Whitemarsh TOWNSHIP

616 GERMANTOWN PIKE – LAFAYETTE HILL, PA 19444-1821
TEL: 610-825-3535 FAX: 610-825-9416
www.whitemarshtwp.org

BOARD of SUPERVISORS

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Township Manager

WHITEMARSH TOWNSHIP PLANNING COMMISSION

MEETING OF TUESDAY, SEPTEMBER 22, 2020 6:00 PM

ZOOM MEETING PARTICIPATION INFORMATION

The Whitemarsh Township Planning Commission will hold its monthly meeting on Tuesday, September 22, 2020 at 6:00 p.m. In response to the COVID 19 health pandemic, and to promote social distancing, this meeting will be conducted via ZOOM. Members of the Commission, staff and public will participate remotely. The public may join this meeting by either telephone using the dial in number or entering the URL on an internet browser. Below you will find instructions on how to access and participate in the meeting:

- **Meeting Date:** Tuesday, September 22, 2020
- **Meeting Time:** 6:00 PM
- **Meeting URL:** https://us02web.zoom.us/j/86764912048?pwd=UnhYSjgyT0l4Lys5Smpwa3crd0xYZz09
- **Meeting via Zoom App:** if you have the Zoom App on your smartphone, tablet, or computer, open the program, click "join a meeting" and enter the Meeting ID: 867 6491 2048
- **Meeting dial in number (no video):** 1-646-558-8656
- **Meeting ID number (to be entered when prompted):** 867 6491 2048
- **Meeting Password:** 774952

Public comment may be submitted via email to the Township Director of Planning and Zoning, Charlie Guttenplan at cguttenplan@whitemarshtwp.org no later than noon (12:00 PM) on September 21, 2020. Public comment will also be accepted during the meeting; instructions will be provided at the start of the meeting. In both cases you will need to provide your name and address for the record.

Persons with a disability who wish to participate in the meeting and require an auxiliary aid, service or other accommodation to participate in the meeting should contact Whitemarsh Township at 484-594-2625.

WHITEMARSH TOWNSHIP
PLANNING COMMISSION MEETING AGENDA
September 22, 2020
6:00 PM

DUE TO THE COVID-19 PANDEMIC, THIS MEETING WILL BE CONDUCTED VIA THE INTERNET USING 'ZOOM' TELECOMMUNICATION TECHNOLOGY

DAMBMAN ___ DORAN ___ GLANTZ PATCHEN ___ QUITEL ___ SHAW-FINK ___ SHULA ___
MANUELE (BOS) ___ GUTTENPLAN ___ HEINRICH ___ SANDER ___

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1. CALL TO ORDER

2. ANNOUNCEMENTS & CORRESPONDENCE

- In accordance with PA Act 15, meeting via Zoom was advertised in the Times Herald on September 16, 2020.

3. APPROVAL OF MINUTES

- August 25, 2020

4. ZONING HEARING BOARD APPEALS (None)

5. CONDITIONAL USE APPLICATIONS (None)

6. SUBDIVISION &/OR LAND DEVELOPMENT APPLICATIONS

- Additional Review SLD #09-19; Conference Facilities, Inc./800 Ridge Pike – Preliminary/Final Plan
  2-lot minor subdivision; separate the golf course and conference center uses; no development proposed

- Review (continued) SLD #05-14; 901 Washington Partners, LP/901 Washington Street
  Revised Preliminary Plan; 62 Townhomes

7. OLD BUSINESS

8. NEW BUSINESS

9. PLANNING COMMISSION MEMBER COMMENTS

10. PUBLIC COMMENT FOR NON-AGENDA ITEMS

11. ADJOURNMENT

TENTATIVE NEXT MEETING
October 13, 2020 at 6:00 P.M.

- Public Meeting for Comprehensive Plan Selective Update

PUBLIC PARTICIPATION INFORMATION

1. Public meetings of the Commission shall follow a prescribed agenda, which will be available to the general public no later than the Friday preceding the meeting.
2. If members of the public wish the Commission to address a specific item at a public meeting, a written request to the Staff Liaison shall be submitted at least one week before the meeting. The written request shall specify the item or items the individual desires to be addressed.
3. The Commission may consider other matters for the agenda as they see fit.
4. The Commission will entertain Public Comment at the conclusion of the discussion of the item and prior to specific action on the item during the meeting, at the discretion of the Chair. Individuals must advise the Chair of their desire to offer such comment.
5. A Public Comment period will be provided at the conclusion of a meeting for input on any new subject.
6. The Commission Chair shall preside over Public Comments and may within their discretion:
    a. Recognize individuals wishing to offer comment.
    b. Require identification of such persons.
    c. Allocate total available Public Comment time among all individuals wishing to comment.
    d. Allocate up to a five (5) minute maximum for each individual to offer Public Comment at a meeting, Township Staff shall time comments and shall announce, “one minute remaining” and “time expired” to the Chair.
    e. Rule out of order scandalous, impertinent and redundant comment or any comment the discernible purpose of which is to disrupt or prevent the conduct of the business of the meeting including the questioning of, or polling of, or debating with, individual members of the Commission.

WHITEMARSH TOWNSHIP

TO: PLANNING COMMISSION

FROM: **Charles L. Guttenplan, AICP, Director of Planning and Zoning**

SUBJECT: MATERIAL FOR SEPTEMBER 22, 2020 ZOOM MEETING

DATE: SEPTEMBER 16, 2020

CC: Vincent Manuele, BOS Liaison
Richard L. Mellor, Jr., Township Manager
Krista Heinrich, PE, Township Engineer's Office
Dave Sander, Esq., Township Solicitor

In addition to minutes from the August 25, 2020 Zoom meeting, there are two agenda items for the September 22nd meeting; this meeting will also be conducted using Zoom telecommunication technology due to the COVID-19 pandemic.

The first agenda item is SLD #09-19; Conference Facilities, Inc./800 Ridge Pike, a 2-lot Preliminary/Final Minor Subdivision Plan to separate the golf course and conference center uses onto separate lots, with no new development proposed. This item is on for additional review; it was last reviewed by the Planning Commission at its January 28, 2020 meeting. At that time, the Commission was desirous of having a member of the Chubb group attend a meeting and provide additional information as to the reason for the subdivision at this time. Though several motions were attempted, no motion for a recommendation on the plan succeeded. As a result of the pandemic, this item has been on hold. In late August, a discussion was held with representatives of Chubb and they agreed to return to this meeting to provide the information requested by the Planning Commission. After discussing this item, the Commission should determine if it wishes to provide a recommendation on this plan to the Board of Supervisors.

The second item on the agenda is a continued review of SLD #05-14, 901 Washington Partners, LP/901 Washington Street, a revised Preliminary Plan for 62 townhomes. The Planning Commission last reviewed this development at its July 28, 2020 meeting. At that time, the waivers were considered by the Commission but there was no recommendation made on the plan itself. The applicant requested time to consider all of the comments made that evening and to come back with revisions. The applicant subsequently submitted a revised preliminary plan set (revision date of August 20, 2020) in which the building group closest to the river was relocated away from the river with resultant changes to some of the parking and the location of eastern access into the site from the proposed Washington Street extension, as well as some other minor revisions. These are described briefly in the applicant's cover letter (letter from James P. Bannon, Jr., PE of Nave Newell, dated August 20, 2020; enclosed). A revised waiver request document was also submitted as was a revised stormwater report. These documents are also enclosed, as are three new reviews: a zoning compliance review; a review by the Township Engineer; and a review by the Fire Marshal.

If you have any questions prior to the meeting, please feel free to get in touch with me (cguttenplan@whitemarshtwp.org or 484-594-2625). If any member is unable to participate in the meeting, please send an e-mail to Bob Dambman (rdambman@gmail.com) and copy me. I look forward to 'seeing' you all at the meeting.

Enclosures

G:/Planning Commission/Meeting Cover Memo's/2020/Cover Memo 9.22.20 Zoom Mtg.doc

Charles L. Guttenplan, AICP
Director of Planning and Zoning/Zoning Officer
616 Germantown Pike
Lafayette Hill, PA 19444
Phone: 484-594-2625 Fax: 610-825-6252
Email: cguttenplan@whitemarshtwp.org

MINUTES
PLANNING COMMISSION
ZOOM MEETING
AUGUST 25, 2020

Attendees/Participants: Dave Shula, Sherri Glantz Patchen, Patrick Doran, Bob Dambman, Peter Cornog, Elizabeth Shaw Fink, Scott Quitel, Charlie Guttenplan, AICP, Director of Planning and Zoning, Krista Heinrich (Township Engineer's office), Vince Manuele (BOS Liaison), and Dave Sander, Esq. (Township Solicitor's office)

1. CALL TO ORDER: 6:04 PM by Chair Dambman

2. ANNOUNCEMENTS & CORRESPONDENCE

Announcements:

- Act 15 requires advertising Zoom meetings 5 days in advance. This meeting was published in the Times Herald on August 20, 2020.
- The September 8, 2020 meeting is cancelled. The next scheduled meeting will be September 22, 2020.
- Chair Dambman stated the 5 minute maximum for each individual to offer public comment will be enforced.

3. APPROVAL OF MINUTES

- On a motion by Mr. Shula seconded by Ms. Patchen, the Planning Commission moved to approve the August 11, 2020 meeting minutes as amended. Vote 5-0-1 (Mr. Cornog abstained, not present at that meeting)

4. ZONING HEARING BOARD APPEALS: None

5. CONDITIONAL USE APPLICATIONS:

- Review CU#02-20 Dhaval Shah, 505 ½ Germantown Pike, Lafayette Hill, PA
  Dental Office Use in VC-1 District

  Attendees: Ed Hughes, Esquire, the applicant's representative and Dhaval Shah, the applicant.

  This site is within the VC-1, Village Commercial Sub-district 1. A dental office is a conditional use allowed pursuant to Section 116-290.C.(3) of the Zoning Ordinance. All Conditional Uses in the Village Commercial District have to comply with Section 116-292 and all Conditional Uses throughout the Township have to comply with Section 116-37 and specifically with Section 116-37.F. which details the determinations that the BOS is required to make in order to be able to approve a Conditional Use. Mr. Hughes explained that the dental office is specifically authorized as a conditional use; it is compatible with the neighborhood; there is no harmful impact on pedestrian or vehicular traffic due to bulk size, peak use, location and design; it is consistent with the Comprehensive Plan; and there are no objectionable noises associated with the use. Shared driveway and parking are shown as set forth in the community association declaration for the previously approved 'Knolls' subdivision/land development plan; buffers and landscaping were approved in the subdivision/land development last year; the landscape package was addressed during that approval.

  Planning Commission Comments: How many dentists will be practicing in the office at any given time (1 dentist and 1 hygienist; they are not planning for any additional dentists at this time); what are the hours of operation (9AM to 5PM Monday through Friday); there is adequate parking per the Township code (parking is calculated on gross square footage of both floors; as long as there is no

change to the size of the building, the parking requirements remain the same; the code requires 18 spaces, 23 are provided); there are 2 stories being devoted to this use, will patients be treated on the second floor or is that dedicated for storage or office use (the second floor will be used as office space only); how will patients enter the office (patients will be directed by signage to enter the office through the rear entrance only; a separate permit application will be submitted for signage later on); what is the status of the new construction on the adjacent homes (they are under construction); are any of the construction vehicles related to the construction of the new development coming in and out of the driveway that would be used for access for patients (yes, the same entrance will be used); what is the projected date for the start of the practice (hoping for February 1, 2021; by that time most of the work on the new construction should be done, they are trying to close on the singles in December); will all homeowners use the same access road that will be used for the dental office (yes, there is an enter only next to the dental office and a two way entrance/exit on Germantown Pike further east for the townhomes; there is a separate access on Westaway Drive for the single houses).

Public Comment: Steve Kaufman, Harts Ridge Road, asked if the improvements here have any effect on the bad stormwater situation down the hill where this property is located (they are not constructing any site improvements as associated with this dental use; there is no increase in impervious surfaces, it is an existing building the only renovations will be interior; parking is existing and all addressed at the time of the overall subdivision/land development approval).

Motion: Ms. Patchen made a motion to recommend approval of the conditional use for a dental office; seconded by Mr. Cornog. Vote 7-0

6. SUBDIVISION &/OR LAND DEVELOPMENT APPLICATIONS: None

7. OLD BUSINESS:

- Comprehensive Plan Selective Update
  Discussion of Reviews; Next Steps

New reviews received from the State Office of Historic Preservation (previous comments all addressed), from Plymouth Township (wishing us success in the adoption of the Plan), and Montgomery County Planning Commission (MCPC) with some recommendations including references back to their prior 2019 review (and attached said review to new one). Also provided Township Open Space Committee e-mail comments from June 2020, with their comments having been addressed. After considerable discussion, final direction provided by the Commission:

- adding the two specific recommendations from the MCPC's July 9, 2020 letter (in 'Implementation Strategy', A. Policy #1, Land Use and Zoning-Land Use, adding "…and discourage the extension of public utilities into areas identified as conservation areas"; and in the 'Action Plan', B. Sustainable Design and Environmental Stewardship, Action #1.3.5., adding a reference to the County's natural heritage inventory conducted by the Morris Arboretum in 2008 and providing the applicable website reference);
- make modifications to the Riverfront character area to be more specific about potential uses as described more fully in the 2016 Riverfront Plan and to make sure the Plan Update reflects the serious flooding that occurs in this area and its impact on development and to add some pictures of the flooding to be included in the Plan;
- modify the first sentence of the section entitled, "Premise of the Comprehensive Plan Update" on page 2, as follows: "Whitemarsh Township recognizes that because we are experiencing profound climate change that is impacting every facet of our fragile natural ecosystem, our framework of codes and ordinances related to zoning and land development must reflect, ***or be updated to reflect***, our commitment to ***protecting natural habitat and otherwise*** combating the underlying causes and the effects of this change."
- on page 25, under Policy 1, under 'Quality of Life', add at the end, "…Open Space Plan dated 2006 ***as amended***.

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Public Comment:

Steve Kaufman, Harts Ridge Road, made two comments: that environmental underpinnings be considered as the Township goes through the process of rewriting the Zoning and Land Development codes; and due to global warming we are in an environmental crisis with rapidly changing conditions.

Sydelle Zove, Harts Ridge Road, commented how the County is against front loaded garages in townhome developments, and wants to make sure the Planning Commission and the Board of Supervisors pay attention to that detail (Mr. Guttenplan commented that this belongs in design standards and ordinances, not specifically in the Comprehensive Plan); and the concern raised by the County about altering the integrity of residential areas within Mixed Use Corridors. She is surprised to see that a piece of Ridge Pike west of Harts Lane is retained as a mixed use corridor. She thought the entirety of Ridge Pike from Joshua Road to Harts Lane was removed as a mixed corridor and asked if this was an error or did the Planning Commission decide to specifically retain that part of Ridge Pike. (Mr. Guttenplan remembers specifically that the Commission changed it back to residential from Church Road to Joshua Road.) She is very disappointed that that the remaining segment remains in Mixed Use Corridor and doesn't think it belongs. She referred to page 25 of the Comprehensive Plan, Policy 1 - Open Space Network, and commented that recently in the last couple of years that a developer has consistently and repeatedly referenced the comprehensive plan and its designation with regard to the development of a specific area in the Township and the developer failed to take in consideration amendments to the Open Space Plan which is a component of the Comprehensive Plan and suggested some wording changes to Policy 1, Quality of Life for the Planning Commission to consider. On page 58 and 59, Policy 2 – Complete Streets, bullet 2 – upgrade existing sidewalks for ADA compliance where possible, she commented that the Planning Commission needs to immediately embrace the notion of ADA compliant sidewalks when reviewing development plans that are in fact before them currently and stated that the Planning Commission recommended approval of a waiver that would have allowed 4' sidewalks which is not ADA compliant nor is it consistent with a complete streets policy; and that a minimum of 5' is needed to allow for a wheelchair and provide a turning area for the wheelchair and where 2 people can walk side by side. She urges the Planning Commission to immediately embrace this aspect of the plan of which they are about to endorse as they are evaluating development projects that are before them now and will come before them even before there is a formal adoption of this plan. (Ms. Heinrich stated the minimum required width per ADA standards is 4'.)

Motion: Ms. Patchen made a motion to recommend that the May 22nd draft with the changes discussed tonight be advertised for a (Planning Commission) Public Meeting; seconded by Mr. Cornog. Vote 7-0

8. NEW BUSINESS:

- Mr. Cornog announced this will be his last meeting, he is moving out of the Township; he stated it has been a joyous experience working with everybody including the Township administration and that we have a great team and expects to hear great things about them in the future. The Planning Commission members, Mr. Manuele, and staff thanked him for his support, commitment to the Township, guidance, wisdom and many years of service and wished him well.

9. PLANNING COMMISSION MEMBERS COMMENTS:

- Mr. Quitel commented that he thinks it would be good of them as a commission to talk about in a future meeting what opportunity there might be to possibly acquire the Abolition Hall Tract.

10. PUBLIC COMMENT FOR NON AGENDA ITEMS

- Steve Kaufman commented on the history behind Mr. Cornog and his accomplishments in the Township and how he was responsible for getting open space started and wished him luck.
- Sydelle Zove commented that Mr. Cornog is a force of inspiration and spoke of how he was responsible for helping with the amount of public funds from Whitemarsh that has supported the William Jeanes Library. Also wanted to make everyone aware that K. Hovnanian has walked away from the Abolition Hall Project and hopes the Township can prevail.

11. ADJOURNMENT

- On a motion by Mr. Cornog seconded by Mr. Shula, the meeting was adjourned at 8:51 PM.

Respectfully submitted,

_____

Charles L. Guttenplan, AICP, Director of Planning & Zoning

The Planning Commission is appointed as an advisory group to the Board of Supervisors and the Zoning Hearing Board with respect to comprehensive land use planning, existing land use, and various land use and zoning applications in Whitemarsh Township. No formal decisions are rendered by the Planning Commission. Formal decisions are rendered by the Board of Supervisors or Zoning Hearing Board, as prescribed by law, based on the type of application.

DRAFT

SLD#09-19 Conference Facilities, Inc.
800 Ridge Pike
Preliminary/Final Plan Review

WHITEMARSH TOWNSHIP
SUBDIVISION and/or LAND DEVELOPMENT APPLICATION

The applicant, or applicant's authorized agent, for the Township to accept submission of the application, must complete each Application Item and each Application Submission Checklist item.

Application Type: (check one)
- [X] Minor Subdivision
- [ ] Minor Land Development
- [ ] Major Subdivision
- [ ] Major Land Development
- [ ] Land Development Waiver

Plan Type:
- [ ] Sketch
- [ ] Preliminary
- [X] Final

RECEIVED
SEP 30 2019
WHITEMARSH TOWNSHIP
ZONING & ENGINEERING

INSERT "N/A" FOR NOT APPLICABLE WHERE APPROPRIATE

Name of Subdivision/Land Development: 800 Ridge Pike

Location of Subdivision/Land Development: Manor Road
(Primary Access Roadway Name)

Between: Ridge Pike (Roadway Name) and Eagle View Drive (Roadway Name)

Number of Parcels: 1 **Block Number(s):** 4 **Unit Number(s):** 1

Parcel Number(s): 65-00-07478-00-8

Acreage: 298.55 **Total Lots Proposed:** 2 **Zoning District:** AR/AAA/AAAA

Water Service Proposed: [X] Public [ ] Private Sewer Service Proposed: [X] Public [ ] Private

Applicant Name: Conference Facilities, Inc. **Contact Name:** Joseph P. Hanna, Chambers Assoc., Inc.

Phone #: 610-825-8000 Fax #: 484-991-8371 Email: j.hanna@chambersassoc.com

Address: 800 Ridge Pike, Lafayette Hill, PA 19444

Owner of Record Name (If Different):

Phone #: Fax #: Email:

Address:

Engineer Name: Joseph P. Hanna, P.E. **Firm Name:** Chambers Associates, Inc.

Phone #: 484-991-8187 Fax #: 484-991-8371 Email: j.hanna@chambersassoc.com

Address: 2962 Skippack Pike, P.O. Box 0678, Worcester, PA 19490

Fees and plans showing all public improvements are submitted with this application. Any additional plan information required by the Township Engineer will be submitted to the Director of Planning and Zoning for distribution. The undersigned applicant agrees to comply with all the provisions of Chapter 105 of the Code of the Township of Whitemarsh, as amended, and agrees to obtain all necessary permits in connection with the proposed subdivision and/ or land development.

Whitemarsh Township employees, or township-authorized agents, are hereby granted permission to enter upon the land, if necessary, for site inspections.

Original preliminary and/or original final subdivision and/or land development applications submitted by 4:00pm on the last business day of the month will be reviewed by the Whitemarsh Township Planning Commission at a regular meeting two (2) months following the date of submission or other appropriate meeting date depending upon the results of Township reviews.

I hereby certify, as the undersigned applicant, that I am familiar with the provisions of: [1] Chapter 105, "Subdivision and Land Development", [2] Chapter 58, "Grading, Erosion Control, Stormwater Management and Best Management Practices", and [3] Chapter 55, "Tree Protection Standards" of the Code of the Township of Whitemarsh, as amended, and, to the best of my knowledge and belief, this application and the submitted plans conform to those provisions.

Date of Submission: 9/30/19

Signature: Joseph P. Hanna

(Original Signature must be submitted)

Printed Name: Joseph P. Hanna

I, (name) Joseph P. Hanna, P.E. **(title)** President of

(entity submitting application) Chambers Associates, Inc. do hereby affirm

that I am authorized by the applicant to affix my signature to this application.

Date: 9/30/19 Signature: Joseph P. Hanna

(Original Signature must be submitted)

WHITEMARSH TOWNSHIP
REQUEST FOR MODIFICATION (WAIVER) OF
SUBDIVISION and/or LAND DEVELOPMENT ORDINANCE REQUIREMENTS

Pursuant to § 512.1.(b) of the Pennsylvania Municipalities Planning Code, all requests for a modification shall be in writing and shall accompany and be a part of the application for development. The request shall state in full the grounds and facts of unreasonableness or hardship on which the request is based, the provision or provisions of the ordinance involved and the minimum modification necessary.

Check the appropriate line:

☐ No modification (or waiver) of the Whitemarsh Township Subdivision and Land Development Ordinance is requested

☒ I/we hereby request the following modification[s] (or waiver[s]) of the Whitemarsh Township Subdivision and Land Development Ordinance. (The request must identify the applicable Section[s] of the Ordinance, modification[s] requested, and facts of unreasonableness or hardship upon which the request is made; attach additional sheets if necessary).

1. Requirement that existing features within 500 feet of and within the site be shown on the Plans (105-21.B.1.L) There are no proposed improvements that would impact existing features.

2. Requirement that improvements be made along the Ridge Pike, Barren Hill Road, Manor Road and Harts Lane frontages (105-28.A, 105-30.A and 105-69.C) (105-73) (105-74). There are no proposed improvements that would impact existing features.

3. Requirement that the required and proposed open space and impervious ground cover rations be shown on the Plans (105-23.B(1)(d)(4) There are no proposed improvements that would impact existing features.

4. Requirement that permits the Plans to be without steep slope ratios and supporting calculation (105-23.B(1)(d)(5). There are no proposed improvements that would impact existing features.

5. Requirement that existing water lines, storm drain & culverts within the site & existing driveways, sewer lines, culverts, bridges, utility easements, quarries, railroads & other significant man-made features within 500' of the site be shown on the plans. (105-23.B(1)(l) There are no proposed improvements that would impact existing features. An aerial photo will be provided.

(continued on separate attached page)

Name of Subdivision and/or Land Development: 800 Ridge Pike

Date: 1/17/20 Signature: Joseph P. Hanna

(Original Signature must be submitted)

WHITEMARSH TOWNSHIP

REQUEST FOR MODIFICATION (WAIVER) OF
SUBDIVISION and/or LAND DEVELOPMENT ORDINANCE REQUIREMENTS

Continued

6. Requirement to submit the Plans without a Planning Module. (105-23.B(3). There are no proposed improvements.

7. Requirement to install street trees along all streets where suitable trees do not exist. (105-48(A). There are no proposed improvements.

8. Requirement that the Applicant dedicate land in the amount of 10% of the total area for Park and Recreational uses or pay a fee-in-lieu of dedication. (105-53(D) (105-23(B)(1)(d)(4). There are no proposed improvements.

9. To allow the Plans to be drawn at a scale of one inch equals 200 feet (1"=200'). (105-23(A)(1)).

WHITEMARSH TOWNSHIP
SUBDIVISION and/or LAND DEVELOPMENT
TIME WAIVER FORM

Date: 9/30/19

Granted to: Whitemarsh Township Board of Supervisors

Name of Subdivision and/or Land Development: 800 Ridge Pike

On or about, 9/30/19, I/we submitted for official filing the above-reference application.

Notwithstanding any contrary provision of the Pennsylvania Municipalities Planning Code or the Code of the Township of Whitemarsh, this letter will serve as notice to Whitemarsh Township that the requirement that action be taken on this application within ninety (90) days is hereby waived, without limitation as to time. This waiver is granted to permit us to make revisions to the application during the application review process.

Further, with the understanding that this waiver is voluntarily given and will be relied upon by Whitemarsh Township, I/we will give Whitemarsh Township written notice (by certified mail or recognized overnight carrier) should we determine that limiting the time of the review process becomes necessary. Whitemarsh Township shall then have ninety (90) days from receipt of such written notice in which to act upon the application.

This waver is not transferable or assignable by the Applicants and shall apply to any and all revised submissions made in relation to the above-referenced application.

I/we represent that I/we have been duly authorized to execute this waiver on behalf of the Applicant.

Date: 9/30/19

Signature: Joseph P. Hanna
(Original Signature must be submitted)

Printed Name: Joseph P. Hanna, P.E.

Firm Name: Chambers Associates, Inc.
(if applicable)

Title: President
(if applicable)

ZONING DATA
RECREATIONAL DISTRICT OVERLAY

	REQUIRED	PROPOSED
MINIMUM LOT AREA	60 AC	254.91 AC
FRONT YARD	150 FT	> 150 FT
SIDE YARD	100 FT	> 100 FT
REAR YARD	100 FT	> 100 FT
MINIMUM LOT WIDTH	500 FT	> 500 FT
MINIMUM BUILDING HEIGHT	40 FT	< 40 FT

A. THE RECREATIONAL DISTRICT SHALL BE AN OVERLAY TO THE EXISTING UNDERLYING DISTRICTS AS SHOWN ON THE ZONING MAP. AS SUCH, THE PROVISIONS FOR THE RECREATIONAL DISTRICT SHALL SERVE AS A SUPPLEMENT TO THE UNDERLYING DISTRICTS PROVISIONS.

B. WHERE THERE IS ANY CONFLICT BETWEEN THE PROVISIONS OR REQUIREMENTS OF THE RECREATIONAL DISTRICT AND THOSE OF ANY UNDERLYING DISTRICT, THE MORE RESTRICTIVE PROVISION SHALL APPLY.

AA RESIDENTIAL DISTRICT

	REQUIRED	PROPOSED
MINIMUM LOT AREA	0.69 AC	15.41 AC
MINIMUM LOT WIDTH AT B.S.L.	135 FT	> 135 FT
FRONT YARD	50 FT	> 50 FT
SIDE YARD	25 FT	> 25 FT
REAR YARD	50 FT	> 50 FT
MAXIMUM BUILDING HEIGHT		
PRINCIPAL BUILDING	35 FT	< 35 FT
ACCESSORY BUILDING	20 FT / 1 STORY	< 20 FT
MAXIMUM BUILDING COVERAGE	15 %	< 0 %

AAA RESIDENTIAL DISTRICT

	REQUIRED	PROPOSED
MINIMUM LOT AREA	1 AC	82.67 AC
MINIMUM LOT WIDTH AT B.S.L.	175 FT	> 175 FT
FRONT YARD	60 FT	> 60 FT
SIDE YARD	30 FT	> 30 FT
REAR YARD	60 FT	> 60 FT
MAXIMUM BUILDING HEIGHT		
PRINCIPAL BUILDING	35 FT	< 35 FT
ACCESSORY BUILDING	20 FT / 1 STORY	< 20 FT
MAXIMUM BUILDING COVERAGE	15 %	< 0.24 %

AAAA RESIDENTIAL DISTRICT

	REQUIRED	PROPOSED
MINIMUM LOT AREA	2.07 AC	175.77 AC
MINIMUM LOT WIDTH AT B.S.L.	250 FT	> 250 FT
FRONT YARD	60 FT	> 60 FT
SIDE YARD	60 FT	> 60 FT
REAR YARD	60 FT	> 60 FT
MAXIMUM BUILDING HEIGHT		
PRINCIPAL BUILDING	35 FT	< 35 FT
ACCESSORY BUILDING	25 FT	< 25 FT
MAXIMUM BUILDING COVERAGE	15 %	< 0.1 %

AR ADMINISTRATIVE & RESEARCH DISTRICT

	REQUIRED	PROPOSED
MINIMUM LOT AREA	25 AC	28.49 AC
MINIMUM LOT WIDTH AT B.S.L.	135 FT	> 135 FT
FRONT YARD	100 FT	> 100 FT
SIDE YARD	100 FT	> 100 FT
REAR YARD	50 FT	> 50 FT
MAXIMUM BUILDING HEIGHT		
PRINCIPAL BUILDING	40 FT	< 40 FT
MAXIMUM BUILDING COVERAGE	25 %	< 13.0 %
OFF-STREET PARKING	150 FT	< 150 FT

SUBDIVISION NOTES:

EXISTING GROSS: 306.57 AC.
EXISTING NET: 298.55 AC.

LOT # 1
PROPOSED GROSS: 276.79 AC.
PROPOSED NET: 270.06 AC.

LOT # 2
PROPOSED GROSS: 29.78 AC.
PROPOSED NET: 28.49 AC.

GENERAL NOTES:

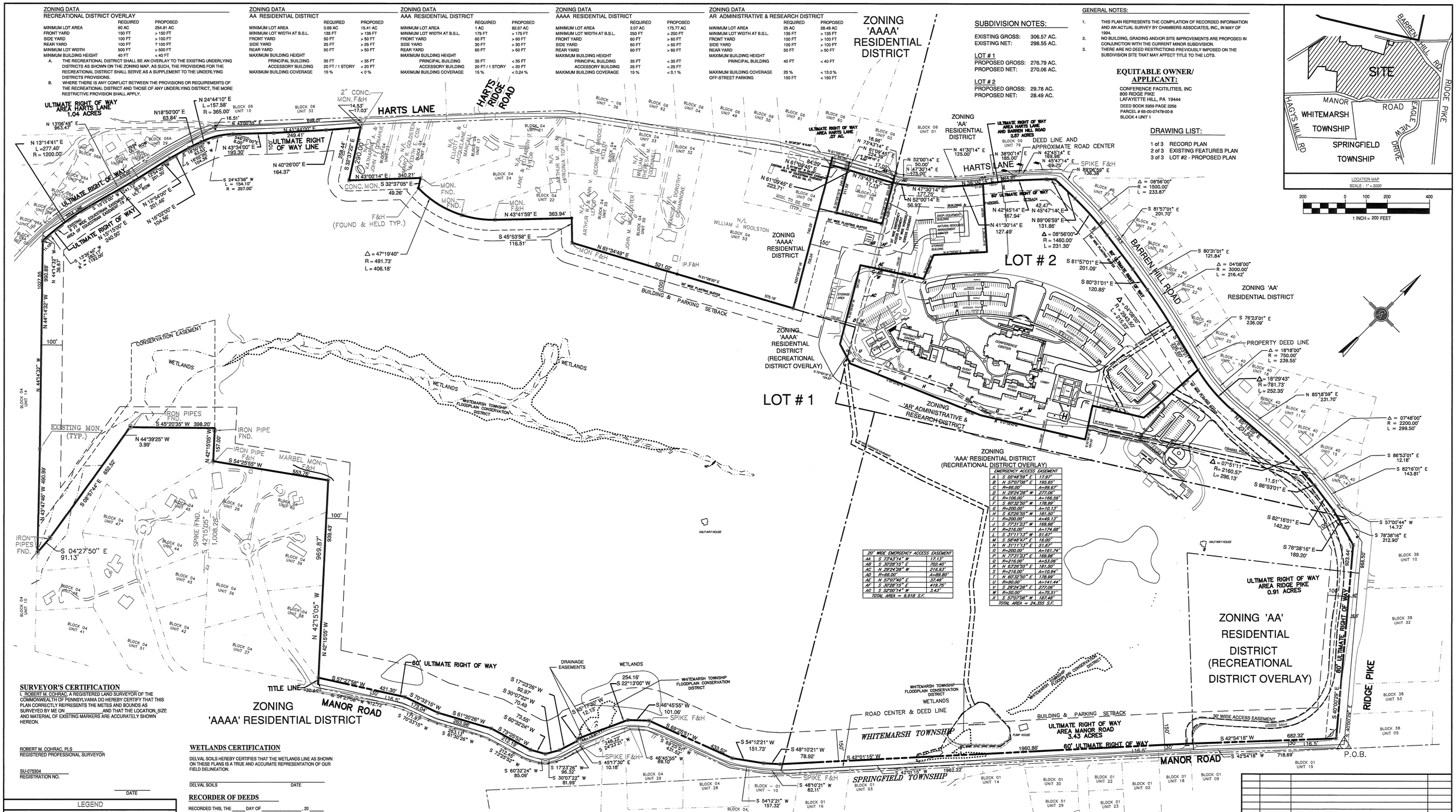
1. THIS PLAN REPRESENTS THE COMPILATION OF RECORDED INFORMATION AND AN ACTUAL SURVEY BY CHAMBERS ASSOCIATES, INC., IN MAY OF 1994.
2. NO BUILDING, GRADING AND/OR SITE IMPROVEMENTS ARE PROPOSED IN CONJUNCTION WITH THE CURRENT MINOR SUBDIVISION.
3. THERE ARE NO DEED RESTRICTIONS PREVIOUSLY IMPOSED ON THE SUBDIVISION SITE THAT MAY AFFECT TITLE TO THE LOTS.

EQUITABLE OWNER/ APPLICANT:

CONFERENCE FACITILITIES, INC
800 RIDGE PIKE
LAFAYETTE HILL, PA 19444
DEED BOOK 5959 PAGE 2256
PARCEL # 65-00-07478-00-8
BLOCK 4 UNIT 1

DRAWING LIST:

1 of 3 RECORD PLAN
2 of 3 EXISTING FEATURES PLAN
3 of 3 LOT #2 - PROPOSED PLAN



LOCATION MAP
SCALE : 1" = 2000'
1 INCH = 200 FEET

SURVEYOR'S CERTIFICATION

I, ROBERT M. COHRAC, A REGISTERED LAND SURVEYOR OF THE COMMONWEALTH OF PENNSYLVANIA DO HEREBY CERTIFY THAT THIS PLAN CORRECTLY REPRESENTS THE METES AND BOUNDS AS SURVEYED BY ME ON _____ AND THAT THE LOCATION, SIZE AND MATERIAL OF EXISTING MARKERS ARE ACCURATELY SHOWN HEREON.

ROBERT M. COHRAC, PLS
REGISTERED PROFESSIONAL SURVEYOR

SU-075304
REGISTRATION NO.

DATE

LEGEND

EXISTING		PROPOSED
□	MONUMENT FOUND	■ TO BE SET
○	IRON PIN OR PIPE FOUND	○ TO BE SET
	BUILDING LINE	
	CENTER LINE	
	CREEK BED	
	CURB LINE	
	EASEMENT LINE	
	EDGE OF PAVING	
—x—x—	FENCE LINE	—x—x—
	FLOOD PLAIN LINE	
	LOT LINE	
	PARKING STRIPING	
	PROPERTY LINE	
	RIGHT OF WAY LINE	
	ROADWAY MARKINGS	
	SETBACK LINE	
	SIDEWALK	
	SIGNAGE	
	WETLANDS	
	ZONING LINE	

WETLANDS CERTIFICATION

DELVAL SOILS HEREBY CERTIFIES THAT THE WETLANDS LINE AS SHOWN ON THESE PLANS IS A TRUE AND ACCURATE REPRESENTATION OF OUR FIELD DELINEATION.

DELVAL SOILS DATE

RECORDER OF DEEDS

RECORDED THIS, THE DAY OF , 20
IN THE OFFICE FOR THE RECORDING OF DEEDS, ETC., IN AND FOR THE COUNTY OF MONTGOMERY IN NORRISTOWN, PENNSYLVANIA

IN PLAN BOOK _____ PAGE(S) _____ .

WAIVER LIST

1. REQUIREMENT THAT EXISTING FEATURES WITHIN 500 FEET OF, AND WITHIN, THE SITE BE SHOWN ON THE PLANS [105-21.B.1.J.]
2. REQUIREMENT THAT IMPROVEMENTS BE MADE ALONG THE RIDGE PIKE, BARREN HILL ROAD, MANOR ROAD AND HARTS LANE FRONTAGES [105-28.A, 105-30.A AND 105-69.C]

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF MONTGOMERY

ON THIS, THE DAY OF , 20 , BEFORE ME THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, PERSONALLY APPEARED

WHO ACKNOWLEDGED (HIMSELF / HERSELF) TO BE THE

SENIOR VICE PRESIDENT OF CONFERENCE FACILITIES, INC. AND THAT AS SUCH
BEING AUTHORIZED TO DO SO, (HE / SHE) EXECUTED THE FOREGOING PLAN BY SIGNING THAT THE SAID

CONFERENCE FACILITIES, INC. IS THE REGISTERED OWNER OF THE DESIGNATED LAND, THAT ALL NECESSARY APPROVAL OF THE PLAN HAS BEEN OBTAINED AND IS ENDORSED THEREON,

AND THAT SAID CONFERENCE FACILITIES, INC. DESIRES THAT THE FOREGOING PLAN BE RECORDED ACCORDING TO LAW.

(NOTARY PUBLIC)

MY COMMISSION EXPIRES (SEAL)
WITNESS MY HAND AND OFFICIAL SEAL

CORPORATION CERTIFICATE OF INTENT

KNOW TO ALL TO WHOM THESE PRESENTS MAY COME, THAT THE

CONFERENCE FACILITIES, INC. A CORPORATION
(NAME OF CORPORATION)

LOCATED IN
BY VIRTUE OF A RESOLUTION OF THE BOARD OF DIRECTORS THEREOF, FOR ITSELF, ITS SUCCESSORS AND ASSIGNS, DOES HEREBY ADOPT THIS AS ITS PLAN OF LOTS AND STREETS AND / OR LAND DEVELOPMENT PLAN OF ITS PROPERTY, SITUATE IN THE TOWNSHIP OF WHITEMARSH, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA, AND IT IS SAID CORPORATION'S DESIRE THAT THIS PLAN BE RECORDED ACCORDING TO LAW.

IN WITNESS WHEREOF, SAID CORPORATION HAS CAUSED ITS CORPORATE SEAL TO BE AFIXED BY THE HAND OF ITS SENIOR VICE PRESIDENT AND THE SAME TO BE

ATTESTED BY ITS SECRETARY, THIS _____ DAY OF _____ , 20 , ____

ATTEST

SECRETARY

TOWNSHIP ENGINEER APPROVAL

THIS SUBDIVISION AND / OR LAND DEVELOPMENT PLAN WAS REVIEWED BY THE TOWNSHIP ENGINEER FOR THE TOWNSHIP OF WHITEMARSH.

THIS ____ DAY OF _____ , 20 ____

, P.E.
JAMES C. SULLIVAN, TOWNSHIP ENGINEER

BOARD OF SUPERVISORS APPROVAL

THIS SUBDIVISION AND / OR LAND DEVELOPMENT PLAN WAS APPROVED BY THE RESOLUTION OF THE BOARD OF SUPERVISORS OF THE TOWNSHIP OF WHITEMARSH.

THIS ____ DAY OF _____ , 20 ____

SECRETARY

MCPC No._____

PROCESSED and REVIEWED. A report has been prepared by the Montgomery County Planning Commission in accordance with the Municipalities Planning Code.

Certified this date_____

For the Director
Montgomery County Planning Commission

NO.	DATE	DESCRIPTION	BY

RECORD PLAN
MINOR SUBDIVISION

PREPARED FOR

800 RIDGE PIKE
WHITEMARSH TOWNSHIP
MONTGOMERY COUNTY
PENNSYLVANIA

Chambers Associates, Inc.
Civil Engineers and Surveyors
2962 Skippack Pike, P.O. Box 678
Worcester, PA 19490 484-991-8187

SCALE	DATE	JOB	DRAWING NO.
1"= 200'	3-20-19	259-023	SHEET 1 of 3
MANAGER: JPH		DRAWN BY: RMC	

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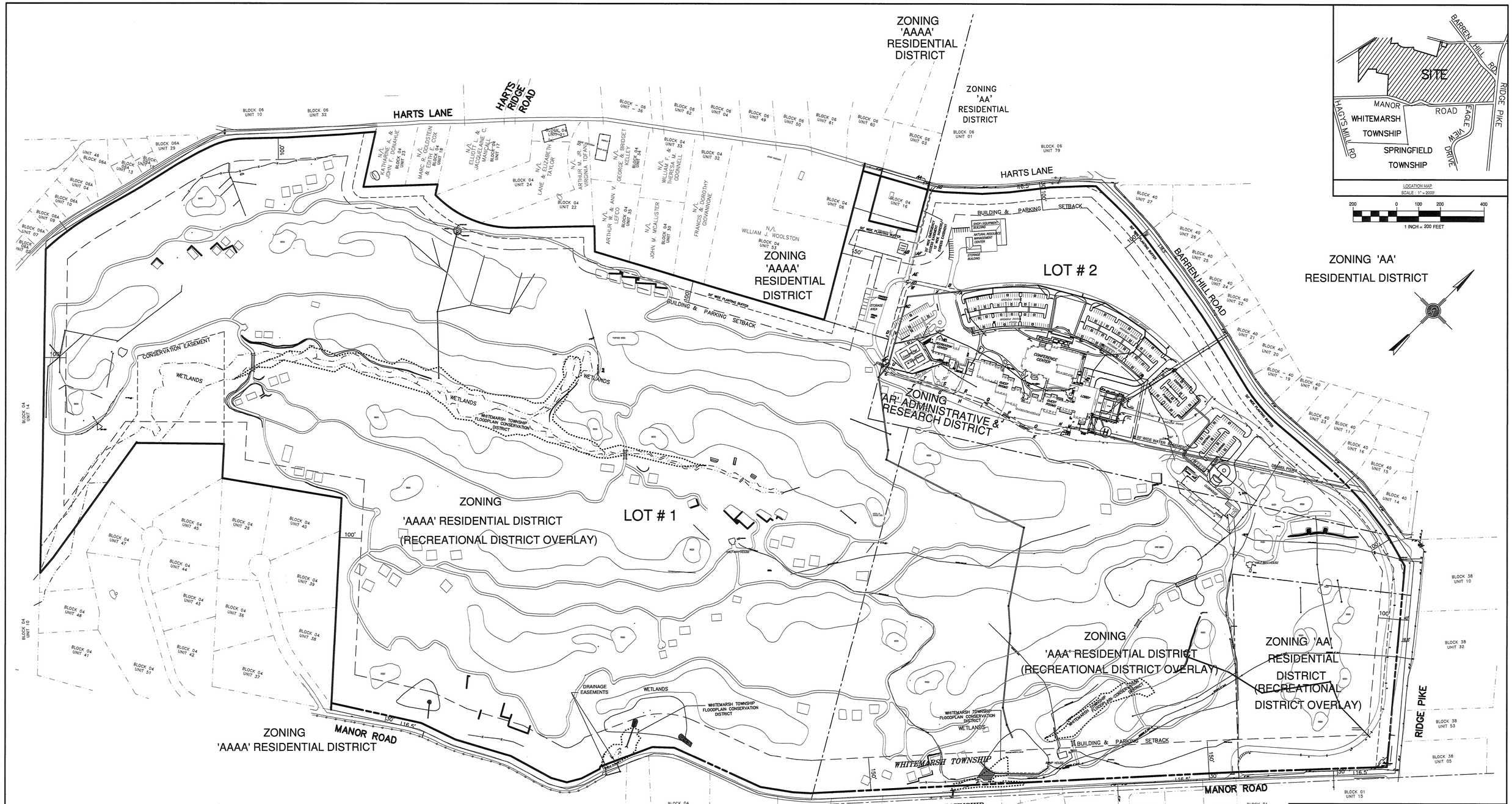

LEGEND

EXISTING		PROPOSED
□	MONUMENT FOUND	■ TO BE SET
○	IRON PIN OR PIPE FOUND	○ TO BE SET
	BUILDING LINE	
	CENTER LINE	
	CREEK BED	
	CURB LINE	
	EASEMENT LINE	
	EDGE OF PAVING	
	FENCE LINE	
	FLOOD PLAIN LINE	
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	PROPERTY LINE	
	RIGHT OF WAY LINE	
	ROADWAY MARKINGS	
	SETBACK LINE	
	SIDEWALK	
	SIGNAGE	
	WETLANDS	
	ZONING LINE	

NO.	DATE	DESCRIPTION	BY

EXISTING FEATURES PLAN
MINOR SUBDIVISION

PREPARED FOR

800 RIDGE PIKE

WHITEMARSH TOWNSHIP

MONTGOMERY COUNTY

PENNSYLVANIA

Chambers Associates, Inc.
Civil Engineers and Surveyors
2962 Skippack Pike, P.O. Box 678
Worcester, PA 19490 484-991-6187

SCALE	DATE	JOB	DRAWING NO.	
1"= 200'	8/05/19	259-023	SHEET	2 of 3
MANAGER:	JPH		DRAWN BY:	JAS

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ZONING 'AA' RESIDENTIAL DISTRICT

HARTS LANE

SPIKE F&H

BARREN HILL ROAD

LOT # 2

LOT # 1

ZONING 'AAAA' RESIDENTIAL DISTRICT

ZONING 'AAAA' RESIDENTIAL DISTRICT (RECREATIONAL DISTRICT OVERLAY)

ZONING 'AR' ADMINISTRATIVE & RESEARCH DISTRICT

ZONING 'AA' RESIDENTIAL DISTRICT

ZONING 'AAA' RESIDENTIAL DISTRICT (RECREATIONAL DISTRICT OVERLAY)

BLOCK 06 UNIT 61
BLOCK 06 UNIT 60
BLOCK 06 UNIT 03
BLOCK 06 UNIT 01
BLOCK 06 UNIT 79
BLOCK 04 UNIT 06
BLOCK 04 UNIT 16
BLOCK 40 UNIT 27
BLOCK 40 UNIT 26
BLOCK 40 UNIT 25
BLOCK 40 UNIT 24
BLOCK 40 UNIT 22
BLOCK 40 UNIT 21
BLOCK 40 UNIT 20
BLOCK 40 UNIT 19
BLOCK 40 UNIT 18

MON. TO BE SET (TYP.)

EXISTING 8 FT WIDE EQUESTRIAN EASEMENT AREA OF EQUESTRIAN EASEMENT 674.30 SQ. FT.

50' WIDE PLANTING BUFFER

20' WIDE EMERGENCY ACCESS EASEMENT
15' WIDE INGRESS/ EGRESS EASEMENT

BUILDING & PARKING SETBACK

SHOP / EQUIPMENT BUILDING

NATURAL RESOURCE MANAGEMENT CENTER

STORAGE BUILDING

STORAGE AREA

CONCRETE PAVEMENT

GRAVEL AREA

Concrete Pad w/ Brick Pavers

RECREATION CENTER

CONFERENCE CENTER

GUEST ROOMS

LOBBY

EXISTING PARKING

CLUBHOUSE

GREEN

20' WIDE GAS EASEMENT

20' WIDE WATER EASEMENT

20' WIDE SANITARY SEWER EASEMENT

20' WIDE DRAINAGE EASEMENT

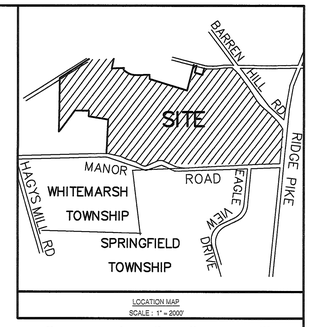
4"PVC SANITARY FORCE MAIN

10" SAN. LINE & 3" F.M.

FIRE ACCESS EASEMENT

50' WIDE PLANTING BUFFER

N 30°28'28" W 8.00'
S 30°28'15" E 8.00'
N 61°09'45" E 84.29'
S 61°09'45" W 84.29'
N 61°09'45" E 223.71'
N 73°43'14" E 17.13'
S 30°28'15" E 246.59
211.58'
S 57°22'46" W 224.45'
N 30°28'15" W 200.86'
236.37'
N 52°00'14" E 56.93'
N 47°30'14" E 177.75'
N 41°30'14" E 127.49'
N 38°00'14" E 184.67'
51.00'
N 42°45'14" E 167.94'
N 89°06'59" E 131.86'
N 45°47'14" E 42.47'
R = 1460.00'
L = 231.30'
Δ = 08°56'00"
S 81°57'01" E 201.09'
S 80°31'01" E 120.85'
R = 2943.50'
L = 215.23'
Δ = 04°08'00"
S 76°23'01" E 235.60'
R = 781.73'
L = 252.35'
Δ = 18°29'43"
343.70'
740.25'
705.24'
N30°28'28" W
575.18'
N 30°28'06" W
387.69'
100.00'
150.00'
S 72°55'18" E 104.67'
S 66°33'45" E
665.85'
S 57°58'45"W
509.96'
S 57°58'45" W 251.00'
S 3°26'20" W
S 32°59'15" E 164.50'
N 41°35'00" E 324.00'
N 41°35'00" E 254.00'
N 22°19'45" W 122.00'
N 57°07'08" E 306.75'
150'



LOCATION MAP
SCALE : 1" = 2000'

80 0 40 80 160
1 INCH = 80 FEET

ZONING DATA
AR ADMINISTRATIVE & RESEARCH DISTRICT

	REQUIRED	PROPOSED
MINIMUM LOT AREA	25 AC	27.10 AC
MINIMUM LOT WIDTH AT B.S.L.	135 FT	> 135 FT
FRONT YARD	100 FT	> 100 FT
SIDE YARD	35 FT, MIN / AGGR.100 FT	> 100 FT
REAR YARD	50 FT	> 50 FT
MAXIMUM BUILDING HEIGHT PRINCIPAL BUILDING	40 FT	< 40 FT
MAXIMUM BUILDING COVERAGE	25 %	< 8 %
MAXIMUM IMPERVIOUS COVERAGE	45%	< 45%
OFF-STREET PARKING	150 FT	< 150 FT

LEGEND

EXISTING		PROPOSED
□	MONUMENT FOUND	■ TO BE SET
○	IRON PIN OR PIPE FOUND	○ TO BE SET
	BUILDING LINE	
	CENTER LINE	
	CREEK BED	
	CURB LINE	
	EASEMENT LINE	
	EDGE OF PAVING	
—X—X—	FENCE LINE	—X—X—
	FLOOD PLAIN LINE	
	LOT LINE	
	PARKING STRIPING	
	PROPERTY LINE	
	RIGHT OF WAY LINE	
	ROADWAY MARKINGS	
	SETBACK LINE	
	SIDEWALK	
	SIGNAGE	
	WETLANDS	
	ZONING LINE	

NO.	DATE	DESCRIPTION	BY

LOT #2 - PROPOSED PLAN
MINOR SUBDIVISION

PREPARED FOR
800 RIDGE PIKE
WHITEMARSH TOWNSHIP
MONTGOMERY COUNTY
PENNSYLVANIA

Chambers Associates, Inc.
Civil Engineers and Surveyors
2962 Skippack Pike, P.O. Box 678
Worcester, PA 19490 484-991-8187

SCALE	DATE	JOB	DRAWING NO.
1"= 80'	08/05/19	259-023	SHEET 3 of 3
MANAGER: JPH		DRAWN BY: JAS	

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Whitemarsh TOWNSHIP

616 GERMANTOWN PIKE - LAFAYETTE HILL, PA 19444-1821
TEL: 610-825-3535 FAX: 610-825-9416
www.whitemarshtwp.org

BOARD of SUPERVISORS

Melissa S. Sterling - Chair
Amy P. Grossman - Vice Chair
Laura Boyle Nester
Fran McCusker
Michael Drossner

Richard L. Mellor, Jr.
Township Manager

October 31, 2019

Conference Facilities, Inc.
c/o Jeff Andes
800 Ridge Pike
Lafayette Hill, PA 19444

RE: S/LD #09-19 Conference Facilities, Inc., 800 Ridge Pike, Lafayette Hill, PA
Proposed 2-Lot Minor Subdivision
Zoning Ordinance Compliance Review Letter

Dear Mr. Andes:

Please accept this as a review of the Zoning Ordinance Compliance issues for your above referenced Subdivision, prepared by Chambers Associates, Inc., dated March 20, 2019, with no noted revisions.

1. §116-18. The plans show features which cross the boundary lines of proposed Lots 1 and 2. The plans cannot be approved until all structures and/or uses for the lot(s) are located entirely within the property boundaries or easements or some other agreement is established to permit the encroachments. At a minimum, the following encroachments must be addressed:
   - As currently shown, the plans appear to indicate that access to the 'Storage Area' and the 'Natural Resource Management Center' on proposed Lot #1 is intended to be provided via the driveway on Harts Lane, since there do not appear to be access easements providing access via Proposed Lot #2.
   - The plans appear to show a pathway and drive aisles adjacent to the 'Clubhouse' on proposed Lot #1 which traverse the proposed lot line.

2. §116-33.2. Note A in the Zoning Data Table on Sheet 1 must be revised to be consistent with the requirements of this section of the ordinance, specifically that the Recreational Overlay District regulations govern for the golf course facility on Lot 1.

3. §116-109.E. The Zoning Data Table for the AR District must be revised to indicate that the impervious ground cover shall be no greater than 45% of the total lot area and that each lot shall have a minimum green space area of 55% of the total lot area. Proposed coverages must be included which demonstrate compliance with the requirements of this section of the ordinance.

4. §116-161. The Floodplain Conservation District must be revised to include areas adjoining any watercourse, drainage course, or body of water subject to inundation or overflow; as defined by the most recent revision of the FEMA Flood Insurance Study, or the presence of floodplain soils. The plans must be revised to indicate the location of the Floodplain Conservation District, in compliance with this section of the ordinance.

5. §116-184.G. This section requires that all parking conform to the requirements of the Whitemarsh Township Fire Prevention Code as enacted and amended. The Fire

Marshal has reviewed this plan and issued a review memo dated October 2, 2019 (see enclosed memo).

6. §116-258. The Riparian Corridor Conservation District shall be shown as an overlay to the existing underlying districts as shown on the Zoning Map. As such, the Riparian Corridor Conservation District shall serve as a supplement to the underlying district provisions.

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

Very truly yours,

Charles L. Guttenplan, AICP
Director of Planning and Zoning/Zoning Officer

Encls. Fire Marshal Memo of October 2, 2019

cc: Richard L. Mellor, Jr., Township Manager
Robert A. Sztubinski, B.C.O., Director of Building and Codes
Sean P. Kilkenny, Esq., Township Solicitor
Krista Heinrich, P.E., Township Engineer
Joseph P. Hanna, P.E., Chambers Associates, Inc., Applicants Engineer

WHITEMARSH TOWNSHIP

TO: CHARLIE GUTTENPLAN, DIRECTOR OF ZONING

FROM: **Scott P. Lynch** SPL

SUBJECT: SLD # 09-19 800 RIDGE PIKE

DATE: OCTOBER 2, 2019

CC: FILE

Charlie,

I have reviewed the submitted SLD Plan for the above-mentioned property.

At this time, I have no access issues.
If you have any questions, please contact me.

Thank you.

Scott P. Lynch, CFI, CFEI
Fire Marshal/ Emergency Management Coordinator
616 Germantown Pike
Lafayette Hill, PA 19444
Phone: 610-825-3535 Fax: 610-825-6252
Email: slynch@whitemarshtwp.org

YOUR GOALS. OUR MISSION.

October 28, 2019

Mr. Richard L. Mellor, Jr., Township Manager
Whitemarsh Township Municipal Building
616 Germantown Pike
Lafayette Hill PA 19444

RE: Minor Subdivision Plan Review
800 Ridge Pike
Whitemarsh Township, Montgomery County, Pennsylvania
S/LD #09-19
Our Project Number WMSH-R3320

Dear Mr. Mellor:

As requested, we have reviewed plans for the above referenced Minor Subdivision Plan, prepared by Chambers Associates, Inc., dated March 20, 2019, with no noted revisions. The following comments are offered for your consideration:

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

	Section	Description
1.	116-18	The plans show features which cross the boundary lines of proposed Lots 1 and 2. The plans cannot be approved until all structures and/or uses for the lot(s) are located entirely within the property boundaries or easements or some other agreement is established to permit the encroachments. At a minimum, the following encroachments must be addressed: • As currently shown, the plans appear to indicate that access to the 'Storage Area' and the 'Natural Resource Management Center' on proposed Lot #1 is intended to be provided via the driveway on Harts Lane, since there do not appear to be access easements providing access via Proposed Lot #2. • The plans appear to show a pathway and drive aisles adjacent to the 'Clubhouse' on proposed Lot #1 which traverse the proposed lot line.
2.	105-21(B)(1)(j)	The applicant must submit legal descriptions for the proposed subdivision for review by the Township Engineer.
3.	105-23(A)(1)	This section of the ordinance states that the plans shall be drawn at a scale of one inch equals 50 feet or one inch equals 100 feet. A waiver should be requested in order to allow the plans to be drawn at a scale of one inch equals 200 feet.
4.	105-23(B)(1)(d)(4)	The applicant is requesting a waiver from the requirements of this section of the ordinance which requires the plans to list required and proposed open space and impervious ground coverage ratios, if applicable.

Section	Description

5. 105-23(B)(1)(d)(5) The applicant is requesting a waiver from the requirements of this section of the ordinance which requires the plans to list the Steep slope ratio with supporting calculations.

6. 105-23(B)(1)(l) The applicant is requesting a waiver from the requirements of this section of the ordinance which requires the plans to show existing principal buildings (and their respective uses), and driveways on the adjacent peripheral strip: sewers lines, storm drains, culverts, bridges, utility easements, quarries, railroads, and other significant man-made features within 500 feet of and within the site, including properties across streets. The granting of any waiver should be conditioned on the inclusion of an aerial photo within the plan set which shows the required features.

7. 105-24(B)(3)(d) The applicant is requesting a waiver from the requirements of this section of the ordinance which requires Planning modules for land development as required by Chapter 71 of the Pennsylvania Sewage Facilities Act, as amended, if necessary.

8. 105-24(B)(3)(d) The area of the plan allocated for the signature of the Township Engineer must be revised to state "*Township Engineer Review*" instead of "*Township Engineer Approval*" and the signature block must be revised to list the current Township Engineer.

9. 105-28(A), 105-30, 105-69(C) The applicant is requesting waivers from the requirements of these sections of the ordinance which state that streets adjacent to the site are subject to the following requirements:

Street Name	Classification	Required Ultimate R.O.W	Required Cartway Width	Curbs	Sidewalks	Tree Zone
Harts Lane	Major Collector	80	48	Required	Required	Required
Barren Hill Road	Major Collector	80	48	Required	Required	Required
Ridge Pike	Artcrial	*	*	Required	Required	Required
Manor Road	Minor Collector	60	40	Required	Required	Required

* As recommended by PADOT or the Montgomery County Roads & Bridges Dept.

10. 105-38 The plans must be revised to include dimensions of parking areas in order to demonstrate compliance with the design standards specified in this section of the ordinance.

11. 105-38(U) All common parking areas shall be adequately lighted during after-dark operating hours and all lights shall be located on raised parking islands, not on the parking surface. The applicant must provide evidence in sufficient detail to demonstrate that this requirement has been met.

	Section	Description
12.	105-39	This section of the ordinance requires that all parking areas shall have at least one tree of three inches minimum caliper for every two parking spaces provided and that a minimum of 10% of any parking lot facility over 2,000 square feet in gross area shall be devoted to landscaping, inclusive of required trees. The applicant must provide evidence in sufficient detail to demonstrate that this requirement has been met.
13.	105-40(A)	Required off street loading facilities, if necessary, must be designed so that each space shall be no less than 14 feet wide, 50 feet long, and 17 feet high, exclusive of drives and maneuvering space and located entirely on the lot being served. The plans must be revised to demonstrate compliance with this section of the ordinance.
14.	105-46	Curbs shall be provided in all subdivisions and land developments in accordance with Sections 105-30, and 105-74.
15.	105-47(A)	Sidewalks shall be provided in all subdivisions and land developments in accordance with sections 105-30, 105-47 and 105-73 of the Whitemarsh Township Code. These standards shall apply on all new streets and on existing streets.
16.	105-48(A)	The applicant is requesting a waiver from the requirements of this section of the ordinance which states that, within any land development, street trees shall be planted along all streets where suitable street trees do not exist.
17.	105-52	Buffer yards are required between land developments and along existing streets to soften visual impact, to screen glare, and to create a visual barrier between conflicting land uses. The plans must be revised to provide a table detailing the buffer yard requirements, in accordance with Section 105-52.B as well as the actual buffers provided. All landscaping plans are subject to the review and approval of the Shade Tree Commission.
18.	105-53(D)	The applicant is requesting a waiver from the requirements of this section of the ordinance which requires requires the dedication of land in the amount of 10% of the total Site Area for Park and/or Recreational use. The applicant has the option of offering a fee in lieu of dedicating actual land area and can also provide a combination of a fee in lieu and dedication of land. All offers of land and/or fees in lieu of dedication must meet the requirements of this section of the ordinance.
19.	105-72(A)	Monuments must be provided at all property line corners. Monuments shall be placed at each change in direction of a boundary along the street line; two to be placed at each street intersection and one on each side of any street at angle points and at the beginning and end of curves.
20.	105-73	This section of the ordinance requires sidewalks to be constructed as required by 105-30. These standards shall apply to all new and existing streets.

	Section	Description
21.	105-74	This section of the ordinance requires Curbs to be constructed as required by section 105-30. The plans must be revised to indicate the installation of curbing where required.
22.	105-76	The applicant must obtain a letter of approval from the Township Fire Marshal in order to ensure that adequate fire protection is provided.
23.	105-89	If applicable, the developer shall enter into a written agreement with the Township in the manner and form approved by the Solicitor wherein the developer shall agree, to construct or cause to be constructed at his own expense all proposed improvements shown on the approved land development plan, all in strict accordance with the standards and specifications of the Township and within the time specified in said agreement, and to deposit with the Township financial security in an amount sufficient to cover the cost of all subdivision or land development improvements, including both public and private improvements.

Any future submission of the design plans for this project must be accompanied by a letter, prepared by the applicant's engineer, which addresses each of the comments contained in this report. Should you have any questions regarding this matter, please do not hesitate to contact me at this office.

Very truly yours,
T&M ASSOCIATES

Krista Heinrich

Krista Heinrich, PE
Township Engineer

c: Mr. Sean Halbom - Assistant Township Manager
Mr. Charles L. Guttenplan, AICP - Director of Planning and Zoning
Sean Kilkenny, Esq.; The Law Offices of Sean Kilkenny, LLC – Township Solicitor
Mr. Robert A. Sztubinski, B.C.O. - Director of Building & Codes
Joseph P. Hanna, PE – Applicant's Engineer
Conference Facilities, Inc.- 800 Ridge Pike, Lafayette Hill PA 19444

MONTGOMERY COUNTY
BOARD OF COMMISSIONERS

VALERIE A. ARKOOSH, MD, MPH, CHAIR
KENNETH E. LAWRENCE, JR., VICE CHAIR
JOSEPH C. GALE, COMMISSIONER

MONTGOMERY COUNTY
PLANNING COMMISSION

MONTGOMERY COUNTY COURTHOUSE • PO BOX 311
NORRISTOWN, PA 19404-0311
610-278-3722
FAX: 610-278-3941 • TDD: 610-631-1211
WWW.MONTCOPA.ORG

JODY L. HOLTON, AICP
EXECUTIVE DIRECTOR

November 5, 2019

Mr. Charles L. Guttenplan, AICP
Director of Planning and Zoning
Whitemarsh Township
616 Germantown Pike
Lafayette Hill, Pennsylvania 19444

Re: MCPC #19-0248-001
Plan Name: 800 Ridge Pike Subdivision
(2 lots/comprising 298.55 acres)
Situate: Ridge Pike (west) / Barren Hill Road (south)
Whitemarsh Township

Dear Mr. Guttenplan:

We have reviewed the above-referenced subdivision and land development plan in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as you requested on October 1, 2019. We forward this letter as a report of our review.

BACKGROUND

The applicant, Conference Facilities, Inc., has submitted a subdivision and land development plan, and is seeking preliminary plan approval for the subdivision of a 298.45 acre parcel into two lots. The proposed subdivision of the parcel creates Lot #1, a 270.06 acre lot (net) which comprises the golf course, club house, and support facilities and Lot#2, a 28.49 acre lot (net) which consists primarily of the conference center, lodging facilities, recreation center, and several surface parking lots.

The plan does not show any site improvements or impacts to the existing features of the parcel at this time. The proposed subdivision is for Tax Parcel ID # 65-00-07478-00-8, which is located in 'AAAA'- Residential District (Recreational District Overlay) and in the 'AR" Administrative & Research District. The parcel has extensive roadway frontage along Barren Hill Road, Harts Lane, Manor Road (which borders Springfield Township), and Ridge Pike. The surrounding land uses in both Whitemarsh and Springfield Townships consists primarily of single-family detached homes, some of which are arranged in small cul-de-sac neighborhoods.

The applicant's submitted documentation includes a request for waivers from the Township's Subdivision and Land Development Ordinance for several required improvements along Ridge Pike, Barren Hill Road, Manor Road, and Harts Lane; relief from the § 105-28.A. Design Standards- Streets; §105-30.A. and § 105-69.C. Streets.

CONSISTENCY WITH COUNTY & MUNICIPAL PLANS

The proposed subdivision and development plan is generally consistent with both the county comprehensive plan, *Montco 2040*: A Shared Vision, and the DRAFT Whitemarsh Township Selective Comprehensive Plan Update, 2019. The county plan's Future Land Use Map designates the majority of the 295.5 acre tract as "Open Space" and a smaller portion along Barren Hill Road and Harts Lane as "Suburban-Residential." The township designates this area in a broad manner as a "Parks & Open Space" Character Area in its Selective Comprehensive Plan Update, 2019, which is shown in the 2028 Future Land Use Map.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's subdivision and proposed development of the parcel into two new lots, which will separate the principal land uses into their own respective lot areas. We have identified several issues we believe the township should consider in its assessment of this proposal:

1. Lot #1- the "golf-course" lot will now be split-zoned, according the township's Zoning Map. It is a recommended practice in subdivision proposals for the property boundaries to coincide with zoning boundaries. The township may wish to address the split zoning with a review and possible amendment to the Zoning Map.

2. The club house, parking lots and access walkways are on proposed Lot #2, and are shown taking access via an access drive located on Lot #1. As the lots may have different ownerships in future, and legal access may become an issue, an access easement agreement is needed.

3. We recommend the township consider how the dedication of right-of-way with this subdivision proposal could assist in the implementation of the township's Selective Comprehensive Plan Update of 2019. The plan recommends several specific recommendations, including the development of a connected pedestrian and cyclist network throughout the township. We believe this subdivision presents an opportunity to assist in the implementation of this network.

COMMENTS

1. **Zoning District Boundaries and Lot #1:**

   If approved, the proposed subdivision will further exacerbate a split-zoned lot with a major portion of Lot # 1 in the AAAA- Residential District (Recreational District Overlay) with a smaller area — mainly the clubhouse parking lot, and approximately half of the clubhouse, in the "AR" (Administrative & Research Zoning District.) It is recommended practice that property boundaries coincide as closely as possible with the zoning boundary lines, and that a property should principally reside in the same zoning district. In future, the township may wish to address this discrepancy with a zoning map amendment, to place the golf course and clubhouse in the same district as the golf course, rather than have it remain in the "AR" District.

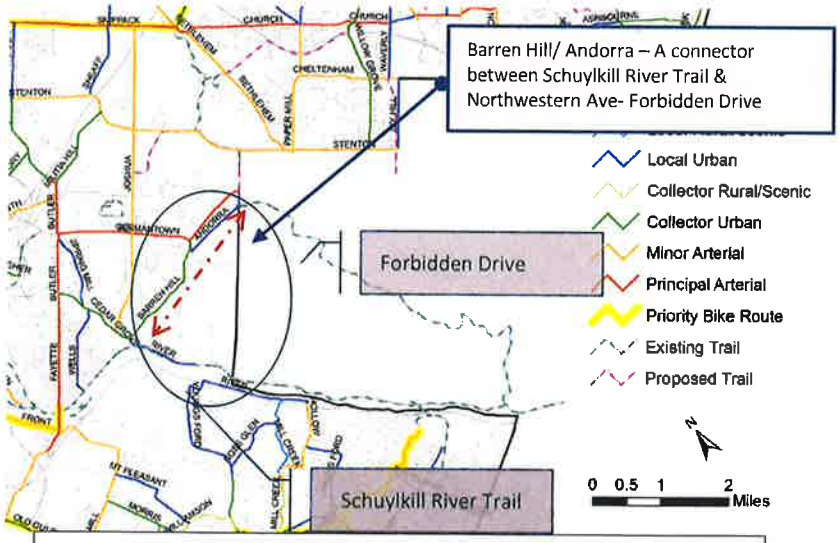
2. Creating a Bike/Pedestrian Network and the Dedication of Right of Way along the Parcel's Roadways

a. *Implementing the Township's Goal to Create Pedestrian/Bicycle Connectivity & Trail Network*

We recommend that the township consider how this large parcel's subdivision, roadway frontage, and right-of-way along Barren Hill and Manor Roads could assist in the township's implementation of the "Pedestrian and Bicycle Connectivity" goals. These goals are recommended in the township's Selective Comprehensive Plan Update of April, 2019. It recommends that the township build upon existing trails, paths, and sidewalks to create an "uninterrupted system throughout the Township." The subdivision of this parcel provides a prime opportunity to secure a dedicated right-of-way and access easement within the roadway frontages to support the incremental building of the network. Specifically, this parcel has key roadway frontage along Barren Hill Road and Manor Road, and provides a potential connector for cyclists between Forbidden Drive at Northwestern Avenue, and the Schuylkill River Trail at Spring Mill or Miquon. We recommend that the applicant offer this for dedication and that the township accept the right-of-way needed to assist in the incremental development of this network.

b. *Bike Montco: A Bicycle Plan for Montgomery County*

Bike Montco: A Bicycle Plan for Montgomery County, adopted by the Montgomery County Commissioners on August 9, 2018, identifies Barren Hill Road as a key roadway for biking (See graphic below, urban collector) in the proposed county biking network. The county is committed to advancing bicycle mobility by working with local municipalities to build a countywide network of strategically planned bicycle improvements by utilizing state, county, and local roads, and trails. Biking improvements along this corridor could provide the residents in the neighborhoods between Joshua and Barren Hill Roads with a safer means to connect to the network. As shown below, Barren Hill Road is a key biking connector between the Schuylkill River Trail and the Wissahickon Trail/Forbidden Drive. The dedication of a right-of-way would help reserve the area for future design improvements to the roadway for pedestrians or cyclists.



MAP 'F', page 71 - *Bike Montco: A Bicycle Plan for Montgomery County*

Design improvements could include bicycle lanes, bike-friendly roadway design, bicycle signage, and street crossing design. We recommend the township consider the recommendations of *Bike Montco*, and accept the dedication of the right-of-way for the roadways.

For details, click link below:

https://www.montcopa.org/BikeMontco

3. Common Facilities – Shared by Lot #1 & Lot #2

a. *Access Driveway- existing shared use*

The existing +/- 2500 ft. driveway, with ingress/egress at Manor Road, provides public access to both Lot #2 (Conference Center) and Lot #1 (Clubhouse & Golf Course). The proposed arrangement will require an access easement agreement to be recorded with the final subdivision plan to ensure public access. In its assessment, the township should consider requiring that the easement agreement include a driveway maintenance agreement in the final plans, to help ensure safe public access in future.

b. Parking Lots- Shared access

The parking lots for the Clubhouse and Golf course (Lot #1) are immediately adjacent to the Conference Center's parking lots (Lot #2) and an existing sidewalk provides access between these facilities. Given this adjacency and potential ownership changes, we recommend that an easement for shared access between these parking areas be considered with the subdivision of this property, and that the final record plan include an access easement agreement for shared use and access between the parking lot facilities. Furthermore, for the township's review it would be helpful if the applicant's subdivision plan include an "off-street parking compliance chart," to demonstrate its compliance with the parking lot regulations for each lot and the proposed use.

CONCLUSION

The Montgomery County Planning Commission generally supports the proposed subdivision and land development plan and we recommend the township address to its satisfaction the above mentioned review comments in your review of this proposal.

Please note that the review comments and recommendations contained in this report are advisory to the municipality and final disposition for the approval of any proposal will be made by the municipality.

Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files. Please print the assigned MCPC number (#19-0248-001) on any plans submitted for final recording.

