessment, Kalahari, Monroe County, PA— *Project Manager* to assess the watershed water balance in support of a groundwater withdrawal permit for an 150-acre waterpark in Toby Township.

Town Branch Flood Plain Study, Town of Leesburg, Leesburg, VA—*Engineer* for a detailed floodplain alteration study for Town Branch in the vicinity of Dry Mill Road. Services included applying to FEMA for processing of a flood boundary map amendment.

Unnamed Tributary to the Potomac River, Loudoun County, VA—*Engineer* for a detailed floodplain alteration study. Services included applying to FEMA for processing of a flood boundary map amendment.

Parks' Stormwater Impact Mitigation and Stream Restoration Feasibility Study, Lower Merion Township, Montgomery County, PA—Project Manager for developing conceptual stream and park restoration projects to mitigate impacts caused by uncontrolled urban runoff in 11 Township-owned neighborhood and community parks. The study's goals were to provied preliminary identication of projects to address stream impairments as part of anticipated requirements under the township municipal separate storm sewer (MS4) permit and to also enhance park aesthetic values and environmental education opportunities for residents.

Soapstone Watershed Assessment, Lower Merion Township, Montgomery County, PA— *Project Manager* for a watershed assessment to evaluate stream stability and resolve erosion and debris transport issues in this suburban watershed near Philadelphia. Services included field evaluation of erosion and sediment/debris

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transport characteristics within the watershed and development of alternatives and recommendations for stream stabilization and reduction of debris transport. Developed preliminary cost estimates for each alternative.

Hydraulic Vulnerability Assessments, NYDOT, Region 6, NY—Quality Assurance Reviewer for hydraulic vulnerability assessments on 1,200 state and local bridges in NYDOT's Region 6.

Scour Assessments for I-90 over the Buffalo River and Cazenovia Creeks, New York State Thruway Authority, Buffalo, NY—Engineer for the design of scour retrofits to the Cazenovia Creek and Buffalo River Bridges.

Warren County Bridge No. 04050 over Pullins Kill, Warren County, Warren County, NJ— *Project Manager* for waterway related impact analysis and preparing permit documents to replace Warren County Bridge No. 04050 in Blairstown Township. Services included H&H modeling to determine flood hazard area impacts, design of stream scour countermeasures, and assessment of net waterway fill. The work also included analysis of construction period impacts resulting from temporary causeways required during construction.

Consumptive Use Remediation Project, Confidential Client, Centre County, PA—*Project Manager* for developing the preliminary design concepts and cost estimates for a major water withdrawal and consumptive use remediation project. This project involved providing 30-MGD of make-up water to a major Pennsylvania river basin to offset consumptive use within the watershed by a significant energy provider. Services included the conceptual design of the water withdraw pumping facilities, several miles of conveyance pipe, access roads, and associated infrastructure and support facilities.

Surface Water Supply Assessment, Confidential Client, Schuylkill County, PA—*Project Manager* for assessing surface water supply availability to meet a 1.1-MGD consumptive use demand for an energy development project in Reilly Township. Sources of supply evaluated included surface runoff capture, creek/stream withdrawals, mine water withdrawals, and re-use of nearby sewage treatment plant discharges.

Adler Gymnasium Addition Floodplain Impact Study, The Pennsylvania State University, Altoona, PA—*Project Manager* in charge of a floodplain encroachment study for Spring Run through the Altoona Campus. The analysis involved developing a hydraulic model for Spring Run to evaluate potential flood level impacts resulting from the anticipated building addition footprint. The study's goal was to define, if applicable, whether local and state regulatory standards for developing within floodplains could be reasonably met given the proposed additions.

Environmental Studies

Outfall Dispersion Analysis, GPU Nuclear, Middletown, PA—*Engineer* for this study to establish dispersion characteristics in the Susquehanna River downstream of the Three Mile Island power plant. Field data was used to calibrate a dispersion model of the study reach for use in future planning studies.

Outfall Dispersion Analysis, Pennsylvania Power and Light, Berwick, PA—Engineer for this study to establish dispersion characteristics in the North Branch of the Susquehanna River downstream of the Susquehanna Steam Electric Station located near Berwick. Field data was used to calibrate a dispersion model of the study reach for use in future planning studies.

Dispersion Analysis, U.S. Army Corps of Engineers, Omaha, NE—*Engineer* on this study to establish dispersion characteristics in several reaches of the Missouri River. Field data was collected and used to calibrate a dispersion model of the study reaches for use in future planning studies.

Dams

Wayne Glen Dam, Arcadia Land Company, Narberth, PA—*Project Manager* for the H&H analysis of this regional flood control dam proposed as part of the Wayne Glen Development located in Tredyffrin Township, Chester County. The project included an H&H analysis in support of the design of the dam structure, reservoir, and

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spillways to meet established peak flood rate reduction criteria established by Tredyffrin Township. Also performed a dam breach analysis in accordance with PA DEP dam safety regulations.

Beech Mountain Lakes Dam, Beech Mountain Lakes Association, Luzerne County, PA—*Project Manager* for the H&H analysis for a new emergency spillway at this recreational dam. Services included modeling numerous spillway configurations in compliance with PA DEP dam safety requirements. The work also involved hydraulic river system modeling of downstream waterways to assess floodplain impacts.

Echo Lake Dam Restoration and Permitting, Echo Lake Development Owners Association Northampton County, PA—*Project Manager* for the dam permit and construction documents to restore the Echo Lake Dam in Upper Mt. Bethel Township. Services included redesigning the spillway to meet current regulatory requirements, dam breach analysis, an Emergency Action Plan, wetland impact assessment, and habitat impact assessments. Design work also included developing an Erosion and Sedimentation Pollution Control Plan as well as the necessary dam permit documents.

Rosegarden Dam Inspection, Removal, and Stream Restoration, LINLO Development Corporation, Cumberland County, PA—*Project Manager* for a dam inspection and repair investigation for this 100+-year-old dam and two nearby raceway dam/spillways on the Yellow Breaches Creek just south of Mechanicsburg in Lower Allentown Township. The study recommended complete removal of the dam. Services also included assisting the owner with securing funding for the dam removal and developing the dam removal and stream restoration plans and permit documents.

Knox and Remington Dam Breach Analysis and Emergency Action Plan, Lower Merion Township, Montgomery County, PA—Project Manager for a dam breach analysis and developing an Emergency Action Plan for the Knox and Remington Basin Dams owned by Lower Merion Township. All services were completed in accordance with PA DEP requirements.

Knox, Remington, and Rolling Hill Dam Inspections, Lower Merion Township, Montgomery County, PA—Performed dam inspections and prepared annual dam inspection reports for submission to PA DEP for Knox, Remington, and Rolling Hill Dam's all owned by Lower Merion Township.

Carbaugh Run Dam Breach Analysis and *Emergency Action Plan*, Pennsylvania Department of Public Welfare, Adams and Franklin Counties, PA—*Project Manager* for a dam breach analysis and developing an Emergency Action Plan for the Carbaugh Run Dam in South Mountain. The dam breach analysis and Emergency Action Plan were developed in accordance with PA DEP dam safety regulations.

Mill Dam Inspection, Breach Analysis, and *Emergency Action Plan*, Pennsylvania Department of Public Welfare, Berks County, PA—*Project Manager* for multiple dam inspections and developing an Emergency Action Plan in accordance with PA DEP requirements for the Mill Dam on Hospital Run on the property of the Wernersville State Hospital. The Emergency Action Plan included developing a dam breach model to establish the extent of flooding under a specified design dam breach flood event. Also aided the client with determining funding sources for the dam's removal.

Site Design/Planning/Permitting (Facilities)

Residential Site Develoment Standandards, Pennsylvania Housing Research Center at Penn State – Project Manager and Principal Investigator for developent of policies and standards for more sustainable residential site design in Pennsylvania. The project developed model standards and policies that were science based and could be used by municipalities to promote resopnsible and affordable development.

Fox Hollow Subdivision, Allegheny Township, Blair County, PA—*Project Manager* for the civil design of a 187-acre, 134-lot subdivision including all site geometry, road design, sanitary sewer collection system design, potable water distribution system design, stormwater management design, erosion and sediment control design, and land development permit processing.

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Christian Missionary Alliance Church, Ferguson Township, Centre County, PA—*Project Manager* for the site engineering including site geometry, pavement detailing, drainage design, stormwater management design, and sedimentation and erosion control design. Services also included preparing all necessary permit plans and reports.

North Atherton Shoppes Strip Mall, Ferguson Township, Centre County, PA—*Project Manager* for the site design for a 60,000-square-foot strip mall. Services included site geometry, pavement design, sanitary sewer and potable water connection design and detailing, stormwater management design, erosion and sediment control design, and land development permit processing.

Tudek Park Expansion, Ferguson Township, Centre County, PA—*Quality Assurance* for the site work design and permit document preparation to expand a community park. Services included adding soccer fields, pedestrian trails, and associated infrastructure.

Pleasant Gap Quarries Surface Facility Expansion, Graymont, Centre County, PA—*Project Manager* for the site layout, drainage design, and grading for a significant expansion of surface limestone handling facilities for this 150-acre industrial site. The design included relocation of subsurface mine dewatering lines and relocation of material stockpiles and access roadways to accommodate the addition of major new conveyor systems and rock handling facilities.

Gas Pipeline Highway Occupancy Permits, NiSource, Centre County, PA—*Project Manager* for developing municipal and PennDOT highway occupancy permit documents for residential gas service line replacements in the State College and Bellefonte.

Moshannon Valley Correction Facility, Pennsylvania Department of Corrections, Clearfield County, PA— *Project Manager* for site and infrastructure improvements for a 3,500-bed prison complex in Morris and Decatur Townships. The site design included site layout and grading for a 28-building facility, 2.5 miles of road improvements, approximately 10,000 feet of sanitary sewer main extension, and a 7600-foot water main extension. Services also included preparing applications and support materials for all necessary land development approvals and permits.

Agricultural Products Storage Facilities Improvements, The Pennsylvania State University, University Park, PA—*Project Manager* to review and compile state and local land development regulations for improvements to four agricultural product storage areas and a proposed agricultural products digester. These planned projects were located in Benner and College Townships.

Beaver Stadium Expansion, The Pennsylvania State University, University Park, PA—*Project Manager* for the land development approvals and utility design to expand Beaver Stadium. Responsible for designing all exterior utility modifications including the water, sewer, and storm sewer systems. Coordinated the land development and erosion control plan approvals through College Township and the Centre County Conservation District.

Centre County Visitors' Center, The Pennsylvania State University, University Park, PA—Project Manager for the infrastructure design for the Centre County Visitors' Center located adjacent to Beaver Stadium. Coordinated the land development and erosion control plan approvals through College Township and the Centre County Conservation District.

Coal and Ash Handling Area Improvements, The Pennsylvania State University, University Park, PA— Project Manager for preparing construction plans and specifications to improve the coal and ash handling area at the University's power plant. Services included design of a concrete back-wall for the storage area, concrete pavement for the storage area surface, and installation of a vortex stormwater quality unit to minimize pollutant discharges to the borough storm sewer system. Coordinated the land development and erosion control permitting through the State College Borough and the Centre County Conservation District, respectively. This project was undertaken to improve the quality of storm runoff from the coal and ash handling area.

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Intercollegiate Athletics Hoop Storage Structure, The Pennsylvania State University, University Park, PA— *Project Manager* for site work design and land development permitting to construct a 7,200-square-foot enclosed hoop storage structure. The design included demolition of an existing site garage, provisions for utility service to the new structure, an access drive, and stormwater management design to meet state NPDES and local municipal ordinance requirements.

Misciagna Family Arts Center Addition, The Pennsylvania State University, Altoona, PA—*Project Manager* for the site geometric design, utility modifications, stormwater management design, erosion and sediment control design, and land development permit processing for additions to the Misciagna Family Arts Center on the Altoona Campus.

Nittany Parking Deck and Landscape Depot, The Pennsylvania State University, University Park, PA— Project Manager for the site geometric design, utility modifications, stormwater management design, erosion and sediment control design, and land development permit processing to expand the Nittany Parking Deck. Services also included the geometric design to expand a surface parking lot for the Nittany Lion Inn adjacent to the Parking Deck. Coordinated the land development and erosion control plan approval through the State College Borough and the Centre County Conservation District.

Pattee Library - Knowledge Commons Renovation Projects Phase III, The Pennsylvania State University, University Park, PA—Project Manager for the site design and land development permitting to renovate the Pattee Library. The land development approvals were coordinated through the Borough of State College.

Pollock Commons Renovations, The Pennsylvania State University, University Park, PA—*Project Manager* for the design and permitting for new a new electric ductbank system to connect multiple buildings within the Pollock student housing area and parking/access area improvements. Services also involved preparation of erosion and sediment control permit documents.

Steidle Building Renovations, The Pennsylvania State University, University Park, PA—*Project Manager* for the site work, utility design, and land development permitting for a n118,500-square-foot renovation and expansion of the Steidle Building on the University Park Campus. The design included demolition and reconstruction of approximately 35% of the building's footprint and the addition of a new rear entrance area. Critical site design considerations included development of construction staging areas in a congested area of the campus, as well as meeting municipal water quality requirements for storm runoff.

Retail Building, OS6-Tricon Development, City of Vineland, NJ—*Engineer* responsible for the site design and permitting for a commercial development center that included floodplain analysis and surface water resource protection area documentation for NJDEP permitting. The project consisted of a 39,500-square-foot retail building, a 4,580-square-foot restaurant, and associated parking facilities.

Uranium Mine Surface Facilities, Roca Honda, San Mateo, NM—*Project Manager* responsible for developing site design elements and permit documents for surface facilities associated with the Roca Honda uranium mine in Cibola County. Services included siting surface ore handling and loading facilities, employee and security support buildings, parking areas, and all associated infrastructure needed to support a major underground uranium mine.

Williamsburg Square Phases I, II, and III, Shaner Hotel Group, Centre County, PA—*Project Manager* for site engineering for the three-phase development of a 15-acre hotel and restaurant complex in Patton Township. The site included three hotels, two restaurants, and the national headquarters building for the Shaner Hotel Group. Services included site geometry, pavement design, sanitary sewer and potable water system design, stormwater management design, erosion and sediment control design, and land development permit processing.

YMCA Natatorium Addition, State College Area YMCA, Centre County, PA—*Project Manager* for the site design of an 18,000-square-foot natatorium addition to the State College Area YMCA in the Borough of State College. Services included site geometry, pavement design, sanitary sewer and potable water connection design and

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detailing, stormwater management design, erosion and sediment control design, and land development permit processing.

Voorhees Corporate Center, Voorhees Township, Camden County, NJ—*Project Manager* for designing stormwater quality treatment and stormwater quantity control improvements for a commercial development, including a bank, a hotel, and retail sites. Responsibilities included NJPDES stormwater permitting.

Little League Field Reconfiguration, Walker Township, Centre County, PA—*Project Manager* for the revised layouts and plans to reconfigure the Walker Township Little League Fields to bring the fields into compliance for tournament play.

Park Expansion, Walker Township, Centre County, PA—*Project Manager* for civil engineering input for master planning and developing a conceptual design for a 30-acre expansion to the Walker Township Community Park. The master plan included new facilities for baseball, softball, and multi-use sports (soccer, football, lacrosse); parking; picnic pavilions; playgrounds; horseshoe pits; volleyball; a gazebo; informal play areas; a natural turf amphitheater; a loop pathway system connecting park facilities and the surrounding community; a BMX track; a concession/restroom/ Lowerstorage building; stormwater management; and a future long-term indoor recreation center.

Water Bottling Plant Feasibility Study, Confidential Client, Blair and Huntington Counties, PA—Project Manager for a plant site feasibility study for a major water bottling company. Services involved potential plan site evaluation based on available site size, zoning, site location relative to spring location, spring water piping versus tanker truck logistical considerations, utility availability, and truck to market accessibility. Considered properties in a two-county area in the general vicinity of an existing spring source.

The Oaks at Pleasant Gap, Confidential Land Development Client, Centre County, PA—*Project Manager* for the grading and drainage design for this planned retirement and assisted living community in Spring Township.

Technical Training & Manual Projects

Highway Drainage Design Training, NTM and PennDOT, Harrisburg, PA—Course Developer/Instructor for a three and a half day Highway Drainage course. Also assisted with the development of a four-day Stormwater Management and NPDES Permitting course and served as a lead instructor for 12 deliveries of these courses, as a part of PennDOT's Drainage Professional Development Series.

Stormwater Management Facilities Operation and Maintenance, PennDOT Local Transportation Assistance Program (LTAP) and Pennsylvania State Association of Township Supervisors—Course Developer/Lead Instructor for a four-hour Stormwater Management Facilities Operation and Maintenance course to supplement existing LTAP roadway drainage courses. During the contract, delivered this course over 30 times to local municipal staff and elected officials. Also served as stormwater and drainage technical expert providing support to local municipalities in response to technical assist requests under the LTAP program.

Best Management Practices Manual Technical Oversight Committee, Department of Environmental Protection, Pennsylvania—Committee Member providing peer review and oversight during development of Pennsylvania's Stormwater **Best Management Practices Manual**.

Urban Drainage Design Manual, Federal Highway Administration, Washington, DC—*Project Manager/Principal Investigator* for development of a comprehensive drainage design manual providing state-of-the-art storm drain design methods and techniques to assist highway engineers in the design of pavement drainage, conveyance, and stormwater management systems. Served as the principal author for the original publication in 1996 and provided input for updates and revisions to more recent editions of the document. This publication is available as FHWA Hydraulic Engineering Circular 22 (HEC-22). The analysis methods in HEC-22 are referenced in DM2-10.

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Professional Organizations

American Society of Civil Engineers (ASCE) American Public Works Association American Academy of Water Resources Engineers

Technical Training & Course Development Experience

Adjunct Professor, The Pennsylvania State University, 1998-2005

CE 360 - Fluid Mechanics Course

CE 361 - Hydrology Course

CE 410W - Sustainable Residential Development Design Senior Capstone Project Course

Developer/Instructor, PennDOT Technical Training and Development Section, 2007-current

Highway Drainage Design - Developer & Lead Instructor

Stormwater Design & NPDES Permits – Contributing Developer & Instructor

Introduction to Highway Hydraulics - Instructor

Developer/Instructor, PennDOT Local Transportation Assistance Program, Various Pennsylvania Municipalities, 2007-current

Stormwater Management Facilities Operation and Maintenance – Developer & Instructor Stormwater Management and NPDES Permitting for Municipal Officials – Developer & Instructor

Developer/Insructor, PennDOT Technical Training 2006

Stormwater Management in a New Age – Developer and Lead Instructor.

Developer/Instructor, Lorman Educational Series

Current Issues in Stromwater Management (Harrisburg, 2006)

Understanding Hydrologic Processes for Better Stormwater Management (Philadelphia, 2007)

Instructor, The Pennsylvania State University Pennsylvania Housing Research Center, 2005

Stormwater Management in a New Age

Understanding Infiltration Practices

Instructor, ASCE Lehigh Valley Chapter, 1998

Urban Drainage Design

Instructor, 2012

Basic Highway Hydraulics

Modeling Experience

HEC-1, HEC-HMS, HEC-2, and HEC-RAS; HMR 51/52; TR-20 and TR-55; WMS; HY-8; and NWS DAMBRK

Continuing Education

SWMM Applications, NTM Engineering, Inc., August 2019
Strategic Business Planning, Professional Services Management Journal, February 2018
Supervisor Safety Review Training, Safety Works, Inc., March 2016
Field Safety Review Training, Safety Works, Inc., March 2016
ASHE-PennDOT 2-0 Workshop, ASHE/PennDOT, June 2015

Employment

NTM Engineering, Inc., Dillsburg, PA, January 2014-Present

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Scott A. Brown, MS, PE, D.WRE



Pennoni Associates Inc., State College, PA, September 2007-January 2014
Pennoni Associates Inc., Vineland, NJ, October 2006-September 2007
The Pennsylvania Housing Research Center, The Pennsylvania State University, July 2002-September 2006
Sweetland Engineering & Associates, State College, PA, July 1998-June 2002
TVGA Engineering Surveying, PC, Elma, NY, July 1991-June 1998
Scott A. Brown & Associates, Culpepper, VA, September 1988-June 1991
Kamber Engineering, Leesburg, VA, October 1987-September 1988
Sutron Corporation, Sterling, VA, June 1979-September 1987

Publications/Presentations

- Residential Site Development Standards, The Pennsylvania State University Pennsylvania Housing Research Center, Brown, S.A.; K. Foster, M. Rios, April 2007.
- "Are Pennsylvania's New Stormwater Regulations a Catch-22 for Townships?," *Pennsylvania Township News*, Pennsylvania State Association of Township Supervisors, Brown, S.A., Vol. 61, No. 5, May, 2008.
- "Urban Drainage Design Manual," *Hydraulic Engineering Circular No. 22*, Federal Highway Administration, Washington, DC, Brown S.A.; Schall, J.D.; Morris, J.L.; Doherty, C.L.; Stein, S.M.; and Warner, J.C., September 2009.
- "Design of Riprap Revetments," *Hydraulic Engineering Circular No. 11*, Pub. No. FHWA IP-89-016, Federal Highway Administration, Washington, DC, Brown, S.A. and Clyde, E.S., March 1989.
- "Application of Natural Stream Characteristics to Riprap Design," *Proceedings 66th Annual Meeting*, Transportation Research Board, National Academy of Sciences, Washington, DC, Brown, S.A. and Blodgett, J.C., January 1987.
- "Streambank Stabilization Measures for Highway Engineers," Report No. FHWA/RD-84/10, Federal Highway Administration, Washington, DC Brown, S.A., July 1985.
- "Design Guidelines for Spur-Type Flow Control Structures," *Report No. FHWA/RD-84/101*, Federal Highway Administration, Washington, DC, Brown, S.A. and McQuivey, R.S., July 1985.
- "Prediction of Channel Bed Grade Changes at Highway Stream Crossings," *Proceedings, 61st Annual Meeting,* Transportation Research Board, National Academy of Sciences, Washington, DC, Brown, S.A., December 1982.
- "Stream Channel Degradation and Aggradation: Analysis of Impacts to Highway Crossings Final Report," *Report No. FHWA/RD-80/159*, Federal Highway Administration, Washington, DC, Brown, S.A.; McQuivey, R.S.; and Keefer, T.N.; March 1981.
- "Loyalsock Creek Model Study Verification of Mathematical and Physical Models in Hydraulic Engineering," *Proceedings of 26th Annual Hydraulics Division Specialty Conference*, University of Maryland, Miller, A.C.; Chadderton, R.A.; and Brown, S.A., August 1978.

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Aaron J. Jolin, PE Senior Engineer



Professional Experience

Mr. Jolin is an engineer who specializes in design and regulatory permitting of drainage, stormwater management and erosion and sedimentation control systems. His experience also includes hydrologic and hydraulic modeling for riverine systems, stream restoration, and dam breach analysis. His background also includes design and permitting for municipal, institutional, commercial, and residential site development projects. He has experience with site layout, grading, stormwater management, storm drainage systems, hydrology and hydraulics, roadways, parking, public right-of-way, floodplains, water, sewer, zoning, environmental, conservation, ADA, and other federal, state, and local code related design and permitting. His related project experience includes:

Forensic Engineering

PTC Southern Beltway Section 55B, Peitragallo Gordon Alfano Bosick & Raspanti, LLP, Washington County, PA—Engineer responsible for reviewing the case history and background (E&S and PCSM plans, reports, calculations, permits, specifications, violations, rainfall history) and preparation of expert witness report of findings for PTC.