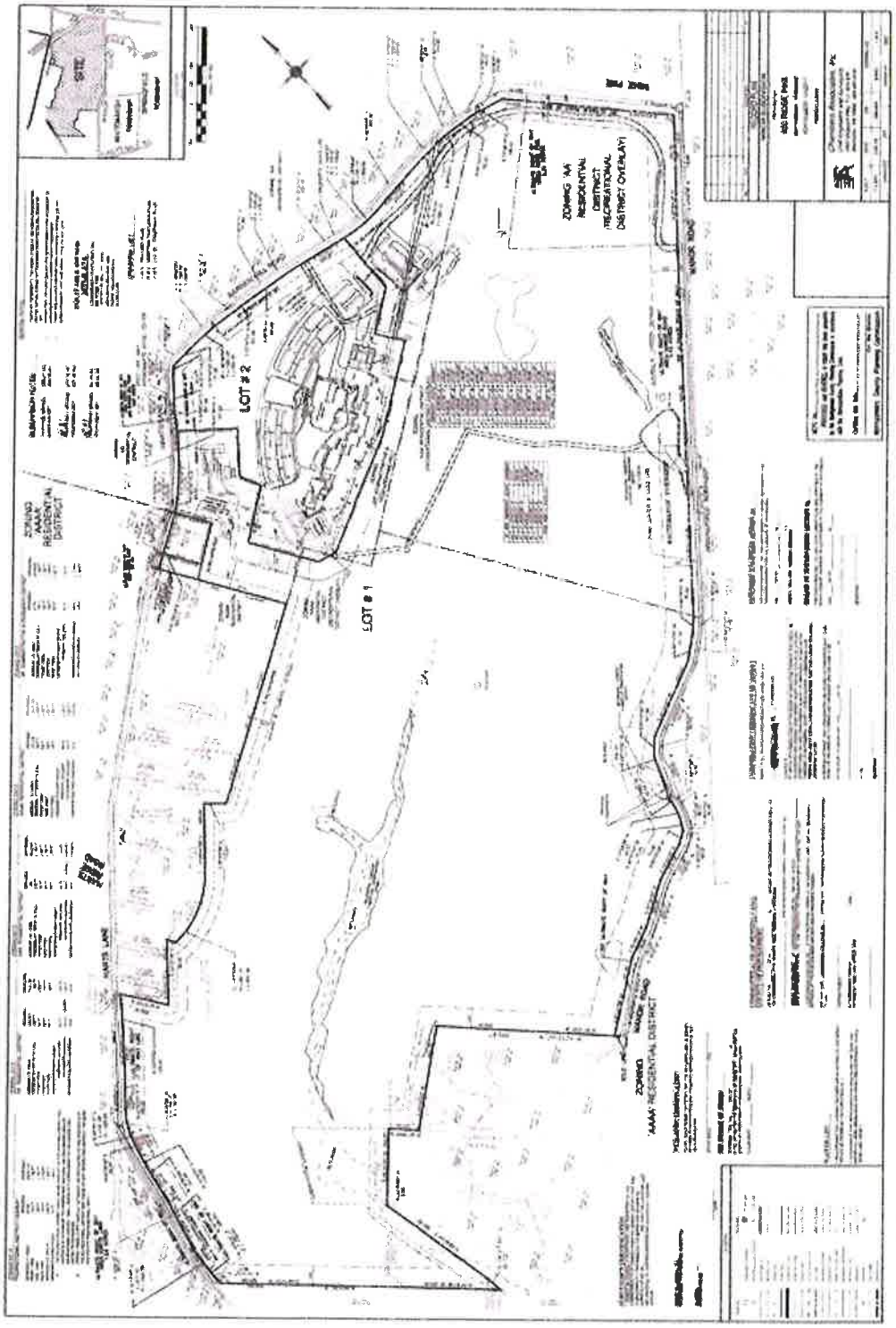
Sincerely,

Barry W. Jeffries

Senior Design Planner
bjeffrie@montcopa.org -610-278-3444

c: Conference Facilities, Inc., Applicant
Joseph P. Hanna, Applicant's representative
Vince Manuele, Chair, Planning Commission
Krista Heinrich, Municipal Engineer

Attachment: Site Plan


LOT # 2
LOT # 1
ZONING
MAAA
RESIDENTIAL
DISTRICT
ZONING MA
RESIDENTIAL
DISTRICT
(RECREATIONAL
DISTRICT OVERLAY)
MANOR ROAD
MAAA RESIDENTIAL DISTRICT
SITE

SLD#05-14 901 Washington Partners, LP
901 Washington Street
Revised Preliminary Plan Review

August 20, 2020

VIA EMAIL & FEDEX NEXT PM (610) 825-35357

Charles L. Guttenplan, AICP
Director of Planning & Zoning
Whitemarsh Township
616 Germantown Pike
Lafayette Hill, PA 19444-1821

RECEIVED
AUG 2 1 2020
WHITEMARSH TOWNSHIP
ZONING & ENGINEERING

Reference: ***RIVERplace***
901 Washington Street Townhomes
Revised Preliminary Land Development Plans
Whitemarsh Township, Montgomery County, PA
Nave Newell No. 2009-134.05

Dear Mr. Guttenplan:

On behalf of our client, 901 Washington Partners, L.P., please find enclosed the following items for a Preliminary Plan submission for the above-referenced project located in Whitemarsh Township, Montgomery County, PA (quantities enclosed are listed after each item):

1. Preliminary Land Development Plans, dated October 3, 2019, and last revised August 20, 2020 (2);
2. Preliminary Post Construction Stormwater Management Report and Site Drainage Calculations, dated October 3, 2019, and last revised August 20, 2020 (2);
3. Preliminary Land Development Waiver Request List, revised August 20, 2020 (2); and
4. Flash drive with an electronic copy of submission documents (1).

We have revised the proposed layout of the project to address comments from the Whitemarsh Planning Commission and are submitting these revised items for review.

Below is a summary of the layout revisions that have been made since the last submission.

1. **Site Layout:** We have revised the layout of the eastern half of the site to increase the land area and green space between the river at its narrowest point and the development. Also, we have shifted Driveway C to the east along Washington Street so the proposed development now has its own independent access from the David's Bridal property. The existing driveway to the David's Bridal parking area will remain, along with its present functionality. However, there will no longer be a connection between that existing use and the proposed development.

   We have also revised the layout of the townhome units to the east of the new Driveway C location. This has allowed for the ability to provide a 50' buffer from the eastern property line of the property, as well as to extend a vegetated buffer along the entire border with the David's Bridal property

2. **Driveways:** We have increased the widths of the main loop of Driveways A, B, and C to 26', to address some Planning Commission members' concerns.

3. **Landscape Plan:** After discussions with both the Planning Commission and Shade Tree Commission, we have revised the proposed planting scheme in the riparian corridor to substitute Native Sycamore for American Sycamore trees, and to add White Oak as an additional native species. Also, plugs of native species material are proposed to be added to create an herbaceous layer within the riparian corridor (these are above and beyond planting requirements) to reflect comments from Shade Tree and Planning Commission members. Finally, consistent with approval by the Shade Tree Commission, a greater number of trees are proposed for the riparian corridor at smaller sizes to increase the health of the overall riparian corridor.

If you have any questions or need additional information, please contact me at (610) 265-8323 or via email at jbannon@navenewell.net.

Respectfully submitted,

James P. Bannon, Jr., PE

JPB/jih

Enclosures

cc (via email): Jim Vesey, Gary Toll, Eli Kahn | 901 Washington Partners, L.P.
Sarah Peck, Justin Moodie | Progressive New Homes

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RIVERplace
901 Washington Street

Preliminary Land Development Waiver Request List

Revised August 20, 2020

Tree Preservation, Protection, and Replacement

~~Ch.55-4.A., 55-4(B)(6)- Tree Survey Plan and Tree Replacement. We request a waiver from this requirement because the existing site is 92% impervious.~~

No longer requested. A tree survey has been performed and tree replacement calculations provided.

1. Ch. 55-4.B(6)(f)[2] – We request a waiver to increase the percentage of shrubs from 20% to 43% for better stabilization of the riparian corridor, to decrease the percentage of trees from 50% to 27%, and to provide replacement trees at the rate of three (3) one inch caliper trees for each (1) three inch caliper tree required in order to improve the viability of trees planted on the riparian slope.

Submission Requirements

Ch. 105-21.B(15)- Preliminary Resource Impact and Conservation Plan: we request a waiver from this requirement because this is a redevelopment of an industrial site and no areas within the limit of disturbance were left undisturbed. The work at this formerly industrial site will performed in accordance with PADEP-approved Act 2 Cleanup Plan.

No longer requested. The required information is shown on the Existing Features Plan, Demolition Plan, and the Existing Resources and Site Analysis Plan.

Streets

2. Ch. 105-30(A) / Ch. 105-69.A - Street standards: We request a waiver from this requirement. We are proposing to extend Washington Street along the frontage of the property. Due to existing site constraints, this new street will have a 43' Ultimate R.O.W. and a 30' cartway. Future right-of-way may be able to be provided by SEPTA on the north side of the property. This design is comparable to that which received approval with the prior office development proposal.

   Driveways A, B, and C are being designed as private drive aisles. The predominant width of these driveways has been increased to 26'. Two subsections of the driveways which are not intended for through traffic are now designed at 24' wide. Regardless, the driveway widths are adequate for a two-way drive aisle.

   ~~Ch. 105-34 - Street grades: where a street grade exceeds 7%, a 50' leveling area shall be provided. We request a waiver from this requirement due to existing conditions. The grade of Driveway C is approximately 7.8% but this is an existing condition that is tied to the existing parking area on the David's Bridal site.~~

   No longer requested. We have revised the layout so the proposed driveways no longer connect to the existing David's Bridal driveway that is above 7%. The grades of the proposed driveways are below 7% so leveling areas are not required

Off-street Parking Facilities

3. Ch. 105-38(F) – angle of perpendicular parking not permitted along public or private streets. We are considering Driveways A, B, and C to be private drive aisles which meet a feasible minimum 24' drive aisle width for two-way aisles. Backing into these

driveways from perpendicular parking will not pose a safety risk given the low volumes of these drive aisles. The added guest parking spaces address concerns raised previously by the Planning Commission.

4. Ch. 105-38.O – Parking areas shall be located at least 10' from buildings or structures. We request a waiver from this requirement to have parking spaces 8.4' from Unit 55, in order to maximize the setback from the river.

Landscaping of Parking Facilities

5. Ch. 105-39.A - all parking areas shall have at least one, three-inch caliper tree for every two parking spaces. Since there is not enough room to fit the required number of shade trees at the parking spaces, we request a waiver to plant excess trees at green courts, near guest parking spaces, and to substitute 2" caliper flowering trees for such shade trees at the rate of 1.5 flowering trees per shade tree which is the same substitution rate as allowed for street tree planting.

Curbs

6. Ch. 105-46- curbs shall be provided: We request a waiver from this requirement to eliminate curbs in certain areas of the site to promote sheet flow runoff of stormwater. Curbs will be provided along the main drive aisles internal to the site, at the ends of some of the courts, and along Washington Street.

Sidewalks and Pedestrian paths

7. Ch. 105-47.B / Ch. 105-73- minimum width of sidewalks shall be 5 feet: We request a waiver from this requirement to provide 4'-wide sidewalks on the north side of Driveway B in order to decrease the impervious coverage of the site as well as to free up more land for landscaping. No waiver requested for sidewalks along Washington Street or Driveway A.

8. Ch. 105-47(k)(1)- in the RDD-1 district, a 25' right-of-way shall be offered to the Township for public riverfront access: We request a modification to this requirement in order to offer an easement for public access and use rather than right-of-way dedication.

Buffers

9. Ch. 105-52.A / 105-52.B(2)-all buffers shall have a minimum width of 50' and buffers are required between land developments. Buffers at or in excess of 50' are now provided on the plan, and depict landscape screening as required. However, due to differences in interpretation as to buffer requirements, we request a waiver from this provision.

Park and recreational Facilities, Land and/or Fees

~~Ch. 105-53.D- dedicate land suitable for park or recreational use: We request an interpretation of this requirement. We are proposing a walking trail along the river and scenic overlooks that will be for public use and we believe these public amenities should satisfy this requirement.~~

No longer requested. It is our understanding that Township does not wish to take dedication of the trail area. The riverfront trail will be covered by an easement for public use and the applicant agrees, in addition, to pay a fee, in an amount to be determined, in lieu of dedicating land.

Resolution 2004-8: Grading, Erosion Control, Stormwater Management, and Best Management Practices

10. I(B)(4)(k)- Edges of slopes shall be 5 feet from property or right-of-way lines: We request a modification of this requirement to allow such grading to occur, specifically at the ROW with the proposed Washington Street where we are seeking to create landscaped berming to provide a visual and audible shield against the active train activity.

11. I(C)(5)- Fills shall not encroach on floodway fringes: We request a waiver from this requirement because the entire property is located within the floodway fringe (i.e. the Floodplain Conservation District) and grading the site will be required.

~~II(C)(8)(d)- Add a note to the drainage plans stating that the site is not underlain by limestone: We request a waiver from this requirement. The proposed rain gardens will have impermeable liners and no infiltration structures are proposed. Soil stiffening techniques will be implemented to ensure adequate subsurface conditions for construction. The property is a brownfield from historic industrial activity.~~
No longer requested. We have added PCSM Note #29 to the PCSM Plan stating that the site is underlain by limestone.

~~II(D)(4)- Detention basins shall provide 24 hour storage for the 1-year, 24-hour storm: We request a waiver from this requirement. The site is adjacent to the Schuylkill River and is in a floodplain and discharging storm water rapidly is advantageous; detaining runoff slowly will have no increased bearing on downstream flooding.~~
No longer requested. We are not proposing any detention basins as part of this project. We are providing rain gardens for water quality and the dewatering calculations for the 1-year storm have been submitted as part of the Preliminary PCSM Report.

12. II(E)(2)(g)(iv)- All storm pipes shall be reinforced concrete pipe: We request a waiver from this requirement to use HDPE storm pipes.

PRELIMINARY
LAND DEVELOPMENT PLANS
FOR

901 Washington Street

SITUATED IN
WHITEMARSH TOWNSHIP,
MONTGOMERY COUNTY, PENNSYLVANIA

OWNER / APPLICANT
901 WASHINGTON PARTNERS, L.P.
120 PENNSYLVANIA AVENUE
MALVERN, PENNSYLVANIA 19355
ATTN: JIM VESEY
610-873-5585

ENGINEER / SURVEYOR / LANDSCAPE ARCHITECT
NAVE NEWELL, INC.
900 WEST VALLEY ROAD
SUITE 1100
WAYNE, PENNSYLVANIA 19087
ATTN: JAMES P. BANNON, PE (LICENSE NO. PE082137)
610-265-8323

WHITEMARSH BOARD OF SUPERVISORS:

THIS PLAN WAS APPROVED BY THE BOARD OF SUPERVISORS OF WHITEMARSH TOWNSHIP AT A MEETING HELD ON THE_____DAY OF_____, 20___.

(CHAIRMAN) *(SECRETARY)*

WHITEMARSH TOWNSHIP ENGINEER:

(ENGINEER) *(DATE)*

MONTGOMERY COUNTY PLANNING COMMISSION CERTIFICATION:

THIS PLAN WAS REVIEWED BY THE MONTGOMERY COUNTY PLANNING COMMISSION ON _____, MCPC FILE NUMBER_____.

(DIRECTOR)

CERTIFICATE OF OWNERSHIP AND ACKNOWLEDGEMENT OF PLAN

ON THIS, THE _____ DAY OF _____, 20____, BEFORE ME, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED _____,

(NAME OF OWNER)

WHO BEING DULY SWORN ACCORDING TO LAW, DEPOSES AND SAYS THAT HE IS THE _____OF_____, THE OWNER OF THE PROPERTY SHOWN ON THIS PLAN, AND THAT HE ACKNOWLEDGES THE SAME TO BE HIS ACT AND PLAN AND DESIRES THE SAME BE RECORDED AS SUCH ACCORDING TO LAW.

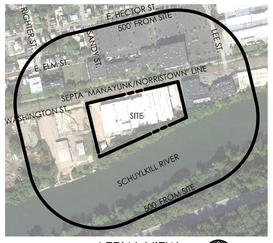
WITNESS MY HAND AND SEAL THE DAY AND DATE ABOVE WRITTEN.

MY COMMISSION EXPIRES:

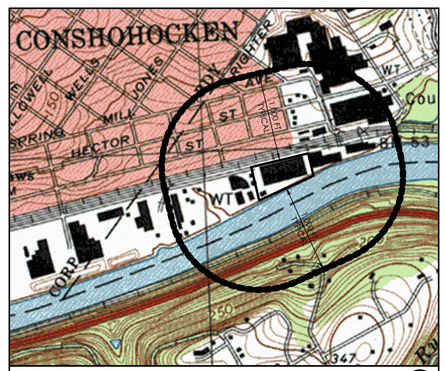
(NOTARY PUBLIC OR OTHER OFFICER)

I, _____,CERTIFY THAT I AM THE_____OF _____ THE OWNER OF THE LAND HEREIN SUBDIVIDED (OR DEVELOPED), AND THAT I DO HEREBY ADOPT THIS PLAN AND DESIRE THE SAME TO BE RECORDED.

(OWNER)



AERIAL VIEW
SCALE: 1" = 500'



SOURCE: NORRISTOWN QUAD
LOCATION: 040°04'23.09"N
075°17'25.72"W

LOCATION MAP
SCALE: 1" = 800'

GENERAL NOTES

1. THIS PLAN IS BASED ON SURVEYS CONDUCTED IN THE FIELD BY NAVE NEWELL, INC., COMPLETED ON DECEMBER 4, 2009, MAY 28, 2019, AND JULY 23, 2019.
2. THIS SURVEY REPRESENTS CONDITIONS AS OF THE DATE OF THE SURVEY EXCEPT SUCH IMPROVEMENTS OR EASEMENTS, IF ANY, THAT MAY BE LOCATED BELOW THE SURFACE OF THE LANDS, ON THE SURFACE OF THE LANDS OR ABOVE THE SURFACE OF THE LANDS AND NOT VISIBLE.
3. TITLE TO THE SUBJECT PROPERTY IS FILED IN THE MONTGOMERY COUNTY COURT HOUSE IN DEED BOOK 3352, PAGE 357 (AS LISTED ON THE EXISTING FEATURES PLAN) IN THE TOWNSHIP OF WHITEMARSH, COUNTY OF MONTGOMERY, PENNSYLVANIA.
4. BEARING BASIS FOR THE SURVEY IS THE RECORD DEED AS REFERENCED IN NOTE 3, ABOVE.
5. NO REVIEW OF THE PROPERTY REGARDING THE PRESENCE OF WETLANDS WAS COMPLETED AS A PART OF THIS SURVEY.
6. NO REVIEW OF THE PROPERTY REGARDING THE PRESENCE OF HAZARDOUS MATERIAL WAS COMPLETED AS PART OF THIS SURVEY.
7. UNIT AND BLOCK NUMBERS REFER TO THE OFFICIAL TAX MAPS OF WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PA.
8. LOCATIONS OF EXISTING UTILITIES AS SHOWN HEREIN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS, PLANS BY OTHERS AND/OR ABOVE GROUND EXAMINATION OF THE SITE. THE COMPLETENESS OR ACCURACY OF THE LOCATIONS ARE NOT GUARANTEED. SHOULD ANY NEW CONSTRUCTION BE PROPOSED, THE CONTRACTOR MUST VERIFY LOCATIONS AND DEPTHS OF ALL UTILITIES BEFORE START OF WORK.
9. PURSUANT TO ACT 187, "PENNSYLVANIA ONE CALL INC." WAS PLACED FOR THIS PROJECT AND ASSIGNED SERIAL NO. 20093340672. INFORMATION THEREBY OBTAINED WAS USED TO ILLUSTRATE EXISTING UTILITIES.
10. PRIOR TO STARTING CONSTRUCTION, ALL UTILITY SERVICES IN THE AREA ARE TO BE LOCATED.
11. SEE ARCHITECTURAL DRAWINGS FOR DETAILED BUILDING AND LIGHTING INFORMATION.
12. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION AND/OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS BY ALL OF THE PERMITTING AUTHORITIES.
13. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY.
14. ALL DIMENSIONS SHOWN ON THESE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. FOR NECESSARY PLAN CHANGES, NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN. ANY SCALED DIMENSIONS FROM THIS PLAN SHALL NOT BE USED FOR CONSTRUCTION WITHOUT CONFIRMATION BY NAVE NEWELL, INC.
15. SOLID WASTE SHALL BE DISPOSED OF BY CONTRACTOR IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
16. ALL EXCAVATED UNSUITABLE MATERIAL MUST BE TRANSPORTED TO AN APPROVED DISPOSAL LOCATION.
17. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS, AS WELL AS ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE.
18. CONTRACTOR SHALL ENSURE COMPLIANCE WITH THE LATEST 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN.
19. THE PERMANENT REMOVAL OF TOPSOIL FROM LAND WITHIN THE TOWNSHIP IS PROHIBITED.

WAIVERS REQUESTED

1. SECTION 55-4B(6)(f)[2] - ALLOWING UP TO 20% OF REPLACEMENT TREES TO BE REPLACED WITH ORNAMENTAL/FLOWERING TREES. IN ORDER TO REPLACE 43% OF REPLACEMENT TREES WITH FLOWERING TREES, DECREASE THE PERCENTAGE OF TREES FROM 50% TO 27%, AND TO PROVIDE REPLACEMENT TREES AT A RATE OF THREE 1-INCH CALIPER TREES FOR EACH 3-INCH CALIPER TREE.
2. SECTION 105-33(A) / 105-69(A)-REQUIRING THAT CERTAIN IMPROVEMENTS BE MADE TO WASHINGTON STREET CONFORMING TO TOWNSHIP STANDARDS, SPECIFICALLY, TO: PROVIDE A RIGHT-OF-WAY DIMENSION OF 56 FEET AND CARTWAY DIMENSION OF 36 FEET. IN ORDER TO PROVIDE FOR 43 FEET OF ULTIMATE RIGHT-OF-WAY AND CARTWAY WIDTH OF 30 FEET.
3. SECTION 105-38(F) - PERPENDICULAR PARKING NOT PERMITTED ALONG PUBLIC OR PRIVATE STREETS. IN ORDER TO PROVIDE PERPENDICULAR PARKING ALONG DRIVEWAYS A, B, AND C, WHICH WE ARE CONSIDERING PRIVATE DRIVE ASLES.
4. SECTION 105-38.O - PARKING AREAS SHALL BE AT LEAST 10' FROM BUILDINGS. IN ORDER TO HAVE PARKING SPACES 8.4' FROM UNIT 55. IN ORDER TO MAXIMIZE THE RIPARIAN BUFFER.
5. SECTION 105-39(A) - REQUIRING PARKING AREAS TO HAVE AT LEAST ONE 3-INCH CALIPER TREE FOR EVERY TWO PARKING SPACES. IN ORDER TO PLANT EXCESS TREES IN THE GREEN AREAS AND TO SUBSTITUTE 1.5 2-INCH FLOWERING TREES FOR EACH SHADE TREE.
6. SECTION 105-46 - REQUIRING CURBS BE PROVIDED. IN ORDER TO ELIMINATE CURBS IN CERTAIN AREAS TO PROMOTE NON -STRUCTURAL STORMWATER MANAGEMENT.
7. SECTIONS 105-47(B) / 105-73 - REQUIRING THAT THE MINIMUM WIDTH OF ALL SIDEWALKS AND PEDESTRIAN PATHS BE 5 FEET. IN ORDER TO PROVIDE A MINIMUM WIDTH OF 4 FEET TO DECREASE IMPERVIOUS COVERAGE. NO WAIVER REQUESTED FOR WASHINGTON STREET OR DRIVEWAY A.
8. SECTION 105-47(K)(1) - REQUIRING A 25' R.O.W. IN THE RDD-1 TO BE OFFERED TO THE TOWNSHIP FOR PUBLIC RIVERFRONT ACCESS. IN ORDER TO OFFER AN EASEMENT FOR PUBLIC ACCESS AND USE RATHER THAN R.O.W. DEDICATION.
9. SECTION 105-55(A) / 105-52.B(2) - REQUIRING BUFFER YARDS WITH A MINIMUM WIDTH OF 50' BETWEEN LAND DEVELOPMENTS. IN ORDER TO PROVIDE REDUCED BUFFERS AS DICTATED BY THE EXISTING SITE CONFIGURATION.
10. RESOLUTION 2004-8(I)B)(4)(K) - REQUIRING THAT EDGES OF SLOPES SHALL BE 5' FROM PROPERTY OR R.O.W. LINES. IN ORDER TO CREATE A LANDSCAPED BERM WITHIN 5' OF THE PROPOSED WASHINGTON STREET R.O.W.
11. RESOLUTION 2004-8(I)C)(5) - FILLS SHALL NOT ENCROACH ON FLOODWAY FRINGES. THE ENTIRE PROPERTY IS WITHIN THE FLOODWAY FRINGE (I.E. THE FLOODPLAIN CONSERVATION DISTRICT) AND GRADING THE SITE IS REQUIRED.
12. RESOLUTION 2004-8(I)E)(2)(g)(iv) - REQUIRING ALL STORM PIPES TO BE REINFORCED CONCRETE PIPE. IN ORDER TO PROVIDE HDPE STORM PIPES.

PLAN INDEX

NO.	DESCRIPTION	START DATE	REVISION DATE
1 OF 23	TITLE SHEET	OCTOBER 3, 2019	AUGUST 20, 2020
2 OF 23	EXISTING FEATURES PLAN	OCTOBER 3, 2019	MAY 15, 2020
3 OF 23	DEMOLITION PLAN	OCTOBER 3, 2019	MAY 15, 2020
4 OF 23	SITE PLAN	OCTOBER 3, 2019	AUGUST 20, 2020
5 OF 23	GRADING PLAN	OCTOBER 3, 2019	AUGUST 20, 2020
6 OF 23	UTILITY PLAN	OCTOBER 3, 2019	AUGUST 20, 2020
7 OF 23	UTILITY PROFILE SHEET	APRIL 29, 2020	AUGUST 20, 2020
8 OF 23	PLAN & PROFILE SHEET - WASHINGTON STREET EXTENSION	OCTOBER 3, 2019	AUGUST 20, 2020
9 OF 23	PLAN & PROFILE SHEET - DRIVEWAY A, DRIVEWAY B, DRIVEWAY C	OCTOBER 3, 2019	AUGUST 20, 2020
10 OF 23	LIGHTING PLAN	OCTOBER 3, 2019	AUGUST 20, 2020
11 OF 23	EROSION & SEDIMENTATION CONTROL PLAN	OCTOBER 3, 2019	AUGUST 20, 2020
12 OF 23	EROSION & SEDIMENTATION CONTROL DETAIL SHEET	OCTOBER 3, 2019	MAY 15, 2020
13 OF 23	EROSION & SEDIMENTATION CONTROL DETAIL SHEET	OCTOBER 3, 2019	MAY 15, 2020
14 OF 23	TREE SURVEY PLAN (PLAN BY OTHERS)	JUNE 2, 2020	--
15 OF 23	PCSM / LANDSCAPE PLAN	OCTOBER 3, 2019	AUGUST 20, 2020
16 OF 23	PCSM / LANDSCAPE DETAIL SHEET	OCTOBER 3, 2019	MAY 15, 2020
17 OF 23	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	OCTOBER 3, 2019	AUGUST 20, 2020
18 OF 23	PCSM CONSTRUCTION DETAIL SHEET	OCTOBER 3, 2019	AUGUST 20, 2020
19 OF 23	PCSM CONSTRUCTION DETAIL SHEET	OCTOBER 3, 2019	AUGUST 20, 2020
20 OF 23	CONSTRUCTION DETAIL SHEET	OCTOBER 3, 2019	MAY 15, 2020
21 OF 23	BOAT LAUNCH EXHIBIT	JULY 22, 2016	AUGUST 20, 2020
22 OF 23	EXISTING RESOURCE AND SITE ANALYSIS PLAN	FEBRUARY 4, 2020	MAY 15, 2020
23 OF 23	ADA DETAIL SHEET	JANUARY 17, 2020	AUGUST 20, 2020

ZONING HEARING BOARD DECISION NO. 2018-26, ISSUED FEBRUARY 25, 2019

1. A SPECIAL EXCEPTION UNDER SECTION 116-166.A(1), TO PERMIT A WATER RELATED USE OF AN EMERGENCY BOAT LAUNCH WAS GRANTED
2. A VARIANCE FROM §116-165 TO PERMIT THE PROPOSED STRUCTURES WITHIN THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT WAS GRANTED.
3. A VARIANCE FROM §116-280.H TO PERMIT AN EXCLUSIVELY RESIDENTIAL DEVELOPMENT, RATHER THAN THE MINIMUM OF TWO PERCENT (2%) OF THE FOOTPRINT AREA OF NONRESIDENTIAL USE REQUIRED WAS GRANTED
4. VARIANCES FROM §116-281.A(7)(a), TO PERMIT A BUILDING HEIGHT OF FOUR (4) HABITABLE STORIES ABOVE THE FLOODPLAIN, RATHER THAN THE MAXIMUM BUILDING HEIGHT PERMITTED FOR A SINGLE-FAMILY HOUSE OF THREE (3) HABITABLE STORIES ABOVE THE FLOODPLAIN WAS GRANTED
5. A VARIANCE FROM §116-281.A(9) TO PERMIT THE PROPOSED AREA OF RIVERFRONT OPEN SPACE TO BE INCLUDED IN THE CALCULATION OF TOTAL TRACT AREA WAS GRANTED.
6. A VARIANCE FROM §116-284.A. TO PERMIT A REDUCTION IN THE REQUIRED RIVERFRONT ARE TO NOT LESS THAN 45' IN WIDTH, RATHER THAN THE 100' TO 150' REQUIRED WAS GRANTED
7. A VARIANCE FROM §116-281.A(8), TO PERMIT IMPERVIOUS COVERAGE IN EXCESS OF THE PERMITTED 75% WAS NOT REQUIRED

THIS DECISION IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. ALL USE AND DEVELOPMENT PERMITTED BY THIS DECISION SHALL SUBSTANTIALLY CONFORM TO THE EXHIBITS (EXCLUDING THE CONCEPTUAL DENSITY YIELD PLAN MARKED AS EXHIBIT A-13) AND TESTIMONY PRESENTED BY THE APPLICANT, UNLESS INCONSISTENT WITH ANY SPECIFIC CONDITIONS IMPOSED BY THIS BOARD, IN WHICH CASE THESE SPECIFIC CONDITIONS SHALL TAKE PRECEDENCE.
2. THE APPLICANT SHALL APPLY FOR AND OBTAIN ALL PERMITS REQUIRED BY THE TOWNSHIP CODES IN A TIMELY MANNER.
3. THE APPLICANT SHALL COMPLY WITH ALL REQUIREMENTS OF THE TOWNSHIP RELATED TO THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, UNLESS WAIVED BY THE BOARD OF SUPERVISORS.
4. THE APPLICANT SHALL COMPLY WITH ALL REQUIREMENTS OF THE TOWNSHIP AND THE FIRE MARSHAL WITH RESPECT TO IMPLEMENTATION AND MODIFICATION OF THE EMERGENCY ACTION PLAN FOR THE PROPERTY. A COPY OF THE EMERGENCY ACTION PLAN SHALL BE PROVIDED BY THE HOMEOWNER'S ASSOCIATION TO EVERY UNIT OWNER UPON THE PURCHASE OF EACH UNIT.
5. THE APPLICANT SHALL PAVE, AND OFFER FOR DEDICATION TO THE TOWNSHIP, THE WASHINGTON STREET EXTENSION AS REQUIRED BY THE TOWNSHIP.
6. THE APPLICANT SHALL CONSTRUCT, INSTALL, AND OFFER FOR DEDICATION TO THE TOWNSHIP, THE PUBLIC TRAIL. THE ACCESS PATHS LEADING TO SUCH TRAIL, AND THE PUBLIC AMENITIES (SCENIC OVERLOOKS), AND EMERGENCY BOAT RAMP AS REQUIRED BY THE ORDINANCE AND AS DIRECTED BY THE TOWNSHIP. IN THE EVENT THAT THE TOWNSHIP ELECTS NOT TO ACCEPT DEDICATION OF SOME OR ALL OF THE SAME, THE APPLICANT SHALL RECORD EASEMENTS GRANTING PUBLIC ACCESS TO SAME. IN EITHER EVENT, THE APPLICANT SHALL MAINTAIN SAME IN GOOD ORDER AT ALL TIMES.
7. THE APPLICANT SHALL PROVIDE TO THE TOWNSHIP A COPY OF THE PA DEP ACT 2 LETTER FOR THE SITE.
8. THE DEVELOPMENT SHALL NOT EXCEED SIXTY-TWO (62) SINGLE-FAMILY ATTACHED DWELLINGS UNITS (TOWNHOMES).

Nave NEWELL
Where Ideas Get Down to Earth
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p. 610-265-8323 f. 610-265-8299
www.navenewell.com

REVISIONS

date:	no.	description:	ck'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
6/10/2020	3	PER TOWNSHIP PC AND SHADE TREE COMM. COMMENTS	JPB	JPB
8/20/2020	4	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JPB

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON, JR. No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: TITLE SHEET

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	DWN
date: 10/3/19	chk'd by: JPB
scale: AS NOTED	approv. by: JPB
sheet no. 1 of 23	

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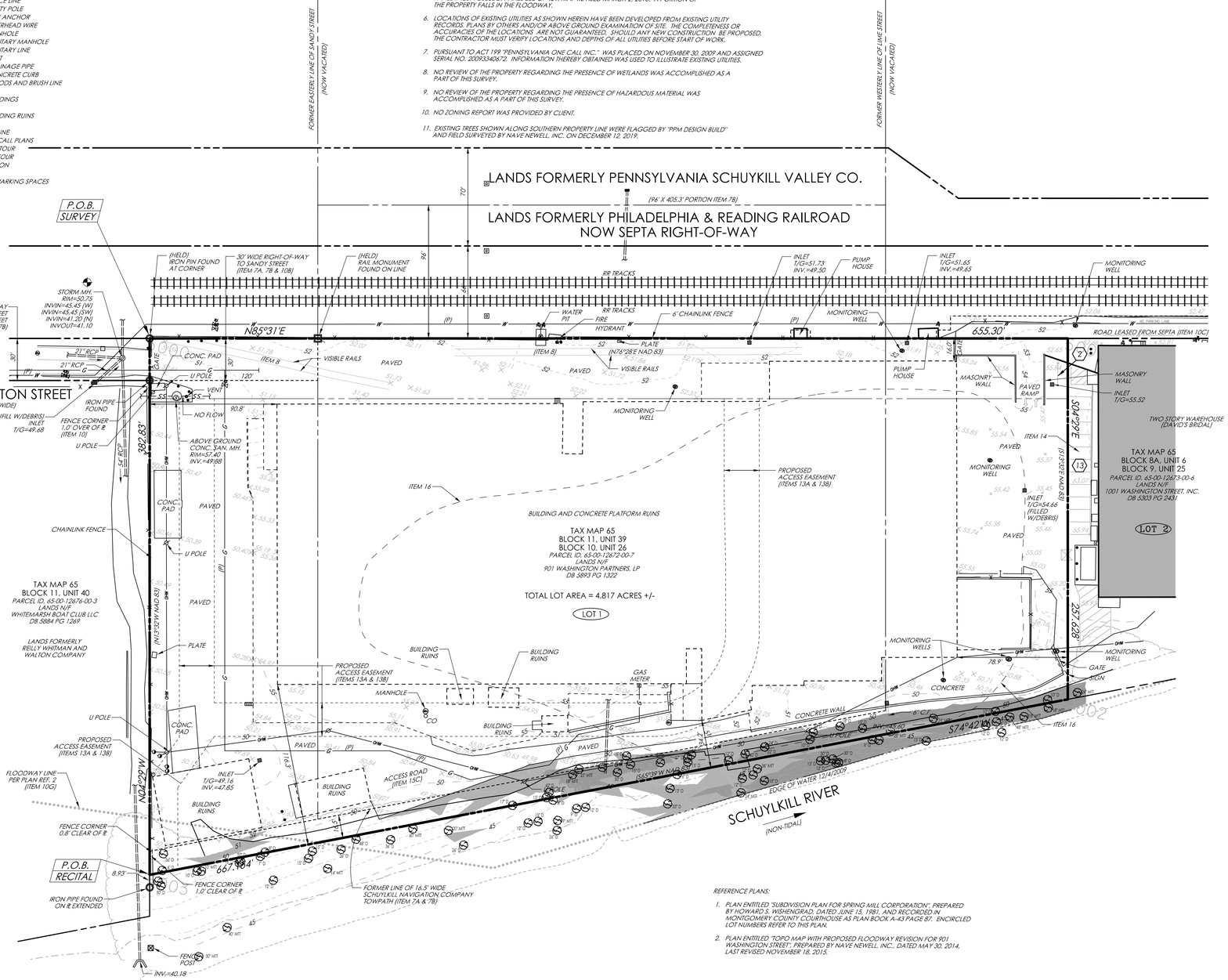
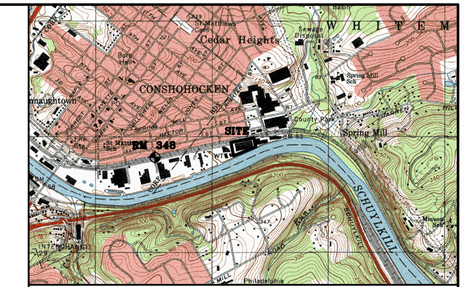
LEGEND

- PROJECT/SITE BENCHMARK
- PROPERTY LINE
- LEGAL RIGHT-OF-WAY
- EASEMENT LINE
- BUILDING SETBACK LINE
- CO CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING WATER MANHOLE
- W EXISTING WATERLINE
- EXISTING WATER VALVE
- EXISTING MONITORING WELL
- EXISTING BOLLARD
- EXISTING SIGN
- X EXISTING FENCE LINE
- EXISTING UTILITY POLE
- EXISTING GUY ANCHOR
- OHW EXISTING OVERHEAD WIRE
- EXISTING MANHOLE
- EXISTING SANITARY MANHOLE
- SS EXISTING SANITARY LINE
- EXISTING INLET
- EXISTING DRAINAGE PIPE
- EXISTING CONCRETE CURB
- EXISTING WOODS AND BRUSH LINE
- EXISTING BUILDINGS
- EXISTING BUILDING RUINS
- FLOODWAY LINE
- (P) PER PA ONE CALL PLANS
- 52 MAJOR CONTOUR
- MINOR CONTOUR
- x55.39 SPOT ELEVATION
- (XX) NUMBER OF PARKING SPACES

NOTES:

1. THIS PLAN IS BASED ON A SURVEY CONDUCTED IN THE FIELD BY NAVE NEWELL INC. COMPLETED ON DECEMBER 4, 2009. LAST REVISITED JULY 23, 2019.
2. THIS SURVEY REPRESENTS CONDITIONS AS OF THE DATE OF THE SURVEY EXCEPT SUCH IMPROVEMENTS OR EASEMENTS, IF ANY, THAT MAY BE LOCATED BELOW THE SURFACE OF THE LANDS, ON THE SURFACE OF THE LANDS OR ABOVE THE SURFACE OF THE LANDS AND NOT VISIBLE.
3. BEARING BASIS FOR THE SURVEY IS THE RECORD DEED AS RECORDED IN DEED BOOK 3352, PAGE 357
4. VERTICAL DATUM IS NGVD 1929. PROJECT BENCHMARK IS RM 348 (ALSO KNOWN AS KV1839). ELEV. - 55.36. LOCATED AT CROSSING OF RAILROAD AND CHERRY STREET, SET IN TOP OF NORTHWEST CORNER OF CONCRETE FOUNDATION OF MIDDLE ONE OF THREE CATENARY POLES NUMBER 12/23.
5. PROPERTY AS SHOWN IS IN ZONE "AE" (BASE FLOOD ELEVATIONS DETERMINED) AS DEPICTED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FIRM FLOOD INSURANCE RATE MAP COMMUNITY PANEL #42091C0335G. PANEL 335 OF 451. MAP REVISED MARCH 2, 2016. A PORTION OF THE PROPERTY FALLS IN THE FLOODWAY.
6. LOCATIONS OF EXISTING UTILITIES AS SHOWN HEREIN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS, PLANS BY OTHERS AND/OR ABOVE GROUND EXAMINATION OF SITE. THE COMPLETENESS OR ACCURACIES OF THE LOCATIONS ARE NOT GUARANTEED. SHOULD ANY NEW CONSTRUCTION BE PROPOSED, THE CONTRACTOR MUST VERIFY LOCATIONS AND DEPTHS OF ALL UTILITIES BEFORE START OF WORK.
7. PURSUANT TO ACT 199 "PENNSYLVANIA ONE CALL INC." WAS PLACED ON NOVEMBER 30, 2009 AND ASSIGNED SERIAL NO. 20093340672. INFORMATION THEREBY OBTAINED WAS USED TO ILLUSTRATE EXISTING UTILITIES.
8. NO REVIEW OF THE PROPERTY REGARDING THE PRESENCE OF WETLANDS WAS ACCOMPLISHED AS A PART OF THIS SURVEY.
9. NO REVIEW OF THE PROPERTY REGARDING THE PRESENCE OF HAZARDOUS MATERIAL WAS ACCOMPLISHED AS A PART OF THIS SURVEY.
10. NO ZONING REPORT WAS PROVIDED BY CLIENT.
11. EXISTING TREES SHOWN ALONG SOUTHERN PROPERTY LINE WERE FLAGGED BY "PPM DESIGN BUILD" AND FIELD SURVEYED BY NAVE NEWELL INC. ON DECEMBER 12, 2019.





SCHEDULE C - DESCRIPTION AND RECITAL

ALL THAT CERTAIN LOT OR PIECE OF GROUND WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED SITUATE IN WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA, BOUNDED AND DESCRIBED ACCORDING TO A SUBDIVISION PLAN PREPARED FOR SPRING MILL CORPORATION MADE BY HOWARD S. WISHENGRAD, REGISTERED SURVEYOR AND PROFESSIONAL ENGINEER DATED 6-15-1981 AND RECORDED IN PLAN BOOK A-43 PAGE 87 AS FOLLOWS TO WIT:

BEGINNING AT A POINT A CORNER OF LANDS NOW OR LATE OF REILLY WHITEMAN AND WALTON CO., THENCE FROM SAID POINT OF BEGINNING AND ALONG AFORESAID LANDS NORTH 04 DEGREES 29 MINUTES 00 SECONDS WEST AND CROSSING A CERTAIN 30.00 FEET WIDE RIGHT-OF-WAY TO SANDY STREET AND CHAIN LINK FENCE A DISTANCE OF 382.83 FEET TO A POINT, THENCE EXTENDING FROM SAID POINT NORTH 85 DEGREES 31 MINUTES 00 SECONDS EAST AND PARTLY ALONG A ROAD MARKED PERMANENTLY LEASED FROM SEPTA A DISTANCE OF 655.30 FEET TO A POINT A CORNER OF LOT 2 AS SHOWN ON ABOVE PLAN, THENCE ALONG SAID LOT SOUTH 04 DEGREES 29 MINUTES 00 SECONDS EAST, PASSING PARTLY THROUGH SCHUYLKILL RIVER 257.628 FEET; THENCE EXTENDING FROM SAID POINT SOUTH 74 DEGREES 42 MINUTES 00 SECONDS WEST RE-CROSSING THE AFORESAID RIVER 667.154 FEET TO THE FIRST MENTIONED POINT AND PLACE OF BEGINNING.

CONTAINING IN AREA 4.817 ACRES MORE OR LESS.

BEGING LOT 1 AS SHOWN ON ABOVE PLAN.

TAX ID / PARCEL NO. 65-00-12672-00-7

BEING PART OF THE SAME PREMISES WHICH SCHUYLKILL PROPERTIES, INC., BY DEED DATED 4/13/1965 AND RECORDED 4/14/1965 IN MONTGOMERY COUNTY IN DEED BOOK 3352 PAGE 357 CONVEYED UNTO SPRING MILL CORPORATION, A PENNSYLVANIA CORPORATION, IN FEE.

DESCRIPTION OF PROPERTY
ALL THAT CERTAIN TRACT OR PARCEL OF LAND SITUATE IN THE TOWNSHIP OF WHITEMARSH, THE COUNTY OF MONTGOMERY AND THE COMMONWEALTH OF PENNSYLVANIA, BEING MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, SAID POINT BEING A FOUND IRON PIN ON THE SOUTHERLY LINE OF A SEPTA RIGHT-OF-WAY (FORMERLY PHILADELPHIA AND READING RAILROAD), AND AT THE NORTHEASTERLY CORNER OF THE EASTERLY TERMINUS OF WASHINGTON STREET (30 FEET WIDE), AND FROM SAID BEGINNING POINT RUNS; THENCE, ALONG SAID SEPTA RIGHT-OF-WAY LINE,

1. NORTH 85° 31' EAST, CROSSING A FOUND RAILROAD MONUMENT AT A DISTANCE OF 120.00 FEET AT THE INTERSECTION WITH THE FORMER EASTERLY LINE OF SANDY STREET (NOW VACATED), A TOTAL DISTANCE OF 655.30 FEET TO A POINT, SAID POINT BEING A COMMON CORNER WITH LANDS N/F 1001 WASHINGTON STREET, INC. (BLOCK 9 UNIT 25), ALSO BEING LOT 2 ON THE PLAN REFERENCED HEREIN; THENCE, ALONG THE LINE COMMON WITH SAID LANDS,
2. SOUTH 04° 29' EAST, A DISTANCE OF 257.628 FEET TO A POINT ON THE NORTHWESTERLY SIDE OF THE SCHUYLKILL RIVER; THENCE, ALONG SAID SIDE OF THE SCHUYLKILL RIVER,
3. SOUTH 74° 42' WEST, A DISTANCE OF 667.154 FEET TO A POINT ON THE LINE COMMON WITH LANDS N/F WHITEMARSH BOAT CLUB, LLC (BLOCK 11 UNIT 40), FORMERLY REILLY, WHITEMAN AND WALTON CO., SAID POINT BEING LOCATED 8.93 FEET NORTH OF A FOUND IRON PIN; THENCE, ALONG SAID COMMON LINE,
4. NORTH 04° 29' WEST, CROSSING AN IRON PIPE FOUND 30.00 FEET FROM THE TERMINUS OF THIS LINE AT THE INTERSECTION WITH THE SOUTHERLY LINE OF WASHINGTON STREET, A TOTAL DISTANCE OF 382.83 FEET TO THE POINT AND PLACE OF BEGINNING.

SAID ABOVE DESCRIBED TRACT OR PARCEL OF GROUND BEING KNOWN AS LOT 1 ON A CERTAIN SUBDIVISION PLAN PREPARED FOR SPRING MILL CORPORATION DATED 6-15-1981 AND RECORDED IN PLAN BOOK A-43 PAGE 87.

TITLE EXCEPTIONS:

COMMITMENT FOR TITLE INSURANCE PREPARED BY TRIDENT LAND TRANSFER COMPANY LP,
COMMITMENT/FILE NUMBER: 19PA05887
ISSUING OFFICE FILE NO.: 19PA05887
COMMITMENT DATE: JULY 5, 2019
RECORD OWNER: 901 WASHINGTON PARTNERS, L.P., A PENNSYLVANIA LIMITED PARTNERSHIP
PROPOSE INDURED:
VESTING DEEDS: DEED BOOK 5893 PAGE 1322

TRACT OF LAND SUBJECT TO THE FOLLOWING EASEMENTS, RESTRICTIONS AND ENCUMBRANCES AS CONTAINED IN THE REFERENCED REPORT OF TITLE. EXCEPTION DESIGNATIONS USED HEREIN REFER TO THE DESIGNATIONS AS FOUND IN SCHEDULE B - SECTION II EXCEPTIONS FROM COVERAGE:

ITEM DESCRIPTION
6. RIGHTS OF INGRESS AND REGRESS OVER PREMISES AS IN DEED 280 AND PG 66 AND DEED BOOK 305 PAGE 57.
   A. DB 280 PG 66 - LOCATION INDETERMINATE - NOT PLOTABLE.
   B. DB 305 PG 57 - LOCATION INDETERMINATE - NOT PLOTABLE.
7. COVENANTS AS IN DEED BOOK 1091 PAGE 299 AND DEED BOOK 1105 PAGE 69.
   A. DB 1091 PG 299 - SHOWN ON PLAN.
   B. DB 1105 PG 69 - SHOWN ON PLAN.
8. EASEMENT OF RAILROAD SIDINGS WHICH EXTENDS INTO PREMISES - SHOWN ON PLAN.
9. RIGHTS GRANTED TO PECO ENERGY COMPANY IN DEED BOOK 5097 PAGE 1900 - NOT PLOTABLE - BLANKET IN NATURE.
10. CONDITIONS DISCLOSED BY SURVEY MADE BY HOWARD S. WISHENGGRAD, REGISTER SURVEYOR, PROFESSIONAL ENGINEER DATED 6-15-81 AND RECORDED IN PLAN BOOK A-43 PAGE 87:
   A. REQUIREMENT OF BUILDING SET BACK LINES - NO ZONING REPORT WAS PROVIDED BY CLIENT.
   B. ACCESS RIGHT OF WAY TO SANDY STREET ON NORTHWESTERLY SIDE OF PREMISES B - SHOWN ON PLAN.
   C. ROAD MARKED PERMANENTLY LEASED FROM SEPTA ADJACENT TO NORTHWEST OF PREMISES AND ALONG LOT 2 TO LEE STREET - NOTED ON PLAN.
   D. ACCESS ROAD ON SOUTHEASTERLY SIDE OF PREMISES, SCHUYLKILL RIVER FLOWS THROUGH PREMISES - NOTED ON PLAN.
   E. VARIOUS PARKING SPACES - SHOWN ON PLAN.
   F. FENCES - SHOWN ON PLAN.
   G. 100 YEAR FLOOD PLAIN AREA - FLOODWAY LINE SHOWN ON PLAN.
11. POSSIBLE RIGHTS OF THE UNITED STATED OF AMERICA, THE COMMONWEALTH OF PENNSYLVANIA, THE PUBLIC AND OTHER RIPARIAN OWNERS BETWEEN HIGH AND LOW WATER MARKS OF SCHUYLKILL RIVER - APPROXIMATE LOCATION EDGE OF WATER SHOWN ON PLAN.
12. SUBJECT TO LAWS AND AUTHORITY OF THE FEDERAL AND STATE GOVERNMENT, THEIR POLITICAL SUBDIVISIONS AND AGENCIES, TO REGULATE COMMERCE AND NAVIGATION OVER PART OF THE PREMISES EXTENDING BEYOND THE HIGH WATER MARK OF SCHUYLKILL RIVER AND TO EXERT GOVERNMENTAL TITLE AND OWNERSHIP IN THE AREA LYING BEYOND THE ORIGINAL LOW WATER MARK - APPROXIMATE LOCATION EDGE OF WATER SHOWN ON PLAN.
13. DEED OF EASEMENT AS IN DEED BOOK 5986 PAGE 2145 AND DEED BOOK 5986 PAGE 1824.
   A. DB 5986 PG 2145 - SHOWN ON PLAN.
   B. DB 5986 PG 1824 - SHOWN ON PLAN.
14. RECIPROCAL EASEMENT AGREEMENT AS IN DEED BOOK 5967 PAGE 411 - PARKING SPACES SHOWN ON PLAN.
15. CONDITIONS RELATING TO A CERTAIN LEASE (NOT FOUND) AS SET FORTH IN MORTGAGE BOOK 9047 PAGE 385. - NOT A SURVEY ISSUE.
16. ENVIRONMENTAL COVENANTS AGREEMENT IN DEED BOOK 6142 PAGE 763 - APPROXIMATE LOCATION SHOWN ON PLAN .

REFERENCE PLANS:

1. PLAN ENTITLED "SUBDIVISION PLAN FOR SPRING MILL CORPORATION", PREPARED BY HOWARD S. WISHENGRAD, DATED JUNE 15, 1981, AND RECORDED IN MONTGOMERY COUNTY COURTHOUSE AS PLAN BOOK A-43 PAGE 87. ENCIRCLED LOT NUMBERS REFER TO THIS PLAN.
2. PLAN ENTITLED "TOPO MAP WITH PROPOSED FLOODWAY REVISION FOR 901 WASHINGTON STREET", PREPARED BY NAVE NEWELL, INC., DATED MAY 30, 2014, LAST REVISED NOVEMBER 18, 2015.

PROJECT SERIAL NO. 20093340672
CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE – STOP CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

STEEP SLOPES LEGEND
- EXISTING STEEP SLOPES (15%-25%)
- EXISTING STEEP SLOPES (OVER 25%)

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft

K:\09Proj\09134\CAD\Plan_Set\9134-2Exst.dgn
8/20/2020 3:51:39 PM
40.000 ft / in.
USER: cwhitty

Nave NEWELL
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date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH

REVISIONS

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL LAND SURVEYOR MATTHEW D. KELLY No. SU075449

MATTHEW D. KELLY
Professional Land Surveyor
Pennsylvania License No. SU-075449

DRAWING NAME: EXISTING FEATURES PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	JEL
date: 10/3/19	chk'd by: MDK
scale: 1" = 40'	approv. by: MDK
sheet no. 2 of 23	

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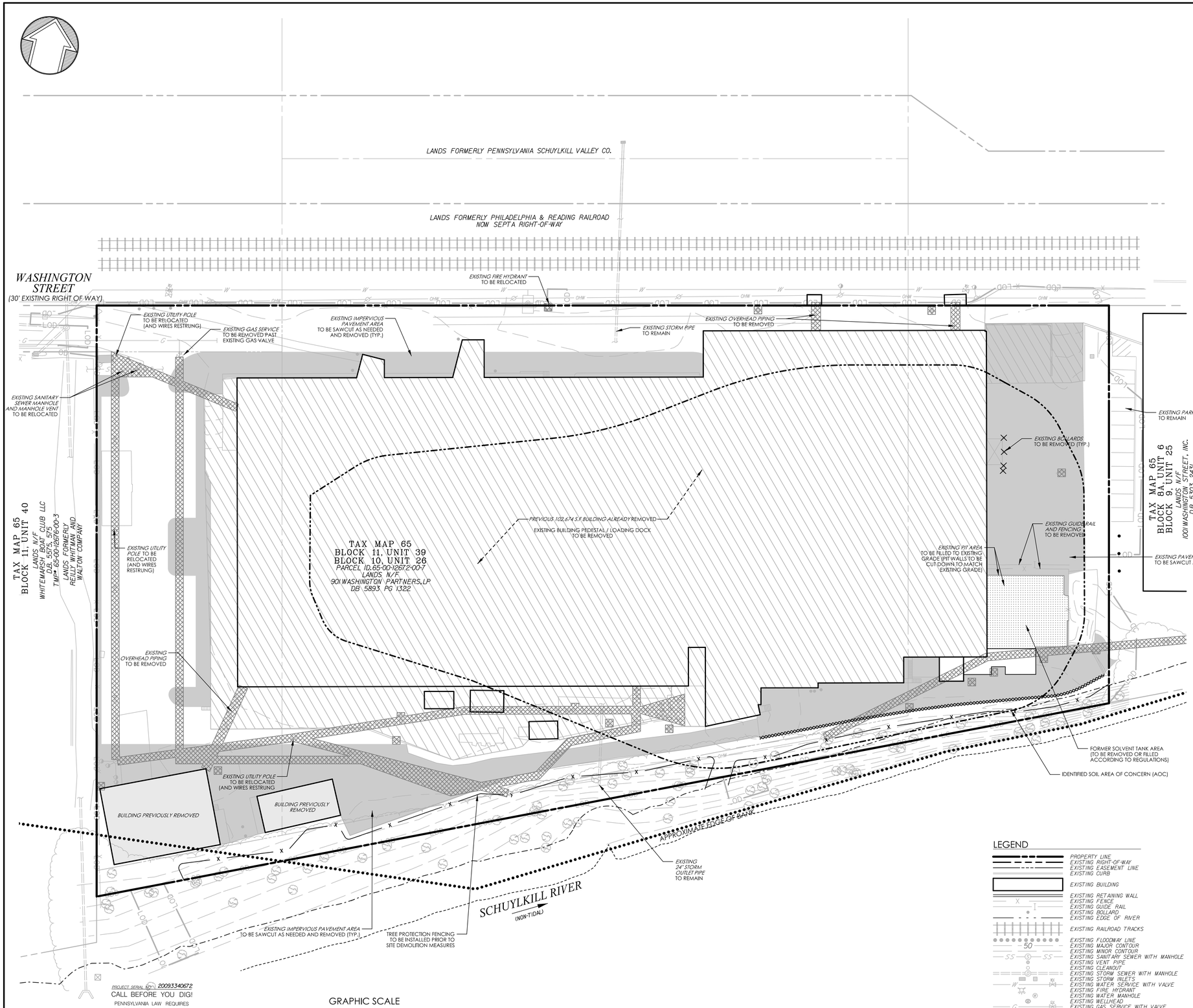

DEMOLITION NOTES:

1. LOCATIONS OF EXISTING UTILITIES AS SHOWN HEREIN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS, PLANS BY OTHERS. ABOVE GROUND EXAMINATION OF THE SITE AND/OR PRIVATE UTILITY LOCATION COMPANY. THE COMPLETENESS OR ACCURACY OF THE LOCATIONS ARE NOT GUARANTEED. THE CONTRACTOR MUST VERIFY LOCATIONS AND DEPTHS OF ALL UTILITIES BEFORE START OF WORK.
2. PRIOR TO STARTING CONSTRUCTION, ALL UTILITY SERVICES IN THE AREA ARE TO BE LOCATED, THE USER NOTIFIED, AND MEASURES TAKEN TO PROTECT THE LINES IN ACCORDANCE WITH PA ACT 287, AS AMENDED. CONTRACTORS ARE TO IMMEDIATELY NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM THE PLAN INFORMATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT PA "ONE-CALL" AT LEAST 72 HOURS TO ANY EXCAVATION OR DEMOLITION ON-SITE.
3. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE START OF DEMOLITION.
4. THE EXISTING ASPHALT TO BE RESURFACED SHALL BE PATCHED, FILLED AND/OR REPAIRED AS NECESSARY PRIOR TO THE APPLICATION OF THE WEARING COURSE.
5. IN ALL AREAS WHERE FINISHED PAVING IS TO BE PROVIDED, THE CONTRACTOR IS TO BREAK APART EXISTING ASPHALT TO EXISTING SUBBASE STONE. FOLLOWING MILLING, THE EXPOSED SUBGRADE SHALL BE INSPECTED FOR ITS SUITABILITY AS PAVEMENT SUBBASE. IN AREAS WHERE EXISTING ASPHALT WILL BE CONVERTED TO GREEN SPACE OR BUILDING, THE CONTRACTOR IS TO MILL OUT THE EXISTING ASPHALT FOR ITS REUSE ON-SITE AS SUBBASE IN PROPOSED ASPHALT PAVEMENT AREAS. ALL FILL MEASURES TO BE COMPACTED IN ACCORDANCE WITH THE GEOTECHNICAL SPECIFICATIONS.
6. WHERE IMPROVEMENTS ARE PROPOSED TO TIE INTO EXISTING FEATURES, THE EXISTING FEATURES SHALL BE FIELD VERIFIED FOR ELEVATION AND LOCATION. IF FIELD LOCATED DATA IS DIFFERENT THAN THE DATA CONTAINED WITH THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL NOTIFY NAVE NEWELL, INC. PRIOR TO ANY DESIGN CHANGES.
7. THE PAVEMENT SECTION AREA DELINEATED ON THE PLANS TO BE MODIFIED SHALL BE USED AS GUIDANCE. EXPAND OR CONTRACT THIS AREA AT THE TIE IN LOCATION TO EXISTING PAVEMENT, SIDEWALK, DRIVEWAY APRONS, AND LOADING AREAS AS THE FIELD CONDITIONS WARRANT. ALL PAVEMENT SEAMS SHALL BE SEALED.
8. SITE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE DISCONNECTION, ABANDONMENT, RELOCATION AND/OR REMOVAL OF ALL APPLICABLE ON-SITE UTILITIES, IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS AS WELL AS ANY REQUIREMENTS FROM THE RELEVANT UTILITY COMPANY.
9. ALL DEMOLITION SHALL BE PERFORMED BY A QUALIFIED, LICENSED CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
10. THIS PLAN IS NOT INTENDED TO DEPICT ALL FACETS AND ITEMS TO BE ADDRESSED DURING THE COURSE OF DEMOLITION ACTIVITIES. THIS PLAN IS INTENDED TO REPRESENT ONLY THE READILY VISIBLE, EXISTING IMPROVEMENTS ON-SITE. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE CONDITION PRIOR TO FINALIZING HIS BID AND PROVIDE ALL NECESSARY DEMOLITION SERVICES REQUIRED TO COMPLETE THE SCOPE OF WORK OUTLINED ON THESE DRAWINGS. UPON INITIATION OF DEMOLITION, CONTRACTOR SHALL ADVISE THE ENGINEER OF RECORD IMMEDIATELY, SHOULD CONFLICTS ARISE IN THE FIELD.
11. CONTRACTOR IS TO EXERCISE CARE WHEN REMOVING PAVEMENT OVER EXISTING PIPES TO REMAIN. DURING CONSTRUCTION, CONTRACTOR SHALL TAKE STEPS TO MAINTAIN ADEQUATE COVER OVER ALL EXISTING PIPES TO REMAIN AND TO PREVENT CONSTRUCTION TRAFFIC FROM DAMAGING SAID PIPES. IF THE EXISTING PIPES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM IN KIND AT THE CONTRACTORS COST.
12. CONTRACTOR SHALL USE EXTREME CAUTION WHEN REMOVING EXISTING UTILITIES TO PREVENT ANY DISTURBANCE TO UTILITIES THAT ARE TO REMAIN. IF SAID REMAINING UTILITY IS DAMAGED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILITY REPAIRS.
13. ALL UTILITIES TO BE ABANDONED AND LEFT IN PLACE SHALL BE PLUGGED AND FILLED WITH FLOWABLE CONCRETE.
14. ALL EXCAVATED UNSUITABLE MATERIAL MUST BE TRANSPORTED TO AN APPROVED DISPOSAL LOCATION.
15. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS, AS WELL AS ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE.
16. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.

UTILITY NOTES:
THE SITE CONTRACTOR WILL NEED TO FIELD VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES.
THE FOLLOWING UTILITIES HAVE FACILITIES IN THIS AREA:

A.) BOROUGH OF CONSHOHOCKEN
400 FAYETTE STREET, SUITE 200
CONSHOHOCKEN, PA 19428
(610) 828-1092

B.) PECO ENERGY
2301 MARKET STREET
PHILADELPHIA, PA 19101
c\o STS, LLC
(610) 292-8057

C.) AQUA, PA
762 W. LANCASTER AVENUE
BRYN MAWR, PA 19010
(610) 525-1400

D.) VERIZON
1350 WELSH ROAD
NORTH WALES, PA 19454

E.) WHITEMARSH TOWNSHIP
616 GERMANTOWN PIKE
LAFAYETTE HILL, PA 19444
(610) 825-3535

IN ADDITION TO THE ABOVE UTILITIES, THE SITE CONTRACTOR SHALL CONTACT THE PENNSYLVANIA ONE CALL SYSTEM 1-800-242-1776 TO INSURE ALL UNDERGROUND USERS ARE NOTIFIED OF THIS WORK AND ARE ABLE TO CONFIRM THE EXACT LOCATION AND ELEVATION OF THEIR FACILITIES.

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT LINE
- EXISTING CURB
- EXISTING BUILDING
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING GUIDE RAIL
- EXISTING BOLLARD
- EXISTING EDGE OF RIVER
- EXISTING RAILROAD TRACKS
- EXISTING FLOODWAY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SANITARY SEWER WITH MANHOLE
- EXISTING VENT PIPE
- EXISTING CLEANOUT
- EXISTING STORM SEWER WITH MANHOLE
- EXISTING STORM INLETS
- EXISTING WATER SERVICE WITH VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER MANHOLE
- EXISTING WELLHEAD
- EXISTING GAS SERVICE WITH VALVE
- EXISTING GAS METER
- EXISTING OVERHEAD ELECTRIC WIRE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING OVERHEAD UTILITY PIPING
- EXISTING SEALED MANHOLE (UTILITY UNKNOWN)
- IDENTIFIED SOIL AREA OF CONCERN (AOC)

PROPOSED TREE PROTECTION FENCING
EXISTING BUILDING PEDESTAL / LOADING DOCK TO BE REMOVED
EXISTING IMPERVIOUS SURFACES TO BE REMOVED
EXISTING PIT AREA TO BE FILLED, EXISTING WALL SURROUNDS CUT TO GRADE
EXISTING CURBING, RETAINING WALLS TO BE REMOVED
EXISTING UTILITIES TO BE REMOVED
EXISTING FEATURE TO BE REMOVED
EXISTING PAVEMENT TO REMAIN

DEMOLITION KEY

- PROPOSED TREE PROTECTION FENCING
- EXISTING BUILDING PEDESTAL / LOADING DOCK TO BE REMOVED
- EXISTING IMPERVIOUS SURFACES TO BE REMOVED
- EXISTING PIT AREA TO BE FILLED, EXISTING WALL SURROUNDS CUT TO GRADE
- EXISTING CURBING, RETAINING WALLS TO BE REMOVED
- EXISTING UTILITIES TO BE REMOVED
- EXISTING FEATURE TO BE REMOVED
- EXISTING PAVEMENT TO REMAIN

PROJECT SERIAL NO. 20093340672
CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE – STOP CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft

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900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p. 610-265-8323 f. 610-265-8299
www.navenewell.com

REVISIONS

date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JAMES P. BANNON ENGINEER No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: DEMOLITION PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	JPB
date: 10/3/19	chk'd by: JPB
scale: 1" = 30'	approv. by: JPB
sheet no.	

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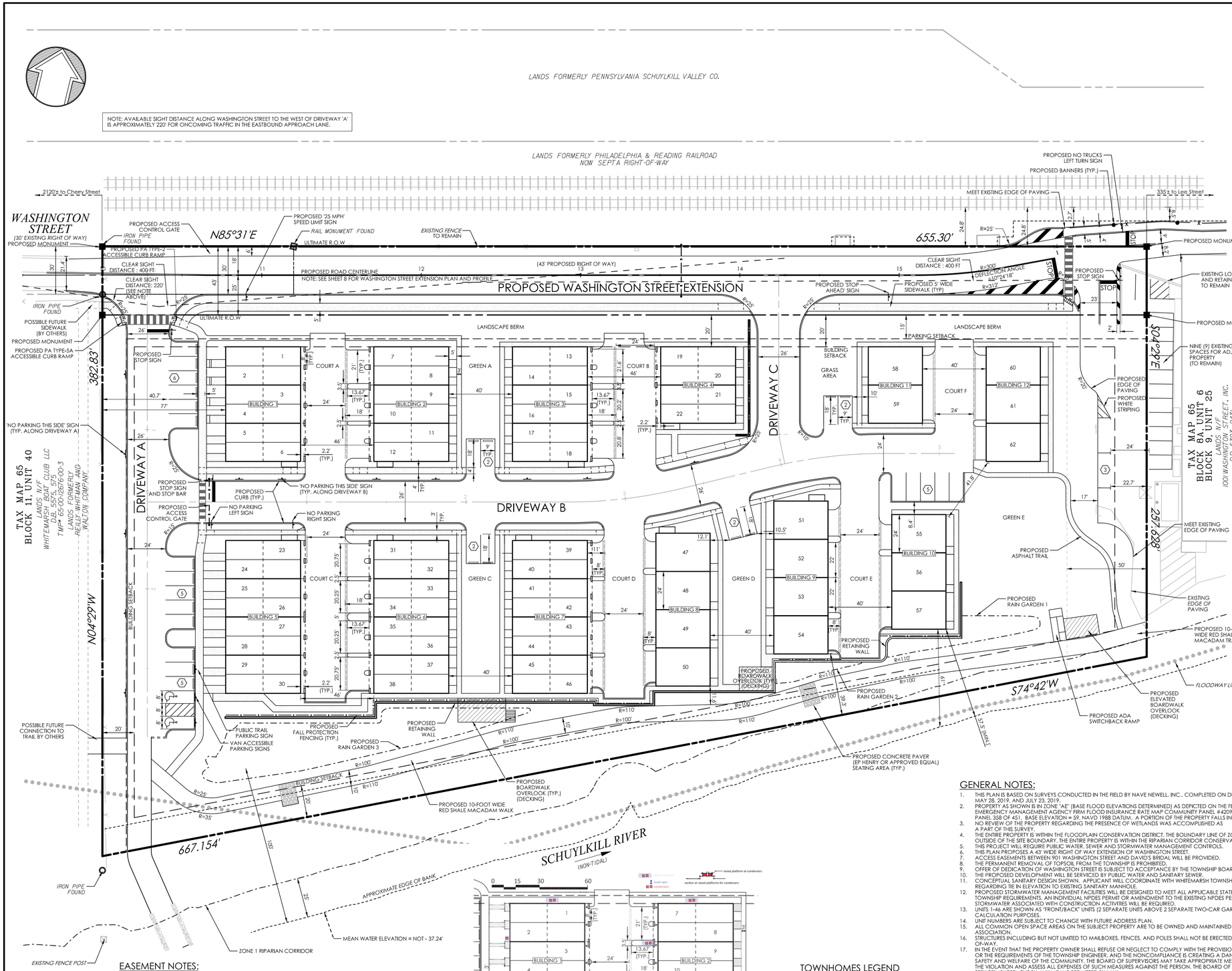

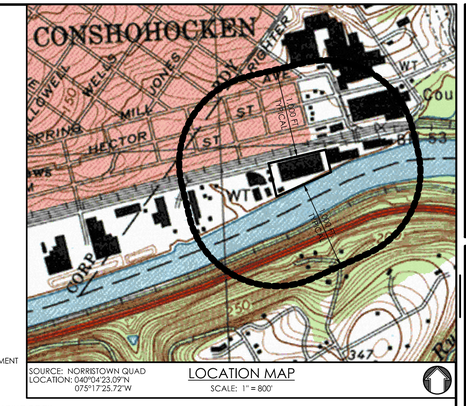

SOURCE: NORRISTOWN QUAD
LOCATION: 040°04'23.09"N
075°17'25.72"W

LOCATION MAP
SCALE: 1" = 800'

OWNER / APPLICANT

APPLICANT: 901 WASHINGTON PARTNERS, L.P.
CONTACT NAME: JIM VESEY
CONTACT INFO: 610-873-5585
120 PENNSYLVANIA AVENUE
MALVERN, PA 19355

SITE / ZONING DATA TABLE

TAX PARCEL NUMBER: 65-00-12672-00-7
ADDRESS: 901 WASHINGTON STREET, CONSHOHOCKEN, PA 19428
GROSS LOT AREA: 4.81 ACRES / 209,846 SF
LESS .64 ACRES / 28,178 SF (WASHINGTON STREET)
NET LOT AREA: 4.17 ACRES / 181,668 SF
CLASSIFICATION: HVY HEAVY INDUSTRIAL DISTRICT
RCCD RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT
FLOODPLAIN CONSERVATION OVERLAY DISTRICT
STEEP SLOPE OVERLAY DISTRICT
RDD-1 RIVERFRONT DEVELOPMENT DISTRICT
PROPOSED USE: SINGLE FAMILY ATTACHED

CRITERIA: RDD-1	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	3 ACRES	4.81 ACRES	4.17 ACRES (NET)***
MINIMUM LOT WIDTH	200'	655.3'	655.3'
BUILDING SETBACK			
FROM PROPERTY LINE	20'	16.1'	39.3'
FROM UNATTACHED BUILDINGS	40'	2.5'*	40.0'
FROM RIGHT OF WAY	10' MIN./20' AVE.	N/A	20'
FROM PUBLIC TRAIL	10'	N/A	11.6'
PARKING SETBACK			
FROM PROPERTY LINE	15'	0.0'*	22.7'
FROM BUILDING	10'	0.0'*	8.4'
MAXIMUM BUILDING HEIGHT	3 STORIES ABOVE FLOODPLAIN	60.8'	3 STORIES ABOVE GARAGE
MAXIMUM BUILDING COVERAGE	40%	51%*	21.5% (38,984 SF)
MAXIMUM IMPERVIOUS COVERAGE	75%	91.9%*	62.4% (113,434 SF)***
MINIMUM RIVERFRONT AREA	150'	26.5'*	57.5'**
MAX. ACCESSORY USES IN REAR YARD	30%	6.4%	27.6% (3,676 SF)

* EXISTING NON-CONFORMITY
** VARIANCE GRANTED
*** VARIANCE GRANTED TO INCLUDE RIVERFRONT AREA IN TOTAL TRACT CALCULATIONS.

PARKING SUMMARY

REQUIREMENT:
§ 116-282.E: RIVERFRONT DEVELOPMENT OVERLAY DISTRICT (RDD)
1.75 PARKING SPACES PER DWELLING UNIT SHALL BE REQUIRED FOR RESIDENTIAL USES AND RESIDENTIAL USES SHALL NOT BE SUBJECT TO THE OVERFLOW PARKING REQUIREMENTS OF CHAPTER 105, SUBDIVISION AND LAND DEVELOPMENT § 105-38W.

REQUIRED	PROPOSED
1.75 X 16 (SINGLE UNITS) = 28 SPACES	2 X 16 SPACES = 32 SPACES
1.75 X 46 (46 FRONT/BACK UNITS†) = 80.5 SPACES	2 X 46 SPACES = 92 SPACES
	29 OFF-STREET PARKING SPACES
TOTAL= 108.50 SPACES REQUIRED	= 153 PARKING SPACES PROVIDED

DRIVEWAY SPACES BEHIND UNITS 7-18, 31-38, 48, 49, 52, 53, 56, AND 57 (TOTALING 26 ADDITIONAL SPACES) ARE NOT COUNTED IN TOTALS.

† UNITS 1-46 ARE SHOWN AS "FRONT/BACK" UNITS FOR DENSITY CALCULATIONS AND WILL BE COMPRISED OF TWO UNITS PER BUILDING.

RESIDENTIAL DENSITY

REQUIREMENT:
RESIDENTIAL DENSITY SHALL NOT EXCEED 30 DWELLING UNITS PER GROSS ACRE.

ALLOWED	PROPOSED
4.81 X 30 = 144 UNITS MAX	62 UNITS

GENERAL NOTES:

1. THIS PLAN IS BASED ON SURVEYS CONDUCTED IN THE FIELD BY NAVE NEWELL, INC., COMPLETED ON DECEMBER 4, 2009, MAY 28, 2019, AND JULY 23, 2019.
2. PROPERTY AS SHOWN IS IN ZONE "AE" (BASE FLOOD ELEVATIONS DETERMINED) AS DEPICTED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FIRM FLOOD INSURANCE RATE MAP COMMUNITY PANEL #42091C0358 G, PANEL 358 OF 451. BASE ELEVATION = 59, NAVD 1988 DATUM. A PORTION OF THE PROPERTY FALLS IN THE FLOODWAY.
3. NO REVIEW OF THE PROPERTY REGARDING THE PRESENCE OF WETLANDS WAS ACCOMPLISHED AS A PART OF THIS SURVEY.
4. THE ENTIRE PROPERTY IS WITHIN THE FLOODPLAIN CONSERVATION DISTRICT. THE BOUNDARY LINE OF ZONE 2 FALLS OUTSIDE OF THE SITE BOUNDARY. THE ENTIRE PROPERTY IS WITHIN THE RIPARIAN CORRIDOR CONSERVATION DISTRICT.
5. THIS PROJECT WILL REQUIRE PUBLIC WATER, SEWER AND STORMWATER MANAGEMENT CONTROLS.
6. THE PLAN PROPOSES A 43' WIDE RIGHT OF WAY EXTENSION OF WASHINGTON STREET.
7. ACCESS EASEMENTS BETWEEN 901 WASHINGTON STREET AND DAVID'S BRIDAL WILL BE PROVIDED.
8. THE PERMANENT REMOVAL OF TOPSOIL FROM THE TOWNSHIP IS PROHIBITED.
9. OFFER OF DEDICATION OF WASHINGTON STREET IS SUBJECT TO ACCEPTANCE BY THE TOWNSHIP BOARD OF SUPERVISORS.
10. THE PROPOSED DEVELOPMENT WILL BE SERVICED BY PUBLIC WATER AND SANITARY SEWER.
11. CONCEPTUAL SANITARY DESIGN SHOWN. APPLICANT WILL COORDINATE WITH WHITEMARSH TOWNSHIP AUTHORITY REGARDING TIE IN ELEVATION TO EXISTING SANITARY MANHOLE.
12. PROPOSED STORMWATER MANAGEMENT FACILITIES WILL BE DESIGNED TO MEET ALL APPLICABLE STATE, COUNTY, AND TOWNSHIP REQUIREMENTS. AN INDIVIDUAL NPDES PERMIT OR AMENDMENT TO THE EXISTING NPDES PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES WILL BE REQUIRED.
13. UNITS 1-46 ARE SHOWN AS "FRONT/BACK" UNITS (2 SEPARATE UNITS ABOVE 2 SEPARATE TWO-CAR GARAGES) FOR DENSITY CALCULATION PURPOSES.
14. UNIT NUMBERS ARE SUBJECT TO CHANGE WITH FUTURE ADDRESS PLAN.
15. ALL COMMON OPEN SPACE AREAS ON THE SUBJECT PROPERTY ARE TO BE OWNED AND MAINTAINED BY A HOME OWNER'S ASSOCIATION.
16. STRUCTURES INCLUDING BUT NOT LIMITED TO MAILBOXES, FENCES, AND POLES SHALL NOT BE ERECTED WITHIN STREET RIGHTS-OF-WAY.
17. IN THE EVENT THAT THE PROPERTY OWNER SHALL REFUSE OR NEGLECT TO COMPLY WITH THE PROVISIONS OF CHAPTER 58 OR THE REQUIREMENTS OF THE TOWNSHIP ENGINEER, AND THE NONCOMPLIANCE IS CREATING A DANGER TO THE HEALTH, SAFETY AND WELFARE OF THE COMMUNITY, THE BOARD OF SUPERVISORS MAY TAKE APPROPRIATE MEASURES TO CORRECT THE VIOLATION AND ASSESS ALL EXPENSES OF SUCH MEASURES AGAINST THE PERSON. THE BOARD OF SUPERVISORS MAY SEEK REIMBURSEMENT BY ANY MEANS PERMITTED BY LAW.
18. ALL INTERNAL CURB RADII TO BE 5' UNLESS OTHERWISE NOTED.
19. TRASH COLLECTION WILL BE PICKED UP AT INDIVIDUAL RESIDENT DRIVEWAYS, CONSISTENT WITH HOMEOWNER EXPECTATIONS. THERE IS NO COMMUNAL TRASH RECEPTACLE PROPOSED.
20. A REPORT INDICATING SUITABILITY OF THE SUBJECT SITE FOR DEVELOPMENT ADDRESSING THE POTENTIAL FOR SUBSIDENCE AND MEASURES TO ADDRESS SAME, TOPOGRAPHICAL SUITABILITY, AND GENERAL PRESERVATION OF HEALTH, LIFE, AND PROPERTY SHALL BE PREPARED BY REGISTERED PROFESSIONAL ENGINEER EXPERIENCED IN GEOTECHNICAL ENGINEERING.
21. DETAILED DESIGN PLANS AND CALCULATIONS FOR ALL PROPOSED RETAINING WALLS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA SHALL BE SUBMITTED TO THE TOWNSHIP PRIOR TO CONSTRUCTION.

EASEMENT NOTES:

1. EASEMENT FOR ACCESS TO THE RIVERFRONT AMENITIES WILL BE PROVIDED IN ACCORDANCE WITH TOWNSHIP REQUIREMENTS.
2. ACCESS EASEMENTS BETWEEN 901 WASHINGTON STREET AND DAVID'S BRIDAL WILL BE PROVIDED.
3. A BLANKET EASEMENT FOR UTILITIES AND STORMWATER FACILITIES WILL BE PROVIDED IN ACCORDANCE WITH TOWNSHIP REQUIREMENTS.
4. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED IN PERPETUITY BY THE PROPERTY OWNER, WHICH WILL BE A FUTURE HOMEOWNERS ASSOCIATION. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES, IF, IN THE JUDGMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE STORMWATER FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING. THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.

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PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE – STOP CALL.
Pennsylvania One Call System, Inc.
1-800-242-1776

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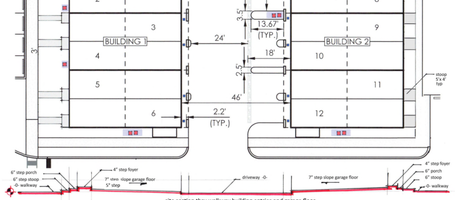
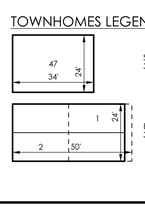


TOWNHOMES LEGEND



LEGEND

PROPERTY LINE
EXISTING RIGHT-OF-WAY
EXISTING EASEMENT LINE
EXISTING MONUMENT
EXISTING BUILDING
EXISTING RETAINING WALL
EXISTING FENCE
EXISTING GUIDE RAIL
EXISTING EDGE OF RIVER
EXISTING RAILROAD TRACKS
EXISTING FLOODWAY LINE
EXISTING MEAN WATER ELEVATION
PROPOSED RIGHT-OF-WAY
BUILDING SETBACK LINE
PROPOSED MONUMENT
PROPOSED WALKING PATH
PROPOSED BUILDING
PROPOSED SIDEWALK
PROPOSED CURB
RIPARIAN CORRIDOR ZONE 1
PROPOSED CLEAR SIGHT LINE
PROPOSED CONCRETE CAR STOP
PROPOSED PAVER SURFACE

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft

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date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JPB

REVISIONS

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: SITE PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	JPB
date: 10/3/19	chk'd by: JPB
scale: 1" = 30'	approv. by: JPB

sheet no.
4 of 22

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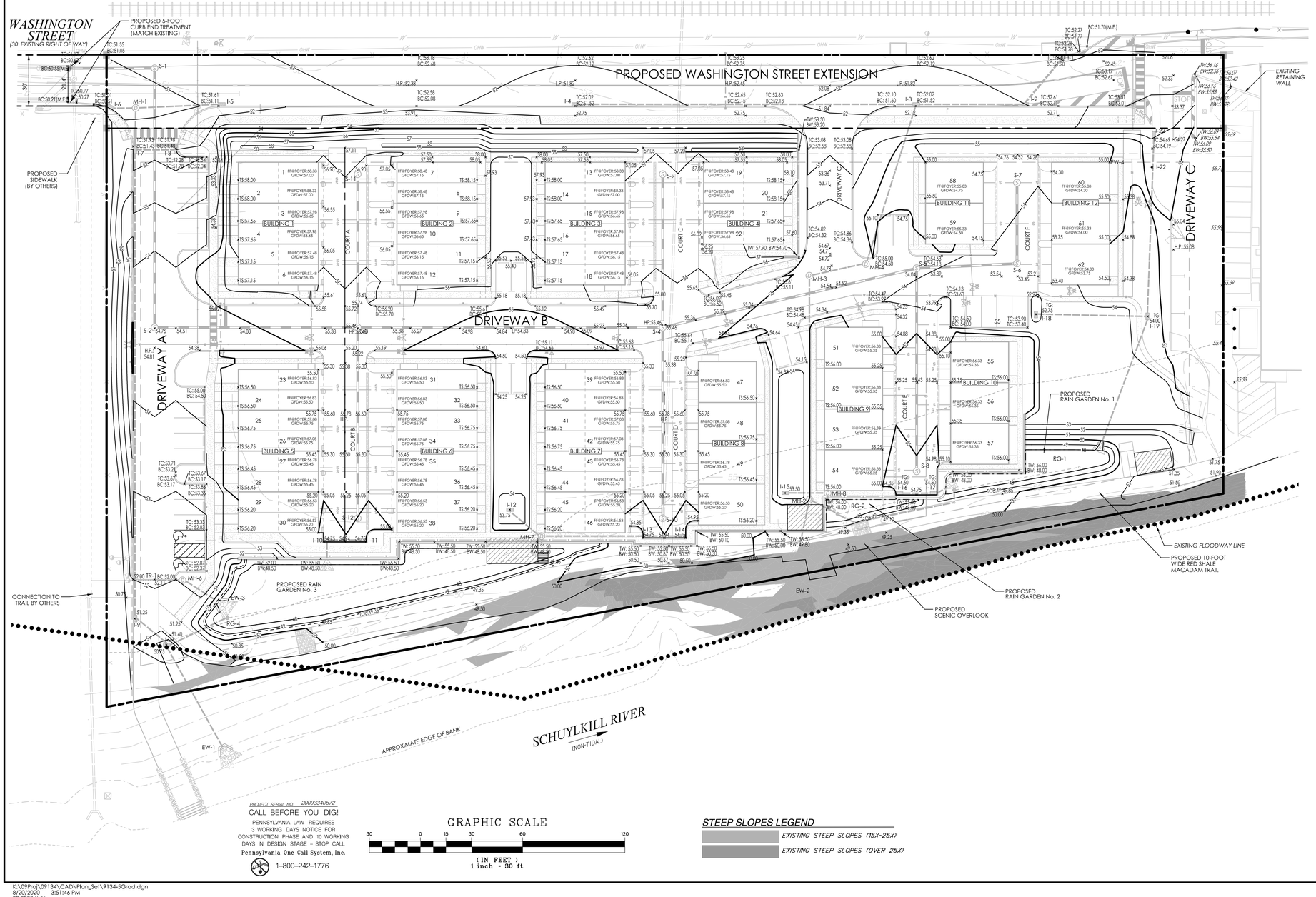

GRADING NOTES:

1. REFER TO UTILITY PLAN FOR ADDITIONAL NOTES.
2. IN CASE OF DISCREPANCIES BETWEEN PLANS, THE UTILITY PLAN WILL SUPERSEDE IN ALL CASES. NOTIFY ENGINEER OF RECORD OF ANY CONFLICT.
3. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ALL SOFT, YIELDING OR UNSUITABLE MATERIALS AND REPLACING WITH SUITABLE MATERIALS. ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR MAXIMUM DENSITY PER A.S.T.M. TEST D-1557 AND PLACED IN LAYERS NOT EXCEEDING 8 INCHES THICK OR AS PRESCRIBED BY PROJECT GEOTECHNICAL ENGINEER. MOISTURE CONTENT AT THE TIME OF PLACEMENT SHALL BE NO MORE THAN 2% ABOVE OR 3% BELOW OPTIMUM. CONTRACTOR SHALL SUBMIT A COMPACTION REPORT, PREPARED BY A QUALIFIED SOILS ENGINEER, REGISTERED WITH THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.
4. SUBBASE MATERIAL FOR SIDEWALKS, OR ASPHALT SHALL BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL AND COMPACTED TO 95% OPTIMUM DENSITY (AS DETERMINED BY MODIFIED PROCTOR METHOD).
5. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION AND/OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS BY ALL OF THE PERMITTING AUTHORITIES.
6. SITE CLEARING SHALL INCLUDE THE LOCATION AND REMOVAL OF ALL UNDERGROUND TANKS, PIPES, VALVES, ETC..
7. ALL EXCAVATED UNSUITABLE MATERIAL MUST BE TRANSPORTED TO AN APPROVED DISPOSAL LOCATION.
8. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS, AS WELL AS ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE.
9. CONTRACTOR SHALL ADHERE TO ALL SAFETY REGULATIONS AS REQUIRED BY OSHA, THE PROPERTY OWNER, OR ANY LOCAL, STATE, OR FEDERAL AUTHORITY.
10. DETAILED PLANS AND CALCULATIONS FOR PROPOSED RETAINING WALLS THAT ARE PREPARED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA MUST BE SUBMITTED TO THE TOWNSHIP FOR REVIEW PRIOR TO CONSTRUCTION.
11. CONTRACTOR TO ENSURE COMPLIANCE WITH ADA REGULATIONS.
12. NON-ACCESSIBLE BUILDING ENTRANCES MUST HAVE DIRECTIONAL SIGNAGE DIRECTING PEOPLE TO THE CLOSEST ACCESSIBLE ENTRANCE. DIRECTIONAL SIGNAGE MUST HAVE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.
13. THRESHOLDS, TRANSITIONS AND LEVEL CHANGES MUST NOT EXCEED 1/2 INCH IN HEIGHT WITH A BEVEL OF NO MORE THAN 1:2. UNBEVELED LEVEL CHANGES MUST NOT EXCEED 1/4 INCH IN HEIGHT.
14. OBJECTS MAY NOT PROTRUDE MORE THAN 4 INCHES INTO THE CIRCULATION PATH.
15. CROSS SLOPES OF ALL ACCESSIBLE ROUTES SHALL NOT EXCEED 2.08%. THIS INCLUDES CURB RAMPS, SIDEWALKS, ASSOCIATED GUTTERS, AND CROSSWALKS.
16. LONGITUDINAL SLOPES ALONG ACCESSIBLE ROUTES SHALL NOT EXCEED 5.00% (EXCEPT RAMPS AND CURB RAMPS, SEE BELOW).
17. LONGITUDINAL SLOPES OF RAMPS AND CURB RAMPS SHALL NOT EXCEED 8.33%. HANDRAILS ARE REQUIRED AT RAMPS THAT RISE MORE THAN 6" (CURB RAMPS EXCEPTED). THE MAXIMUM RISE OF ANY RAMP IS 30".
18. THE GROUND SURFACE AT THE MANEUVERING CLEARANCE OF DOORS THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL NOT EXCEED 2.08% IN ANY DIRECTION.
19. GAPS OR OPENINGS ALONG AN ACCESSIBLE ROUTE MUST BE NO MORE THAN 1/2 INCH WIDE.

STEEP SLOPE RATIO

TOTAL AREA OF ALL STEEP SLOPES WITHIN THE SITE DIVIDED BY SITE AREA

EXISTING	PROPOSED
4.7%	5.5%

STEEP SLOPES WITHIN THE SITE: 9,939 S.F.
EXISTING SITE AREA: 209,846 S.F.
PROPOSED SITE AREA (NET): 181,668 S.F.

PERCENT STEEP SLOPE DISTURBANCE	
15 - 25%	23%
GREATER THAN 25%	14%

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT LINE
- EXISTING CURB
- EXISTING BUILDING
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING GUIDE RAIL
- EXISTING BOLLARD
- EXISTING EDGE OF RIVER
- EXISTING RAILROAD TRACKS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SANITARY SEWER WITH MANHOLE
- EXISTING VENT PIPE
- EXISTING CLEANOUT
- EXISTING STORM SEWER WITH MANHOLE
- EXISTING STORM INLETS
- EXISTING WATER SERVICE WITH VALVE
- EXISTING WATER MANHOLE
- EXISTING WELLHEAD
- EXISTING GAS SERVICE WITH VALVE
- EXISTING GAS METER
- EXISTING OVERHEAD ELECTRIC WIRE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING OVERHEAD UTILITY PIPING
- EXISTING SEALED MANHOLE (UTILITY UNKNOWN)
- 8-15% SLOPES
- 15-25% SLOPES
- 25% AND UP SLOPES
- PROPOSED RIGHT-OF-WAY
- BUILDING SETBACK LINE
- PROPOSED WALKING PATH
- PROPOSED BUILDING
- PROPOSED SIDEWALK
- PROPOSED CURB
- RIPARIAN CORRIDOR ZONE 1
- PROPOSED RETAINING WALL
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED SPOT GRADE
- PROPOSED STORM SEWER WITH MANHOLE
- PROPOSED STORM INLETS / CLEANOUT
- PROPOSED ENDWALL WITH RIPRAP
- PROPOSED SANITARY SEWER WITH MANHOLE
- PROPOSED SANITARY CLEANOUT / VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER SERVICE
- PROPOSED FIRE SERVICE

PROJECT SERIAL NO. 20093340672
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1-800-242-1776

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft

STEEP SLOPES LEGEND

- EXISTING STEEP SLOPES (15%-25%)
- EXISTING STEEP SLOPES (OVER 25%)

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p: 610.265.9033 f: 610.265.9299
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date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: GRADING PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	
date: 10/3/19	chk'd by: JPB
scale: 1" = 30'	approv. by: JPB
sheet no. 5 of 23	

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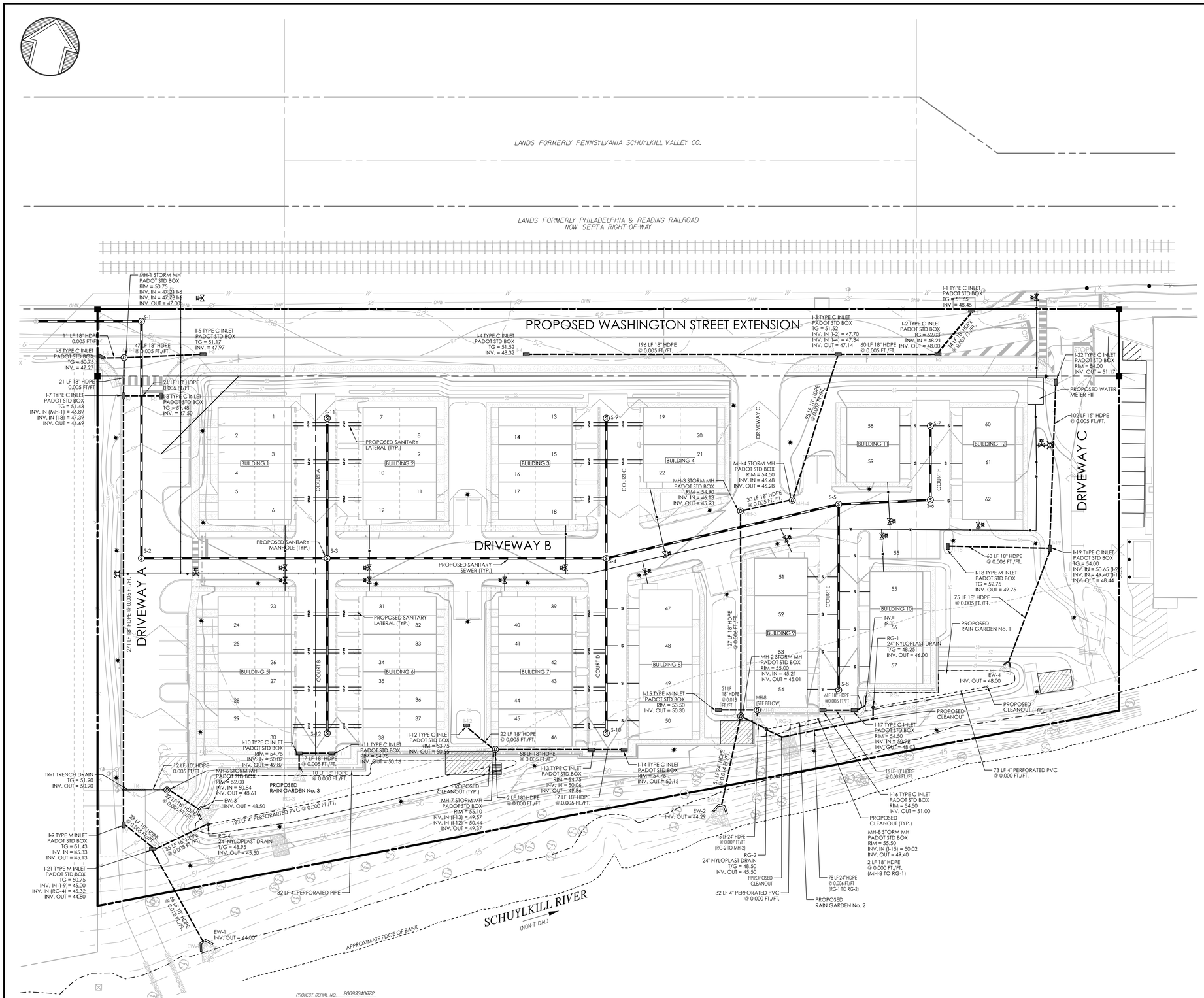

NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM AT LEAST THREE DAYS PRIOR TO STARTING ANY EARTH MOVING ACTIVITIES. PRIOR TO THE START OF CONSTRUCTION, THE SITE CONTRACTOR SHALL VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES.
2. PRIOR TO STARTING CONSTRUCTION, ALL UTILITY SERVICES IN THE AREA ARE TO BE LOCATED.
3. THERE SHALL BE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET AND A MINIMUM VERTICAL SEPARATION OF 18 INCHES BETWEEN ALL SANITARY SEWER AND WATER DISTRIBUTION FACILITIES AND SERVICES.
4. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL MAKE SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION AND/OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS BY ALL PERMITTING AUTHORITIES.
5. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY.
6. ALL DIMENSIONS SHOWN ON THESE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION, FOR NECESSARY PLAN CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN. ANY SCALED DIMENSIONS FROM THIS PLAN SHALL NOT BE USED FOR CONSTRUCTION WITHOUT CONFIRMATION BY NAVE NEWELL, INC.
7. SOLID WASTE IS TO BE DISPOSED OF BY CONTRACTOR IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
8. ALL EXCAVATED UNSUITABLE MATERIAL MUST BE TRANSPORTED TO AN APPROVED DISPOSAL LOCATION.
9. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS, AS WELL AS ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE.
10. CONTRACTOR SHALL ENSURE COMPLIANCE WITH THE LATEST REVISED A.D.A. REGULATIONS.
11. THIS PROJECT WILL REQUIRE A REGULATED EARTH DISTURBANCE PERMIT FROM WHITEMARSH TOWNSHIP.
12. PERMANENT REMOVAL OF TOPSOIL FROM WITHIN THE TOWNSHIP IS PROHIBITED.
13. ANY TREE WITHIN THE LIMIT OF DISTURBANCE THAT IS NOT TO BE REMOVED REQUIRES PROTECTIVE FENCING TO BE PLACED AROUND IT PRIOR TO CONSTRUCTION.
14. WHENEVER SEDIMENTATION IS CAUSED BY AN EARTH DISTURBANCE ACTIVITY, IT SHALL BE THE RESPONSIBILITY OF THE PERSON CAUSING SUCH SEDIMENTATION TO REMOVE IT ALL FROM ALL AFFECTED SURFACES, DRAINAGE SYSTEMS AND WATERCOURSES, ON SITE AND OFF SITE, AND TO REPAIR ANY DAMAGE AT HIS EXPENSE IMMEDIATELY.
15. THE PERMIT HOLDER WILL NOTIFY THE TOWNSHIP ENGINEER TO OBTAIN INSPECTIONS AT LEAST 48 HOURS BEFORE THE INSPECTION IS TO BE MADE FOR: INITIAL INSPECTION, ROUGH GRADING, DRAINAGE FACILITIES, BMPS, SPECIAL STRUCTURES AND FINAL INSPECTION.
16. THE OWNERSHIP AND MAINTENANCE OF STORMWATER BMPS SHALL BE THE RESPONSIBILITY OF THE OWNER OR PRIVATE MANAGEMENT ENTITY OF THE PROPERTY.
17. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER IN PERPETUITY. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES ON AN ANNUAL BASIS. ALL COSTS AND EXPENSES ASSOCIATED WITH SAID INSPECTION SHALL BE PAID TO THE TOWNSHIP BY THE OWNER IN PERPETUITY. IF, IN THE JUDGEMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE DETENTION FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING, THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.
18. CONTRACTOR SHALL FIELD VERIFY THE ELEVATIONS OF ALL EXISTING UTILITIES AT CONNECTION POINTS AND IMMEDIATELY NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES WITH THE PLANS.
19. CONTRACTOR SHALL PROVIDE FOR BYPASS PUMPING OPERATION DURING DEMOLITION / REMOVAL OF EXISTING SANITARY SEWER GRAVITY MAIN AND FORCE MAIN SERVING TREATMENT PLANT UNTIL NEWLY RELOCATED LINES ARE INSTALLED AND OPERATIONAL.
20. ALL ELECTRIC, TELEPHONE, AND COMMUNICATION SERVICE FACILITIES, BOTH MAIN AND SERVICE LINES, SHALL BE PROVIDED BY UNDERGROUND CABLES, INSTALLED IN ACCORDANCE WITH THE PREVAILING STANDARDS AND PRACTICES OF THE APPLICABLE UTILITY COMPANY.
21. THE CONTRACTOR SHALL CONTACT THE ENGINEER SHOULD THE PROPOSED PIPES AND ENDWALLS CONFLICT WITH ANY HERITAGE TREES.
22.

PLAN REFERENCE

EXISTING SANITARY SEWER AND WATER SERVICE TAKEN IN PART FROM PLAN ENTITLED "WHITEMARSH BOAT CLUB SITE PLAN, 801 WASHINGTON STREET BY MOMENEE AND ASSOCIATES, MAY 24, 2006, SHEET 1 OF 1."

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT LINE
- EXISTING CURB
- EXISTING BUILDING
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING GUIDE RAIL
- EXISTING BOLLARD
- EXISTING EDGE OF RIVER
- EXISTING RAILROAD TRACKS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SANITARY SEWER WITH MANHOLE
- EXISTING VENT PIPE
- EXISTING CLEANOUT
- EXISTING STORM SEWER WITH MANHOLE
- EXISTING STORM INLETS
- EXISTING WATER SERVICE WITH VALVE
- EXISTING WATER MANHOLE
- EXISTING WELLHEAD
- EXISTING GAS SERVICE WITH VALVE
- EXISTING GAS METER
- EXISTING OVERHEAD ELECTRIC WIRE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING OVERHEAD UTILITY PIPING
- EXISTING SEALED MANHOLE (UTILITY UNKNOWN)
- PROPOSED RIGHT-OF-WAY
- BUILDING SETBACK LINE
- PROPOSED WALKING PATH
- PROPOSED BUILDING
- PROPOSED SIDEWALK
- PROPOSED CURB
- RIPARIAN CORRIDOR ZONE 1
- PROPOSED RETAINING WALL
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED SPOT GRADE
- PROPOSED STORM SEWER WITH MANHOLE
- PROPOSED STORM INLETS / CLEANOUT
- PROPOSED ENDWALL WITH RIPRAP
- OHW — PROPOSED UTILITY POLE WITH WIRING
- PROPOSED SANITARY SEWER WITH MANHOLE
- PROPOSED SANITARY CLEANOUT / VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER SERVICE
- FS — FS — PROPOSED FIRE SERVICE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft

PROJECT SERIAL NO. 20093340672

CALL BEFORE YOU DIG!

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Pennsylvania One Call System, Inc.

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LIMESTONE CERTIFICATION:

I DO HEREBY CERTIFY THAT THE PROPOSED FACILITY IS NOT UNDERLAIN BY LIMESTONE.

DATE _____ SIGNATURE _____

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USER: cwhitty

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5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

REVISIONS

SEAL: COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — JAMES P. BANNON — No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: UTILITY PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	JLH / CW
date: 10/3/19	ck'd by: JPB
scale: 1" = 30'	approv. by: JPB
sheet no.	

6 of 23

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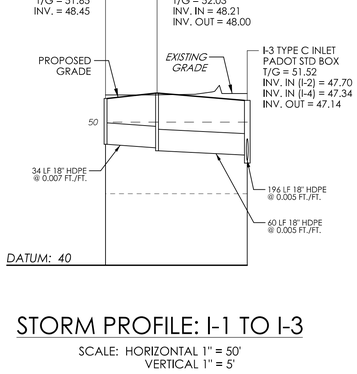
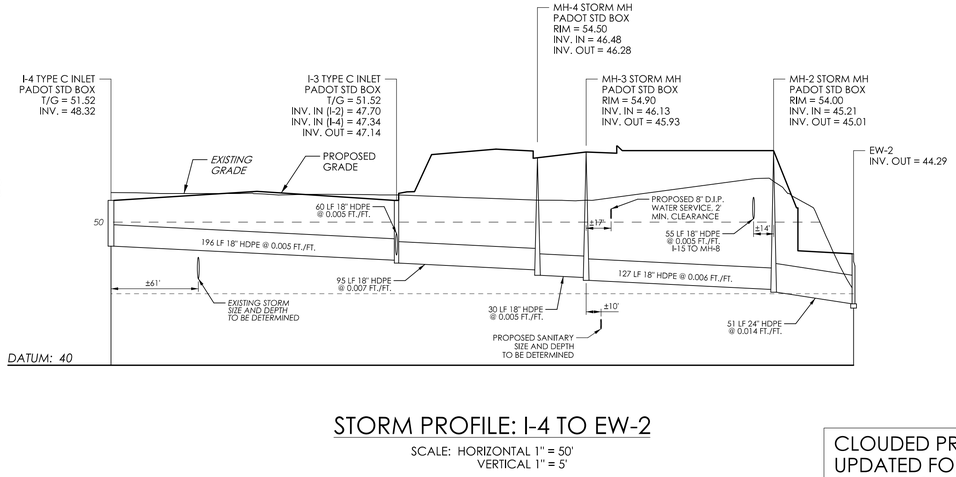


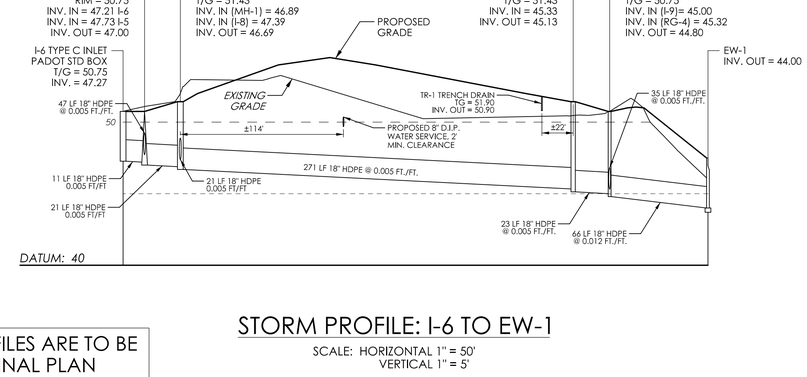
STORM PROFILE: I-1 TO I-3

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



STORM PROFILE: I-4 TO EW-2

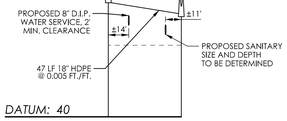
SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



STORM PROFILE: I-6 TO EW-1

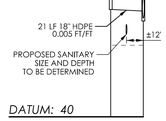
SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'

CLOUDED PROFILES ARE TO BE UPDATED FOR FINAL PLAN SUBMISSION.



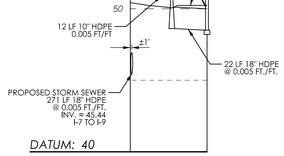
STORM PROFILE: I-5 TO MH-1

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



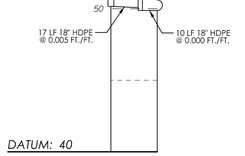
STORM PROFILE: I-8 TO I-7

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



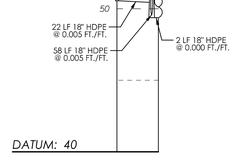
STORM PROFILE: TR-1 TO EW-3

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



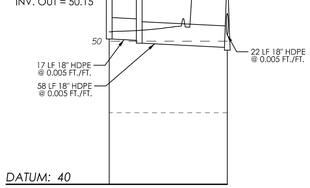
STORM PROFILE: I-11 TO RG-4

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



STORM PROFILE: I-12 TO RG-4

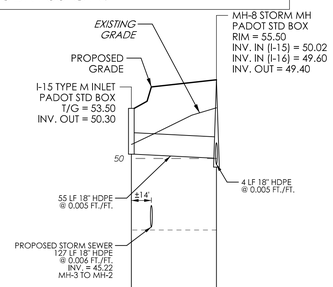
SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



STORM PROFILE: I-14 TO MH-7

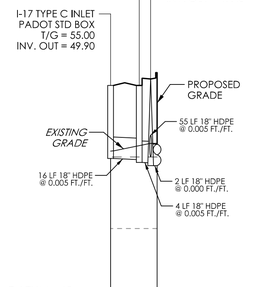
SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'

CLOUDED PROFILES ARE TO BE UPDATED FOR FINAL PLAN SUBMISSION.



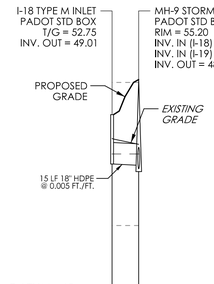
STORM PROFILE: I-15 TO MH-8

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



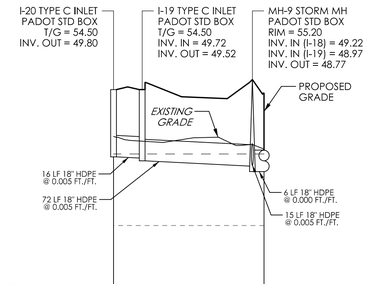
STORM PROFILE: I-17 TO RG-3

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



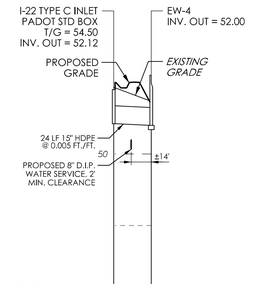
STORM PROFILE: I-18 TO MH-9

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



STORM PROFILE: I-20 TO RG-2

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



STORM PROFILE: I-22 TO EW-4

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'

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5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	NAM
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	NAM

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: UTILITY PROFILE SHEET

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	CW
date: 10/3/19	chk'd by: JPB
scale: AS NOTED	approv. by: JPB

sheet no.

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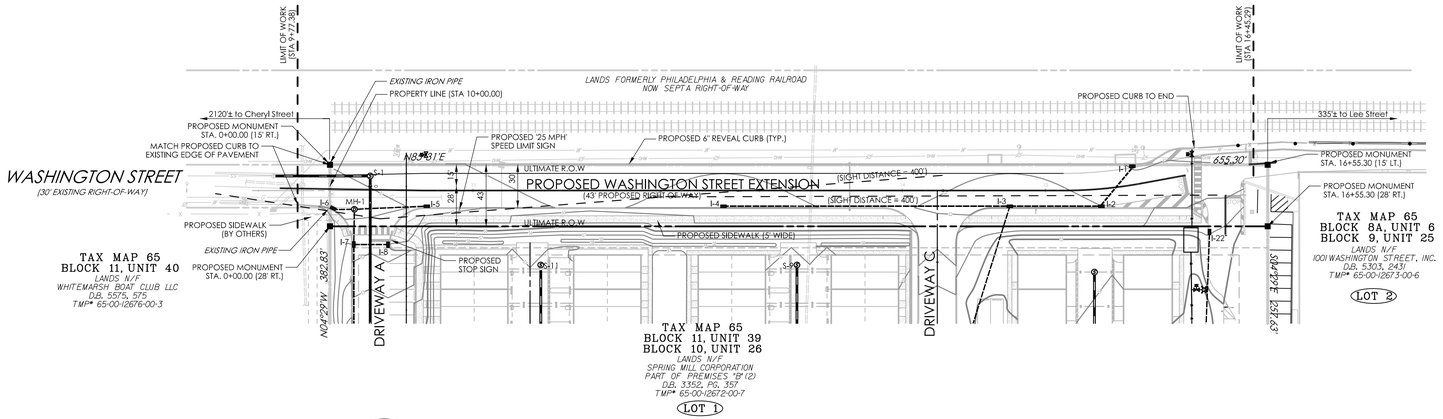


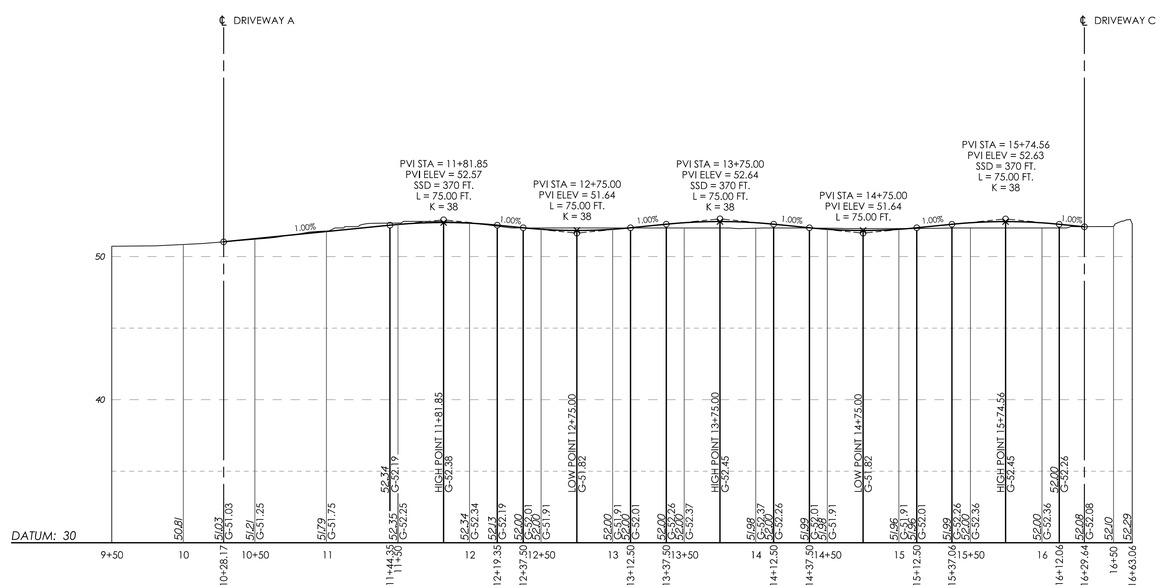
PLAN - WASHINGTON STREET (9+50.00 TO STA. 16+63.06)

SCALE: HORIZONTAL 1" = 50'

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft



PROFILE - WASHINGTON STREET (9+50.00 TO STA. 16+63.06)

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'

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5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES P. BANNON
ENGINEER
No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: PLAN & PROFILE SHEET - WASHINGTON STREET EXTENSION

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	DWN
date: 10/3/19	chk'd by: JPB
scale: AS NOTED	approv. by: JPB

sheet no.

8 of 23

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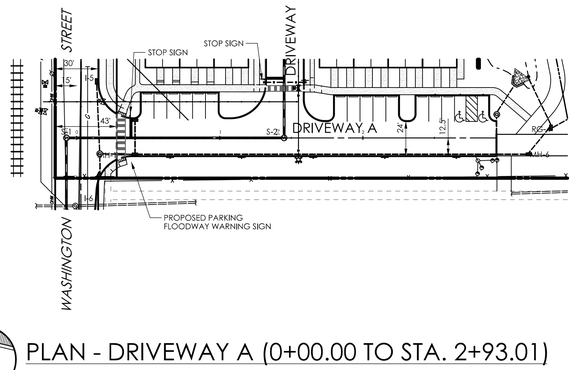
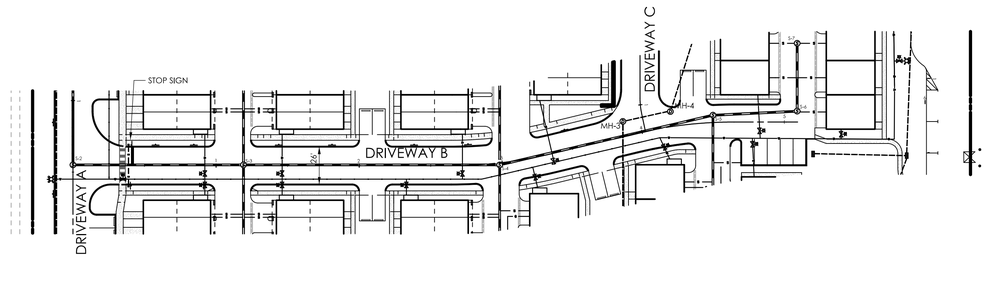


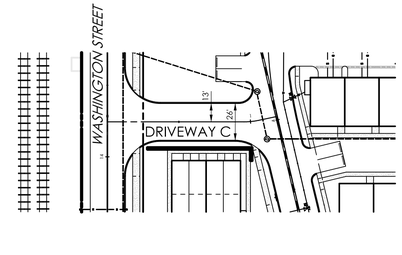
PLAN - DRIVEWAY A (0+00.00 TO STA. 2+93.01)

SCALE: HORIZONTAL 1" = 50'



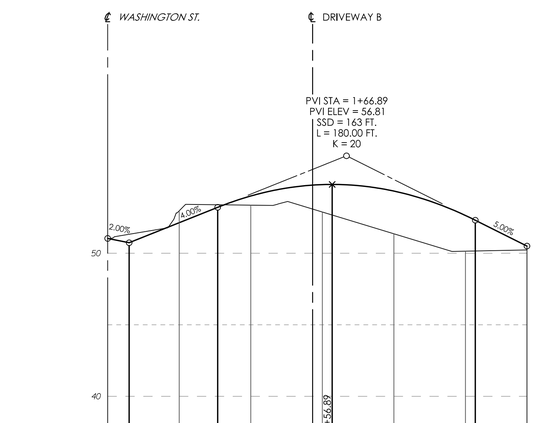
PLAN - DRIVEWAY B (0+00.00 TO STA. 5+09.37)

SCALE: HORIZONTAL 1" = 50'



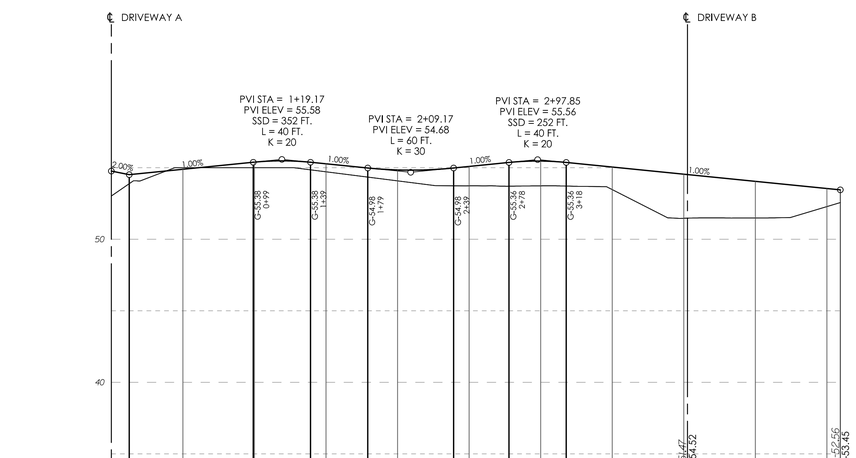
PLAN - DRIVEWAY C (0+00.00 TO STA. 1+18.82)

SCALE: HORIZONTAL 1" = 50'



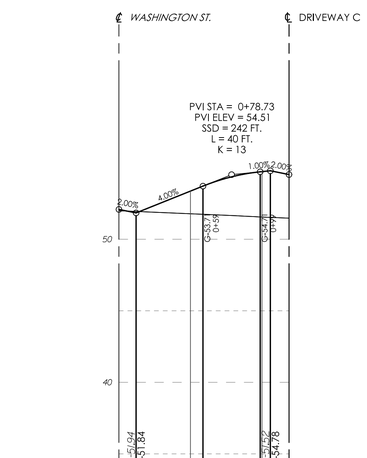
PROFILE - DRIVEWAY A (0+00.00 TO STA. 2+93.01)

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



PROFILE - DRIVEWAY B (0+00.00 TO STA. 5+09.37)

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



PROFILE - DRIVEWAY C (0+00.00 TO STA. 1+18.82)

SCALE: HORIZONTAL 1" = 50'
VERTICAL 1" = 5'

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Wayne, PA 19087-1830
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2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
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8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES P. BANNON JR.
ENGINEER
No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: PLAN & PROFILE SHEET - DRIVEWAY A, DRIVEWAY B, DRIVEWAY C

RIVERplace

901 Washington Street
TOWNHOUSE LAYOUT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no. 2009-134.05	drawn by: DWN
date: 10/3/19	chk'd by: JPB
scale: AS NOTED	approv. by: JPB

sheet no.

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QTY.	SYM.	CATALOG NUMBER	IES NUMBER	DESCRIPTION	LAMP	LOCATION	MOUNTING HEIGHT
13	A	C41TC-L80C-BK	C41TC-L80C-BK.IES	WAVE LIGHTING POST TOP- C41TC BLACK FORMED ALUMINUM HOUSING CLEAR OPTICS/GLASS, LED	24 WHITE LEDs	DRIVE	14'
4	B	C41TC-L80C-BK	C41TC-L80C-BK.IES	WAVE LIGHTING POST TOP- C41TC BLACK FORMED ALUMINUM HOUSING CLEAR OPTICS/GLASS, LED	24 WHITE LEDs	DRIVE	12
4	C	C41TC-L80C-BK	C41TC-L80C-BK.IES	WAVE LIGHTING POST TOP- C41TC BLACK FORMED ALUMINUM HOUSING CLEAR OPTICS/GLASS, LED	24 WHITE LEDs	DRIVE	14'
11	D	C85T-STYLE A-FA-L60-BK	C85T-STYLE A-FA-L60-BK.IES	WAVE LIGHTING ACORN - C85T BLACK FORMED ALUMINUM HOUSING CLEAR PATTERNED PLASTIC, LED	ONE WHITE LED	RIVER TRAIL	12

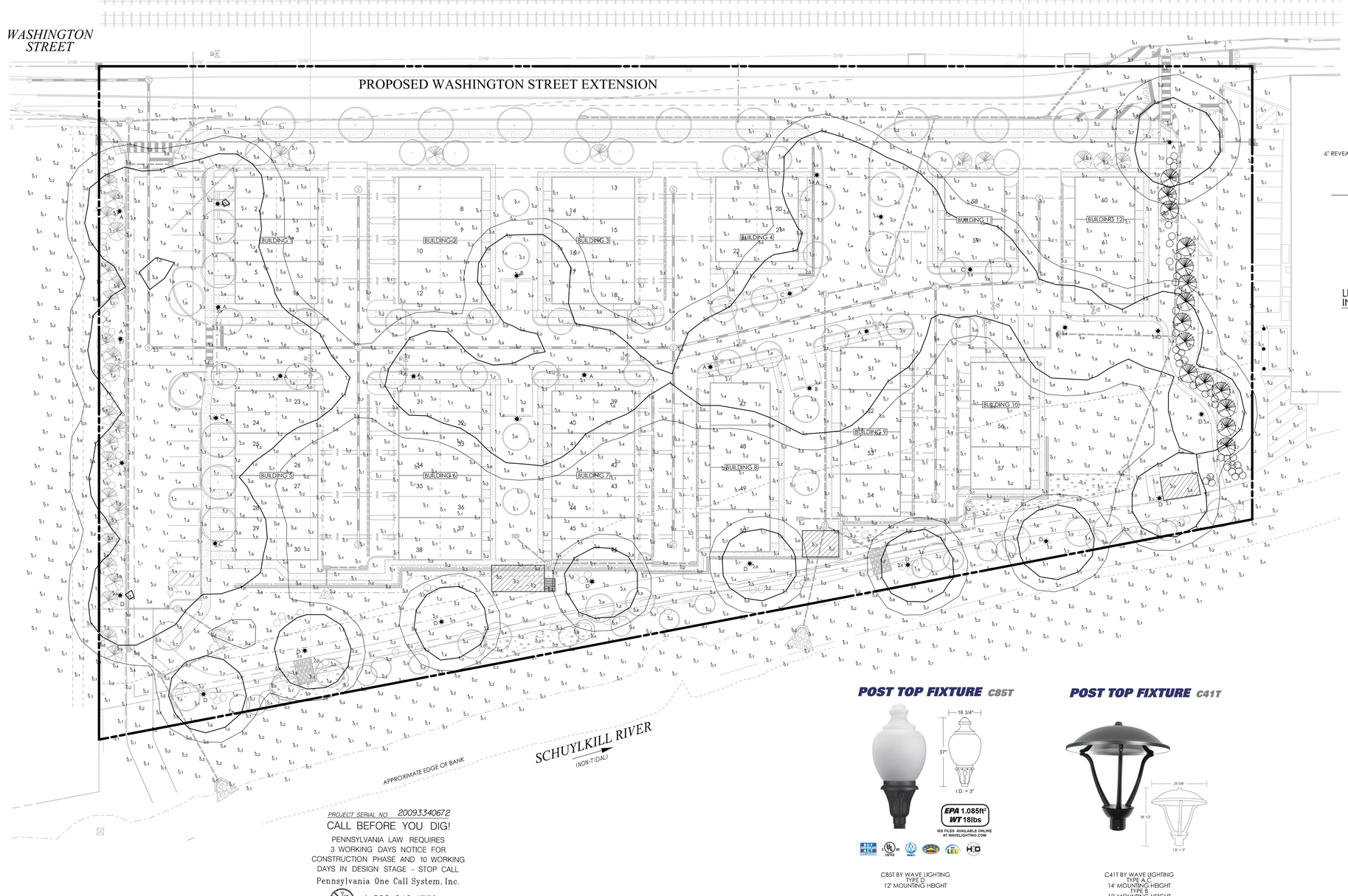
FIXTURES ARE ILLUSTRATIVE AND SUBJECT TO CHANGE AT TIME OF FINAL APPROVAL

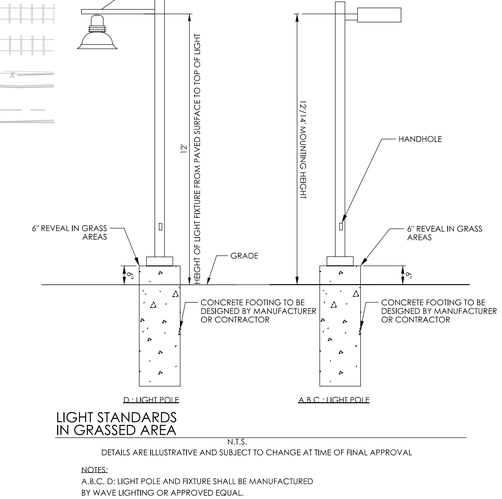
LIGHTING STATISTICS

DESCRIPTION	AVERAGE	MAXIMUM	MINIMUM	MAX/MIN
DRIVE	1.63 fc	4.4 fc	0.4 fc	11.00 : 1

NOTES

1. CALCULATED FOOTCANDLES ARE AT PAVEMENT SURFACE.
2. THIS PLAN IS FOR LIGHTING PURPOSES ONLY. ALL SITE IMPROVEMENTS INCLUDING, BUT NOT LIMITED TO, BUILDING LOCATIONS, CURBING, SIDEWALK, UTILITIES, AND THEIR ANCILLARY APPURTENANCES, ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE SUBJECT TO MODIFICATION AND REVISION. CONTRACTOR SHALL REFER TO THE SITE PLAN AND CONSTRUCTION IMPROVEMENTS PLAN, AND THEIR RELATED DETAIL SHEETS, FOR ALL SITE IMPROVEMENTS OTHER THAN LANDSCAPING AND LIGHTING.
3. BUILDING LIGHTING IS NOT SHOWN ON THIS PLAN. REFER TO ARCHITECTURAL PLANS.
4. NO SUBSTITUTIONS SHALL BE PERMITTED WITHOUT WRITTEN AUTHORIZATION FROM NAVE NEWELL.
5. POST-APPROVAL ALTERATIONS TO LIGHTING PLANS OR INTENDED SUBSTITUTIONS FOR APPROVED LIGHTING EQUIPMENT SHALL BE SUBMITTED TO THE TOWNSHIP FOR REVIEW AND APPROVAL.
6. THE TOWNSHIP RESERVES THE RIGHT TO CONDUCT POST INSTALLATION INSPECTIONS TO VERIFY COMPLIANCE WITH THE REQUIREMENTS OF CHAPTER 105 SUBDIVISION AND LAND DEVELOPMENT AND APPROVED LIGHTING PLAN AND TO REQUIRE REMEDIAL ACTION AT NO EXPENSE TO THE TOWNSHIP.
7. ALL EXTERIOR LIGHTS SHALL MEET IESNA FULL-CUTOFF CRITERIA UNLESS OTHERWISE APPROVED BY THE TOWNSHIP.
8. THE INSTALLER SHALL NOTIFY THE TOWNSHIP TO ARRANGE FOR INSPECTION AND APPROVAL OF ALL EXTERIOR LIGHTING, INCLUDING BUILDING-MOUNTED LIGHTING, PRIOR TO ITS INSTALLATION.
9. VEGETATION SHALL BE MAINTAINED TO ENSURE GROWTH DOES NOT IMPACT THE PROPOSED LIGHTING LEVELS IN THE PARKING LOTS AND DRIVE AISLES.





LIGHT STANDARDS IN GRASSED AREA

N.T.S.

DETAILS ARE ILLUSTRATIVE AND SUBJECT TO CHANGE AT TIME OF FINAL APPROVAL

NOTES:
A,B,C, D: LIGHT POLE AND FIXTURE SHALL BE MANUFACTURED BY WAVE LIGHTING OR APPROVED EQUAL.

LIGHTS TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS

LIGHT POLES PLACED IN GRASS AREAS TO BE LOCATED 5' OUTSIDE PAVED AREAS OR HAVE A 30" HIGH CONCRETE BASE.

POST TOP FIXTURE C85T

C85T BY WAVE LIGHTING
TYPE D
12' MOUNTING HEIGHT

POST TOP FIXTURE C41T

C41T BY WAVE LIGHTING
TYPE A,C
14' MOUNTING HEIGHT
TYPE B
12' MOUNTING HEIGHT

FIXTURES ARE ILLUSTRATIVE AND SUBJECT TO CHANGE AT TIME OF FINAL APPROVAL

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT LINE
- EXISTING BUILDING
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING GUIDE RAIL
- EXISTING EDGE OF RIVER
- EXISTING RAILROAD TRACKS
- EXISTING FLOODWAY LINE
- PROPOSED RIGHT-OF-WAY
- BUILDING SETBACK LINE
- PROPOSED WALKING PATH
- PROPOSED BUILDING
- PROPOSED SIDEWALK
- PROPOSED CURB
- RIPARIAN CORRIDOR ZONE 1
- PROPOSED LIGHT STANDARD
- PROPOSED LANDSCAPING
- PROPOSED SEED/PLUG
- PROPOSED STORM SEWER WITH MANHOLE
- PROPOSED STORM INLETS / CLEANOUT
- PROPOSED ENDWALL WITH RIPRAP
- PROPOSED UTILITY POLE WITH WIRING
- PROPOSED SANITARY SEWER WITH MANHOLE
- PROPOSED SANITARY CLEANOUT / VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER SERVICE
- PROPOSED FIRE SERVICE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft

PROJECT SERIAL NO. 20093340672

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5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

SEAL:

PAUL E. LEPARD, JR.
Registered Landscape Architect
Pennsylvania License No. LA001322-R

DRAWING NAME: LIGHTING PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	MES
date: 10/3/19	chk'd by: JFL
scale: 1" = 30'	approv. by: PEL
sheet no.	

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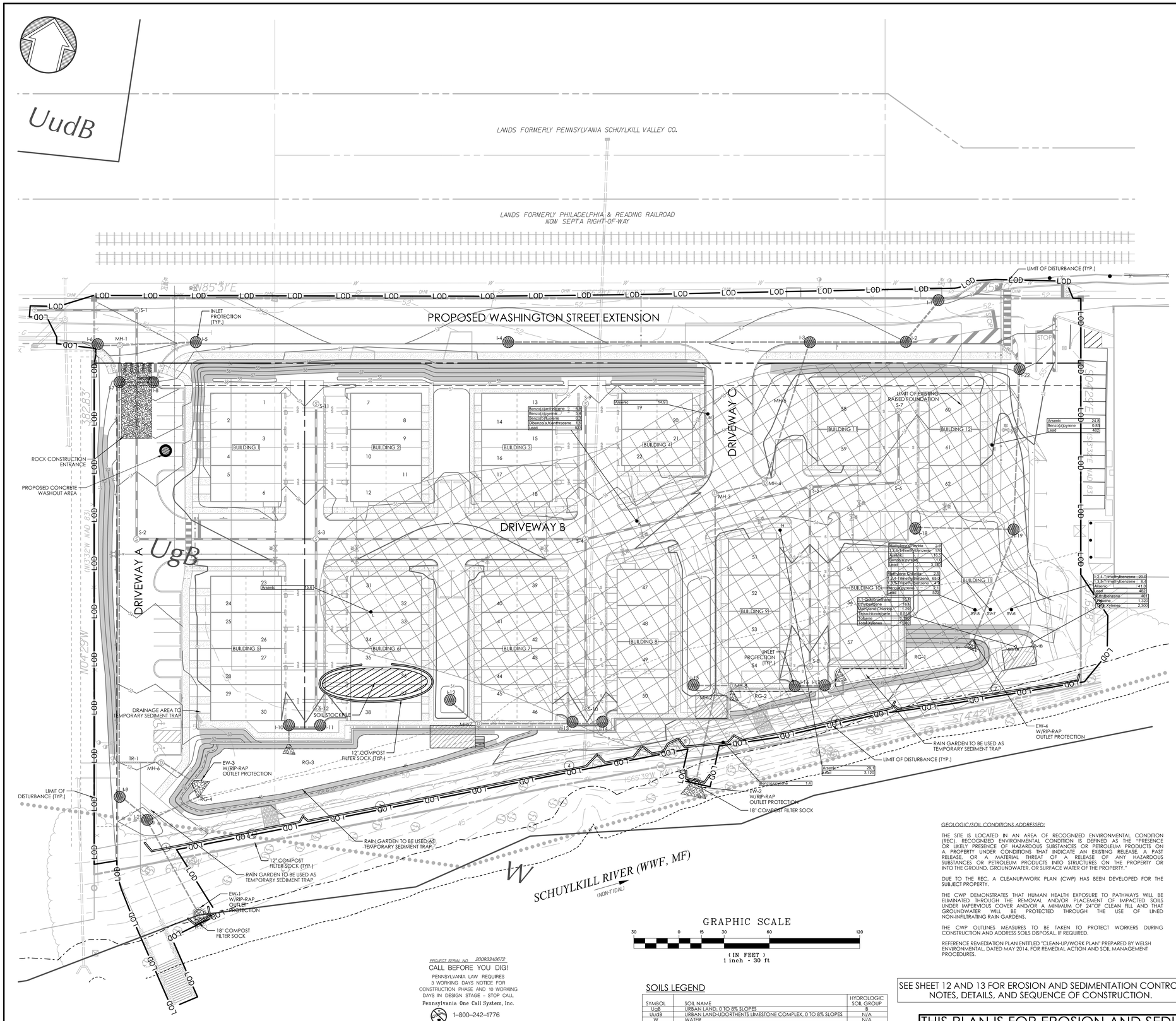

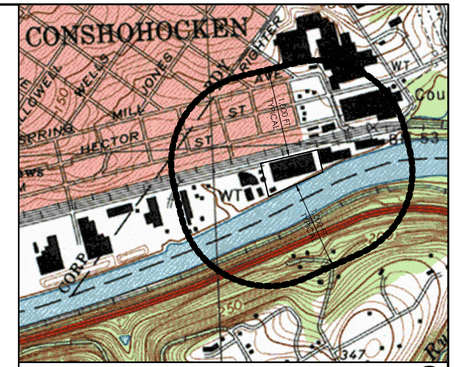

SOURCE: NORRISTOWN QUAD
LOCATION: 040°04'23.09"N
075°17'25.72"W

LOCATION MAP
SCALE: 1" = 800'

SITE SECURITY
EXISTING FENCE ALONG THE WESTERN AND NORTHERN SECTIONS WITH A LOCKING GATE CONTROLLING ACCESS AT WASHINGTON STREET WILL REMAIN IN PLACE. THE SITE PERIMETERS TO THE NORTH AND EAST WILL BE FENCED TO LIMIT ACCESS TO THE WORK AREAS. NO TRESS PASS SIGNS WILL BE PLACED ALONG THE FENCE PERIMETER.

NOTES:
1. INLET PROTECTION IS TO BE PLACED ON ALL EXISTING INLETS WITHIN THE LIMIT OF DISTURBANCE PRIOR TO CONSTRUCTION.
2. ROCK CONSTRUCTION ENTRANCE TO BE RELOCATED WITHIN THE PERMITTED LIMIT OF DISTURBANCE AS PRACTICAL DURING CONSTRUCTION.
3. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION. HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE. HYDROSEED IS NOT CONSIDERED STABILIZATION UNTIL IT GERMINATES.
4. REFERENCE SHEET 17 OF 17 FOR SOIL AMENDMENT NOTES, MATERIALS MANAGEMENT, AND BMP'S FOR CONTAMINATED SITES.
5. SCHUYLKILL RIVER PA CHAPTER 93 CLASSIFICATION IS WARM WATER FISHES (WWF), MIGRATORY FISHES (MF).
6. REFERENCE REMEDIATION PLAN ENTITLED "CLEAN-UP/WORK PLAN" PREPARED BY WELSH ENVIRONMENTAL, DATED MAY 2014, FOR REMEDIAL ACTION AND SOIL MANAGEMENT PROCEDURES.
7. HISTORICAL SOIL BORING LOCATIONS AND SOIL CONCENTRATIONS TAKEN FROM "CLEAN-UP/WORK PLAN" PREPARED BY WELSH ENVIRONMENTAL, DATED MAY 2014, FIGURE 3.
8. WHENEVER SEDIMENTATION IS CAUSED BY EARTH DISTURBANCE ACTIVITY, IT SHALL BE THE RESPONSIBILITY OF THE PERSON CAUSING SUCH SEDIMENTATION TO REMOVE IT FROM ALL AFFECTED SURFACES, DRAINAGE SYSTEMS AND WATERCOURSES, ON SITE AND OFF SITE, AND REPAIR ANY DAMAGE AT HIS EXPENSE IMMEDIATELY.
9. PLANS FOR EARTH DISTURBANCE ACTIVITY BEARING THE STAMP OF APPROVAL OF THE TOWNSHIP ENGINEER SHALL BE MAINTAINED AT THE SITE DURING THE PROGRESS OF THE GRADING WORK AND UNTIL THE WORK HAS BEEN COMPLETED.
10. PRIOR TO START OF CONSTRCUTION TREE PROTECTION SHALL BE PLACED AROUND ALL HEALTHY TREES ON SITE.

EROSION AND SEDIMENT CONTROL PLAN
1) THE PROJECT WILL MINIMIZE THE EXTENT AND DURATION OF DISTURBANCE BY SEQUENCING THE CONSTRUCTION SUCH THAT THE ENTIRE SITE IS NOT DISTURBED AT ONE TIME AND BY STABILIZING DISTURBANCE AS SOON AS PRACTICAL. RUN-OFF DURING CONSTRUCTION IS FILTERED THROUGH EROSION CONTROL SILT SOCKS, ROCK FILTER OUTLETS, AND COMPOST BERMS, WHERE APPLICABLE. THE SLOPE LENGTHS ARE PREDOMINATELY SHORT AND VELOCITY IS MINIMIZED. THE LIMIT OF PROPOSED REDEVELOPMENT (INCLUDING GRADING AND LAND CLEARING) IS MINIMIZED AND THE PRESERVATION OF EXISTING VEGETATION IS MAXIMIZED TO THE EXTENT PRACTICAL. IN ADDITION TWO ADDITIONAL DISCHARGES TO THE WATERCOURSES AREA PROPOSED AS PART OF THIS PROJECT. THERE IS A REMEDIATION PLAN AND FINAL CHARACTERIZATION PLAN IN PLACE IF/WHEN CONTAMINATED SOILS ARE DISCOVERED DURING CONSTRUCTION.
3) THE PLAN MINIMIZES SOIL COMPACTION TO THE EXTENT PRACTICAL BY MINIMIZING THE LIMIT OF DISTURBANCE AREA AND AREA UTILIZED TEMPORARILY FOR CONSTRUCTION ACCESS.
4) STORMWATER RUNOFF WILL BE DECREASED THROUGH THE IMPLEMENTATION OF AN IMPERVIOUS AREA REDUCTION OF OVER 30,000 SF. CONTROLLED DISCHARGE FROM THE OPERATIONAL AREAS, FOUR RAIN GARDENS, AND MINIMIZED DISTURBANCE.
5. ALL EROSION AND SEDIMENTATION CONTROL DEVICES TO BE IN PLACE AND FUNCTIONING PRIOR TO ANY EARTH DISTURBANCE ACTIVITY.

LEGEND
PROPERTY LINE
EXISTING RIGHT-OF-WAY
EXISTING EASEMENT LINE
EXISTING CURB
EXISTING BUILDING
EXISTING RETAINING WALL
EXISTING FENCE
EXISTING GUIDE RAIL
EXISTING BOLLARD
EXISTING EDGE OF RIVER
EXISTING RAILROAD TRACKS
EXISTING FLOODWAY LINE
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EXISTING SANITARY SEWER WITH MANHOLE
EXISTING VENT PIPE
EXISTING CLEANOUT
EXISTING STORM SEWER WITH MANHOLE
EXISTING STORM INLETS
EXISTING WATER SERVICE WITH VALVE
EXISTING FIRE HYDRANT
EXISTING WATER MANHOLE
EXISTING WELLHEAD
EXISTING GAS SERVICE WITH VALVE
EXISTING GAS METER
EXISTING OVERHEAD ELECTRIC WIRE
EXISTING UTILITY POLE WITH GUY WIRE
EXISTING SEALED MANHOLE (UTILITY UNKNOWN)
SOIL BOUNDARY WITH LABEL
PROPOSED RIGHT-OF-WAY
PROPOSED WALKING PATH
PROPOSED BUILDING
PROPOSED SIDEWALK
PROPOSED CURB
RIPARIAN CORRIDOR ZONE 1
PROPOSED RETAINING WALL
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
PROPOSED SANITARY SEWER WITH MANHOLE
PROPOSED SANITARY CLEANOUT / VALVE
PROPOSED STORM SEWER WITH MANHOLE
PROPOSED STORM INLETS / CLEANOUT
PROPOSED ENDWALL WITH RIPRAP
PROPOSED FIRE HYDRANT
PROPOSED WATER SERVICE
PROPOSED FIRE SERVICE
PROPOSED UTILITY POLE WITH WIRING
PROPOSED LIMIT OF DISTURBANCE
PROPOSED INLET PROTECTION
PROPOSED ROCK CONSTRUCTION ENTRANCE
PROPOSED 12" COMPOST FILTER SOCK (EXCEPT WHERE NOTED)
PROPOSED SOIL STOCKPILE
EROSION CONTROL BLANKET OR MATTING
SOIL AREA OF CONCERN (PER CLEANUP / WORK PLAN BY WELSH ENVIRONMENTAL)

GEOLOGIC/SOIL CONDITIONS ADDRESSED:

THE SITE IS LOCATED IN AN AREA OF RECOGNIZED ENVIRONMENTAL CONDITION (REC). RECOGNIZED ENVIRONMENTAL CONDITION IS DEFINED AS THE "PRESENCE OR LIKELY PRESENCE OF HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS ON A PROPERTY UNDER CONDITIONS THAT INDICATE AN EXISTING RELEASE, A PAST RELEASE, OR A MATERIAL THREAT OF A RELEASE OF ANY HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS INTO STRUCTURES ON THE PROPERTY OR INTO THE GROUND, GROUNDWATER, OR SURFACE WATER OF THE PROPERTY."

DUE TO THE REC, A CLEANUP/WORK PLAN (CWP) HAS BEEN DEVELOPED FOR THE SUBJECT PROPERTY.

THE CWP DEMONSTRATES THAT HUMAN HEALTH EXPOSURE TO PATHWAYS WILL BE ELIMINATED THROUGH THE REMOVAL AND/OR PLACEMENT OF IMPACTED SOILS UNDER IMPERVIOUS COVER AND/OR A MINIMUM OF 24"OF CLEAN FILL AND THAT GROUNDWATER WILL BE PROTECTED THROUGH THE USE OF LINED NON-INFILTRATING RAIN GARDENS.

THE CWP OUTLINES MEASURES TO BE TAKEN TO PROTECT WORKERS DURING CONSTRUCTION AND ADDRESS SOILS DISPOSAL, IF REQUIRED.

REFERENCE REMEDIATION PLAN ENTITLED "CLEAN-UP/WORK PLAN" PREPARED BY WELSH ENVIRONMENTAL, DATED MAY 2014, FOR REMEDIAL ACTION AND SOIL MANAGEMENT PROCEDURES.

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft

PROJECT SERIAL NO. 20093340672
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SOILS LEGEND

SYMBOL	SOIL NAME	HYDROLOGIC SOIL GROUP
UgB	URBAN LAND, 0 TO 8% SLOPES	B
UudB	URBAN LAND-UDORTHENTS LIMESTONE COMPLEX, 0 TO 8% SLOPES	N/A
W	WATER	N/A

SEE SHEET 12 AND 13 FOR EROSION AND SEDIMENTATION CONTROL NOTES, DETAILS, AND SEQUENCE OF CONSTRUCTION.

TOTAL SITE AREA = 4.82 ACRES (209,959 SF)
AREA OF DISTURBANCE = 4.86 ACRES (214,080 SF)

THIS PLAN IS FOR EROSION AND SEDIMENTATION CONTROL PURPOSES ONLY

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5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: EROSION & SEDIMENTATION CONTROL PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	CW
date: 10/3/19	chk'd by: JPB
scale: 1" = 30'	approv. by: JPB
sheet no.	

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GENERAL CONSERVATION NOTES AND SPECIFICATIONS

INTENT OF CONSERVATION PROGRAM: THE INTENT OF THIS PROGRAM IS TO PREVENT ACCELERATED EROSION OF THE EXPOSED SITE SOILS DURING THE CONSTRUCTION AND PERMANENT LIFE PERIODS OF THE DEVELOPMENT. THE PROGRAM REQUIRES RETENTION OF ALL SEDIMENTS ON THE CONSTRUCTION SITE TO MINIMIZE THE IMPACT OF DEVELOPMENT ON EXISTING STREAMS AND ADJACENT PROPERTY OWNERS. THESE OBJECTIVES WILL BE ACHIEVED BY MINIMIZING THE EXPOSURE TIME OF POTENTIALLY EROSIVE SOILS TO RUNOFF AND INSTALLATION OF THE TEMPORARY CONSTRUCTION. THE INTENT OF THIS PROGRAM SHOULD BE UNDERSTOOD AND IMPLEMENTED THROUGHOUT THE ENTIRE DEVELOPMENT. THE VARIOUS CONSTRUCTION TRADES SHOULD BE APPRAISED OF THIS PROGRAM AND DIRECTED TO PREVENT UNDUE DISTURBANCE OF PREPARED AND PROTECTED SURFACES.

SURFACE STABILIZATION CRITERIA: ALL DENUDED SOIL SURFACES, INCLUDING SOIL STOCKPILES, ARE SUBJECT TO EROSION AND SHALL BE STABILIZED EITHER TEMPORARILY OR PERMANENTLY, IMMEDIATELY DURING NON-GERMINATION PERIODS. MULCH MUST BE APPLIED AT RECOMMENDED RATES. CRUSHED STONE ON PAVEMENT SUBGRADES IS CONSIDERED ADEQUATE PROTECTION. ALL DISTURBED ZONES AND VEGETATED REGIONS SHALL BE STABILIZED, PREFERABLY WITH A PERMANENT TREATMENT AS FOLLOWS:

SEEDING & MULCHING SPECIFICATIONS

TEMPORARY: SEEDING SHALL BE COMMON RYE GRASS APPLIED AT 45 LBS. PER ACRE. LIMING TO BE APPLIED AT 1 TON/ACRE. 50-50-50 FERTILIZER TO BE APPLIED AT 1000 LBS/ACRE. HAY OR STRAW MULCH TO BE APPLIED AT 3 TONS/ACRE

PERMANENT: SEEDING SHALL BE 15% KENTUCKY BLUEGRASS, 35% KENTUCKY 31 FESCUE, 25% CHEWINGS FESCUE, 15% PERENNIAL RYE GRASS, AND 10% RECLEANED REDTOP AT A RATE OF 60 LBS. PER ACRE. LIMING TO BE APPLIED AT 3 TONS/ACRE. 10-20-30 FERTILIZER TO BE APPLIED AT 1000 LBS/ACRE. HAY OR STRAW MULCH TO BE APPLIED AT 3 TONS/ACRE.

THE NON-GERMINATING PERIODS ARE BETWEEN 6/15 THROUGH 8/15 AND 9/30 THROUGH 4/15. AREAS DISTURBED DURING THESE PERIODS SHALL BE LIMED, FERTILIZED, SEEDED AND MULCHED IMMEDIATELY FOLLOWING THE END OF THOSE PERIODS. TOPSOIL TAKEN FROM CONSTRUCTION AREAS SHALL BE SEEDED WITH VEGETATIVE COVER AND STOCKPILES FOR REUSE IN FINISH GRADING. THERE IS TO BE NO EARTH DISTURBANCE OR VEGETATIVE CLEARING IN AREAS OUTSIDE OF THE DELINEATED AREAS TO BE DISTURBED.