Stormwater Management, Erosion and Sediment Control, Hydrology and Hydraulics, Drainage and NPDES Permitting

County of Lackawanna Transportation System (COLTS) Transit Facility, PennDOT Bureau of Public Transportation, Lackawanna County, PA—Engineer responsible for PCSM, E&S and NPDES design and permitting for expansion of Colts Transit Facility.

Burkittsville Green Streets and Stormwater Master Plan, Burkittsville, MD, Project Manager/Engineer responsible for coordinating public meetings for community concerns and feedback, investigation of historic problems in the town relative to stormwater/sewer/potable water, providing preliminary H&H analysis and watershed studies, identifying and providing preliminary stream

and drainage restoration options and opportunities, developing preliminary street design options with bike paths/traffic calming/landscaping/lighting/water quality treatment devices-while maintaining historic nature of town, developing cost estimates and assembling a final document to be used for applying for grants.

Howard County Stormwater Retrofits, Howard County, MD-*Engineer* responsible for water quality retro-fit design, erosion and sedimentation control and permitting of existing MD-378 registered dams in accordance with Howard County Public Private Partnership for meeting MS-4 pollution reduction goals.

Montgomery County Stormwater Facility Inspection, **Montgomery County, MD-** *Engineer*, working on a team of engineers and with County officials, responsible for reviewing field reports, providing QA/QC and providing direction for required maintenance of County-owned facilities.

H&H Modeling for Bridge Design, York and Franklin Counties, PA—*Project Designer* responsible for hydraulic/hydrologic modeling and waterways permitting for bridges in York and Franklin Counties, PA.

Total Years of Experience: 14.5

Education:

BS, Agricultural and Biological Engineering, The Pennsylvania State University, 2009

Licenses/Certifications:

Professional Engineer: PA No. PE090935, 2020 MD No. PE0042435, 2012

Key Qualifications:

Expertise in design and regulatory permitting of urban drainage, stormwater management, and erosion and sediment control

Expertise in hydrology and hydraulics modeling and regulatory permitting including riverine systems analysis, stream restoration, bridge/culvert modeling and dam breach analysis

Expertise in multi-disciplinary project design development and implementation

Expertise in stormwater management assessment and maintenance

Expertise in municpal engineering

Expertise in design of MS4 water quality facilities and retrofits



Responsible for various aspects of hydrology and hydraulic modeling for PennDOT reviewed County Bridges, plan and report preparation; focus on various methods of hydrology modeling including regression analysis, gauge weighting, and HEC-HMS TR-20 using GIS-based software Watershed Modeling System (Aquaveo), environmental permitting.

Parkdale High School Green Infrastructure Pilot Study, Riverdale, MD- *Engineer* responsible for developing a small pilot design for comparative analysis of different SWM treatment facilities, including treatment train sampling techniques for Prince George's County School's students at Parkdale High School.

Manheim Township Detention Basin II Permitting and Design, Manheim Township, Lancaster County, PA—*Project Engineer* for the analysis and design for improvements to a reclassified Chapter 105 Class C hazard dry impoundment in Manheim Township, Lancaster County, PA. Responsible for preparing technical analysis including HEC-HMS hydrologic study for determination of flow rate for probable maximum flood (PMF) event and incremental dam break simulation, unsteady state hydraulic analysis using HEC-RAS for determination of impacts of a dam failure per PA procedural guidelines, interface with PA Dam Safety personnel and project/client manager(s) to develop a cost estimate for required upgrades based on development of multiple mitigation options, design and calculation preparation for spillway, inlet, barrel and energy dissipater using FHWA Circular 14 and HDS 5 Publications, diaphragm filter design, construction plans, permitting and assistance with bidding.

Gettysburg Borough Stratton Street Storm Drain Feasibility Study, Gettysburg, PA—*Project Designer* responsible for preliminary design/improvement options for fixing drainage problems in the Gettysburg Borough, including H&H analysis and design, providing exhibits and written narrative for use in budgetary planning.

Adams County Stormwater Management Ordinance Preparation, Adams County, PA—*Project Designer* responsible for preparing new stormwater management ordinances in accordance with County Act 167 Plan for Gettysburg/Abbottstown/Fairfield Boroughs, Mount Pleasant, Hamiltonban, Hamilton and Oxford Townships.

Gettysburg Inner Loop Greenway Master Plan, Gettysburg, PA—*Project Designer* responsible for coordinating with local trail agency/Borough Engineer/Borough Planner to research and develop layout options, determine engineering design requirements, provide cost estimating, attend steering committee meetings, provide preliminary permitting agency (FEMA/PennDOT/Soil Conservation District) feedback, produce visuals/plan inserts/technical descriptions and preparation of final document for use in applying for grants.

Municipal Culvert Replacement Projects, York and Franklin-*Project Designer* responsible for H&H analysis, design, construction drawings and permitting of culverts for various municipalities in York and Adams County

Mount Pleasant Twp Storm Store Road Stormwater Analysis, Mount Pleasant, PA-*Project Designer* responsible for hydrologic and hydraulic modeling, analysis of existing problems, development of three alternatives solutions, preparation of exhibits for use by the Township in speaking with local residents about potential solutions requiring work outside of the right-of-way.

Yokwood NPDES Permit Renewal and Stormwater Management Facilities, Greensburg, PA - Project Designer responsible for (individual) NPDES Permitting renewal within exceptional value watershed, development of a standard BMP sizing sheet that allowed the developer to choose from several options including infiltration berms and drywells along with a combination of non-structural practices within individual lots. (The project had been designed under old design regulations where central stormwater facilities were considered inadequate and NPDES renewal required individual lots implore additional stormwater management BMPs.)

East Vandergrift Storm Sewer Design, East Vandergrift, PA *Project Designer* responsible for designing a financially feasible solution for a collapsed storm sewer (combination sewer), preparation of hydraulic/hydrologic analysis, culvert design options for the Borough of East Vandergrift

Fairfax County Stormwater Facility Inspection, Fairfax, VA- *Inspector* responsible for field condition assessment for various County-owned stormwater facilities around the County.

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HOA Assessments and Reserve Study Preparation, Fairfax County, VA- *Project Designer* responsible for preparing infrastructure assessment of storm drain systems, stormwater management facilities, parking lots, sidewalks, retaining walls and other infrastructure in preparation for reserve study updates for various home-owner associations.

Terre Arch Support Development, Terre Hill, PA- *Project Designer* responsible for developing support and user spreadsheets for the Terre Arch Stormwater System for use by industry consultants as well as working with HydroCAD to develop stormwater chambers module.

Hendrick House Expansion-LEED Gold Certified, University of Illinois-Urbana-Champaign, *Project Designer* responsible for grading, porous pavement design, geometric layout of 30-well closed loop geothermal system, sanitary sewer pump station, erosion and sedimentation pollution control, local permitting (within a detailed FEMA study area on the Boneyard Creek), stormwater pump station, planning and details for green roof, sizing of cisterns for water reuse and civil-related LEED documentation.

Village of Philo Storm Sewer/Stormwater Management Study, Philo, IL. *Project Designer* responsible for development of feasibility study with design options for mitigating substantial flooding issues-retrofitting portions of the village with storm conveyance, storm sewer and stormwater management infrastructure.

Clearview Stormwater Modeling, Champaign, IL-*Project Designer* responsible for H&H modeling of as-built ponds

Land Development and Site Design

Tilden Middle School, Rockville, MD- *Project Manager/Engineer* responsible for technical design including site layout and grading for buildings, parking lots, bus and parent drop-off loops, athletic fields/courts, utility connections and relocations layout, stormwater design, downstream H&H analysis and mitigation, erosion and sediment control, forest review coordination, site grading for ADA, ROW circulation improvements as well as coordinating development requirements with State, County, design team professionals and construction management team.

Potomac Elementary School, Potomac, MD- *Project Manager/Engineer* responsible for concept and final technical design including site layout and grading, utilities, stormwater management, storm drain-including downstream H&H analysis and mitigation, erosion and sediment control, forest review coordination, site grading-including ADA, ROW circulation and drainage improvements, pre/post floodplain modeling/permitting and hydraulic design for 400 l.f. of stream restoration as well as coordinating development requirements with client, State, County, design team professionals and construction management team.

Fairmont Heights H.S., Landover, Maryland- *Project Manager/Engineer* responsible for final technical design and permitting of site layout, phased erosion and sediment control-required for qualified brownfield site mitigation, forestation review coordination, site grading including ADA compliance, ROW traffic circulation improvements and signaling upgrades (in coordination with traffic engineer), floodplain mitigation and modeling, SWM as-built documentation as well as coordinating development requirements client, State, County and design team professionals.

Julius West Middle School, Rockville, MD, *Project Manager/Engineer* responsible for concept development and final technical design and permitting of site layout and grading, utilities, site grading including for ADA compliance, storm drain design, stormwater management design, ROW improvements, bidding and construction administration for school expansion.

Laurel Library, Laurel MD, *Project Manager/Engineer* responsible for final site civil technical design and permitting of utilities, grading-including for ADA compliance, storm drain design, stormwater management design, ROW improvements and bidding as well as construction administration and certification of stormwater as-builts for school expansion.

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Hyattsville Library, Hyattsville, MD- *Project Manager/Engineer* responsible for concept site civil layout and grading design-including for ADA compliance, storm drain design, stormwater management design, ROW improvements, H&H analysis and floodplain permitting for reconstruction of a new library in Hyattsville MD.

DC Water Fleet Maintenance Facility, Capitol Heights, MD *Project Manager/Engineer* responsible for concept site layout, grading, stormwater management, H&H analysis and floodplain permitting for reconstruction of a new fleet maintenance facility as well as coordinating development requirements with client, State, County and design team professionals.

Ten Mile Creek Trail Bridge, Headwaters at Little Seneca Lake, Boyds MD, Project Manager/Engineer responsible for site design required for access and staging of an 80-ton truck crane, H&H floodplain/environmental/sediment control permitting, construction administration, ADA bridge approach design required to raise vehicular/walking steel truss bridge for local trail, high enough to avoid creation of debris dams during smaller frequent storm events.

Seneca Creek Boat House, Boyds, MD, *Project Manager/Engineer* responsible for site layout and grading, civil design, floodplain analysis/permitting and construction administration of an ADA accessible boat launch facility on Little Seneca Lake at Black Hills Regional Park.

County, MD, *Project Manager/Engineer* responsible for coordinating survey/geotechnical testing, identifying and designing ADA improvement requirements, researching utilities, completing pavement assessment, providing stormwater management design/permitting (as required), site layout and grading, developing plans/specs/bid packages for maintenance and improvement of parking lots/loading areas/bus loops as well as construction administration.

Prince George's County P3 Program, Prince George's County, MD- *Engineer* responsible for working with a team of professionals to develop standards for desktop analysis, field research requirements, design, implementation and costs of urban outfall and stream bank erosion stabilization for water quality credits associated with P3-MS4 program.

Red Lion Municipal Authority Water Treatment Site Plan, Windsor Township, York County, PA-*Project Designer* responsible for grading, erosion and sedimentation pollution control design, storm drain design, and hydrologic/hydraulic modeling/technical report, NPDES/GP-4 permitting, development of specifications and sequencing plan for mitigating and monitoring the potentially acidic bed rock being excavated for construction for the plant.

New Enterprise Stone and Lime Turnpike NPDES Fill Somerset County, PA- *Project Designer* responsible for site plan grading, surface modeling, erosion and sedimentation pollution control, stormwater management facility design, NPDES and local permitting, H&H modeling and permitting for fill site.

Corporate Park Development, Champaign, IL, *Project Designer* responsible for site layout, grading and design of new corporate park, including H&H analysis for 1000 l.f. of channel improvements, a new bridge, incorporated stormwater management design, erosions and sediment control design, local road layout, grading, floodplain and environmental permitting as well as developing plans for permitting and construction.

Tripi Subdivision Access Road, Gettysburg, PA *Project Manager and Designer* responsible for topographic survey, site design/layout, site grading, utility layout (water and electric), stormwater management design, E&SC Design, NPDES permitting, PA DEP sewer module, municipal meetings/approvals, environmental permitting, wetlands mitigation design, bridge/culvert options analysis, H&H modeling and permitting, technical plan drawing, and attendance of client, State, Township and permitting agency meetings.

Rice Fruit Company CA Storage Building/Site Reconfiguration, Menallen Township, PA - Project Manager and Designer responsible for topographic survey, site design/layout, site grading, utility layout, stormwater

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management design, wetlands mitigation plan and permitting, erosion and sediment control design, NPDES permitting, PennDOT HOP permitting and construction document preparation.

Aesthetic Pond in Adams County, Hamiltonban Township, PA- *Project Manager and Designer* responsible for H&H analysis, erosions and sediment control design, regulatory permitting through Dam Safety, wetlands mitigation plan, survey, stakeout and technical plan drawing

Site's Property Access, Hamiltonban Township, Adams County, PA - *Project Manager and Designer* responsible for developing multiple bridge/culvert options, H&H modeling, permitting, E&SC design, historic flood research on neighboring properties and technical plan drawing preparation.

Municipal Engineering

Borough ROW Management, State College Borough—*Borough Engineer* responsible for management of the Borough ROW excavation and occupancy permitting-including sidewalk replacement, utility work, closures, plan review, inspections, traffic control, council approvals and general safety.

Borough CIP and Fiscal Budgets, State College Borough—*Borough Engineer* responsible for development of sanitary, storm, street, park, MS4 and other capital improvement projects and budgets.

Borough MS4, State College Borough—*Borough Engineer* responsible for managing annual Borough MS4 permitting.

Borough Development Review, State College Borough—*Borough Engineer* responsible for managing and completing engineering related development reviews, issuing regulatory approvals and post construction signoff required for occupancy.

Atherton Street Section 153 Project, State College Borough—*Borough Engineer* responsible for providing review and coordination of project design development including, reviewing traffic signal replacement, sanitary sewer improvements, pedestrian safety, sidewalk, landscaping and storm drain designs, coordinating approvals of cost additions through Borough Council, coordinating Act 537 special study design and permitting with Borough's planning staff, County and environmental design firm as required for permitting and planning upgrades to the sanitary collection system, associated with the 153 project improvements.

Continuing Education

OSHA Ten Certification Leadership Training for Non-Profits through PSU Outreach HEC-RAS Short Course through PSU Watershed Modeling System Short Course through PENNDOT

Employment

NTM Engineering, Inc., Dillsburg, PA, January 2021-Present
State College Borough Engineer, State College, PA, March 2020-January 2021
ADTEK Engineers, Inc. Frederick, MD, April 2014- April 2016, January 2017-March 2020
Stormwater Maintenance and Consulting - Hunt Valley, MD April 2016-January 2017
C.S. Davidson, Inc. Gettysburg, PA, May 2011-April 2014
Tri-County Engineering, LLC., Greensburg, PA, April 2010-April 2011
HDC Engineering, LLC, Champaign, IL, April 2007-September 2008
Wm. F. Hill & Assoc., Inc Gettysburg, PA, August 2005-June 2007

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IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER, :

Original Jurisdiction

Petitioner,

v. :

No. 260 MD 2018

PENNSYLVANIA STATE SYSTEM

OF HIGHER EDUCATION and

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WEST CHESTER UNIVERSITY OF

PENNSYLVANIA OF THE STATE:

SYSTEM OF HIGHER

EDUCATION,

:

Respondents.

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RESPONDENTS' BRIEF IN SUPPORT OF THEIR MOTION FOR SUMMARY JUDGMENT

Dated: July 16, 2021 Respectfully submitted,

JOSH SHAPIRO Attorney General

COMMONWEALTH OF PENNSYLVANIA

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Southwest Del. Cty. Mun. Auth. v. Aston Twp., 413 Pa. 526198 A.2d 867 (1964)
Supervisors of Manheim Twp., Lancaster Cty. v. Workman, 350 Pa. 168, 38 A.2d 273 (1944)
Underground Storage Tank Indemnif. Fund v. Morris & Clemm, PC, 107 A.3d 269 (Pa. Cmwlth. 2014)

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STATEMENT OF JURISDICTION

This Court has original jurisdiction under 42 Pa. C.S. § 761(a)(1) for this action against the Pennsylvania State System of Higher Education ("State System"), a Commonwealth agency, and its member institution, West Chester University of Pennsylvania of the State System ("University" or, collectively with the State System, "Respondents").

DETERMINATION IN QUESTION

This is an action for declaratory relief in this Court's original jurisdiction. Respondents move for summary judgment pursuant to Pennsylvania Rules of Appellate Procedure 106 and 1517 and Pennsylvania Rule of Civil Procedure 1035.1, *et seq.*

SCOPE AND STANDARD OF REVIEW

"Matters brought before this Court in its original jurisdiction proceed in accordance with the practice and procedure in the courts of common pleas." *Com. ex rel. Fisher v. Jash Int'l, Inc.*, 847 A.2d 125, 129-30 (Pa. Cmwlth. 2004) (citing Pa. R.A.P. 106 and Pa. R.A.P. 1517). This includes motions for summary judgment, which are considered by this Court in accordance with Pennsylvania Rules of Civil Procedure. *Underground Storage Tank Indemnif. Fund v. Morris & Clemm, PC*, 107 A.3d 269, 272 & n.7 (Pa. Cmwlth. 2014).

Under Pennsylvania Rules of Civil Procedure 1035.2, a party may move for summary judgment, in relevant part, "whenever there is no genuine issue of any material fact as to a necessary element of the cause of action or defense which could be established by additional discovery or expert report." Pa. R. Civ. P. 1035.2(1). A party is entitled to summary judgment "only where the entire record, including all pleadings, depositions, answers to interrogatories, admissions, affidavits and expert reports, establishes that the moving party's right is 'clear and free from doubt." *Underground Storage Tank*, 107 A.3d at 272 (quoting *LJL Transp., Inc. v. Pilot Air Freight Corp.*, 599 Pa. 546, 962 A.2d 639, 647 (2009)). The record on a motion for summary judgment includes pleadings, depositions, answers to interrogatories, admissions and affidavits, and expert reports. Pa. R. Civ. P. 1035.1. To the extent there are any factual disputes, the Court takes the

facts "in the light most favorable to the non-moving party, and any doubts as to the existence of a genuine issue of material fact must be resolved against the moving party." *Id*.

Where a property is immune from local taxation, it may be decided as a matter of law on a summary judgment record. *City of Philadelphia v. Cumberland Cty. Bd. of Assessment Appeals*, 622 Pa. 581, 614, 81 A.3d 24, 44 (2013).

QUESTIONS PRESENTED

Question: Is the Stormwater Tax a tax subject to the University's immunity

from taxation?

Suggested answer: Yes.

Question: Is the Stormwater Tax unreasonable because it is in excess of

what is reasonably proportional to the cost to the Borough of maintaining the

stormwater conveyance system that specifically benefits the University or because

it funds projects beyond what is necessary to maintain that system?

Suggested answer: Yes.

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STATEMENT OF THE CASE

I. Prior to the Ordinance, the Borough Built and Maintained a Stormwater Conveyance System, Paid for by Tax Money

For decades, the Borough of West Chester ("Borough") has maintained a system for collecting stormwater throughout the Borough and transporting it to waterways (the "Stormwater Conveyance System"). Deposition of Michael A. Perrone, dated Oct. 15, 2020 ("Perrone Dep."), 47:5-23. This Stormwater Conveyance System included inlet boxes, underground pipes, connections, headwalls, and culverts. *Id.* The system had been installed under the Borough's

A conveyance or system of conveyances owned by a state, city, town, village, or other public entity to collect and convey stormwater to a waterway is known as a Municipal Separate Storm Sewer System ("MS4"). *See* U.S. Envt'l Prot. Agency, Stormwater Discharges from Municipal Sources, https://www.epa.gov/npdes/stormwater-discharges-municipal-sources (last visited June 17, 2021).

Mr. Perrone testified as the designated representative of the Borough pursuant to Pa. R. Civ. P. 4007.1(e). Perrone Dep. 15:21-24 & Ex. University-1.

An inlet box is the portion of the Stormwater Conveyance System that we see from the surface; it is "the connection point for a pipe. . . [which is] open at the end with typically a grate for water to run into and then passes through the pipes or a series of pipes to a lower point." Perrone Dep. 54:12-24.

A headwall is "usually a concrete structure where a pipe will discharge water, typically, to a creek, a river, an ocean." Perrone Dep. 55:3-6.

A culvert is a "depression in the ground" to transport stormwater, sometimes under roadways, and to mitigate the volume and velocity of stormwater. Perrone Dep. 55:20-21.

original roads when they were first constructed about 100 years ago. Perrone Dep. 52:23-54:24. Prior to 2016, construction and maintenance of the Stormwater Conveyance System was funded through the Borough's General Fund, which included the Borough's collected tax revenue (including property taxes) and any grants the Borough received. Perrone Dep. 45:20-47:4.

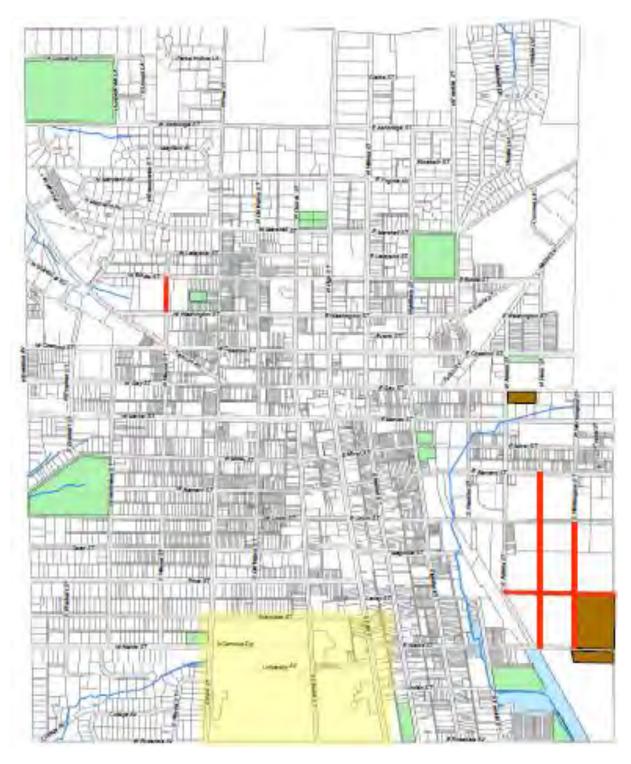
During this time, the Borough periodically passed ordinances requiring developers to use stormwater management practices during the development of land, at their own expense. Perrone Dep. 50:6-51:22. For example, when the University constructed dormitories, it was required to provide a stormwater management system as part of the construction plans. Perrone Dep. 51:2-11. These ordinances did not collect money for the Borough or require the Borough to spend any funds. Perrone Dep. 52:13-18.

II. Stormwater Does, and Always Has, Flowed On, Into, and Out Of the University's North Campus in the Borough

West Chester University (the "University") is a member institution of the Pennsylvania State System of Higher Education ("State System") that maintains a campus located, in part, in the Borough of West Chester ("Borough"). Unsworn Affidavit of John Villella, dated July 16, 2021 ("Villella Decl."), ¶ 5. Specifically,

In this brief, Respondents will be referred to collectively as the University. Although property on North Campus may be technically owned by the University, the State System or the Department of General Services, any such distinction is immaterial here.

part of the University's North Campus lies within the south-central part of the Borough. For reference, a map of the Borough, with the portion of North Campus in the Borough roughly highlighted in yellow, follows:



Perrone Dep. Ex. University-3 (highlighting added). Only a portion of North Campus is located in the Borough; the remainder, to the south of North Campus across East and West Rosedale Ave., is located in West Goshen Township.