MAINTENANCE PROGRAM FOR TEMPORARY SEDIMENTATION CONTROLS STRUCTURES

MAINTENANCE OF ALL TEMPORARY SEDIMENTATION CONTROL STRUCTURES SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AND AS STATED BELOW;

1. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ONE-HALF THE ABOVE-GROUND HEIGHT OF SILT FENCING.
2. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS WHEN THE SEDIMENT REACHES THE DESIGNATED CLEANOUT ELEVATION.
3. SEDIMENT MUST BE REMOVED FROM ROCK FILTERS WHEN COLLECTED SEDIMENT BEGINS TO AFFECT THE FILTER'S FUNCTION.
4. SEDIMENT REMOVED FROM THE FACILITIES MAY BE REINCORPORATED INTO THE SITE'S EARTHWORK AS FILL OR TAKEN TO A SAFE, APPROVED LOCATION, UNTIL THE SITE IS STABILIZED. ALL EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL CONTROLS AFTER EACH STORM EVENT AND ON A WEEKLY BASIS. ALL PREVENTIVE AND REMEDIAL MAINTENANCE, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY.

MAINTENANCE OF TEMPORARY SEDIMENTATION CONTROL STRUCTURES

MAINTENANCE OF ALL TEMPORARY SEDIMENTATION CONTROL STRUCTURES SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE "EROSION AND CONTROL CONTROL NARRATIVE." INSPECTION AND MAINTENANCE OF ALL FACILITIES SHALL BE MADE AFTER EACH RAIN STORM EVENT AND ON A WEEKLY BASIS.

SEDIMENT DISPOSAL:

SILT REMOVED FROM TEMPORARY SEDIMENT CONTROL STRUCTURES SHALL BE DISPOSED OF ON-SITE IN LANDSCAPED AREAS LOCATED OUTSIDE OF FLOOD PLAINS, WETLANDS, STEEP SLOPES, AND DRAINAGE SWALES. AREAS OF SEDIMENT DISPOSAL SHALL BE CONSIDERED C.V.A.

DUST CONTROL:

DUST AND OTHER PARTICULATES SHALL BE KEPT WITHIN TOLERABLE LIMITS BY USING WATER. APPLICATION SHALL BE AS NEEDED OR AS DIRECTED BY THE TOWNSHIP ENGINEER OR THE CONSERVATION DISTRICT.

CRITICAL VEGETATION AREAS (C.V.A.):

CRITICAL VEGETATION AREAS ARE TO BE GRADED, HYDROSEEDED AND MULCHED WITHIN 10 DAYS OF THE BEGINNING OF EXCAVATION. IN GENERAL, CRITICAL VEGETATION AREAS ARE DEFINED AS CUT SLOPES STEEPER THAN 3:1, ALL FILL SLOPES STEEPER THAN 4:1 AND IN ALL DRAINAGE SWALES.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS, SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER NOR EXIT DIRECTLY FROM LOTS (SPECIFY LOT NUMBERS) ONTO (SPECIFY ROAD NAMES).
15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY, IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
19. AREAS WHICH ARE TO BE TOP SOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES -- 0 TO 12 INCHES ON COMPACTED SOILS -- PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES (CONTINUED)

22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WITHIN WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
29. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY, IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN ADDITIONAL CRIMINAL PENALTIES FOR EACH VIOLATION, AND UP TO $25,000 FOR MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
34. ALL EARTHEN STOCKPILES TO BE STABILIZED WITH TEMPORARY VEGETATION AND TO BE MULCHING IMMEDIATELY.

GENERAL NOTES FOR UTILITY CONSTRUCTION

1. EXCAVATED MATERIAL SHOULD BE STAGED ON THE UPSTREAM SIDE OF A TRENCH.
2. THE DAILY EXTENT OF TRENCHING SHOULD NOT EXCEED WHAT CAN BE BACKFILLED AND STABILIZED IN ONE WORKING DAY.
3. EROSION CONTROL BLANKET SHOULD BE PLACED OVER DISTURBED AREAS (NOT INCLUDING AREAS OF PROPOSED ROADWAYS; DURING CONSTRUCTION ACTIVITIES).

MAINTENANCE PROGRAM FOR PERMANENT STORMWATER MANAGEMENT FACILITIES

MAINTENANCE OF ALL PERMANENT STORMWATER MANAGEMENT RAIN GARDENS SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION AS DESCRIBED IN THE OPEN SPACE MANAGEMENT PLAN AND AS STATED BELOW;

1. THE RAIN GARDENS SHOULD BE INSPECTED, CLEARED OF DEBRIS, AND MOWED ONCE A YEAR IN MID- TO LATE APRIL TO ELIMINATE WOODY PLANT GROWTH. THE RAIN GARDENS SHOULD NEVER BE CUT SHORTER THAN SIX INCHES. CLIPPINGS SHALL NOT BE LEFT WITHIN THE RAIN GARDEN BUT DISTRIBUTED ON THE DOWNSTREAM SIDE OF THE BERM. INVASIVE OR WOODY PLANTS THAT CANNOT BE CONTROLLED THROUGH MANUAL MOWING SHALL BE REMOVED BY MECHANICAL MEANS. THE USE OF HERBICIDES OR FERTILIZERS IS STRICTLY PROHIBITED WITHIN THE RAIN GARDEN AREAS.
2. THE RAIN GARDENS SHALL BE PHYSICALLY INSPECTED ONCE ANNUALLY BY THE HOA FOR STRUCTURAL DAMAGE OR EROSION, AND VISUALLY INSPECTED AFTER EACH MAJOR STORM EVENT. RESTORATION OF DISTURBED RAIN GARDENS SHALL BE COMPLETED IMMEDIATELY FOLLOWING DISTURBANCE USING A WETLAND MEADOW MIX.
3. THE HOA SHALL CONSULT A LICENSED ENGINEER IN THE EVENT OF A MALFUNCTION OF THE STORMWATER MANAGEMENT FACILITIES OR PERSISTENT EROSION PROBLEMS.
4. THE TOWNSHIP SHALL BE PERMITTED TO INSPECT THE STORMWATER MANAGEMENT RAIN GARDENS AS NECESSARY TO ENSURE CONSISTENCY WITH THE OPEN SPACE MANAGEMENT PLAN, AND TO ENSURE THE HEALTH AND SAFETY OF ITS RESIDENTS.
5. THE ROADSIDE SWALES WILL BE MAINTAINED BY THE TOWNSHIP AS PART OF THE ROADWAY MAINTENANCE. THE INDIVIDUAL LOT OWNER WILL BE RESPONSIBLE FOR THE MOWING OF THE ROADSIDE SWALES AS PART OF THE ROUTINE LOT MAINTENANCE.

E&S BEST MANAGEMENT PRACTICES (BMPS) FOR CONTAMINATED SITES

NON-STRUCTURAL EROSION CONTROL RECOMMENDATIONS:
1. MINIMIZE DISTURBANCE: LIMIT THE EXTENT AND DURATION OF EARTH DISTURBANCE ACTIVITIES.

A) SPATIALLY -THROUGH PHASING AND/OR USING LESS INTRUSIVE EARTH DISTURBANCE TECHNIQUES/EQUIPMENT. AVOID AND MINIMIZE THE IMPACT OF ACCESSORY AREAS THAT ARE NOT NECESSARY FOR THE PROJECT. STAKE AND INSTALL PROTECTION FENCE TO IDENTIFY THE AREAS THAT ARE NOT TO BE DISTURBED BY CONTRACTORS / SUBCONTRACTORS.

B) TEMPORALLY - PROVIDE SEASONAL/TIME RESTRICTIONS AND PAY CAREFUL ATTENTION TO WEATHER FORECASTING. SCHEDULE CONSTRUCTION, GRADING, AND LAND DISTURBING ACTIVITIES TO MINIMIZE SOIL EXPOSURE. AND AVOID HEAVY RUNOFF SEASONS. USE EFFECTIVE SCHEDULING TO MINIMIZE SOIL EXPOSURE BETWEEN INITIAL GRADING AND COMPLETION OF FINAL GRADING OR INSTALLATION OF IMPROVEMENTS.

2. DUST CONTROL AND SUPPRESSION: IMPLEMENT APPROPRIATE PRACTICES AND PROCEDURES FOR DUST CONTROL, ESPECIALLY DURING DRY AND WINDY PERIODS.

3. CONTINGENCY PLAN - A CONTINGENCY PLAN AND ADDITIONAL SAFETY PROTOCOLS MUST BE IN PLACE IN THE EVENT CONTAMINATION IS UNCOVERED TO LIMIT EXPOSURE AND ABATE THE PROBLEM AS SOON AS POSSIBLE.

4. IMPLEMENT AND ADHERE TO THE STIPULATIONS OF THE REMEDIATION AND CLEANUP/WORK PLANS AS SOON AS CONTAMINATION IS DISCOVERED.

STRUCTURAL (STABILIZATION) EROSION CONTROL RECOMMENDATIONS:

IN ORDER TO AVOID ISSUES WITH SURFACE WATER DISCHARGES OF CONTAMINATED RUNOFF DURING EARTH DISTURBANCE ACTIVITIES, THE FOLLOWING MEASURES SHALL BE IMPLEMENTED UPON THE DISCOVERY AND CLASSIFICATION OF CONTAMINATED SOILS THAT WILL BE EXCAVATED, RELOCATED AND/OR TRANSPORTED OFF SITE.

DURING CONSTRUCTION, COMPOST WILL BE UTILIZED TO REMEDIATE SOILS CONTAMINATED BY VOLATILE ORGANIC COMPOUNDS (VOC'S). IT IS RECOMMENDED THAT THE CONTRACTOR HAVE IMMEDIATE ACCESS TO COMPOST STOCKPILED ON SITE. COMPOST WILL BE USED AS FOLLOWS:

- SPREAD AS A MULCH TO PROVIDE TEMPORARY COVER/STABILIZATION OVER CONTAMINATED AREAS.
- CONSTRUCT FILTER BERMS OR GEOTEXTILE TUBES/SOCKS FOR USE AS A SEDIMENT BARRIER.
- USE AS A SOIL AMENDMENT TO IMPROVE ABSORPTION AND RETENTION CHARACTERISTICS.

EXCAVATED AREAS SHALL BE STABILIZED IMMEDIATELY WHERE EARTH DISTURBANCE UNCOVERS CONTAMINATED SOILS USING THE FOLLOWING:

MATS/BLANKETS/LININGS/MULCHING - INCLUDING COMPOST. TEMPORARY AND/OR PERMANENT SEEDING/VEGETATION FOR ISOLATION AND SHIELDING:

- TARPS – TARPS SHOULD BE USED TO COVER SMALL PILES OF CONTAMINATED SOILS WAITING FOR TESTING AND HANDLING OPERATIONS.
- TEMPORARY DAILY COVER – PROVIDE TEMPORARY COVER FOR LARGER STOCKPILES WHERE TARPS ARE NOT FEASIBLE.
- IMPERVIOUS COVER – PER THE SOIL MANAGEMENT PLAN, PLACE CONTAMINATED SOILS UNDER IMPERVIOUS AREAS. IF ADDITIONAL IMPERVIOUS AREA IS REQUIRED, CONTACT THE ENGINEER IMMEDIATELY AS MODIFICATIONS TO STORMWATER MANAGEMENT FACILITIES MAY BE REQUIRED.

SITE HOUSEKEEPING AND MATERIALS MANAGEMENT

WASTE MANAGEMENT - BUILDING MATERIALS AND OTHER CONSTRUCTION SITE WASTES MUST BE PROPERLY MANAGED AND DISPOSED OF TO REDUCE POTENTIAL FOR POLLUTION TO SURFACE AND GROUND WATERS AS PER 25 PA. CODE 102.4(b)(5)(iii). PROPER TRASH DISPOSAL, RECYCLING MATERIALS, PROPER MATERIALS HANDLING, AND SPILL PREVENTION AND CLEAN-UP REDUCE THE POTENTIAL FOR CONSTRUCTION SITE WASTES TO BE MOBILIZED BY STORMWATER RUNOFF AND CONVEYED TO SURFACE WATERS.

UNDER NO CIRCUMSTANCES MAY EROSION CONTROL BMPS BE USED FOR TEMPORARY STORAGE OF DEMOLITION MATERIALS OR CONSTRUCTION WASTES.

WHEREVER HEAVY EQUIPMENT WILL BE USED DURING CONSTRUCTION OF THE CUTS AND FILLS OR PROPOSED BUILDINGS, A POLLUTION PREVENTION AND CONTINGENCY (PPC) PLAN MUST BE AVAILABLE ON SITE. THIS PLAN DOES NOT HAVE TO BE INCLUDED IN THE E&S PLAN. THE APPLICATION FOR COVERAGE UNDER THE NPDES CONSTRUCTION PERMIT IN PENNSYLVANIA BUT SHOULD BE AVAILABLE ON PROJECT SITE. THE APPLICANT MUST PREPARE AND IMPLEMENT A PPC PLAN WHEN STORING, USING OR TRANSPORTING MATERIALS INCLUDING: FUELS, CHEMICALS, SOLVENTS, PESTICIDES, FERTILIZERS, LIVE, PETROCHEMICALS, WASTEWATER, WASH WATER, CORE DRILLING WASTEWATER, CEMENT, SANITARY WASTES, SOLID WASTES, OR HAZARDOUS MATERIALS ONTO, ON, OR FROM THE PROJECT SITE DURING EARTH DISTURBANCE ACTIVITIES. THE PPC PLAN MUST BE AVAILABLE UPON REQUEST BY THE DEPARTMENT OR CONSERVATION DISTRICT. GUIDANCE FOR DEVELOPMENT OF A PPC PLAN CAN BE FOUND IN "GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF ENVIRONMENTAL EMERGENCY RESPONSE PLANS" (DOCUMENT #400-2200-001), WHICH CAN BE FOUND IN THE DEPARTMENT'S ELIBRARY AT WWW.DEPWEB.STATE.PA.US.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS MUST BE FOLLOWED IN THE USE, HANDLING, AND DISPOSAL OF POTENTIALLY HAZARDOUS MATERIALS.

CONCRETE WASHOUT - FOR ANY PROJECT ON WHICH CONCRETE WILL BE POURED OR OTHERWISE FORMED ON SITE, A SUITABLE WASHOUT FACILITY MUST BE PROVIDED FOR THE CLEANING OF CHUTES, MIXERS, AND HOPPERS OF THE DELIVERY VEHICLES UNLESS WITHIN A FACILITY WHICH HAS A DISCHARGE PERMIT. IN NO CIRCUMSTANCES MAY WASH WATER FROM THESE VEHICLES BE ALLOWED TO ENTER ANY SURFACE WATERS. MAKE SURE THAT PROPER SIGNAGE IS PROVIDED TO DRIVERS SO THAT THEY ARE AWARE OF THE PRESENCE OF WASHOUT FACILITIES.

WASHOUT FACILITIES SHOULD NOT BE PLACED WITHIN 50 FEET OF STORM DRAINS, OPEN DITCHES OR SURFACE WATERS. THEY SHOULD BE LOCATED IN A CONVENIENT LOCATION AND PREFERABLY NEAR THE PLACE WHERE THE CONCRETE IS BEING POURED, BUT FAR ENOUGH FROM OTHER VEHICULAR TRAFFIC TO MINIMIZE THE POTENTIAL FOR ACCIDENTAL DAMAGE OR SPILLS. WHEREVER POSSIBLE, THEY SHOULD BE LOCATED ON SLOPES NOT EXCEEDING 2% GRADE.

COMPOST SOCK WASHOUT

WHEREVER COMPOST SOCK WASHOUTS ARE USED, A SUITABLE IMPERVIOUS GEOMEMBRANE SHOULD BE PLACED AT THE LOCATION OF THE WASHOUT. COMPOST SOCKS SHOULD BE STAKED IN THE MANNER RECOMMENDED BY THE MANUFACTURER AROUND PERIMETER OF THE GEOMEMBRANE SO AS TO FORM A RING WITH THE ENDS OF THE SOCK LOCATED AT THE UP-SLOPE CORNER (FIGURE 3.18). CARE SHOULD BE TAKEN TO ENSURE CONTINUOUS CONTACT OF THE SOCK WITH THE GEOMEMBRANE AT ALL LOCATIONS, WHEN NECESSARY. SOCKS MAY BE STACKED AND STAKED SO AS TO FORM A TRIANGULAR CROSS-SECTION.

SOIL MANAGEMENT

THE CONTRACTOR SHALL FOLLOW THE REMEDIATION AND SOIL MANAGEMENT PLAN BY WELSH ENVIRONMENTAL FOR RECOMMENDED IMPLEMENTATIONS.

INDIVIDUALS RESPONSIBLE FOR EARTH DISTURBANCE ACTIVITIES MUST ENSURE THAT PROPER MECHANISMS ARE IN PLACE TO CONTROL WASTE MATERIALS. EXAMPLES OF CONSTRUCTION WASTE INCLUDES (BUT IS NOT LIMITED TO) EXCESS MATERIALS, DAMAGED MATERIALS, SANITARY WASTES, AND GENERAL TRASH THAT COULD ADVERSELY AFFECT WATER QUALITY. MEASURES SHOULD BE PLANNED AND IMPLEMENTED FOR HOUSEKEEPING OF THE SITE. MATERIALS MANAGEMENT, AND LITTER CONTROL. RECYCLING OF EXCESS MATERIAL RATHER THAN DISPOSAL IS PREFERRED WHENEVER POSSIBLE. SEDIMENT REMOVED FROM EROSION CONTROL MEASURES OR FACILITIES AND OTHER SOILS DEEMED UNSUITABLE FOR USE AS FILL SHALL BE STABILIZED AND DISPOSED OF OFFSITE AT AN APPROVED FACILITY. ALL CONCRETE WASH WATER SHALL BE DISPOSED OF OFFSITE. OFFSITE DISPOSAL MUST COMPLY WITH ALL LOCAL, COUNTY, STATE, AND FEDERAL RULES, REGULATIONS, AND LAWS.

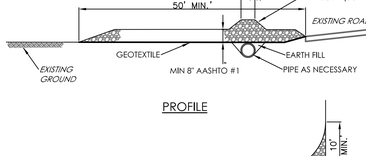
DESCRIPTION OF REMEDIAL ACTION

EXCESS VOLUME OF CONTAMINATED MATERIALS THAT CANNOT BE DISPOSED WITHIN THE FORMER SOLVENT TANK VAULT (PRIOR TO CAPPING) WILL BE CHARACTERIZED AND DISPOSED OF OFFSITE IN AN APPROVED LANDFILL. EXCESS HISTORIC FILL WILL ALSO BE CHARACTERIZED TO DETERMINE APPROPRIATE DISPOSITION, EITHER AS CLEAN FILL OR AS CONTAMINATED MATERIAL. THE FOLLOWING REMEDIAL ACTIVITIES WILL TAKE PLACE AS DESCRIBED BELOW:

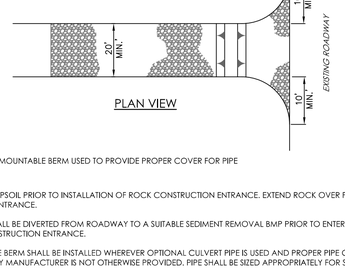
PHASE I ACTIVITIES, BUILDING, SLAB AND ASPHALT REMOVAL
EARTH DISTURBANCE ACTIVITIES ON THE SUBJECT PROPERTY WILL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. ALL EARTHWORK ACTIVITIES IMPACTING THE SOILS AOC SHALL BE IN CONFORMANCE WITH THE MONTGOMERY COUNTY CONSERVATION DISTRICT'S APPROVED E&SC DOCUMENTS, AND THE CLEANUP/WORK PLAN.

•A MINIMUM OF THIRTY (30) DAYS PRIOR TO ANY EARTH DISTURBANCE. THE DEVELOPER/CONTRACTOR SHALL NOTIFY PADEP ACT 2 LAND RECYCLING PROGRAM/ENVIRONMENTAL CLEANUP DEPARTMENT IN WRITING THAT EARTH DISTURBANCE IS ABOUT TO BEGIN ON THE SITE. THE NOTIFICATION LETTER SHALL CONTAIN THE ACT 2 FACILITY EFACTS NO. 758570 FOR THE PROPERTY. (REFER TO CWP APPENDIX A).

•AT LEAST 7 DAYS BEFORE ANY EARTH MOVING BEGINS, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED



PROFILE



PLAN VIEW

* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

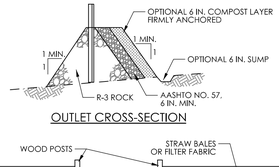
RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

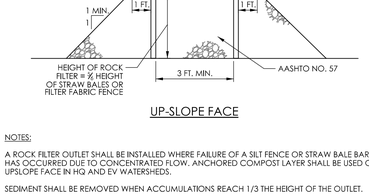
MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL #3-1 ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



OUTLET CROSS-SECTION



UP-SLOPE FACE

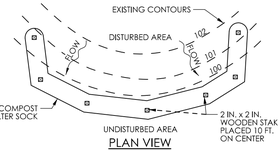
NOTES:

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

STANDARD CONSTRUCTION DETAIL #4-6 ROCK FILTER OUTLET

NOT TO SCALE



SECTION

PLAN VIEW

TABLE 4.2 - COMPOST STANDARDS	
ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.5
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	30% - 50% PASS THROUGH 3/8" SIEVE
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM

COMPOST FILTER SOCK MIX SPECIFICATIONS

NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

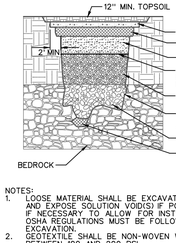
BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTO DEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

WHERE SOCKS ARE PLACED ON PAVED SURFACES, CONCRETE BLOCKS SHOULD BE USED IMMEDIATELY DOWN SLOPE OF THE SOCKS (AT THE SAME INTERVALS RECOMMENDED FOR THE STAKES) TO HELP HOLD THE SOCK IN PLACE.

STANDARD CONSTRUCTION DETAIL #4-1 COMPOST FILTER SOCK

NOT TO SCALE



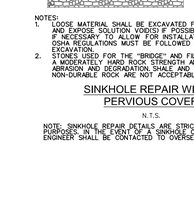
NOTES:

1. LOOSE MATERIAL SHALL BE EXCAVATED FROM THE SINKHOLE AND EXPOSE SOLUTION VOID(S) IF POSSIBLE. ENLARGE SINKHOLE IF NECESSARY TO ALLOW FOR INSTALLATION OF FILTER MATERIALS OSHA REGULATIONS MUST BE FOLLOWED AT ALL TIMES DURING EXCAVATION.
2. GEOTEXTILE SHALL BE NON-WOVEN WITH A BURST STRENGTH BETWEEN 100 AND 200 PSI.
3. SELECT FIELD STONE(S) ABOUT 1.5 TIMES LARGER THAN SOLUTION VOID(S) TO FORM "BRIDGE". PLACE ROCK(S) SO NO LARGE OPENINGS EXIST ALONG SIDES. STONES USED FOR "BRIDGE" AND FILTERS SHALL HAVE A MODERATELY HARD ROCK STRENGTH AND BE RESISTANT TO ABRASION AND DEGRADATION. SHALE AND SIMILAR SOFT AND/OR NON-DURABLE ROCK ARE NOT ACCEPTABLE.
4. MINIMUM THICKNESS OF R-4 ROCK IS 18". AASHTO NO. 57 STONE THICKNESS SHALL BE ¼ TO ½ THAT OF THE R-4 ROCK. MINIMUM THICKNESS OF 2A MODIFIED CRUSHED STONE SHALL BE 9". AASHTO NO. 57 STONE AND 2A MODIFIED CRUSHED STONE SHALL BE COMPACTED AFTER EACH PLACEMENT.
5. COMPACTED CLAY SEAL SHALL BE MINIMUM OF 12" THICK. CLAY SHALL BE PLACED IN 6" TO 9" LIFTS AND THOROUGHLY COMPACTED.
6. CONCRETE CAP, WHICH IS OPTIONAL, SHALL BE MINIMUM OF 8" THICK. USE 4,000 PSI CONCRETE WITH 6" X 6" - 6 GAUGE WELDED WIRE FABRIC, OR #3 REBAR ON 18" O.C. BOTH WAYS.
7. TOPSOIL SHALL BE MINIMUM OF 12" THICK. GRADE FOR POSITIVE DRAINAGE AWAY FROM SINKHOLE AREA.

SINKHOLE REPAIR WITH AN IMPERVIOUS COVER

NOT TO SCALE

NOTE: SINKHOLE REPAIR DETAILS ARE STRICTLY FOR INFORMATIONAL PURPOSES. IN THE EVENT OF A SINKHOLE ON-SITE, A GEOTECHNICAL ENGINEER SHALL BE CONTACTED TO OVERSEE THE REPAIR



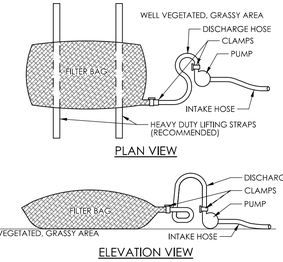
NOTES:

1. LOOSE MATERIAL SHALL BE EXCAVATED FROM THE SINKHOLE AND EXPOSE SOLUTION VOID(S) IF POSSIBLE. ENLARGE SINKHOLE IF NECESSARY TO ALLOW FOR INSTALLATION OF FILTER MATERIALS OSHA REGULATIONS MUST BE FOLLOWED AT ALL TIMES DURING EXCAVATION.
2. STONES USED FOR THE "BRIDGE" AND FILTERS SHALL HAVE A MODERATELY HARD ROCK STRENGTH AND BE RESISTANT TO ABRASION AND DEGRADATION. SHALE AND SIMILAR SOFT AND/OR NON-DURABLE ROCK ARE NOT ACCEPTABLE.

SINKHOLE REPAIR WITH A PERVIOUS COVER

N.T.S.

NOTE: SINKHOLE REPAIR DETAILS ARE STRICTLY FOR INFORMATIONAL PURPOSES. IN THE EVENT OF A SINKHOLE ON-SITE, A GEOTECHNICAL ENGINEER SHALL BE CONTACTED TO OVERSEE THE REPAIR



PLAN VIEW

ELEVATION VIEW

NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTANT MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

MAINTENANCE: FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

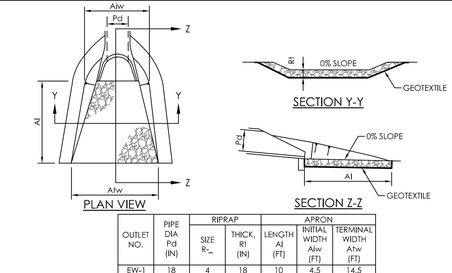
STANDARD CONSTRUCTION DETAIL #3-16 PUMPED WATER FILTER BAG

NOT TO SCALE

NOTE:
STOCKPILE SHEETING SHALL BE ULTRAVIOLET RESISTANT. COLD CRACK RESISTANT TO -40 DEGREE FAHRENHEIT, AND FREE OF HOLES AND FOREIGN MATTER.

MATERIALS MANAGEMENT STOCKPILE DETAIL

NOT TO SCALE



PLAN VIEW

SECTION Y-Y

SECTION Z-Z

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE R^{-}_{50}	RIPRAP THICK. Rt (IN)	RIPRAP LENGTH Al (FT)	APRON INITIAL WIDTH Atw (FT)	APRON TERMINAL WIDTH Atw (FT)
EW-1	18	4	18	10	4.5	14.5
EW-2	24	4	18	12	6	18
EW-3	18	4	18	8	4.5	12.5
EW-4	18	4	18	8	4.5	12.5

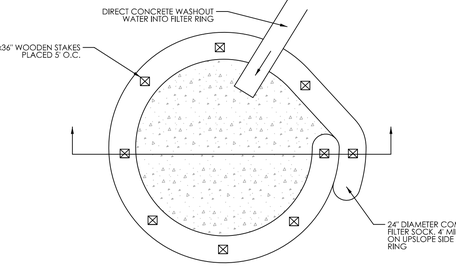
NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

STANDARD CONSTRUCTION DETAIL #9-1 RIPRAP APRON AT PIPE OUTLET WITH FLARED END SECTION OR ENDWALL

NOT TO SCALE

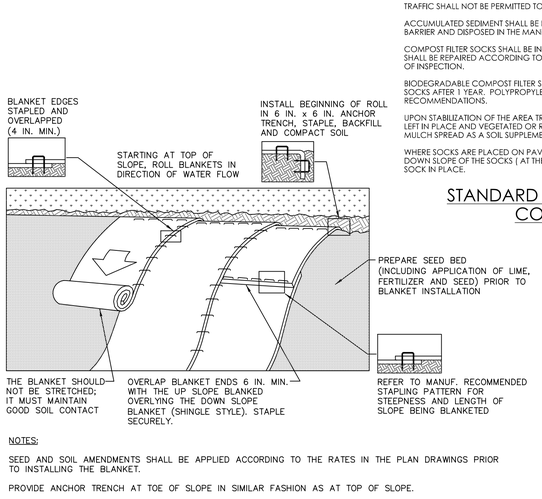


NOTES:

1. A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.
2. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE.
3. 18" DIAMETER FILTER SOCKS MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.
4. MAINTENANCE: ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY. WHEN WASHOUT MATERIAL REACHES 50% CAPACITY OF FILTERING HEIGHT, STOP USAGE OF THAT RING. WHEN STABLE, BREAK UP CONCRETE WASHOUT MATERIAL AND DISPOSE OF APPROPRIATELY. PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.

CONTROLLED NON-DISCHARGE CONCRETE WASH OUT

N.T.S.



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

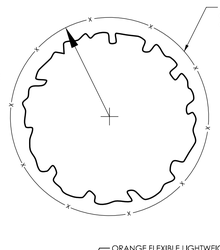
BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

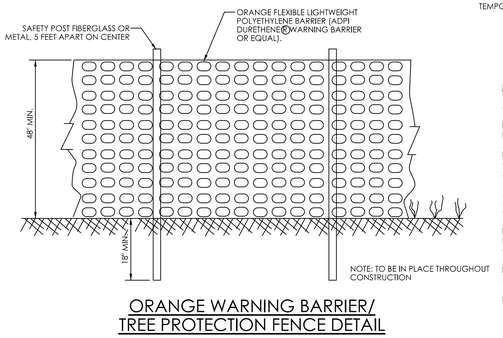
THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

MAINTENANCE: BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

STANDARD CONSTRUCTION DETAIL #11-1 EROSION CONTROL BLANKET INSTALLATION

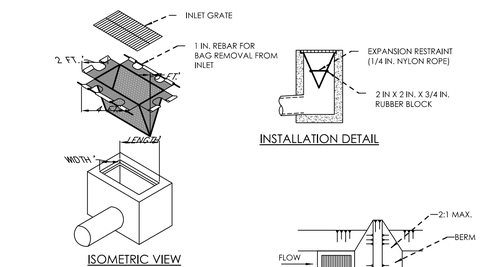
NOT TO SCALE





ORANGE WARNING BARRIER/ TREE PROTECTION FENCE DETAIL

N.T.S.



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

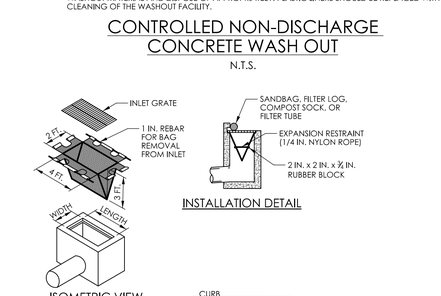
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-16 FILTER BAG INLET PROTECTION - TYPE M INLET

NOT TO SCALE



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-15 FILTER BAG INLET PROTECTION - TYPE C INLET

NOT TO SCALE

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REVISIONS				
date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: EROSION & SEDIMENTATION CONTROL DETAIL SHEET

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	CW
date: 10/3/19	chk'd by: JPB
scale: N.T.S.	approv. by: JPB
sheet no.	

13 of 23

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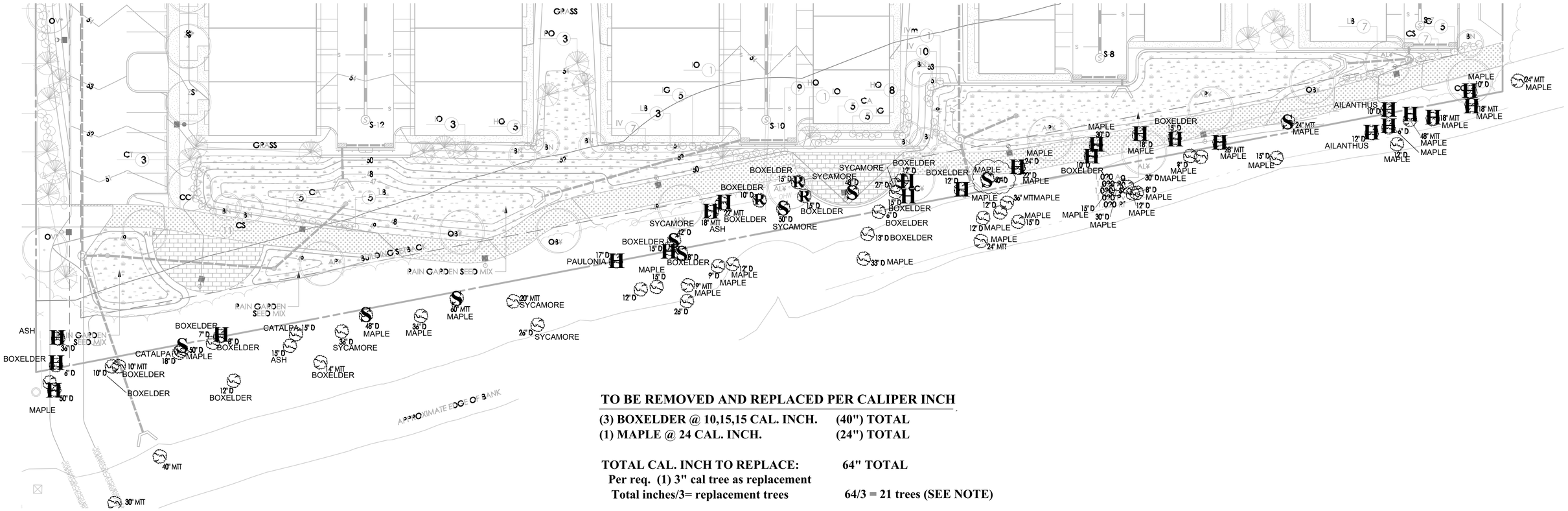


TO BE REMOVED AND REPLACED PER CALIPER INCH

(3) BOXELDER @ 10,15,15 CAL. INCH.	**(40") TOTAL**
(1) MAPLE @ 24 CAL. INCH.	**(24") TOTAL**
TOTAL CAL. INCH TO REPLACE:	**64" TOTAL**
Per req. (1) 3" cal tree as replacement	
Total inches/3= replacement trees	**64/3 = 21 trees (SEE NOTE)**

NOTE: 24" caliper maple may end up being saved, resulting in 40 caliper inches of required replacement. However, developer agrees to replace tree material equivalent of 64 caliper inches regardless.

H	**HAZARD TREE(NO REPLACEMENT REQUIRED)**	**18; 6 off property**
R	**REMOVE AND REPLACE PER CALIPER INCH.**	**4**
S	**TREES TO BE SAVED. INCLUDES HERITAGE TREES**	**8; 38 off property**

NOTE: Survey of existing trees provided by Nave Newell on 1-22-2020.

TREE SURVEY PLAN

REV. 6-2-2020

PPM DESIGN/ BUILD

LANDSCAPE ARCHITECTURE
LAND PLANNING
DESIGN/ BUILD

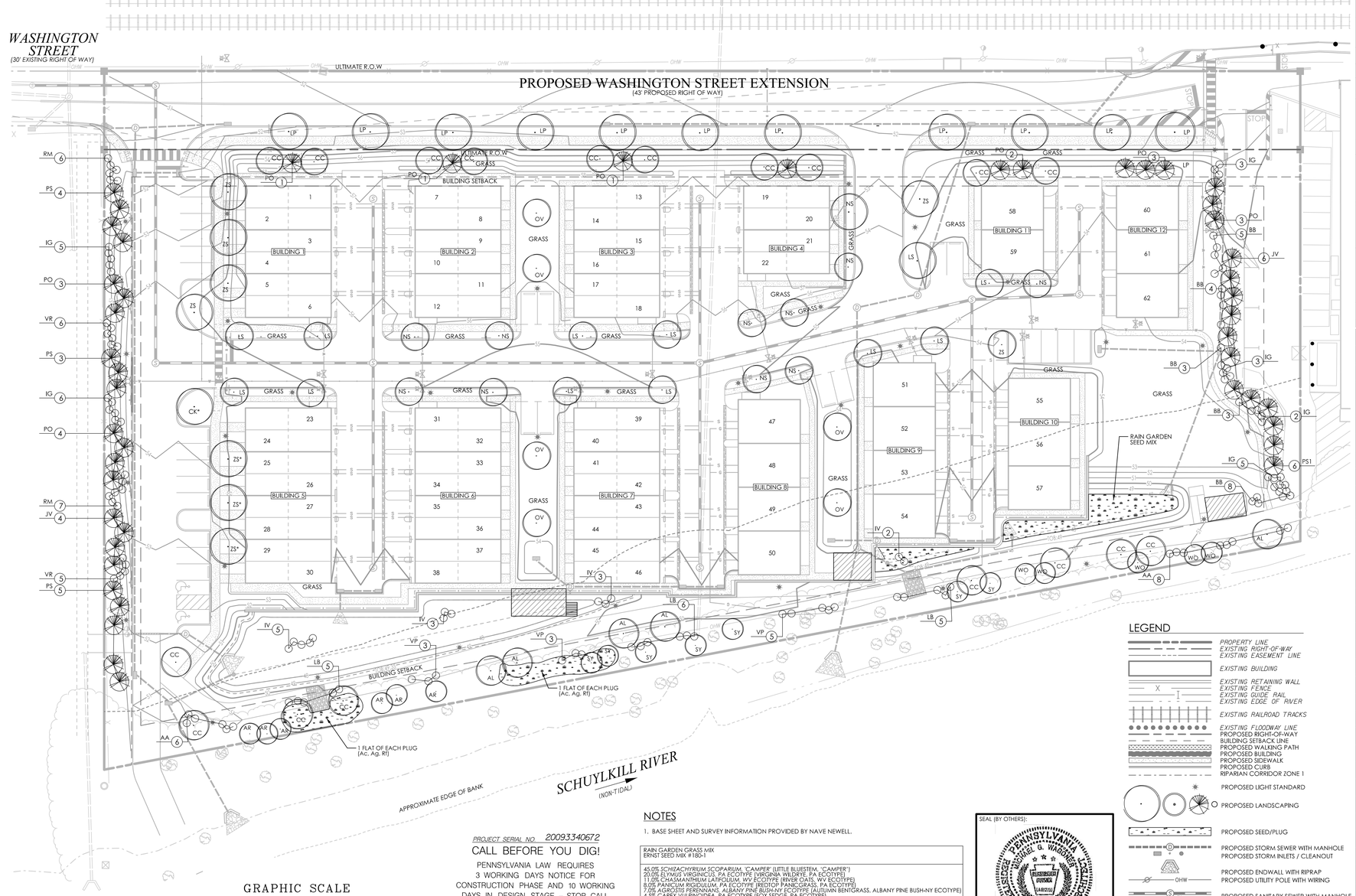
PPM

NOTES

1. ALL PLANT MATERIALS SHALL MEET THE STANDARDS OF THE AMERICAN STANDARD FOR NURSERY STOCK BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION (2014), OR MORE RECENT EDITION.
2. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR A PERIOD OF 18 MONTHS FROM THE DATE OF DEDICATION OR CLOSE OUT OF CONSTRUCTION. ANY PLANT MATERIAL 25% OR MORE OF WHICH IS DEAD SHALL BE CONSIDERED DEAD. A TREE SHALL BE CONSIDERED DEAD WHEN THE MAIN LEADER HAS DIED OR 25% OF THE CROWN IS DEAD. ANY DEAD PLANT MATERIAL SHALL BE REPLACED AND INSTALLED ACCORDING TO THE APPROVED PLANTING PRACTICES IN ACCORDANCE WITH THE LANDSCAPE PLAN.
3. THIS PLAN IS FOR LANDSCAPING ONLY. ALL SITE IMPROVEMENTS INCLUDING, BUT NOT LIMITED TO, BUILDING LOCATIONS, CURBING, SIDEWALK, UTILITIES, AND THEIR ANCILLARY APPURTENANCES, ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE SUBJECT TO MODIFICATION AND REVISION. CONTRACTOR SHALL REFER TO THE SITE PLAN, GRADING PLAN, AND UTILITY PLANS, AND THEIR RELATED DETAIL SHEETS, FOR ALL SITE IMPROVEMENTS OTHER THAN LANDSCAPING.
4. THERE SHALL BE NO SUBSTITUTES FOR SPECIFIED PLANTS WITHOUT WRITTEN APPROVAL BY NAVE NEWELL.
5. A PRE-CONSTRUCTION CONFERENCE SHALL BE SCHEDULED WITH THE TOWNSHIP SHADE TREE COMMISSION PRIOR TO THE START OF ANY CONSTRUCTION.
6. UNLESS OTHERWISE NOTED, ALL DISTURBED AREAS SHALL BE SEEDED.
7. ALL TREES SHALL HAVE DEER PROTECTION INSTALLED AT THE TIME OF PLANTING.
8. STREET TREES AND OTHER REQUIRED PLANT MATERIAL SHALL NOT BE PLANTED UNTIL THE FINISHED GRADING HAS BEEN COMPLETED.

WAIVERS REQUESTED - PERTAINING TO LANDSCAPE

1. CH. 55-4.B.(6)(f)(1) - 30% OF REPLACEMENT TREES MAY BE REPLACED WITH ORNAMENTAL/FLOWERING TREES OR EVERGREEN TREES AT A RATIO OF TWO FLOWERING OR TWO EVERGREEN TREES PER REQUIRED 3" CALIPER SHADE TREE.
2. CH. 105-52.B(2) - ALL BUFFERS SHALL HAVE A MINIMUM WIDTH OF 50'.
3. CH. 105-52.A - BUFFERS REQUIRED BETWEEN LAND DEVELOPMENTS.
4. CH. 105.39(A) - LANDSCAPING OF PARKING FACILITIES.



PROJECT SERIAL NO. 20093340672

CALL BEFORE YOU DIG!

PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE – STOP CALL

Pennsylvania One Call System, Inc.

1–800–242–1776

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft

NOTES

1. BASE SHEET AND SURVEY INFORMATION PROVIDED BY NAVE NEWELL.

RAIN GARDEN GRASS MIX
ERNST SEED MIX #180-1

45.0% *SCHIZACHYRIUM SCOPARIUM*, 'CAMPER' (LITTLE BLUESTEM, 'CAMPER')
20.0% *ELYMUS VIRGINICUS*, PA ECOTYPE (VIRGINIA WILDRYE, PA ECOTYPE)
11.0% *CHASMANTHIUM LATIFOLIUM*, WV ECOTYPE (RIVER OATS, WV ECOTYPE)
8.0% *PANICUM RIGIDULUM*, PA ECOTYPE (REDTOP PANICGRASS, PA ECOTYPE)
7.0% *AGROSTIS PERENNANS, ALBANY PINE BUSH-NY ECOTYPE* (AUTUMN BENTGRASS, ALBANY PINE BUSH-NY ECOTYPE)
4.5% *CAREX VULPINOIDEA*, PA ECOTYPE (FOX SEDGE, PA ECOTYPE)
3.0% *PANICUM SPHAERONCARPON* (ROUND SEED PANICGRASS)
1.0% *JUNCUS EFFUSUS* (SOFT RUSH)
0.5% *CAREX SCOPARIA*, PA ECOTYPE (BLUNT BROOM SEDGE, PA ECOTYPE)

SEEDING RATE:
15 LB PER ACRE WITH COVER CROP OF GRAIN RYE AT 30 LB PER ACRE

SEAL (BY OTHERS):

PENNSYLVANIA LICENSED LANDSCAPE ARCHITECT
MICHAEL G. WAGONER
LICENSE NO. LA002127
RENEWAL DATE 12/31/2020

MICHAEL WAGONER
PPM DESIGN/BUILD
Registered Landscape Architect

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT LINE
- EXISTING BUILDING
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING GUIDE RAIL
- EXISTING EDGE OF RIVER
- EXISTING RAILROAD TRACKS
- EXISTING FLOODWAY LINE
- PROPOSED RIGHT-OF-WAY
- BUILDING SETBACK LINE
- PROPOSED WALKING PATH
- PROPOSED BUILDING
- PROPOSED SIDEWALK
- PROPOSED CURB
- RIPARIAN CORRIDOR ZONE 1
- PROPOSED LIGHT STANDARD
- PROPOSED LANDSCAPING
- PROPOSED SEED/PLUG
- PROPOSED STORM SEWER WITH MANHOLE
- PROPOSED STORM INLETS / CLEANOUT
- PROPOSED ENDWALL WITH RIPRAP
- PROPOSED UTILITY POLE WITH WIRING
- PROPOSED SANITARY SEWER WITH MANHOLE
- PROPOSED SANITARY CLEANOUT / VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER SERVICE
- PROPOSED FIRE SERVICE

901 Washington Street - Landscape Plan
PLANTING REQUIRMENTS VS. PROVIDED

REQUIRED		PROPOSED
SEC. 105.39(A) Parking area trees		
(1) Shade tree for every (2) spaces - 29 parking spaces	(15) Shade Trees 3" cal.	(11) Shade trees 3" cal. plus (6) flowering trees at 2" cal. at rate of 1.5 flowering trees per shade tree (flowering trees added to parking spaces at green courts).
		*** Waiver requested** to permit flowering trees in lieu of shade trees at same proportion as allowed for street trees.
SEC. 105-48.Street trees		
(1) Shade tree for every 45 lf. of road frontage or (1) Flowering tree for every 30 lf. of road frontage.		
- Washington Street - 655 lf	(15) Shade Trees 3" cal. or (22) Flowering trees 2" cal.	(11) Shade trees at 3" cal. plus (6) flowering trees at 2" cal. (calculated 1.5 flowering trees per shade tree). Flowering trees added to Washington Street berm
- Interior Streets - 1,112 lf	(25) Shade trees 3" cal. or (37) flowering trees 2" cal.	(25) Shade trees 3" cal.
SEC. 105.52A, Buffer trees		
(1) Evergreen tree per 15 lf; (1) Evergreen shrub per 8 lf.'		
- West Buffer: 345 l.f.	(23) Evergreen trees 8-10' ht; (43) evergreen shrubs 24-36" ht.	(23) Evergreen trees 8-10' ht; (43) evergreen shrubs 24-36" ht.
- East Buffer: 220 l.f.	(15) Evergreen trees 8-10' ht; (28) evergreen shrubs 24-36" ht.	(15) Evergreen trees 8-10' ht; (28) evergreen shrubs 24-36" ht.
SEC. 116.284(A).3 Trail landscaping (1) Tree per 50 lf		
- Trail: 660 l.f.	(13) Trees	(13) Flowering trees - 2 inch cal.
SEC. 55-4 Tree preservation, protection and replacement		
SEC. 55-4 B(6)(a). Every tree living or healthy tree removed: **Total caliper inches replaced with (3") caliper replacement trees. Total caliper inches removed: 64" ****	**(21) three inch caliper trees****	
ALLOCATION PERMITTED:		PROVIDED
SEC. 55-4 B(6)(f)(1). Maximum of **30%** replacement trees may be replaced with flowering or evergreen trees at the rate of 2 flowering trees per 3" shade tree or two evergreen trees per 3" shade tree	**(30%)** = (6) shade trees or (13) flowering/evergreen trees	**30% provided**: 9) Evergreen trees 8-10 ht; (4) Flowering trees at 2 inch caliper Planted along Washington St berm and at green courts
SEC. 55-4 B(6)(f)(2). Maximum of **20%** replacement trees may be replaced with shrubs at the rate of (6) shrubs per (1) three inch cal. shade tree	**(20%)**= 4 Shade trees or (25) shrubs	**43% provided** or 54 shrubs (equivalent to 9 shade trees) *** waiver requested** to increase percentage of shrubs for better stabilization of the riparian corridor
Shade Trees - **50%** at 3 inch cal. each	**(50%)** = (11) Shade trees at 3 inch cal.	**(27%) provided –** (6) shade trees at 3" cal. converted to (18) one inch cal. shade trees at the rate of (3) one inch cal. trees per 3 inch shade tree. *** waiver requested** to increase the number of Shade Trees at a smaller caliper size to improve the viability of trees planted on the riparian slope.

**** 40" maple is now able to be saved, yielding 24" of caliper requiring replacement. However, developer is choosing to plan replacement material based on the original 64 caliper inches shown.**

LANDSCAPE SCHEDULE

QTY.	SYM.	SCIENTIFIC NAME (COMMON NAME)	HEIGHT	CALIPER	ROOT	NATIVE	COMMENT
STREET TREES							
11	LP	PLATANUS x ACERIFOLIA (LONDON PLANETREE)	10-12'	3" CAL.	B&B	Y	UNIFORM SIZE & SPREAD LOWEST BRANCH TRIMMED TO 7'
6	CC	CERCIS CANADENSIS (EASTERN REDBUD)	8 - 10'	2" MIN.	B&B	Y	UNIFORM SIZE & SPREAD LOWEST BRANCH TRIMMED TO 7'
13	NS	NYSSA SYLVATICA (BLACK GUM)	10-12'	3" CAL.	B&B	Y	UNIFORM SIZE & SPREAD
12	LS	LIQUIDAMBAR STYRACIFLUA 'SLENDER' SILHOUETTE (SLENDER SILHOUETTE SWEETGUM)	10-12'	3" CAL.	B&B	Y	UNIFORM SIZE & SPREAD LOWEST BRANCH TRIMMED TO 7'
PARKING LOT TREES							
11	ZS	ZELKOVA SERRATA 'GREEN VASE' (GREEN VASE ZELKOVA)	10 - 12'	3" CAL.	B&B	Y	UNIFORM SIZE & SPREAD
6	OV	OSTRYA VIRGINIANA (IRONWOOD) FLOWERING	8 - 10'	2" MIN.	B&B	Y	UNIFORM SIZE & SPREAD
BUFFER PLANTING							
15	BB	MYRICA PENNSYLVANICA (NORTHERN BAYBERRY)	24 - 36"		CONT.	Y	UNIFORM SIZE & SPREAD
10	JV	JUNIPERUS VIRGINIANA (EASTERN RED CEDAR)	8 - 10'		B&B	Y	UNIFORM SIZE & SPREAD
15	PO	PICEA ORIENTALIS (ORIENTAL SPRUCE)	8 - 10'		B&B	N	UNIFORM SIZE & SPREAD
12	PS	PINUS STROBUS (EASTERN WHITE PINE)	8 - 10'		B&B	Y	UNIFORM SIZE & SPREAD
6	PS1	PINUS STROBUS 'FASTIGIATA' (EASTERN WHITE PINE)	8 - 10'		B&B	Y	UNIFORM SIZE & SPREAD
34	IG	ILEX GLABRA (INKBERRY)	24 - 36"		CONT.	Y	UNIFORM SIZE & SPREAD
11	VR	VIBURNUM RHYTIDOPHYLUM (LEATHERLEAF VIBURNUM)	24 - 36"		CONT.	Y	UNIFORM SIZE & SPREAD
13	RM	RHODODENDRON MAXIMUM (ROSEBAY RHODODENDRON)	24 - 36"		CONT.	Y	UNIFORM SIZE & SPREAD
RIVER FRONT TRAIL TREES							
5	AL	AMELANCHIER LAEVIS 'CUMULUS' (CUMULUS SERVICE BERRY)	6 - 8'	M.S.	B&B	Y	UNIFORM SIZE & SPREAD
8	CC	CERCIS CANADENSIS (EASTERN REDBUD)	6 - 8'	M.S.	B&B	Y	UNIFORM SIZE & SPREAD
REPLACEMENT TREES AND SHRUBS							
7	SY	PLATANUS OCCIDENTALIST (AMERICAN SYCAMORE)		1" CAL.	B&B	Y	UNIFORM SIZE & SPREAD
6	AR	ACER RUBRUM (RED MAPLE)		1" CAL.	B&B	Y	UNIFORM SIZE & SPREAD
9	PO	PICEA ORIENTALIS (ORIENTAL SPRUCE)	8 - 10'		B&B	N	UNIFORM SIZE & SPREAD
6	CC	CERCIS CANADENSIS (EASTERN REDBUD)	8 - 10'	2" MIN.	B&B	Y	UNIFORM SIZE & SPREAD
5	WO	QUERCUS ALBA (WHITE OAK)		1" CAL.	B&B	Y	UNIFORM SIZE & SPREAD
11	VP	VIBURNUM PRUNIFOLIA (BLACKHAW VIBURNUM)	24" MIN.		CONT.	Y	UNIFORM SIZE & SPREAD
16	LB	LINDERA BENZOIN (SPICEBUSH)	24" MIN.		CONT.	Y	UNIFORM SIZE & SPREAD
14	AA	ARONIA ARBUTIFOLIA (CHOKEBERRY)	24" MIN.		CONT.	Y	UNIFORM SIZE & SPREAD
13	IV	ILEX VERTICULATA (WINTERBERRY HOLLY)	24" MIN.		CONT.	Y	UNIFORM SIZE & SPREAD
ADDITIONAL PLANTINGS (RIPARIAN CORRIDOR PLANTS)							
2 FLATS	Ac	ASARUM CANADENSIS (CANADIAN GINGER)			PLUG		
2 FLATS	Ag	ANDROPOGON GERARDII (BIG BLUESTEM)			PLUG		
2 FLATS	Rf	RUDBECKIA FULGIDA (ORANGE CONEFLOWER)			PLUG		

Nave NEWELL
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900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
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www.navenewell.com

REVISIONS

date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	PER TOWNSHIP PLANNER AND ENGINEER REVIEW LETTERS	JPB	JPB
6/10/2020	3	PER TOWNSHIP PC AND SHADE TREE COMM. COMMENTS	JPB	BTK
8/20/2020	4	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	BTK

SEAL:

DRAWING NAME: PCSM / LANDSCAPE PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	MES
date: 10/3/19	chk'd by: JPB / JFL
scale: 1" = 30'	approv. by:

sheet no. 15 of 23

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GENERAL PLANTING

SUBMITTALS:

Topsoil & Planting soils: A soil analysis report shall be submitted and show the percentage of each constituent, pH, and other pertinent soil characteristics. Recommendations should include quantities of each soil amendment and fertilizer required to achieve optimal soil conditions.

Maintenance Written Maintenance Instructions for the owner's use and reference for the maintenance of landscaping must be submitted prior to acceptance of landscaping. This will list the scope of maintenance, including initial maintenance recommendations, 12 months, and long term.

QUALITY ASSURANCE:

General All material must comply with the American Standard for Nursery Stock (ANSI Z60.1) new standards applicable to landscaping. Materials provided to be installed with no substitutions permitted unless with approval from the landscape architect.

Inspection The landscape architect retains the right to inspect planting materials at any time for compliance with the contract documents. Regarding, but not limited, to latent defects, lack of protection or maintenance, and may reject defective or damaged material. Rejected material must be immediately removed from the project site. Contractor shall schedule plant inspection with landscape architect prior to installation of all plant materials.

DELIVERY, STORAGE, AND HANDLING:

Packaged Materials Material must be delivered in original unopened containers displaying weight, guaranteed chemical analysis, and manufacturer's name or furnished in bulk with appropriate certificates and protected from deterioration.

Sod Delivery of sod shall be timed so that it will be installed within 24 hours after delivery. Sod shall be protected against drying and breakage.

Ground Covers and Plants Delivery shall be scheduled to avoid on site storage. If planting does not occur on same day as delivery, store in location protected from sun and weather. All trees and shrubs shall not be pruned before delivery in order to prevent shock. Stock must be covered for protection during transportation. Stock shall be bound to protect branches, bark, and overall shape during transport. Any balled and burlapped stock must be freshly dug unless otherwise approved. Stock must not be dropped. Stock must be delivered only after soil has been prepared. Schedule plant harvest with delivery in quantities suitably timed for immediate planting upon arrival. If planting cannot be accomplished immediately, provide shade, protect from wind and protect root balls from drying out by covering at all times with moist saw dust, wood chips, shredded bark or other similar mulching materials. All plant material shall be suitably watered during on site storage.

PROJECT CONDITIONS:

Work coordination All work shall be scheduled and coordinated with work occuring in other sections of the project and local seasons. All underground utilities must be located so to avoid damage and injury. The contractor shall be responsible for all repairs to any utility damages associated with excavation and planting.

The landscape architect shall be notified prior to the beginning of planting operations. Spring planting should be between April 15' and June 15'. Fall planting should occur between August 30' and October 15'. Do not install plant materials when temperatures are below 35 degrees Fahrenheit or above 90 degrees Fahrenheit.

Sequencing Final grades must be established before planting trees and shrubs. Lawns may then be installed unless specified on the plans differently. Earlier plantings must be protected from later planting operations and repairs made to any resulting damage or inconsistencies.

WARRANTIES:

General Warranties shall be addition to, and not a limitation of, other rights the owner may have against the contractor under the contract documents.

Lawns Warrant lawns until turf exhibits vigorous growth for (12) months. Lawns need to have 80% coverage/viable seed for survival.

Trees and Shrubs Warrant trees and shrubs for twelve (12) months after final approval by Township Landscape Architect. Warranty shall cover death, unsatisfactory growth, neglect, vandalism, and/or acts of God. If completion of landscaping work is materially delayed beyond the date of substantial completion, provide warranty commencing on date of acceptance by the project landscape architect and township/municipality landscape architect.

Unsatisfactory Material Replace unsatisfactory material with matching, healthy, vigorous plants. Plant only during the subsequent planting season. At the direction of the project landscape architect, either replace materials exhibiting poor quality, marginal condition or extend the warranty covering such materials for one full growing season. Any plant material of which 25% or more is dead shall be considered unsatisfactory. A tree shall be considered dead when more than 25% of the trees main leader has died, 25% of the crown is dead or the root buttress circumference is damaged. Another inspection will be conducted at the end of the extended warranty period(s), if any, to determine acceptance or rejection. Only one replacement will be required at the end of the warranty period, except for losses or replacements due to neglect or failure to comply with specified requirements.

MAINTENANCE:

Lawns- Maintain lawn from immediately after planting until an acceptable lawn is established. At the end of the maintenance period, sodded lawns shall be uniform in texture, density and species variety. Water regularly and at such times and rates as necessary for optimum growth and to avoid wilting, puddling, runoff, or erosion. Mow grass at regular intervals. Do not cut more than 1/3 of grass blade at any one mowing. Trim edges and clip by hand where necessary. Immediately remove clippings after mowing and trimming. Follow-up application of fertilizer for cool season turf/lawn: If the seeding was done in the fall, fertilizer should be applied no later than November 15. For seed sown in the spring, do not apply after June 1. Apply 0.9-1.8 lbs a year 0.9lb. in September and 0.9lb. in October for cool season grasses. Do not apply fertilizer between November 15 and March 1. Control growth of weeds by applying herbicides in accordance with manufacturer's instructions. Remedy any damage resulting from use of herbicides.

Regrade and replant areas to correct rutted, damaged, or improperly graded areas.

Trees and Shrubs Maintain trees and shrubs from immediately after planting through the warranty period. Provide all maintenance necessary to achieve healthy plant growth such as eroded watering basis around trunks if needed. Adjust stakes and guys to provide proper support and replant trees and shrubs to vertical position if necessary. Apply insecticides or fungicides if necessary to prevent or correct insect infestation and disease.

Ground Covers/Small Plants/Plugs - Maintain ground covers, small plants, and plugs from immediately after planting through the warranty period. Provide the following maintenance necessary to achieve healthy plant growth; water regularly and on a timely basis, remove weeds and replace mulch if needed, and spray as required to keep ground cover and small plants free of insects and disease.

Watering All plants shall be thoroughly watered twice during the first 24 hours after planting. Until plants and lawns are accepted by the landscape architect, the contractor is responsible for watering. Watering shall be provided as needed to assure healthy plant materials, turf and trees.

PRODUCTS:

TOPSOIL

Topsoil at Site Verify suitability and quantity of topsoil stockpiled at site. If sufficient quantities of suitable topsoil are not available at the site, provide topsoil from approved off-site sources. Fertile agricultural soil, typical for locality, capable of sustaining vigorous plant growth and taken from a drained site; free of subsoil, rocks larger than 2 inches in diameter, clay, toxic matter, plants, weeds, and roots.

SOIL AMMENDMENTS

Lime Pulverized dolomitic limestone containing not less than 85 percent total carbonates with a minimum of 30 percent magnesium carbonates; minimum 90 percent passing a 10-mesh sieve and minimum 50 passing a 100-mesh sieve.

Humus Shall be decomposed organic matter; pH suitable for intended use.

Sand Shall be clean, washed sand, free of toxic materials.

Perlite Horticultural perlite of soil amendment grade.

Commercial Fertilizer Granular, commercial grade, pH neutral, comprised of both slow and fast release elements and containing the following minimum content of available plant nutrients:
- Trees and shrubs 5% total nitrogen, 10% phosphoric acid, 5% soluble potash
- Ground cover and plants 3% total nitrogen, 10% phosphoric acid, 5% soluble potash
- Lawns Available nitrogen content as required to provide 1 pound per 1,000 square feet at normal application rate, minimum 4% phosphoric acid, and minimum 2% soluble potash.

SEEDING:

Apply seed at a rate of 4 lbs. per 1,000 square feet evenly in two intersecting directions. Rake in slightly. Do not seed areas in excess of that which can be mulched the same day. Do not sow immediately following rain, when ground is too dry, or during windy periods. Roll seeded area with roller not exceeding 100 lbs. Immediately following seeding and compacting, apply even layer of hay mulch. Maintain clear of shrubs and trees. Apply water with a fine spray immediately after area has been mulch. Saturate to 4 inches of soil.

SEED SPECIFICATION

Turf Mixture:
15% Kentucky Bluegrass
35% Kentucky 31 Fescue
25% Chewings Fescue
15% Perennial Rye Grass
10% Reclaened Redtop

HYDROSEEDING

Apply seeding slurry with a hydraulic seeder at a rate of 4 lbs. of seed per 1,000 square feet evenly in two intersecting directions. Do not hydroseed areas in excess of that which can be mulched on the same day. Immediately following seeding, apply an even layer of hay mulch. Maintain clear of shrubs and trees. Apply water with a fine spray immediately after the area has been mulched. Saturate to 4 inches of soil.

SEED PROTECTION

Cover seeded slopes where grade exceeds 1' in 5' or greater with a jute erosion control blanket (NA Green's BioNet). Roll fabric onto slopes without stretching or pulling. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil. Secure outside edges and overlaps at 36"intervals with stakes. Lightly dress slopes with topsoil to ensure close contact between fabric and soil. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

SPECIFICATIONS:

TREES AND SHRUBS

General Provide nursery or plantation grown stock conforming to the American Standard for Nursery Stock. All vegetation shall be nursery grown, well-branched and uniformly sound, vigorous, healthy, and free from disease, sun-scald, windburn, abrasion, and harmful insects or insect eggs. Deciduous trees and shrubs shall be symmetrically developed, uniform habit growth, with straight trunks or stems, and free from objectionable disfigurements. Coniferous evergreen trees and shrubs shall have well-developed symmetrical canopies with uniform spread of branches for each particular species or variety. Provide stock complying in all respect with ANSI Z60.1 and in sizes indicated, measured in accordance with ANSI Z60.1. Larger sizes with larger roots and root containment may be furnished, if approved by the landscape architect. Do not spread or compress branches when measuring. Measure main body of branches; do not measure extreme tip to tips of single branches. Pruning to size is not acceptable. Shade and flowering trees, deciduous shrubs, and coniferous evergreens shall be balled and burlapped (B&B).

PLANTS

General Provide field-grown or acclimatized container-grown plants from a commercial nursery, healthy, vigorous, of sizes indicated and in accordance with ANSI Z60.1, Section 7, "Young Plants".

PLUGS

General Provide field-grown or acclimatized container-grown plants from a commercial nursery, healthy, vigorous, of the sizes indicated and in accordance with ANSI Z60.1, Section 7, "Young Plants".

GRASS MATERIALS

Sod Provide viable (not dormant) certified turf grass complying with ASPA specifications for thickness, size, strength, moisture content, mowed height, time between harvest and transplanting, thatch, disease, nematodes, insects, and weeds. Sod type shall be Kentucky Bluegrass (Poa pratensis). (Seed Mix: 30% Midnight Star Kentucky Bluegrass, 30% Brilliant Kentucky Bluegrass, 40% P105 Kentucky Bluegrass)

Miscellaneous Landscape Material:

Decorative Mulch Shall be free of harmful materials, suitable for top dressing of plantings, and consisting of dye/pigment free, composted double shredded hardwood.

Anti-desiccant is a film forming an emulsion, permeable to transpiration yet retarding to excessive moisture loss.

Staking and Guying Materials Stakes shall be hardwood lumber of sizes indicated; sound, straight, and free of splits and knots larger than ¼ of the least nominal dimension of the piece. Sharpen end and chamfer sides of driven end to prevent splitting from off-center hammer strikes. Stakes shall be fastened to tree using ¾" 2" wide, flat, woven polypropylene material such as Arbor Tie™or use 3" wide webbing straps secured to stakes with galvanized mild steel wire, minimum 12 gauge; provide double strands. Do not run wire through hose. Attach loosely to allow flexing, remove staking material after one year.

PLANTING SOIL

Soil Mix Provide planting soil mix, consisting of topsoil and amendments as recommended by soil analysis laboratory report.

Mixing Mix topsoil and amendments thoroughly to provide uniform mixture, using a drum-type mechanical mixer, powered rotary tiller, or other means acceptable to the landscape architect.

EXECUTION

PREPARATION:

Clearing and Grubbing
The work consists of clearing, grubbing, and disposing of trees, snags, logs, brush, stumps, shrubs, and rubbish from the designated areas.
Protection of existing vegetation
Trees and other vegetation designated to remain undisturbed shall be protected from damage throughout the duration of the construction period. Any damages resulting from the contractor's operations or neglect shall be repaired or replaced by the contractor.
Marking
The limits of the area(s) to be cleared and grubbed will be marked by stakes, flags, tree markings, or other suitable methods. Trees to be left standing and uninjured will be designated by special markings that are conductive to preventing injury to the tree and shall be placed on the trunk about 6 feet above the ground surface.
Clearing and grubbing
All trees not marked for preservation and all snags, logs, brush, stumps, shrubs, rubbish, and similar materials shall be cleared from within the limits of the designated areas. Unless otherwise specified, all stumps, roots, and root clusters that have a diameter of 1 inch or larger shall be grubbed out to a depth of at least 2 feet below subgrade for concrete structures and 1 foot below the ground surface at embankment sites and other designated areas.
Disposal
All materials cleared and grubbed from the designated areas shall be disposed of at locations shown on the drawings or in a manner specified in section 7. The contractor is responsible for complying with all local rules and regulations and the payment of any and all fees that may result from disposal at locations away from the project site.

Layout Lay out planting locations, mark with stakes, adjust locations if requested and obtain the landscape architect's approval of locations before proceeding with installation.

Subgrades All subgrades under planting areas (except for within an area equal to the dripline underneath existing trees to remain) shall be scarified to a depth of 4 inches before placing topsoil. Where compaction has resulted from construction operations, the owner may require scarification to a depth of 6 inches.

Preparation of Planting Soil Prior to mixing in drum type mixer or during tillage operations, clean topsoil of sticks, stones, clay lumps, vegetable matter, and other objectionable objects. Pit and trench backfill: mix planting soil and stockpile at site, ready for use as backfill. For planting beds and lawns, either mix planting soil before placing or uniformly spread fertilizer in and soil amendments on surface of in place topsoil and till thoroughly before planting.

Preparation for Planting Lawns Prepare only those areas that will be immediately planted. Allow for sod thickness in area to be sodded. For preparation of stripped areas, till subgrade to a depth of at least 4 inches. Place topsoil in two approximately equal lifts, working first lift into subgrade before placing second lift. Spread second lift to comply with finished lines, grades, and elevations required after allowing for settlement. To prepare for unchanged grades, prepare yet unstripped areas as follows: remove existing vegetation including grasses and dispose of off-site. Till the soil to a depth of at least 6 inches. Clean topsoil of sticks, stones, clay, lumps, vegetable matter, and other objectionable objects. Fine-grade, roll, rake, and drag lawn areas cutting down high spots and filling low spots, leaving a smooth, even surface of fine-textured soil complying with required grades. If dry, water full depth of topsoil thoroughly but not excessively and allow surface moisture to dry before planting. Just before planting, correct any lawn areas that have been eroded, rutted, or settled.

Preparation of Planting Beds Till planting bed area to a depth of at least 6 inches, clear, and add soil amendments necessary to achieve optimum growing conditions and till thoroughly.

Excavation for Trees and Shrubs Pits, beds, and trenches: Excavate with sides vertical and bottom flat. Deglaze sides and loosen bottom.

All excavated holes shall have vertical sides and shall be of a size that is three times the diameter and 1 and 1/2 times the depth of the root ball for all trees and shrubs. After pits are dug, roughen the sides of the pit and loosen soil in the bottom of the pit to a depth of 3 inches. Construct foot-tamped mound in the bottom of the pit to support the plant at the proper level. All excavated subsoil from the site shall be mixed with appropriate volumes of soil amendments as recommended by soils analysis laboratory report as indicated on plans prior use of planting backfill.

PLANTING TREES AND SHRUBS:

Balled and Burlapped Stock Cut and remove rope and wire from the top 2/3 of the root ball. Set plants in excavation with top of ball to match adjacent finished grade. Add soil as required under ball to achieve plumb. Remove burlap from the top 2/3 of ball; retain burlap on bottom of ball. Place backfill in 3 4 inch thick layers. Work each layer by hand to compact backfill and eliminate voids. Maintain plumb during backfilling. When backfilling is approximately 2/3 complete, saturate backfill with water and repeat until suitably filled and compacted. Remainder of backfill and water again, provide earth watering basin saucer, as indicated on the plans, and water stock.

Container Grown Plant/Plug Immediately before placing, remove container, or can. Container Removal: a. Cut containers on 2 sides with a can cutter designed for the job. b. Do not injure root ball. c. Do not cut containers with spade or ax. d. After removing plant, superficially cut edge roots with knife on 3 sides. Set and plumb plants. Place initial backfill and remove sides of container, taking care to avoid damage to root system.

Groundcover plants shall be grown in flats or gallon containers as indicated on the Drawings. Flat grown plants shall remain in those flats until transplanting. The flat's soil shall contain sufficient moisture so that it will not fall apart when lifting the plants. 2. Groundcover shall be planted in straight rows and evenly spaced, unless otherwise noted, and at intervals called out in the Drawings. Triangular spacing shall be used unless otherwise noted on the Drawings. 3. Each rooted plant shall be planted with its proportionate amount of flat or container soil. Plantings shall be immediately sprinkled with water after planting until the entire area is soaked to the full depth of each hole. 4. Care shall be exercised at all times to protect the plants after planting. Any damage to plants by trampling or other operations shall be repaired immediately.

Basin Form earthen watering basin around excavation area with backfill holding at least 2 ½gallons for shrubs and 5 gallons for trees. Apply mulch.

Anti-desiccant Spray Apply, covering all portions of plant in accordance with manufacturer's instructions. If in full leaf, spray deciduous trees or shrubs at nursery just before transportation, and 2 weeks after transplanting.

Pruning Remove dead or broken branches. Prune to retain typical growth habit of plants with as much height and spread as practical. Make cuts with sharp instruments and flush with trunk or adjacent branch. Do not remove leaders from trees.

STAKING AND GUYING OF TREES:

Guy and stake trees the same day as planting. Unless otherwise directed, trees shall be staked as shown on the plans and in accordance with these specifications. Refer to drawings and schedule for guying and staking requirements. Trees shall stand plumb after staking. At the time the stakes are removed any holes left by the stake shall be filled with topsoil of the same quality as the backfill previously specified for planting.

SODDING NEW LAWNS:

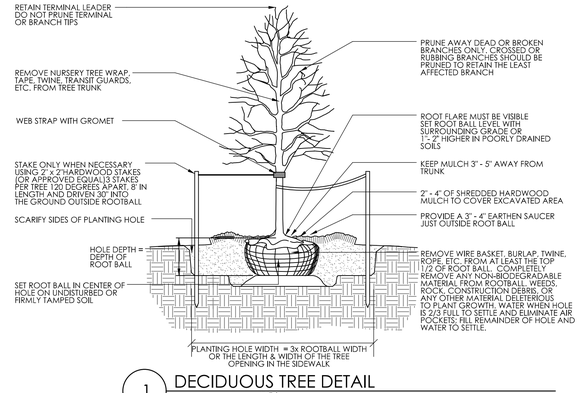
Laying Sod Do not lay dried or broken sod: Use only fresh, properly protected sod. Lay first and subsequent parallel rows in a straight line with tightly butted joints. Do not overlay sod or leave voids. Stagger lateral joints. When each section is laid, lightly roll the entire area to ensure contact between sod and subgrade. Water sod immediately after planting to thoroughly wet the pad and subgrade immediately beneath. During first week, maintain soil continually moist to depth of 4 inches by watering daily or more often, absent adequate rainfall.

MISCELLANEOUS MATERIALS:

Decorative Mulch Apply a uniform three inch (3") thick layer of double shredded hardwood mulch in the following areas: individual planting pits and planting beds. During maintenance and warranty period, the contractor is required to apply new mulch as necessary due to erosion, settling or as required by landscape architect.