Deposition of Gary Bixby, dated October 13, 2020 ("Bixby Dep."), 6:22-9:18. To the west and southwest of campus lies Plum Run, a small waterway circled below. Perrone Dep. 31:4-14.



Plum Run begins either under North Campus or just north of it, around the intersection of Sharpless St. and S. Church St., and it passes through North Campus, in an underground pipe owned by the Borough and unmarked on this map. Perrone Dep. 31:15-33:17; Bixby Dep. 107:18-108:6. Plum Run exits the pipe and begins flowing above ground for the first time just west of South New Street. Perrone Dep. 32:23-34:7. While it traverses under North Campus, Plum Run is fed via inlets and pipes under streets and parts of North Campus, some of which are owned by the University and some of which are owned by the Borough. Perrone Dep. 122:8-124:3; Bixby Dep. 98:20-99:13. Plum Run flows

west/southwest through the Borough and then continues into neighboring municipalities until it eventually empties into the Brandywine River. Perrone Dep. 33:10-34:1.

Stormwater that falls on or near North Campus might end up in a variety of places. Some stormwater infiltrates into the ground naturally on North Campus or is otherwise captured by the University. Perrone Dep. 35:6-21. Some, of course, evaporates. Deposition of Tom Clark, dated Oct. 12, 2020 ("Clark Dep."), 106:17-107:1. Some enters inlets and pipes on North Campus owned by the University, which eventually connect to Plum Run. Bixby Dep. 107:18-108:6. Some stormwater falls on or flows into the Borough-owned streets that run around and through North Campus, like Church St. Perrone Dep. 35:6-21. Finally, some flows across West Rosedale Ave., either above ground or in underground pipes, into West Goshen Township. Perrone Dep. 35:22-36:5; Bixby Dep. 107:18-108:6. No one knows, or tracks, how much stormwater evaporates, is captured and infiltrated by the University, or enters the Borough-owned pipes. Bixby Dep. 105:10-106:22; Clark Dep. 109:19-110:11.

Additionally, stormwater falling in the Borough can flow into North

Campus. Specifically, stormwater falling north of Sharpless St. tends to flow south

Stormwater that infiltrates is absorbed into the ground and enters the water table. Deposition of Tom Clark, dated Oct. 12, 2020 ("Clark Dep."), 61:4-19.

and southwest, toward North Campus. Perrone Dep. 42:16-23. Some of that stormwater from the Borough infiltrates into the ground on North Campus or is otherwise captured there. Clark Dep. 61:4-19. Some of that stormwater enters inlets and pipes—some owned by the University and some owned by the Borough—which take it to Plum Run. Bixby Dep. 211:2-15. When it comes above ground in the Borough west of S. New St., Plum Run contains a mix of some of the stormwater that fell on North Campus and other stormwater that fell elsewhere in the Borough. Bixby Dep. 212:23-214:3.

III. The University Developed Its Own Stormwater Management Standards and Procedures, and It Has Its Own Permit for Its MS4

North Campus contains different buildings of various ages; newer buildings tend to have stormwater management strategies while older ones do not. Bixby Dep. 42:11-56:10. Specifically, the University's recent construction follows the Leadership in Energy and Environmental Design ("LEED") model, which requires the University to "manage all of the storm water within the boundaries of the project." Bixby Dep. 115:19-116:12;8 see generally U.S. Green Building Council, LEED Rating System, https://www.usgbc.org/leed (last visited June 17, 2021). The University achieves this by installing green roofs, infiltration basins, retention basins, and pervious pavers as part of construction projects. Bixby Dep. 42:19-

The deposition transcript mistakenly refers to the "lead" model rather than the LEED model.

43:8. The University also utilizes non-engineered stormwater management strategies, like trees and open, grassy areas, to infiltrate stormwater and prevent it from flowing directly into waterways. Bixby Dep. 49:12-19.9

The University, unlike most private property owners, has its own MS4 system of inlets and pipes, and with it, its own municipal permit and obligations. Bixby Dep. 186:16-191:14. This permit limits the amount of pollutants that can be in stormwater in the University's MS4 system, and it requires the University to measure and monitor the stormwater in its system and to satisfy certain minimum control measures. Bixby Dep. 186:16-187:13. The University's MS4 permit identifies five outfalls—places where stormwater leaves the University's system on North Campus; four of these outfalls are located in West Goshen Township. Unsworn Affidavit of Todd Murphy, dated July 15, 2021 ("Murphy Decl."), ¶ 6. For the outfall located in the Borough, i.e. the headwall west of New St. where Plum Run begins to flow above ground, the University measures the pollutants contained in that stormwater. Bixby Dep. 212:23-214:3. The University is required by its own MS4 permit to manage and limit the pollutants in that stormwater, which is a mix of stormwater from the Borough and from the University. Murphy

The University's goal is to capture and manage 100% of the stormwater that falls on its campus for any storm, but there is some evidence that it has not yet reached this goal. Because facts should be taken in the light most favorable to the nonmoving party, this brief will assume that at least some stormwater falls on North Campus and enters the Borough, primarily via Plum Run.

Decl. ¶¶ 7-8; Bixby Dep. 212:23-214:3. Although the University assumes the duty of mitigating the pollutants in the Borough's stormwater, the University has never charged or taxed the Borough for the cost of these efforts. Murphy Dec. ¶ 9.

IV. The Borough Passed the Ordinance and Created the Stormwater Tax Because Of Increased Regulatory Requirements for Managing the Environmental Effects of Stormwater Runoff

In 2016, the Borough enacted an ordinance requiring all owners of developed property within its boundaries to pay an assessment for stormwater management ("Stormwater Tax"). Pet. for Review ¶¶ 15-18; Ordinance No. 10-2016, Perrone Dep. Ex. University-4 ("Ordinance"). The Stormwater Tax is assessed on the owners of real property within the Borough "where manmade changes have been made which add impervious surfaces to the property." Pet. for Review ¶ 75. The amount of the Stormwater Tax is determined by the impervious surface on a property—it provides for a base rate of \$6.70 monthly per 1,000 square feet of impervious surface, which is then further adjusted based on the total square footage of impervious surface on the property. Pet. for Review ¶¶ 74-87; *id.* Ex. C, §§ 6, 8 & Ex. D. In short, the more impervious surface a property has, the more the owner must pay.

In passing the Ordinance, the Borough declared that "[a] comprehensive program of stormwater management is fundamental to the public health, safety, and general welfare of the residents of the Borough." Ordinance at 1, § 2.D. The

Borough observed that improper management of stormwater contributes to flooding, erosion, and sedimentation; it overtaxes surface streams and storm sewers; it increases costs to public facilities; and it increases pollution and harms the "ecological health of the stream biota." Ordinance at 2, § 2.F. In short, the purpose of the Ordinance was to make the Borough's waterways cleaner, which makes the public healthier, and to reduce the environmental harms caused by the flow of stormwater. Perrone Dep. 60:14-22.

Although the Stormwater Conveyance System had existed for a century paid for by tax dollars, the Stormwater Tax was implemented to fund a variety of new projects. ¹⁰ Using the Stormwater Tax, the Borough promotes or performs tree planting, "street sweeping to keep pollutants out of our system," installations of water-cleaning facilities, regrading of alleys to improve water flow, and relining of storm pipes. Perrone Dep. 102:19-103:23. Other specific examples of projects

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Other potential funding sources also exist. For example, the Borough can, under state law, recover up to 75% of its costs related to its approved stormwater management plan from the Commonwealth through the Department of Environmental Protection. *See* 32 P.S. § 680.17.

include planting rain gardens¹¹ and installing curb extensions.¹² Perrone Dep. 104:23-106:21.

One of the largest current projects is an effort to restore the streambank along Plum Run. Perrone Dep. 102:6-15. On a portion of Plum Run downstream and away from the University, in Phase 1 of the project, the Borough is constructing a retaining wall along the stream and installing soil nails. Deposition of Nate Cline, dated Dec. 21, 2020 ("Cline Dep."), 26:15-29:12 & Ex. University-6.13 The purpose of this project is to "protect the embankment from collapsing and the stream from continuing to deteriorate the embankments." Cline Dep. 29:13-30:19. Phase 2 of the project will install a "green infrastructure," meaning "riparian buffer plantings, vegetation, rock mirrors . . . making sure the stream is in the proper channels, perfecting utilities, things of that nature." Cline Dep. 31:15-24.

Another major project is at the John O. Green Memorial Park more than a half mile north of the University near Market St. This involves park renovations

A rain garden is a collection of trees, bushes, and plans that can survive in a dry season but also absorb large amounts of water quickly in a storm. Perrone Dep. 105:7-23.

A curb extension extends the curb line out into the street slightly, with a gap allowing water to leave the street, run through vegetation or rock, and then return to the street. Perrone Dep. 106:1-21. The purpose is to slow the flow of water and filter out pollutants. Perrone Dep. 106:1-21.

Like Mr. Perrone, Mr. Cline also testified as the designated representative of the Borough.

like "pervious paving . . . tree plantings, vegetation improvements, storm sewer modifications and improvements and similar, in addition to parking, crosswalks, fencing, other maybe non storm water related aspects." Cline Dep. 41:22-42:21. The Stormwater Tax is also funding numerous similar projects that install "green infrastructure" throughout the Borough. *See generally* Cline Dep. 24:11-49:15.

None of the projects currently funded by the Stormwater Tax touch University property or—to use a term supplied by the Borough's institutional representative at his deposition, *see* Perrone Dep. 70:12-19—provide a "specific benefit" to the University. Perrone Dep. 125:21-127:22. Instead, the University receives only a "general benefit," which is a benefit (like cleaner water or a healthier environment) gained by all members of the community and not just those who pay the tax. Perrone Dep. 60:19-22. Although in theory Stormwater Tax funds could be used for maintenance of the Plum Run pipe under North Campus, there are currently no plans to do so. Perrone Dep. 126:3-22 ("There is a list of projects, but that doesn't mean that's it for, you know, forever. Ten years from now we could be doing something in Plum Run along the campus.").

The purpose of the Stormwater Tax, as described by the Borough's representative, is not to fund projects *benefitting* to those who pay the tax, but rather to fund projects remediating the environmental *harm* caused by impervious surfaces on the assessed properties. Perrone Dep. 88:13-91:17. As he described, the

reason the Borough calculates the fee based on total impervious surfaces is not because of the benefit that a property owner receives, but because of the harm caused by more impervious surfaces. Perrone Dep. 88:13-91:17.

V. Despite Having Never Before Collected Money from the University to Fund the Stormwater Conveyance System, the Borough Attempted to Tax the University

The Borough assessed University property within its jurisdiction in accordance with the scheme set forth by the Ordinance, and it sent invoices to Respondents seeking to collect this Stormwater Tax. Pet. for Review ¶ 91. And the Borough continues to send bills to the University—in 2019, for example, the University received invoices for its properties on North Campus totaling \$117,168.04. Villella Decl. ¶¶ 7-8. The University declined to remit payment, informing the Borough that any such charge was improper under the University's tax immunity. Pet. for Review ¶¶ 20-25.

The Borough initiated this action, seeking declaratory judgment that the University is required to pay the Stormwater Tax. Overruling the University's preliminary objections without addressing the underlying legal dispute, this Court laid out the factual issues to be addressed during discovery:

[W]hether the Borough has established a right to declaratory relief depends on whether the Stormwater Charge constitutes a tax or a fee—a question necessitating further factual development. For example, questions remain, *inter alia*, as to: whether the Borough's Stormwater System provides a discrete benefit to

Respondents, as opposed to generally aiding the environment and the public at large; whether the value of the Stormwater System to Respondents is reasonably proportional to the amount of the Stormwater Charge; and, apart from general operation, maintenance and repair of the Borough's Stormwater System, how exactly does the Borough utilize the funds generated by the Stormwater Charge.

Opinion, dated July 15, 2019, at 11. To be entitled to relief in this case, the Borough must "establish that the Stormwater [Tax] constitutes a fee for service that is reasonably proportional to the value of the benefit conferred to Respondents in a quasi-private capacity." *Id*.

The parties conducted discovery, including written discovery, depositions, and expert reports. The University served a report from Daniel Shoag, Ph.D., an expert in economics and local government finance, who opined that the standards and definitions used in the field of economics would classify the Stormwater Tax as a tax rather than a fee-for-service (the "Shoag Report"). The Borough produced a report from NTM Engineering, Inc., signed by Scott Brown, P.E., D.WRE, and Aaron Jolin, P.E. (the "NTM Report"). This report "analyzed the discrete benefits [the University] derived from utilizing the [Borough] owned and operated Stormwater Management System instead of implementing non-municipal options which the University might have for the collection and conveyance of stormwater from its developed property within the Borough." NTM Report, Executive Summary. The Borough also produced a rebuttal report to the Shoag Report from

Hank Fishkind, Ph.D. (the "Fishkind Report"), which largely agreed with Dr. Shoag's economic analysis but disagreed with his conclusion, contending in part that the law in Pennsylvania and elsewhere compels the conclusion that the Stormwater Tax is a fee for a service rather than a tax.

Discovery is now complete, and summary judgment is ripe for consideration.

SUMMARY OF ARGUMENT

Is the Stormwater Tax a tax? If it is, the parties agree that it cannot be imposed on the University, which is an arm of the Commonwealth immune from general taxation. If it is not, it can only be imposed as a fee if it is a reasonable charge and if it is not used to fund projects other than the particular service provided. The Stormwater Tax does not survive either level of scrutiny.

First, the Stormwater Tax is a tax—or, at the very least, it is an assessment, which under Pennsylvania law is a form of tax subject to immunity. The Stormwater Tax is assessed to all properties in the Borough based on certain physical characteristics of the properties, which the Borough is using to fund "green infrastructure" projects, like streambank restoration and installation of rain gardens, that remediate the effects of erosion and pollution in stormwater.

The purpose of the Stormwater Tax is not to develop a system to convey water away from private landowners to waterways—that system already exists, and has been funded by public tax revenue for a century. Instead, the Stormwater Tax was implemented recently to promote new projects that make waterways cleaner and reduce the environmental impact of stormwater runoff. That goal is laudable and it is shared by the University's mission, but it is a *general, communal* benefit typically paid for by taxes rather than a *specific, private* benefit where there would otherwise exist individual demand and a private market.

Second, even if it is not a tax, the Stormwater Tax cannot be imposed as a fee because it is not reasonably related to the cost to the Borough of maintaining the existing Stormwater Conveyance System. The Borough contends that it is providing the service of conveying stormwater away from the University to waterways, which helps reduce flooding and allows the University to utilize more of its property without having to contain 100% of all stormwater runoff. But while reducing flooding certainly benefits property owners, just like constructing roads benefits property owners, that benefit is not individual but, like courts have held with respect to roads, general. Further, the Borough admitted during discovery that it has no plans to use the Stormwater Tax to maintain the Stormwater Conveyance System, which is what allegedly benefits the University. Instead, the Borough is using the money to fund new and different projects. When a fee is used for purposes beyond offsetting the cost of the direct service, it is unreasonable.

For these reasons, the Stormwater Tax is a tax, or at least an unreasonable fee for service. Summary judgment should be granted in favor of Respondents, and the Borough's action for declaratory judgment should be dismissed.

ARGUMENT

I. University Property Is Commonwealth-Owned Property Used for a Public Purpose, Thus Subject to Tax Immunity

"It is well settled that property owned by the Commonwealth and its agencies is beyond the taxing power of a political subdivision." *Delaware Cty*. Solid Waste Auth. v. Berks Cty. Bd. of Assessment Appeals, 534 Pa. 81, 85, 626 A.2d 528, 530-31 (1993). This "long settled" immunity "derives from the Commonwealth's sovereign right to be free of taxation unless some statutory authorization or concession to the contrary exists." City of Philadelphia v. Cumberland Cty. Bd. of Assessment Appeals, 622 Pa. 581, 624, 81 A.3d 24, 50 (2013). The purpose of the Commonwealth's tax immunity is to avoid "upset[ting] the orderly processes of government by allowing the sovereign power to be burdened by being subjected to municipal taxes." Commonwealth v. Dauphin Cty., 335 Pa. 177, 6 A.2d 870, 872 (1939). Tax immunity extends to every "arm, agency, subdivision, or municipality of the Commonwealth." Cumberland Cty. Bd. of Assessment Appeals, 622 Pa. at 623, 81 A.3d at 50.

Like any other type of sovereign immunity, tax immunity can be waived by an act of the Pennsylvania General Assembly. *Delaware Cty. Solid Waste Auth.*, 534 Pa. at 85, 626 A.2d at 530-31. However, waiver of tax immunity must be explicit and any waiver will be narrowly construed to afford the greatest possible immunity. *Lehigh-Northampton Airport Auth. v. Lehigh Cty. Bd. of Assessment*

Appeals, 585 Pa. 657, 669, 889 A.2d 1168, 1175 (2005). A municipality cannot use its general taxing power to overcome this tax immunity. *Id.* "The local taxing body may tax real property of the Commonwealth only where it has express statutory authorization to do so." *Indiana Univ. of Pa. v. Jefferson Cty. Bd. of Assessment Appeals*, 243 A.3d 745, 749 (Pa. Cmwlth. 2020).

Where a Commonwealth agency "acts outside its authorized governmental purposes, then its immunity is not automatic." Delaware Cty. Solid Waste Auth., 534 Pa. at 87, 626 A.2d at 531. For example, a Commonwealth agency "may not automatically claim immunity from local real estate taxation for property leased to third-party commercial entities." City of Phila., 622 Pa. at 626, 81 A.3d at 51 (citing Southeastern Pa. Transp. Auth. v. Bd. of Revision of Taxes, 574 Pa. 707, 833 A.2d 710 (2003) ("SEPTA")). In this situation, "the 'pivotal factor' should be 'whether the institution's real property is so thoroughly under the control of the Commonwealth that, effectively, the institution's property functions as Commonwealth property." *Indiana Univ. of Pa.*, 243 A.3d at 750 (quoting *Pa.* State Univ. v. Derry Twp. Sch. Dist., 557 Pa. 91, 731 A.2d 1272, 1276 (1999)). And, as this Court recently held, property owned by a State System university is presumptively immune from local taxes even when leased to commercial tenants. *Id.* at 754-55.

The properties at issue in this case are owned by the University and operated as part of the University's campus. *See* Villella Decl. ¶ 5. The University currently pays no property tax on these properties, *see* Villella Decl. ¶ 9, because there is no serious contention that these are anything other than Commonwealth-owned properties operated in furtherance of a statutory purpose. Thus, as a matter of law, this property owned by the Commonwealth is immune from taxation by the Borough. *See Delaware Cty. Solid Waste Auth.*, 534 Pa. at 85, 626 A.2d at 530-31.

II. Assessing the Stormwater Tax Against the University Is Barred By the University's Tax Immunity

A. The Stormwater Tax Is a Tax and Not a Fee

It is long established that taxes "proceed upon the theory that the existence of government is a necessity; that it cannot continue without means to pay its expenses; [and] that for those means it has the right to compel all citizens and property within its limits to contribute." *Broad St. Sewickley Methodist Episcopal Church's Appeal*, 30 A. 1007 (Pa. 1895) ("Sewickley Church") (quoting *Illinois Central R.R. Co. v. Decatur*, 147 U.S. 190 (1893)). Additionally, the purpose of taxes is not to render a "return or special benefit to any property," but rather to provide for the "general benefit which results from protection to his person and property, and the promotion of those various schemes which have for their object the welfare of all." *Id.* Proximity of a particular municipal project to specific property does not necessarily make that project for the specific benefit of those

property owners; for example, "the maintenance of the streets of a municipality are for the benefit of the entire community and not merely of the abutting property owners." *Supervisors of Manheim Twp., Lancaster Cty. v. Workman*, 350 Pa. 168, 173, 38 A.2d 273, 276 (1944).

Under Pennsylvania law and in the context of immunity, taxes include more than just general taxes, like property taxes; assessments, which pay for a specific "public, though a local, improvement," are also taxes subject to immunity. Southwest Del. Cty. Mun. Auth. v. Aston Twp., 413 Pa. 526, 531, 198 A.2d 867, 870 (1964). In Southwest Delaware County Municipal Authority, the Supreme Court addressed an assessment to pay for construction and maintenance of a sewer system. *Id.* at 528, 198 A.2d at 869. Properties "benefited by the sewer construction" were assessed for the cost, on a "front foot rule basis." *Id.* When a township municipal building and public school challenged this assessment, the Supreme Court held that the assessment was barred by tax immunity because "public property used for public purposes is exempt from taxation and from assessments for improvements." Id. at 532, 198 A.2d at 871 (emphasis added). Like taxes, an assessment is an exercise of the "taxing power" of government. *Id.* at 530, 198 A.2d at 870 (internal citation and quotation marks omitted). And, like taxes, an assessment of a government building by another government entity

simply amounts to "the public paying the public, which clearly discloses the absurdity of the proposition." *Id*.

The Stormwater Tax is a tax because the projects it funds, like roads and sewers, are designed to return a "general benefit" and promote "the welfare of all." See Sewickley Church, 30 A. 1007. By its own terms, the Stormwater Tax is designed to benefit the "public health, safety, and general welfare of the residents of the Borough." Ordinance, § 2.D. And the Borough's representative admitted throughout his deposition that the primary, if not exclusive, purpose of the Stormwater Tax is to provide a *general* benefit for all rather than a *specific* benefit to serviced property owners. The representative acknowledged that the Stormwater Tax funds projects that provide "a general benefit to the Community," see Perrone Dep. 60:21-22; that promote a "cleaner and more well-maintained community," see id. 70:9-10; that help prevent damage to public infrastructure like roads, see id. 77:12-22. The projects funded by the Stormwater Tax—like tree planting and installation of rain gardens and curb extensions—benefit *all* citizens and residents, whether or not they pay the tax or even own property at all. See Perrone Dep. 78:3-15. Even where projects are limited to a particular location, like streambank repair, street sweeping, and regrading alleys, the purpose is not to benefit the properties immediately abutting those projects but rather to benefit the community as a whole. See Perrone Dep. 102:6-103:23; accord Supervisors of Manheim Twp., 350

Pa. at 173, 38 A.2d at 276 (noting that maintenance of street is a general community benefit and not just for the property owners along those streets).

At best, the Borough can show that Stormwater Tax might be considered an assessment rather than a general tax. That is, they may argue that the Stormwater Tax is not deposited into the General Fund but rather it is separate and can be used only for a set of projects. Initially, it is not clear whether a charge dedicated to a *category* of projects, rather than funding a single discrete improvement, can be considered an assessment. *See Southwest Del. Cty. Mun. Auth.*, 413 Pa. at 531, 198 A.2d at 870 (finding that a charge specifically for the construction of a sewer system was an assessment). But here that does not matter, because even if it is an assessment, the Stormwater Tax is still a tax. *See id.* (holding that the sewer system assessment was barred by immunity).

Like a tax, the Stormwater Tax is designed for the general benefit of the community at large rather than the specific benefit of individual property owners. When the Borough plants trees and installs rain gardens and curb extensions to increase infiltration, cleanse stormwater runoff, and slow the flow rate (and thus erosion caused), it provides a *general environmental* benefit, enjoyed by all. When the Borough conducts streambank repairs on waterways, those repairs do not just benefit abutting property owners but *all* property owners. *See* Perrone Dep. 67:23-70:11 (acknowledging that streambank restoration benefits all because it creates a

generally cleaner and more well-maintained community). ¹⁴ The Borough's projects are not, and cannot be, services provided in a quasiprivate capacity to discrete owners. *See Supervisors of Manheim Twp.*, 350 Pa. at 173, 38 A.2d at 276 (noting that a municipality furnishing gas or water can charge a fee to public entities when acting in a "quasiprivate capacity").

Take, for example, two properties: one a parking lot and another an open, undeveloped field. Under the Stormwater Tax, the parking lot owner would be assessed some amount of tax based on the square footage of total impervious surface in the parking lot, but the owner of the undeveloped field would pay nothing. *See* Perrone Dep. 75:14-77:11. However, as the Borough admits, both property owners would receive all the *same* general benefits from the projects paid for by the tax. *See* Perrone Dep. 77:12-78:15. Both enjoy less flooding, less erosion to public waterways, and cleaner water.

The Borough asserts that developers receive a "benefit" in the form of relief from regulatory obligations that would otherwise be imposed by the Borough if not for the tax revenue, but the lack of additional regulations cannot be a "benefit" to a

To the extent that streambank restoration provides a specific benefit to abutting property owners by increasing their property value, that would not include the University here because it does not own property benefitted from the current projects. *See* Perrone Dep. 109:14-110:15. And this analysis of the Stormwater Tax would not make sense, because property owners along the stream who receive such a benefit are billed the same as a similar property owner miles away from the site.

property owner in this context. If it were, it would allow a municipality to declare, by fiat, that any general benefit is really a specific benefit. After all, a municipality could be said to fund police and fire services rather than require all homeowners to install complex fire prevention systems and elaborate home security systems. It is absurd that a general benefit, like a fire department or clean water, could become a specific benefit merely by threat of regulation. A charge by the government in lieu of a regulation is a tax. For any bona fide service, there has to be actual, private, free market demand. The fact that the Borough cannot identify any such demand here reveals that the benefit of the Stormwater Tax cannot be considered a fee.

Although each project paid for by the Stormwater Tax may benefit some property owners differently than others, that does not transform general benefits into specific benefits. For example, building a new road provides a greater benefit to owners who live on or near that road than those who live far away, but it is still unquestionably a general, communal benefit that should be paid for by all. *See Supervisors of Manheim Twp.*, 350 Pa. at 173, 38 A.2d at 276 ("Repairing streets is as much a part of the ordinary duties of the municipality-for the general good-as cleaning, watching and lighting. It would lead to monstrous injustice and inequality should such general expenses be provided for by local assessments."). The same is true of police and fire protection—all receive a benefit, even those who are not crime victims or suffer a fire.

The projects funded by the Stormwater Tax promote the public health and general welfare, not property owners' private interest. Thus, it is a tax.

* * *

Although this Court is bound only by law, the field of economics provides useful tools that further support that the Stormwater Tax is a tax and not a fee for service. As noted in the expert report of Dr. Daniel Shoag, a professor of economics, economic theory distinguishes between taxes and fees based on five general categories: (1) whether the payment is voluntary or compulsory, (2) whether the public good or service being finance is excludable or non-excludable, (3) whether the payment is equivalent to the market value of the benefit, (4) whether the payment is required for allocative efficiency, and (5) whether the revenue is earmarked. Shoag Report at 3. Each of those categories, albeit to varying degrees, point toward the Stormwater Tax being a tax.

In economics, a payment is voluntary when "the consumer decides freely to consume the commodity or service." Shoag Report at 4 (citation omitted). This principle is reflected in our Supreme Court's analysis, in which it notes that fees "are based upon contract rather than taxation." *Supervisors of Manheim Twp.*, 350 Pa. at 173, 38 A.2d at 276. Under a contract theory, the terms must be known to the parties at the time of agreement. *See* 16 Summ. Pa. Jur. 2d Commercial Law §

1:16 (2d ed.) ("The very essence of an agreement is that the parties mutually assent to the same thing.").

But here, the University did not freely decide to incur the Stormwater Tax when, years ago, it constructed its campus with impervious surfaces. Until the Ordinance, there were no charges imposed by the Borough based on total impervious surface. Instead, the Borough imposed building codes governing stormwater management, which property developers (including the University) followed. In this way, the Stormwater Tax is a retroactive penalty for environmental harm (like a tax) rather than a contract term voluntarily agreed to by property owners.

The fact that a property owner could avoid the tax by eliminating its impervious surfaces does not make the Stormwater Tax voluntary. If that argument were true, then both an income tax and sales tax might be considered a voluntary fee for service—both could be avoided if a person elected not to have income or purchase goods. The idea of voluntariness in the context of taxes versus fees is whether the property owner affirmatively takes action to purchase the particular service, like a property owner paying for the gas or water it uses each month. *See Supervisors of Manheim Twp.*, 350 Pa. at 173, 38 A.2d at 276 (noting that a municipality furnishing gas or water acts in a "quasiprivate capacity"). A property

owner does not act voluntarily by taking *no* action, *i.e.* by electing not to undo prior construction. In this way, the Stormwater Tax is not voluntary.

2. The Borough Cannot Exclude the University from the Benefits of the Stormwater Tax

As stated in the Ordinance, the benefits of the Stormwater Tax are the promotion of "public health, safety, and general welfare of the residents of the Borough." *See* Ordinance at 1, § 2.D. It achieves this goal by maintaining cleaner, less polluted waterways and by preventing the effects that erosion might have in seriously damaging infrastructure. *See* Perrone Dep. 60:14-22 & 61:2-11. These are classic examples of nonexcludable benefits. *See* Shoag Report at 4 ("A good or service is said to be "non-excludable" if it is consumption cannot be limited to a group of consumers, most often paying customers.").

The Borough contends that the benefits of the Stormwater Tax are excludable because it could deny the University access to its Stormwater Conveyance System. First, this argument fails because the Stormwater Tax is not a charge for use or maintenance of the Stormwater Conveyance System—the system has existed for 100 years, and there are no plans to use the Stormwater Tax to do anything with respect to the portion of the Stormwater Conveyance System that the University directly accesses. See Perrone Dep. 126:3-22. Second, the Borough's representative admitted that it is not actually possible to exclude the University from using the Stormwater Conveyance System. See Perrone Dep.

81:19-83:5 (admitting that it is "unrealistic that . . . the Borough would say, you can't be connected to our system that you've been connected to for 50 years"). By contrast, it *is* realistic that a municipality could deny a service—like water or gas—to a specific property owner who does not pay. Third, excluding the University from directly connecting to the Stormwater Conveyance System would not exclude the University from being able to use it or benefit from it—if the University simply conveyed all the excess stormwater to the edge of its property, that water would still make its way into Stormwater Conveyance System via the Borough's streets and inlets. The Borough could not segregate the University's water from other Borough water. Water is fluid; it cannot be contained or blocked.

Thus, both the use of the Borough's Stormwater Conveyance System and the environmental health and safety benefits from the Borough's projects are not excludable.

3. The Amount of the University's Stormwater Assessment Is Not Proportional to the Market Value of the Benefit It Receives

According to Dr. Shoag, to be a fee, the amount of a charge should be what would be "paid voluntarily in a private transaction," and would be "generally commensurate with the market value of the specific benefit." Shoag Report at 7. Here, the amount of the assessment against the University—which Dr. Fishkind states is approximately \$132,000 annually, *see* Fishkind Report at 11, and the

University calculates around \$117,000, see Villella Decl. ¶ 8—is not related to the price in any market for services or proportional to the benefit received.

There is no private market for services to clean or control stormwater after it has left a property owner's land. 15 Absent governmental mandates and charges that is, regulations and taxes—there is no demand among individual property owners for this service. If there were a private market, it would have revealed itself in the century prior to 2015, and the Borough would be able to show what property owners were voluntarily paying to clean and manage stormwater in public spaces before the Ordinance was passed. But the Borough cannot do so, because no demand (and thus no market) existed. By contrast, there is private demand for things like gas and trash removal; there are private companies that charge a market rate for such services. See, e.g., Philadelphia Gas Works, "Gas Choice," https://www.pgworks.com/customer-care/gaschoice (last visited July 9, 2021) (providing a list of private natural gas suppliers); Waste Management, "Trash, Garbage, and Recycling Services in Philadelphia,"

https://www.wm.com/us/en/location/pa/philadelphia (last visited July 9, 2021)

And here, the issue is not stormwater management *on* a property owner's land. The Borough has implemented other regulations for years providing construction regulations at the owners' expense, *see* Perrone Dep. 50:6-51:22, and no part of the projects funded by the Stormwater Tax touch University property, *see id.* 125:21-127:22.

(noting that this private company is "one of Pennsylvania's largest trash and recycling service partners").

Similarly, the University's assessment is not commensurate with the market value of the benefit it receives. Again, the Borough's representative admitted as much in his deposition. *See* Perrone Dep. 90:16-91:17 (admitting that the "the amount of the fee is not directly related to the benefit each homeowner receives from the storm water protection measures").

The Borough argues that the University's benefit should be measured against what it would cost for it to construct its own stormwater conveyance system to convey stormwater all the way to a "receiving watercourse." *See* NTM Report, Executive Summary. However, the Stormwater Tax is not actually being used to maintain the Plum Run pipe. *See* Perrone Dep. 127:3-22. Instead, it is being used for things like tree planting, street sweeping, rain gardens, and curb extensions throughout the Borough. *See* Perrone Dep. 102:6-106:21. Even if it can be argued that the Borough is charging the University for use of the Stormwater Conveyance System—and it is not—the Borough is using that revenue for unrelated municipal projects. Just like a tax.

Finally, the Borough admits that the amount of each property's assessment is not proportional to the *benefit* that it receives. *See* Perrone Dep. 90:16-91:17. It is, instead, related to the *harm* caused. *See id*. In this sense, the Stormwater Tax acts

like civil damages, causing property owners to pay for harm caused by certain actions. But the University is an arm of the Commonwealth, and thus, like it is generally immune from claims for civil damages absent legislative waiver, it is immune from the Stormwater Tax.

4. The Stormwater Tax Does Not Promote Allocative Efficiency With Respect to the University

Arguably, the Stormwater Tax comes closest to a fee in that it causes property owners to internalize some of the cost of their own construction decisions. Property owners know they can pay less if they use pervious, rather than impervious, surfaces. However, particularly with respect to the University, this factor still points toward the Stormwater Tax being a tax. First, it was not designed to promote allocative efficiency because it is not targeted to *new* construction. The Ordinance applies equally to all impervious surfaces, whether built today, last year, or a century ago. Second, particularly with respect to the University, the Stormwater Tax does not promote allocative efficiency because the University has already voluntarily committed to use impervious surfaces to manage all its own stormwater in new construction, without the incentive of the Stormwater Tax. See Bixby Dep. 74:9-82:16; 85:24-86:8. To the extent the University fails to do so today is because of old, existing structures; the Stormwater Tax provides no new incentive or efficiencies.

5. The Stormwater Tax Is Only Generally, Not Specifically, Earmarked

Although there is no dispute that revenues generated by the Stormwater Tax can only be used for certain kinds of projects, there is also no dispute that the funds are not being used for one discrete project; there are many different projects funded and the universe of possible projects is not expressly delimited. So, in one sense the Stormwater Tax is earmarked but in another sense it is not.

The Court need not split hairs to resolve this issue. First, Dr. Shoag points out that "this feature alone is not determinative." *See* Shoag Report at 9. Second, even if this feature might have some weight as to the *economic* distinction between a tax or fee, it has less importance in the *legal* distinction—under Pennsylvania law, an assessment earmarked for a specific purpose is considered a tax. *See Southwest Del. Cty. Mun. Auth.*, 413 Pa. at 531, 198 A.2d at 870. In other words, this factor may be one where law and economics split. Here, law controls.

* * *

In sum, the factors laid out by Dr. Shoag all point, in varying degrees, to the Stormwater Tax being a tax rather than a fee for service as defined in economic theory. This conclusion supports the principles established by prior, binding case law in Pennsylvania, which also point to the Stormwater Tax being a tax. Applying these principles, the Court should hold that the Stormwater Tax is a tax and grant the University summary judgment.

B. The Court Should Strike the Fishkind Report Because It Improperly States a Legal Opinion

"It is well-settled that an expert is not permitted to give an opinion on a question of law." *Waters v. State Employees' Ret. Bd.*, 955 A.2d 466, 471 n.7 (Pa. Cmwlth. 2008) (citing McCormick on Evidence § 12 at 62 (6th ed. 2006)); *see also Browne v. Com.*, 843 A.2d 429, 433 & n.1 (Pa. Cmwlth. 2004). An expert may not opine as to what the law is, what it requires, or whether a party's conduct complies with the law. *Id.* "The law is evidence of itself, and it is up to the courts, not a witness, to draw conclusions as to its meaning." *Id.*

In his report, Dr. Fishkind purports to provide a legal analysis. He cites legal opinions, *see* Fishkind Report at n.1, n.5, n.6, n.7, n.8, n.9; he describes the legal implication of those opinions, *see*, *e.g.*, *id*. at 8-9 (describing Dr. Fishkind's interpretation of holdings of Florida and Georgia courts); and he purports to apply those legal standards to the facts of this case, *see id*. at 10 (contending that the Stormwater Tax is a fee because "courts in other states have found that mandatory, stormwater fees, are indeed fees and not taxes"). Other than Dr. Shoag, he cites only one *economic* authority, for the proposition that another factor considered by economists is whether the purpose of a charge is to raise "general revenue." *Id*. at 6 & n.3.¹⁶

Assuming that this factor is somehow different than the last factor considered by Dr. Shoag—whether the charge is earmarked—the analysis would

By contrast, Dr. Shoag is careful to limit his opinion to *economics*, not law. *See* Shoag Report at 2 (his report "should not be construed as a legal analysis, a matter on which I have no opinion"). Dr. Shoag cites no legal authority, does not opine as to the law of tax immunity, and does not purport to apply legal principles to the facts of the case. Instead, based on his academic experience as an economics professor at Harvard and Case Western Reserve, he observes that the field of economic theory has developed "a literature in which economists study the distinctions between fees and taxes." *See* Shoag Report at 3. He then opines as to how this literature would characterize the Stormwater Tax. *See* Shoag Report at 14-15 (limiting his opinion to the "economic definition of a tax"). This economic analysis is helpful in reaching a legal conclusion, without invading on the Court's role as the finder of law.

At bottom, Dr. Fishkind offers little (if any) economic expertise to challenge Dr. Shoag's report. Dr. Fishkind states that he agrees with Dr. Shoag's survey of the field of economics, *see* Fishkind Report at 7, but he asserts that Dr. Shoag's conclusion is wrong, relying on his analysis of legal authority. To the extent that Dr. Fishkind disagrees with Dr. Shoag's conclusion based on economic reasoning, his report does not clearly separate that analysis—it is impossible to decouple Dr.

be the same. *See supra*, § II.A.5. The Stormwater Tax creates a fund that is something between a general fund and an assessment. But as a matter of law, where it falls on that spectrum is irrelevant.

Fishkind's economic analysis from his legal analysis. His report is therefore improper and unhelpful.

To the extent that Dr. Fishkind simply mirrors the arguments of the Borough's counsel, his report is entitled to no more weight than counsel's brief. As a matter of law, the Court should strike or disregard his report.

III. The Stormwater Tax Is Not Reasonably Proportional to the Borough's Cost to Maintain the Stormwater Conveyance System

If the Court determines that the Stormwater Tax is a tax, no further inquiry is required: the University is immune and need not pay, and they are entitled to judgment as a matter of law. *See Delaware Cty. Solid Waste Auth.*, 534 Pa. at 85, 626 A.2d at 530-31. But if the Court determines that it is not a tax and might be enforceable against the University, one additional question remains: is it a *reasonable* fee for the service provided? *See* Opinion, dated July 15, 2019, at 11. Under the law governing reasonability of such fees, it is not.

A. The Stormwater Tax Is Not Reasonable Because There Is No Plan to Use It to Fund the General Operation, Maintenance, or Repair of the Borough's Stormwater Conveyance System

"[F]ees charged by a municipality for services rendered are proper if they are reasonably proportional to the costs of the regulation or the services performed." *M&D Properties, Inc. v. Borough of Port Vue*, 893 A.2d 858, 862 (Pa. Commw. Ct. 2006). Although a municipality can compel the payment of fees for particular services, they cannot use this power "to collect fees for a service as a

means of raising revenue for other purposes." *Id.* It has been long established in the context of a sewer system that a charge "must be based upon actual use, and must be reasonably proportional to the value of the service rendered and not in excess of it." *Borough of N.E. v. A Piece of Land Fronting on W. Side of S. Lake St.*, 191 Pa. Super. 532, 536, 159 A.2d 528, 530 (1960).

The Borough contends that the Stormwater Tax is a fee imposed for the service of conveying the University's stormwater to receiving watercourses. Even if that were true—and it is not, for reasons stated above, *see supra* § II.A—the fee is not reasonable under this legal framework. The Stormwater Tax has nothing to do with the cost to the Borough of maintaining the underground pipes that allegedly service the University, and it is being used to raise revenue for other services, like streambank restoration, tree planting, street sweeping, regrading alleys, and installing rain gardens and curb extensions.

The Stormwater Tax cannot be reasonably proportional to the cost of any service provided to the University because the Borough currently has no plans to spend any Stormwater Tax money on what they aver is the service provided to the University. For the better part of 100 years, the Borough has used tax money in the General Fund for the construction and maintenance of the Stormwater Conveyance System. *See* Perrone Dep. 45:16-46:9. Those costs have already been incurred and paid—this is not a situation, like in *Southwest Delaware County Municipal*

Authority, where the municipality imposed a fee to fund construction of a new sewer system. See 413 Pa. at 528, 198 A.2d at 869. Here, the Stormwater Tax is not being used to maintain the pipes that allegedly service the University—not exclusively, not primarily, and perhaps not even at all. See Perrone Dep. 125:12-126:20. In calculating the University's (or any other property owner's) charge, the Borough did not consider at all the actual expected cost of maintaining the Stormwater Conveyance System associated with specific properties. At best, the Borough can contend that the proceeds from the tax could, theoretically, be used to perform maintenance on the pipes that allegedly service the University, but according to the Borough any such project is possibly decades away. The current charge of approximately \$130,000 per year for no services is not reasonable.

B. The Stormwater Tax Is Not Reasonable Because It Funds Projects Other than the General Operation, Maintenance, or Repair of the Borough's Stormwater Conveyance System

More significantly, the Borough is using the Stormwater Tax to raise money for things other than building and maintaining the Stormwater Conveyance System. The Borough's contractor outlined a laundry list of "green infrastructure" projects for which it is being paid by the Borough, none of which involve building infrastructure to convey water away from properties. *See generally* Cline Dep. 24:11-49:15. For example, the Borough is using money from the Stormwater Tax for an "expensive project" to restore the streambank along Plum Run. *See* Perrone

Dep. 102:6-15. After Plum Run, there will also be other streambank projects, perhaps along Goose Creek. *See id.* 104:7-14. The Borough is also engaging in tree planting along the public rights of way in the Borough and subsidizing private purchases of trees. *See id.* 111:5-15. None of these projects directly involve the University's alleged use of the underground pipes to connect to the waterways. Put differently, even if all private landowners in the Borough built their own private conveyance systems to carry water to public waterways like Plum Run and Goose Creek, these projects would still be necessary to address environmental issues and hazards in public spaces. The Stormwater Tax is unreasonable because it uses funds for purposes other than the alleged service being provided to the University—building and maintaining the previously existing Stormwater Conveyance System.

C. The NTM Report Does Not and Cannot Establish That the Stormwater Tax Is a Reasonable Fee

Presumably, the Borough intends to use the NTM Report to argue that the University receives a "benefit" worth \$178,500.00 annually to use its Stormwater Conveyance System. *See* NTM Report at 12. But even assuming the correctness of Brown and Jolin's calculation of annualized cost to the University of building its own system to avoid the Borough streets and Plum Run pipe, this is the wrong measure of whether the fee is reasonable. Brown and Jolin calculate a replacement cost, but the Borough can only charge a fee proportional to the "costs of the

regulation or the services performed." *See M&D Properties, Inc.*, 893 A.2d at 862. The NTM Report opines only on the replacement cost and says nothing about the costs actually incurred by the Borough in maintaining the existing infrastructure.

Moreover, Brown and Jolin's report is based on a critical faulty assumption—that, if it somehow could not use the Borough's Stormwater Conveyance System, the University would be required to "capture and manage all annual stormwater runoff from North Campus which currently drains to that system." NTM Report, Executive Summary. That assumption is simply wrong. Assuming the University could no longer use the Stormwater Conveyance System—which is physically impossible, as explained above, see supra § II.A.2 there would be no immediate need for the University to do anything; water could simply flow to and off the borders of University property. See Bixby Dep. 212:12-22; accord Perrone Dep. 64:8-24 (acknowledging that there is no private demand for stormwater remediation without government mandates). Also, because all but one outfall from the University's current MS4 system drain into West Goshen Township, not the Borough, see Murphy Decl. ¶ 6, the University could continue to convey stormwater through those methods.

Further, the NTM Report does not take into account increased costs to the Borough from having to fully manage the outfall from Plum Run. Currently, the University manages that outfall and is responsible for remediation of excess

pollutants found in that stormwater, whether it originated with the Borough or the University. If the University were cut off from the Borough pipes, that outfall would still exist and still need to be managed, but it would become the Borough's responsibility. Nowhere is that cost considered.

Thus, under the appropriate legal standards for determining reasonableness of a fee, the NTM Report provides no support for the claim that the Stormwater Tax is reasonable.

CONCLUSION

Wherefore, Respondents Pennsylvania State System of Higher Education and West Chester University of Pennsylvania of the State System of Higher Education respectfully request that this Court find that the Stormwater Tax is a tax, grant them summary judgment, and dismiss the Borough's Action for Declaratory Judgment.

Dated: July 16, 2021 Respectfully submitted,

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KAREN M. ROMANO Chief Deputy Attorney General Civil Litigation Section

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER, :

Original Jurisdiction

Petitioner,

v. :

No. 260 MD 2018

PENNSYLVANIA STATE SYSTEM

OF HIGHER EDUCATION and

.

WEST CHESTER UNIVERSITY OF

PENNSYLVANIA OF THE STATE

SYSTEM OF HIGHER

EDUCATION,

:

Respondents.

•

CERTIFICATION PURSUANT TO Pa. R.A.P. 127

I certify that this filing complies with the provisions of the *Public Access*Policy of the Unified Judicial System of Pennsylvania: Case Records of the

Appellate and Trial Courts that require filing confidential information and documents differently than non-confidential information and documents.

Dated: July 16, 2021 Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this day the foregoing Brief in Support of Respondents' Motion for Summary Judgment is being served upon the persons and in the manner indicated below, which service satisfies the requirements of Pa. R.A.P. 121:

Electronic Service via PACFile and/or email

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IN THE COMMONWEALTH COURT OF PENNSYLVANIA

NO. 260 MD 2018

THE BOROUGH OF WEST CHESTER *Petitioner*,

ν.

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION and WEST CHESTER UNIVERSITY OF PENNSYLANIA OF THE STATE SYSTEM OF HIGHER EDUCATION Respondents.