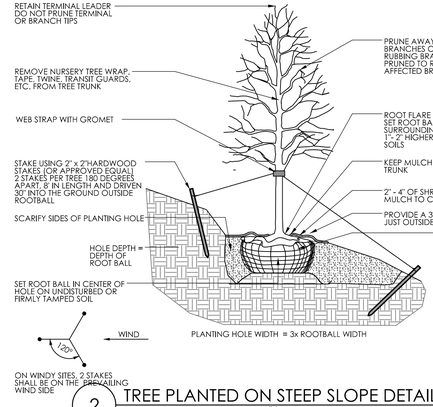
GENERAL NOTE:

It is agreed that the professional services of the design professional do not extend to or include the review or site observation of the contractor's work, unless otherwise specified and agreed. It is further agreed that the owner will hold harmless, indemnify and defend the design professional from any claim or suit whatsoever arising from the contractor's performance or the failure of the contractor's work to conform to the design plans and the contract documents.



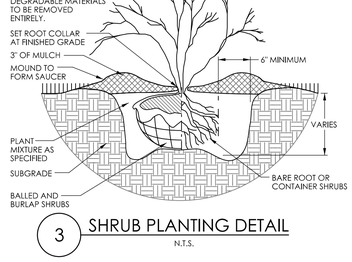
1 DECIDUOUS TREE DETAIL
N.T.S.

NOTES:
FASTEN STAKES TO TREE USING 3/4" - 2" WIDE, FLAT, WOVEN POLYPROPYLENE MATERIAL SUCH AS ARBOR TIE (TM) OR USE 3" WIDE WEBBING STRAPS SECURED TO STAKES WITH HEAVY GAUGE WIRE. DO NOT USE WIRE RUN THROUGH HOSE. ATTACH TREE LOOSELY TO ALLOW FLEXING. REMOVE STAKING MATERIAL AFTER ONE YEAR.

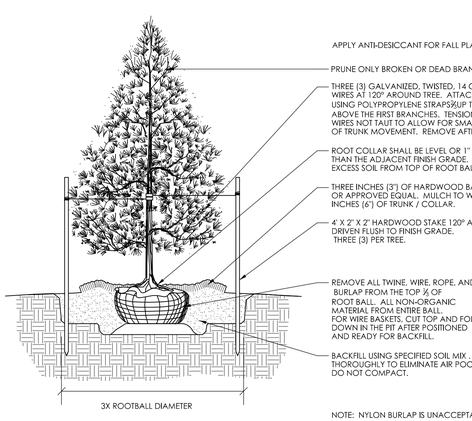


2 TREE PLANTED ON STEEP SLOPE DETAIL
N.T.S.

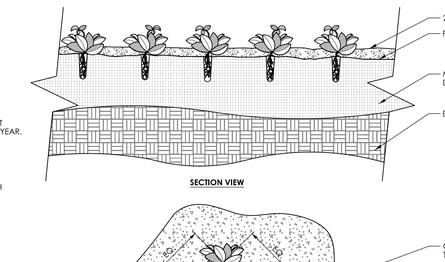
NOTES:
FASTEN STAKES TO TREE USING 3/4" - 2" WIDE, FLAT, WOVEN POLYPROPYLENE MATERIAL SUCH AS ARBOR TIE (TM) OR USE 3" WIDE WEBBING STRAPS SECURED TO STAKES WITH HEAVY GAUGE WIRE. DO NOT USE WIRE RUN THROUGH HOSE. ATTACH TREE LOOSELY TO ALLOW FLEXING. REMOVE STAKING MATERIAL AFTER ONE YEAR.

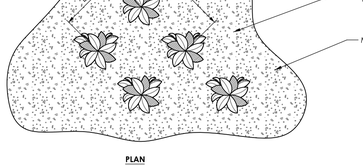


3 SHRUB PLANTING DETAIL
N.T.S.



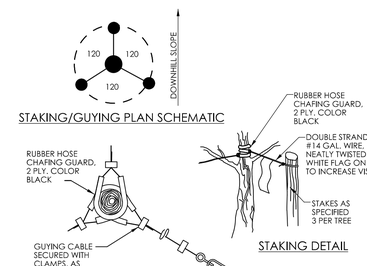
5 EVERGREEN TREE PLANTING DETAIL
N.T.S.



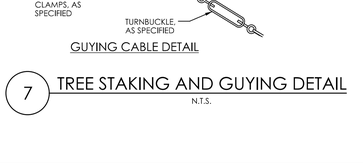


6 PLUG PLANTING
SCALE: 3/4" = 1'-0"

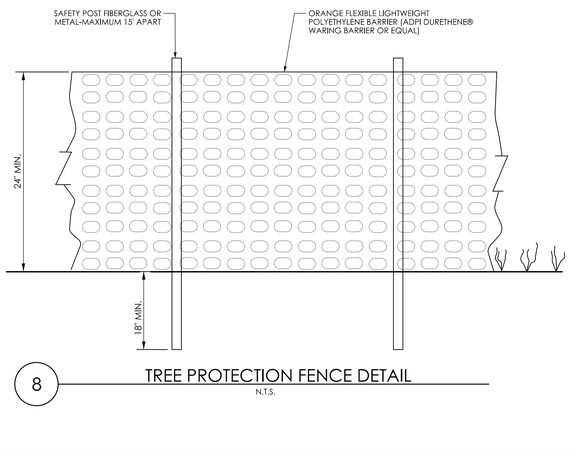
NOTES:
1- SEE PLANTING LEGEND FOR PLUG SPECIES, SIZE, AND SPACING DIMENSION.
2- SMALL ROOTS (X' OR LESS) THAT GROW AROUND, UP, OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE HOWEVER THEY SHOULD BE ELIMINATED AT THE TIME OF PLANTING. ROOTS ON THE PERIPERHY CAN BE REMOVED AT THE TIME OF PLANTING.
3- SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING. HAND WATERING TO ELIMINATE AIR BUBBLES AROUND ROOTS.



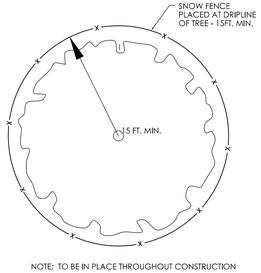
4 GROUNDCOVER/PERENNIAL PLANTING
N.T.S.



7 TREE STAKING AND GUYING DETAIL
N.T.S.



8 TREE PROTECTION FENCE DETAIL
N.T.S.



NOTE: TO BE IN PLACE THROUGHOUT CONSTRUCTION
PLAN VIEW

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REVISIONS					
date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH

SEAL:

PAUL E. LEPARD, JR.
Registered Landscape Architect
Pennsylvania License No. LA001832-R

DRAWING NAME: PCSM / LANDSCAPE DETAIL SHEET

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no. 2009-134.05	drawn by: MES
date: 10/3/19	chk'd by: JPB / JFL
scale: AS NOTED	approv. by: PEL
sheet no. 16 of 23	

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MATERIALS MANAGEMENT

WASTE MANAGEMENT - BUILDING MATERIALS AND OTHER CONSTRUCTION SITE WASTES MUST BE PROPERLY MANAGED AND DISPOSED OF TO REDUCE POTENTIAL FOR POLLUTION TO SURFACE AND GROUND WATERS AS PER 25 PA. CODE 102.4(b)(5)(vi). PROPER TRASH DISPOSAL, RECYCLING MATERIALS, PROPER MATERIALS HANDLING, AND SPILL PREVENTION AND CLEAN-UP REDUCE THE POTENTIAL FOR CONSTRUCTION SITE WASTES TO BE MOBILIZED BY STORMWATER RUNOFF AND CONVEYED TO SURFACE WATERS.

UNDER NO CIRCUMSTANCES MAY EROSION CONTROL BMPS BE USED FOR TEMPORARY STORAGE OF DEMOLITION MATERIALS OR CONSTRUCTION WASTES.

WHEREVER HEAVY EQUIPMENT WILL BE USED DURING CONSTRUCTION OF THE CUTS AND FILLS OR PROPOSED BUILDINGS, A POLLUTION PREVENTION AND CONTINGENCY (PPC) PLAN MUST BE AVAILABLE ON SITE. THIS PLAN DOES NOT HAVE TO BE INCLUDED IN THE PERMIT APPLICATION PACKAGE SUBMITTED FOR NPDES CONSTRUCTION PERMIT IN PENNSYLVANIA BUT SHOULD BE AVAILABLE ON PROJECT SITE. THE APPLICANT MUST PREPARE AND IMPLEMENT A PPC PLAN WHEN STORING, USING OR TRANSPORTING MATERIALS INCLUDING:- FUELS, CHEMICALS, SOLVENTS, PESTICIDES, FERTILIZERS, LIME, PETROCHEMICALS, WASTEWATER, WASH WATER, CORE DRILLING WASTEWATER, CEMENT, SANITARY WASTES, SOLID WASTES, OR HAZARDOUS MATERIALS ONTO, ON, OR FROM THE PROJECT SITE DURING EARTH DISTURBANCE ACTIVITIES. THE PPC PLAN MUST BE AVAILABLE UPON REQUEST BY THE DEPARTMENT OR CONSERVATION DISTRICT. GUIDANCE FOR DEVELOPMENT OF A PPC PLAN CAN BE FOUND IN "GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF ENVIRONMENTAL EMERGENCY RESPONSE PLANS" (DOCUMENT #400-2200-001), WHICH CAN BE FOUND IN THE DEPARTMENTS ELIBRARY AT WWW.DEPWEB.STATE.PA.US.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS MUST BE FOLLOWED IN THE USE, HANDLING, AND DISPOSAL OF POTENTIALLY HAZARDOUS MATERIALS.

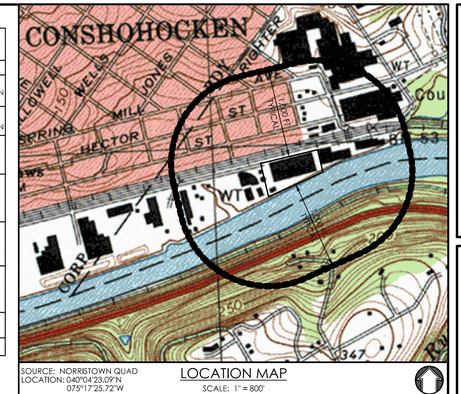
PCSM NOTES

1. PRESERVATION OF EXISTING CHANNELS AS WELL AS THE PROTECTION OF THE PHYSICAL, BIOLOGICAL, AND CHEMICAL QUALITIES OF THE RECEIVING STREAMS (SCHUYLKILL RIVER) IS ACHIEVED THROUGH IMPLEMENTATION OF THE STORMWATER BMPS WHICH WILL ADDRESS STORMWATER IMPACTS. ALSO, THERE IS A REMEDIATION PLAN AND FINAL CHARACTERIZATION PLAN IN PLACE AS CONTAMINATED SOILS ARE DISCOVERED DURING CONSTRUCTION.
2. POST-CONSTRUCTION RUNOFF VOLUMES AND PEAK RATES WILL BE REDUCED TO LESS THAN PRE-CONSTRUCTION RUNOFF VOLUMES AND RATES FOR THE OVERALL SITE THROUGH THE USE OF IMPERVIOUS AREA REDUCTION, CONTROLLED DISCHARGE FROM OPERATIONAL AREAS, RAIN GARDENS, SOIL AMENDMENTS, AND MINIMIZING DISTURBANCE.
3. PRE-DEVELOPMENT DRAINAGE PATTERNS WERE MIMICKED IN THE POST-DEVELOPMENT CONDITION TO THE EXTENT PRACTICAL. ALL OF THE SITE DISCHARGE DRAINS TO THE SCHUYLKILL RIVER, WHICH HAS A CHAPTER 93 CLASSIFICATION OF WWF / MF - WARM WATER FISHES / MIGRATORY FISHES.
4. THE IMPERVIOUS AREA IS BEING DECREASED BY APPROXIMATELY TWO-THIRDS OF AN ACRE. WHERE EXISTING IMPERVIOUS SURFACES ARE REMOVED THEY ARE EITHER CAPPED WITH TWO FEET OF CLEAN FILL OR SOIL AMENDED AND REPLACED WITH A GRASS OR VEGETATED PERVIOUS SURFACE.
5. THE LIMIT OF EARTH DISTURBANCE (INCLUDING GRADING AND LAND CLEARING) IS MINIMIZED AND THE PRESERVATION OF EXISTING VEGETATION IS MAXIMIZED TO THE EXTENT PRACTICAL. THE SITE SHALL ALSO ADHERE TO THE STIPULATIONS AND PROTOCOLS OF THE REMEDIATION - "CLEANUP / WORK PLAN" PREPARED BY WELSH ENVIRONMENTAL.
6. TWO NEW DISCHARGES TO THE WATERCOURSE ARE PROPOSED AS PART OF THIS PROJECT. THE PROPOSED BMPS WILL DISCHARGE TO THE NEW OUTFALLS VIA PROPOSED DRAINAGE FACILITIES EQUIPPED WITH WATER QUALITY INLETS.
7. SOIL COMPACTION SHALL BE MINIMIZED TO THE EXTENT PRACTICAL, PARTICULARLY IN THE AREAS TO BE PERVIOUS IN THE POST-DEVELOPMENT CONDITION. CLEAN FILL AND AMENDED SOILS WILL BE IMPORTED TO REMEDIATE THE EXPOSED CONTAMINATED AREAS OF THE SITE.
8. THE PERMITTEE SHALL PROVIDE ENGINEERING CONSTRUCTION OVERSIGHT FOR THE PROPOSED STORMWATER BMPS. A LICENSED PROFESSIONAL ENGINEER KNOWLEDGEABLE IN THE DESIGN AND CONSTRUCTION OF STORMWATER BMPS, PREFERABLY THE DESIGN ENGINEER, SHALL CONDUCT THE OVERSIGHT.
9. AS-BUILT PLANS OF THE STORMWATER BMPS SHALL BE PROVIDED WITHIN SIX MONTHS FOLLOWING THE COMPLETION OF THE BMP CONSTRUCTION. THE AS-BUILT PLANS SHALL BE SIGNED AND SEALED BY A PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER.
10. A NOTICE OF TERMINATION (NOT) WILL BE REQUIRED TO BE SUBMITTED FOLLOWING APPROVAL OF THE FINAL AS-BUILT PLANS. PRIOR TO ACCEPTING THE NOT, THE DEPARTMENT AND/OR CONSERVATION DISTRICT STAFF WILL PERFORM A FINAL INSPECTION TO ENSURE SITE STABILIZATION AND VERIFY ADEQUATE INSTALLATION AND FUNCTION OF THE STORMWATER BMPS.
11. NO RUNOFF SHALL ENTER ANY BIORETENTION/INFILTRATION BMPS UNTIL FINAL SITE STABILIZATION IS ACHIEVED IN THE TRIBUTARY DRAINAGE AREA. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
12. STORMWATER DETENTION/RETENTION FACILITIES SHALL BE IN PLACE AND FUNCTIONING PRIOR TO THE CREATION OF ANY IMPERVIOUS AREA.
13. A LICENSED PROFESSIONAL OR DESIGNEE SHALL BE PRESENT ON SITE DURING THE INSTALLATION OF THE PROPOSED RAIN GARDENS AT THE FOLLOWING TIMES:
    A. UPON COMPLETION OF THE SUB-GRADE WORK, THE INSPECTOR SHALL BE NOTIFIED AND INSPECT THE RAIN GARDEN CONFIGURATION AND SIZE PRIOR TO THE INSTALLATION OF THE LINER AND AMENDED SOIL MIX.
    B. UPON COMPLETION OF THE RAIN GARDEN INSTALLATION, THE INSPECTOR SHALL INSPECT THAT THE CONFIGURATION AND SIZE MEET THE GENERAL INTENT OF THE DESIGN PLANS AND THAT THE RAIN GARDEN HAS BEEN ADEQUATELY STABILIZED.
14. REFER TO SHEETS 9 & 10 FOR SEQUENCE OF CONSTRUCTION, E&S BMPS FOR CONTAMINATED SITES, AND DETAILS OF THE PROPOSED STORMWATER BMPS.
15. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 AND 287.1 ET. SEQ. NO BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
16. REFERENCE THE "WORKCLEAN-UP" REPORT BY WELSH ENVIRONMENTAL FOR REMEDIATION STEPS AND RULES REGARDING THE HANDLING OF CONTAMINATED SOILS AT THE SITE.
17. THE NPDES BOUNDARY IS EQUAL TO THE LIMIT OF DISTURBANCE OF THE SITE.
18. ALL PERVIOUS AREAS OUTSIDE OF PROPOSED RAIN GARDEN, BUT INSIDE THE LIMIT OF DISTURBANCE SHALL HAVE SOIL AMENDMENTS APPLIED PRIOR TO FINAL STABILIZATION.
19. THE ENTIRE PROJECT AREA IS NOT LOCATED WITHIN AN EV - EXCEPTIONAL VALUE WATERSHED.
20. THE SCHEMATIC LOCATION OF THE PROPOSED LANDSCAPING IS BASIS FOR THE LANDSCAPE RESTORATION/ REFORESTATION CREDIT IS SHOWN ON THIS PLAN. REFER TO THE LANDSCAPE PLAN FOR MORE DETAILS.
21. A WRITTEN REPORT DOCUMENTING EACH INSPECTION AND ALL BMP REPAIR AND MAINTENANCE ACTIVITIES MUST BE PROVIDED AS PART OF THE LONG-TERM OPERATION AND MAINTENANCE PROGRAM.
22. THE PCSM PLAN, INSPECTION REPORTS AND MONITORING RECORDS SHALL BE KEPT ON SITE AND AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT AND CONSERVATION DISTRICT.
23. THE OPERATION AND MAINTENANCE PLAN AND POST REMEDIATION CARE IS STIPULATED IN THE "WORKCLEAN-UP" REPORT BY WELSH ENVIRONMENTAL.
24. THE PROJECT MAXIMIZES THE PROTECTION OF EXISTING DRAINAGE FEATURES AND EXISTING VEGETATION BECAUSE THE LIMIT OF PROPOSED REDEVELOPMENT (INCLUDING GRADING AND LAND CLEARING) IS MINIMIZED AND/OR RESTRICTED TO AREAS DESIGNATED FOR REMOVAL OF IMPERVIOUS SURFACES. PRESERVATION OF EXISTING VEGETATION ALONG THE RIVER CORRIDOR IS MAXIMIZED TO THE EXTENT PRACTICAL.
25. NO INFILTRATION IS PROPOSED ON SITE. THE SITE WILL UNDERGO ACT 2 REMEDIATION. THE SITE CONTAINS HISTORIC AND CONTAMINATED FILLS. REFER TO REMEDIAL ACTION COMPLETION / FINAL REPORT BY WELSH ENVIRONMENTAL FOR MORE INFORMATION.
26. HISTORICAL SOIL BORING LOCATIONS AND SOIL CONCENTRATIONS TAKEN FROM "CLEAN-UP/WORK PLAN" PREPARED BY WELSH ENVIRONMENTAL, DATED MAY 2014, FIGURE 3.
27. NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE OR ALTER ANY EXISTING STORMWATER BMP, UNLESS IT IS PART OF AN APPROVED MAINTENANCE PROGRAM, WITHOUT THE WRITTEN APPROVAL OF THE TOWNSHIP.
28. NO PERSON SHALL PLACE ANY STRUCTURE, FILL, LANDSCAPING OR VEGETATION INTO A STORMWATER BMP OR WITHIN A DRAINAGE EASEMENT WHICH WOULD LIMIT OR ALTER THE FUNCTIONING OF THE BMP, WITHOUT THE WRITTEN APPROVAL OF THE TOWNSHIP.

BMP MAINTENANCE SCHEDULE:

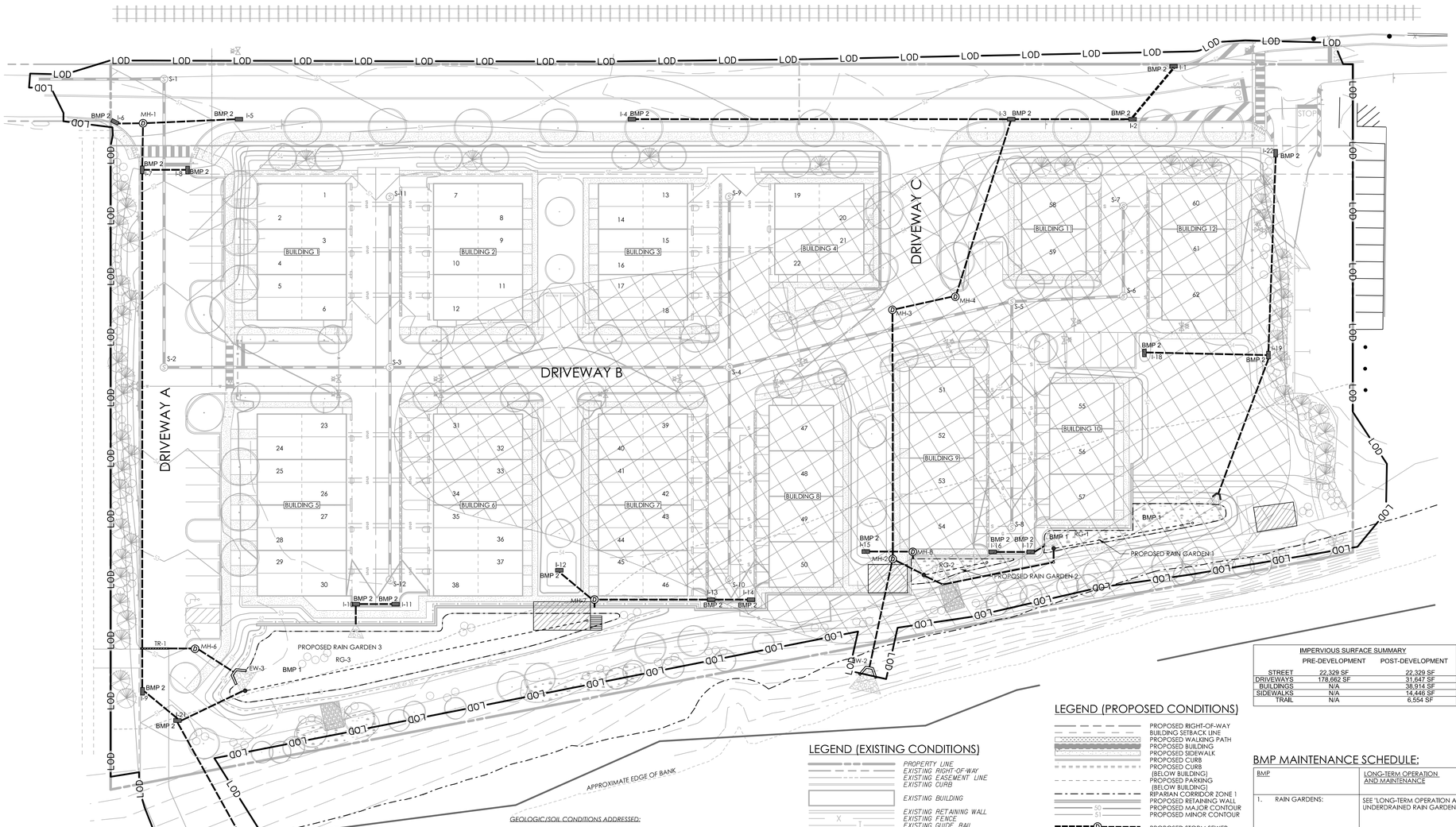
LONG-TERM OPERATION & MAINTENANCE SCHEDULE FOR UNDERDRAINED RAIN GARDENS

ACTIVITY	SCHEDULE
WATER VEGETATION AT THE END OF EACH DAY FOR TWO WEEKS AFTER PLANTING IS COMPLETED.	FIRST YEAR AFTER INSTALLATION
WATER VEGETATION REGULARLY TO ENSURE SUCCESSFUL ESTABLISHMENT.	FIRST YEAR AFTER INSTALLATION
REMULCH VOID AREAS. TREAT DISEASED TREES AND SHRUBS. KEEP OVERFLOW FREE AND CLEAR OF LEAVES.	AS NEEDED
INSPECT SOIL AND REPAIR ERODED AREAS. REMOVE LITTER AND DEBRIS. CLEAR LEAVES AND DEBRIS FROM OVERFLOW.	MONTHLY
INSPECT TREES AND SHRUBS TO EVALUATE HEALTH, REPLACE IF NECESSARY. INSPECT UNDERDRAIN CLEANOUT. VERIFY DRAINED OUT TIME OF SYSTEM.	BIANNUALLY
SPRING INSPECTION/CLEAN-UP - ADD ADDITIONAL MULCH TO MAINTAIN 3" LAYER. INSPECT FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, ETC. PRUNE TREES AND SHRUBS	ANNUALLY
MAINTAIN RECORDS OF ALL INSPECTIONS AND MAINTENANCE ACTIVITY.	ONGOING
REPLACE MULCH LAYER	EVERY 3 YEARS



SOURCE: NORRISTOWN QUAD
LOCATION: 040°04'23.09"N
075°17'25.72"W

LOCATION MAP
SCALE: 1" = 800'



IMPERVIOUS SURFACE SUMMARY		
	PRE-DEVELOPMENT	POST-DEVELOPMENT
STREET	22,329 SF	22,329 SF
DRIVEWAYS	178,662 SF	31,647 SF
BUILDINGS	N/A	38,914 SF
SIDEWALKS	N/A	14,446 SF
TRAIL	N/A	6,554 SF

LEGEND (EXISTING CONDITIONS)

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT LINE
- EXISTING CURB
- EXISTING BUILDING
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING GUIDE RAIL
- EXISTING BOLLARD
- EXISTING EDGE OF RIVER
- EXISTING RAILROAD TRACKS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SANITARY SEWER WITH MANHOLE
- EXISTING VENT PIPE
- EXISTING CLEANOUT
- EXISTING STORM SEWER WITH MANHOLE
- EXISTING STORM INLET'S
- EXISTING WATER SERVICE WITH VALVE
- EXISTING WATER MANHOLE
- EXISTING WELLHEAD
- EXISTING GAS SERVICE WITH VALVE
- EXISTING GAS METER
- EXISTING OVERHEAD ELECTRIC WIRE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING OVERHEAD UTILITY PIPING
- EXISTING SEALED MANHOLE (UTILITY UNKNOWN)

LEGEND (PROPOSED CONDITIONS)

- PROPOSED RIGHT-OF-WAY
- BUILDING SETBACK LINE
- PROPOSED WALKING PATH
- PROPOSED BUILDING
- PROPOSED SIDEWALK
- PROPOSED CURB
- PROPOSED CURB (BELOW BUILDING)
- PROPOSED PARKING (BELOW BUILDING)
- RIPARIAN CORRIDOR ZONE 1
- PROPOSED RETAINING WALL
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED STORM SEWER WITH MANHOLE
- PROPOSED STORM INLETS / CLEANOUT
- PROPOSED ENDWALL WITH RIPRAP
- PROPOSED SANITARY SEWER WITH MANHOLE
- PROPOSED SANITARY CLEANOUT / VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED WATER SERVICE
- PROPOSED FIRE SERVICE
- LIMIT OF DISTURBANCE/ DRAINAGE BOUNDARY
- SOIL AREA OF CONCERN (PER CLEANUP / WORK PLAN BY WELSH ENVIRONMENTAL)

BMP MAINTENANCE SCHEDULE:

BMP	LONG-TERM OPERATION AND MAINTENANCE	FAILURE/CORRECTIVE ACTION	RESPONSIBLE PARTY*:
1. RAIN GARDENS:	SEE "LONG-TERM OPERATION AND MAINTENANCE SCHEDULE FOR UNDERDRAINED RAIN GARDENS ON THIS SHEET.	FAILURE: RUNOFF IS NO LONGER BEING ABSORBED BY THE AMENDED SOILS IN THE RAIN GARDEN. TREES/VEGETATION DIE CORRECTIVE ACTION: REPLACE AMENDED SOILS IN THE RAIN GARDEN AREAS AS NEEDED. RE-PLANT NATIVE VEGETATION	LOT OWNER
2. WATER QUALITY INLETS/MANHOLES:	WATER QUALITY INLETS TO BE EQUIPPED WITH CATCH BASIN INSERTS ARE TO BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.	FAILURE: INSERT BECOMES CLOGGED WITH DEBRIS. CORRECTIVE ACTION: REMOVE DEBRIS AND INSPECT AND REPLACE INSERT MORE FREQUENTLY.	LOT OWNER

* MAINTENANCE OF PERMANENT BMPS DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

STORMWATER BMP'S ARE FIXTURES THAT CAN BE ALTERED OR REMOVED ONLY AFTER APPROVAL BY THE TOWNSHIP.

LANDOWNER _____ DATE _____

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft

PROJECT SERIAL NO. 20093340672
CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE – STOP CALL.
Pennsylvania One Call System, Inc.
1-800-242-1776

SCHUYLKILL RIVER, CHAPTER 93:
DESIGNATED: WARM WATER FISHES, MIGRATORY FISH (WWF, MF)
EXISTING: NOT LISTED

GEOLOGIC/SOIL CONDITIONS ADDRESSED:

THE SITE IS LOCATED IN AN AREA OF RECOGNIZED ENVIRONMENTAL CONDITION (REC). RECOGNIZED ENVIRONMENTAL CONDITION IS DEFINED AS THE "PRESENCE OR LIKELY PRESENCE OF HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS ON A PROPERTY UNDER CONDITIONS THAT INDICATE AN EXISTING RELEASE, A PAST RELEASE, OR A MATERIAL THREAT OF A RELEASE OF ANY HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS INTO STRUCTURES ON THE PROPERTY OR INTO THE GROUND, GROUNDWATER, OR SURFACE WATER OF THE PROPERTY."

DUE TO THE REC, A CLEANUP/WORK PLAN (CWP) HAS BEEN DEVELOPED FOR THE SUBJECT PROPERTY.

THE CWP DEMONSTRATES THAT HUMAN HEALTH EXPOSURE TO PATHWAYS WILL BE ELIMINATED THROUGH THE REMOVAL AND/OR PLACEMENT OF IMPACTED SOILS UNDER IMPERVIOUS COVER AND/OR A MINIMUM OF 24"OF CLEAN FILL AND THAT GROUNDWATER WILL BE PROTECTED THROUGH THE USE OF LINED NON-INFILTRATING RAIN GARDENS.

THE CWP OUTLINES MEASURES TO BE TAKEN TO PROTECT WORKERS DURING CONSTRUCTION AND ADDRESS SOILS DISPOSAL, IF REQUIRED.

REFERENCE REMEDIATION PLAN ENTITLED "CLEAN-UP/WORK PLAN" PREPARED BY WELSH ENVIRONMENTAL, DATED MAY 2014, FOR REMEDIAL ACTION AND SOIL MANAGEMENT PROCEDURES.

PCSM LONG TERM OPERATIONS AND MAINTENANCE REQUIREMENTS

UNTIL THE PERMITTEE OR CO-PERMITTEE HAS RECEIVED WRITTEN APPROVAL OF A NOTICE OF TERMINATION, THE PERMITTEE OR CO-PERMITTEE WILL REMAIN RESPONSIBLE FOR COMPLIANCE WITH THE PERMIT TERMS AND CONDITIONS INCLUDING LONG-TERM OPERATION AND MAINTENANCE OF ALL PCSM BMPS ON THE PROJECT SITE AND IS RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE.

THE PERMITTEE OR CO-PERMITTEE SHALL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPS UNLESS A DIFFERENT PERSON IS IDENTIFIED IN THE NOTICE OF TERMINATION AND HAS AGREED TO LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPS.

FOR ANY PROPERTY CONTAINING A PCSM BMP, THE PERMITTEE OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ASSURE DISCLOSURE OF THE PCSM BMP AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE PROPERTY. THE RECORDED INSTRUMENT MUST IDENTIFY THE PCSM BMP, PROVIDE FOR NECESSARY ACCESS RELATED TO LONG-TERM OPERATION AND MAINTENANCE FOR PCSM BMPS AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP IS A COVENANT THAT RUNS WITH THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUBSEQUENT GRANTEES, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER CHAPTER 102.7(b)(5) (RELATING TO PERMIT TERMINATION).

THE PERSON RESPONSIBLE FOR PERFORMING LONG-TERM OPERATION AND MAINTENANCE MAY ENTER INTO AN AGREEMENT WITH ANOTHER PERSON INCLUDING A CONSERVATION DISTRICT, NONPROFIT ORGANIZATION, MUNICIPALITY, AUTHORITY, PRIVATE CORPORATION, OR OTHER PERSON, TO TRANSFER THE RESPONSIBILITY FOR PCSM BMPS OR TO PERFORM LONG-TERM OPERATION AND MAINTENANCE AND PROVIDE NOTICE THEREOF TO THE DEPARTMENT.

A PERMITTEE OR CO-PERMITTEE THAT FAILS TO TRANSFER LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP OR OTHERWISE FAILS TO COMPLY WITH THIS REQUIREMENT SHALL REMAIN JOINTLY AND SEVERALLY RESPONSIBLE WITH THE LANDOWNER FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS LOCATED ON THE PROPERTY.

OWNERSHIP AND MAINTENANCE OF STORMWATER BMPS SHALL BE THE RESPONSIBILITY OF THE OWNER OR PRIVATE MANAGEMENT ENTITY OF THE PROPERTY.

AN AS-BUILT SURVEY OF ALL STORMWATER BMPS MUST BE SUBMITTED TO THE TOWNSHIP IN PAPER AND DIGITAL (.DWG) FORMAT.

PCSM REPORTING AND RECORD KEEPING

A WRITTEN REPORT DOCUMENTING EACH INSPECTION AND ALL BMP REPAIR AND MAINTENANCE ACTIVITIES MUST BE PROVIDED AS PART OF THE LONG-TERM OPERATION AND MAINTENANCE PROGRAM.

THE PCSM PLAN, INSPECTION REPORTS AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

PCSM FINAL CERTIFICATION

THE PERMITTEE SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" WITH A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS:

"I (NAME) DO HEREBY CERTIFY PURSUANT TO THE PENALTIES OF 18 PA. C.S.A. CHAPTER 4904 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN, ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES."

(1) THE PERMITTEE SHALL RETAIN A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN.
(2) THE PERMITTEE SHALL PROVIDE A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN TO THE PERSON IDENTIFIED IN THIS SECTION AS BEING RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS.

PCSM NOTICE OF TERMINATION

UPON PERMANENT STABILIZATION OF THE EARTH DISTURBANCE ACTIVITY UNDER CHAPTER 102.22(a)(2) (RELATING TO PERMANENT STABILIZATION), AND INSTALLATION OF BMPS IN ACCORDANCE WITH AN APPROVED PLAN PREPARED AND IMPLEMENTED IN ACCORDANCE WITH CHAPTERS 102.4 AND 102.8 (RELATING TO EROSION AND SEDIMENT CONTROL REQUIREMENTS; AND PCSM REQUIREMENTS), THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT.

THE NOTICE OF TERMINATION MUST INCLUDE:
(1) THE FACILITY NAME, ADDRESS AND LOCATION.
(2) THE OPERATOR NAME AND ADDRESS.
(3) THE PERMIT NUMBER.
(4) THE REASON FOR PERMIT TERMINATION.
(5) IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS IN ACCORDANCE WITH CHAPTER 102.8(m) AND PROOF OF COMPLIANCE WITH CHAPTER 102.8(m)(2).

PRIOR TO ACCEPTING THE NOT, THE DEPARTMENT AND/OR CONSERVATION DISTRICT STAFF WILL PERFORM A FINAL INSPECTION AND APPROVE OR DENY THE NOTICE OF TERMINATION.

PCSM ENGINEERING OVERSIGHT

THE PERMITTEE SHALL PROVIDE ENGINEERING CONSTRUCTION OVERSIGHT FOR THE PROPOSED STORMWATER BMPS. ADDITIONAL SOIL TESTING MAY BE REQUIRED PRIOR TO THE INSTALLATION OF INFILTRATION BMPS TO ENSURE PROPER LOCATION AND FUNCTION. A LICENSED PROFESSIONAL KNOWLEDGEABLE IN THE DESIGN AND CONSTRUCTION OF STORMWATER BMPS, PREFERABLY THE DESIGN ENGINEER, SHALL CONDUCT THE OVERSIGHT.

POST REMEDIATION CARE PLAN

A POST REMEDIATION CONTROL PLAN WILL BE DOCUMENTED IN THE FINAL REPORT. AT A MINIMUM, FOR CAPPED AREAS IT WILL INCLUDE:
1) MONITORING OF THE ENGINEERED COVER ON A QUARTERLY BASIS FOR THE FIRST YEAR, THEN ANNUALLY THEREAFTER.
2) MAINTENANCE OF THE ENGINEERED COVER, AND REPAIR OF ANY IDENTIFIED DETERIORATION OF THE CAP UNITS.
3) MAINTENANCE OF RECORDS AT THE PROPERTY WHERE MONITORING AND MAINTENANCE IS BEING CONDUCTED.
4) REPORTING OF MONITORING / MAINTENANCE RESULTS TO THE PADEP AS PROVIDED IN THE ENVIRONMENTAL COVENANT (TO BE DEVELOPED).

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REVISIONS				
date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JAMES P. BANNON ENGINEER No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

901 Washington Street
TOWNHOUSE LAYOUT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

RIVERplace

project no.	drawn by:
2009-134.05	JLH / CW
date: 10/3/19	chk'd by: JPB
scale: 1" = 30'	approv. by: JPB
sheet no. 17 of 23	

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USER: cwhitty

SITE SEQUENCE OF CONSTRUCTION

(SEE CLEANUP/WORK PLAN (CWP) FOR REMEDIATION SEQUENCE ITEMS)

1. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE INSPECTIONS COORDINATOR OF THE TOWNSHIP, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE PADEP SOUTHEAST REGIONAL OFFICE TO AN ON-SITE PRE-CONSTRUCTION MEETING. ALSO, AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
2. THE CONTRACTOR MUST ENSURE THAT A COPY OF THE APPROVED POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSMP) AND EROSION AND SEDIMENTATION POLLUTION CONTROL PLAN ARE AVAILABLE ON-SITE AT ALL TIMES.
3. PRIOR TO BMP INSTALLATION, THE INSPECTIONS COORDINATOR OF MCCD MUST BE CALLED TO SCHEDULE AN INSPECTION.
4. THE CONTRACTOR MUST USE THE CONSTRUCTION CERTIFICATION PACKAGE WITH BMP CONSTRUCTION CERTIFICATION FORMS AND FOLLOW THE PROCEDURES AS OUTLINED ON EACH FORM.
5. MATERIAL RECEIPTS AND CERTIFICATIONS MATERIAL RECEIPTS MUST BE PROVIDED WITH THE BMP CONSTRUCTION CERTIFICATIONS FORMS. THE MATERIAL RECEIPTS MUST CLEARLY SPECIFY THE TYPES, QUALITIES, AND QUANTITIES OF THE MATERIALS PURCHASED. ALL MANUFACTURER CERTIFICATIONS WHICH ARE NECESSARY TO DETERMINE THE MATERIAL TYPE AND QUALITY MUST ALSO BE PROVIDED.
6. THE CONTRACTOR SHALL FILL OUT THE FOLLOWING BMP CONSTRUCTION CERTIFICATION FORMS:
A)BIOINFILTRATION/BIORETENTION FOR THE RAIN GARDENS
B)WATER QUALITY STRUCTURES - CITCH BASIN INSERTS
C)SOIL AMENDMENTS.
7. STABILIZATION NOTE - UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION. HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE. HYDROSEED IS NOT CONSIDERED STABILIZATION UNTIL IT GERMINATES.
8. LIMITS OF DISTURBANCE AND LOCATIONS OF PROPOSED ON-SITE BMPS (NOT UTILIZED AS TEMPORARY SEDIMENT TRAPS) MUST BE DELINEATED WITH ORANGE CONSTRUCTION FENCE OR APPROVED EQUAL PRIOR TO EARTH MOVING ACTIVITIES.
9. PLACE PERIMETER EROSION AND SEDIMENT CONTROLS AS SHOWN ON EROSION AND SEDIMENT CONTROL PLAN THAT INCLUDE: TEMPORARY INLET PROTECTION (ROCK FILTER), SILT FENCE, COMPOST FILTER SOCK, AND LOCATIONS FOR TEMPORARY TOPSOIL STOCKPILE AREAS. STABILIZE ANY RESULTANT DISTURBANCE IMMEDIATELY, AS APPROPRIATE.
10. INSTALL STABILIZED CONSTRUCTION ENTRANCE. CONTRACTOR TO MODIFY LOCATION OF THE CONSTRUCTION ENTRANCE AS PRACTICAL DURING CONSTRUCTION. IN LIEU OF A WASH RACK, CONTRACTOR TO UTILIZE ACCEPTABLE STANDARDS AND PRACTICES TO ENSURE SEDIMENT IS NOT TRACKED OFF THE PROPERTY AND ONTO PUBLIC RIGHTS-OF-WAY. STABILIZE ANY RESULTING DISTURBANCE IMMEDIATELY, AS APPROPRIATE. NO VEHICLES MAY UTILIZE THE CONSTRUCTION ENTRANCE DURING THE INSTALLATION OF THE INLETS AND STORMWATER PIPE AT THE MAIN DRIVEWAY. THE MAIN DRIVEWAY CONSTRUCTION ENTRANCE SHALL BE RESTORED BY THE END OF DAY AFTER INSTALLATION OF STORMWATER PIPE AND INLETS.
11. CLEAR AND GRUB SCRUB TREES AND VEGETATION, ONLY AS NEEDED, THROUGHOUT THE DISTURBANCE AREA. STABILIZE ANY RESULTING DISTURBANCE IMMEDIATELY, AS APPROPRIATE
12. ***COMPLETE REQUIRED SITE DEMOLITION AS PRACTICAL. *NOTE:* IT IS RECOMMENDED THAT THE EXISTING BITUMINOUS PAVEMENT NEXT TO THE EXISTING STRUCTURE BE UTILIZED AS A STAGING AREA FOR THE DURATION AS NEEDED.
13. ***STRIP TOPSOIL FROM THE CONSTRUCTION AREAS AND STOCKPILE AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN OR IN A SIMILAR SUITABLE LOCATION. COMPOST FILTER SOCK SHALL BE PLACED ON THE DOWN GRADIENT SIDE OF ALL SOIL STOCKPILES. ALL STOCKPILES NOT SUBJECT TO IMMEDIATE CONSTRUCTION SHALL BE STABILIZED AND OR COVERED AS STIPULATED IN THE WCP.
14. ROUGH GRADE AREAS OF PROPOSED RAIN GARDENS.
PUMP SEDIMENT LADEN WATER TO PUMP WATER FILTER BAG.
15. COORDINATE UTILITY DECOMMISSION OF ANY ACTIVE AND INACTIVE UTILITIES WITH THE APPROPRIATE UTILITY COMPANY AND THE TOWNSHIP PRIOR TO THEIR REMOVAL AND/OR ABANDONMENT.
16. ***DEMOLISH PORTIONS OF THE EXISTING PEDESTAL FOUNDATION.
17. ***COMPLETE THE GP-4 WORK AS PRACTICAL. INSTALL ENDWALL-1 AND ENDWALL-2 TO MH-6 AND MH-2. CONTINUE STORMWATER CONVEYANCE PIPING FROM THE MH'S, TO TH WASHINGTON STREET INLETS I-1 THROUGH I-6.
INSTALL TEMPORARY CATCH BASIN INSERTS IN ALL INLETS.
18. ROUGH GRADING AND BUILDING CONSTRUCTION OPERATIONS CAN START WITHIN THE DRAINAGE AREA AFTER THE EROSION CONTROL FACILITIES ARE CONSTRUCTED AND FUNCTIONAL.
19. AFTER CONSTRUCTION OF THE BUILDINGS, THE SITE SHALL BE TEMPORARILY STABILIZED. PERMANENT VEGETATION AND EROSION CONTROL BLANKETS SHALL BE PROVIDED ON ALL SLOPES GREATER THAN OR EQUAL TO 3:1
20. TOPSOIL SHALL BE REPLACED EQUAL TO PREDEVELOPMENT DEPTHS OR AT A MINIMUM OF 6", EXCEPT WHERE CONTAMINATED SOIL IS UNCOVERED, 24" OF CLEAN FILL SHALL BE PLACED BETWEEN THE CONTAMINATED SOIL AND A MINIMUM OF 6" OF TOPSOIL.
GRADE ROADS AND INSTALL CURB WHERE SHOWN ON PLAN.
21. INSTALL PAVEMENT AND GRAVEL SURFACE AS PRACTICAL. COMPLETE REMAINING SITE IMPROVEMENTS. STABILIZE ANY RESULTING DISTURBANCE IMMEDIATELY.
22. *CONSTRUCT RAIN GARDENS ONCE THE UPSLOPE AREA IS STABILIZED. STABILIZE ANY RESULTING DISTURBANCE, IMMEDIATELY. SEE RAIN GARDEN INSTALLATION SEQUENCE FOR MORE DETAIL. STABILIZE ANY RESULTING DISTURBANCE IMMEDIATELY. (A)
23. INSTALL REQUIRED LANDSCAPE MATERIALS WITHIN RAIN GARDENS. (A)
24. AFTER SITE STABILIZATION AND BUILDING CONSTRUCTION IS COMPLETE, APPLY WEARING COURSE ASPHALT.
25. AFTER AN ON-SITE INSPECTION AND APPROVAL BY A REPRESENTATIVE OF THE INSPECTIONS COORDINATOR OF THE MCCD, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES. STABILIZE ANY RESULTING DISTURBANCE IMMEDIATELY. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY, OR ANY STAGE THEREOF, THE PROJECT SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION.
26. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT YET AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
27. UPON COMPLETION OF PERMITTED IMPROVEMENTS, THE PERMIT HOLDER SHALL SUBMIT THE REQUIRED NOTICE OF TERMINATION.

* DENOTES A CRITICAL STAGE WHEN A LICENSED PROFESSIONAL IS TO BE PRESENT ON-SITE.
** DENOTES A CRITICAL STAGE WHEN A LICENSED GEOTECHNICAL ENGINEER IS TO BE PRESENT ON-SITE.
*** REFER TO THE CLEANUP/WORK PLAN FOR RECOMMENDATIONS.
(A)(B)(C) DENOTES STAGE WHEN CONTRACTOR SHALL FILL OUT BMP CONSTRUCTION CERTIFICATION FORMS.

E&S BEST MANAGEMENT PRACTICES (BMPS) FOR CONTAMINATED SITES

NON-STRUCTURAL EROSION CONTROL RECOMMENDATIONS:
1. MINIMIZE DISTURBANCE: LIMIT THE EXTENT AND DURATION OF EARTH DISTURBANCE ACTIVITIES.

A) SPATIALLY -THROUGH PHASING AND/OR USING LESS INTRUSIVE EARTH DISTURBANCE TECHNIQUES/EQUIPMENT. AVOID AND MINIMIZE THE IMPACT OF ANCILLARY AREAS THAT ARE NOT NECESSARY FOR THE PROJECT. STAKE AND INSTALL PROTECTION FENCE TO IDENTIFY THE AREAS THAT ARE NOT TO BE DISTURBED BY CONTRACTORS / SUBCONTRACTORS.
B) TEMPORALLY - PROVIDE SEASONAL/TIME RESTRICTIONS AND PAY CAREFUL ATTENTION TO WEATHER FORECASTING. SCHEDULE CONSTRUCTION, GRADING, AND LAND DISTURBING ACTIVITIES TO MINIMIZE SOIL EXPOSURE, AND AVOID HEAVY RUNOFF SEASONS. USE EFFECTIVE SCHEDULING TO MINIMIZE SOIL EXPOSURE BETWEEN INITIAL GRADING AND COMPLETION OF FINAL GRADING OR INSTALLATION OF IMPROVEMENTS.

2. DUST CONTROL AND SUPPRESSION: IMPLEMENT APPROPRIATE PRACTICES AND PROCEDURES FOR DUST CONTROL, ESPECIALLY DURING DRY AND WINDY PERIODS.

3. CONTINGENCY PLAN - A CONTINGENCY PLAN AND ADDITIONAL SAFETY PROTOCOLS MUST BE IN PLACE IN THE EVENT CONTAMINATION IS UNCOVERED TO LIMIT EXPOSURE AND ABATE THE PROBLEM AS SOON AS POSSIBLE.

4. IMPLEMENT AND ADHERE TO THE STIPULATIONS OF THE REMEDIATION AND CLEANUP/WORK PLANS AS SOON AS CONTAMINATION IS DISCOVERED.

STRUCTURAL (STABILIZATION) EROSION CONTROL RECOMMENDATIONS:

IN ORDER TO AVOID ISSUES WITH SURFACE WATER DISCHARGES OF CONTAMINATED RUNOFF DURING EARTH DISTURBANCE ACTIVITIES, THE FOLLOWING MEASURES SHALL BE IMPLEMENTED UPON THE DISCOVERY AND CLASSIFICATION OF CONTAMINATED SOILS THAT WILL BE EXCAVATED, RELOCATED AND/OR TRANSPORTED OFF SITE.

DURING CONSTRUCTION, COMPOST WILL BE UTILIZED TO REMEDIATE SOILS CONTAMINATED BY VOLATILE ORGANIC COMPOUNDS (VOC'S). IT IS RECOMMENDED THAT THE CONTRACTOR HAVE IMMEDIATE ACCESS TO COMPOST STOCKPILED ON SITE. COMPOST WILL BE USED AS FOLLOWS:

- SPREAD AS A MULCH TO PROVIDE TEMPORARY COVER/STABILIZATION OVER CONTAMINATED AREAS.
- CONSTRUCT FILTER BERMS OR GEOTEXTILE TUBES/SOCKS FOR USE AS A SEDIMENT BARRIER.
- USE AS A SOIL AMENDMENT TO IMPROVE ABSORPTION AND POLLUTANT REMOVAL CHARACTERISTICS.

EXCAVATED AREAS SHALL BE STABILIZED IMMEDIATELY WHERE EARTH DISTURBANCE UNCOVERS CONTAMINATED SOILS USING THE FOLLOWING:

MATS/BLANKETS/LININGS/MULCHING - INCLUDING COMPOST, TEMPORARY AND/OR PERMANENT SEEDING/VEGETATION FOR ISOLATION AND SHIELDING:

- TARPS – TARPS SHOULD BE USED TO COVER SMALL PILES OF CONTAMINATED SOILS WAITING FOR TESTING AND HANDLING OPERATIONS.
- TEMPORARY DAILY COVER – PROVIDE TEMPORARY COVER FOR LARGER STOCKPILES WHERE TARPS ARE NOT FEASIBLE.
- IMPERVIOUS COVER – PER THE SOIL MANAGEMENT PLAN, PLACE CONTAMINATED SOILS UNDER IMPERVIOUS AREAS. IF ADDITIONAL IMPERVIOUS AREA IS REQUIRED, CONTACT THE ENGINEER IMMEDIATELY AS MODIFICATIONS TO STORMWATER MANAGEMENT FACILITIES MAY BE REQUIRED.

RAIN GARDEN INSTALLATION SEQUENCE

ALL CONSTRUCTION SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING GUIDELINES. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. REFERENCE THE INSTALLATION GUIDELINES ON SHEET 16 FOR ADDITIONAL INFORMATION.

1. AREAS FOR BIORETENTION (RAIN GARDENS) SHALL BE CLEARLY MARKED BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION.
2. PROVIDE EROSION AND SEDIMENTATION CONTROL ON THE SITE SUCH THAT CONSTRUCTION RUNOFF IS DIRECTED AWAY FROM THE PROPOSED RAIN GARDEN LOCATIONS.
3. COMPLETE SITE ELEVATION GRADING AND STABILIZE THE SOIL DISTURBED WITHIN THE LIMITS OF DISTURBANCE. DO NOT FINALIZE RAIN GARDEN EXCAVATION AND CONSTRUCTION UNTIL THE DRAINAGE AREA IS FULLY STABILIZED.
4. EXCAVATE RAIN GARDEN AREA TO PROPOSED INVERT DEPTH AND MANUALLY SCARIFY THE EXISTING SOIL SURFACES. DO NOT COMPACT IN-SITU SOILS. HEAVY EQUIPMENT SHALL NOT BE USED WITHIN THE RAIN GARDEN. ALL EQUIPMENT SHALL BE KEPT OUT OF THE EXCAVATED AREA TO THE MAXIMUM EXTENT POSSIBLE. THE USE OF MACHINERY TO LOAD ANY PROPOSED STONE FROM OUTSIDE THE BASIN IS RECOMMENDED.
5. * UPON COMPLETION OF THE SUB-GRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND INSPECT THE RAIN GARDEN CONFIGURATION AND SIZE PRIOR TO THE LINER INSTALLATION.
6. *INSTALL IMPERMEABLE LINER AS SHOWN ON DETAILS. UPON COMPLETION OF LINER INSTALLATION, SUB-GRADE WORK, OUTLET STRUCTURE INSTALLATION, STONE PLACEMENT, AND UNDERDRAIN INSTALLATION, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT HIS/HER DISCRETION BEFORE PROCEEDING WITH RAIN GARDEN INSTALLATION.
7. AMENDED SOIL SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUB-GRADE PREPARATION/BED INSTALLATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUB-GRADE STONE BED SHALL BE REMOVED PRIOR TO THE INSTALLATION OF AMENDED SOIL. INSTALL AMENDED SOIL (EXCEEDING ALL CRITERIA) IN 18-INCH MAXIMUM LIFTS AND TAMP LIGHTLY, KEEP EQUIPMENT MOVEMENT OVER AMENDED SOIL TO A MINIMUM – DO NOT OVER COMPACT. INSTALL AMENDED SOIL TO GRADES INDICATED ON THE DRAWINGS. SLIGHT OVERFILLING MIGHT BE NECESSARY TO ACCOUNT FOR SETTLEMENT.
8. PRE-SOAK SOIL AT LEAST ONE DAY PRIOR TO FINAL GRADING AND LANDSCAPING TO ALLOW FOR SETTLEMENT.
9. AFTER ALLOWING FOR SETTLEMENT, COMPLETE FINAL GRADING TO WITHIN 2 INCHES OF THE PROPOSED DESIGN ELEVATIONS, LEAVING SPACE FOR THE TOP DRESSING OF MULCH OR MULCH/COMPOST BLEND.
10. PLANT TREES AND SHRUBS ACCORDING TO RAIN GARDEN PLANTING DETAIL PLAN AND ONLY DURING THE SPECIFIED PLANTING SEASONS.
11. INSTALL 2-3" SHREDDED HARDWOOD MULCH (MINIMUM AGE 6 MONTHS) OR COMPOST MULCH EVENLY AS SHOWN ON THE PLANS. DO NOT APPLY MULCH IN AREAS WHERE GROUND COVER IS TO BE GRASS OR WHERE COVER WILL BE ESTABLISHED BY SEEDING.
12. PROTECT RAIN GARDENS FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION. HAY BALES, DIVERSION BERMS AND/OR OTHER APPROPRIATE MEASURES SHALL BE USED AT THE TOE OF SLOPES THAT ARE ADJACENT TO RAIN GARDENS TO PREVENT SEDIMENT FROM WASHING INTO THESE AREAS DURING SITE DEVELOPMENT.
13. * WHEN THE SITE IS FULLY VEGETATED AND THE SOIL MANTLE STABILIZED, THE PLAN DESIGNER SHALL BE NOTIFIED AND SHALL INSPECT THE RAIN GARDEN DRAINAGE AREA AT HIS/HER DISCRETION BEFORE THE AREA IS BROUGHT ONLINE AND SEDIMENT CONTROL DEVICES ARE REMOVED.
14. WATER VEGETATION AT THE END OF EACH DAY FOR TWO WEEKS AFTER PLANTING IS COMPLETED.
15. WATER VEGETATION REGULARLY FOR THE FIRST YEAR TO ENSURE SUCCESSFUL ESTABLISHMENT.

* DENOTES A CRITICAL STAGE WHEN A LICENSED PROFESSIONAL IS TO BE PRESENT ON-SITE.

PCSM LONG TERM OPERATIONS AND MAINTENANCE REQUIREMENTS

UNTIL THE PERMITTEE OR CO-PERMITTEE HAS RECEIVED WRITTEN APPROVAL OF A NOTICE OF TERMINATION, THE PERMITTEE OR CO-PERMITTEE WILL REMAIN RESPONSIBLE FOR COMPLIANCE WITH THE PERMIT TERMS AND CONDITIONS INCLUDING LONG-TERM OPERATION AND MAINTENANCE OF ALL PCSM BMPS ON THE PROJECT SITE AND IS RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE.

THE PERMITTEE OR CO-PERMITTEE SHALL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPS UNLESS A DIFFERENT PERSON IS IDENTIFIED IN THE NOTICE OF TERMINATION AND HAS AGREED TO LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPS.

FOR ANY PROPERTY CONTAINING A PCSM BMP, THE PERMITTEE OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ASSURE DISCLOSURE OF THE PCSM BMP AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE PROPERTY. THE RECORDED INSTRUMENT MUST IDENTIFY THE PCSM BMP. PROVIDE FOR NECESSARY ACCESS RELATED TO LONG-TERM OPERATION AND MAINTENANCE FOR PCSM BMPS AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP IS A COVENANT THAT RUNS WITH THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUBSEQUENT GRANTEES, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER CHAPTER 102.7(b)(5) (RELATING TO PERMIT TERMINATION).

THE PERSON RESPONSIBLE FOR PERFORMING LONG-TERM OPERATION AND MAINTENANCE MAY ENTER INTO AN AGREEMENT WITH ANOTHER PERSON INCLUDING A CONSERVATION DISTRICT, NONPROFIT ORGANIZATION, MUNICIPALITY, AUTHORITY, PRIVATE CORPORATION OR PERSON, TO TRANSFER THE RESPONSIBILITY FOR PCSM BMPS OR TO PERFORM LONG-TERM OPERATION AND MAINTENANCE AND PROVIDE NOTICE THEREOF TO THE DEPARTMENT.

A PERMITTEE OR CO-PERMITTEE THAT FAILS TO TRANSFER LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP OR OTHERWISE FAILS TO COMPLY WITH THIS REQUIREMENT SHALL REMAIN JOINTLY AND SEVERALLY RESPONSIBLE WITH THE LANDOWNER FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS LOCATED ON THE PROPERTY.

THE OWNERSHIP AND MAINTENANCE OF STORMWATER BMPS SHALL BE THE RESPONSIBILITY OF THE OWNER OR PRIVATE MANAGEMENT ENTITY OF THE PROPERTY.

AN AS-BUILT SURVEY OF ALL STORMWATER BMPS MUST BE SUBMITTED TO THE TOWNSHIP IN PAPER AND DIGITAL (DWG) FORMATS.

PCSM REPORTING AND RECORD KEEPING

A WRITTEN REPORT DOCUMENTING EACH INSPECTION AND ALL BMP REPAIR AND MAINTENANCE ACTIVITIES MUST BE PROVIDED AS PART OF THE LONG-TERM OPERATION AND MAINTENANCE PROGRAM.

THE PCSM PLAN, INSPECTION REPORTS AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

PCSM FINAL CERTIFICATION

THE PERMITTEE SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" WITH A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS:

"I (NAME) DO HEREBY CERTIFY PURSUANT TO THE PENALTIES OF 18 PA. C.S.A. CHAPTER 4904 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN, ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES."

(1) THE PERMITTEE SHALL RETAIN A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN.
(2) THE PERMITTEE SHALL PROVIDE A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN TO THE PERSON IDENTIFIED IN THIS SECTION AS BEING RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS.

PCSM NOTICE OF TERMINATION

UPON PERMANENT STABILIZATION OF THE EARTH DISTURBANCE ACTIVITY UNDER CHAPTER 102.22(a)(2) (RELATING TO PERMANENT STABILIZATION), AND INSTALLATION OF BMPS IN ACCORDANCE WITH AN APPROVED PLAN PREPARED AND IMPLEMENTED IN ACCORDANCE WITH CHAPTERS 102.4 AND 102.8 (RELATING TO EROSION AND SEDIMENT CONTROL REQUIREMENTS; AND PCSM REQUIREMENTS), THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT.

THE NOTICE OF TERMINATION MUST INCLUDE:
(1) THE FACILITY NAME, ADDRESS AND LOCATION.
(2) THE OPERATOR NAME AND ADDRESS.
(3) THE PERMIT NUMBER.
(4) THE REASON FOR PERMIT TERMINATION.
(5) IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS IN ACCORDANCE WITH CHAPTER 102.8(m) AND PROOF OF COMPLIANCE WITH CHAPTER 102.8(m)(2).

PRIOR TO ACCEPTING THE NOT, THE DEPARTMENT AND/OR CONSERVATION DISTRICT STAFF WILL PERFORM A FINAL INSPECTION AND APPROVE OR DENY THE NOTICE OF TERMINATION.

MATERIALS MANAGEMENT

WASTE MANAGEMENT - BUILDING MATERIALS AND OTHER CONSTRUCTION SITE WASTES MUST BE PROPERLY MANAGED AND DISPOSED OF TO REDUCE POTENTIAL FOR POLLUTION TO SURFACE AND GROUND WATERS AS PER 25 PA. CODE 102.4(b)(5)(ii). PROPER TRASH DISPOSAL, RECYCLING MATERIALS, PROPER MATERIALS HANDLING, AND SPILL PREVENTION AND CLEAN-UP REDUCE THE POTENTIAL FOR CONSTRUCTION SITE WASTES TO BE MOBILIZED BY STORMWATER RUNOFF AND CONVEYED TO SURFACE WATERS.

UNDER NO CIRCUMSTANCES MAY EROSION CONTROL BMPS BE USED FOR TEMPORARY STORAGE OF DEMOLITION MATERIALS OR CONSTRUCTION WASTES.

WHEREVER HEAVY EQUIPMENT WILL BE USED DURING CONSTRUCTION OF THE CUTS AND FILLS OR PROPOSED BUILDINGS, A POLLUTION PREVENTION AND CONTINGENCY (PPC) PLAN MUST BE AVAILABLE ON SITE. THIS PLAN DOES NOT HAVE TO BE INCLUDED IN THE PERMIT APPLICATION PACKAGE SUBMITTED FOR NPDES CONSTRUCTION PERMIT ON PENNSYLVANIA BUT SHOULD BE AVAILABLE ON PROJECT SITE. THE APPLICANT MUST PREPARE AND IMPLEMENT A PPC PLAN WHEN STORING, USING OR TRANSPORTING MATERIALS INCLUDING: FUELS, CHEMICALS, SOLVENTS, PESTICIDES, FERTILIZERS, LIME, PETROCHEMICALS, WASTEWATER, WASH WATER, CORE DRILLING WASTEWATER, CEMENT, SANITARY WASTES, SOLID WASTES, OR HAZARDOUS MATERIALS ONTO, ON, OR FROM THE PROJECT SITE DURING EARTH DISTURBANCE ACTIVITIES. THE PPC PLAN MUST BE AVAILABLE UPON REQUEST BY THE DEPARTMENT OR CONSERVATION DISTRICT. GUIDANCE FOR DEVELOPMENT OF A PPC PLAN CAN BE FOUND IN "GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF ENVIRONMENTAL EMERGENCY RESPONSE PLANS" (DOCUMENT #400-2200-001), WHICH CAN BE FOUND IN THE DEPARTMENTS ELIBRARY AT WWW.DEPWEB.STATE.PA.US.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS MUST BE FOLLOWED IN THE USE, HANDLING, AND DISPOSAL OF POTENTIALLY HAZARDOUS MATERIALS.

GEOLOGIC/SOIL CONDITIONS ADDRESSED:

THE SITE IS LOCATED IN AN AREA OF RECOGNIZED ENVIRONMENTAL CONDITION (REC). RECOGNIZED ENVIRONMENTAL CONDITION IS DEFINED AS THE "PRESENCE OR LIKELY PRESENCE OF HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS ON A PROPERTY UNDER CONDITIONS THAT INDICATE AN EXISTING RELEASE, A PAST RELEASE, OR A MATERIAL THREAT OF A RELEASE OF ANY HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS INTO STRUCTURES ON THE PROPERTY OR INTO THE GROUND, GROUNDWATER, OR SURFACE WATER OF THE PROPERTY."

DUE TO THE REC, A CLEANUP/WORK PLAN (CWP) HAS BEEN DEVELOPED FOR THE SUBJECT PROPERTY.

THE CWP DEMONSTRATES THAT HUMAN HEALTH EXPOSURE TO PATHWAYS WILL BE ELIMINATED THROUGH THE REMOVAL AND/OR PLACEMENT OF IMPACTED SOILS UNDER IMPERVIOUS COVER AND/OR A MINIMUM OF 24"OF CLEAN FILL AND THAT GROUNDWATER WILL BE PROTECTED THROUGH THE USE OF LINED NON-INFILTRATING RAIN GARDENS.

THE CWP OUTLINES MEASURES TO BE TAKEN TO PROTECT WORKERS DURING CONSTRUCTION AND ADDRESS SOILS DISPOSAL, IF REQUIRED.

PCSM ENGINEERING OVERSIGHT

THE PERMITTEE SHALL PROVIDE ENGINEERING CONSTRUCTION OVERSIGHT FOR THE PROPOSED STORMWATER BMPS. ADDITIONAL SOIL TESTING MAY BE REQUIRED PRIOR TO THE INSTALLATION OF INFILTRATION BMPS TO ENSURE PROPER LOCATION AND FUNCTION. A LICENSED PROFESSIONAL KNOWLEDGEABLE IN THE DESIGN AND CONSTRUCTION OF STORMWATER BMPS, PREFERABLY THE DESIGN ENGINEER, SHALL CONDUCT THE OVERSIGHT.

POST REMEDIATION CARE PLAN

A POST REMEDIATION CONTROL PLAN WILL BE DOCUMENTED IN THE FINAL REPORT.
AT A MINIMUM, FOR CAPPED AREAS IT WILL INCLUDE:
1) MONITORING OF THE ENGINEERED COVER ON A QUARTERLY BASIS FOR THE FIRST YEAR, THEN ANNUALLY THEREAFTER.
2) MAINTENANCE OF THE ENGINEERED COVER, AND REPAIR OF ANY IDENTIFIED DETERIORATION OF THE CAP UNITS.
3) MAINTENANCE OF RECORDS AT THE PROPERTY WHERE MONITORING AND MAINTENANCE IS BEING CONDUCTED.
4) REPORTING OF MONITORING / MAINTENANCE RESULTS TO THE PADEP AS PROVIDED IN THE ENVIRONMENTAL COVENANT (TO BE DEVELOPED).

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REVISIONS

date:	no.	description	chk'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

SEAL:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JAMES P. BANNON
ENGINEER
No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: PCSM CONSTRUCTION DETAIL SHEET

RIVERplace

901 Washington Street
TOWNHOUSE LAYOUT

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	NAM
date: 10/3/19	chk'd by: JPB
scale: N.T.S.	approv. by: JPB

sheet no.

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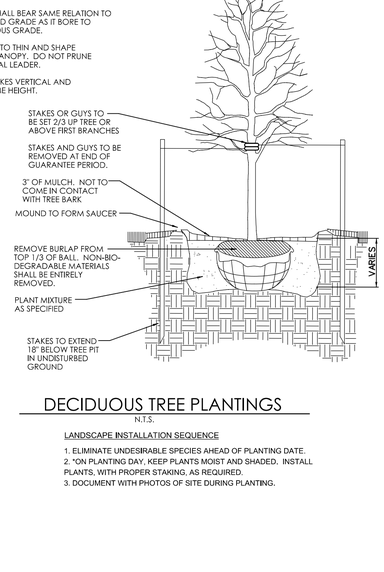
K:

NOTE:

TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE.

PRUNE TO THIN AND SHAPE TREE CANOPY. DO NOT PRUNE CENTRAL LEADER.

SET STAKES VERTICAL AND AT SAME HEIGHT.

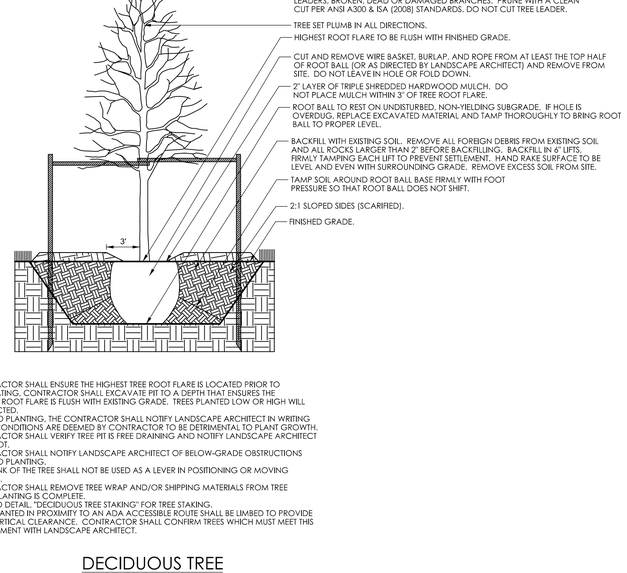


DECIDUOUS TREE PLANTINGS

N.T.S.

LANDSCAPE INSTALLATION SEQUENCE

1. ELIMINATE UNDESIRABLE SPECIES AHEAD OF PLANTING DATE.
2. *ON PLANTING DAY, KEEP PLANTS MOIST AND SHADED. INSTALL PLANTS, WITH PROPER STAKING, AS REQUIRED.
3. DOCUMENT WITH PHOTOS OF SITE DURING PLANTING.

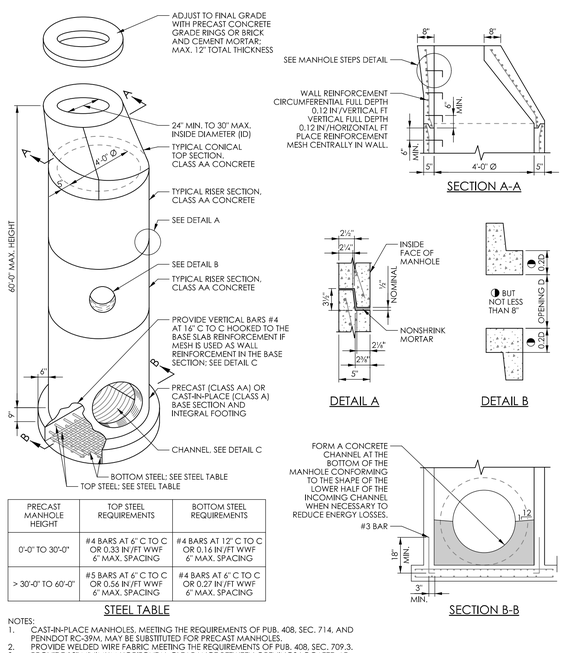


NOTES:

1. CONTRACTOR SHALL ENSURE THE HIGHEST TREE ROOT FLARE IS LOCATED PRIOR TO EXCAVATING. CONTRACTOR SHALL EXCAVATE PIT TO A DEPTH THAT ENSURES THE HIGHEST ROOT FLARE IS FLUSH WITH EXISTING GRADE. TREES PLANTED LOW OR HIGH WILL BE REJECTED.
2. PRIOR TO PLANTING, THE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IN WRITING IF SOIL CONDITIONS ARE DEEMED BY CONTRACTOR TO BE DETRIMENTAL TO PLANT GROWTH.
3. CONTRACTOR SHALL VERIFY TREE PIT IS FREE DRAINING AND NOTIFY LANDSCAPE ARCHITECT IF IT IS NOT.
4. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF BELOW-GRADE OBSTRUCTIONS PRIOR TO PLANTING.
5. THE TRUNK OF THE TREE SHALL NOT BE USED AS A LEVER IN POSITIONING OR MOVING THE TREE.
6. CONTRACTOR SHALL REMOVE TREE WRAP AND/OR SHIPPING MATERIALS FROM TREE ONCE PLANTING IS COMPLETE.
7. REFER TO DETAIL "DECIDUOUS TREE STAKING" FOR TREE STAKING.
8. TREES PLANTED IN PROXIMITY TO AN ADA ACCESSIBLE ROUTE SHALL BE LIMBED TO PROVIDE A 80" VERTICAL CLEARANCE. CONTRACTOR SHALL CONFIRM TREES WHICH MUST MEET THIS REQUIREMENT WITH LANDSCAPE ARCHITECT.

DECIDUOUS TREE

N.T.S.



PRECAST MANHOLE HEIGHT	TOP STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
0'-0" TO 30'-0"	#4 BARS AT 6" C TO C OR 0.33 IN/FT WWF 6" MAX. SPACING	#4 BARS AT 12" C TO C OR 0.16 IN/FT WWF 6" MAX. SPACING
> 30'-0" TO 60'-0"	#5 BARS AT 6" C TO C OR 0.56 IN/FT WWF 6" MAX. SPACING	#4 BARS AT 6" C TO C OR 0.27 IN/FT WWF 6" MAX. SPACING

STEEL TABLE

DETAIL A

DETAIL B

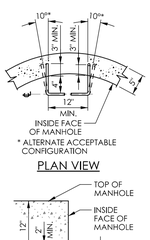
SECTION B-B

NOTES:

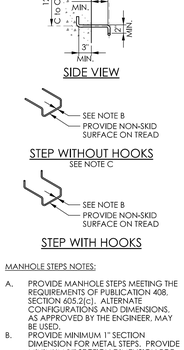
1. CAST-IN-PLACE MANHOLES, MEETING THE REQUIREMENTS OF PUB. 408, SEC. 714, AND PENNDOT RC-39M, MAY BE SUBSTITUTED FOR PRECAST MANHOLES.
2. PROVIDE WELDED WIRE FABRIC MEETING THE REQUIREMENTS OF PUB. 408, SEC. 709.3.
3. PROVIDE 12" MINIMUM HORIZONTAL CLEARANCE BETWEEN OPENINGS LOCATED AT THE SAME DEPTH. LOCATE PIPES NOT AT THE SAME DEPTH VERTICALLY AT LEAST ONE HALF THE MAXIMUM OPENING DIAMETER APART.
4. ALL PRECAST REINFORCED CONCRETE CIRCULAR MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM-C478M.