ORDER		
AND NOW, this	day of	, 2021, upon consideration
of Petitioner's Application and	Motion for Summ	nary Relief, any response thereto,
and any oral argument thereon,	its hereby	
ORDERED and DECRE	ED that:	

- 1. The Application and Motion is GRANTED;
- 2. The Court declares that the Respondents are responsible for payment to the Petitioner of its Stream Protection Fee applicable to the Commonwealth Titled Properties and the WCU Titled Properties (as defined in the parties' pleadings) and that the Borough may enforce the Stream Protection Ordinance against the

Respondents with regard to those Properties.

BY THE COURT:

, J.

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

NO. 260 MD 2018

THE BOROUGH OF WEST CHESTER *Petitioner*,

ν.

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION and WEST CHESTER UNIVERSITY OF PENNSYLANIA OF THE STATE SYSTEM OF HIGHER EDUCATION

Respondents.

PETITIONER THE BOROUGH OF WEST CHESTER' APPLICATION AND MOTION FOR SUMMARY RELIEF

Petition for Review Challenging the Determination by
Pennsylvania State System of Higher Education
(on behalf of itself and its constituent institution,
West Chester University of Pennsylvania of the State System of Higher Education)
Regarding the Borough of West Chester's Stream Protection Fee

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INTRODUCTION

This matter arises out of the Respondents' refusal to pay the Stream Protection Fee that the Borough of West Chester charges to all owners of Developed Properties within its jurisdiction for the use and maintenance of the Borough Stormwater Collection and Conveyance System, including work which the Borough and Respondents must do to comply with Federal and Commonwealth mandates. Based upon the undisputed facts admitted, asserted and/or developed through the course of discovery and applicable law, as set forth below, and for the reasons set forth in the Borough's accompanying Brief in Support of its Application and Motion for Summary Relief, which are incorporated into this Motion as though fully set forth, this Honorable Court can determine that the Stream Protection Fee is not a tax because the Respondents derive a discrete and individualized and divisible benefit from their use of the Borough Stormwater Collection and Conveyance System, because the value of the Respondents' use the Borough Stormwater Collection and Conveyance System is reasonably proportional to the amount of the Stormwater Fee for which they are responsible, and because the Borough puts all of the revenue derived from the Stream Protection Fee in a single fund, which is and shall be utilized solely for the maintenance and restoration of the System and the receiving waters into which stormwater from the Borough Stormwater Collection and Conveyance System ultimately flows.

JURISDICTION

- 1. Pursuant to Section 761 of the Pennsylvania Judicial Code, "[t]he Commonwealth Court shall have original jurisdiction of all civil actions or proceedings . . . [a]gainst the Commonwealth government, including any officer thereof [] acting in his official capacity" 42 Pa.C.S. § 761.
- 2. Notwithstanding that the Commonwealth Titled Properties and the WCU Titled Properties are subject to, and specifically and individually benefitted by, (A) the Borough Stormwater Collection and Conveyance System and (B) the public health, safety, and welfare enhancements which are afforded by the Borough Stormwater Collection and Conveyance System, as aforesaid, on January 18, 2018, counsel for PASSHE sent to the Borough the letter attached hereto as **Exhibit A** (the "Refusal to Pay Decision Letter").
- 3. In the Refusal to Pay Decision Letter of counsel for PASSHE, PASSHE informed the Borough that WCU "will not be paying the" Stream Protection Fee.

THE PARTIES

- 4. Plaintiff is the Borough of West Chester (the "Borough").
- 5. The Borough is a Home Rule Municipality and a political subdivision of the Commonwealth, which is organized and exists under and pursuant to the laws of the Commonwealth of Pennsylvania including, without limitation, the

Pennsylvania Home Rule Charter and Optional Plans Law, 53 Pa.C.S. § 2901 et seq.

- 6. Defendants are Pennsylvania State System of Higher Education ("PASSHE"), and West Chester University of Pennsylvania of the State System of Higher Education ("WCU").
- 7. Pursuant to 24 P.S. § 20-2002-A.(a), PASSHE is a body corporate and politic constituting a public corporation and a subdivision of and instrumentality of the Commonwealth of Pennsylvania.
- 8. PASSHE and WCU are not the Commonwealth of Pennsylvania but political subdivision of the Commonwealth. Petitioner's Response to Preliminary Objection at ¶ 18.
- 9. Pursuant to 24 P.S. § 20-2002-A.(a), WCU is a constituent institution within PASSHE.

THE STANDARD OF REVIEW

original jurisdiction matter, the court may on application enter judgment if the right of the applicant thereto is clear." Pa. R.A.P. 1532(b). "An application for summary relief may be granted if a party's right to judgment is clear and no material issues of fact are in dispute." Hosp. & Health Sys. Ass'n of Pa. v. Com., 77 A.3d 587, 602

(Pa. 2013) (quoting Jubelirer v. Rendell, 953 A.2d 514, 521 (Pa. 2008); see Pa. R.A.P. 1532(b).

11. When considering an application for summary relief,

the Commonwealth Court views the evidence in the light most favorable to the non-moving party, and enters judgment only if there is no genuine issue as to any material fact and the right to relief is clear as a matter of law.

Hosp. & Health Sys., 77 A.3d at 602 (citing Chester Cmty. Charter Sch. v. Dep't of Educ., 44 A.3d 715, 720 n.6 (Pa. Cmwlth. 2012)); see, also, PPL Elec. Utils. Corp. v. City of Lancaster, 125 A.3d 837 (Pa. Cmwlth. 2015).

- 12. "A fact is considered material if its resolution could affect the outcome of the case under the governing law. <u>Id.</u> (citing Strine v. MCARE Fund, 894 A.2d 733, 738 (Pa. 2006)).
- 13. Regarding the substantive issue of law in this case (*i.e.* whether the Stream Protection Fee is a fee or a tax), the Respondents

bear[] the initial burden of establishing that the [Stream Protection Fee is] not in fact used to reimburse the Borough for its administrative or regulatory costs in providing a service.

<u>Rizzo v. City of Phila.</u>, 668 A.2d 236, 237-38 (Pa. Cmwlth. Ct. 1995) (citing Nat'l Props., Inc. v. Macungie, 595 A.2d 742 (Pa. Cmwlth. Ct. 1991)).

THE UNCONTESTED FACTS

THE GEOGRAPHY

- 14. The jurisdictional limits of the Borough extend over an area measuring 1.8 square miles, more or less, within an area generally *situate* within the geographic center of Chester County.
- 15. A portion of the campus of WCU known, generally, as North Campus ("North Campus"), is *situate* within the south-central portion of the campus which is within the jurisdictional limits of the Borough. Petitioner's Response at ¶ 2.
- 16. The area of North Campus within the jurisdictional limits of the Borough measures approximately 61.7 acres.
- 17. PASSHE, in the name of the Commonwealth of Pennsylvania, is the owner of fee simple title to those properties which form a part of North Campus within the jurisdictional limits of the Borough, and which are more fully identified on **Exhibit B** attached hereto and incorporated herein by reference (collectively, the "Commonwealth Titled Properties").
- 18. WCU is the owner of fee simple title to those properties which form a part of North Campus within the jurisdictional limits of the Borough, and which are more fully identified on **Exhibit C** attached hereto and incorporated herein by reference (collectively, the "WCU Titled Properties").

- 19. The Commonwealth Titled Properties and the WCU Titled Properties compromise a significant amount of the total impervious cover of the land area of the Borough.
- 20. The impervious area of that portion of North Campus which is *situate* within the jurisdictional limits of the Borough measures approximately thirty-two (32) acres (the "North Campus Impervious Area"), which is approximately one-half (1/2) of the total acreage of North Campus.
- 21. The North Campus Impervious Area constitutes nearly eight percent (8%) of the total impervious area within the Borough.
- 22. There is a direct relationship between the amount of impervious surface within a given watershed and the health and quality of the watercourse (and its tributaries) within that watershed, as well as public health, safety, and welfare concerns related to flooding and other stormwater-related issues.
- 23. There is also a direct relationship between the amount of impervious surface at a Developed Property and the volume and quality of stormwater runoff from that Developed Property, which enters into, uses, and is benefitted by the Borough Stormwater Collection and Conveyance System.

THE SPECIFIC BENEFITS TO PROPERTY OWNERS (INCLUDING THE RESPONDENTS) FROM THEIR USE OF THE BOROUGH STORMWATER COLLECTION AND CONVEYANCE SYSTEM

- 24. The Respondents send the flow of stormwater from their campus directly and, in many instances, uncontrolled in any way from that portion of North Campus which is *situate* within the jurisdictional limits of the Borough.
- 25. There are structures and other impervious cover areas constructed at North Campus for which there are no on-site stormwater management facilities. Vennettilli Affidavit at ¶ 24 (Exhibit E to this Application).
- 26. These structures and other impervious cover areas include, without limitation, certain buildings, driveways, parking lots, sidewalks, pathways, downspouts, and scuppers. Vennettilli Affidavit at ¶ 24 (Exhibit E to this Application).
- 27. There are structures and other impervious cover areas constructed at North Campus from which stormwater runoff flows directly into the Borough Stormwater Collection and Conveyance System without being managed or controlled by the Respondents at on-site, University-owned stormwater facilities in any way. Vennettilli Affidavit at ¶ 25. 26 (Exhibit E to this Application).
- 28. Inadequate management of accelerated stormwater runoff resulting from land disturbance and development throughout a watershed can harm water resources by changing the natural hydrologic patterns, accelerating stream flows

(which increase scour and erosion of stream beds and stream banks, thereby elevating sedimentation), destroying aquatic habitat, and elevating aquatic pollutant concentrations such as sediments, nutrients, heavy metals, and pathogens.

- 29. The stormwater which the Respondents do not control on site either (A) enters and flows through the Borough Stormwater Collection and Conveyance System via infrastructure which traverses certain parts of North Campus or is adjacent to it or (B) flows directly into nearby watercourses, including Plum Run, including over Borough-owned roadways, at a point within the jurisdiction of the Borough. Vennettilli Affidavit at ¶ 23-26 (Exhibit E to this Application).
- 30. The records which the Borough Public Works Department maintains in the normal course of its operations do not report the exact number of hours which employees spend working on the Borough Storm Water Collection and Conveyance System at any specific location within the Borough. Vennettilli Affidavit at ¶ 30 (Exhibit E to this Application).
- 31. It is not disputed that Borough employees within the Public Works Department regularly perform work at and upon components of the Borough Stormwater Conveyance and Control System which the University uses, and from which it directly benefits, including, without limitation, maintenance and/or repair of such components, as well as street sweeping, leaf collection, and inlet cleaning. Vennettilli Affidavit at ¶ 31 (Exhibit E to this Application).

- 32. Though the records which the Borough Public Works Department maintains in the normal course of its operations may not report the exact sum of money which the Borough spends on specific components of the Borough Stormwater Collection and Conveyance System, there is no dispute that the Borough spends money to perform work at and upon components of the System which the University uses, and from which it directly benefits, including, without limitation, maintenance and/or repair of such components, street sweeping, leaf collection, and inlet cleaning. Vennettilli Affidavit at ¶ 32 (Exhibit E to this Application).
- 33. This work materially improves and reduces the negative impacts which would occur if stormwater runoff from the Commonwealth Titled Properties and the WCU Titled Properties (including North Campus) flowed (as some of it now does) in an uncontrolled manner without being collected and conveyed in and through the Borough Stormwater Collection and Conveyance System before entering a preexisting, pre-development watercourse known as Plum Run.
- 34. Plum Run is a watercourse which flows in a southwesterly direction to a point within the jurisdictional limits of the Borough and from there out of the Borough until it enters Brandywine Creek.
- 35. Plum Run is characterized by an impaired status due to excess siltation due in part from stormwater runoff from North Campus, including, without doubt,

runoff which the University does not control before discharging that runoff into the Borough Stormwater Collection and Conveyance System.

- 36. The Borough is currently using some of the funds from the Stormwater Management Fund for the restoration of Plum Run. Vennettilli Affidavit at ¶ 34 (Exhibit E to this Application).
- 37. Brandywine Creek is characterized by an impaired status due to excess siltation.
- 38. The University has caused the damage to the Borough Stormwater Collection and Conveyance System, in particular, when University dumped approximately six (6) cubic yards of concrete on or about November 23rd, 2020, which ultimately discharged into and damaged the Plum Run. Vennettilli Affidavit at ¶ 27 (Exhibit E to this Application).
- 39. The Borough's stormwater system does not and is not intended and/or required to "improve," i.e., develop, real property of the Respondents. Respondents' Answer with New Matter at ¶26.
- 40. The Borough Stormwater Collection and Conveyance System directly benefits the Commonwealth Titled Properties and the WCU Titled Properties by allowing the Respondents to avoid the Federal and Commonwealth-mandated costs of finding some other method to manage stormwater runoff from the Respondents' Developed Properties (including building facilities on-campus to

handle all of their otherwise uncontrolled, stormwater runoff without discharging to and negatively affecting the Borough and down-stream property owners).

- 41. By doing so, the value of those properties is undoubtedly increased.
- 42. The Respondents have a choice when deciding how to meet their Commonwealth-imposed legal obligations to manage stormwater runoff from their Developed Properties.
- 43. They could elect to avoid altogether their use of, and benefit from, the Borough Stormwater Collection and Conveyance System by building comparatively more expensive on-site stormwater control systems.
- 44. They could even restore their properties to their undeveloped, original condition.
- 45. PASSHE and the University can avoid that cost by utilizing instead the Borough's Stormwater Collection and Conveyance System and paying rent in the form of the Stream Protection Fee.
- 46. The cost to the Respondents to handle all of their own stormwater runoff on-campus and arrange for discharge other than into Plum Run, exceeds the cost of utilizing and renting the Borough Stormwater Collection and Conveyance System.
- 47. The Respondents' use of the Borough Stormwater Collection and Conveyance System also materially limits the Respondents' damages to downstream

property owners that result from and will result from the Respondents' failure to control its stormwater on-site or failure to utilize the Borough Stormwater Collection and Conveyance System.

48. The Borough's stormwater system, and the Respondents use of it, allows the Respondents to continue to develop their properties <u>without incurring</u> the costs of Commonwealth-mandated on-site stormwater management.

THE ORIGINS AND APPLICATION OF THE STREAM PROTECTION FEE

- 49. The Borough owns and operates a Small Municipal Separate Storm Sewer System (MS4), as that term is defined at Section 122.26(b)(16) of Title 40 of the Code of Federal Regulations (the "Borough Stormwater Collection and Conveyance System").
- 50. The Borough Stormwater Collection and Conveyance System is a Small MS4, as that term is defined at Section 122.26(b)(17) of Title 40 of the Code of Federal Regulations.
- 51. Pursuant to Section 122.26(a)(9)(i)(A) of Title 40 of the Code of Federal Regulations, in order for stormwater from the Borough Stormwater Collection and Conveyance System to be lawfully discharged, as aforesaid, the Borough must be covered under a National Pollutant Discharge Elimination System Permit (NPDES Permit).

52. Pursuant to Section 92a.32.(a) of Title 25 of the Pennsylvania Code, "[t]he provisions of 40 CFR 122.26(a), (b), (c)(1), (d), (e)(1), (3)-(9) and (f)-(g) (relating to storm water discharges (applicable to State NPDES programs, see § 123.25)) and 122.30-122.37 are incorporated [therein] by reference."

53. As noted by the Department,

[i]n 2016, the Department labeled approximately 19,000 miles of rivers and streams in Pennsylvania impaired for water supply, aquatic life, recreation, or fish consumption. Stormwater runoff pollution is one of the biggest reasons for this impairment.

http://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Pages/Be-Stormwater-Smart-.aspx.

54. The United States Environmental Protection Agency states that

[s]torm water runoff continues to harm the nation's waters. Runoff from lands modified by human activities can harm surface water resources in several ways including by changing natural hydrologic patterns and by elevating pollutant concentrations and loadings. Storm water runoff may contain or mobilize high levels of contaminants, such as sediment, suspended solids, nutrients, heavy metals, pathogens, toxins, oxygen-demanding substances, and floatables.

40 C.F.R. § 122.30(c).

55. The Department states that

[s]tormwater carries an enormous amount of pollution, including sediment, car oil, lawn fertilizers, pesticides, pet poop (and viruses and bacteria), and cigarette butts. As

you might expect, this has many negative impacts on streams and rivers.

<u>http://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Pages/Be-</u> Stormwater-Smart-.aspx.

- 56. In order to address these (and other) findings, the Borough must comply with certain regulatory requirements with regard to stormwater, <u>because</u> it collects uncontrolled stormwater runoff from the Commonwealth Titled Properties and the WCU Titled Properties, thereby relieving the Respondents of their Commonwealthmandated duty to do so themselves.
- 57. On September 21, 2016, Borough Council adopted Resolution No. 11-2016, and thereby imposed the Stream Protection Fee upon the owners of all developed properties within the jurisdictional limits of the Borough which are benefitted by (A) the Borough Stormwater Collection and Conveyance System and (B) the public health, safety, and welfare enhancements which are afforded by Borough Stormwater Collection and Conveyance System.
- 58. The Borough has authority to protect the health, safety and welfare of its citizen through the adoption of ordinances that require property owners, including political subdivisions of the Commonwealth, within its jurisdiction to link up to its publicly-provided water systems. Southwest Delaware County Mun. Auth. v. Aston, 198 A.2d 867, 872 (Pa. 1964).

- 59. The Borough instituted the Stream Protection Fee to offset costs it incurred, "to operate and maintain [its] stormwater management facilities and infrastructure," due to "increased regulatory Requirements" and ongoing maintenance and operation of the system itself. Preliminary Objections at ¶7.
- 60. The Stream Protection Fee is assessed on the owners' of real property within the Borough, "where man made change[s] have been made which add impervious surfaces to the property." Preliminary Objection at ¶8.
- 61. Pursuant to the Stream Protection Ordinance, Borough Council established "[i]mpervious area property tiers . . . [f]or the purposes of determining the appropriate assessment rate for the [Stream Protection Fee]"
- 62. Borough Council ordained that "[i]mpervious area property tiers were developed using impervious surfaces based on Chester County's geographic information system (GIS) impervious cover data layer from 2010."
- 63. As so established, a "Tier 4" property is one "where the total impervious surface area is greater than 2,000 square feet and less than or equal to 2,500 square feet."
- 64. As so established, a "Tier 5" property is one "where the total impervious surface area is greater than 2,500 square feet and less than or equal to 3,000 square feet."

- 65. As so established, a "Tier 6" property is one "where the total impervious surface area is greater than 3,000 square feet."
- 66. Several of the Commonwealth Titled Properties and the WCU Titled Properties are either a Tier 4 property or a Tier 5 property, but most of the Commonwealth Titled Properties and the WCU Titled Properties are Tier 6 properties.
- 67. For purposes of calculating the Stream Protection Fee for a given property, Borough Council adopted Resolution No. 11-2016.
- 68. Pursuant to Resolution No. 11-2016, Borough Council established the monthly amount of the "Base Fee," as that term is defined in the Stream Protection Ordinance, at \$6.70 per 1,000 square feet of impervious cover on a given property.
- 69. All revenue generated by the Stream Protection Fee is, and will continue to be, "deposited into the West Chester Borough Stormwater Management Fund."
- 70. The Borough uses the Stormwater Management Fund <u>only</u> for the purposes set forth in the Stream Protection Ordinance, which, by extension, include funding the Minimum Control Measures and Best Management Practices as set forth in the Pollutant Reduction Plan and the TMDL in order to comply with the regulatory requirements which are imposed upon the Borough by the United States of America and Commonwealth of Pennsylvania, respectively.

- 71. No revenue generated by the Stream Protection Fee has been or will be used for any purpose other than as set forth in the Stream Protection Ordinance.
- 72. In accordance with Section 92a.32.(c) of Title 25 of the Pennsylvania Code, the Borough, included within the 2018-2023 Term Borough MS4 Individual NPDES Permit Application information that the Borough has adopted the following minimum control measures, not including its regular maintenance and repair of the System:
 - A. public education & outreach;
 - B. public participation/involvement;
 - C. preventing illicit discharge detection & elimination;
 - D. construction site runoff control;
 - E. post-construction runoff control; and
 - F. pollution prevention/good housekeeping including maintaining the stormwater system.
- 73. The Respondents are required by the Commonwealth to and do have their own MS4 permit, separate from the Borough's, which "equally benefits property owners and citizens on campus and in the greater community." Respondents' Answer with New Matter at ¶ 19 (emphasis added).

CONCLUSION

There are no material facts at issue. The Borough's Stormwater Collection and Conveyance System provides discrete benefits to the Respondents, among other things, *inter alia*, by relieving them of the great expense that they would incur if they chose to meet their state-imposed legal requirements to manage <u>on-site</u> all of the

stormwater that their development of impervious structures causes to flow unnaturally from their properties. Instead, it allows them to enjoy the benefit of a proportionately much smaller fee, <u>i.e.</u>, a rental, to utilize the Borough's Stormwater Collection and Conveyance System. The Borough uses Stream Protection Fee exclusively to maintain that system and reduce and repair the damage that the Respondent's (and other's) uncontrolled stormwater runoff causes, and has caused, to the system and the waterways into which it discharges. Under any point of view, the Stream Protection Fee is simply that . . . a fee or rental for the direct use and benefit of the owners of impervious or partly impervious property within the Borough. As such, there is no dispute that the Borough has authority to impose this fee upon the Respondents. Therefore, the Court should enter Summary Relief in favor of the Borough and against the Respondents.

WHEREFORE, Petitioner, the Borough of West Chester, respectfully requests that this Court enter an Order granting summary relief in favor of the Borough and against the Respondents and declaring that the Respondents are responsible for payment to the Borough of its Stream Protection Fee applicable to the Commonwealth Titled Properties and the WCU Titled Properties and that the Borough may enforce the Stream Protection Ordinance with regard to those

properties, and also providing such further relief as the Court deems just and proper.

Dated: July 19, 2021 Respectfully submitted,

BUCKLEY, BRION, McGuire & Morris LLP

By: /s/ Michael S. Gill Michael S. Gill, Esquire Attorney ID No. 86140

By: Roger Cameron, Esquire
Attorney ID No. 53251
rcameron@buckleyllp.com

By:

Aristidis W. Christakis, Esquire
Attorney ID No. <u>707815</u>
achristakis@buckleyllp.com

118 West Market Street West Chester, Pennsylvania 19382

CERTIFICATION OF COMPLIANCE

I hereby certify that this filing complies with the provisions of the *Public Access Policy of the Unified Judicial System of Pennsylvania: Case Records of the Appellate and Trial Courts* that require filing confidential information and documents differently than non-confidential information and documents.

Dated: July 19, 2021

Respectfully submitted,

BUCKLEY, BRION, McGuire & Morris Llp

By:

Aristidis W. Christakis, Esquire Attorney ID No. 207815

achristakis@buckleyllp.com

Exhibit A



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GOVERNOR'S OFFICE OF GENERAL COUNSEL Office of Chief Counsel

January 18, 2018

Mr. Michael Perrone Manager Borough of West Chester The Spellman Building 829 Paoli Pike West Chester, PA 19380-4551

Re:

Storm Water Management Fee

West Chester University of Pennsylvania

Dear Mr. Perrone:

I am Chief Counsel for Pennsylvania's State System of Higher Education ("State System"). As I am sure you are aware. West Chester University of Pennsylvania ("University") is one of fourteen (14) component universities of the State System.