STANDARD PRECAST MANHOLE

FOR PIPES 30" INSIDE DIAMETER AND LESS.
N.T.S. (SEE PENNDOT RC-39M)



PLAN VIEW



SIDE VIEW

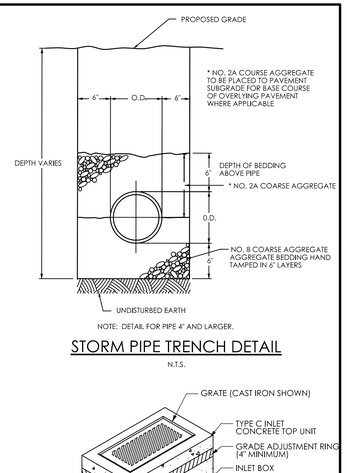
STEP WITHOUT HOOKS
SEE NOTE C

STEP WITH HOOKS

MANHOLE STEPS NOTES:

A. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 605.2(c). ALTERNATE CONFIGURATIONS AND DIMENSIONS, AS APPROVED BY THE ENGINEER, MAY BE USED.
B. PROVIDE MINIMUM 1" SECTION DIMENSION FOR METAL STEPS. PROVIDE MINIMUM ¾" SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
C. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.

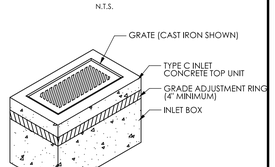
TYPICAL STEP CONFIGURATION-MANHOLE STEPS
SEE NOTE A



NOTE: DETAIL FOR PIPE 4" AND LARGER.

STORM PIPE TRENCH DETAIL

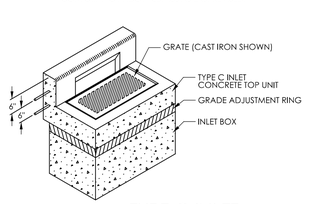
N.T.S.



TYPE M INLET

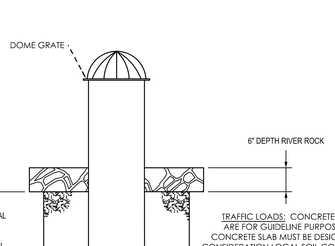
N.T.S. (SEE PENN. D.O.T. RC-34)

NOTE:
CONSTRUCTION OF THE PROPOSED DRAINAGE STRUCTURES IN TRAFFIC AREAS SHALL CONFORM WITH PADOT PUB. 72M (AS LAST REVISED) STANDARD DRAWINGS RC-39M, RC-45M, AND RC-46M. ALL CONSTRUCTION SHALL ALSO CONFORM TO PADOT PUB. 408 AS LAST REVISED.



TYPE C INLET

N.T.S. (SEE PENN. D.O.T. RC-34)



TRAFFIC LOADS: CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, & OTHER APPLICABLE DESIGN FACTORS.

1. GRATES/COVERS IN PAVED AREAS SHALL MEET H-20 LOAD RATING

RIP-RAP (R-4)

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS II MATERIAL AS DEFINED IN ASTM D2321, OR AS DETERMINED BY LOCAL STANDARDS & SITE ENGINEER. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

NYLOPLAST DRAIN BASIN

-SEE MANUFACTURER FOR ALL SIZING AND INSTALLATION SPECIFICATIONS

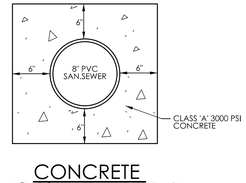
RAIN GARDEN TRENCH OUTLET DETAIL

N.T.S.

WATER QUALITY INSERT/INLET INSTALLATION SEQUENCE

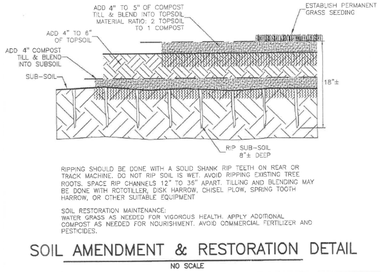
1. STABILIZE ALL CONTRIBUTING AREAS BEFORE INSTALLING WATER QUALITY INSERTS.
2. *INSTALL INSERTS ON THE STORMWATER STRUCTURES NOTED ON THE PCSM PLAN.

FOLLOW MANUFACTURER'S GUIDELINES FOR INSTALLATION.



CONCRETE ENCASEMENT DETAIL

NTS



CONSTRUCTED FILTER AMENDED SOIL:

DOUBLE SHREDDED HARDWOOD MULCH: 15%
WASHED SHARP SAND (ASTMC-33): 50%
TOPSOIL: 30%
FEATMOSS: 5%

OPEN SPACE / LOT AMENDED SOIL:

CLAY CONTENT : LESS THAN 5%
SAND CONTENT : 50% - 60%
LEAF COMPOST OR AGED LEAF MULCH : 20% - 30%
HIGH QUALITY TOPSOIL : 20% - 30%
PERMEABILITY OF AT LEAST 1.0 FOOT PER DAY (0.5" PER HOUR)
FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER
FREE OF BRUSH OR SEEDS FROM NOXIOUS WEEDS
MIN. SOIL POROSITY: 17%

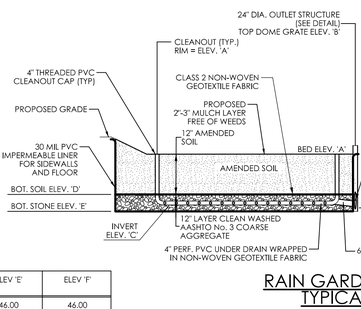
SOIL AMENDMENT & RESTORATION DETAIL

NO SCALE

AMENDED SOIL:

1. TEXTURE OF PLANTING SOIL SHOULD CONFORM TO THE CLASSIFICATION WITHIN THE USDA TRIANGLE FOR SANDY LOAM OR LOAMY SAND. PLANTING SOIL SHOULD BE A MIXTURE OF SAND, SILT, AND CLAY PARTICLES AS REQUIRED TO MEET THE CLASSIFICATION. RANGES OF PARTICLE SIZE DISTRIBUTION, AS DETERMINED BY PIPETTE METHOD IN COMPLIANCE WITH ASTM F-1632:
   - SAND (0.05 TO 2.0 MM) 50 - 85%
   - SILT (0.002 TO 0.05 MM) 40% MAXIMUM
   - CLAY (LESS THAN 0.002 MM) 10% MAXIMUM
   - GRAVEL (2.0 TO 12.7 MM) 15% MAXIMUM
2. PLANTING SOIL SHOULD BE SCREENED AND FREE OF STONES LARGER THAN A HALF-INCH (1/2"; 12.7 MM) IN ANY DIMENSION. NOR MORE THAN TEN PERCENT (10%) OF THE SOIL VOLUME SHOULD BE COMPOSED OF SOIL PEDS GREATER THAN ONE INCH (1").
3. CLODS, OR NATURAL CLUMPS OF SOILS, GREATER THAN THREE INCHES (3") IN ANY DIMENSION SHOULD BE ABSENT FROM THE PLANTING SOIL. SMALL CLODS RANGING FROM ONE TO THREE INCHES (1-3") AND PEDS, NATURAL SOIL CLUMPS UNDER ONE INCH (1") IN ANY DIMENSION, MAY BE PRESENT BUT SHOULD NOT MAKE UP MORE THAN TEN PERCENT (10%) OF THE SOIL BY VOLUME.
4. THE PH OF THE PLANTING SOIL SHOULD HAVE A RANGE OF 5.8 TO 7.1. EXTREMES SHOULD BE AVOIDED.
5. SOLUBLE SALTS SHOULD BE LESS THAN 2.0 MMHOS/CM (DS/M). TYPICALLY AS MEASURED BY 1:2 SOIL-WATER RATIO BASIC SOIL SALINITY TESTING. SODIC SOILS (EXCHANGEABLE SODIUM PERCENTAGE (ESP) GREATER THAN 15 AND/OR SODIUM ADSORPTION RATIO (SAR) GREATER THAN 13) SHALL NOT BY ACCEPTABLE FOR USE REGARDLESS OF AMENDMENT.
6. ORGANIC CONTENT OF PLANTING SOIL SHOULD HAVE A RANGE OF THREE TO FIFTEEN PERCENT 93-15%) BY WEIGHT AS DETERMINED BY LOSS ON IGNITION (ASTM D2974). TO ADJUST ORGANIC CONTENT, PLANTING SOIL MAY BE AMENDED, PRIOR TO PLACING AND FINAL GRADING, WITH THE ADDITION OF ORGANIC COMPOST.

RAIN GARDEN NO.	STRUCTURE (OUTSIDE DIA.)	ELEV. 'A'	ELEV. 'B'	ELEV. 'C'	ELEV 'D'	ELEV 'E'	ELEV 'F'
RG-1	24"	48.00	48.25	46.33	47.00	46.00	46.00
RG-2	24"	48.00	48.50	46.33	47.00	46.00	45.50
RG-3	24"	48.00	48.95	46.33	47.00	46.00	45.50



GEOTEXTILE FABRIC:
SHALL CONSIST OF NEEDLED NONWOVEN POLYPROPYLENE FIBERS AND MEET THE FOLLOWING PROPERTIES:

GRAB TENSILE STRENGTH (ASTM - D4632)	120 LBS
MULLEN BURST STRENGTH (ASTM - D3786)	225 PSI
FLOW RATE (ASTM-D4491)	110 GAL/MIN/FT^2
UV RESISTANCE AFTER 500 HRS (ASTM-D4355)	70%

HEAT-SET OR HEAT-CALENDARED FABRICS ARE NOT PERMITTED. ACCEPTABLE TYPES INCLUDE MIRAFI 140N, AMOCO 4547, AND GEOTEX 451

MULCH LAYER:
AGED, DOUBLE-SHREDDED, HARDWOOD BARK MULCH, FREE OF WEEDS, PLACED ON SURFACE TO DEPTH OF 2-3 INCHES.

IMPERMEABLE LINER:
COMPACTED TILL LINER, GEOMEMBRANE LINER, OR CONCRETE LINER WITH A PERMEABILITY EQUAL OR LESS THAN 10-7 CM/SEC. MAY BE USED. CLAY LINERS SHOULD BE OF AN APPROPRIATE DESIGN AS SPECIFIED BY A GEOTECHNICAL ENGINEER. PVC LINER MUST BE 30 MIL. JOIN SECTIONS TO FORM AN IMPERVIOUS SEAM PER MANUFACTURING SPECIFICATIONS.

CLEAN WASHED STONE:
AASHTO NO. 3 COARSE AGGREGATE UNIFORMLY GRADED AND CRUSHED LESS THAN 0.5% WASH LOSS, BY MASS, WHEN TESTED PER THE AASHTO T-11 WASH TEST.

RAIN GARDEN 1, 2, AND 3 TYPICAL SECTION

N.T.S.

FLEXSTORM PURE INLET FILTERS FOR RECTANGULAR OPENINGS WITH GRATES

FLEXSTORM PURE INLET FILTERS FOR RECTANGULAR OPENINGS WITH GRATES

FLEXSTORM HDWM WALL MOUNT INLET FILTERS FOR OPEN THROAT GUTTERS

Product selection for FLEXSTORM PURE Filters (Permanent Inlet Protection)

Descrip	Inlet Type	Grate Size	Opening Size	Bag Cap (ft³)	Flow Ratings (CFS) FX/FX+	PC/PC+	Bypass	FX	FX+	PC	PC+
2' x 2' Frame and Grate	Square/Rect (SQ)	24 x 24	22 x 22	3.3	1.8	1.6	4.8	62MHD22FX	62MHD22FXP	62MHD22PC	62MHD22PCP
2' x 4' Penndot Type M & C	Square/Rect (SQ)	26.5 x 48	24 x 44.5	6.3	3.1	2.2	9.5	62PENNMHDFX	62PENNMHDFXP	62PENNMHDPC	62PENNMHDPCP
2' x 6' Frame and Grate	Concrete Box (HD4)	26.5 x 75	24 x 72	10.0	4.8	4.1	13.0	62PENNHD2x6FX	62PENNHD2x6FXP	62PENNHD2x6PC	62PENNHF2x8PCP
3 x 3 Frame and Grate	Square/Rect (SQ)	37.5 x 37.5	36 x 36	7.2	4.4	3.2	9.6	62HDXLFX	62HDXLFXP	62HDXLPC	62HDXLPCP
48" Open Throat Curb Inlet	Wall Mount (WM)	N/A	48	3.3	2.5	4.2	N/A*	62HDWM48FX	62HDWM48FXP	62HDWM48PC	62HDWM48PCP

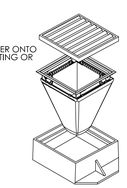
*FLOW RATINGS SHOWN ARE 50% MAXIMUM

NOTES:

1. ALL FRAMING IS CONSTRUCTED OF 304 STAINLESS STEEL FOR 25 YEAR SERVICE LIFE RATING
2. TOTAL BYPASS CAPACITY WILL VARY WITH EACH SIZED DRAINAGE STRUCTURE. FLEXSTORM DESIGNS FRAMING BYPASS TO MEET OR EXCEED THE DESIGN FLOW OF THE PARTICULAR DRAINAGE STRUCTURE.
3. UPON ORDERING, ADD P/N CONFIRMATION OF THE DOT CALLOUT, FLEXSTORM ITEM CODE, CASTING MAKE AND MODEL, OR DETAILED DIMENSIONAL FORMS MUST BE PROVIDED.
4. FOR WRITTEN SPECIFICATIONS AND MAINTENANCE GUIDELINES VISIT WWW.INLETFILTERS.COM

INSTALLATION:

1. REMOVE GRATE
2. DROP FLEXSTORM INLET FILTER ONTO LOAD BEARING LIP OF CASTING OR CONCRETE STRUCTURE
3. REPLACE GRATE



FLEXSTORM PURE FILTERS FOR PERMANENT INLET PROTECTION DETAIL

N.T.S.

Nave NEWELL
Where Ideas Get Down to Earth
900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p. 610.265.8323 f. 610.265.8329
www.navenewell.com

date:	rev.	description	ck'd	by
2/4/2020	1	FOR 2/11/2020 PLANNING COMMISSION MEETING	JPB	JLH
5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH
8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

REVISIONS

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: PCSM CONSTRUCTION DETAIL SHEET

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	CW
date: 10/3/19	chk'd by: JPB
scale: AS NOTED	approv. by: JPB
sheet no.	

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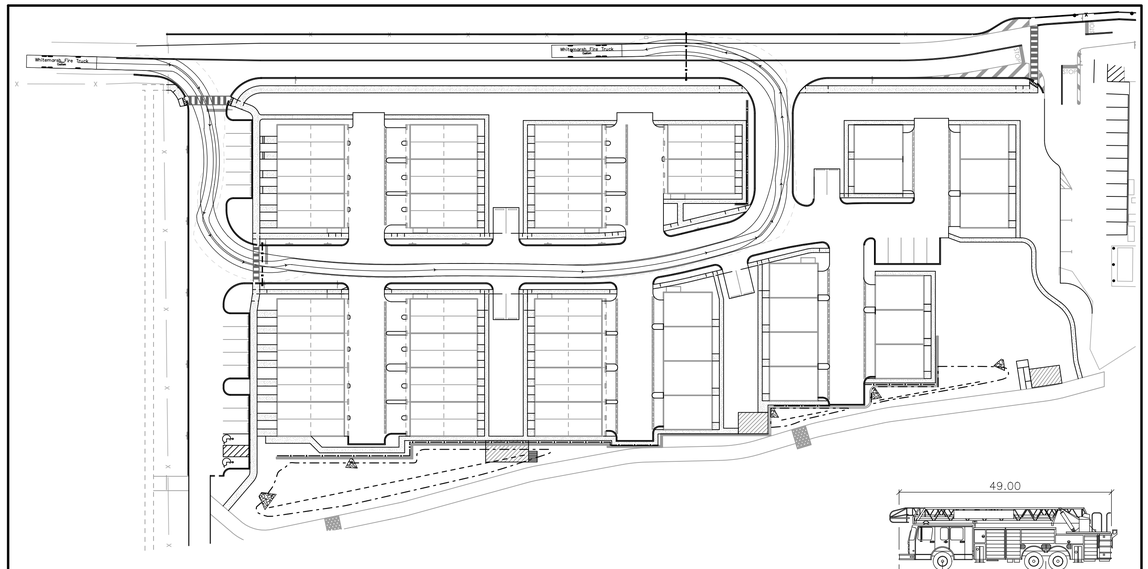
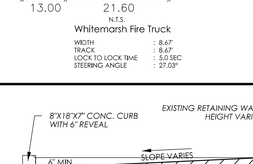
K:\09Proj\09134\CAD\Plan_Set\9134-19PCSMDet-2.dgn
8/20/2020 3:52:15 PM
50.00000 ft / in.
USER: cwhitty



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

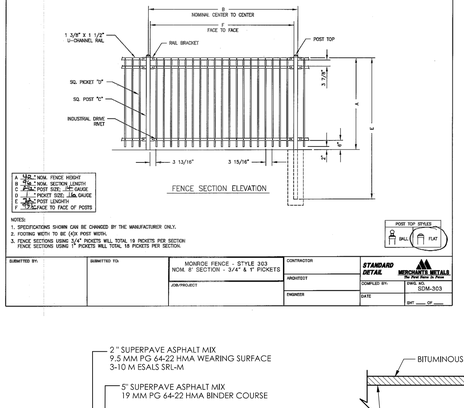


N.T.S.

Whitemarsh Fire Truck

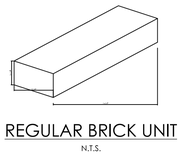
WIDTH	: 8.67'
TRACK	: 8.67'
LOCK TO LOCK TIME	: 5.0 SEC
STEERING ANGLE	: 27.03°

TRUCK TURN EXHIBIT



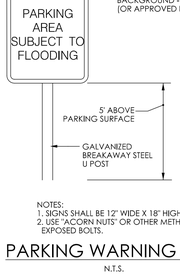
PARKING WARNING SIGN KEY

1. PROPOSED 'WARNING- PARKING AREA SUBJECT TO FLOODING' SIGN- SIGN ON ONE SIDE
2. PROPOSED 'WARNING- PARKING AREA SUBJECT TO FLOODING' SIGN- SIGN ON BOTH SIDES



REGULAR BRICK UNIT

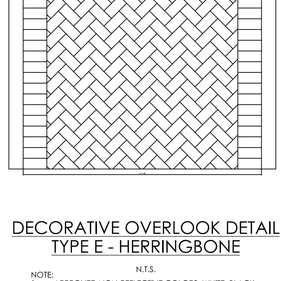
N.T.S.



NOTES:
1. SIGNS SHALL BE 12" WIDE X 18" HIGH.
2. USE "ACORN NUTS" OR OTHER METHOD TO AVOID EXPOSED BOLTS.

PARKING WARNING SIGN

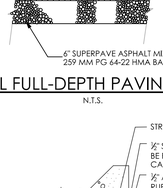
N.T.S.



DECORATIVE OVERLOOK DETAIL TYPE E - HERRINGBONE

N.T.S.

NOTE:
1. APPROVED NON-REFLECTIVE COLORS: WHITE, BLACK BROWN, SILVER-GRAY, TAN AND MAROON

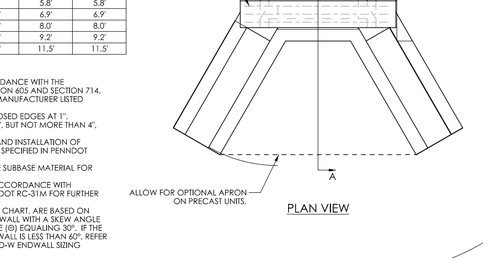


TYPICAL FULL-DEPTH PAVING SECTION

N.T.S.

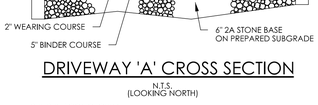
MILL & OVERLAY PAVING SECTION

N.T.S.



STOP BAR

N.T.S.



DRIVEWAY 'A' CROSS SECTION

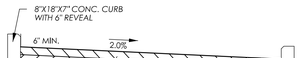
N.T.S.
(LOOKING NORTH)

DRIVEWAY TO GARAGE ENTRIES

N.T.S.

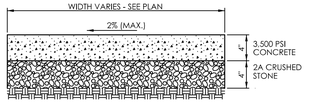
DRIVEWAY 'C' CROSS SECTION

N.T.S.
(LOOKING NORTH)



DRIVEWAY 'B' CROSS SECTION

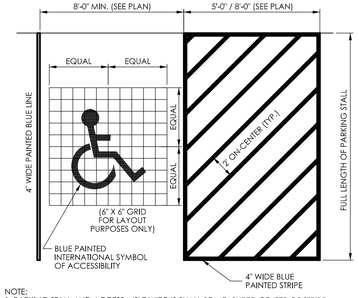
N.T.S.
(LOOKING EAST)



NOTES:
1. THE CONCRETE SHALL CONFORM TO PENNSYLVANIA DEPARTMENT OF HIGHWAYS SPECIFICATIONS FOR CLASS A CEMENT CONCRETE. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE TWENTY-EIGHT-DAY COMPRESSIVE STRENGTH OF THREE THOUSAND FIVE HUNDRED (3,500) POUNDS PER SQUARE INCH.
2. CONCRETE SIDEWALKS SHALL BE CONSTRUCTED TO LINE AND GRADE AS APPROVED OR AS ESTABLISHED BY THE TOWNSHIP ENGINEER.
3. THE BED FOR THE CEMENT CONCRETE SIDEWALKS SHALL BE THOROUGHLY COMPACTED, SHALL BE UNIFORMLY FOUR (4) INCHES BELOW THE FINISHED SURFACE. ON THIS FOUNDATION SHALL BE CONSTRUCTED A FOUR-INCH, ONE COURSE CEMENT CONCRETE PAVEMENT. JOINTS SHALL BE MADE EVERY FOUR (4) FEET AND A SPACE OF ONE-FOURTH (1/4) INCH TO ONE-HALF (1/2) INCH LEFT BETWEEN THE BLOCKS AT EVERY TENTH JOINT AND FILLED WITH PREPARED JOINT FILLER. JOINT FILLER SHALL CONSIST OF FIBER MATRIX AND BITUMEN CONTAINING NOT MORE THAN TWENTY-FIVE PERCENT (25%) OF INERT MATERIAL, HAVING A THICKNESS OF ONE-HALF (1/2) INCH. ALL JOINTS SHALL BE AT RIGHT ANGLES TO THE LINES OF THE WALK AND PERPENDICULAR TO THE SURFACE OF THE WALK. IN ALL OTHER RESPECTS THE SPECIFICATIONS FOR CONCRETE CURB SHALL GOVERN.
4. THE FINISHED WORK SHALL BE CURED BY THE USE OF AN APPROVED WHITE PIGMENTED CURING COMPOUND.

CONCRETE SIDEWALK DETAIL

N.T.S.



NOTE:
1. PARKING STALL AND ACCESS AISLE WIDTHS SHALL BE MEASURED CENTER OF STRIPE TO CENTER OF STRIPE.
2. WHERE AN ADA PARKING STALL IS ADJACENT TO A STANDARD PARKING STALL OR ACCESS AISLE, A YELLOW STRIPE SHALL BE PAINTED NEXT TO THE BLUE STRIPE.

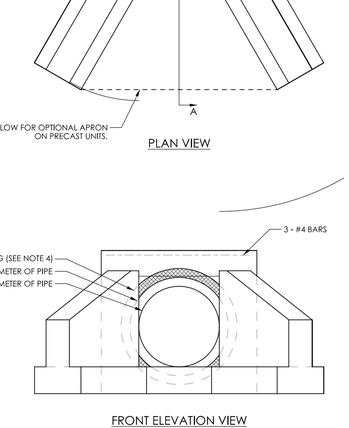
ADA PARKING STALL STRIPING

N.T.S.

ISOLATION JOINT DETAIL

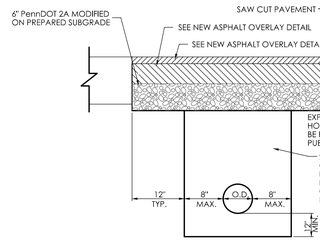
TYPE D-W ENDWALL SIZING CHART (SEE NOTE 8)						
PIPE DIAMETER (Dd-w)	HEAD WALL LENGTH (Ld-w)	HEAD WALL THICKNESS (Ad-w)	WINGWALL LENGTH (W1) (3:1 SLOPES)	WINGWALL LENGTH (W2) (3:1 SLOPES)	WINGWALL LENGTH (W1) (2:1 SLOPES)	WINGWALL LENGTH (W2) (2:1 SLOPES)
18"	4.0'	12"	2.3'	2.3'	1.2'	1.2'
24"	4.6'	12"	4.1'	4.1'	2.3'	2.3'
30"	5.2'	12"	5.8'	5.8'	3.5'	3.5'
36"	5.8'	12"	7.5'	7.5'	4.6'	4.6'
42"	6.3'	12"	9.2'	9.2'	5.8'	5.8'
48"	6.9'	12"	11.0'	11.0'	6.9'	6.9'
54"	7.5'	12"	12.7'	12.7'	8.0'	8.0'
60"	8.1'	15"	14.4'	14.4'	9.2'	9.2'
72"	9.2'	15"	17.9'	17.9'	11.5'	11.5'

NOTES:
1. PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 605 AND SECTION 714.
2. PRECAST TYPE D-W ENDWALLS TO BE SUPPLIED BY A MANUFACTURER LISTED IN PENNDOT BULLETIN 15.
3. USE CLASS A CONCRETE OR BETTER & CHAMFER EXPOSED EDGES AT 1".
4. PROVIDE PIPE OPENING IN PRECAST UNITS AT LEAST 2", BUT NOT MORE THAN 4", LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE.
5. PROVIDE SUITABLE LIFTING DEVICES FOR HANDLING AND INSTALLATION OF PRECAST ENDWALLS. GALVANIZE METAL DEVICES AS SPECIFIED IN PENNDOT PUBLICATION 408, SECTION 1105.
6. PROVIDE MORTAR BED OF 1" PLACED ON TOP OF THE SUBBASE MATERIAL FOR LEVELING PURPOSES, WHEN REQUIRED.
7. PROVIDE REINFORCEMENT, 0.12 SQ. IN. / LN. FT., IN ACCORDANCE WITH PENNDOT PUBLICATION 408, SECTION 709. SEE PENNDOT RC-31M FOR FURTHER REINFORCEMENT DETAILS.
8. D-W ENDWALL SIZING DIMENSIONS, PROVIDED IN THE CHART, ARE BASED ON STORMWATER PIPES THAT CONNECT TO THE D-W ENDWALL WITH A SKEW ANGLE FALLING BETWEEN 90° TO 60° WITH WINGWALL ANGLE (Ø) EQUALING 30°. IF THE SKEW ANGLE CONNECTION BETWEEN PIPE AND ENDWALL IS LESS THAN 60°, REFER TO PENNDOT PUBLICATION 72, RC-31M FOR PROPER D-W ENDWALL SIZING SPECIFICATIONS.



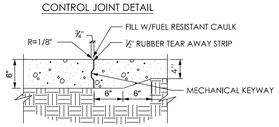
TYPE D-W ENDWALL DETAIL

(PER PENNDOT PUBLICATION 72, RC-31M)
SCALE: 3/4" = 1'



ISOLATION JOINT DETAIL

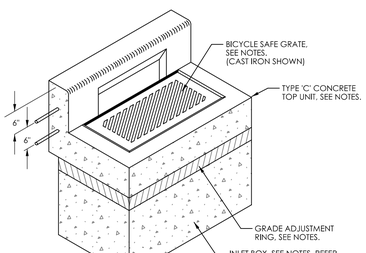
CONTROL JOINT DETAIL



CONSTRUCTION JOINT DETAIL

CONCRETE EXPANSION JOINTS

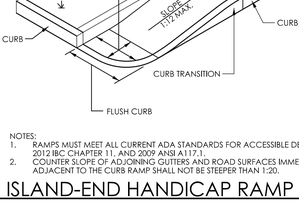
N.T.S.



NOTE:
1. PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED.SEE PENNDOT PUB. 72M, RC-45M FOR DETAILS.
2. REFER TO PENNDOT PUB. 72M, RC-45M AND RC-46M FOR INLET BOX, INLET TOP, AND BICYCLE GRATE SPECIFICATIONS AND REINFORCEMENT SCHEDULE.

TYPE 'C' INLET

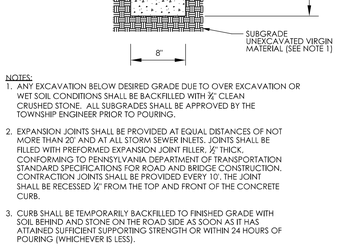
N.T.S. (SEE PENNDOT RC-46M)



NOTES:
1. RAMPS MUST MEET ALL CURRENT ADA STANDARDS FOR ACCESSIBLE DESIGN, 2012 IBC CHAPTER 11, AND 2009 ANSI A117.1.
2. COUNTER SLOPE OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT BE STEEPER THAN 1:20.

PA ISLAND-END HANDICAP RAMP DETAIL

N.T.S.



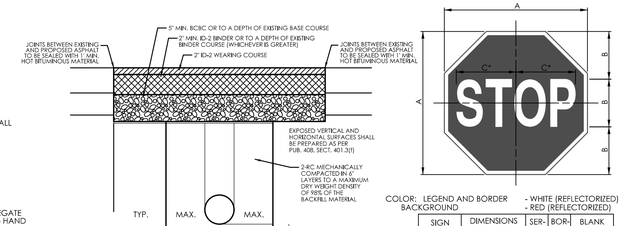
NOTES:
1. ANY EXCAVATION BELOW DESIRED GRADE DUE TO OVER EXCAVATION OR WET SOIL CONDITIONS SHALL BE BACKFILLED WITH 3/4" CLEAN CRUSHED STONE. ALL SUBGRADES SHALL BE APPROVED BY THE TOWNSHIP ENGINEER PRIOR TO POURING.
2. EXPANSION JOINTS SHALL BE PROVIDED AT EQUAL DISTANCES OF NOT MORE THAN 20' AND AT ALL STORM SEWER INLETS. JOINTS SHALL BE FILLED WITH PREFORMED EXPANSION JOINT FILLER, 1/2" THICK, CONFORMING TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. CONTRACTION JOINTS SHALL BE PROVIDED EVERY 10'. THE JOINT SHALL BE RECESSED 1/2" FROM THE TOP AND FRONT OF THE CONCRETE CURB.
3. CURB SHALL BE TEMPORARILY BACKFILLED TO FINISHED GRADE WITH SOIL BEHIND AND STONE ON THE ROAD SIDE AS SOON AS IT HAS ATTAINED SUFFICIENT SUPPORTING STRENGTH OR WITHIN 24 HOURS OF POURING (WHICHEVER IS LESS).
4. WHEN NEW CURB IS INSTALLED ALONG AN EXISTING PAVED AREA, THE EXISTING PAVEMENT SHALL BE CUT 2 FEET IN FRONT OF THE NEW CURB FACE IN A STRAIGHT LINE AT A 45 DEGREE ANGLE WITH A CUTTING WHEEL OR PNEUMATIC HAMMER. THE NEW PAVEMENT SHALL BE TACKED AND BUTTED TO THE EXISTING PAVEMENT.
5. THE GENERAL CONTRACTOR OR OWNER IS RESPONSIBLE FOR MAINTAINING ALL CURB UNTIL FORMALLY ACCEPTED BY THE TOWNSHIP. ALL CURB THAT IS BROKEN, CRACKED, OR OUT OF ALIGNMENT SHALL BE REPLACED PRIOR TO FINAL PAVING AND/OR ACCEPTANCE. CURB REPLACEMENT SHALL BE FROM EXPANSION JOINT TO EXPANSION JOINT ONLY.

6-INCH REVEAL CURB

N.T.S.

UTILITY TRENCH PAVEMENT RESTORATION

N.T.S.



FLEXIBLE PAVEMENT RESTORATION

N.T.S.

COLOR: LEGEND AND BORDER - WHITE (REFLECTORIZED)
BACKGROUND - RED (REFLECTORIZED)

SIGN SIZE	DIMENSIONS A	B	C	SERIES	BORDER	BLANK STD
30 x 30	30	10	12½	C	¾	B1-30

* Reduce spacing 40%

STOP SIGN (R1-1)

N.T.S. (REFER TO PENNDOT PUB. 68)

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5/15/2020	2	FOR 5/26/2020 PLANNING COMMISSION MEETING	JPB	JLH

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: CONSTRUCTION DETAIL SHEET

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no. 2009-134.05	drawn by: DWN
date: 10/3/19	chk'd by: JPB
scale: AS NOTED	approv. by: JPB
sheet no. 20 of 23	

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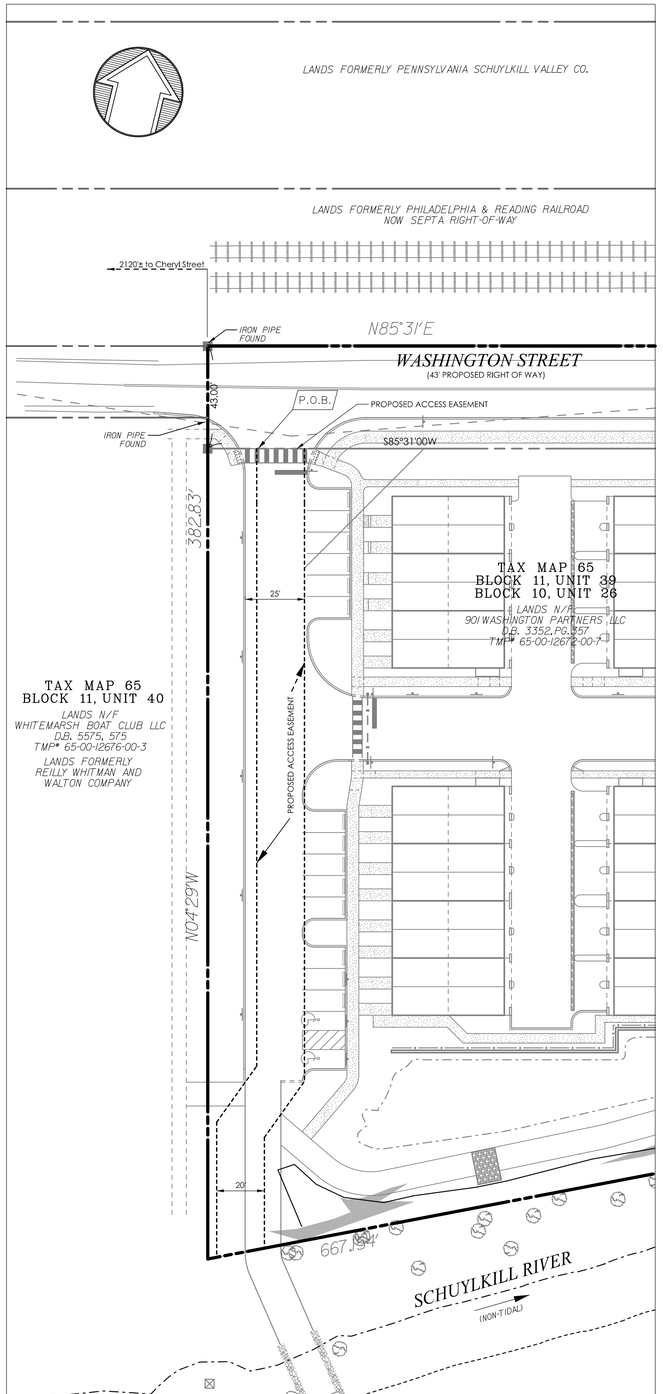
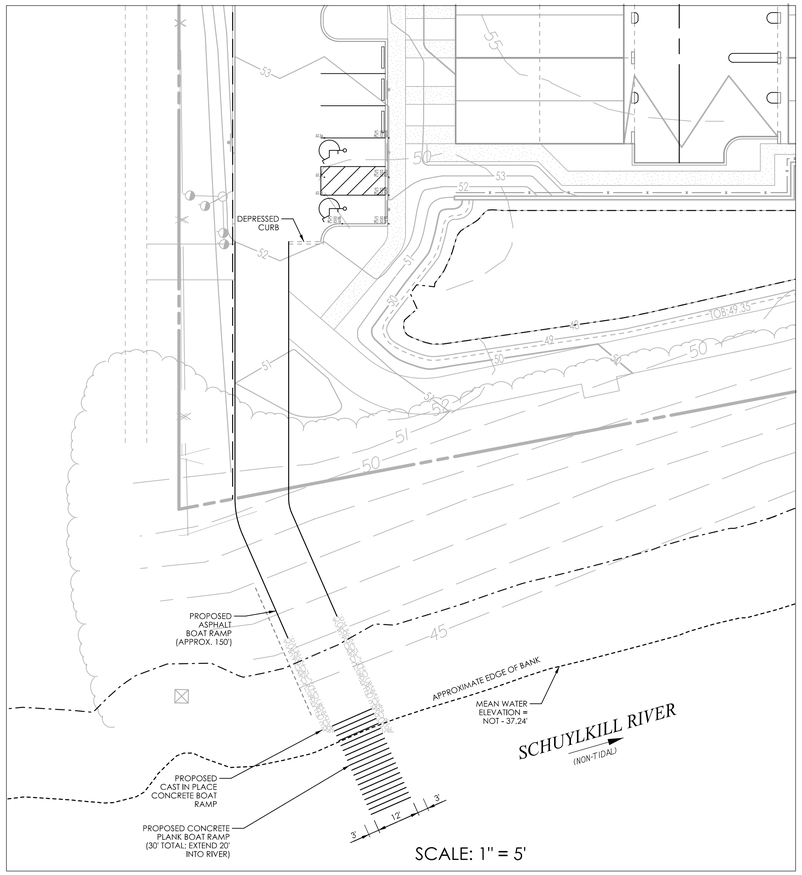


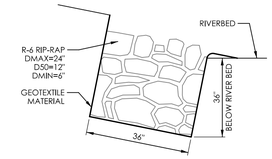
GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft

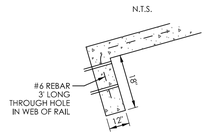


SCALE: 1" = 5'

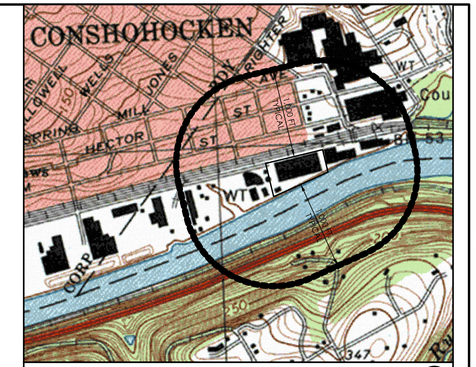


BOAT RAMP TOE DETAIL

N.T.S.



END OF CAST-IN-PLACE DETAIL

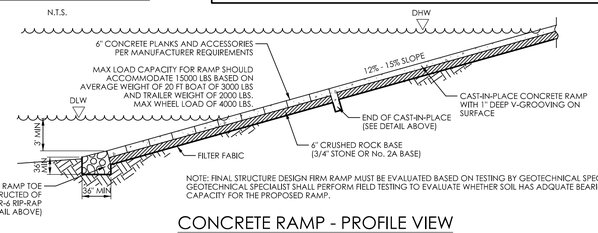


SOURCE: NORRISTOWN QUAD
LOCATION: 040°04'23.09"N
075°17'25.72"W

LOCATION MAP

SCALE: 1" = 800'

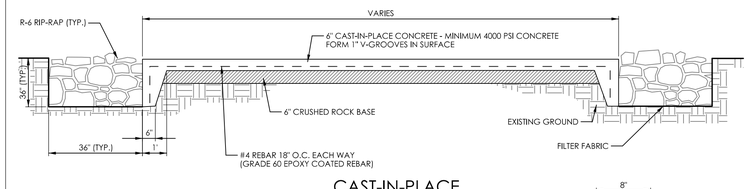
N.T.S.



NOTE: FINAL STRUCTURE DESIGN FIRM RAMP MUST BE EVALUATED BASED ON TESTING BY GEOTECHNICAL SPECIALIST. GEOTECHNICAL SPECIALIST SHALL PERFORM FIELD TESTING TO EVALUATE WHETHER SOIL HAS ADQUATE BEARING CAPACITY FOR THE PROPOSED RAMP.

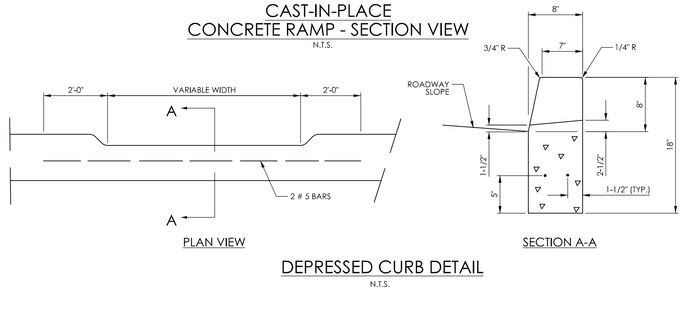
CONCRETE RAMP - PROFILE VIEW

N.T.S.



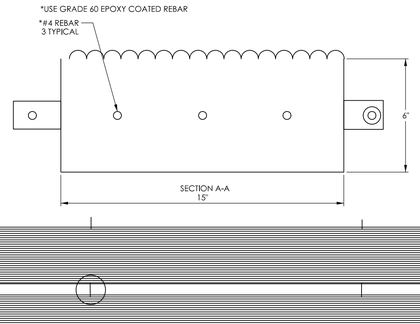
CAST-IN-PLACE
CONCRETE RAMP - SECTION VIEW

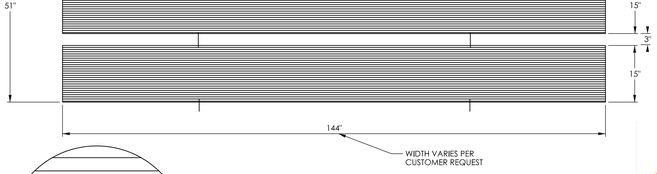
N.T.S.

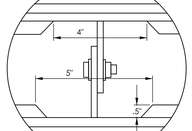


DEPRESSED CURB DETAIL

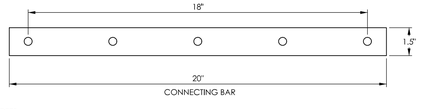
N.T.S.







DETAIL B - BOLT DETAIL



NOTES:
1. WEIGHT = 1040 LBS PER 15'x144" SECTION
2. CONCRETE: 5000 PSI AFTER 28 DAYS
3. REINFORCED WITH 3-#4 REBARS / 60 KSI EPOXY COATED
4. AVAILABLE FOR SALT WATER

CONCRETE PLANK BOAT RAMP DETAIL

N.T.S.

(R-6)

36" MIN

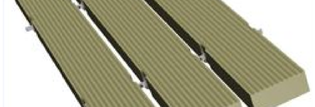
36" BELOW RIVER BED

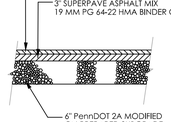
RAIL INSTALLATION FOR PRECAST PLANKS

N.T.S.

GENERAL NOTES:

1. PRECAST CONCRETE PLANKS AS SHOWN ON THIS PLAN ARE PRODUCT SPECIFIC AND ARE BASED ON THE GENEST PRECAST CONCRETE PRODUCTS BOAT RAMP. THE PROPOSED RAMP MUST BE BASED ON A PRODUCT THAT IS EQUIVALENT.
2. ALL TIE BARS AND BOLTS FOR THE PLANK SYSTEM SHALL BE STAINLESS STEEL.
3. GEOTECHNICAL ANALYSIS TO EVALUATE BEARING CAPACITY OF SUBGRADE SOIL OF RAMP AND RIVER BED AT TOE OF RAMP NEEDS TO BE PERFORMED. IN ADDITION, AN EVALUATION OF POTENTIAL SCOUR OF THE RIVER BED AT THE TOE ALSO NEEDS TO BE PERFORMED BY A GEOTECHNICAL SPECIALIST.
4. MAXIMUM WHEEL LOAD ON PROPOSED RAMP TO BE 4000 LBS. THIS VALUE SHOULD BE REFINED BASED ON A LOAD BEARING CAPACITY, CALIFORNIA BEARING RATIO EVALUATION OF THE SUBGRADE.
5. A REPRESENTATIVE OF A GEOTECHNICAL ENGINEERING FIRM SHALL BE ON-SITE DURING CONSTRUCTION OF THE BOAT LAUNCH TO EVALUATE THE EXISTING CONDITIONS AND PROVIDE ANY CORRECTIVE MEASURES NECESSARY TO ACHIEVE THE REQUIRED SUPPORT CONDITIONS. A SUMMARY OF THE OBSERVED CONDITIONS AND ANY RECOMMENDED CORRECTIVE MEASURES SHALL BE DOCUMENTED IN A LETTER THAT IS SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER AND FORWARDED TO THE TOWNSHIP ENGINEER.





TYPICAL FULL-DEPTH PAVING SECTION

N.T.S.

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING EASEMENT LINE
- EXISTING MONUMENT
- EXISTING BUILDING
- EXISTING RETAINING WALL
- EXISTING RAILROAD TRACKS
- PROPOSED RIGHT-OF-WAY
- PROPOSED MONUMENT
- PROPOSED BUILDING
- PROPOSED SIDEWALK
- PROPOSED CURB
- PROPOSED ACCESS EASEMENT

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8/20/2020	3	PER TOWNSHIP PLANNING COMMISSION COMMENTS	JPB	JLH

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SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JAMES P. BANNON No. PE082137

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: BOAT LAUNCH EXHIBIT

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	JLH
date: 7/22/16	chk'd by: JPB
scale: 1" = 30'	approv. by: JPB
sheet no.	

21 of 23

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LEGEND

- PROPERTY LINE
- ADJOINING LOT LINES
- EXISTING PA3D/A 2 FT CONTOURS
- 500 ' BUFFER FROM PROPERTY LINE
- SOIL BOUNDARY LINES
- SOIL BOUNDARY TEXT

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft

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JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: EXISTING RESOURCES AND SITE ANALYSIS PLAN

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no. 2009-134.05	drawn by: NAM
date: 02/04/20	chk'd by: JPB
scale: 1"=100'	approv. by: JPB
sheet no. 22 of 23	

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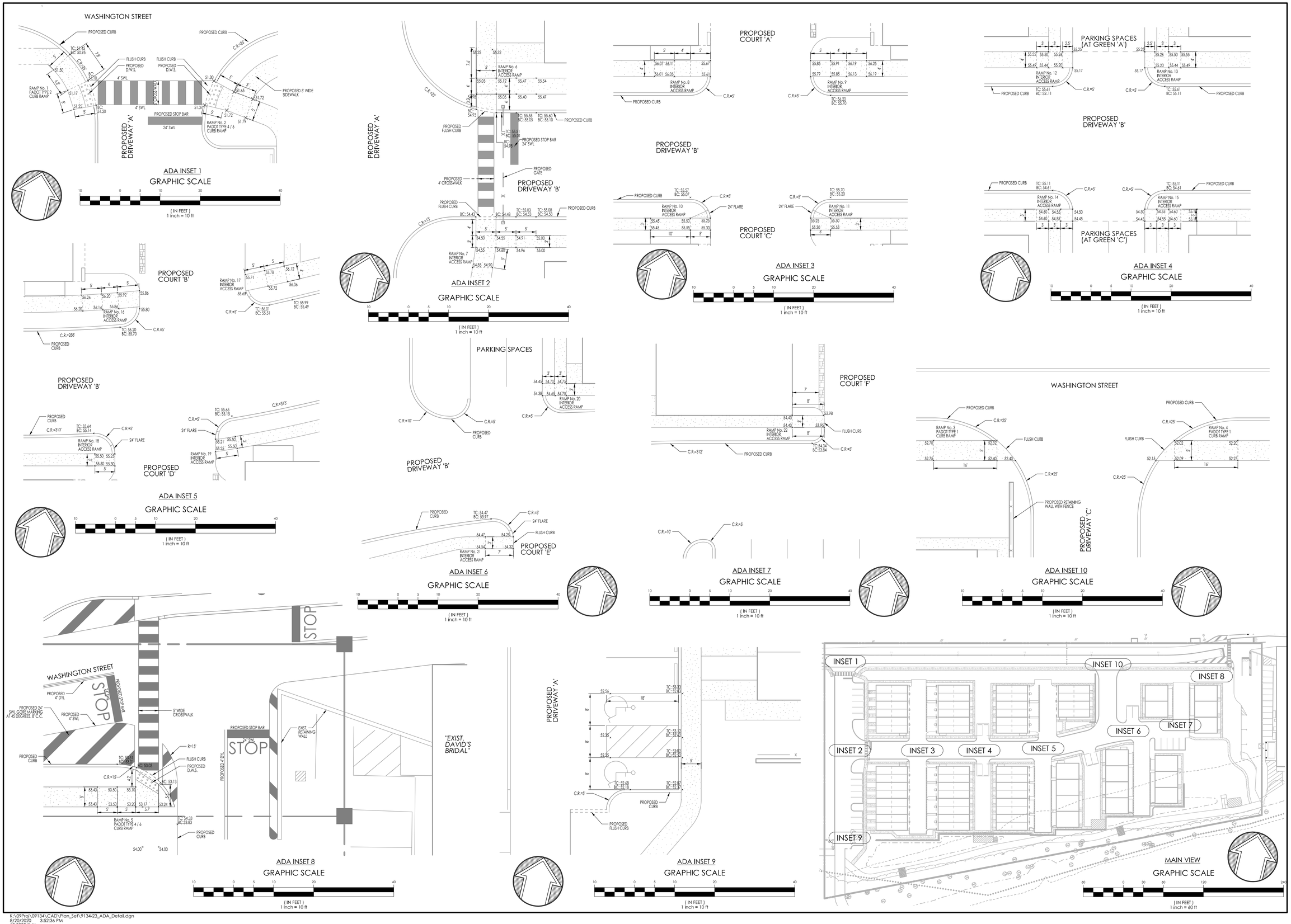

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JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: ADA DETAIL SHEET

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no.	drawn by:
2009-134.05	NAM
date: 01/17/20	chk'd by: JPB
scale: AS NOTED	approv. by: JPB

sheet no.

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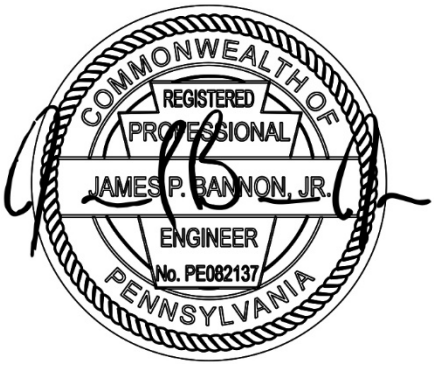
PRELIMINARY POST CONSTRUCTION STORMWATER MANAGEMENT REPORT AND SITE DRAINAGE CALCULATIONS

901 WASHINGTON ST.
WHITEMARSH TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

901 WASHINGTON PARTNERS, L.P.



Issued: October 3, 2019
Revised: February 4, 2020
Revised: August 20, 2020
Nave Newell No.: 2009-134.05

Engineers • Planners • Surveyors • Landscape Architects
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PRELIMINARY POST CONSTRUCTION STORMWATER MANAGEMENT REPORT AND SITE DRAINAGE CALCULATIONS
SUMMARY OF CONTENTS

901 WASHINGTON STREET
WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

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IV.	Volume Control/Quality Calculations • Water Quality Summary • Worksheet 4 • DEP Volume Spreadsheet • DEP Water Quality • Extended Detention/Dewatering Calculations	16
V.	HydroCad Model Summary – Pre and Post Development Pre-Development Analysis • Pre-Development Flow Summary (POI-1) Post-Development Analysis • Post-Development Flow Diagram (POI-1) Rain Garden 1 (Post Development) • 1-Year and 2-Year Flow Summary Rain Garden 2 (Post Development) • 1-Year and 2-Year Flow Summary Rain Garden 3 (Post Development) • 1-Year and 2-Year Flow Summary Rain Garden 4 (Post Development) • 1-Year and 2-Year Flow Summary	23
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I.

Post-Construction Stormwater Management Narrative

INTRODUCTION

This Narrative was developed to comply with the requirements of Chapter 102, Title 25 of the Administrative Code, created under the Clean Streams Law and the Whitemarsh Township Stormwater Management Ordinance and Resolution 2004-8. The Pennsylvania Department of Environmental Protection (PADEP) Pennsylvania Stormwater Best Management Practices Manual was used as a reference in control facilities design.

PROJECT DESCRIPTION

901 Washington Partners, LP is proposing to demolish an existing 102,500 SF building and several outbuildings and remediate the parcel at 901 Washington Street, located in Whitemarsh Township, Montgomery County, Pennsylvania. New construction will include 62 Single Family Attached Dwellings with garages under the dwellings, at-grade parking spaces placed throughout the site, public water, public sewer, and stormwater management controls predominantly to provide water quality management. Additionally, the applicant proposes to extend Washington Street and dedicate right-of-way to the Township to improve nearby traffic patterns. Finally, a public walking path and two scenic overlooks will be built along the banks of the Schuylkill River as public amenities.

EXISTING CONDITIONS

The property is approximately 4.8 acres and is zoned Heavy Industrial (HVY) with a Riverfront Development Overly District (RDD-1). It is bound to the north by SEPTA railroad tracks (formerly Philadelphia and Reading Railroad), to the west by the Hines Rowing Center (Whitemarsh Boat Club, LLC), to the east by David's Bridal (1001 Washington Street, LLC), and to the south by the Schuylkill River.

The property has been used for over 100 years for various manufacturing and industrial purposes including a steel plant, a wire company, and a paint factory. The lot currently contains a 102,500 square foot building and several outbuildings. It is currently 92% impervious.

The parcel is located on the USGS "Norristown" 7.5 minute topographic quadrangle. Elevations range from a minimum of approximately 44 feet to a maximum of approximately 52 feet above mean sea level. The parcel's topography is generally level throughout then slopes downward to the Schuylkill River on the south side of the property.

According to the Federal Emergency Management Association ("FEMA") Flood Insurance Rate Map ("FIRM") #42091C0358G dated March 2, 2016 the entire property is located within Zone AE (special flood hazard areas inundated by the 100-year flood / base flood elevations determined).

Regional drainage is directed toward the Schuylkill River (WWF, MF) on the south side of the parcel. Precipitation currently flows overland and into several catch basins that outfall into the river. Runoff from the railroad property north of the site bypasses the site via a 24" diameter pipe that discharges directly into the river. Runoff up gradient also bypasses the site through a series of collection pipes that outfall to the river through one 54" diameter pipe that runs parallel to the westerly property boundary line.

Existing utilities at or available to the site include public water (Aqua PA) and sanitary sewer (Whitemarsh Township) services, electric and gas services provided by PECO, and Verizon and Comcast telecommunications services.

Soils on site are mapped "UgB" – Urban Land per the NRCS Web Soil Survey. The hydrologic soil group used for this soil is "C".

PROPOSED CONDITIONS

The proposed plan calls for 62 Single Family Attached Dwelling Units each with vehicle parking underneath the dwelling units and associated at grade parking throughout the site. Washington Street will be improved with new sidewalk, curb, storm drainage conveyance, and pavement to provide for a cartway width of 30 feet within a right-of-way of 43 feet in width on the northern side of the development site. The impervious coverage of the site will be decreased from 91.9% to 62.4%. Finally, a 10 foot wide macadam shale walking trail and scenic overlook amenities will be built along the riverfront.

Due to the contamination on site, most of the existing pedestal foundation and impervious area will remain in place. The proposed buildings will be erected above the foundation. Disturbed area is limited to either the permanent removal of impervious area or removal and replacement of impervious parking**.**

STORMWATER MANAGEMENT

The stormwater management system for this project is designed to meet the provisions of Resolution 2004-8 and the Whitemarsh Township Grading, Erosion Control, Stormwater Management and Best Management Practices Ordinance (chapter 58 of the Whitemarsh Township Code). In addition, the project is subject to the requirements imposed by the PA DEP in the course of obtaining an Individual NPDES Permit.

The stormwater management study area is approximately 4.95 acres. The proposed stormwater management will consist of storm conveyance pipes, inlets (including some water quality structures), bioretention facilities/rain gardens, landscape restoration, and amended soils. Since the site is a contaminated site to be remediated, any bioretention / rain gardens will be lined with an impermeable liner and the aggregate media below the soil will be configured with a perforated underdrain that discharges to the outlet control structures.

Registration for General Permit 4 is in place for the two stormwater discharge pipes to the Schuylkill River. The Permit Number is GP-044615304

The 100-year floodplain elevation for the site is at elevation 60, as depicted on the Flood Insurance Rate Map No. 42091C0358G dated March 2, 2016. It should be noted that the entire parking lot and Washington Street will be submerged under 100-year flood conditions.

The Schuylkill River is classified as A WWF, MF waterway (warm water fishes, migratory fishes).

As noted earlier in the narrative, the project site is in the tributary area of the Schuylkill River. One point of interest was established in order to perform the calculations.

Point of Interest (POI-1) is located at the Schuylkill River shown at the southeast corner of the property. The pre-development drainage area (including a portion of Washington Street) consists of predominantly buildings, paved areas, and a strip of woodland/brush along the riverfront. This area drains overland into the Schuylkill River.

In the proposed condition, all proposed stormwater management facilities will tie into newly constructed stormwater conveyance systems which will discharge at the two proposed outfalls into the Schuylkill.

Methodology

The Soil Cover Complex Method was utilized to calculate the pre-development and post-development peak volumes and peak rates. A Type II 24-hour SCS rainfall distribution was applied to all calculations. The following rainfall values were used (Resolution2004-8):

1-yr = 2.6"
2-yr = 3.2"
5-yr = 4.2"
10-yr = 5.0"
25-yr = 5.7"
50-yr = 6.4"
100-yr = 7.1"

Soil Summary

The following soil has been mapped in the project area per an inquiry to the NRCS Web Soil Survey on January 8, 2014.

UgB Urban land, 0 to 8 percent slopes HSG – C

Volume Control

Two-year runoff volumes were evaluated at the point of interest. In the pre-development study area, 20% of the existing impervious area was modeled as "meadow" in good condition and the woods was modeled as "woodland" in good condition. The remaining impervious coverage is modeled as "impervious." Temporarily disturbed pavement and/or flow from offsite paved areas were modeled as impervious with no reduction to meadow applied. Post-development coverages are broken out into lawn, woodland, and impervious conditions.

All volume calculations are based on a 2-year / 24-hour rainfall depth of 3.2 inches per Resolution 2004-8 precipitation data for the site.

Peak Rate Control

The peak rate analysis is based on the site area to the limit of disturbance. This includes the impervious area to be dedicated to the Township for the extension of Washington Street. The following approach was applied:

Pre-development peak rates were evaluated at the point of interest. Under the pre-development condition, existing cover conditions were allocated such that 20% of the existing impervious coverage was modeled as "meadow" in good condition for the peak rate analysis. The small area of woodlands along the riverfront is modeled as woodland good condition (as done in the volume calculations).

Due to the reduction in impervious surface area on site from approximately 92% in the existing condition and just under 63% in the proposed condition, there is a reduction in the cumulative site peak rate of runoff (see enclosed flow summary) without applying any peak rate controls.

Stormwater rate calculations and permanent stormwater facility design are based on the SCS Curve Number Method / TR-55 and were calculated using Bentley HydroCAD Version 10.

STORMWATER COLLECTION AND CONVEYANCE

Bentley StormCAD V8i software was used to perform all design calculations and hydraulic grade analyses for the proposed stormwater conveyance pipes. The proposed stormwater conveyance system is designed to collect and convey the 100-year storm (regardless if the piping connects to a stormwater management facility). Associated design calculations are included later in this report.

Inlet flows were calculated utilizing the Rational Method. Runoff intensities are based on the PennDOT Region 5 Intensity Duration Curves and are based on a minimum time of concentration of 5 minutes. The runoff coefficients utilized for the design are as follows:

- Impervious: C = 0.90
- Pervious: C = 0.40

It should be noted that the site lies below the 100-year flood elevation and the conveyance system and trenches will be submerged under these conditions. Locking covers and grates are proposed for the structures.

Inlet capacity calculations for the 100-year flood were not performed because the entire system will underwater in flood conditions.

INFILTRATION

Whitemarsh Township's Requirements require an evaluation regarding the infiltration capacity or recharge (ReV) volume of a given site. Since this development is situated on a site previously used for industrial purposes, no infiltration BMPs are proposed as part of this project.

WATER QUALITY

Per the Whitemarsh Township Stormwater Management Ordinance 2004-8, the required water quality (WQv), is calculated as follows:

$$WQv = [(0.17)(Rv)(A)]$$

Where:

Rv = volumetric runoff coefficient, 0.05 + 0.009 (I), where I is percent impervious cover

A = area (acres)

The following BMPs are to be used to meet the water quality requirements of the NPDES permit and Whitemarsh Township:

- **Lined rain gardens** – Lined rain gardens are proposed to aid in meeting the water quality requirements of Whitemarsh Township.
- **Water quality structures** – Catch Basin Inserts are proposed for all storm inlets.

Detailed WQv calculations can be found in the "Volume Control/Quality Calculations" section of the report.

In addition to these primary BMPs, approximately 90 deciduous trees and various landscaped areas are proposed.

CONCLUSION

The project will eliminate approximately 57,000 SF providing a nearly 30% reduction of impervious area on site. Currently, the site is essentially void of any stormwater management and treatment facilities. The site is pending approval for Act 2 remediation. The proposed improvements under consideration will primarily provide water quality mitigation and peak rate reduction that will assist in meeting the Township's and State's stormwater management requirements. Therefore, the Schuylkill River will benefit greatly from the proposed improvements.

The reduction in impervious coverage on site from 91.9% to 62.4% will allow a reduction in the peak rate for the site and as well a reduction in the net 2 year runoff volume for this project without any storm water controls.

II.

Nave Newell
Where Ideas Get Down to Earth

900 West Valley Road • Suite 1100
Wayne, PA 19087-1830
p: 610.265.8323 f: 610.265.4299
www.navenewell.com

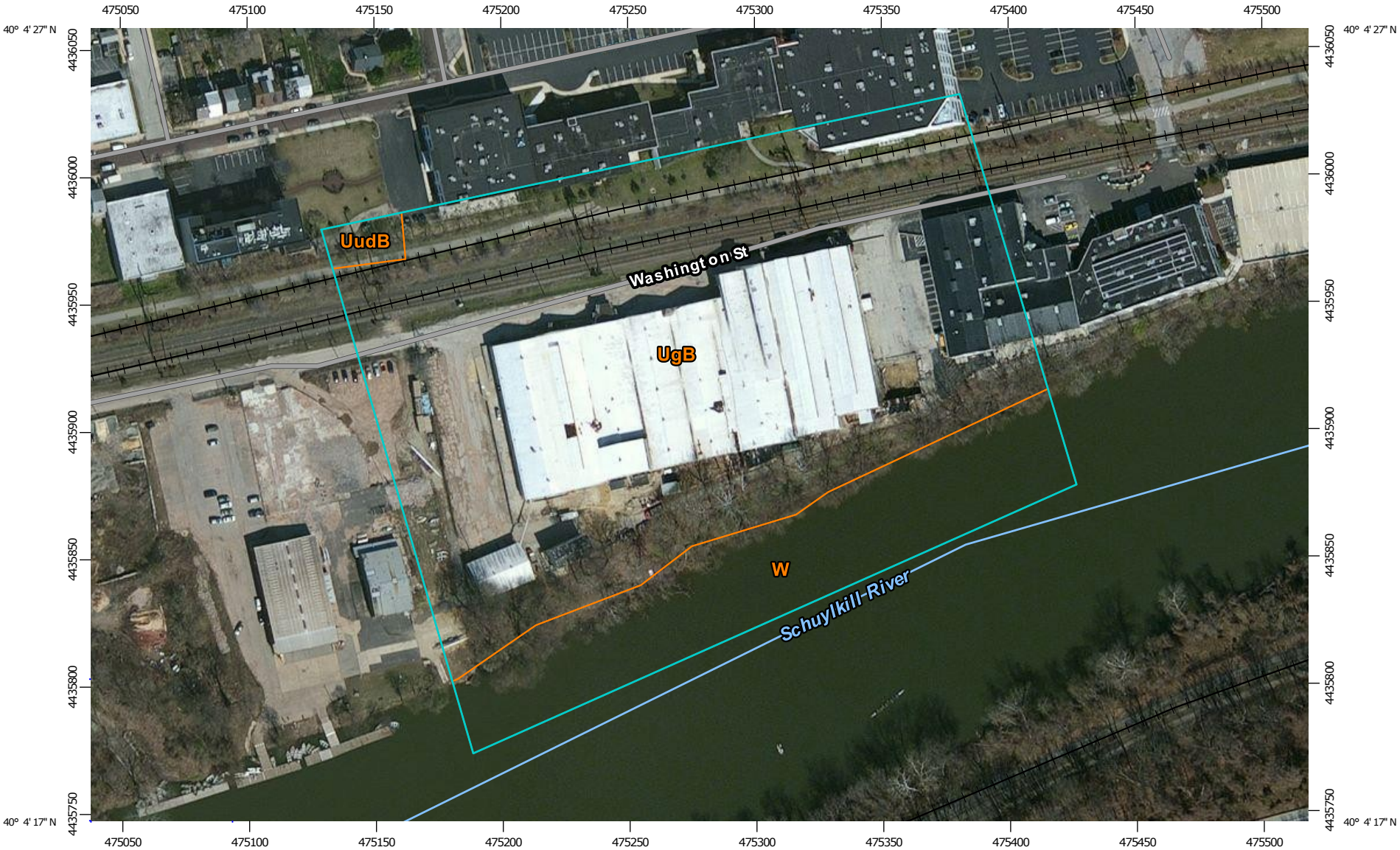
DRAWING NAME: USGS 'NORRISTOWN' QUADRANGLE

PROJECT NAME: 901 Washington Street

SCALE:	DRAWN BY:	PROJECT NUMBER:	SHEET
1" = 1000'	MMB	2009-134	1 of 1
CHK'D BY: JPB	APPROV. BY: GCN	DATE: 1/19/15	

K:\09Proj\09134\CAD\Plan_Set\9134usgs.dgn
3/19/2015 08:40:02
1000.0000 ft / in.
USER: mbruce

Soil Map—Montgomery County, Pennsylvania
(901 Washington Street)



Map Scale: 1:2,190 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 5, Feb 26, 2009

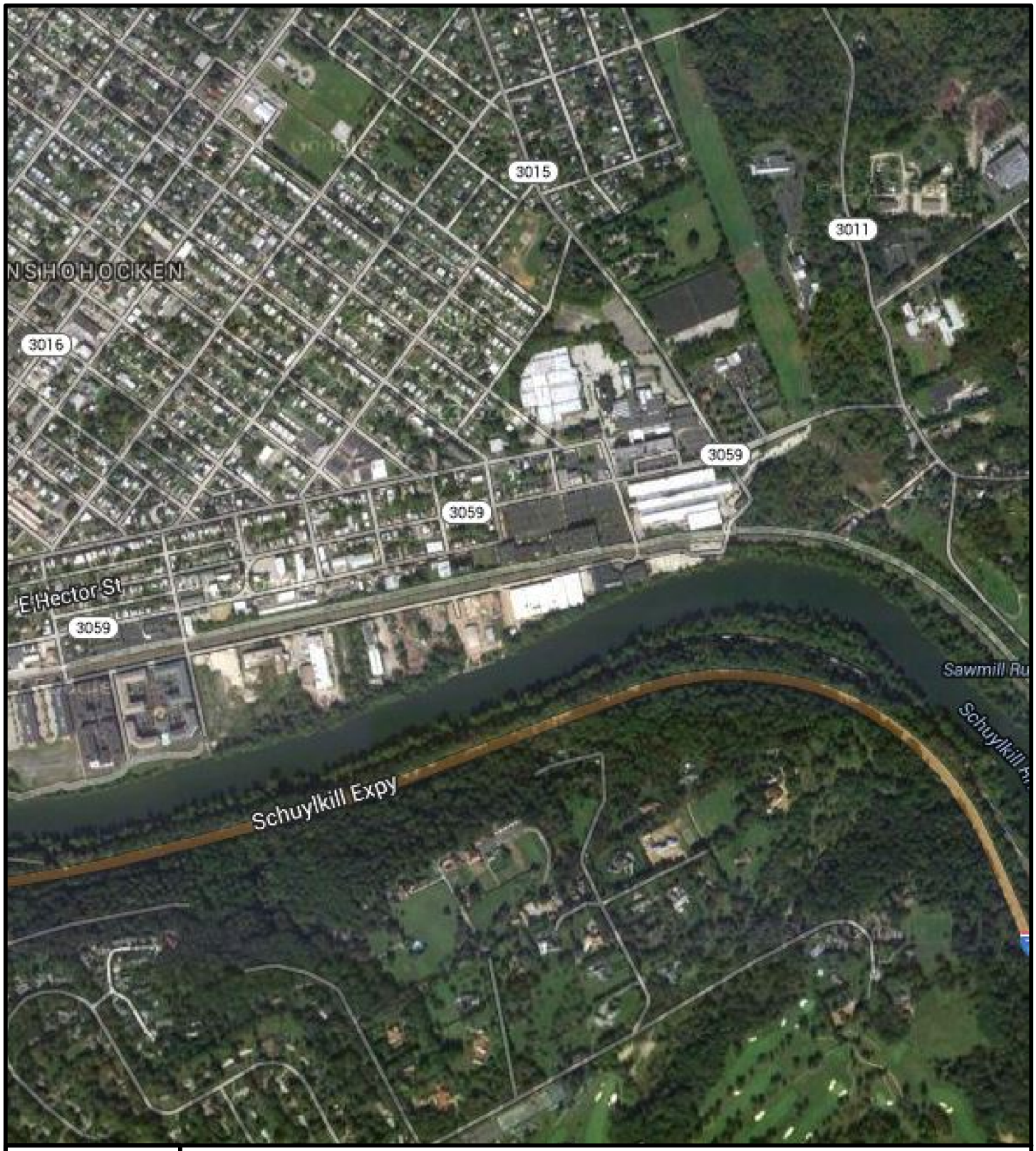
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 19, 2011—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Montgomery County, Pennsylvania (PA091)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
UgB	Urban land, 0 to 8 percent slopes	9.5	79.4%
UudB	Urban land-Udorthents, limestone complex, 0 to 8 percent slopes	0.1	1.1%
W	Water	2.3	19.5%
Totals for Area of Interest		**11.9**	**100.0%**



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DRAWING NAME: AERIAL CONTEXT MAP

PROJECT NAME: *901 WASHINGTON STREET*
WHITEMARSH TWP, MONTGOMERY COUNTY, PA

SCALE:	DRAWN BY:	PROJECT NUMBER:	SHEET
NTS	OGY	2009-134	1 OF 1
CHK'D BY: NPR	APPROV. BY: GCN	DATE: 5/6/14	

$FILEL$
$DATE$ $TIME$
$SCALE$
USER: $USERNAME$

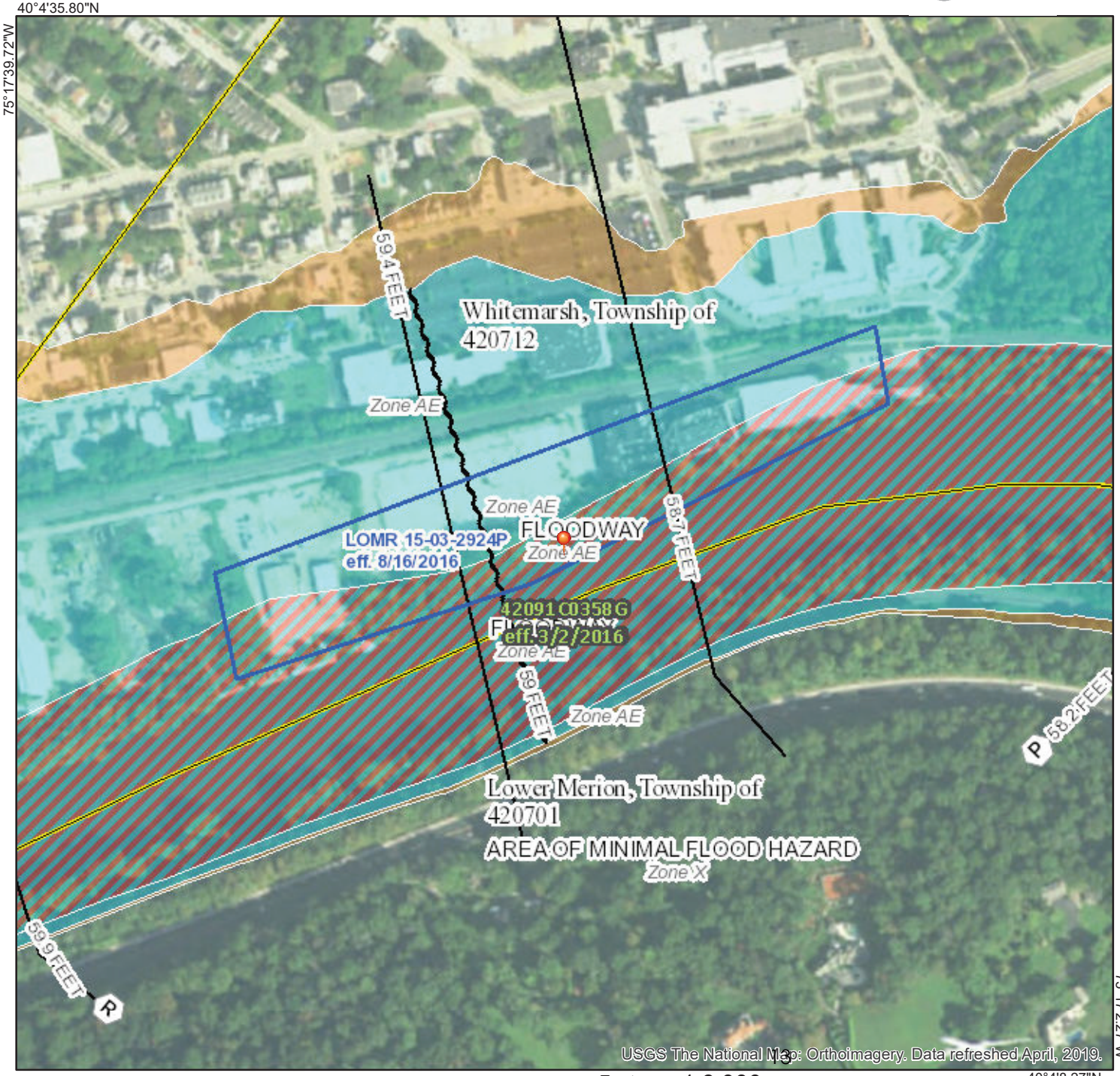
Aerial Context Map.dgn 5/6/2014 3:09:29 PM

National Flood Hazard Layer FIRMette

FEMA

40°4'35.80"N

75°17'39.72"W



75°17'2.27"W

40°4'8.27"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- B 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/14/2020 at 3:17:13 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

III.