I am writing to you to formally advise the Borough that the University will not be paying the storm water management fee involces that the Borough sent to the University. As previously explained, the University is not legally authorized to pay those invoices because: (1) the Borough does not have the statutory authority to impose a storm water management fee on a Commonwealth entity. such as the University; and (2) even if such statutory authority existed, the Borough's storm water management fee is a tax, from which the University, as a Commonwealth entity, is immune.

Pursuant to the State System of Higher Education's enabling statute, the State System and its constituent universities are designated a "government instrumentality." 24 P.S. §20-2002-A(a). As an instrumentality of the Commonwealth, the University is a Commonwealth entity that is immune to local taxation unless the Pennsylvania General Assembly has expressly granted the political subdivision the authority to tax property owned by the Commonwealth.

In Lehigh-Northampton Airport Authority v. Lehigh County Board of Assessment Appeals, 889 A.2d 1168, 1172 (Pa. 2005), the Pennsylvania Supreme Court described the Commonwealth's tax immunity as follows:

Because the power to tax is vested within the General Assembly, real estate is immune from local taxation unless that body has granted taxing authority to political subdivisions. Even where such local taxing power exists, property owned by the Commonwealth and its agencies remains unaffected by-or immune from-such power absent express statutory

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Mr. Michael Perrone Borough of West Chester January 18, 2018 Page 2

authorization to the contrary. SEPTA v. Board of Revision of Taxes, 833 A.2d 710, 713 ("It cannot be presumed that general statutory provisions giving local subdivisions the power to tax local real estate, were meant to include property owned by the Commonwealth..."); see also Commonwealth v. Dauphin County, 335 Pa. 177, 180-181, 6 A.2d 870, 872 (1939) (explaining that legislation generally does not affect the sovereign's rights unless it clearly intends to do so, and that, particularly in the context of taxation, any other rule could "upset the orderly processes of government by allowing the sovereign power to be burdened by municipal taxes").

The Borough's storm water management fees are not charges for actual services provided to the University by the Borough. Instead, they are the imposition of a general tax for the improvement and maintenance of the Borough's storm water infrastructure. As a result, these fees are a tax, regardless of what the Borough chooses to call them. The proper characterization of a governmental charge does not depend on what it has been called, but the purposes for which it has been enacted. See Clement & Muller, Inc. v. Tax Review Board, 659 A.2d 596 (Pa. Commonwealth Ct., 1995), affd, 715 A.2d 397 (Pa. 1998) (distinguishing a tax from a regulatory fee); Philadelphia v. Southeastern Pennsylvania Transportation Authority, 303 A.2d 247 (Pa. Commonwealth Ct., 1973) (distinguishing a tax from a license fee).

The Commonwealth pays neither for the general operations of local government nor for local infrastructure improvements, even though the Commonwealth may benefit from both. *Pittsburgh v. Sterrett Subdistrict School*, 54 A. 463 (Pa. Supreme Ct., 1903); see also Southwest Delaware County Municipal Authority v. Aston Township, 198 A.2d 867 (Pa. Supreme Ct., 1964); McCandless Township Sanitary Authority v. PennDOT, 488 A. 2d 367 (Pa. Commonwealth Ct., 1985).

In this case, none of the sources of legal authority for the imposition of storm water management fees stated in the Borough's ordinance contain the express statutory authority required.

Please let me know if there is anything further you need from the University on this matter.

Sincerely.

Andrew C. Lehman Chief Counsel

ACL:mar

c: Jennifer Whare, Deputy General Counsel Christopher M. Florentino, President University Legal Counsel

Exhibit B

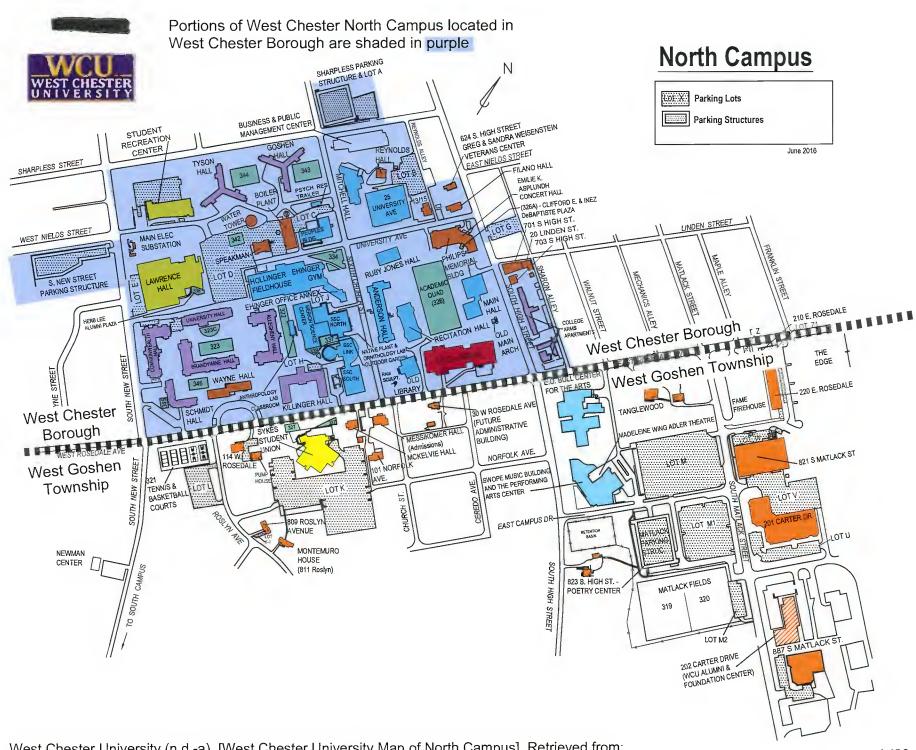
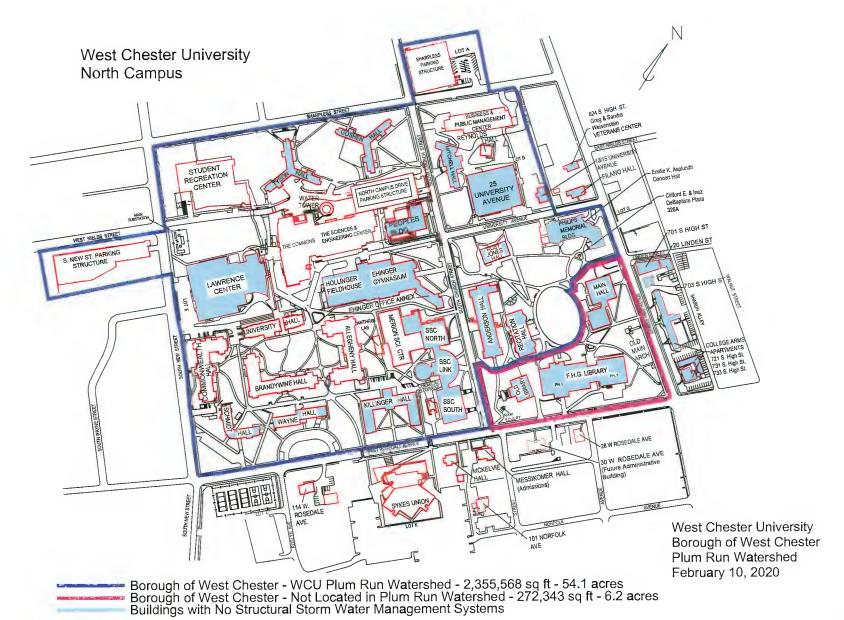


Exhibit C



WCU000820

Exhibit D

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER

Plaintiff

Original Jurisdiction

ν.

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION

&

WEST CHESTER UNIVERSITY
OF PENNSYLVANIA OF THE
STATE SYSTEM OF HIGHER EDUCATION:

Defendants

AFFIDAVIT

I, ALBERTO VENNETTILLI, being duly sworn upon oath, depose and state as follows:

- 1. I am over eighteen (18) years of age and *sui juris*.
- 2. I have personal knowledge of the matters set forth in this Affidavit and am otherwise competent to testify to the matters and content set forth herein.
- 3. I hold a Bachelors' Degree in Civil Engineering from Michigan Technological University.
- 4. I have been licensed as a Professional Engineer by the Commonwealth of Pennsylvania since 2007.
- 5. I am employed by The Borough of West Chester (the "Borough") as its Director of Public Works.
 - 6. My business address is 205 Lacey Street, West Chester, Pennsylvania 19382.

- 7. I have served in my current position as Director of Public Works for the Borough since January of 2021.
- 8. Before assuming the position of Director of Public Works for the Borough, I served as Deputy Director of Public Works for the Borough from August of 2020 to January of 2021.
- 9. Before assuming the position of Deputy Director of Public Works for the Borough, I served as Vice President of Carroll Engineering Corporation from January of 2007 to August of 2020.
- 10. Before assuming the position of Vice President of Carroll Engineering Corporation,

 I served as a Project Manager for Seville Homes/Trimarr, Inc. from 2003 to December of 2006.
- 11. Before assuming the position of a Project Manager for Seville Homes/Trimarr, Inc., I served as President of Civic Engineering, Inc. from 1991 to 2003.
- 12. Before assuming the position of President of Civic Engineering, Inc., I served as Assistant Director of Engineering for Civic Engineering Corporation from 1988 to 1990.
- 13. In my current position as Director of Public Works for the Borough, I report directly to the Borough Manager.
- 14. In my current position as Director of Public Works for the Borough, I manage an administrative staff of four (4) people and a construction and maintenance staff of at least 26 Borough employees.
- 15. As part of my responsibilities as Director of Public Works for the Borough, I am familiar with the substance of Chapter 94A of the Borough Code (the "Stream Protection Ordinance").
- 16. In my current position as Director of Public Works, my responsibilities include, without limitation, providing and managing the following infrastructure systems and services:

- A. the Borough-owned and operated stormwater collection and conveyance system;
- B. the Borough-owned and operated sanitary sewer system;
- C. street sweeping;
- D. snow removal; and
- E. capital improvements administration and management;
- 17. Throughout my employment by the Borough, I have personally overseen and managed the performance of the foregoing services.
- 18. The Borough performs the foregoing services for the benefit of its residents and property owners including, without limitation, properties owned or used by West Chester University (the "University").
- 19. The Borough's operation of the Borough-owned stormwater collection and conveyance system includes, without limitation, the repair and maintenance of collection and conveyance pipes, clearing and unblocking of stormwater inlets, headwalls, and outflows, street sweeping, leaf collection, and snow removal.
- 20. I am personally familiar with the locations and physical characteristics of the Borough's streets, sidewalks, and infrastructure, including, without limitation, the Borough-owned collection and conveyance system and service by that system to Developed Properties, as that term is defined (in the singular) in the Stream Protection Ordinance.
- 21. The Borough-owned stormwater system includes, but is not limited to, a single and comprehensive system of inlets, pipes, conduits, headwalls, endwalls, culverts, roads, basins, and other methods for the collection and conveyance of stormwater runoff which, ultimately, discharges such runoff to receiving watercourses.
- 22. I am familiar with the state of development at that portion of the University which is located within the Borough (as outlined in red on **Exhibit A** attached hereto and incorporated herein by reference ("North Campus") including its topography, the structures and other

impervious cover areas constructed at North Campus, and the discharge of stormwater runoff from North Campus to the Borough-owned stormwater collection and conveyance system.

- 23. Most of the stormwater runoff which flows from North Campus into and through the Borough-owned stormwater collection and conveyance system is, ultimately, discharged to that certain watercourse known as Plum Run.
- 24. There are structures and other impervious cover areas constructed at North Campus for which there are no on-site stormwater management facilities at all including, without limitation, certain buildings, driveways, parking lots, sidewalks, pathways, downspouts, and scuppers.
- 25. There are structures and other impervious cover areas constructed at North Campus from which stormwater runoff flows directly into the Borough-owned stormwater collection and conveyance system without being managed or controlled at on-site University-owned stormwater facilities in any way.
- 26. I have personally observed uncontrolled stormwater runoff from North Campus flowing into the Borough-owned stormwater collection and conveyance system.
- 27. I have personally observed the damage to the Borough-owned stormwater collection and conveyance system that resulted when University dumped approximately six (6) cubic yards of concrete on or about November 23rd, 2020, which ultimately discharged into and damaged the Plum Rum.
- 28. I reviewed the document attached hereto as **Exhibit B** which I understand the University and the Pennsylvania State System of Higher Education produced to the Borough during the course of this litigation (the "University-Produced Document").
- 29. To the best of my knowledge, understanding, and belief, the information set forth in the University-Produced Document is true and correct.

- 30. The records which the Public Works Department maintains in the normal course of its operations do not report the exact number of hours which employees spend working on the Borough-owned stormwater collection and conveyance system at any specific location within the Borough.
- 31. I am personally aware, though, that Borough employees within the Public Works Department regularly perform work at and upon components of the Borough-owned of the storm water system which the University uses including, without limitation, maintenance and/or repair of such components, street sweeping, and inlet cleaning.
- 32. Though the records which the Public Works Department maintains in the normal course of its operations may not report the exact sum of money which the Borough spends on specific components of the Borough-owned stormwater collection and conveyance system, I am personally aware that the Borough spends significant amounts of money to perform work at and upon components of the Borough-owned of the storm water system which the University uses including, without limitation, maintenance and/or repair of such components, street sweeping, and inlet cleaning.
- 33. The work which Borough employees perform, as aforesaid, materially improves and reduces the negative impacts which would occur if stormwater runoff from Developed Properties (including North Campus) flowed in an uncontrolled manner without being collected and conveyed in and through the Borough-owned collection and conveyance system.
- 34. I am aware that the Borough is in the process of performing restorative work to the streambank of Plum Run at portions of that watercourse within the jurisdictional limits of the Borough to mitigate and prevent further damage from erosive effects caused by upstream stormwater runoff discharge including, without limitation, from the University.

- 35. I am aware that the costs and expenses of the Plum Run restoration work, as aforesaid, are and will continue to be paid from the Stormwater Management Fund as contemplated and permitted pursuant to the Stream Protection Ordinance.
- 36. The above information is true and correct to the best of my knowledge or information and belief.
- 37. The undersigned understands that this statement is made subject to the penalties of 18 P.S. § 4904, relating to unsworn falsifications to authorities.

FURTHER AFFIANT SAYETH NAUGHT.

Date: July 15, 2021

Sworn to (or affirmed) and subscribed before me this /5 day of July, 2021.

Notary Public

My Commission Expires: 4/34/3033

Commonwealth of Pennsylvania - Notary Seal Dana C. DiDomenico, Notary Public **Chester County**

My commission expires April 24, 2022 Commission number 1277114

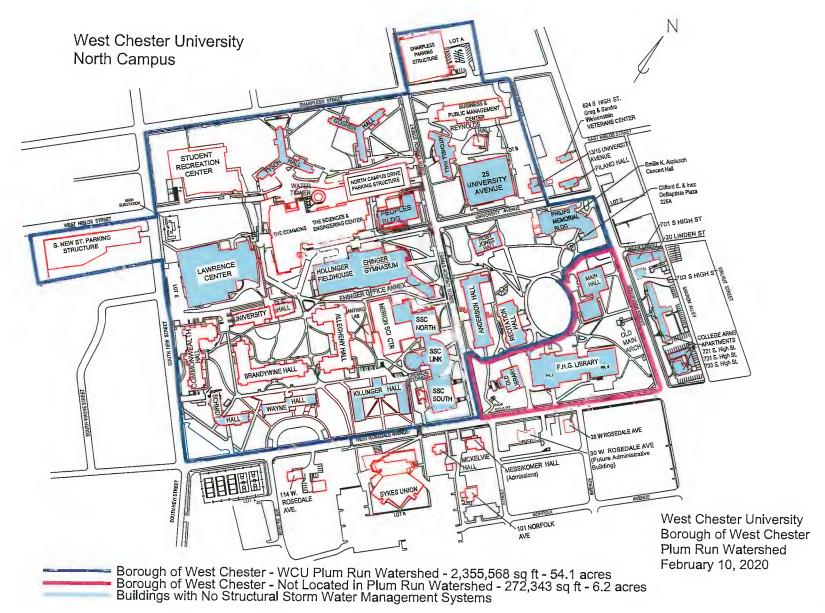
Member, Pennsylvania Association of Notaries

EXHIBIT A

https://www.wcupa.edu/campusmap/documents/WCUNorthCampusMap.pdf

1693a

EXHIBIT B



WCU000820

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

NO. 260 MD 2018

THE BOROUGH OF WEST CHESTER Petitioner,

v.

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION and WEST CHESTER UNIVERSITY OF PENNSYLANIA OF THE STATE SYSTEM OF HIGHER EDUCATION Respondents.

BRIEF OF PETITIONER THE BOROUGH OF WEST CHESTER IN SUPPORT OF APPLICATION AND MOTION FOR SUMMARY RELIEF

Petition for Review Challenging the Determination by
Pennsylvania State System of Higher Education
(on behalf of itself and its constituent institution,
West Chester University of Pennsylvania of the State System of Higher Education)
Regarding the Borough of West Chester's Stream Protection Fee

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STATEMENT OF JURISDICTION

Pursuant to Section 761(a)(1) of the Pennsylvania Judicial Code, 42 Pa. C.S. § 761(a)(1), the Commonwealth Court has jurisdiction over the Action for Declaratory Judgment which Petitioner the Borough of West Chester (the "Borough") filed with this Court on April 13, 2018.¹

Unless otherwise noted, capitalized terms used, but not defined, in this Brief have the meanings ascribed thereto in the Action for Declaratory Judgment.

DETERMINATION IN QUESTION

The determination by the Pennsylvania State System of Higher Education (the "State System") (on behalf of itself and its constituent institution, West Chester University of Pennsylvania of the State System of Higher Education the "University" and, sometimes together with the State System, the "Respondents") dated January 18, 2018, pursuant to which the State System informed the Borough that neither the State System nor the University intends to pay the Stream Protection Fee (the "Refusal to Pay Letter"). A copy of the Refusal to Pay Letter is attached hereto as Exhibit A and is incorporated here by reference.

STATEMENT OF THE SCOPE AND STANDARD OF REVIEW

A. The Standard for Summary Judgment

"At any time after the filing of a petition for review in an appellate or original jurisdiction matter, the court may on application enter judgment if the right of the applicant thereto is clear." Pa. R.A.P. 1532.(b). "An application for summary relief may be granted if a party's right to judgment is clear and no material issues of fact are in dispute." Hosp. & Health Sys. Ass'n of Pa. v. Com., 77 A.3d 587, 602 (Pa. 2013) (quoting Jubelirer v. Rendell, 953 A.2d 514, 521 (Pa. 2008); see Pa.R.A.P. 1532(b).

When considering an application for summary relief,

"the Commonwealth Court views the evidence in the light most favorable to the non-moving party, and enters judgment only if there is no genuine issue as to any material fact and the right to relief is clear as a matter of law."

Hosp. & Health Sys., 77 A.3d at 602 (citing Chester Cnty. Charter Sch. v. Dep't of Educ., 44 A.3d 715, 720 n.6 (Pa. Cmwlth. 2012)); see, also, PPL Elec. Utils. Corp. v. City of Lancaster, 125 A.3d 837 (Pa. Commw. Ct. 2015).

"A fact is considered material if its resolution could affect the outcome of the case under the governing law." <u>Id.</u> (citing Strine v. MCARE Fund, 894 A.2d 733, 738 (Pa. 2006)).

B. The Burden of Proof

Regarding the substantive issue of law in this case (i.e. whether the Stream

Protection Fee is a fee or a tax), the Respondents

"bear[] the initial burden of establishing that the [Stream Protection Fee is] not in fact used to reimburse the Borough for its administrative or regulatory costs in providing a service."

<u>Rizzo v. City of Phila.</u>, 668 A.2d 236, 237-38 (Pa. Cmwlth. Ct. 1995) (citing Nat'l Props., Inc. v. Macungie, 595 A.2d 742 (Pa. Cmwlth. Ct. 1991)).

QUESTIONS PRESENTED

A. IS THE BOROUGH'S AUTHORITY TO ENACT THE STREAM PROTECTION ORDINANCE A CLEAR QUESTION OF LAW ABOUT WHICH THERE IS NO ISSUE OF MATERIAL FACT IN DISPUTE?

Suggested Answer:

Yes.

B. IS THERE ANY ISSUE OF MATERIAL FACT IN DISPUTE WHICH REQUIRES AN EVIDENTIARY HEARING TO ESTABLISH THAT THE STREAM PROTECTION FEE IS A FEE AND NOT A TAX?

Suggested Answer:

No.

STATEMENT OF THE CASE

Either in its own name as a constituent of the State System or in the name of the Commonwealth of Pennsylvania, the University owns or occupies a significant portion of the land within the jurisdictional limits of the Borough of West Chester (the "Borough"). Aff. Barbara Lionti, ¶21 (July 15, 2021)²; NTM Engineering, Inc., EXPERT REPORT: DISCRETE BENEFITS PROVIDED TO WEST CHESTER UNIVERSITY BY THE WEST CHESTER BOROUGH STORMWATER MANAGEMENT SYSTEM, June 2021,³ p.

3. The Borough itself is a Home Rule Municipality organized and operating pursuant to its Home Rule Charter (the "Home Rule Charter") and is governed by a Borough Council. BOROUGH OF WEST CHESTER, PA., HOME RULE CHARTER § 101 et seq. (1993).

In 2016, in response to ever-increasing federal and state regulatory requirements regarding municipal management of stormwater runoff from improved properties, the Borough Council adopted the Stream Protection Ordinance. Borough of West Chester, Pa., Stream Protection Ordinance § 94A-1 *et seq.* (2016). There, the Borough established (A) further regulation of the depositing of stormwater from Developed Properties, as defined in the Stream Protection

This affidavit of Barbara Lionti, with its attached exhibits, is attached hereto as **Exhibit B**, and is incorporated here by reference.

This report is referred to as the "<u>NTM Expert Report</u>" below. A true and correct copy of the NTM Expert Report is attached hereto as **Exhibit C**.

Ordinance, into the Borough-owned and -operated stormwater management infrastructure, which includes, but is not necessarily limited to, a system of inlets, conduits, pipes, basins, headwalls, endwalls, and roads for the collection and conveyance of stormwater runoff from those Developed Properties for ultimate discharge to receiving watercourses (the "Borough Stormwater Collection and Conveyance System") and (B) collection of the Stream Protection Fee for the service and benefit which that system provides to the owners of Developed Properties.

BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-6 (2016).

Pursuant to the Stream Protection Ordinance, only the owners of Developed Properties pay a fee associated with their use of the Borough Stormwater Collection and Conveyance System. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-6 (2016). The amount of the Stream Protection Fee, which the Borough charges to the owner of any given Developed Property, is based on the amount of impervious surface at that property relative to the amount of non-impervious surface. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-6 (2016). Any owner of a Developed Property can reduce or eliminate the amount of the Stream Protection Fee for that property by (1) reducing the amount of impervious surface at that property, (2) otherwise achieving site-specific credits against the Stream Protection Fee, or (3) prevailing on an appeal on

other specified grounds. Borough of West Chester, Pa., Stream Protection Ordinance § 94A-10 (2016); Borough of West Chester, Pa., Stream Protection Ordinance § 94A-11 (2016). Those grounds include a demonstration that stormwater runoff from the Developed property drains outside of the Borough and, therefore, that the Developed property does not use the Borough Stormwater Collection and Conveyance System. West Chester Borough Stream Protection Fee Program Appeal Policies and Procedures Manual, November 2017, p. 4.4

The Borough established the Stormwater Management Fund and directed that all sums which the Borough collects pursuant to the Stream Protection Fee be deposited into that fund. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-9 (2016). The Borough further directed that monies in the Stormwater Management Fund may only be used by the Borough for specific and limited stormwater-related purposes. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-9 (2016).