SUMMARY OF FLOWS - POI - 1
Pre-Development/Post Development

STORM	Pre-Development (CFS)	Post Development Flow (CFS)	Peak Rate Reduction (CFS)	% of Pre Development (CFS)
1	15.04	14.49	-0.55	96.34
2	19.15	18.62	-0.53	97.23
5	26.18	25.69	-0.49	98.13
10	31.91	31.46	-0.45	98.59
25	36.96	36.56	-0.40	98.92
50	42.05	41.69	-0.36	99.14
100	47.17	46.84	-0.33	99.30

Nave Newell
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900 West Valley Road Suite 1100
Wayne, PA 19087

PROJECT: 901 Washington Street

JOB NO. 2009-0134.05 JLH / CW BY: JLH / CW
DATE: 8/21/2020 JB CHK'D: JPB

IV.

901 Washington Street Volume Reduction and Water Quality Summary

The Stormwater Management approach for this project is based on the premise that there will be a reduction in the impervious coverage on site from the pre-development to post-development condition as a result of a decrease in on-site impervious coverage. There will thus be a reduction in the two-year – twenty four hour storm runoff volume from the pre-development to post-development condition on site. The plan proposes to provide a water quality BMP to treat nearly 90% of the total on-site area exclusive of the Washington Street Public Right-of-Way.

The Pre-Development Cover condition is applied based on the PA BMP Manual as follows:

Total Area of Disturbance		*A =*	*4.91 Ac.*
Impervious Cover,	*CN = 98*	*A=*	*3.69 Ac.*
Meadow,	*CN =71*	*A =*	*0.08 Ac.*
Woods,	*CN = 70*	*A =*	*0.22 Ac.*
20% Imp. As Meadow,	*CN = 71*	*A =*	*0.92 Ac.*
Pre-development 2 Year 24 Hour Volume		*=*	*43,911 CF*

The Post-Development Cover condition is as follows:

Total Area of Disturbance		*A =*	*4.91 Ac.*
Impervious Cover,	*CN = 98*	*A=*	*3.42 Ac.*
Lawn,	*CN = 74*	*A =*	*1.49 Ac.*
Post-development 2 Year 24 Hour Volume		*=*	*42,007 CF*
Net 2 Year Volume		*=*	*-1,615 CF*

The project proposes the use of four (4) on-site Rain Gardens that will be lined and discharge through underdrains and fifteen (15) on-site storm inlets equipped with catch basin inserts that will capture 3.70 Acres of on-site area, (Note: On-site area does not include the Washington Street Right-of-Way). Total on-site area is 4.19 acres.

Total On-Site Area = 4.19 Acres

Total On-Site Area Treated by BMP's = 3.70 Acres

Percent of On-Site Area Treated by BMP's = 88.3 %

Routed outflow hydrographs are included in this report for Rain Gardens 1 through 4 for the 1-year 24 hour event that show the extent of extended detention provided.

Pollutant Removal calculations are included with the PCSM Worksheets that indicate the reduction in pollutant loads from Pre-development to Post-development condition as follows:

	TSS (LBS.)	*TP (LBS.)*	*TN (LBS.)*
Pre-Development Condition	*301.56*	*0.92*	*6.93*
Post-Development Condition	*97.47*	*0.41*	*2.75*

WORKSHEET 4. CHANGE IN RUNOFF VOLUME FOR 2-YR STORM EVENT

PROJECT: 901 Washington Street
Drainage Area: Total On-Site
2-Year Rainfall: 3.20 **inches**

Total Site Area: 4.915 **acres**
Protected Site Area: 0.000 **acres**
Managed Area: 4.915 **acres**

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	I_a (0.2 x S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Woodland	B		0.000	55	8.18	1.64	0.25	0
Woodland	C	9489	0.218	70	4.29	0.86	0.83	655
Woodland	C		0.000	77	2.99	0.60	1.21	0
Meadow	B		0.000	58	7.24	1.45	0.34	0
Meadow	C	3600	0.083	71	4.08	0.82	0.88	263
Meadow	D		0.000	78	2.82	0.56	1.27	0
Meadow (20% from Imperv.)	B		0.000	58	7.24	1.45	0.34	0
Meadow (20% from Imperv.)	C	40198	0.923	71	4.08	0.82	0.88	2941
Meadow (20% from Imperv.)	D		0.000	78	2.82	0.56	1.27	0
Impervious	C		0.000	98	0.20	0.04	2.97	0
Impervious	C	160793	3.691	98	0.20	0.04	2.97	39763
Impervious	D		0.000	98	0.20	0.04	2.97	0
TOTAL:		214080	4.915					43622

Developed Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	I_a (0.2 x S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Woodland	B		0.000	55	8.18	1.64	0.25	0
Woodland	C		0.000	70	4.29	0.86	0.83	0
Woodland	D		0.000	77	2.99	0.60	1.21	0
Meadow	B		0.000	58	7.24	1.45	0.34	0
Meadow	C		0.000	71	4.08	0.82	0.88	0
Meadow	D		0.000	78	2.82	0.56	1.27	0
Lawn	B		0.000	61	6.39	1.28	0.44	0
Lawn	C	67976	1.561	74	3.51	0.70	1.04	5877
Lawn	D		0.000	80	2.50	0.50	1.40	0
Impervious	C		0.000	98	0.20	0.04	2.97	0
Impervious	C	146104	3.354	98	0.20	0.04	2.97	36130
Impervious	D		0.000	98	0.20	0.04	2.97	0
TOTAL:		214080	4.915					42007

2-Year Volume Increase (ft^3)	-1615 ft^3

2-Year Volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

1. Runoff (in) = $Q = (P - 0.2S)^2 / (P + 0.8S) = (P-I_a)^2 / ((P-I_a) + S)$
   P = 2-Year Rainfall (in)
   S = (1000 / CN) - 10
2. Runoff Volume (CF) = Q x Area x 1/12
   Q = Runoff (in)
   Area = Land use area (sq. ft)

Note: Runoff Volume must be calculated for EACH land use type/condition and HSGI. The use of a weighted CN value for volume calculations is not acceptable.

Water Quality

Project: 901 Washington

PRINT

Instructio | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
				TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	0.08	258	49	0.22	2.30	0.79	0.00	0.04
Impervious as Meadow	Grassland/Herbaceous	0.92	2,973	49	0.22	2.30	9.06	0.04	0.43
Impervious	Impervious (Mixed Use)	3.69	40,015	116	0.35	2.57	289.85	0.87	6.42
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.22	665	45	0.13	1.05	1.87	0.01	0.04
						TOTALS:	**301.56**	**0.92**	**6.93**

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
				TSS	TP	TN	TSS	TP	TN
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	1.57	5,988	78.00	0.25	1.25	29.17	0.09	0.47

Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	3.35	36,328	65.00	0.29	2.05	147.45	0.66	4.65
						TOTALS:	**176.61**	**0.75**	**5.12**

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	0.00	0.00	0.00

☐ **Non-Structural BMP Water Quality Credits** (attach calculations)**:**

☑ **Structural BMP Water Quality Credits:**

☑ *Use default BMP Outflows and Median BMP Outflow Concentrations*

DP No.	BMP No.	BMP Name	Series	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	1	Water Quality Filters & Hydrodynamic Devices	-	0.45	4,409			4,409	9.00	0.09	1.05	2.48	0.02	0.29
001	2	Water Quality Filters & Hydrodynamic Devices	-	0.69	1,157			1,157	-	-	-	-	-	-
001	3	Rain Garden / Bioretention	2	1.14					10.00	0.24	1.04			
001	4	Water Quality Filters & Hydrodynamic Devices	-	0.40	3,578			3,578	-	-	-	-	-	-
001	5	Rain Garden / Bioretention	4	0.53					10.00	0.24	1.04			
001	6	Water Quality Filters & Hydrodynamic Devices	-	1.16	11,173			11,173	-	-	-	-	-	-

001	7	Rain Garden / Bioretention	6	1.61					10.00	0.24	1.04			

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	**2.48**	**0.02**	**0.29**
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	**94.99**	**0.38**	**2.47**
NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):	**0.00**	**0.00**	**0.00**
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	**97.47**	**0.41**	**2.75**
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	**301.56**	**0.92**	**6.93**

WATER QUALITY REQUIREMENT SATISFIED

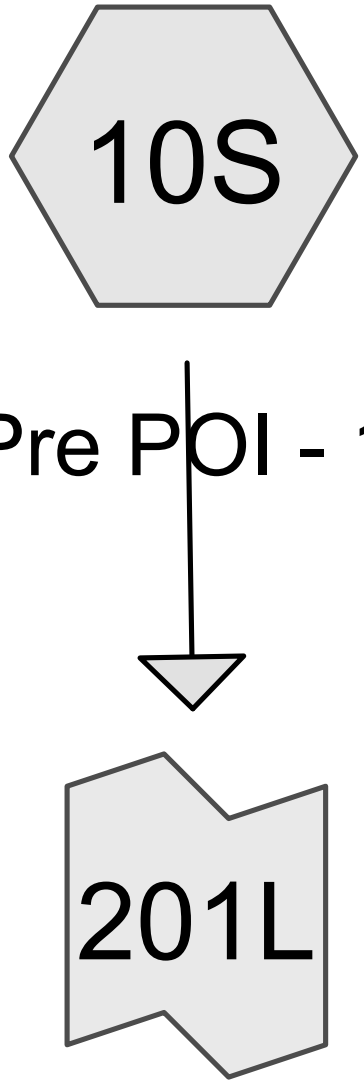
Township Volume Requirement Calculation					
Water Quality Volume	**(WQv) =**	**[(P)(Rv)(A)]/12 (acre feet)**			
	P =	0.17 inch			
	Rv =	0.05+0.009(I)			
	I =	impervious coverage (%) **			
	A =	Area (A)			
A= Total Study Area			4.915		
I=	146104 /	214080	0.6825 x100 =		68.25 %
Rv= 0.05 +0.009(69.25) =			0.6642		
Total Volume required WQv= [(0.17)(0.6968)(4.915)]/12=			0.0462 acre-feet		2014 cf
Required Recharge Volume	**(Rev) =**	**[(S)(Rv)(A)]/12 (acre feet)**			
	S =	0.13	(Hydrologic Soil Group (HSG) C		
	Rv =	0.05+0.009(I)			
	I =	impervious coverage (%)**			
	A =	Area (A)			
A= Total Study Area			4.953		
I=	146104 /	215753	0.6772 x100 =		67.72
Rv= 0.05 +0.009(69.25) =			0.6595		
Total Volume required Rev= .			0.035 acre-feet		1541 cf
Total WQV	=	2,014 cf			
Total ReV	=	1,541 cf			

Note That no infiltration is proposed on this site since it is an Act 2 site.

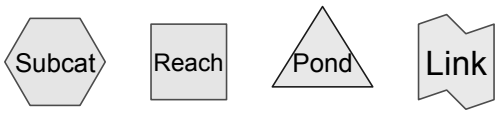
**** Includes offsite impervious**

V.

Pre-Development Analysis
POI-1



POI-1 Pre-Development



Routing Diagram for 901 Washington HydroCAD Model
Prepared by {enter your company name here}, Printed 5/15/2020
HydroCAD® 10.00-24 s/n 07511 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 10S: Pre POI - 1

Runoff = 15.04 cfs @ 11.96 hrs, Volume= 34,165 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YEAR Rainfall=2.60"

	Area (sf)	CN	Description
	160,793	98	Paved parking, HSG C
	3,600	71	Meadow, non-grazed, HSG C
*	40,198	71	Meadow, non-grazed, HSG C 20% exist imperv.
	9,489	70	Woods, Good, HSG C
	214,080	91	Weighted Average
	53,287	71	24.89% Pervious Area
	160,793	98	75.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc**

Summary for Link 201L: POI-1 Pre-Development

Inflow Area = 214,080 sf, 75.11% Impervious, Inflow Depth = 1.92" for 1-YEAR event
Inflow = 15.04 cfs @ 11.96 hrs, Volume= 34,165 cf
Primary = 15.04 cfs @ 11.96 hrs, Volume= 34,165 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: Pre POI - 1

Runoff = 19.15 cfs @ 11.96 hrs, Volume= 43,662 cf, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YEAR Rainfall=3.20"

	Area (sf)	CN	Description
	160,793	98	Paved parking, HSG C
	3,600	71	Meadow, non-grazed, HSG C
*	40,198	71	Meadow, non-grazed, HSG C 20% exist imperv.
	9,489	70	Woods, Good, HSG C
	214,080	91	Weighted Average
	53,287	71	24.89% Pervious Area
	160,793	98	75.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc**

Summary for Link 201L: POI-1 Pre-Development

Inflow Area = 214,080 sf, 75.11% Impervious, Inflow Depth = 2.45" for 2-YEAR event
Inflow = 19.15 cfs @ 11.96 hrs, Volume= 43,662 cf
Primary = 19.15 cfs @ 11.96 hrs, Volume= 43,662 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: Pre POI - 1

Runoff = 26.18 cfs @ 11.96 hrs, Volume= 59,930 cf, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YEAR Rainfall=4.20"

	Area (sf)	CN	Description
	160,793	98	Paved parking, HSG C
	3,600	71	Meadow, non-grazed, HSG C
*	40,198	71	Meadow, non-grazed, HSG C 20% exist imperv.
	9,489	70	Woods, Good, HSG C
	214,080	91	Weighted Average
	53,287	71	24.89% Pervious Area
	160,793	98	75.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc**

Summary for Link 201L: POI-1 Pre-Development

Inflow Area = 214,080 sf, 75.11% Impervious, Inflow Depth = 3.36" for 5-YEAR event
Inflow = 26.18 cfs @ 11.96 hrs, Volume= 59,930 cf
Primary = 26.18 cfs @ 11.96 hrs, Volume= 59,930 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: Pre POI - 1

Runoff = 31.91 cfs @ 11.96 hrs, Volume= 73,222 cf, Depth= 4.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YEAR Rainfall=5.00"

	Area (sf)	CN	Description
	160,793	98	Paved parking, HSG C
	3,600	71	Meadow, non-grazed, HSG C
*	40,198	71	Meadow, non-grazed, HSG C 20% exist imperv.
	9,489	70	Woods, Good, HSG C
	214,080	91	Weighted Average
	53,287	71	24.89% Pervious Area
	160,793	98	75.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc**

Summary for Link 201L: POI-1 Pre-Development

Inflow Area = 214,080 sf, 75.11% Impervious, Inflow Depth = 4.10" for 10-YEAR event
Inflow = 31.91 cfs @ 11.96 hrs, Volume= 73,222 cf
Primary = 31.91 cfs @ 11.96 hrs, Volume= 73,222 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: Pre POI - 1

Runoff = 36.96 cfs @ 11.96 hrs, Volume= 84,998 cf, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YEAR Rainfall=5.70"

	Area (sf)	CN	Description
	160,793	98	Paved parking, HSG C
	3,600	71	Meadow, non-grazed, HSG C
*	40,198	71	Meadow, non-grazed, HSG C 20% exist imperv.
	9,489	70	Woods, Good, HSG C
	214,080	91	Weighted Average
	53,287	71	24.89% Pervious Area
	160,793	98	75.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc**

Summary for Link 201L: POI-1 Pre-Development

Inflow Area = 214,080 sf, 75.11% Impervious, Inflow Depth = 4.76" for 25-YEAR event
Inflow = 36.96 cfs @ 11.96 hrs, Volume= 84,998 cf
Primary = 36.96 cfs @ 11.96 hrs, Volume= 84,998 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: Pre POI - 1

Runoff = 42.05 cfs @ 11.96 hrs, Volume= 96,877 cf, Depth= 5.43"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YEAR Rainfall=6.40"

	Area (sf)	CN	Description
	160,793	98	Paved parking, HSG C
	3,600	71	Meadow, non-grazed, HSG C
*	40,198	71	Meadow, non-grazed, HSG C 20% exist imperv.
	9,489	70	Woods, Good, HSG C
	214,080	91	Weighted Average
	53,287	71	24.89% Pervious Area
	160,793	98	75.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc**

Summary for Link 201L: POI-1 Pre-Development

Inflow Area = 214,080 sf, 75.11% Impervious, Inflow Depth = 5.43" for 50-YEAR event
Inflow = 42.05 cfs @ 11.96 hrs, Volume= 96,877 cf
Primary = 42.05 cfs @ 11.96 hrs, Volume= 96,877 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: Pre POI - 1

Runoff = 47.17 cfs @ 11.96 hrs, Volume= 108,840 cf, Depth= 6.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YEAR Rainfall=7.10"

	Area (sf)	CN	Description
	160,793	98	Paved parking, HSG C
	3,600	71	Meadow, non-grazed, HSG C
*	40,198	71	Meadow, non-grazed, HSG C 20% exist imperv.
	9,489	70	Woods, Good, HSG C
	214,080	91	Weighted Average
	53,287	71	24.89% Pervious Area
	160,793	98	75.11% Impervious Area

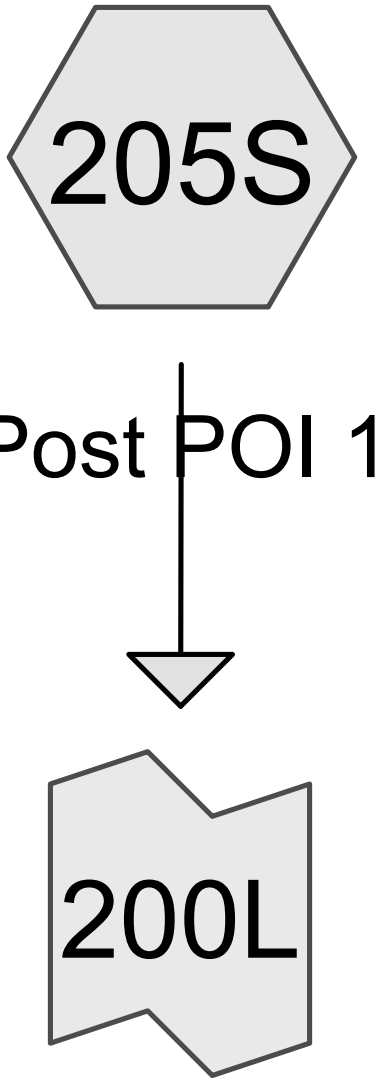
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc**

Summary for Link 201L: POI-1 Pre-Development

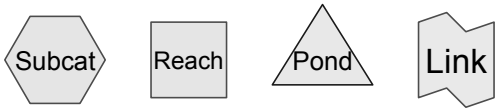
Inflow Area = 214,080 sf, 75.11% Impervious, Inflow Depth = 6.10" for 100-YEAR event
Inflow = 47.17 cfs @ 11.96 hrs, Volume= 108,840 cf
Primary = 47.17 cfs @ 11.96 hrs, Volume= 108,840 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Post-Development Analysis
POI-1



POI-1
Post-Development



Routing Diagram for 901 Washington HydroCAD Model
Prepared by {enter your company name here}, Printed 8/19/2020
HydroCAD® 10.00-24 s/n 07511 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 205S: Post POI 1

Runoff = 14.49 cfs @ 11.96 hrs, Volume= 32,626 cf, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YEAR Rainfall=2.60"

Area (sf)	CN	Description
67,976	74	>75% Grass cover, Good, HSG C
146,104	98	Paved parking, HSG C
214,080	90	Weighted Average
67,976	74	31.75% Pervious Area
146,104	98	68.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Link 200L: POI-1 Post-Development

Inflow Area = 214,080 sf, 68.25% Impervious, Inflow Depth = 1.83" for 1-YEAR event
Inflow = 14.49 cfs @ 11.96 hrs, Volume= 32,626 cf
Primary = 14.49 cfs @ 11.96 hrs, Volume= 32,626 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 205S: Post POI 1

Runoff = 18.62 cfs @ 11.96 hrs, Volume= 42,007 cf, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YEAR Rainfall=3.20"

Area (sf)	CN	Description
67,976	74	>75% Grass cover, Good, HSG C
146,104	98	Paved parking, HSG C
214,080	90	Weighted Average
67,976	74	31.75% Pervious Area
146,104	98	68.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Link 200L: POI-1 Post-Development

Inflow Area = 214,080 sf, 68.25% Impervious, Inflow Depth = 2.35" for 2-YEAR event
Inflow = 18.62 cfs @ 11.96 hrs, Volume= 42,007 cf
Primary = 18.62 cfs @ 11.96 hrs, Volume= 42,007 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 205S: Post POI 1

Runoff = 25.69 cfs @ 11.96 hrs, Volume= 58,154 cf, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YEAR Rainfall=4.20"

Area (sf)	CN	Description
67,976	74	>75% Grass cover, Good, HSG C
146,104	98	Paved parking, HSG C
214,080	90	Weighted Average
67,976	74	31.75% Pervious Area
146,104	98	68.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Link 200L: POI-1 Post-Development

Inflow Area = 214,080 sf, 68.25% Impervious, Inflow Depth = 3.26" for 5-YEAR event
Inflow = 25.69 cfs @ 11.96 hrs, Volume= 58,154 cf
Primary = 25.69 cfs @ 11.96 hrs, Volume= 58,154 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 205S: Post POI 1

Runoff = 31.46 cfs @ 11.96 hrs, Volume= 71,386 cf, Depth= 4.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YEAR Rainfall=5.00"

Area (sf)	CN	Description
67,976	74	>75% Grass cover, Good, HSG C
146,104	98	Paved parking, HSG C
214,080	90	Weighted Average
67,976	74	31.75% Pervious Area
146,104	98	68.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Link 200L: POI-1 Post-Development

Inflow Area = 214,080 sf, 68.25% Impervious, Inflow Depth = 4.00" for 10-YEAR event
Inflow = 31.46 cfs @ 11.96 hrs, Volume= 71,386 cf
Primary = 31.46 cfs @ 11.96 hrs, Volume= 71,386 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 205S: Post POI 1

Runoff = 36.56 cfs @ 11.96 hrs, Volume= 83,126 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YEAR Rainfall=5.70"

Area (sf)	CN	Description
67,976	74	>75% Grass cover, Good, HSG C
146,104	98	Paved parking, HSG C
214,080	90	Weighted Average
67,976	74	31.75% Pervious Area
146,104	98	68.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Link 200L: POI-1 Post-Development

Inflow Area = 214,080 sf, 68.25% Impervious, Inflow Depth = 4.66" for 25-YEAR event
Inflow = 36.56 cfs @ 11.96 hrs, Volume= 83,126 cf
Primary = 36.56 cfs @ 11.96 hrs, Volume= 83,126 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 205S: Post POI 1

Runoff = 41.69 cfs @ 11.96 hrs, Volume= 94,980 cf, Depth= 5.32"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YEAR Rainfall=6.40"

Area (sf)	CN	Description
67,976	74	>75% Grass cover, Good, HSG C
146,104	98	Paved parking, HSG C
214,080	90	Weighted Average
67,976	74	31.75% Pervious Area
146,104	98	68.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Link 200L: POI-1 Post-Development

Inflow Area = 214,080 sf, 68.25% Impervious, Inflow Depth = 5.32" for 50-YEAR event
Inflow = 41.69 cfs @ 11.96 hrs, Volume= 94,980 cf
Primary = 41.69 cfs @ 11.96 hrs, Volume= 94,980 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 205S: Post POI 1

Runoff = 46.84 cfs @ 11.96 hrs, Volume= 106,924 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YEAR Rainfall=7.10"

Area (sf)	CN	Description
67,976	74	>75% Grass cover, Good, HSG C
146,104	98	Paved parking, HSG C
214,080	90	Weighted Average
67,976	74	31.75% Pervious Area
146,104	98	68.25% Impervious Area

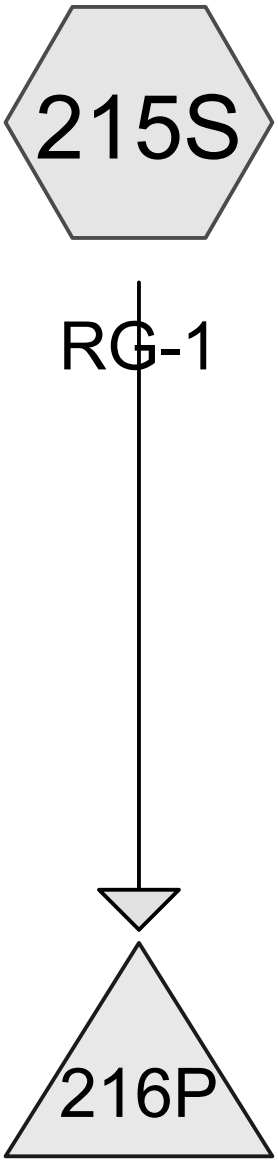
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Link 200L: POI-1 Post-Development

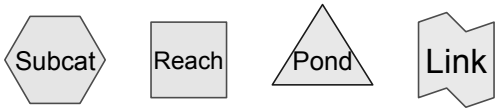
Inflow Area = 214,080 sf, 68.25% Impervious, Inflow Depth = 5.99" for 100-YEAR event
Inflow = 46.84 cfs @ 11.96 hrs, Volume= 106,924 cf
Primary = 46.84 cfs @ 11.96 hrs, Volume= 106,924 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs

Rain Garden 1
1-Year and 2-Year Flow Summary



RG-1



Routing Diagram for 901 Washington HydroCAD Model
Prepared by {enter your company name here}, Printed 8/19/2020
HydroCAD® 10.00-24 s/n 07511 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 215S: RG-1

Runoff = 3.20 cfs @ 11.96 hrs, Volume= 7,178 cf, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YEAR Rainfall=2.60"

Area (sf)	CN	Description
31,220	98	Paved parking, HSG C
18,248	74	>75% Grass cover, Good, HSG C
49,468	89	Weighted Average
18,248	74	36.89% Pervious Area
31,220	98	63.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, tc**

Summary for Pond 216P: RG-1

Inflow Area = 49,468 sf, 63.11% Impervious, Inflow Depth = 1.74" for 1-YEAR event
Inflow = 3.20 cfs @ 11.96 hrs, Volume= 7,178 cf
Outflow = 3.09 cfs @ 11.98 hrs, Volume= 6,518 cf, Atten= 3%, Lag= 1.1 min
Primary = 3.09 cfs @ 11.98 hrs, Volume= 6,518 cf

Routing by Stor-Ind method, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Peak Elev= 48.53' @ 11.98 hrs Surf.Area= 1,244 sf Storage= 992 cf

Plug-Flow detention time= 88.5 min calculated for 6,518 cf (91% of inflow)
Center-of-Mass det. time= 39.0 min (811.6 - 772.6)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	1,626 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	0	0.0	0	0
47.00	992	40.0	198	198
48.00	992	20.0	198	397
49.00	1,466	100.0	1,229	1,626

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	**24.0" Round Culvert** L= 77.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.00' / 45.50' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	48.25'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.08 cfs @ 11.98 hrs HW=48.53' (Free Discharge)
└─**1=Culvert** (Passes 3.08 cfs of 17.36 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 3.08 cfs @ 1.74 fps)

Summary for Subcatchment 215S: RG-1

Runoff = 4.14 cfs @ 11.96 hrs, Volume= 9,298 cf, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YEAR Rainfall=3.20"

Area (sf)	CN	Description
31,220	98	Paved parking, HSG C
18,248	74	>75% Grass cover, Good, HSG C
49,468	89	Weighted Average
18,248	74	36.89% Pervious Area
31,220	98	63.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, tc**

Summary for Pond 216P: RG-1

Inflow Area = 49,468 sf, 63.11% Impervious, Inflow Depth = 2.26" for 2-YEAR event
Inflow = 4.14 cfs @ 11.96 hrs, Volume= 9,298 cf
Outflow = 4.02 cfs @ 11.98 hrs, Volume= 8,639 cf, Atten= 3%, Lag= 1.0 min
Primary = 4.02 cfs @ 11.98 hrs, Volume= 8,639 cf

Routing by Stor-Ind method, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Peak Elev= 48.59' @ 11.98 hrs Surf.Area= 1,270 sf Storage= 1,060 cf

Plug-Flow detention time= 74.5 min calculated for 8,639 cf (93% of inflow)
Center-of-Mass det. time= 34.2 min (803.8 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	1,626 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

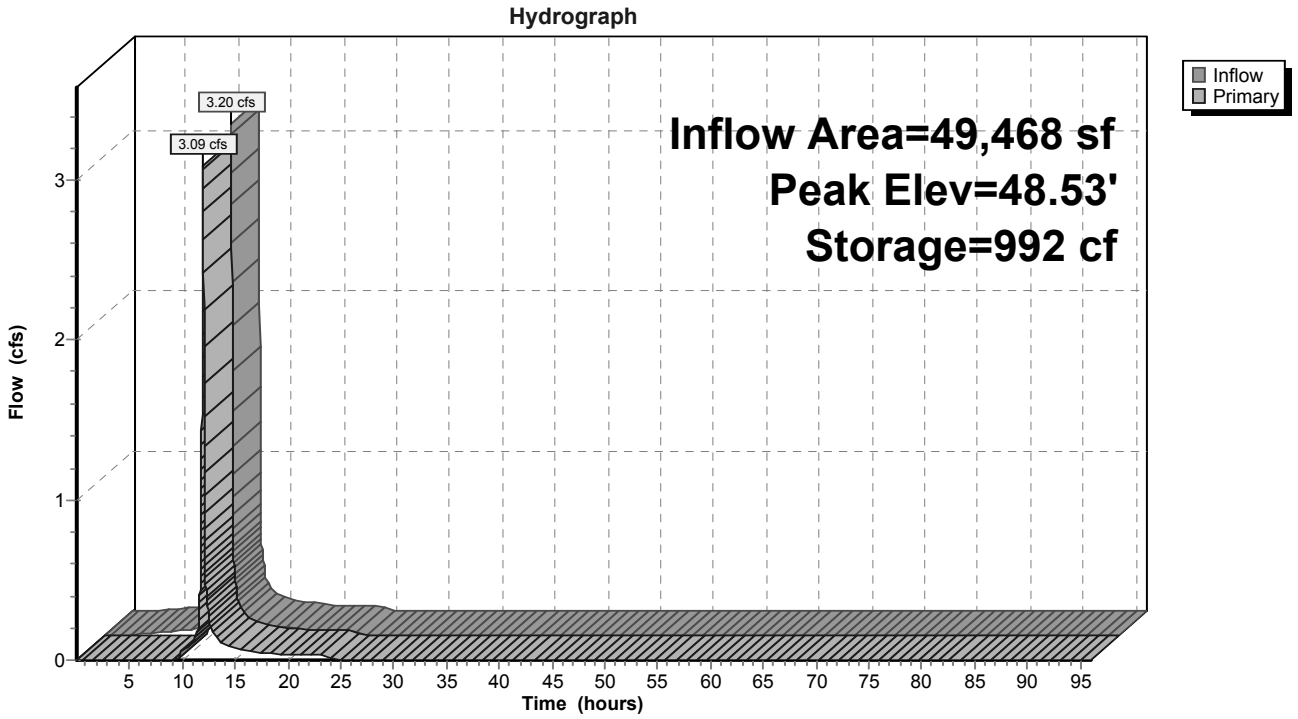
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	0	0.0	0	0
47.00	992	40.0	198	198
48.00	992	20.0	198	397
49.00	1,466	100.0	1,229	1,626

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	**24.0" Round Culvert** L= 77.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.00' / 45.50' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	48.25'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.01 cfs @ 11.98 hrs HW=48.59' (Free Discharge)
└─**1=Culvert** (Passes 4.01 cfs of 17.53 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 4.01 cfs @ 1.90 fps)

Rain Garden 1
1-Year Hydrograph and Detention Time

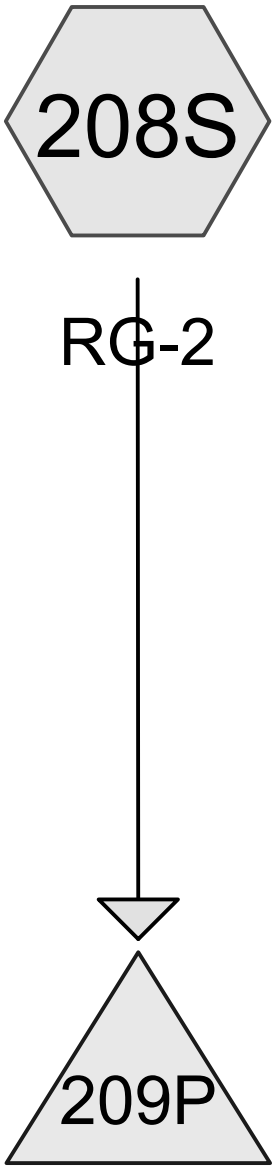
Pond 216P: RG-1

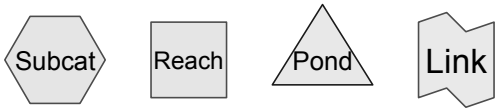


Hydrograph for Pond 216P: RG-1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.01	0.00	0	46.00	0.00
2.01	0.00	2	46.11	0.00
4.01	0.01	61	46.55	0.00
6.01	0.02	190	46.98	0.00
8.01	0.03	394	47.99	0.00
10.01	**0.07**	**679**	**48.27**	**0.06**
12.01	**2.46**	**971**	**48.52**	**2.81**
14.01	0.09	690	48.28	0.10
16.01	0.06	678	48.27	0.06
18.01	0.04	674	48.26	0.05
20.01	0.03	670	48.26	0.03
22.01	0.03	669	48.26	0.03
24.01	0.03	668	48.26	0.03
26.01	0.00	660	48.25	0.00
28.01	0.00	660	48.25	0.00
30.01	0.00	660	48.25	0.00
32.01	0.00	660	48.25	0.00
34.01	0.00	660	48.25	0.00
36.01	0.00	660	48.25	0.00
38.01	0.00	660	48.25	0.00
40.01	0.00	660	48.25	0.00
42.01	0.00	660	48.25	0.00
44.01	0.00	660	48.25	0.00
46.01	0.00	660	48.25	0.00
48.01	0.00	660	48.25	0.00
50.01	0.00	660	48.25	0.00
52.01	0.00	660	48.25	0.00
54.01	0.00	660	48.25	0.00
56.01	0.00	660	48.25	0.00
58.01	0.00	660	48.25	0.00
60.01	0.00	660	48.25	0.00
62.01	0.00	660	48.25	0.00
64.01	0.00	660	48.25	0.00
66.01	0.00	660	48.25	0.00
68.01	0.00	660	48.25	0.00
70.01	0.00	660	48.25	0.00
72.01	0.00	660	48.25	0.00
74.01	0.00	660	48.25	0.00
76.01	0.00	660	48.25	0.00
78.01	0.00	660	48.25	0.00
80.01	0.00	660	48.25	0.00
82.01	0.00	660	48.25	0.00
84.01	0.00	660	48.25	0.00
86.01	0.00	660	48.25	0.00
88.01	0.00	660	48.25	0.00
90.01	0.00	660	48.25	0.00
92.01	0.00	660	48.25	0.00
94.01	0.00	660	48.25	0.00

Rain Garden 2
1-Year and 2-Year Flow Summary





Routing Diagram for 901 Washington HydroCAD Model
Prepared by {enter your company name here}, Printed 8/19/2020
HydroCAD® 10.00-24 s/n 07511 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 208S: RG-2

Runoff = 1.60 cfs @ 11.96 hrs, Volume= 3,608 cf, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YEAR Rainfall=2.60"

Area (sf)	CN	Description
16,446	98	Paved parking, HSG C
6,481	74	>75% Grass cover, Good, HSG C
22,927	91	Weighted Average
6,481	74	28.27% Pervious Area
16,446	98	71.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, tc**

Summary for Pond 209P: RG-2

Inflow Area = 22,927 sf, 71.73% Impervious, Inflow Depth = 1.89" for 1-YEAR event
Inflow = 1.60 cfs @ 11.96 hrs, Volume= 3,608 cf
Outflow = 1.58 cfs @ 11.97 hrs, Volume= 3,139 cf, Atten= 1%, Lag= 0.6 min
Primary = 1.58 cfs @ 11.97 hrs, Volume= 3,139 cf

Routing by Stor-Ind method, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Peak Elev= 48.68' @ 11.97 hrs Surf.Area= 526 sf Storage= 561 cf

Plug-Flow detention time= 109.8 min calculated for 3,139 cf (87% of inflow)
Center-of-Mass det. time= 46.3 min (814.1 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	738 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	406	0.0	0	0
47.00	406	40.0	162	162
48.00	406	20.0	81	244
49.00	583	100.0	495	738

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	**24.0" Round Culvert** L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.50' / 44.80' S= 0.0219 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	48.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.58 cfs @ 11.97 hrs HW=48.68' (Free Discharge)
└─**1=Culvert** (Passes 1.58 cfs of 22.34 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 1.58 cfs @ 1.39 fps)

Summary for Subcatchment 208S: RG-2

Runoff = 2.04 cfs @ 11.96 hrs, Volume= 4,627 cf, Depth= 2.42"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YEAR Rainfall=3.20"

Area (sf)	CN	Description
16,446	98	Paved parking, HSG C
6,481	74	>75% Grass cover, Good, HSG C
22,927	91	Weighted Average
6,481	74	28.27% Pervious Area
16,446	98	71.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, tc**

Summary for Pond 209P: RG-2

Inflow Area = 22,927 sf, 71.73% Impervious, Inflow Depth = 2.42" for 2-YEAR event
Inflow = 2.04 cfs @ 11.96 hrs, Volume= 4,627 cf
Outflow = 2.02 cfs @ 11.97 hrs, Volume= 4,159 cf, Atten= 1%, Lag= 0.6 min
Primary = 2.02 cfs @ 11.97 hrs, Volume= 4,159 cf

Routing by Stor-Ind method, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Peak Elev= 48.71' @ 11.97 hrs Surf.Area= 532 sf Storage= 578 cf

Plug-Flow detention time= 94.6 min calculated for 4,159 cf (90% of inflow)
Center-of-Mass det. time= 41.3 min (805.7 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	738 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

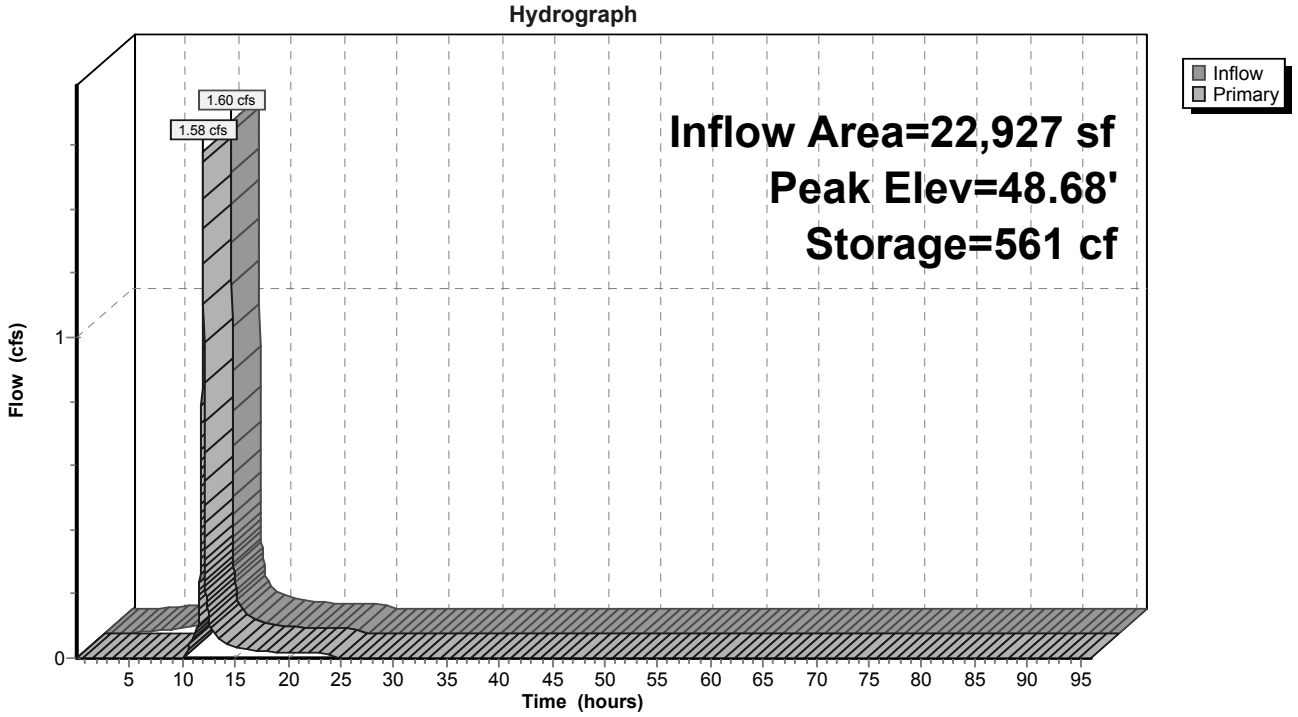
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	406	0.0	0	0
47.00	406	40.0	162	162
48.00	406	20.0	81	244
49.00	583	100.0	495	738

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	**24.0" Round Culvert** L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.50' / 44.80' S= 0.0219 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	48.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.02 cfs @ 11.97 hrs HW=48.71' (Free Discharge)
└─**1=Culvert** (Passes 2.02 cfs of 22.50 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 2.02 cfs @ 1.51 fps)

Rain Garden 2
1-Year Hydrograph and Detention Time

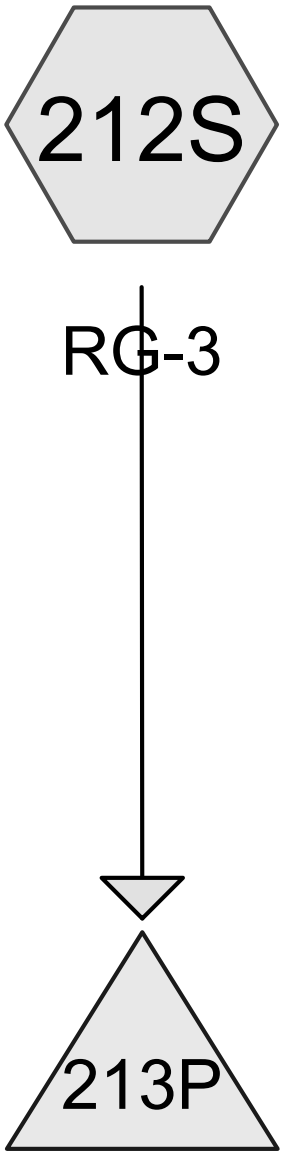
Pond 209P: RG-2



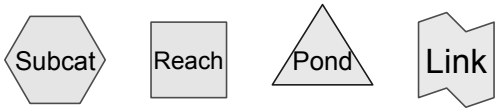
Hydrograph for Pond 209P: RG-2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.01	0.00	0	46.00	0.00
2.01	0.00	1	46.01	0.00
4.01	0.01	32	46.20	0.00
6.01	0.01	100	46.62	0.00
8.01	0.02	208	47.56	0.00
10.01	**0.03**	**391**	**48.34**	**0.00**
12.01	**1.22**	**551**	**48.66**	**1.34**
14.01	0.05	477	48.52	0.05
16.01	0.03	474	48.51	0.03
18.01	0.02	472	48.51	0.02
20.01	0.02	471	48.51	0.02
22.01	0.01	471	48.51	0.01
24.01	0.01	471	48.50	0.01
26.01	0.00	469	48.50	0.00
28.01	0.00	469	48.50	0.00
30.01	0.00	469	48.50	0.00
32.01	0.00	469	48.50	0.00
34.01	0.00	469	48.50	0.00
36.01	0.00	469	48.50	0.00
38.01	0.00	469	48.50	0.00
40.01	0.00	469	48.50	0.00
42.01	0.00	469	48.50	0.00
44.01	0.00	469	48.50	0.00
46.01	0.00	469	48.50	0.00
48.01	0.00	469	48.50	0.00
50.01	0.00	469	48.50	0.00
52.01	0.00	469	48.50	0.00
54.01	0.00	469	48.50	0.00
56.01	0.00	469	48.50	0.00
58.01	0.00	469	48.50	0.00
60.01	0.00	469	48.50	0.00
62.01	0.00	469	48.50	0.00
64.01	0.00	469	48.50	0.00
66.01	0.00	469	48.50	0.00
68.01	0.00	469	48.50	0.00
70.01	0.00	469	48.50	0.00
72.01	0.00	469	48.50	0.00
74.01	0.00	469	48.50	0.00
76.01	0.00	469	48.50	0.00
78.01	0.00	469	48.50	0.00
80.01	0.00	469	48.50	0.00
82.01	0.00	469	48.50	0.00
84.01	0.00	469	48.50	0.00
86.01	0.00	469	48.50	0.00
88.01	0.00	469	48.50	0.00
90.01	0.00	469	48.50	0.00
92.01	0.00	469	48.50	0.00
94.01	0.00	469	48.50	0.00

Rain Garden 3
1-Year and 2-Year Flow Summary



RG-3



Routing Diagram for 901 Washington HydroCAD Model
Prepared by {enter your company name here}, Printed 8/19/2020
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Summary for Subcatchment 212S: RG-3

Runoff = 4.98 cfs @ 11.96 hrs, Volume= 11,252 cf, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YEAR Rainfall=2.60"

Area (sf)	CN	Description
18,161	74	>75% Grass cover, Good, HSG C
51,868	98	Paved parking, HSG C
70,029	92	Weighted Average
18,161	74	25.93% Pervious Area
51,868	98	74.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 213P: RG-3

Inflow Area = 70,029 sf, 74.07% Impervious, Inflow Depth = 1.93" for 1-YEAR event
Inflow = 4.98 cfs @ 11.96 hrs, Volume= 11,252 cf
Outflow = 0.21 cfs @ 13.14 hrs, Volume= 3,588 cf, Atten= 96%, Lag= 71.0 min
Primary = 0.21 cfs @ 13.14 hrs, Volume= 3,588 cf

Routing by Stor-Ind method, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Peak Elev= 49.00' @ 13.14 hrs Surf.Area= 5,988 sf Storage= 7,946 cf

Plug-Flow detention time= 411.4 min calculated for 3,588 cf (32% of inflow)
Center-of-Mass det. time= 244.6 min (1,011.2 - 766.7)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	10,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	4,514	0.0	0	0
47.00	4,514	40.0	1,806	1,806
48.00	4,514	20.0	903	2,708
49.00	5,992	100.0	5,253	7,961
49.35	6,312	100.0	2,153	10,115

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	**12.0" Round Culvert** L= 47.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.50' / 45.27' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	48.95'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 13.14 hrs HW=49.00' (Free Discharge)
└─**1=Culvert** (Passes 0.21 cfs of 6.03 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 0.21 cfs @ 0.71 fps)

Summary for Subcatchment 212S: RG-3

Runoff = 6.35 cfs @ 11.96 hrs, Volume= 14,397 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YEAR Rainfall=3.20"

Area (sf)	CN	Description
18,161	74	>75% Grass cover, Good, HSG C
51,868	98	Paved parking, HSG C
70,029	92	Weighted Average
18,161	74	25.93% Pervious Area
51,868	98	74.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Pond 213P: RG-3

Inflow Area = 70,029 sf, 74.07% Impervious, Inflow Depth = 2.47" for 2-YEAR event
Inflow = 6.35 cfs @ 11.96 hrs, Volume= 14,397 cf
Outflow = 1.17 cfs @ 12.11 hrs, Volume= 6,733 cf, Atten= 82%, Lag= 9.3 min
Primary = 1.17 cfs @ 12.11 hrs, Volume= 6,733 cf

Routing by Stor-Ind method, Time Span= 0.01-96.00 hrs, dt= 0.01 hrs
Peak Elev= 49.10' @ 12.11 hrs Surf.Area= 6,081 sf Storage= 8,551 cf

Plug-Flow detention time= 291.7 min calculated for 6,732 cf (47% of inflow)
Center-of-Mass det. time= 159.7 min (922.8 - 763.2)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	10,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

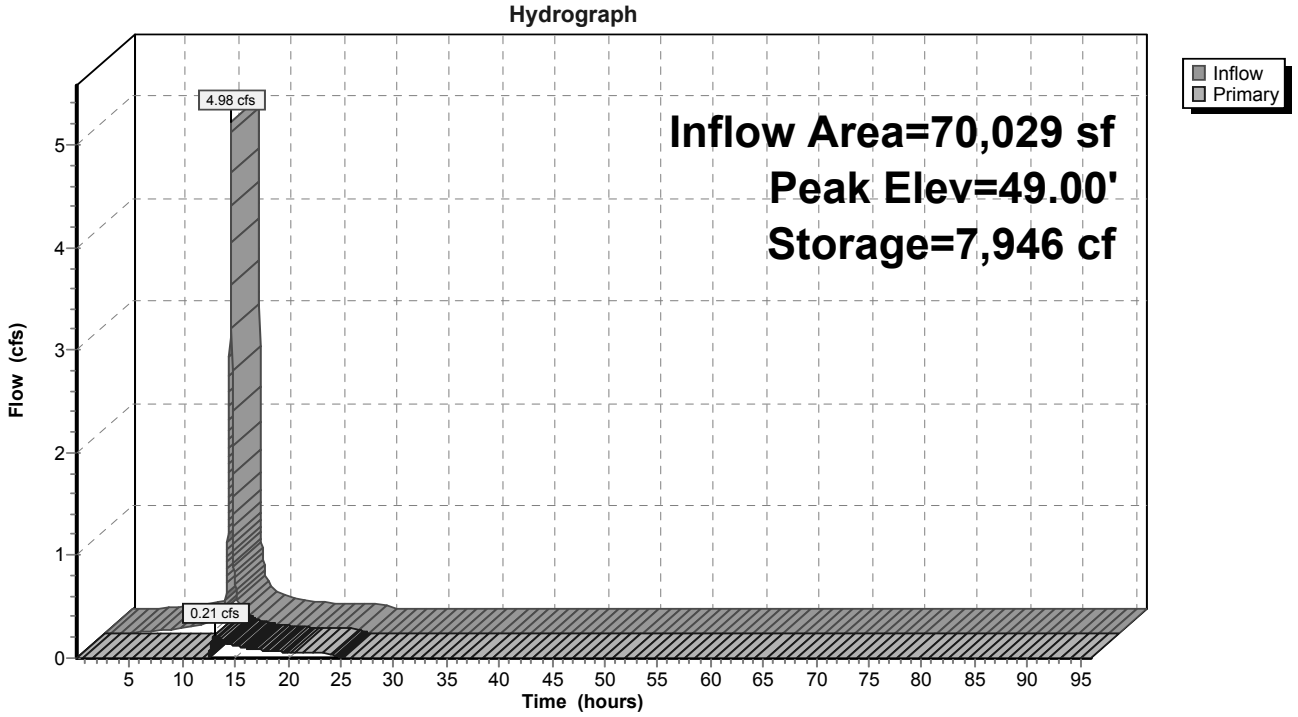
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	4,514	0.0	0	0
47.00	4,514	40.0	1,806	1,806
48.00	4,514	20.0	903	2,708
49.00	5,992	100.0	5,253	7,961
49.35	6,312	100.0	2,153	10,115

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	**12.0" Round Culvert** L= 47.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.50' / 45.27' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	48.95'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.16 cfs @ 12.11 hrs HW=49.10' (Free Discharge)
└─**1=Culvert** (Passes 1.16 cfs of 6.14 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 1.16 cfs @ 1.26 fps)

Rain Garden 3
1-Year Hydrograph and Detention Time

Pond 213P: RG-3



Hydrograph for Pond 213P: RG-3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.01	0.00	0	46.00	0.00
2.01	0.00	4	46.00	0.00
4.01	0.02	101	46.06	0.00
6.01	0.04	316	46.18	0.00
8.01	0.06	655	46.36	0.00
10.01	**0.11**	1,233	46.68	0.00
12.01	**3.80**	**6,154**	**48.69**	**0.00**
14.01	0.14	**7,893**	**48.99**	**0.16**
16.01	0.09	7,822	48.98	0.10
18.01	0.07	7,780	48.97	0.07
20.01	0.05	7,750	48.96	0.05
22.01	0.04	7,738	48.96	0.05
24.01	0.04	7,732	48.96	0.04
26.01	0.00	7,665	48.95	0.00
28.01	0.00	7,664	48.95	0.00
30.01	0.00	7,664	48.95	0.00
32.01	0.00	7,664	48.95	0.00
34.01	0.00	7,664	48.95	0.00
36.01	0.00	7,664	48.95	0.00
38.01	0.00	7,664	48.95	0.00
40.01	0.00	7,664	48.95	0.00
42.01	0.00	7,664	48.95	0.00
44.01	0.00	7,664	48.95	0.00
46.01	0.00	7,664	48.95	0.00
48.01	0.00	7,664	48.95	0.00
50.01	0.00	7,664	48.95	0.00
52.01	0.00	7,664	48.95	0.00
54.01	0.00	7,664	48.95	0.00
56.01	0.00	7,664	48.95	0.00
58.01	0.00	7,664	48.95	0.00
60.01	0.00	7,664	48.95	0.00
62.01	0.00	7,664	48.95	0.00
64.01	0.00	7,664	48.95	0.00
66.01	0.00	7,664	48.95	0.00
68.01	0.00	7,664	48.95	0.00
70.01	0.00	7,664	48.95	0.00
72.01	0.00	7,664	48.95	0.00
74.01	0.00	7,664	48.95	0.00
76.01	0.00	7,664	48.95	0.00
78.01	0.00	7,664	48.95	0.00
80.01	0.00	7,664	48.95	0.00
82.01	0.00	7,664	48.95	0.00
84.01	0.00	7,664	48.95	0.00
86.01	0.00	7,664	48.95	0.00
88.01	0.00	7,664	48.95	0.00
90.01	0.00	7,664	48.95	0.00
92.01	0.00	7,664	48.95	0.00
94.01	0.00	7,664	48.95	0.00

VI.

Inlet Drainage Areas

Inlet	A total	A total	Lawn	Impervious	C wt	25 yr Q	50 yr Q	100 yr Q
	SF	Acres	SF	SF		cfs	cfs	cfs
I-1	3722	0.085	146	3576	0.88	**0.54**	**0.58**	**0.61**
I-2	2369	0.054	757	1612	0.74	**0.29**	**0.31**	**0.33**
I-3	11740	0.270	3418	8322	0.75	**1.45**	**1.56**	**1.66**
I-4	10273	0.236	3384	6889	0.74	**1.24**	**1.33**	**1.41**
I-5	5548	0.127	1956	3592	0.72	**0.66**	**0.71**	**0.75**
I-6	4197	0.096	397	3800	0.85	**0.59**	**0.63**	**0.67**
I-7	1379	0.032	0	1379	0.90	**0.20**	**0.22**	**0.23**
I-8	5881	0.135	1062	4819	0.81	**0.78**	**0.84**	**0.89**
I-9	490	0.011	91	399	0.81	**0.06**	**0.07**	**0.07**
I-10	2856	0.066	8	2848	0.90	**0.42**	**0.45**	**0.48**
I-11	3903	0.090	140	3763	0.88	**0.57**	**0.61**	**0.64**
I-12	36054	0.828	7802	28252	0.79	**4.69**	**5.02**	**5.34**
I-13	3219	0.074	66	3153	0.89	**0.47**	**0.50**	**0.54**
I-14	2647	0.061	70	2577	0.89	**0.39**	**0.41**	**0.44**
I-15	17576	0.403	4779	12797	0.76	**2.20**	**2.36**	**2.51**
I-16	2476	0.057	86	2390	0.88	**0.36**	**0.38**	**0.41**
I-17	2063	0.047	61	2002	0.89	**0.30**	**0.32**	**0.34**
I-18	21055	0.483	5564	15491	0.77	**2.65**	**2.84**	**3.02**
I-19	5363	0.123	2041	3322	0.71	**0.62**	**0.67**	**0.71**
I-22	3663	0.084	0	3663	0.9	**0.54**	**0.58**	**0.62**
TR-1	1762	0.040	0	1762	0.9	**0.26**	**0.28**	**0.30**

Q= (C wt) x I x (A total acres)

$$C\ wt = \frac{\text{ious)] + [0.4 x (Lawn - B)]}}{\text{A total}}$$

I 25 =	7.15	in/hr; per PennDOT Road Design Manual, Vol III
I 50	7.66	Fig. 2.10.4.2(E), Region 3 I.D.F., 5 min. duration
I 100 =	8.15	

C =	0.40	Lawn
C =	0.90	Impervious

StormCAD 100 Year Analysis

Conduit FlexTable: Combined Pipe/Node Report (901 Washington Ave.stc)

Start Node	Stop Node	Length (Unified) (ft)	Rise (Unified) (in)	Manning's n	Slope (ft/ft)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Invert (Upstream) (ft)	Invert (Downstream) (ft)	Total Flow (ft³/s)	Capacity (Full Flow) (ft³/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (Average) (ft/s)
I-11	I-10	17.0	18.0	0.012	0.005	54.75	54.75	50.16	50.07	0.65	8.28	50.46	50.35	2.79
I-10	TO RG-4	10.0	18.0	0.012	0.000	54.75	54.00	49.87	49.87	1.13	0.00	50.35	50.27	0.64
I-15	MH-8	21.0	18.0	0.012	0.013	53.50	55.50	50.30	50.02	2.53	13.14	50.90	50.49	5.74
MH-8	TO RG-2	2.0	18.0	0.012	0.000	55.50	54.50	49.40	49.40	2.53	0.00	50.05	50.00	1.43
I-12	MH-7	22.0	18.0	0.012	0.005	53.75	55.10	50.55	50.44	5.38	8.05	51.45	51.33	4.88
I-14	I-13	17.0	18.0	0.012	0.005	54.75	54.75	50.15	50.06	0.44	8.28	50.40	50.42	2.49
I-13	MH-7	58.0	18.0	0.012	0.005	54.75	55.10	49.86	49.57	0.98	8.05	50.42	50.42	3.09
MH-7	To RG-4	2.0	18.0	0.012	0.000	55.10	54.50	49.37	49.37	6.37	0.00	50.42	50.35	3.60
TR-1	MH-6	12.0	10.0	0.012	0.005	51.90	52.00	50.90	50.84	0.30	1.68	51.14	51.08	2.33
MH-6	EW-3	22.0	18.0	0.012	0.005	52.00	50.00	48.61	48.50	0.30	8.05	48.90	48.90	2.17
I-18	I-19	63.0	15.0	0.012	0.006	52.75	54.00	49.75	49.40	3.05	5.22	50.45	50.09	4.42
I-22	I-19	102.0	15.0	0.012	0.005	54.00	54.00	51.17	50.65	0.62	5.00	51.48	50.95	2.77
I-19	EW-4	75.0	18.0	0.012	0.005	54.00	50.00	48.38	48.00	4.39	8.10	49.18	49.00	4.68
I-16	I-17	16.0	18.0	0.012	0.005	54.50	54.50	51.00	50.92	0.41	8.05	51.24	51.15	2.39
I-17	RG-1	6.0	18.0	0.012	0.005	54.50	55.00	48.03	48.00	0.76	8.05	49.00	49.00	2.86
RG-1 Outfall	RG-2 outfall	78.0	24.0	0.012	0.006	48.25	48.50	46.00	45.50	10.44	19.62	47.16	46.54	6.34
RG-2 outfall	MH-2	15.0	24.0	0.012	0.007	48.50	55.00	45.50	45.40	5.04	20.01	46.29	46.30	5.31
I-1	I-2	34.0	18.0	0.012	0.007	51.65	52.03	48.45	48.21	0.62	9.56	48.74	48.47	3.04
I-2	I-3	60.0	18.0	0.012	0.005	52.03	51.52	48.00	47.70	0.95	8.05	48.36	48.05	3.05
I-4	I-3	196.0	18.0	0.012	0.005	51.52	51.52	48.32	47.34	1.42	8.05	48.77	48.06	3.43
I-3	MH-4	95.0	18.0	0.012	0.007	51.52	54.50	47.14	46.48	4.04	9.48	47.91	47.16	5.15
MH-4	MH-3	30.0	18.0	0.012	0.005	54.50	54.90	46.28	46.13	4.04	8.05	47.05	46.88	4.56
MH-3	MH-2	127.0	18.0	0.012	0.006	54.90	55.00	45.93	45.21	4.04	8.57	46.70	46.30	4.78
MH-2	EW-2	51.0	24.0	0.012	0.014	55.00	47.30	45.01	44.29	9.08	29.12	46.09	45.09	8.19
RG-4	I-21	35.0	18.0	0.012	0.005	48.00	50.75	45.50	45.32	8.16	8.16	46.71	46.43	5.26
I-8	I-7	21.0	18.0	0.012	0.005	51.48	50.43	47.50	47.39	0.90	8.24	47.85	47.72	3.06
I-5	MH-1	47.0	18.0	0.012	0.005	51.17	50.75	47.97	47.73	0.76	8.13	48.29	48.04	2.88
I-6	MH-1	11.0	18.0	0.012	0.005	50.75	50.75	47.27	47.21	0.67	8.40	47.58	47.50	2.85
MH-1	I-7	21.0	18.0	0.012	0.005	50.75	50.43	47.00	46.89	1.43	8.24	47.45	47.31	3.50

StormCAD 100 Year Analysis

Conduit FlexTable: Combined Pipe/Node Report (901 Washington Ave.stc)

Start Node	Stop Node	Length (Unified) (ft)	Rise (Unified) (in)	Manning's n	Slope (ft/ft)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)	Invert (Upstream) (ft)	Invert (Downstream) (ft)	Total Flow (ft^3/s)	Capacity (Full Flow) (ft^3/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (Average) (ft/s)
I-7	I-9	271.0	18.0	0.012	0.005	50.43	51.43	46.69	45.33	2.56	8.06	47.30	45.95	4.05
I-9	I-21	23.0	18.0	0.012	0.014	51.43	50.75	45.33	45.00	2.64	13.63	45.95	46.07	5.97
I-21	EW-1	66.0	18.0	0.012	0.012	50.75	47.00	44.80	44.00	10.96	12.53	46.07	45.10	7.99

Inlet Grate Capacities along Washington Street

Inlet Grate and Gutter Capacity Calculations are based on an allowable depth of 4" at the inlet, a 2% cross slope which corresponds to a spread of 16.5 feet. The longitudinal slope to the inlet from each direction is just 0.8%. The 'n' value for the road surface is 0.012. The 100 year surface flows directed to the inlets are far below the grate and gutter capacities.

Inlet No.	*Q100 (cfs)*	*Grate Capacity (cfs)*	*Gutter Capacity*
I-1	*0.61*	*3.78*	*8.98*
I-2	*0.33*	*3.78*	*8.98*
I-3	*1.66*	*3.78*	*8.98*
I-4	*1.41*	*3.78*	*8.98*
I-5	*0.75*	*3.78*	*8.98*
I-6	*0.67*	*3.78*	*8.98*

Washington Street Inlets

Inlet	A total SF	A total AC	Lawn - SF	Impervious SF	C wt	100 yr Q cfs
i-1	3722	0.085	146	3576	0.88	***0.61***
i-2	2369	0.054	757	1612	0.74	***0.33***
i-3	11740	0.270	3418	8322	0.75	***1.66***
i-4	10273	0.236	3384	6889	0.74	***1.41***
i-5	5548	0.127	1956	3592	0.72	***0.75***
i-6	4197	0.096	397	3800	0.85	***0.67***

Q= (C wt) x I (in/hr) x (A total acres)

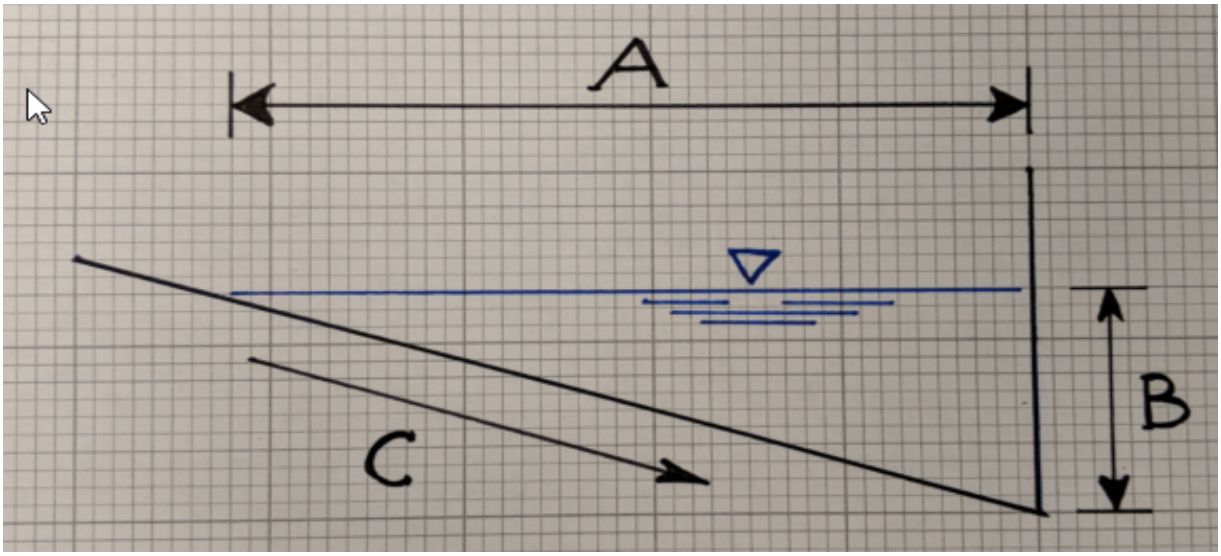
$$C\ wt = \frac{[0.90 \times (\text{Impervious})] + [0.40 \times (\text{Lawn - B})]}{\text{A total}}$$

I 100= 8.15 in/hr; PUB 584 2015 Edition, Figure 7A.12(a)

C = 0.40 Lawn - B
C = 0.90 Impervious

Gutter Spread

Applied criteria for curbed section of roadway with spread based on 4" depth at inlet(s).



A:	**Lane Width=**	**16.5**	**FT**
B:	**Depth=**	***0.333***	**FT**
C:	**Cross Slope=**	***2***	**%**
D.	**Long. Slope**	**0.8**	**%**

Average grade of Washington Street varies (specific calculations provided at each inlet along proposed widening). 2% cross slope and 0.8% longitundinal slope accounted for at each inlet in accompanying calculations.

Inlet Grate Capacity

Grate capacity applied per "inlet grate capacities" by Neenah Foundry (see attched copy) for 26.5" x 47.75" grate- R-3574. Using the expression:

$Q = kD^{5/3}$, where D=C x A/2' and k = determined from the chart.(CAT. NO. -R-3574)

EAST

Inlet #	I-1 Type C		
X slope	0.020 ft/ft	lane depth=	0.330
Lane Width	16.5 ft	sump depth=	0.000
Weir Length	8 ft	total depth=	0.330
L Slope	0.008 ft/ft	n =	0.012
		A =	2.723
		R =	0.162

Inlet capacity PennDot Structural Steel Grate (Bicycle Safe) Q=KD^(5/3)

From Neenah Inlet Grate Capacities CAT No. R-3574: K= 24

Q= 3.78 cfs

Qover= 3.17 cfs

Gutter Capacity $Q=1.49/n(R^{2/3})(S^{1/2})(A)$

Q= 8.98

Actual Q=CIA

Overland Q100 to Inlet = 0.61 cfs

Inlet #	I-2 Type C		
X slope	0.020 ft/ft	lane depth=	0.330
Lane Width	16.5 ft	sump depth=	0.000
Weir Length	8 ft	total depth=	0.330
L Slope	0.008 ft/ft	n =	0.012
		A =	2.723
		R =	0.162

Inlet capacity PennDot Structural Steel Grate (Bicycle Safe) Q=KD^(5/3)

From Neenah Inlet Grate Capacities CAT No. R-3574: K= 24

Q= 3.78 cfs

Qover= 3.45 cfs

Gutter Capacity $Q=1.49/n(R^{2/3})(S^{1/2})(A)$

Q= 8.98

Actual Q=CIA

Overland Q100 to Inlet = 0.33 cfs

Inlet #	I-3 Type C		
X slope	0.020 ft/ft	lane depth=	0.330
Lane Width	16.5 ft	sump depth=	0.000
Weir Length	8 ft	total depth=	0.330
L Slope	0.008 ft/ft	n =	0.012
		A =	2.723
		R =	0.162

Inlet capacity PennDot Structural Steel Grate (Bicycle Safe) Q=KD^(5/3)

From Neenah Inlet Grate Capacities CAT No. R-3574: K= 24

Q= 3.77 cfs

Qover= 2.11 cfs

Gutter Capacity $Q=1.49/n(R^{2/3})(S^{1/2})(A)$

Q= 8.98

Actual Q=CIA

Overland Q100 to Inlet = 1.66 cfs

Inlet #	I-4 Type C		
X slope	0.020 ft/ft	lane depth=	0.330
Lane Width	16.5 ft	sump depth=	0.000
Weir Length	8 ft	total depth=	0.330
L Slope	0.008 ft/ft	n =	0.012
		A =	2.723
		R =	0.162

Inlet capacity PennDot Structural Steel Grate (Bicycle Safe) Q=KD^(5/3)

From Neenah Inlet Grate Capacities CAT No. R-3574: K= 24

Q= 3.78 cfs

Qover= 2.37 cfs

Gutter Capacity $Q=1.49/n(R^{2/3})(S^{1/2})(A)$

Q= 8.98

Actual Q=CIA

Overland Q100 to Inlet = 1.41 cfs

Inlet #	I-5 Type C		
X slope	0.020 ft/ft	lane depth=	0.330
Lane Width	16.5 ft	sump depth=	0.000
Weir Length	8 ft	total depth=	0.330
L Slope	0.008 ft/ft	n =	0.012
		A =	2.723
		R =	0.162

Inlet capacity PennDot Structural Steel Grate (Bicycle Safe) Q=KD^(5/3)

From Neenah Inlet Grate Capacities CAT No. R-3574: K= 24

Q= 3.78 cfs

Qover= 3.03 cfs

Gutter Capacity $Q=1.49/n(R^{2/3})(S^{1/2})(A)$

Q= 8.98

Actual Q=CIA

Overland Q100 to Inlet = 0.75 cfs

Inlet #	I-6 Type C		
X slope	0.020 ft/ft	lane depth=	0.330
Lane Width	16.5 ft	sump depth=	0.000
Weir Length	8 ft	total depth=	0.330
L Slope	0.008 ft/ft	n =	0.012
		A =	2.723
		R =	0.162

Inlet capacity PennDot Structural Steel Grate (Bicycle Safe) Q=KD^(5/3)

From Neenah Inlet Grate Capacities CAT No. R-3574: K= 24

Q= 3.78 cfs

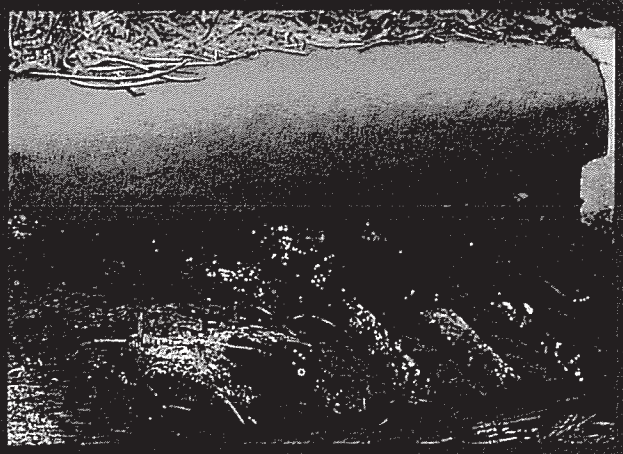
Qover= 3.11 cfs

Gutter Capacity $Q=1.49/n(R^{2/3})(S^{1/2})(A)$

Q= 8.98

Actual Q=CIA

Overland Q100 to Inlet = 0.67 cfs



INLET GRATE CAPACITIES

FOR GUTTER FLOW and PONDED WATER

THEORY:

The velocity of water in a natural or man-made channel is governed principally by the slope along the axis of the channel, the shape of the channel cross-section, and the roughness of the surface in contact with the water, also known as the wetted perimeter.

The most generally used formula or equation is one developed by an early hydraulic investigator by the name of Manning. This expression is familiar to all hydraulic designers and is shown in the following form:

$$V = \frac{1.486}{n} R^{2/3} S^{1/2} \text{ where}$$

V = Velocity of flow in ft./second

n = Roughness coefficient

R = Hydraulic radius—defined as the area/wetted perimeter

S = Slope of the longitudinal axis of channel in ft./ft.

Where the width of the channel cross-section is relatively great in respect to the depth of flow, the depth can be used as the value of R. The depth is considered to be the depth at the curb.