Starting in 2017, the Borough began sending to the owners of Developed Properties (including the Respondents) annual invoices for the Stream Protection Fee. Aff. Barbara Lionti, ¶22 (July 15, 2021). Chief Counsel for the State System then issued the Refusal to Pay Letter on January 18, 2018.

This manual is attached hereto as **Exhibit D.1**. Note that this manual was amended in March, 2017, while this litigation was pending, to permit a full credit against a property's Stream Protection Fee if the property in question discharges entirely outside of the Borough.

The University (in its own name, or through the Commonwealth) owns or occupies eighteen Developed Properties within the jurisdictional limits of the Borough (referred to in this Brief Of Petitioner The Borough Of West Chester IN SUPPORT OF APPLICATION AND MOTION FOR SUMMARY RELIEF (this "Brief") and the THE BOROUGH OF WEST CHESTER'S APPLICATION AND MOTION FOR SUMMARY RELIEF as "North Campus"). Several of those Developed Properties are improved with structures, sidewalks, parking areas, and other impervious cover for which there are no on-site University-owned stormwater management facilities and from which nearly all stormwater (i.e. whatever is not absorbed into the ground or evaporates) enters the Borough Stormwater Collection and Conveyance System. See Petitioner THE BOROUGH OF WEST CHESTER'S APPLICATION AND MOTION FOR SUMMARY RELIEF, Exhibits B and C. Other Developed Properties which the University owns or occupies (but which are owned in the name of the Commonwealth) are the site of recent redevelopment activities. At those properties, the University manages some stormwater runoff on-site while still discharging a volume of runoff to the Borough Stormwater Collection and Conveyance System.

In April of 2018, following an exchange of correspondence between counsel for the Borough and Chief Counsel for the State System, the Borough filed the Action for Declaratory Judgment to establish the Respondents' obligations under and pursuant to the Stream Protection Ordinance. The Respondents filed a single

preliminary objection in the nature of a demurrer (the "<u>Preliminary Objection</u>"). This Court overruled the Preliminary Objection with an Order and Opinion dated July 15, 2019 (the "<u>Preliminary Objection Opinion</u>"). Following further pleadings, the Borough and the Respondents engaged in fact discovery and exchanged Expert Reports.

Pursuant to this Court's Order dated July 2, 2021, the Borough and Respondents "shall serve and file dispositive motions and briefs in support thereof no later than July 19, 2021[.]" On even date herewith, the Borough filed with this Court the The Borough Of West Chester's Application and Motion.

SUMMARY OF ARGUMENT

The Borough may not impose a tax or assessment upon real estate which the Respondents own and use for their authorized governmental purposes. Though the State System and the University make much of that truism, it is wholly irrelevant to this matter.

The Borough has all necessary authority to impose and collect the Stream Protection Fee from the State System and the University. As a home rule municipality, the Borough may take any legislative action which is not limited by the Pennsylvania Constitution, Acts of the General Assembly, or the Home Rule Charter itself. Though the State System and the University do not point to any provision of the Pennsylvania Constitution, any Act of the General Assembly, or any portion of the Borough's Home Rule Charter itself which would limit the Borough's authority in that regard, any ambiguities which could arise during an analysis of the Borough's home rule powers must be resolved in favor of the exercise of those powers.

When it enacted the Stream Protection Fee, the Borough did not purport to (and did not actually) impose any tax or assessment. Instead, the Borough collects from the owners of each Developed Property the Stream Protection Fee which,

despite the State System's and the University's claims, is neither a tax nor an assessment but, rather, is a fee.⁵

Stormwater runoff which flows from a Developed Property impacts the natural environment and is subject to supervision and regulation of the Borough, the United States of America, and the Commonwealth of Pennsylvania. Each owner of a Developed Property likewise has affirmative obligations to manage runoff from its own property so as to not adversely impact downstream properties and, otherwise, as required pursuant to applicable law. The Borough actively relieves the owners of Developed Properties of large portions of the cost and expense associated with meeting those obligations by collecting, and conveying away, stormwater runoff from Developed Properties. The primary mechanism which the Borough uses to perform that service for the individual benefit of each owner of Developed Property is the Borough Stormwater Collection and Conveyance System.

Since enactment of the Stream Protection Ordinance, a part of that Boroughimplemented regulatory program includes the requirement that the owner of each

As a matter of practice, the Borough sends invoices for the Stream Protection Fee to the respective owners of each Developed Property on the presumption that each Developed Property uses, is served by, or is benefitted by the Borough Stream Protection Ordinance. Any such owner can file an appeal pursuant to Section 94A-11 of the Stream Protection Ordinance. Borough of West Chester, Pa., Stream Protection Ordinance §§ 94A-11 (2016). If the owner can demonstrate that their parcel (or a portion thereof) drains completely outside of the Borough, that property owner may be entitled to a reduction of the Stream Protection Fee as otherwise calculated for their property. West Chester Borough Stream Protection Fee Program Appeal Policies and Procedures Manual, November 2017, p. 4. (Exhibit D.1 to this Brief).

Developed Property pay the Stream Protection Fee. Pursuant to Section 94A-6.A. of the Stream Protection Ordinance, the Stream Protection Fee applies only to those property owners whose properties are "connected with, use[], [are] served by or [are] benefitted by" the Borough Stormwater Collection and Conveyance System. The amount of the Stream Protection Fee as applicable to any given Developed Property is a <u>direct function</u> of the amount of impervious coverage at that Developed Property. That amount of impervious cover is without question in fact or law or common sense the determining factor in the amount of stormwater runoff which enters the Borough Stormwater Collection and Conveyance System.

The Borough deposits all funds which it collects through the Stream Protection Fee into a dedicated Stormwater Management Fund. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-9 (2016). From there, such funds may be used by the Borough only for the express stormwater regulation-related purposes set forth in the Stream Protection Ordinance. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-9 (2016); Aff. Barbara Lionti, ¶¶31-38 (July 15, 2021).

By accepting stormwater into the Borough Stormwater Collection and Conveyance System, the Borough renders a service for the specific and exclusive benefit of each Developed Property by relieving the owner of that property from the obligation of managing on-site all stormwater which otherwise flows from that Developed Property. That obligation arises out of the common law requirement that owners of real property manage the outflow of water from their property whenever their development of that property disturbs the original outflow as it existed when the property was not yet developed.

As an alternative to linking up with the Borough Stormwater Collection and Conveyance System, the Respondents could simply handle their own stormwater runoff themselves. Indeed, not only does the Borough Appeal Manual provide for that option, but the Respondents discharge permits require them to make that choice. So, as set forth in the NTM Expert Report, the Respondents could build their own stormwater collection and conveyance system to collect all of their stormwater runoff and bypass the Borough Collection and Conveyance System altogether. They could then file an appeal for the reduction or elimination of the Stream Protection Fee on the basis that they do not drain into the Borough Stormwater Collection and Conveyance System.

Pursuant to Pennsylvania law, as supplemented by the weight of judicial analysis in other jurisdictions of stormwater charges similar to the Stream Protection Fee, all of the uncontested facts in this matter are the hallmarks of a fee for services rendered and/or system rental and not those of a tax for the general benefit of the Borough. Because there is no genuine issue of material fact in dispute in that regard, the Borough is entitled to summary relief.

ARGUMENT

A. THE BOROUGH WAS AUTHORIZED TO ENACT THE STREAM PROTECTION ORDINANCE AND HAS ALL NECESSARY AUTHORITY TO CHARGE THE STREAM PROTECTION FEE.

In their Refusal to Pay Letter, Respondents claim that "the Borough does not have the statutory authority to impose a storm water [sic] management fee on a Commonwealth entity such as the University [...]." Exhibit A, p. 1. Respondents continued to maintain that claim in the Preliminary Objection, arguing that the Borough lacks legal authority to impose a tax of any kind upon any Commonwealth entity. Respondents' Preliminary Objection to Petitioner's Action for Declaratory Judgment ¶14-35 (May 23, 2018). That argument, however, puts the proverbial rabbit in the hat, for it is built, and depends entirely for its strength, upon the unsound and incorrect conclusory foundation that the Stream Protection Fee is some species of tax.

To repeat the position which it took in response to the Preliminary Objection (and, indeed, as it noted in the Action for Declaratory Judgment), "the Borough does not dispute the legal accuracy of [Respondents'] statement that [Respondents] are 'immune to local taxation [...].'" ACTION FOR DECLARATORY JUDGMENT ¶106 (Apr. 13, 2018). Clear as it is, though, that statement is ultimately irrelevant because this case is NOT about whether the Borough may impose a locally-enacted tax upon the Commonwealth. Plainly, it cannot.

Rather this case is **only** about whether the Stream Protection Fee is a fee, which the Borough can charge, or a tax, which it cannot.

The Borough had every right to adopt the Stream Protection Ordinance and to charge the Stream Protection Fee accordingly.⁶ The Borough is organized and operating as a Home Rule Municipality pursuant to the Home Rule Charter and Optional Plans Law, 53 Pa.C.S. § 2901 *et seq.*; BOROUGH OF WEST CHESTER, PA., HOME RULE CHARTER § 1401 (1993). As such, the Borough may take any governmental action which is not expressly prohibited pursuant to a state statute, the Constitution of the Commonwealth of Pennsylvania, or the United States Constitution. 53 Pa.C.S. § 2961; see, also, Nutter v. Dougherty, 938 A.2d 401 (Pa. 2007); PPL Elec. Utils. Corp. v. City of Lancaster, 125 A.3d 837, 851 (Pa.Cmwlth. 2015)⁷, aff'd 214 A.3d 639 (Pa. 2019).

This Court addressed (<u>though did not dispositively rule upon</u>) Respondents' argument about the Borough's authority to enact the Stream Protection Ordinance in the Preliminary Objection Opinion. MEMORANDUM OPINION AND ORDER OVERRULING RESPONDENTS' PRELIMINARY OBJECTIONS at 7 (July 15, 2019). There, this Court cited its earlier holding in *PPL Electric* and moved to a broader discussion regarding treatment of the Stream Protection Fee as a fee or tax. <u>Id</u>. At 10.

In *PPL Electric*, this Court considered whether the City of Lancaster had the legal authority to charge an annual fee to public utilities which maintained facilities within the City's rights-of-way. <u>PPL Elec.</u>, 125 A.3d at 851. In upholding the City's power to charge and collect that fee from a business entity which is subject to the exclusive jurisdiction of the Public Utilities Commission, this Court "note[d] that the City is a home rule municipality. As such, it has the legal ability to assess fees for recovery of costs under its home rule powers, which are not constrained by Dillon's Rule, and generally enable it to undertake government action unless preempted by a law of statewide applicability. Since the [Public Utilities] Code does not preempt the imposition of an annual fee relative to the maintenance of the City's rights-of-way, it may do so provided the fee is reasonable in relation to the costs incurred by the City for such purpose and is not a tax." <u>Id</u>.

In 2007, the Supreme Court noted a home rule municipality's expansive powers. Nutter, 938 A.2d at 411. There, the Court stated

under the concept of home rule . . . [a] locality . . . may legislate concerning municipal governance without express statutory warrant for each new ordinance; rather, its ability to exercise municipal functions is limited only by its home rule charter, the Pennsylvania Constitution, and the General Assembly.

Id. (quoting City of Philadelphia v. Schweiker, 858 A.2d 75, 84 (Pa. 2004)).

The Court also noted that

grants of municipal power 'shall be liberally construed in favor of the municipality' [and] 'in analyzing a home rule municipality's exercise of power [the Court] begin[s] with the view that it is valid absent a limitation found in the Constitution, the acts of the General Assembly, or the charter itself, and . . . resolve[s] ambiguities in favor of the municipality.

Id. (quoting County of Delaware v. Township of Middletown, 511 A.2d 811, 813 (Pa. 1986)).

Nearly sixty years ago (and even outside of the context of home rule), the Supreme Court held that a local government could charge a <u>user fee</u> to a tax-immune municipal authority. <u>See Sw. Del. Cty. Mun. Auth. v. Aston</u>, 198 A.2d 867, 872 (Pa. 1964).

In Southwest Delaware County, the Supreme Court held that the municipality could not impose upon the municipal authority a <u>special assessment</u> for <u>construction</u> of a sanitary sewer project. <u>See id.</u> at 874. Separating the one-time construction-

related assessment from ongoing user fees or rentals, the Court affirmed Aston Township's right to levy "connection charges and the sewer rentals." <u>Id</u>. The Court did so in reliance upon the inherent police power of local political subdivisions. <u>Id</u>.

Adherence to Southwest Delaware County requires the same result here.

By its express terms, the Stream Protection Fee is charged to "each and every developed property within the Borough that is connected with, uses, is serviced by or is benefitted by the Borough's stormwater management system." BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-9 (2016). Like the sewer usage charge in *Southwest Delaware County*, the Stream Protection Fee is paid "[f]or the use of, benefit by and the services rendered by the stormwater management system [...]." BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE § 94A-9 (2016). The Borough Ordinance is authorized by those same police powers.

Respondents cannot cite any provision in the Constitution, the acts of the General Assembly, or the Home Rule Charter itself, which precludes the Borough from charging a fee to the owners of Developed Properties who use the Borough Stormwater Collection and Conveyance System. The only fact which this Court needs to consider when analyzing the Borough's authority to enact the Stream Protection Ordinance, therefore, is whether the Borough is a home rule municipality. Because the Respondents do not dispute that fact, there is no question of fact or law

which precludes this Court from deciding the issue of the Borough's clear authority to enact the Stream Protection Ordinance. This Court therefore should grant summary relief declaring that the Borough has the authority to enact the Stream Protection Ordinance.

B. THE STREAM PROTECTION FEE IS A FEE, AND NOT A TAX.

There is no genuine issue of material fact regarding the Borough's authority to have adopted the Stream Protection Ordinance. In light of applicable law and the factual record developed during discovery, as follows, there is also no genuine issue of material fact regarding treatment of the Stream Protection Fee as a fee and not a tax.

"The question of whether an enactment is a tax or regulatory measure is determined by the purposes for which it is enacted and not by its title." White v. Com. Medical Professional Liability Catastrophe Loss Fund, 571 A.2d 9, 11 (Pa. Cmwlth. Ct. 1987) (citing Wilkes-Barre v. Ebert, 349 A.2d 520 (Pa. Cmwlth. Ct. 1975)). Rather, and as this Court stated in the Preliminary Objections Opinion, that question requires factual development. Memorandum Opinion And Order Overruling Respondents' Preliminary Objections at 11 (July 15, 2019). That factual development is now complete.

"The common distinction [between taxes and fees] is that taxes are revenueproducing measures authorized under the taxing power of government; while license fees are regulatory measures intended to cover the cost of administering a regulatory scheme authorized under the police power of government [...]." Rizzo, 668 A.2d at 238 (quoting Philadelphia v. Southeastern Pennsylvania Transp. Authority, 303 A.2d 247, 251 (Pa. Cmwlth. Ct. 1973)). A fee may also be imposed as a charge for services which a municipality renders "to particular persons or groups of persons within the" municipality. Supervisors of Manheim Tp. v. Workman., 38 A.2d 273, 276 (Pa. 1944). "Fees charged by a municipality for services rendered are proper if they are reasonably proportional to the costs of the regulation or the services performed." Nat'l Props., Inc. v. Macungie, 595 A.2d 742, 745 (1991) (quoting Hill v. Borough of Dormont, 494 A.2d 15 (Pa. Cmwlth. Ct. 1985); Phillips v. Borough of Folcroft, 403 A.2d 194 (Pa. Cmwlth. Ct. 1979)).

To the Borough's knowledge, no appellate court in Pennsylvania has yet considered whether a municipal stormwater usage charge is a tax or a fee. As follows, though, other jurisdictions already examined the question.

Recently, the Fourth Circuit Court of Appeals held that the stormwater charge for which the City of Roanoke (Viriginia) invoiced Norfolk Southern Railway Company was a fee and not a tax. See Norfolk Sothern Ry. v. City of Roanoke, 916 F.3d 315 (4th Cir. 2019). The city imposed that charge to defray the regulatory costs to maintain its stormwater management system. See id. at 317. That system includes "gutters, storm drains, channels, retention basins, and other infrastructure [and]

collects stormwater and diverts it into the Roanoke River or one of its thirteen tributaries in the City." <u>Id.</u>

The Circuit Court used a simple, logical, and common sense "three-part framework" which bears similarities to the factors which this Court can derive from Pennsylvania precedents and which "synthesize[d] the general approach that courts had taken to distinguish taxes from fees 'in a variety of statutory contexts.'" <u>Id.</u> at 319 n.2 (citing San Juan Cellular Tel. Co. v. Pub. Serv. Comm'n., 967 F.2d 683, 685 (1st Cir. 1992)). That framework "focuses on '(1) what entity imposes the charge; (2) what population is subject to the charge; and (3) what purposes are served by the use of the monies obtained by the charge.'" <u>Id.</u> at 319 (quoting San Juan Cellular, 967 F.2d at 685).

Regarding the second of those criteria, the Court noted that

a charge is more likely to be a tax if it is imposed on a broad segment of the public [and] assessment of a tax is often based 'solely on an ability to pay,' as measured by a payor's property or income, rather than tied to the receipt of a particular benefit or the imposition of a regulatory burden.⁸

The first criteria which the Circuit Court considered was whether the stormwater charge was imposed by a legislative body or an administrative agency. See id. However, this criteria is not at issue.

<u>Id.</u> (citing Nat'l. Cable Television Ass'n, Inc. v United States, 415 U.S. 336 (1974)). Conversely, the Court observed, "the classic fee is imposed only upon persons subject to regulation by a particular agency."

Though the City of Roanoke collected the stormwater charge from "a broad class of property owners," the Fourth Circuit noted that the charge "isn't assessed solely on the basis of property ownership." <u>Id.</u> at 320. "Rather, the amount assessed [was] proportional to the amount of impervious surface on an owner's property." <u>Id.</u> Moreover, "property owners may receive credits against the assessment if they engage in certain stormwater management practices." <u>Id.</u> The Court held that those "features suggest that the charge is a measure of the stormwater management obligations that each parcel imposes upon the City, rather than a measure of ability to pay[, a]nd this makes the charge more like a fee." <u>Id.</u>

The Circuit Court then applied the third component of the framework; *to wit*, "a charge is more likely to be a tax if its primary purpose is to raise revenue for general government activity that benefits the entire community." <u>Id.</u> The Court observed that "[c]onversely, a charge is more likely to be a fee if it is used to provide individualized benefits or to defray an agency's costs of regulating." <u>Id.</u>

After considering the issue (and application by other courts) of general benefits and specific benefits, the Circuit Court concluded that "the charge's purpose is more consistent with that of a fee than a tax because the charge forms part of a

comprehensive regulatory scheme." <u>Id.</u> at 321. The Court held that, "[a]lthough municipalities may have traditionally provided stormwater management as a public benefit at the discretion of their legislatures, the Clean Water Act's regulatory scheme now requires the City to take myriad concrete actions to reduce discharges and pollutant concentrations [...]." <u>Id.</u> "Thus, rather than defraying the City's costs of regulating, the charge primarily defrays the City's costs of complying with regulations imposed upon it." <u>Id.</u>

In sum, though, the Circuit Court held that

[a]t bottom, however, a classic regulatory fee is designed to address harmful impacts of otherwise permissible activities, and to ensure that the actors responsible for those impacts bear the costs of addressing them. This is exactly the function served by Roanoke's stormwater management charge, which ensures that owners of impervious surfaces bear the cost of managing stormwater runoff.

<u>Id.</u> at 322.

In 2004, the Georgia Supreme Court had already also considered whether a stormwater utility charge in that state based upon the amount of impervious surface at a given property was an unconstitutional tax. See McLeod v. Columbia Cty., 599 S.E.2d 152 (Ga. 2004). The Court observed that, "[b]y far the most commonly contested legal issue surrounding stormwater utilities is whether the fee is actually a fee or whether it functions more as a tax." Id. (citing Brisman, Considerations in Establishing a Stormwater Utility, 26 S. Ill.U.L.J., 505, 520 (V)(C)(3)(2002)). The

Court noted other, "stormwater cases, where service charges have been sustained as fees and not taxes because of the benefits to those assessed." <u>Id.</u> at 155 (<u>citing Densmore v. Jefferson Cty.</u>, 813 S.2d 844, 852 (IV) (Ala. 2001); <u>Long Run Baptist Assn. v. Louisville and Jefferson Cty. Metropolitan Sewer Dist.</u>, 775 SW.2d 520, 522-23 (Ky. App. 1989)).

Citing what it called "a very persuasive opinion," the Georgia Supreme Court referred to an earlier decision by the Supreme Court of Florida. <u>Id.</u> (citing Sarasota Cty. v. Sarasota Church of Christ, 667 S.2d 180 (Fla. 1995)). The Georgia Court noted

[t]he Florida court relied on several aspects of the assessment which are shared with the utility charge here. In both instances, the fee applies to residential and non-residential developed property, but not to undeveloped property, which actually contributes to the absorption of stormwater runoff; the properties charged receive a special benefit from the funded stormwater services, which are designed to implement federal and state policies through the control and treatment of polluted stormwater contributed by those properties; and, the cost of those services was properly apportioned based primarily on horizontal impervious surface area.

Id. (citing Sarasota Cty., 667 S.2d at 186).

Just one year later, the Appellate Court of Illinois considered whether a municipally-imposed stormwater charge was a fee or a tax. Church of Peace v. City of Rock Island, 828 N.E.2d 1282 (Ill. App. 2005). As is now the case before this

Court, the issue was then, "a matter of first impression in Illinois." <u>Id.</u> at 1285. The Court noted that, "the weight of decided law from other jurisdictions favor[s] a finding that the assessment at issue is a fee rather than a tax." Id. at 1285-86. Quoting the Georgia Supreme Court's decision in *McLeod*, the Illinois Appellate Court observed that

a tax is 'an enforced contribution exacted pursuant to legislative authority for the purpose of raising revenue to be used for public or governmental purposes, and not as a payment for a special privilege or a service rendered In contrast 'a charge is generally not a tax if its object and purpose is to provide compensation for services rendered.

Id. (quoting McLeod, 599 S.E.2d at 154-55).

The Illinois Appellate Court also examined the issue of "voluntariness." Noting that the stormwater charge ordinance allowed the owner of a developed property to "opt-out" by "construct[ing] its own storm water run-off containment system," the Court held that owners could choose "to not avail themselves of the storm water drainage system provided by the City[.]" Id. at 1286. Ultimately finding that the stormwater charge in that case was a fee and not a tax, the Court stated that

[w]hile it might be cost prohibitive for [a property owner] to construct its own storm water run-off containment system, each would certainly be able to calculate the cost of doing so versus the cost of paying for the use of the City's system. Voluntary participation involves nothing more than weighing the competing costs of participation.

Id. The applicable facts of these cases are the same presented here.

From the foregoing Pennsylvania precedents and the evaluations performed by our sister states, the Borough notes certain qualities which characterize the Stream Protection Fee as a fee and not a tax.

Firstly, there is the question of the purpose for which the Stream Protection Fee is made and collected. If the Borough imposed the Stream Protection Fee for a specific regulatory purpose or service rendered and earmarks collected funds for that purpose, the Court should treat that charge as a fee. Conversely, if the Borough were to use money in the Stormwater Management Fund as general revenue and for purposes with no relationship to stormwater (which it does not), the Stream Protection Fee would more closely resemble a tax.

Secondly, there is the question of the related issues of the service which the Borough Stormwater Collection and Conveyance System provides and the benefit which the Respondents derive from that service. There is also the opportunity for the Respondents to opt-out of receiving the service which the Borough Stormwater Collection and Conveyance System provides. If the Borough, in fact, provides a service to the Respondents and the Respondents realize the individual benefit from that service of being relieved of their responsibility for controlling their stormwater runoff, the Court should treat the charge as a fee. Conversely, if the Respondents realize no benefit from their use of the Borough Stormwater Collection and

Conveyance System (which, plainly, is not the case) the Stream Protection Fee would more closely resemble a tax.

Thirdly, there is the question of proportionality. If the amount of the Stream Protection Fee which the Borough charges to the Respondents is proportional to the benefit which the Respondents realize from their ability to connect to and use the Borough Stormwater Collection and Conveyance System or the Borough's costs to own and maintain the Borough Stormwater Collection and Conveyance System in light of federal and state mandates, the Court should treat the Stream Protection Fee as a fee. Conversely, if that amount is unrelated to the value of the Respondents' benefit (which, again, is not the case), the Stream Protection Fee more closely resembles a tax.

As more fully set forth below, there is no genuine issue of material fact in dispute regarding any of the foregoing questions.

1. The Stream Protection Fee Is Paid Only By The Owners Of Developed Properties And All Revenue In The Stormwater Management Fund Must Be Used For Stormwater-Related Purposes.

Unlike a tax, the Stream Protection Fee is not applicable to all properties in the Borough and is not "levied by virtue of the government's taxing power solely for the purpose of generating revenue." Rather, the language of the Stream Protection Ordinance provides that the Stream Protection Fee is only applicable to the owners of "developed" properties which are "connected with, use[], [are] served

by or [are] benefitted by" the Borough Stormwater Collection and Conveyance System. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE §§ 94A-6 & 94A-7.C. (2016). Under that construct, the decision as to whether to subject oneself to the Stream Protection Fee rests entirely with the owner of any given property, as the owner may elect to remove her property from the definition of being a "developed" property. In other words, the owners of Developed Properties can calculate the costs of self-containment versus the costs of renting the use of the Borough's system for themselves and decide what action is in their economic interest. It makes no difference, and should make no difference, that the costs of self-containment are substantial. The choice to connect or not remains.

The manner in which the fee is calculated and the opportunities which the owners of any Developed Property have to reduce the amount of the Stream Protection Fee are described in the Stream Protection Ordinance and in several publications that the Borough makes available to the public. See West Chester Borough Stream Protection Fee Program Non-Residential Credit Policies and Procedures Manual, November 2017 (Exhibit D.2 to this Brief); West Chester Borough Stream Protection Fee Program Residential Credit and Rebate Policies and Procedures Manual, November 2017 (Exhibit D.3 to this Brief); West Chester Borough Stream Protection Fee Program Appeal Policies and Procedures Manual, November 2017 (Exhibit D.1 to this Brief).

As more fully set forth in the Stream Protection Ordinance, any owner of a Developed Property, who fails to pay the Stream Protection Fee, is in violation of the Stream Protection Ordinance and is subject to the enforcement mechanisms set forth at Section 94A-7 of the Ordinance.

2. The Respondents Realize A Discrete And Specific Benefit From Their Connection To The Borough Stormwater Collection And Conveyance System.

The Borough is required to comply with regulatory requirements which are imposed upon it by the United States of America and the Commonwealth of Pennsylvania. In order to comply with those regulatory requirements, the Borough does supervise and regulate the flow of stormwater from each Developed Property and into the Borough Stormwater Collection and Conveyance System. By way of example, the Borough enters into operation and maintenance agreements with the owners of stormwater management systems on individual properties and, on a regular basis, conducts inspections of those and similar systems. Indeed, the Borough regularly inspects the stormwater management facilities which are located at North Campus and which discharge into the Borough Stormwater Collection and Simply and plainly put, the discrete and specific Conveyance System. individualized benefit that the University derives is the ability to divert its stormwater runoff to the Borough Stormwater Collection and Conveyance System rather than handling the runoff itself on its own property.

Indeed, the Stream Protection Fee is not a general revenue generating measure. Rather, all funds which the Borough collects pursuant to the Stream Protection Ordinance are deposited into the Borough Stormwater Management Fund. From there, such funds may be used by the Borough only for the express purposes set forth in that ordinance.

The State System and the University attempt to make use of that fact by claiming that the Stream Protection Fee is limited to "fund infrastructure projects that have a communal environmental benefit[,]" and "[t]he Borough does not allege that it will make improvements to, or even touch, property owned by the State System or the University." That claim, like the State System's and the University's claim regarding their qualified tax immunity, misses the point of this matter. The Borough is unaware of (and the State System and the University do not point to) any rule of law under which requires that a governing authority which imposes a validly imposed fee must perform work on the fee-payer's property.

The State System and the University also characterize the Stream Protection Fee as a tax because of the broad societal and environmental benefits which accrue from the Borough Stormwater Collection and Conveyance System. A simple analogy demonstrates why that characterization must fail.

The Supreme Court regulates and supervises lawyers and requires that members of that profession pay an annual fee accordingly. Obviously, there are larger societal benefits which flow from that regulation and supervision. No one would seriously argue, though, that those societal benefits convert that annual fee into a tax upon lawyers. So it is with the Stream Protection Fee.

Similarly, should the Borough have constructed its own cable or Wi-Fi system, then it is simply common sense that the University should have to pay a fair rental to use those services. Otherwise, the University would be freeloading on all of the other users for its own benefit.

Of course there are societal and environmental benefits which flow from the fact that the Borough allows the owners of each Developed Property to discharge stormwater into the Borough Stormwater Collection and Conveyance System. Those benefits, though, no more convert the Stream Protection Fee into a tax than do the societal benefits which flow from the Supreme Court's regulation and supervision of lawyers converts the annual attorney registration fee into a tax. Furthermore, as discussed more fully below, the properties at North Campus which the State System and the University own are, in fact, benefitted by the Borough Stormwater Collection and Conveyance System.

The Amount Of The Stream Protection Fee Which The Borough Charges To The Respondents Is Proportional To The Borough's Costs And Is Less Than The Value Of The Specific Benefit Which The Respondents Realize From Their Connection To The Borough Stormwater Collection And Conveyance System.

The purposes for which the Stream Protection Fee may be used are limited to those set forth in the Stream Protection Ordinance. Those purposes include, inter alia, "[i]mplentation and management of a program to manage stormwater within the Borough[,]" and "[c]onstructing, operating, and maintaining the" Borough Stormwater Collection and Conveyance System. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE §§ 94A-9.B. (2016). In short, the clear purpose of the Stream Protection Fee is to reimburse the Borough for the expense of the supervision or regulation of stormwater flowing from each Developed Property into and through the Borough Stormwater Collection and Conveyance System, together with the related maintenance and repair costs for that system. Indeed, the Borough defined the Stream Protection Fee as, inter alia, one levied by the Borough to cover the Borough's costs associated with the Borough Stormwater Collection and Conveyance System. BOROUGH OF WEST CHESTER, PA., STREAM PROTECTION ORDINANCE §§ 94A-5 (2016). Those costs are considerable, with actual, annual expenditures consistently in excess of One Million Dollars (\$1,000,000), and as much as Two Million Five Hundred Thousand Dollars in 2018. Aff. Barbara Lionti, ¶¶32-36. (July 15, 2021).

Moreover, the Stream Protection Fee is a bargain compared to the cost that the Respondents would otherwise incur if this Honorable Court prohibited them from freeloading on the Borough's other taxpayers in their use of the Borough's

Stormwater Collection and Conveyance System. If required to separately provide for disposal of their own stormwater, the Respondents would incur initial capital costs of more than Four Million Two Hundred Thousand Dollars (\$4,200,000.00) and projected, ongoing, annual operating costs of \$45,600.00. NTM EXPERT REPORT, p. 11. Annualizing those capital costs, together with the annual maintenance costs, yields a total annual cost for such a replacement system at \$178,500.00. Id. The annual amount of the Stream Protection Fee which the Borough charges the Respondents is \$132,088.68. Aff. Barbara Lionti, ¶¶24-28 (July 15, 2021). So, at a minimum, the Stream Protection Fee represents a savings to Respondents (and to the other taxpayers of the Commonwealth) in the amount of \$46,411.32, annually.

WHEREFORE, Petitioner The Borough of West Chester respectfully requests that this Court enter an Order directing that the Borough is entitled to summary relief that the Respondents are responsible for payment of the Stream Protection Fee.

Dated: July 19, 2021

Respectfully submitted,

BUCKLEY, BRION, McGuire & Morris LLP

By: /s/ Michael S. Gill
Michael S. Gill, Esquire
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By: /s/ Roger Cameron
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118 West Market Street West Chester, Pennsylvania 19382

CERTIFICATION OF COMPLIANCE

I hereby certify that this filing complies with the provisions of the *Public Access Policy of the Unified Judicial System of Pennsylvania: Case Records of the Appellate and Trial Courts* that require filing confidential information and documents differently than non-confidential information and documents.

Dated: July 19, 2021

Respectfully submitted,

BUCKLEY, BRION, McGuire, & Morris LLP

/s/ Aristidis W. Christakis

By:

Aristidis W. Christakis, Esquire Attorney ID No. 207815 achristakis@buckleyllp.com

Exhibit A To Brief



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GOVERNOR'S OFFICE OF GENERAL COUNSEL Office of Chief Counsel

DECERVED Decerved Decerved

January 18, 2018

Mr. Michael Perrone Manager Borough of West Chester The Spellman Building 829 Paoli Pike West Chester, PA 19380-4551

Re: Storm Water Management Fee

West Chester University of Pennsylvania

Dear Mr. Perrone:

I am Chief Counsel for Pennsylvania's State System of Higher Education ("State System"). As I am sure you are aware, West Chester University of Pennsylvania ("University") is one of fourteen (14) component universities of the State System.

I am writing to you to formally advise the Borough that the University will not be paying the storm water management fee invoices that the Borough sent to the University. As previously explained, the University is not legally authorized to pay those invoices because: (1) the Borough does not have the statutory authority to impose a storm water management fee on a Commonwealth entity, such as the University; and (2) even if such statutory authority existed, the Borough's storm water management fee is a tax, from which the University, as a Commonwealth entity, is immune.

Pursuant to the State System of Higher Education's enabling statute, the State System and its constituent universities are designated a "government instrumentality." 24 P.S. §20-2002-A(a). As an instrumentality of the Commonwealth, the University is a Commonwealth entity that is immune to local taxation unless the Pennsylvania General Assembly has expressly granted the political subdivision the authority to tax property owned by the Commonwealth.

In Lehigh-Northampton Airport Authority v. Lehigh County Board of Assessment Appeals, 889 A.2d 1168, 1172 (Pa. 2005), the Pennsylvania Supreme Court described the Commonwealth's tax immunity as follows:

Because the power to tax is vested within the General Assembly, real estate is immune from local taxation unless that body has granted taxing authority to political subdivisions. Even where such local taxing power exists, property owned by the Commonwealth and its agencies remains unaffected by—or immune from—such power absent express statutory

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Mr. Michael Perrone Borough of West Chester January 18, 2018 Page 2

authorization to the contrary. SEPTA v. Board of Revision of Taxes, 833 A.2d 710, 713 ("It cannot be presumed that general statutory provisions giving local subdivisions the power to tax local real estate, were meant to include property owned by the Commonwealth..."); see also Commonwealth v. Dauphin County, 335 Pa. 177; 180-181, 6 A.2d 870, 872 (1939) (explaining that legislation generally does not affect the sovereign's rights unless it clearly intends to do so, and that, particularly in the context of taxation, any other rule could "upset the orderly processes of government by allowing the sovereign power to be burdened by municipal taxes").

The Borough's storm water management fees are not charges for actual services provided to the University by the Borough. Instead, they are the imposition of a general tax for the improvement and maintenance of the Borough's storm water infrastructure. As a result, these fees are a tax, regardless of what the Borough chooses to call them. The proper characterization of a governmental charge does not depend on what it has been called, but the purposes for which it has been enacted. See Clement & Muller, Inc. v. Tax Review Board, 659 A.2d 596 (Pa. Commonwealth Ct., 1995), aff'd, 715 A.2d 397 (Pa. 1998) (distinguishing a tax from a regulatory fee); Philadelphia v. Southeastern Pennsylvania Transportation Authority, 303 A.2d 247 (Pa. Commonwealth Ct., 1973) (distinguishing a tax from a license fee).

The Commonwealth pays neither for the general operations of local government nor for local infrastructure improvements, even though the Commonwealth may benefit from both. *Pittsburgh v. Sterrett Subdistrict School*, 54 A. 463 (Pa. Supreme Ct., 1903); see also Southwest Delaware County Municipal Authority v. Aston Township, 198 A.2d 867 (Pa. Supreme Ct., 1964); McCandless Township Sanitary Authority v. PennDOT, 488 A. 2d 367 (Pa. Commonwealth Ct., 1985).

In this case, none of the sources of legal authority for the imposition of storm water management fees stated in the Borough's ordinance contain the express statutory authority required.

Please let me know if there is anything further you need from the University on this matter.

Sincerely,

Andrew C. Lehman Chief Counsel

ACL:mar

c: Jennifer Whare, Deputy General Counsel Christopher M. Fiorentino, President University Legal Counsel

Exhibit B To Brief

IN THE COMMONWEALTH COURT OF PENNSYLVANIA

THE BOROUGH OF WEST CHESTER

Plaintiff

Original Jurisdiction

ν.

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION

&

WEST CHESTER UNIVERSITY
OF PENNSYLVANIA OF THE
STATE SYSTEM OF HIGHER EDUCATION

Defendants

AFFIDAVIT

I, Barbara Lionti, being duly sworn upon oath, depose and state as follows:

- 1. I am over eighteen (18) years of age and *sui juris*.
- 2. I have personal knowledge of the matters set forth in this Affidavit and am otherwise competent to testify to the matters and content set forth herein.
 - 3. I hold a Bachelors' Degree in Accounting from Neumann University.
- 4. I am employed by The Borough of West Chester (the "Borough") as Finance Director for the Borough.
 - 5. My business address is 401 East Gay Street, West Chester, Pennsylvania 19380.
- 6. I have served in my current position as Finance Director for the Borough since April 29, 2019.

- 7. Prior to assuming the position of Finance Director for the Borough, I served as Assistant Treasurer for the Borough from February 3, 2003 through June 26, 2017.
- 8. Prior to assuming the position of Assistant Treasurer for the Borough, I served as Cash Manager for the Borough from June 27, 20017 through April 28, 2019.
- 9. All told, I have been employed by the Borough in its financial administration for more than eighteen (18) years.
- 10. In my current position as Finance Director for the Borough, I report directly to the Borough Manager.
- 11. As part of my responsibilities as Finance Director for the Borough, I am familiar with the substance of Chapter 94A of the Borough Code (the "Stream Protection Ordinance").
- 12. In my current position as Finance Director for the Borough, I manage and supervise administrative financial aspects of Borough operations including, without limitation, (A) budgeting, (B) accounts receivable, (C) accounts payable, and (D) payroll
- 13. I am also, and have been since the inception thereof, the Borough employee responsible for billing and collection of the Stream Protection Fee, as defined and authorized pursuant to the Stream Protection Ordinance, and deposits to and payments from the Stormwater Management Fund, as defined and authorized pursuant to the Stream Protection Ordinance.
- 14. As part of the administration of the Stream Protection Fee under and pursuant to the Stream Protection Ordinance, the Borough established an account for each Developed Property (as that term is defined in the Stream Protection Ordinance) within the Borough.
- 15. As of the date of this Affidavit, there are 4,343 such accounts established for the purpose of billing and collection of the Stream Protection Fee (each, a "Stream Protection Fee Account").

- 16. On an annual basis, the Borough transmits invoices for the Stream Protection Fee to the party responsible for payment under each Stream Protection Fee Account (each, a "Stream Protection Fee Invoice" and, plurally, the "Stream Protection Fee Invoices").
- 17. The amount of the Stream Protection Fee which is due under a given Stream Protection Fee Account is established in the manner as set forth in the Stream Protection Fee Ordinance.
- 18. As more fully set forth in the Stream Protection Fee Ordinance and, as applicable, (A) the Appeal Policies and Procedures Manual, (B) the West Chester Borough Stream Protection Fee Program Residential Credit and Rebate Policies and Procedures Manual, and (C) the West Chester Borough Stream Protection Fee Program Non-Residential Credit Policies and Procedures Manual (each of which is available on the Borough website at west-chester.com), the party responsible for payment under each Stream Protection Fee Account may apply for and, under certain circumstances, obtain a credit against or rebate of the Stream Protection Fee which is applicable to each Developed Property.
- 19. The aggregate amount of the Stream Protection Fee for all Stream Protection Fee Accounts in 2021 is One Million Three Hundred Forty Seven Thousand Seven Hundred Four and 66/100 Dollars (\$1,347,704.66).
- 20. The annual average aggregate amount of the Stream Protection Fee for all Stream Protection Fee Accounts between 2017 and 2021 is One Thousand Five Hundred Forty-Three and 83/100 Dollars (\$1,543.83).
- 21. As more fully identified on **Exhibit A** attached hereto and incorporated into this Affidavit, there are eighteen (18) Stream Protection Fee Accounts associated with that portion of the campus of West Chester University which is located within the jurisdictional limits of the

Borough and for which the party bearing payment responsibility is identified as either West Chester University or the Commonwealth of Pennsylvania (the "<u>University-Related Stream</u> Protection Fee Accounts").

- 22. The Borough prepared and transmitted to the party responsible for the same Stream Protection Fee Invoices for each of the University-Related Stream Protection Fee Accounts for each year between 2017 and 2021 (the "<u>University-Related Stream Protection Fee Invoices</u>").
- 23. The total aggregate amount of the Stream Protection Fee under and pursuant to all University-Related Stream Protection Fee Invoices between 2017 and 2021 is Six Hundred Sixty Thousand Four Hundred Forty-Three and 40/100 Dollars (\$660,443.40).
- 24. The total amount of the Stream Protection Fee under and pursuant to the University-Related Stream Protection Fee Invoices for 2021 is One Hundred Thirty-Two Thousand Eighty-Eight and 68/100 Dollars (\$132,088.68).
- 25. The total amount of the Stream Protection Fee under and pursuant to the University-Related Stream Protection Fee Invoices for 2020 is One Hundred Thirty-Two Thousand Eighty-Eight and 68/100 Dollars (\$132,088.68).
- 26. The total amount of the Stream Protection Fee under and pursuant to the University-Related Stream Protection Fee Invoices for 2019 is One Hundred Thirty-Two Thousand Eighty-Eight and 68/100 Dollars (\$132,088.68).
- 27. The total amount of the Stream Protection Fee under and pursuant to the University-Related Stream Protection Fee Invoices for 2018 is One Hundred Thirty-Two Thousand Eighty-Eight and 68/100 Dollars (\$132,088.68).

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- 28. The total amount of the Stream Protection Fee under and pursuant to the University-Related Stream Protection Fee Invoices for 2017 is One Hundred Thirty-Two Thousand Eighty-Eight and 68/100 Dollars (\$132,088.68).
- 29. As of the date of this Affidavit, the University-Related Stream Protection Fee Invoices remain unpaid and outstanding.
- 30. The total and aggregate amount of the University-Related Stream Protection Fee Invoices between 2017 and 2021, as aforesaid, constitutes ten percent (10%) of the total and aggregate amount of the Stream Protection Fee for all Stream Protection Fee Accounts between 2017 and 2021.
- 31. Notwithstanding non-payment of the University-Related Stream Protection Fee Invoices, as aforesaid, the Borough has incurred and paid costs and expenses from the Stormwater Management Fund as contemplated and permitted pursuant to the Stream Protection Ordinance.
- 32. For 2021, and as more fully set forth on **Exhibit B** attached hereto and incorporated herein by reference, the budgeted expenditures from the Stormwater Management Fund totaled Two Million Fourteen Thousand Eight Hundred Eighty-Five and 00/100 Dollars (\$2,014,885.00).
- herein by reference, the budgeted expenditures from the Stormwater Management Fund totaled One Million Eight Hundred Forty-Three Thousand Seven Hundred Twenty Eight and 00/100 Dollars (\$1,843,728.00) and the actual expenditures from the Stormwater Management Fund totaled One Million Two Hundred Twenty Nine Thousand Two Hundred Seventy-One and 97/100 Dollars (\$1,229,271.97).
- 34. For 2019, and as more fully set forth on **Exhibit D** attached hereto and incorporated herein by reference, the budgeted expenditures from the Stormwater Management Fund totaled

Three Million Two Hundred Twenty Two Thousand Nine Hundred Sixty-Two and 00/100 Dollars (\$3,222,962.00) and the actual expenditures from the Stormwater Management Fund totaled One Million Five Hundred Twenty Nine Thousand Seven Hundred Nine and 44/100 Dollars (\$1,529,709.44).

- 35. For 2018, and as more fully set forth on **Exhibit E** attached hereto and incorporated herein by reference, the budgeted expenditures from the Stormwater Management Fund totaled Two Million Nine Hundred Fifty Eight Thousand Ninety Four and 00/100 Dollars (\$2,958,094.00) and the actual expenditures from the Stormwater Management Fund totaled Two Million Five Hundred Thirty Eight Thousand Six Hundred Ninety-Nine and 94/100 Dollars (\$2,538,699.94).
- 36. For 2017, and as more fully set forth on **Exhibit F** attached hereto and incorporated herein by reference, the budgeted expenditures from the Stormwater Management Fund totaled Two Million Two Hundred Four Thousand Eight Hundred Sixty-Six and 00/100 Dollars (\$2,204,866.00) and the actual expenditures from the Stormwater Management Fund totaled One Million Two Hundred Ninety-Six Thousand Five Hundred Eighty-Four and 38/100 Dollars (\$1,296,584.38).
- 37. For years 2019 through 2021, the Borough made transfers from the Stormwater Management Fund to reimburse the Borough General Fund for principal and interest expenses related to a 2016 Bond Issuance, the proceeds of which the Borough used for stormwater-related costs and expenses (the "2016 Bond Issuance").
- 38. For years 2017 and 2018, the Borough made transfers from the Stormwater Management Fund to reimburse the Borough General Fund for costs and expenses which the Borough incurred in establishing and starting operation of the stormwater-related program

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contemplated pursuant to the Stream Protection Ordinance, as well as for principal and interest expenses related to the 2016 Bond Issuance.

- The above information is true and correct to the best of my knowledge, information, 39. and belief.
- The undersigned understands that this statement is made subject to the penalties of 40. 18 Pa.C.S. § 4904, relating to unsworn falsifications to authorities.

FURTHER AFFIANT SAYETH NAUGHT.

Date: July <u>15</u>, 2021

Sworn to (or affirmed) and subscribed before me this _____ day of July, 2021.

Notary Public

My Commission Expires: 4/24/2033

Commonwealth of Pennsylvania - Notary Seal Dana C. DiDomenico, Notary Public Chester County My commission expires April 24, 2022

Commission number 1277114

Member, Pennsylvania Association of Notarios