The discharge, Q in cubic feet per second, is obtained by multiplying the area which, for rectangular channels, is width x depth, x the velocity of flow. Thus the equation of discharge becomes Q = AV = WDV where:

$$V = \frac{1.486}{n} D^{2/3} S^{1/2} \text{ then}$$

$$Q = \frac{1.486}{n} WD^{5/3} S^{1/2}$$

When the flow in the gutter takes the shape of a triangular channel the Manning equation has been modified by Izzard[2] to include the transverse slope and has the following form:

$$Q = \frac{.56Z}{n} D^{8/3} S^{1/2} \text{ where Z is the reciprocal of}$$

the cross-slope and D is the depth or head (h) in feet.

The 8/3 power of the depth arises from the flow area being a function of D^2. This form of the equation describes the flow in a triangular section very accurately and computations of discharge for the test flows in the approach channel agree very closely with the actual values.

When the test data are plotted logarithmically for given longitudinal and transverse slopes a relationship between Q and D is observed which closely follows the manning equation.

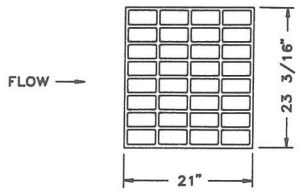
If the term $\frac{1.486}{n} WS^{1/2}$ is combined to become K′ this relation simplifies to $Q = K'D^{5/3}$. Further consideration of the interception process indicates that the quantity that can be removed is limited to the water flowing in that portion of the gutter equal to the grate width. Minor additions to the grate flow will occur due to inflow from the side of the grate. No attempt was made to include a factor measuring side flow since this would unnecessarily complicate the equation.

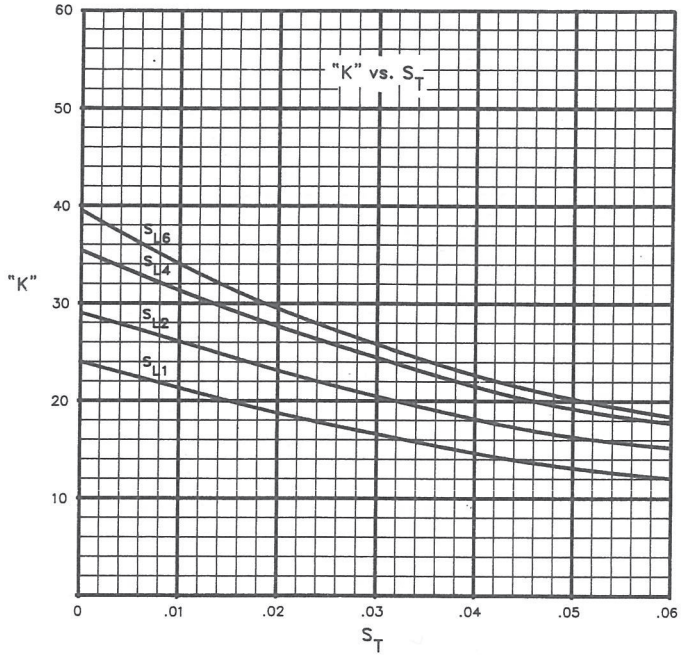
The discharge through the gutter section equal to the grate width similarly has a discharge-depth relation which can be expressed by $Q = KD^{5/3}$ where K is unique to the geometry of each grate. Analysis of the test data revealed that the discharge did not follow the slope term ($S^{1/2}$) closely, therefore a general equation for each transverse slope could not be used. Consequently K values for each tested combination of longitudinal and transverse slope for a specific grate installation were evaluated.

The geometry of the inlet grate also governs the capacity of the system. Long narrow bars parallel to the direction of flow are, with one exception, the most efficient arrangement. As cross-bars are added to reduce size of openings or for strength reasons the potential capacity of the grate is reduced. Cross-bars form barriers to the smooth flow of water through the grate and will often deflect the jet upward, further interfering with flow through the grate. For a theoretical analysis of this action see Guillou[1], Fig. 3, page 17. Thick wide bars permit a portion of the flow to reach the far end of the grate. A grate made up entirely of cross-bars whose shape is patterned after an air foil and positioned to turn the flow at an angle with the vertical is the most efficient geometry available.

Tests were run on all grates using a standard procedure. Six rates of gutter flow were run for each of four longitudinal and four different cross-slopes with a total of 96 separate test points for each complete grate test. Values of the grate constant "K" were obtained for each combination of longitudinal and cross-slope. Each test point was computed and compared with the observed value. Comparison of these values indicates that an average accuracy of individual points is about 5% with the maximum deviation being about ±10%. Considering the number of variables involved and the accuracy with which each could be observed, the correlation is quite acceptable.

CAT. NO. – R-3570
DESCRIPTION – TYPE A
COMP. CODE – 3570-0002



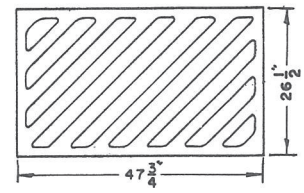


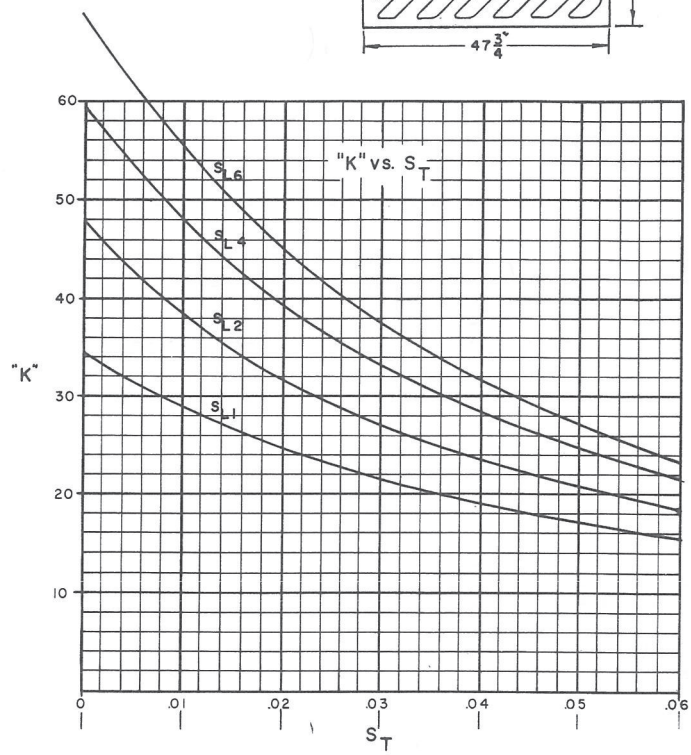
S_T = TRANSVERSE GUTTER SLOPE

S_L = LONGITUDINAL GUTTER SLOPE

K = GRATE INLET COEFFICIENT

CAT. NO.- R-3573
DESCRIPTION-DIAGONAL REVERSIBLE
COMP. CODE-3573-0002



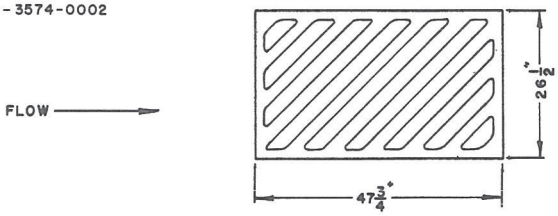


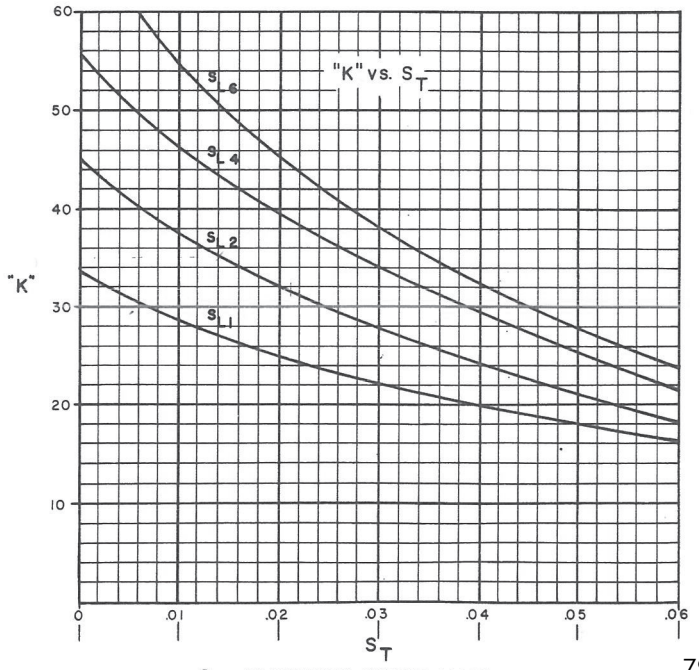
S_T = TRANSVERSE GUTTER SLOPE

S_L = LONGITUDINAL GUTTER SLOPE

K = GRATE INLET COEFFICIENT

CAT. NO.-R-3574
DESCRIPTION-TYPE R DIAGONAL REVERSIBLE
COMP. CODE-3574-0002



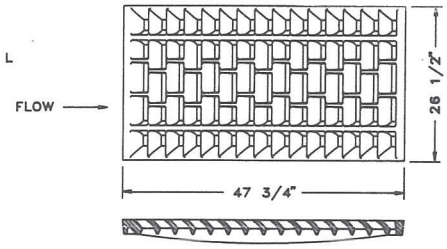


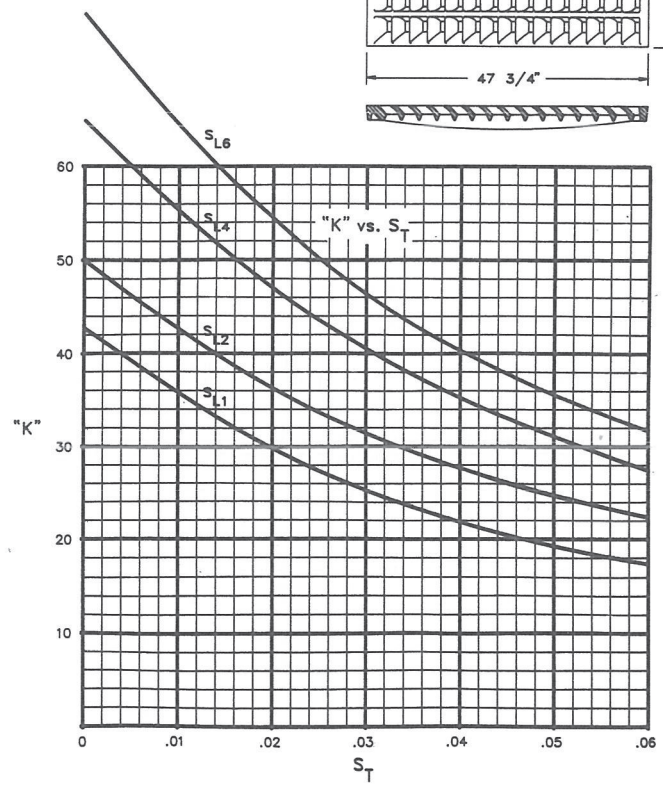
S_T = TRANSVERSE GUTTER SLOPE

S_L = LONGITUDINAL GUTTER SLOPE

K = GRATE INLET COEFFICIENT

CAT. NO. – R-3574-L
DESCRIPTION – PENN. DOT TYPE L
COMP. CODE – 3573-0006



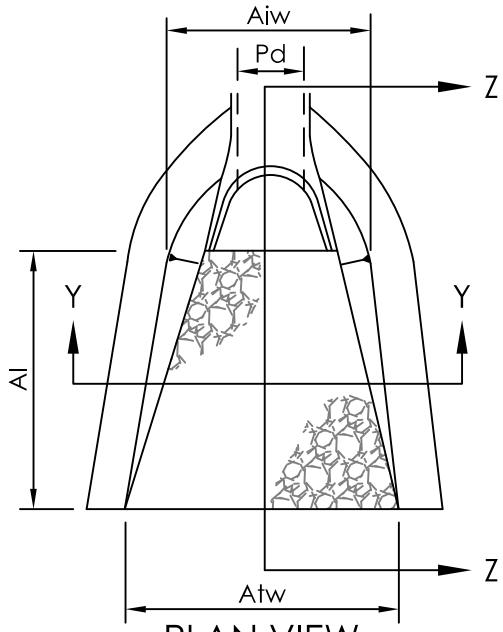


S_T = TRANSVERSE GUTTER SLOPE

S_L = LONGITUDINAL GUTTER SLOPE

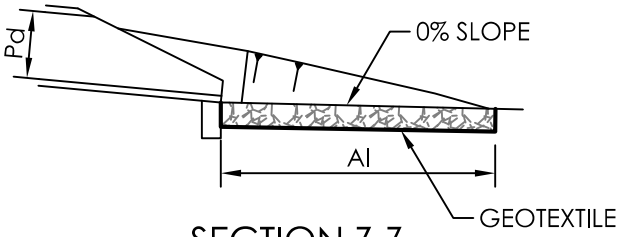
K = GRATE INLET COEFFICIENT

79
48



PLAN VIEW

SECTION Y-Y



SECTION Z-Z

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP		APRON		
		SIZE R-_	THICK. Rt (IN)	LENGTH Al (FT)	INITIAL WIDTH Aiw (FT)	TERMINAL WIDTH Atw (FT)
EW-1	18	4	18	10	4.5	14.5
EW-2	24	4	18	12	6	18
EW-3	18	4	18	8	4.5	12.5
EW-4	18	4	18	8	4.5	12.5

NOTES:

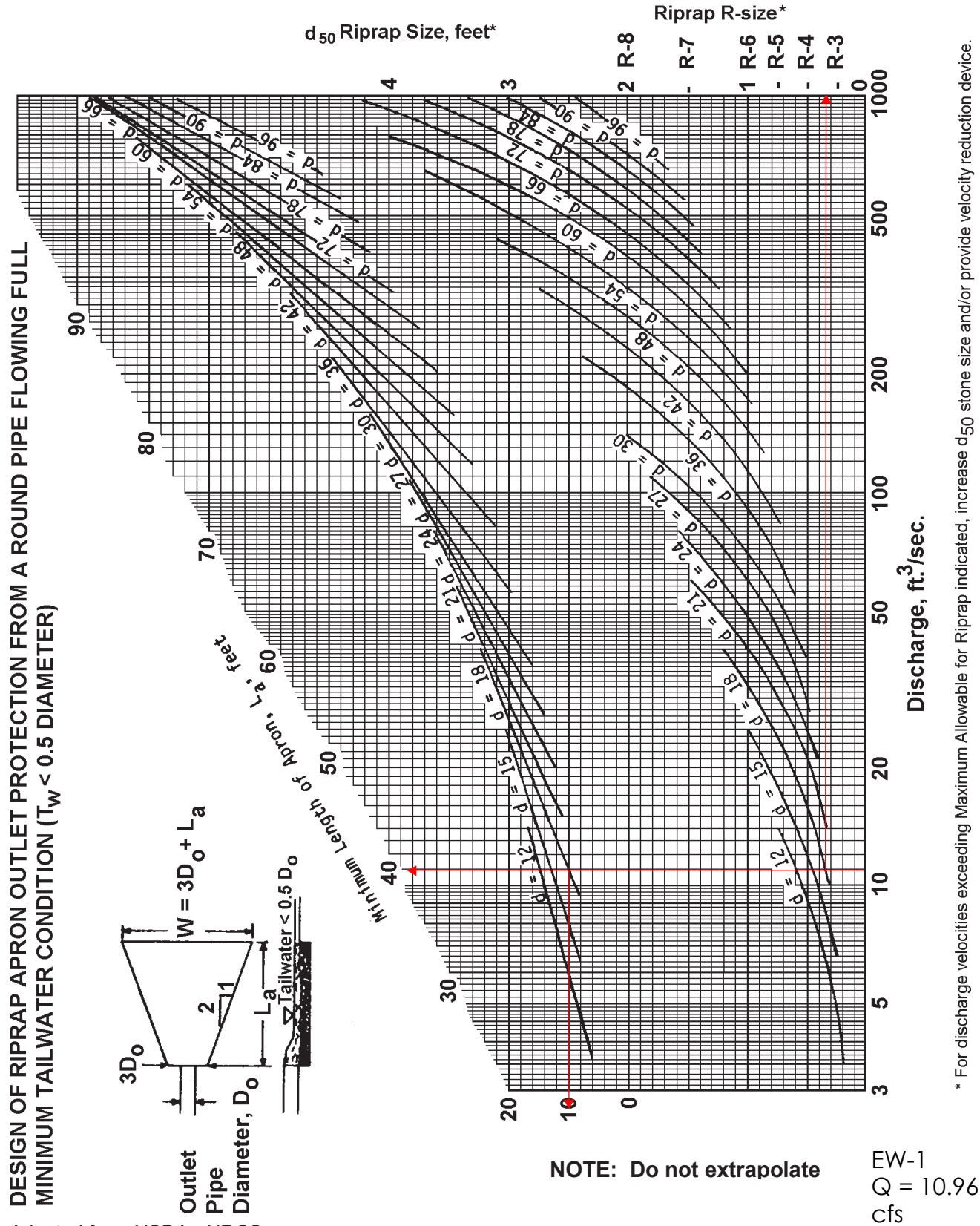
ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

STANDARD CONSTRUCTION DETAIL #9-1
RIPRAP APRON AT PIPE OUTLET
WITH FLARED END SECTION OR ENDWALL

NOT TO SCALE

FIGURE 9.3
Riprap Apron Design, Minimum Tailwater Condition

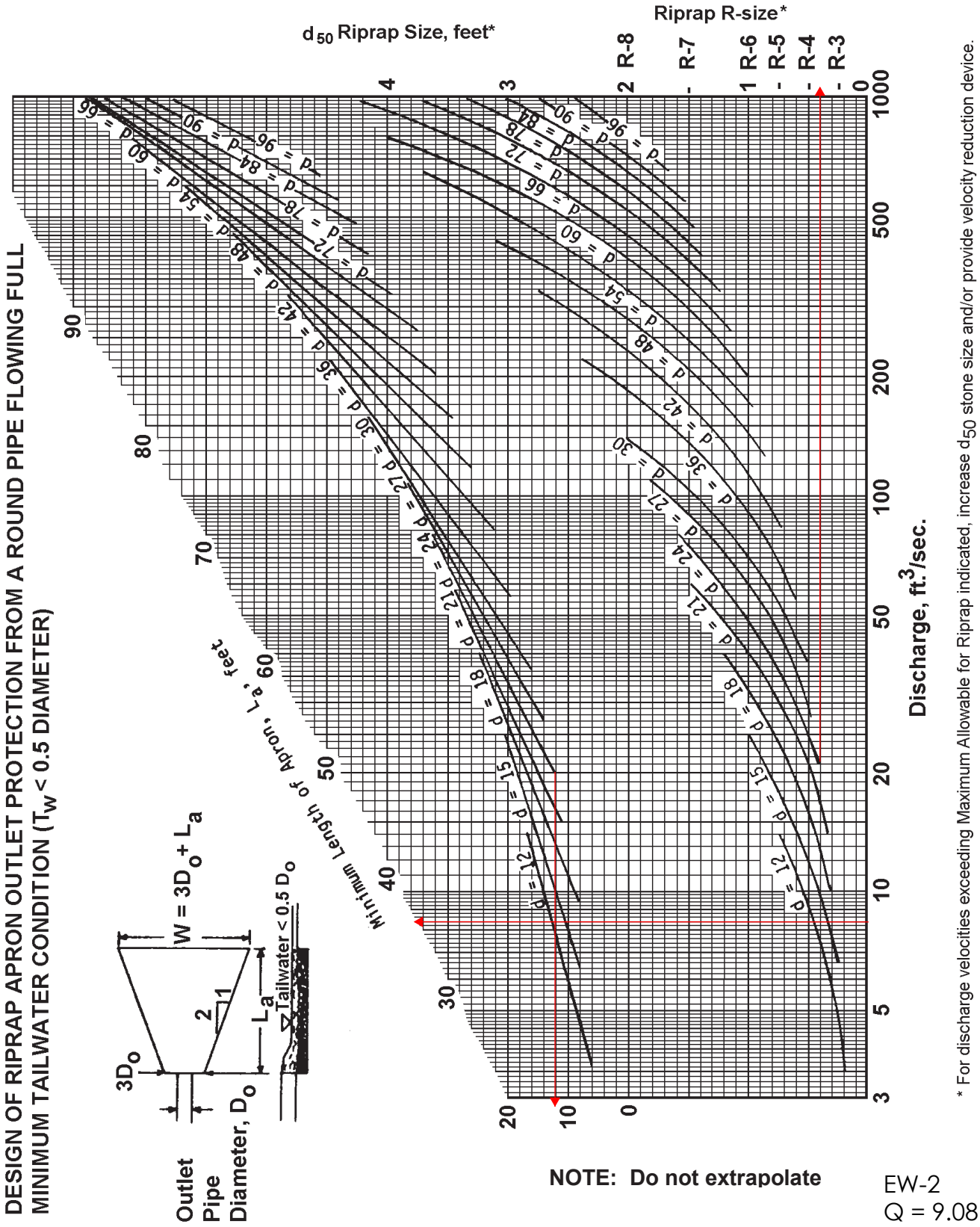


Adapted from USDA - NRCS

Not to be used for Box Culverts

EW-1
Q = 10.96 cfs
La = 10'
W = 14.5'
R-4 Rip-Rap,
T = 18"

FIGURE 9.3
Riprap Apron Design, Minimum Tailwater Condition

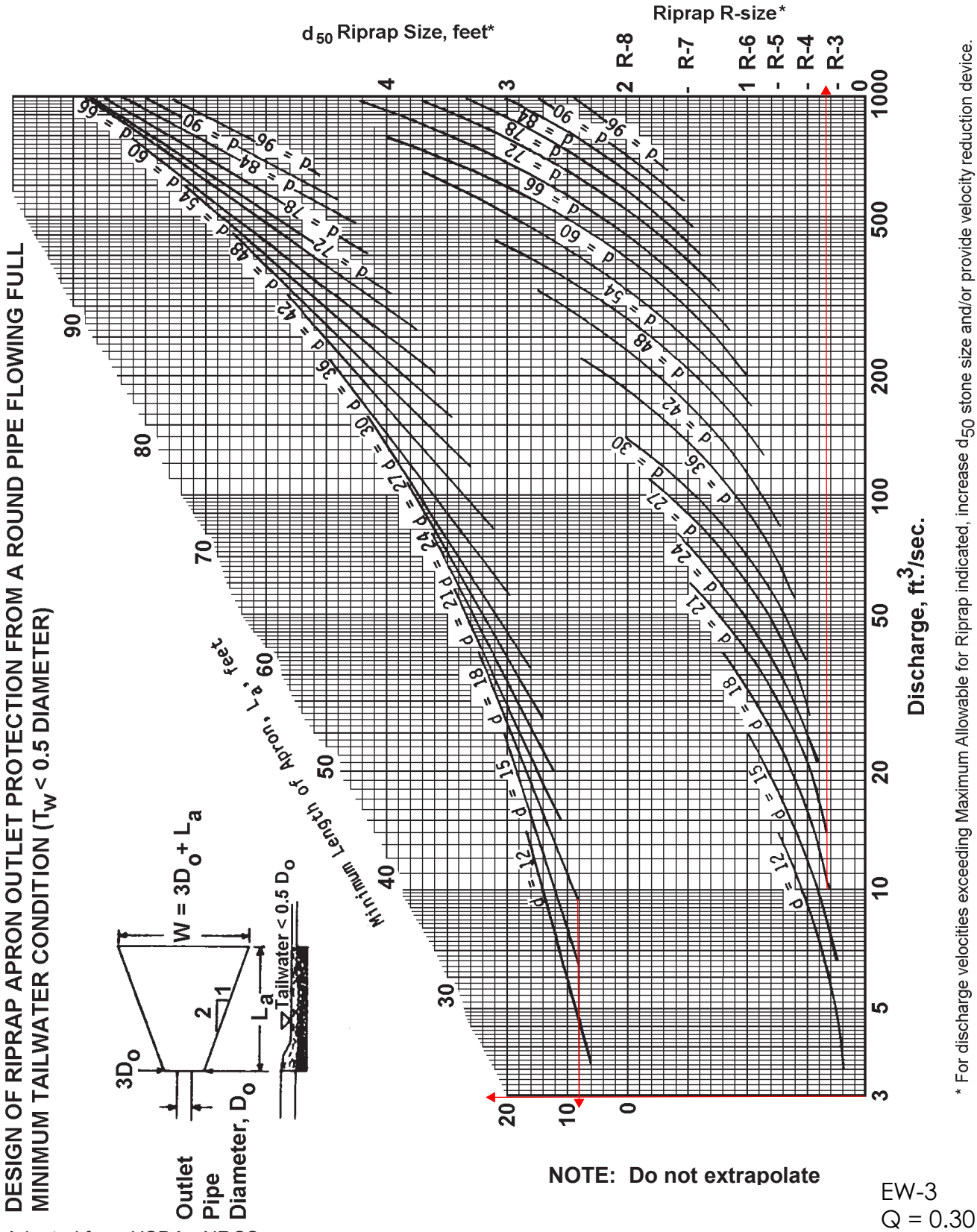


Adapted from USDA - NRCS

Not to be used for Box Culverts

EW-2
Q = 9.08 cfs
La = 12'
W = 18'
R-4 Rip-Rap,
T = 18"

FIGURE 9.3
Riprap Apron Design, Minimum Tailwater Condition

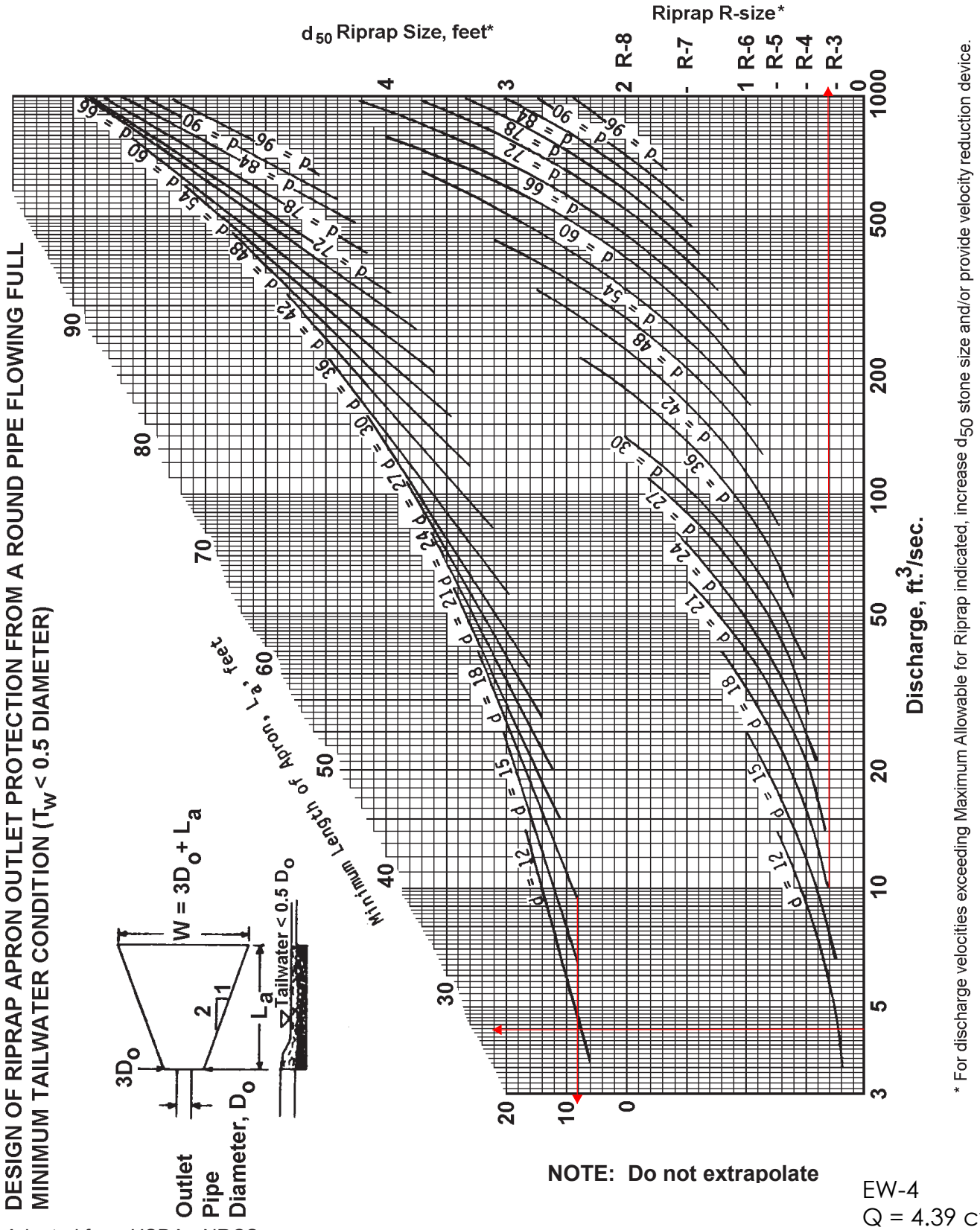


Adapted from USDA - NRCS

Not to be used for Box Culverts

EW-3
Q = 0.30 cfs
La = 8'
W = 12.5'
R-4 Rip-Rap,
T = 18"

FIGURE 9.3
Riprap Apron Design, Minimum Tailwater Condition

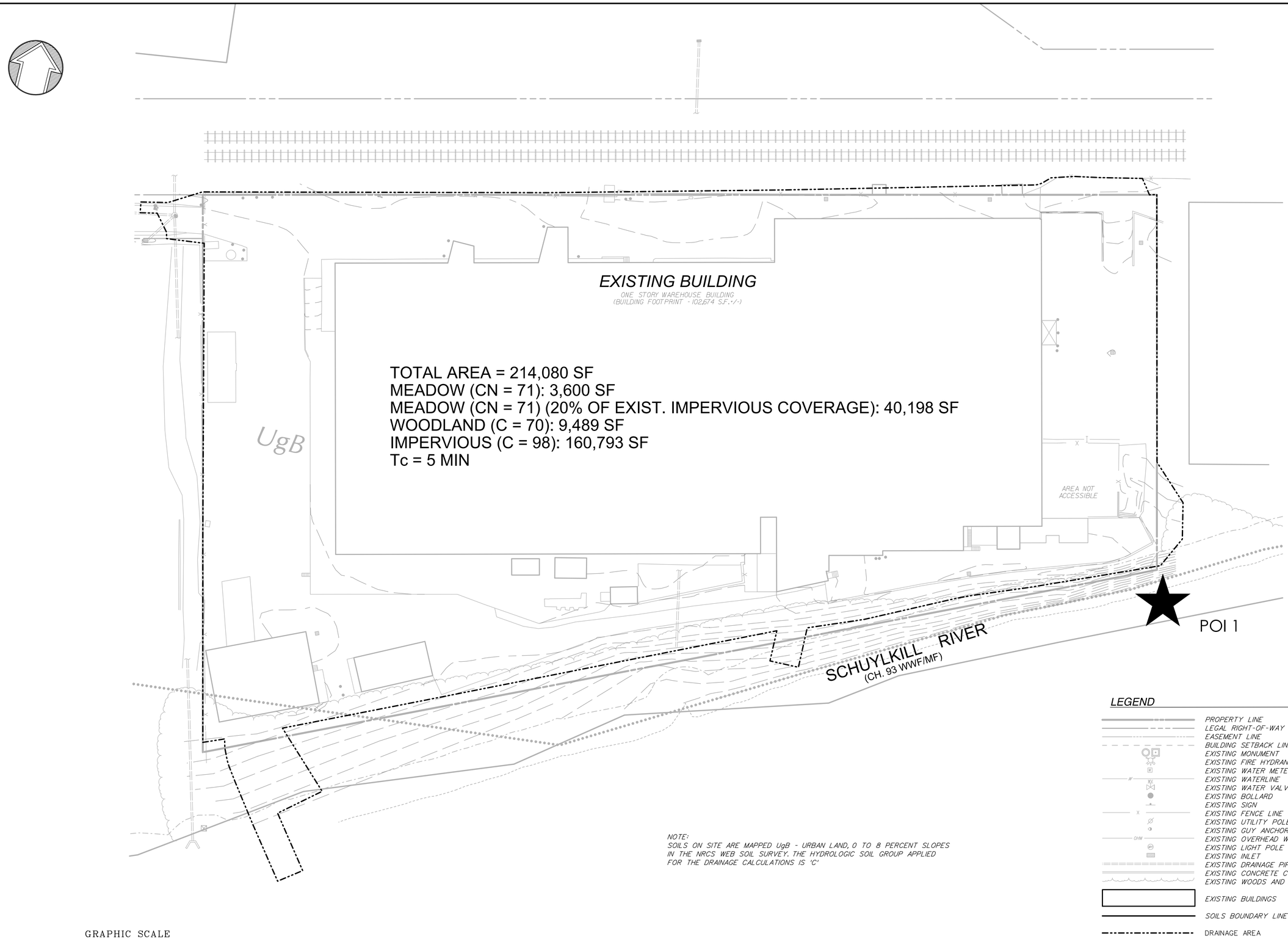


Adapted from USDA - NRCS

Not to be used for Box Culverts

EW-4
Q = 4.39 cfs
La = 8'
W = 12.5'
R-4 Rip-Rap,
T = 18"

Appendix



NOTE:
SOILS ON SITE ARE MAPPED UgB - URBAN LAND, 0 TO 8 PERCENT SLOPES IN THE NRCS WEB SOIL SURVEY. THE HYDROLOGIC SOIL GROUP APPLIED FOR THE DRAINAGE CALCULATIONS IS 'C'

Nave NEWELL
Where Ideas Get Down to Earth
900 West Valley Road • Suite 1100
Wayne, PA 19087-1832
p: 610.265.9911 f: 610.265.4299
www.navenewell.com

date:	no.	description	chk'd	by

REVISIONS

SEAL:

DRAWING NAME: PRE-DEVELOPMENT WATERSHED AREA MAP

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no. 2009-134.05	drawn by: JLH / CW
date: 10/03/19	chk'd by: JPB
scale: 1" = 30'	approv. by:
sheet no. 1 of 3	

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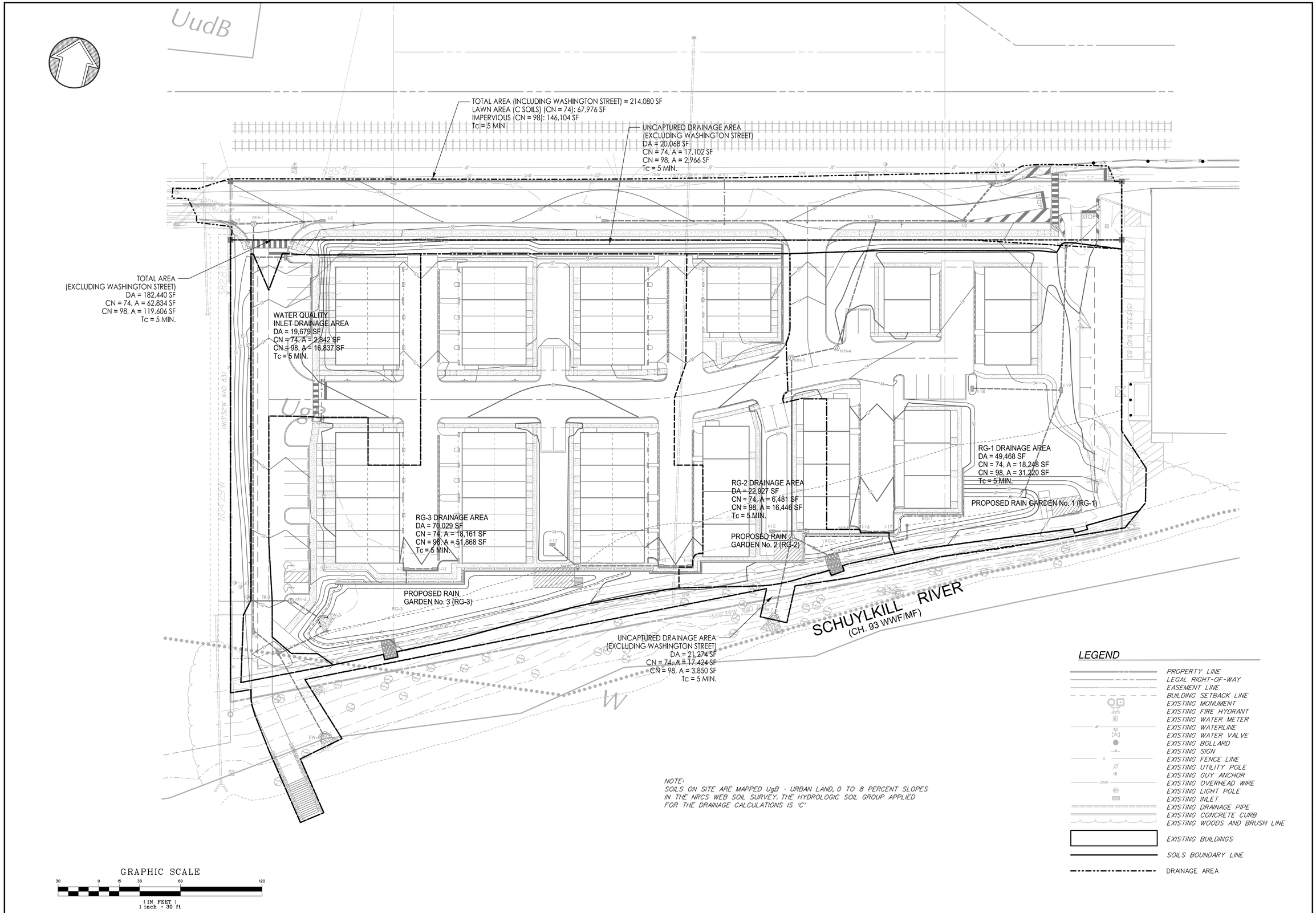

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Nave Newell
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REVISIONS				
date:	no.	description	chk'd	by
2/4/2020	1	PLANNING COMMISSION MEETING 2/11/2020	JPB	JLH

SEAL:

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: POST-DEVELOPMENT WATERSHED AREA MAP

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no. 2009-134.05	drawn by: JLH / CW
date: 10/03/19	chk'd by: JPB
scale: 1" = 30'	approv. by: JPB
sheet no. 2 of 3	

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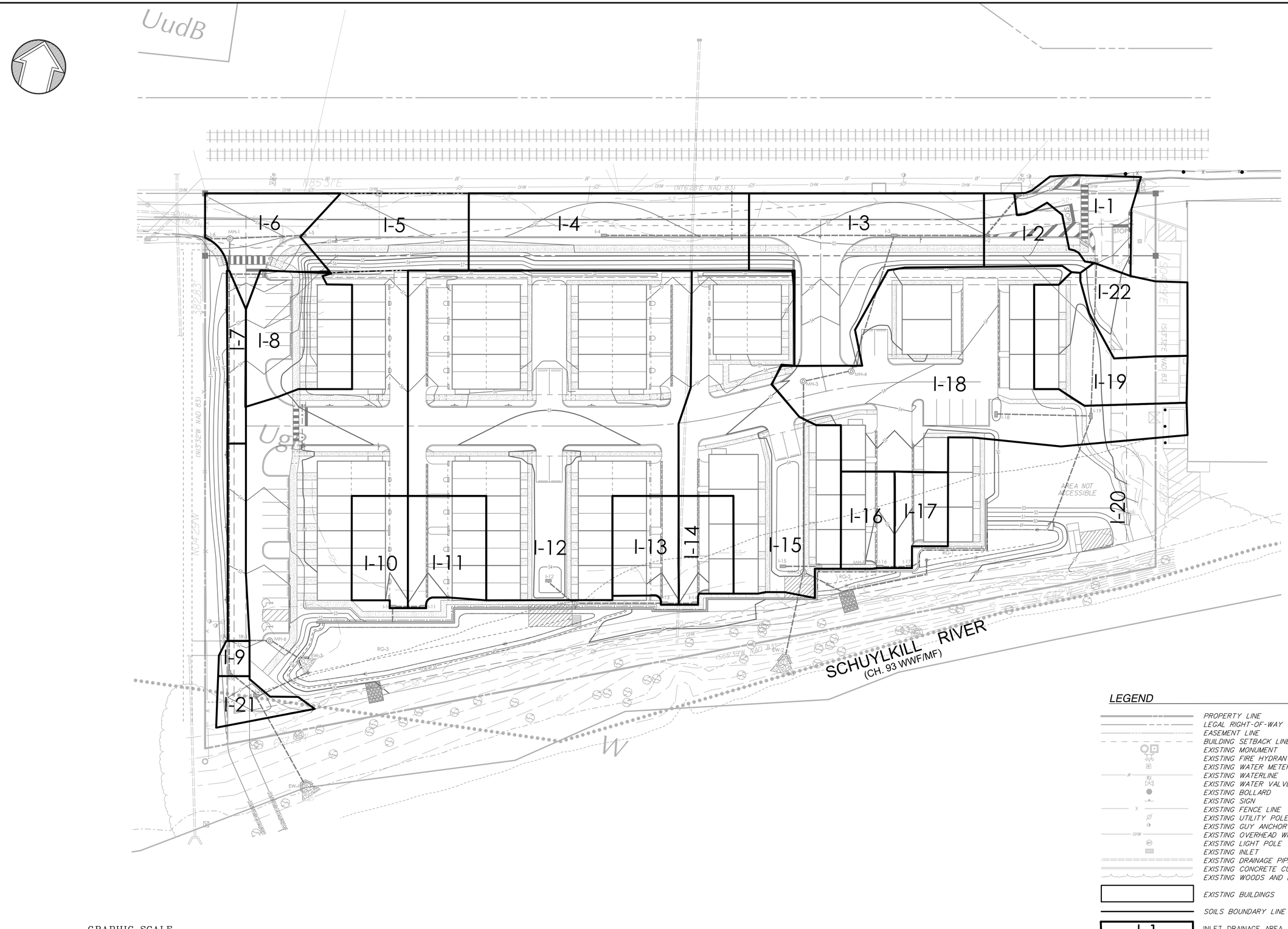

LEGEND

- PROPERTY LINE
- LEGAL RIGHT-OF-WAY
- EASEMENT LINE
- BUILDING SETBACK LINE
- EXISTING MONUMENT
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING WATERLINE
- EXISTING WATER VALVE
- EXISTING BOLLARD
- EXISTING SIGN
- EXISTING FENCE LINE
- EXISTING UTILITY POLE
- EXISTING GUY ANCHOR
- EXISTING OVERHEAD WIRE
- EXISTING LIGHT POLE
- EXISTING INLET
- EXISTING DRAINAGE PIPE
- EXISTING CONCRETE CURB
- EXISTING WOODS AND BRUSH LINE
- EXISTING BUILDINGS
- SOILS BOUNDARY LINE
- I-1 INLET DRAINAGE AREA

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date:	no.	description	chk'd	by

REVISIONS

SEAL:

JAMES P. BANNON
Professional Engineer
Pennsylvania License No. PE 082137

DRAWING NAME: INLET DRAINAGE AREA MAP

901 Washington Street
TOWNHOUSE LAYOUT

RIVERplace

LOCATION: WHITEMARSH TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

project no. 2009-134.05	drawn by: JLH / CW
date: 10/03/19	chk'd by: JPB
scale: 1" = 30'	approv. by: JPB
sheet no. 3 of 3	

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Whitemarsh TOWNSHIP

616 GERMANTOWN PIKE - LAFAYETTE HILL, PA 19444-1821
TEL: 610-825-3535 FAX: 610-825-9416
www.whitemarshtwp.org

BOARD of SUPERVISORS

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Fran McCusker – Vice Chair
Michael Drossner
Vincent Manuele
Jacy Toll

Richard L. Mellor, Jr.
Township Manager

September 16, 2020

901 Washington Partners, LP
c/o Jim Vesey
120 Pennsylvania Avenue
Malvern, PA 19355

RE: SLD#05-14 / 901 Washington Street, 901 Washington Street, Conshohocken, PA
Proposed Townhomes & Associated Improvements
Zoning Ordinance Compliance Review Letter

Dear Mr. Vesey:

Please accept this as a review of the Zoning Ordinance Compliance issues for your above referenced Preliminary Land Development, based upon a plan set prepared by Nave Newell, for 901 Washington Partners, L.P. and dated October 3, 2019 and last revised August 20, 2020.

As represented on Sheet 1, the Zoning Hearing Board in case ZHB#2018-26, on February 13, 2019 granted the following:

- A variance from §116-165. to permit the proposed structures not specifically permitted by that section, to be located within the Floodplain Conservation District.
- A special exception under §116-166.A.(1) to permit the proposed emergency boat launch to be located in the floodway.
- A variance from §116-280.H. to not require a minimum of 2% of the footprint area of a residential development to contain a permitted nonresidential use(s).
- A variance from §116-281.A.(7)(a) to permit a maximum building height of four habitable stories above the floodplain instead of three habitable stories above the floodplain.
- A variance from §116-281.A.(9) to permit building and impervious coverage to be calculated on the area of the tract, including the area of riverfront open space.
- A variance from §116-284.A. to permit a reduction in the required riverfront area to not less than 45 feet in width, where 100-150 feet is required.

The following Zoning issues are noted:

1. §116-18. The plans show features which are located outside of the boundary lines of the subject property. The plans cannot be approved until all structures and/or uses for the lot(s) are located entirely within the property boundaries or easements or some other agreement is established to permit the encroachments. The following items must be addressed:

    - The plans show that inlet I-6 and a portion of the 18" HDPE storm sewer pipe will be located outside of the property boundaries. Easements or some

other agreement must be established to permit the encroachment.

- The plans show that part of the proposed Washington Street extension will be located within existing easements owned by SEPTA. The applicant must obtain approval from SEPTA for the proposed improvements.
- The plans show that proposed improvements would be located on the adjacent property of N/F 1001 Washington Street LLC and 1001 Washington Street, LLC (David's Bridal). Easements or some other agreement must be established to permit the encroachments.

2. §116-21. Clear sight distance must be provided at or near the intersection of any two roads, or at any curve in any road, in order to assure a full and unobstructed view in all directions at such crossings or curves. Sight triangles must be shown on the drawings. As defined by Section 105-5, clear sight triangles shall include the area bounded by any two intersecting street lines and a straight line drawn between points on each such line 50 feet from the intersection of said lines or extensions thereof. Clear sight triangles must also be shown on the Landscape Plans.

3. §116-28.A.(2) The applicant shall furnish a letter from the appropriate authority indicating the availability and supply of water for the proposed project to the Zoning Officer.

4. §116-29. The applicant must obtain the approval of the Whitemarsh Township Authority with regard to proposed sanitary sewer facilities.

5. §116-33.2. §116-279. In those areas of Whitemarsh Township where an overlay district applies, should the use of an underlying district be utilized, underlying requirements shall apply. For the purposes of this review it was assumed that the requirements of the Riverfront Development District (RDD-1) was applicable.

6. §116-164.B. Prior to undertaking any alteration of any watercourse within the Township, a permit shall be obtained from the Pennsylvania Department of Environmental Protection, Dams and Encroachment Division and notification of the proposed alteration or relocation shall be given to all affected adjacent municipalities. Copies of such notifications shall be forwarded to both the Federal Insurance Administration and the Pennsylvania Department of Community Affairs.

7. §116-164.C. §116-165.A. In the Floodplain Conservation District, no development shall be permitted except where the effect of such development on flood heights is fully offset by accompanying improvements which have been approved by all appropriate local, state and federal authorities as required.

8. §116-166.C. Any new construction must be in full compliance with 44 CFR 60.3(a) through (d) of the National Flood Insurance Program regulations. These regulations require that all new construction and substantial improvements of structures within Zones AE are required to have the lowest floor elevated 1 ½ feet above the base flood level or, together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall develop and/or review structural design,

specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice.

9. §116-169. The plans must be revised to delineate all steep slope areas, including those having a grade of 8% to 15% and the steep slope ratio table on Sheet 5 must be revised to include these areas as part of the steep slope ratio.

10. §116-169.B. No more than 30% of the total area of land having a grade of 15% to 25% and no more than 15% of the total area of land having a grade of 25% or more shall be regraded and/or stripped of vegetation. The steep slope ratio table on Sheet 5 must be revised to list these requirements in order to demonstrate compliance with the requirements of this section of the ordinance.

11. §116-184.F. No parking shall occur within 10 feet of any structure except the entrance to an approved garage. The plans show 5 parking spaces adjacent to Unit 55 which are 8.4 feet from the building.

12. §116-184.G. All parking shall conform to the requirements of the Whitemarsh Township Fire Prevention Code as acted and amended. The applicant must obtain approval from the Whitemarsh Township Fire Marshal. (See enclosed Fire Marshal memo dated September 15, 2020.)

13. §116-204.A. The modification, alteration, repair, reconstruction, or improvements of any kind to a structure and/or use located in the Floodplain Conservation District to an extent or amount of less than 50% of its market value shall be elevated and/or floodproofed to the greatest extent possible. The plans must be revised to demonstrate compliance with the requirements of this section of the ordinance.

14. §116-264.A. Reestablishment of forest cover and woodland habitat shall be required consistent with the requirements of the landscape regulations of the Subdivision and Land Development Ordinance.

15. §116-279.B.(3) If a structure is otherwise permitted by virtue of the requirements of the RDD, relief from the Zoning Hearing Board from the provisions of Article XXXV - Riparian Corridor Conservation District shall not be required, provided approval is recommended to the Board of Supervisors by the Township Engineer. There is no objection by the Township Engineer to the location of the structures within the Riparian Corridor Conservation District, which would otherwise not be permitted therein.

16. §116-281.A.(3)(b) This section of the ordinance requires the minimum building setback from other unattached buildings on the same site shall be 40 feet, so long as the average setback is equal to the height of the taller building, up to a maximum of 70 feet. The height of the proposed buildings must be indicated in order to demonstrate compliance with the requirements of this section of the ordinance.

17. §116-281.A.(3)(a) The Site / Zoning Data table indicates the proposed building setback from property line would be 39.3 feet, which does not appear to be consistent with the plan view. It appears that the dimension from Unit 50 to the nearest property line should be listed.

18. §116-282.F. Parking may be permitted in the floodplain and riparian corridor in the RDD without relief from the Zoning Hearing Board from the provisions of Article XXII, Floodplain Conservation District, and Article XXXV, Riparian Corridor Conservation District, provided that a parking evacuation plan is provided by the applicant and is approved by the Board of Supervisors. Said plan has been prepared and approved by the Emergency Management Coordinator and Police Chief.

19. §116-283.A. This section of the ordinance establishes minimum architectural design standards to be used within the Riverfront Development Overlay District. Plans must be provided to demonstrate compliance with these standards.

20. §116-283.D.(1) For all developments the following elements shall be included to create a pedestrian oriented development:
    (a) Lighting along all street frontages with lighting fixtures to be of a style as approved by the Board of Supervisors.
    (b) Benches, trash receptacles, bicycle racks and other street furniture in a style approved by the Board of Supervisors.
    (c) Wide sidewalks and other pedestrian amenities, landscaping, shade trees.
    (d) A variety of pavement materials for street surfaces and sidewalks.
    (e) Planting strips, located between the curb and sidewalk.

21. §116-284.D. Public riverfront access is required in accordance with Chapter 105, Subdivision and Land Development § 105-47.K.

22. §116-287.B.(2) The applicant must submit architectural plans, which include elevations and sections to indicate how the proposed building will affect views to the River and across the River to the hills and ridges.

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

Very truly yours,

Charles L. Guttenplan, AICP
Director of Planning and Zoning/Zoning Officer

Encls.: Fire Marshal Review Memo dated September 15, 2020

cc: Richard L. Mellor, Jr., Township Manager
Robert A. Sztubinski, B.C.O., Director of Building and Codes
Nick Weaver, Emergency Management Coordinator
Sean P. Kilkenny, Esq., Township Solicitor
James J. Hersh, P.E., Gilmore & Associates, Inc, Township Engineer
James P. Bannon, Jr., P.E. Applicant's Engineer
Sarah E. Peck, Developer/Partner, Progressive New Homes, LLC

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

September 16, 2020

Mr. Richard L. Mellor, Jr. - Township Manager
Whitemarsh Township Municipal Building
616 Germantown Pike
Lafayette Hill, PA 19444

RE: Preliminary Plan Review
901 Washington Street
Whitemarsh Township, Montgomery County, PA
S/LD # 05-14
Our Project Number 2020-01104

Dear Mr. Mellor:

As requested, we have reviewed plans for the above referenced Preliminary Plan Submission consisting of:

- 24-Sheet Plan prepared by Nave Newell and dated October 3, 2019, last revised August 20, 2020.
- Post Construction Stormwater Management (PCSM) plan narrative prepared by Nave Newell and dated October 3, 2019, last revised August 20, 2020.
- Various supporting documents, forms and correspondence enclosed with the application

The following comments are offered for your consideration:

The applicant is requesting waivers and/or relief from the requirements of the following sections of the ordinance:

	Section	Description
1.	55-4(B)(6)[f][2]	The applicant is requesting a waiver from the requirements of this section of the ordinance. This section of the ordinance allows, subject to the approval of the Shade Tree Commission, a maximum of 20% of the replacement trees to be replaced as shrubs with a minimum size of 24 inches in height at a ratio of six shrubs per required three-inch-caliper shade tree. The applicant is requesting a waiver to replace 43% of replacement trees with floweing trees, decrease the percentage of trees from 50% to 27% and to provide replacement trees at a rate of three 1-inch caliper trees for each 3-inch caliper tree.

	Section	Description

2. 105-30(A) As defined by Section 105-29(C) and 105-30(A), streets on and adjacent to the site are subject to the following requirements:

Street Name	Classification	Required Ultimate R.O.W	Required Cartway Width	Curbs	Sidewalks	Tree Zone
Washington Street	Local Street	56 feet	36 feet	Required	Required	Required
Driveway A	Local Street	56 feet	36 feet	Required	Required	Required
Driveway B	Local Street	56 feet	36 feet	Required	Required	Required
Driveway C	Local Street	56 feet	36 feet	Required	Required	Required

The applicant is requesting a waiver from the requirements of this section of the ordinance in order to provide an ultimate R.O.W. width of 43 feet where 56 feet is required, and to provide a minimum cartway width of 30 feet where 36 feet is required for Washington Street. A waiver would also be required to allow the internal private drives to be have a cartway width of 26 feet, with no defined right-of-way.

There is limited opportunity to provide the required half-width of 28 feet wide right-of-way for Washington Street along the north property line, since the distance between the existing road center line being extended and the property line along the SEPTA rail line is 18 feet. It appears that it is feasible to provide the required half-width of 28 feet along the site frontage, where 25 feet is currently shown. Please note that Section 116-281(A)(3)(a) requires a minimum building setback from the ultimate right-of-way of 10 feet with an average of 20 feet, and it appears that this requirement could be met with minor plan revision.

3. 105-38(F) The applicant is requesting a waiver from the requirements of this section of the ordinance which states that angle or perpendicular parking shall not be permitted along public or private streets to allow 29 Ninety-degree parking spaces to be provided in parking bays along the internal driveways.

4. 105-38(O) The applicant is requesting a waiver from the requirements of this section of the ordinance which states that parking areas shall be located at least 10 feet from any building or structure. The plans show 5 parking spaces adjacent to Unit 55 which are 8.4 feet from the building.

5. 105-39(A) The applicant is requesting a waiver from the requirements of this section of the ordinance which requires that all parking areas shall have at least one tree of three inches minimum caliper for every two parking spaces provided. The applicant is requesting a waiver to permit flowering trees in lieu of shade trees at the same proportion as allowed for street trees.

6. 105-46, 105-74 The applicant is requesting a waiver from the requirements of these sections of the ordinance which requires that curbs must be provided to protect the pavement edge. The applicant is proposing to not provide curbing at various locations throughout the site in order to promote sheet flow of runoff to stormwater BMPs. The applicant is proposing to provide curbing along Driveways A, B, and C, and on Washington Street.

	Section	Description
7.	105-47(B) 105-73	The applicant is requesting a waiver from the requirements of these sections of the ordinance which requires that the minimum width of all sidewalks and pedestrian paths shall be 5 feet; in areas of higher pedestrian density, the minimum width of all sidewalks and pedestrian paths shall be 8 feet. The applicant is proposing to provide a minimum sidewalk width of 4 feet. The plans should be revised to provide a sidewalk connection along Driveway C.
8.	105-47(K)(1)	The applicant is requesting a waiver from the requirements of these sections of the ordinance which requires that, within the RDD-1 subdistrict, a right-of-way of at least 25 feet in width shall be offered for dedication to the Township. If the area is not accepted for dedication, an easement for public use must be provided along with maintenance agreements acceptable to the Township.
9.	105-48	The Planting Requirements Table on Sheet 15 appears to indicate that the applicant is requesting a waiver from the requirements of this section of the ordinance in order to provide 18 One-inch caliper shade trees, instead of 6 Three-inch caliper shade trees.
10.	105-52(A) 105-52(B)(2)	The applicant is requesting a waiver from the requirements of this section of the ordinance which requires buffer yards between subdivisions and land development and along existing streets to soften visual impact, to screen glare, and to create a visual barrier between conflicting land uses.
11.	105-53(D)	The applicant is requesting a waiver from the requirements of this section of the ordinance, in order to not require the dedication of land in the amount of 10% of the total Site Area for Park and/or Recreational use. The applicant has the option of offering a fee in lieu of dedicating actual land area and can also provide a combination of a fee in lieu and dedication of land.
12.	I(B)(4)(k)	The applicant is requesting relief from the requirements of this section of the ordinance, which states that edges of slopes shall be a minimum of five feet from property lines or right of way lines.
13.	II(D)(3)	The applicant is requesting relief from the requirements of this section of the ordinance, which states that detention basins shall not be located within the Township's Floodplain Conservation or Riparian Corridor Conservation Districts, since the entire site is located in these districts.
14.	II(E)(2)(g)(iv)	The applicant is requesting relief from the requirements of this section of the ordinance, which states that all storm pipes shall be reinforced concrete pipe (RCP), in order to allow the High Density Polyethylene Pipes (HDPE).

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

	Section	Description
15.	105-21(A)(3)	Sheets 1 through 4 must be revised to list the Sheet number in relation to the total number of sheets.
16.	105-21(B)(1)(n)	This section of the ordinance requires the plans to show existing principal buildings (and their respective uses), and driveways on the adjacent peripheral strip: sewers lines, storm drains, culverts, bridges, utility easements, quarries, railroads, and other significant man-made features within 500 feet of and within the site, including properties across streets.
17.	105-21(B)(1)(o)	The plans must be revised to indicate the names of streets. Currently, the plans indicate the streets as being named Driveway A, B, and C.
18.	105-21(B)(1)(o)	A detail of the proposed improvements, including all signage and pavement markings, should be included in the plan set for the work to be done along Washington Street within the easement on the David's Bridal property. All necessary easements, including construction easements if any, must be provided.
19.	105-21(B)(1)(o)[1]	The plans must be revised to provide lane dimensions along Washington Street across the site frontage.
20.	105-21(B)(1)(o)[1]	The plans must be revised to extend the double yellow line in the David's Bridal access to the first parallel parking space.
21.	105-21(B)(2)(e)	The FEMA FIRM Map indicates that the 1% annual chance flood elevation is elevation 59 referenced to NAVD88. Sheet 2 indicates that the plan datum is referenced to NGVD29. The Record plan must clearly indicate the 1% annual chance flood elevation and the datum to which it is referenced.
22.	105-21(B)(2)(e)	Any new construction must be in full compliance with 44 CFR 60.3(a) through (d) of the National Flood Insurance Program regulations. These regulations require that all new construction and substantial improvements of structures within Zones AE are required to have the lowest floor elevated above the base flood level or, together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice. The following must be addressed: • The Record plan must be revised to list the lowest floor elevation and/or the elevation to which the structure would be floodproofed. • 44 CFR 60.3(a)(3) requires electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities to be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding. The plans must be revised to

	Section	Description
	105-21(B)(2)(e) (con't)	demonstrate that HVAC equipment shown on Sheet 4 meet this requirement. • 44 CFR 60.3(a)(4) through (6) require that all public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage, and adequate drainage is provided to reduce exposure to flood hazards. The plans show several of these features as being located below 1% annual chance flood elevation and therefore the plans must be revised to demonstrate compliance with these requirements.
23.	105-21(B)(2)(g)	The plans must be revised to delineate all steep slope areas, including those having a grade of 8% to 15% and the steep slope ratio table on Sheet 5 must be revised to include these areas as part of the steep slope ratio.
24.	105-21(B)(10)(a)	The applicant shall submit a letter from the appropriate municipal authority indicating the availability of public sanitary sewer facilities.
25.	105-21(B)(10)(b)	The applicant shall submit a letter from the appropriate municipal authority indicating the availability of central water supply.
26.	105-21(B)(12)	A map showing the location of the proposed subdivision within its neighborhood context shall be submitted.
27.	105-21(B)(13)	An Existing Resources and Site Analysis Plan (ERSAP) shall be prepared and shall provide a comprehensive analysis of existing conditions, both on the proposed development tract and within 500 feet of the tract boundaries. Conditions beyond the tract boundaries may be described on the basis of existing published data available from governmental agencies and from aerial photographs.
28.	105-21(B)(15)	A Preliminary Resource Impact and Conservation Plan (the "Preliminary Impact Plan") shall be prepared for all Major Subdivision and Land Development applications to categorize the impacts of the proposed activities and physical alterations on those resources shown on the ERSAP. All proposed improvements, including but not necessarily limited to grading, fill, streets, buildings, utilities and stormwater management facilities, as proposed in the other Preliminary Plan documents, shall be taken into account in preparing the Preliminary Impact Plan, which shall clearly demonstrate that the applicant has minimized site disturbance to the greatest extent practicable.
29.	105-21(B)(16)	The applicant shall submit a 'Preliminary Improvements Plan' consistent with the requirements of this section of the ordinance.
30.	105-21(B)(16)(c)	The plan set must be revised to include the proposed off-site improvements to provide for access to Washington Street across the adjacent property at 1001 Washington Street.
31.	105-21(B)(17)	The applicant shall submit a Community Association Document consistent with the requirements of this section of the ordinance.

	Section	Description
32.	105-21(B)(17)	The Community Association Document must include language prohibiting vehicular parking in the alleys behind garage doors which don't have private driveway spaces.
33.	105-21(B)(18)	The applicant shall submit a 'Preliminary Common Open Space Ownership and Management Plan' consistent with the requirements of this section of the ordinance.
34.	105-21.1(K)(2)	Within the South Transportation Service Area an impact fee in the amount of Two Thousand Five Hundred and Twenty-Nine Dollars ($2,529.00) per anticipated peak hour trip must be provided by the applicant. Based on data documented within the latest edition of the ITE Trip Generation Manual, 62 townhomes can be expected to generate 35 trips per hour during the PM peak hour (39 total trips minus 4 transit trips). The resultant Traffic Impact Fee calculation for a development situated in the South Transportation Service Area is calculated to be $88,515.00 (i.e., 35 PM peak hour trips X $2,529.00 per PM peak hour trip = $88,515.00).
35.	105-26(E)	Land subject to subsidence and land deemed to be topographically unsuitable, may not be platted for residential use or for such other uses as may increase danger to health, life or property until all such hazards have been eliminated or unless adequate safeguards against such hazards are provided. The applicant shall submit a geotechnical report prepared by a Registered Professional Engineer experienced in geotechnical engineering that includes a statement regarding the suitability of the site for development.
36.	105-27	Where deemed essential by the Board of Supervisors, upon consideration of the particular type of development proposed and especially in large-scale residential developments, the Board of Supervisors may require the dedication or reservation of such areas or sites of an extent and location suitable to the needs created by the development for schools, parks, and other purposes.
37.	105-28(H)	Street names shall not be repeated within the Township, and all street names shall be subject to the approval of the Board of Supervisors. The plans must be revised to indicate the proposed names of Driveways A, B, and C. Please note that determination of street addresses shall be made by the Fire Marshal.
38.	105-28(K)	Structures, including but not limited to mailboxes, fences and poles, shall not be erected within street rights-of-way. The plans appear to show a proposed gate across Washington Street, between Driveways A and C. The proposed gate should be relocated outside of the public right-of-way so as to not restrict vehicles on a public road. If a gate were to be proposed across the access to the adjacent private property (David's Bridal), a note must be added to the plans indicating that the gate is to be removed should Washington Street be extended in the future.
39.	105-29(C)(6)	New development streets shall be classified on the basis of a traffic impact study and/or classification approved by the Board of Supervisors.

	Section	Description
40.	105-30(C)	This section of ordinance states that short extensions of existing streets with lesser right-of-way and/or cartway widths than prescribed above may be permitted; provided, however, that no section of new right-of-way be less than 40 feet in width and such extensions shall be less than 100 feet in length. A waiver would be required in order to permit the proposed extension of Washington Street with a right of way width of 43 feet to extend 655.30 feet along the property frontage.
41.	105-33(B)	The minimum center-line radii for horizontal curves along Driveways A, B & C is 150 feet. The plans must be revised to include dimensions/labels which demonstrate compliance with the requirements of this section of the ordinance.
42.	105-33(E)	The intersection of Driveways C and B must be revised to demonstrate compliance with the requirements of this section of the ordinance, which requires that approaches to an intersection shall follow a straight course for at least 50 feet.
43.	105-37	Based on a proposed posted speed limit of 25 miles per hour along Washington Street, it is desirable to provide 250 feet of safe sight distance to the left and 195 feet of safe sight distance to the right of each access location. The note on the plan indicates that only 220 feet of sight distance is available to the left of Driveway A. Please provide the calculation of the minimum Safe Stopping Sight Distance (SSSD) to determine the maximum 85th% vehicle operating speed the available sight distance will accommodate. Note both available and required sight distances on the plan for both Driveway A and Driveway C.
44.	105-38	The applicant must provide evidence in sufficient detail to demonstrate that boat trailers will be able to access the boat dock along Driveway A, including with regard to turning movements which may be necessary to reverse into the access lane.
45.	105-38(H)	Except at entrance and exit drives, all parking areas shall be set back from the right-of-way line and all property lines at least 15 feet. The applicant must obtain a waiver in order to allow the existing and proposed parking area along the David's Bridal facility to be located within the required setback.
46.	105-38(F)	The plans must be revised so that all parking lots and bays permitting parking shall be physically separated from the street and confined by curbing or other suitable separating device, or a waiver must be obtained. At a minimum, the parking area along the David's Bridal facility should be curbed.
47.	105-38(Q)	No less than a five-foot radius of curvature shall be permitted for all curblines in parking areas. The plans must be revised to include radius dimensions in order to demonstrate compliance with the requirements of this section of the ordinance.
48.	105-38(U)	All common parking areas shall be adequately lighted during after-dark operating hours and all lights shall be located on raised parking islands, not on the parking surface. Additional Illumination should be provided at the 5-bay parking area adjacent to Unit 55 and the parking area along the David's Bridal facility.

	Section	Description
49.	105-38(W)	Section 116-282(E) of the Zoning Ordinance states that residential uses shall not be subject to the overflow parking requirements of Chapter 105, Subdivision and Land Development § 105-38W.
50.	105-39(C)	A minimum of 10% of any parking lot facility over 2,000 square feet in gross area shall be devoted to landscaping, inclusive of required trees. The plans must be revised to meet the requirements of this section of the ordinance and the percentage of the parking lot which is devoted to landscaping must be calculated and listed on the plans.
51.	105-40(C)	The maximum width of driveways and sidewalk openings measured at the street lot line shall be 35 feet; the minimum width shall be 20 feet. The plans must be revised to provide dimensions that demonstrate compliance with the requirements of this section of the ordinance.
52.	105-45	The plans show features which are located outside of the boundary lines of the subject property. The plans cannot be approved until all structures and/or uses for the lot(s) are located entirely within the property boundaries or easements or some other agreement is established to permit the encroachments. The following items must be addressed: • The plans show that inlet I-6 and a portion of the 18" HDPE storm sewer pipe will be located outside of the property boundaries. Easements or some other agreement must be established to permit the encroachment. Signage/pavement markings within the SEPTA right-of-way must be reviewed and approved by SEPTA. • The plans show that part of the proposed Washington Street extension will be located within existing easements owned by SEPTA. The applicant must obtain approval from SEPTA for the proposed improvements. • The plans show that proposed improvements located on the adjacent property of N/F 1001 Washington Street LLC and 1001 Washington Street, LLC (David's Bridal). Easements or some other agreement must be established to permit the encroachments.
53.	105-47	The line representing the required Riverfront Access and Open space must be added to the Record Plan and must be clearly labeled.
54.	105-47, 105-47(D) 105-49(A)	The following comments related to sidewalks and pedestrian paths must be addressed: • Signage, pavement markings, and ADA Accessible ramps and crosswalks must be added at Driveway C, at its intersections with Washington Street and Driveway B. • A sidewalk connection must also be provided along Driveway C. • Please address ADA compliance relative to the width of sidewalks, trails and crosswalks throughout the development. There is a mixture of 3', 4', 5' and 10' sidewalks and trails, and a mixture of 4', 5' and 6' crosswalks. • ADA compliant curb ramps with DWS must be provided across all openings along Driveways B and C, as well as at the back of Courts C, D and E.

Section	Description
105-47, 105-47(D) 105-49(A) (con't)	• An ADA compliant sidewalk with curb ramps, etc. should be provided around the five parking spaces next to unit 55 to provide a continuous path from the sidewalk at unit 51 to the proposed asphalt trail at unit 62. • The proposed 10-foot wide red shale macadam walk and the possible future connection to trail by others at the western property line should be aligned across Driveway A with DWS installed at the crossing. • The curb ramp details on Sheet 23 must be revised to call for Detectable Warning Surface (DWS) at all ramps.
55. 105-47(E)	The sidewalks along Washington Street shall be adequately lighted, if required by the Board of Supervisors.
56. 105-47(H)	Sidewalks and pedestrian paths shall not exceed a grade of 7%. Steps or a combination of steps and ramps shall be utilized to maintain the maximum grades, where necessary. Where sidewalk grades exceed 5%, a nonslip surface texture shall be used. The path from Unit 62 towards the Schuylkill River must be revised in order to demonstrate compliance with the requirements of this section of the ordinance.
57. 105-47(K)(2)	The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, which states that public riverfront access points must be located no more than 500 feet apart.
58. 105-47(K)(3)	This section of the ordinance requires, for the required perpendicular access paths, a red shale macadam pathway with a minimum of 10 feet in width shall be provided and separated from any vehicular traffic.
59. 105-47(K)(4)	At least one seating area shall be provided along each perpendicular access path.
60. 105-47(K)(5)	Lighting fixtures provided along the required public access paths shall be subject to approval by the Board of Supervisors.
61. 105-47(K)(6)	The required public access shall contain appropriate signage to direct pedestrians to the river in accordance with Chapter 116, Zoning, § 116-286B(5).
62. 105-48(E)	The species of proposed street trees shall be subject to the approval of the Shade Tree Commission.
63. 105-48(G)	The minimum trunk diameter for street trees, measured at a height of six inches above the finished grade level, shall be 3 inches. The Landscape Schedule on Sheet 15 must be revised to call for a 3" caliper for the proposed Cercis Canadensis (eastern redbud).
64. 105-50(B)	This section of the ordinance requires that attached dwelling types shall incorporate varied designs, architectural modes and setbacks. The applicant must submit architectural plans including elevation views for the proposed buildings in order to demonstrate compliance with the requirements of this section of the ordinance.

	Section	Description
65.	105-56	The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, which states that cartways fewer than 30 feet in width shall be restricted to prohibit parking on both sides.
66.	105-69(A)	The construction of streets and driveways, as shown upon final plans and as contained in contract agreements, shall in every respect conform to such requirements as the Township may by resolution require for the construction of streets. The plans must be revised to address the following: • The Flexible Pavement Restoration detail on Sheet 20 must be revised to call for the standard pavement cross section for Township roads, which is 6" 25mm Superpave Base Course, 5" 25mm Superpave Binder Course, and 2" 9.5mm Superpave Wearing Course. • Fall protection fencing must be included between the proposed retaining walls and connective sidewalks.
67.	105-70	The plans must be revised to show the location and construction details for all street name signs, warning and regulatory signs.
68.	105-70(C)	The Plan indicates the proposed installation of a 25 miles per hour speed limit sign along eastbound Washington Street immediately east of Driveway A. Two 25 miles per hour should also be installed in the westbound direction; one east of Driveway C, and one immediately west of Driveway A.
69.	105-70(C)	The Stop-sign for the David's Bridal exit lane must be wall-mounted. Due to the restrictive width and vehicle usage, the Stop-sign dimensions should be reduced to 24" x 24". In addition, install two reflectorized Object Markers on the wall facing the eastbound Washington Street approach. A wall-mounted Keep Left sign (R4-8b) should also be considered. The Object Markers and Keep Left sign should be mounted forward of the Stop bar.
70.	105-70(C)	In the Stop-sign detail on Sheet 20, eliminate reference to Pub. 68 and replace with Pub. 236M.
71.	105-70(C)	Due to potential sight distance limitations, a Stop-sign should be installed on both approaches of Washington Street at the driveway to David's Bridal at the east end of the site. All-Way plaques (R1-3P) should be mounted below each of the three Stop-signs at the intersection. Provide a detail for the westbound Stop-sign, as well as the proposed No Trucks Left Turn sign on the westbound approach, showing the post to be installed adjacent to the expansion joint between curb and sidewalk. Alternative sign height and dimensions may be required. The proposed No Trucks Left Turn sign must be relocated in advance of the intersection so as to not block visibility of the Stop-sign. The plans should include a sign tabulation with designations and dimensions for all regulatory signage.
72.	105-72(A)	Monuments must be provided at all property line corners. Monuments must be shown at the rear property corners.
73.	105-76	The applicant must obtain a letter of approval from the Township Fire Marshal in order to ensure that adequate fire protection is provided.

	Section	Description
74.	105-78	The applicant must obtain the approval of the Whitemarsh Township Authority with regard to proposed sanitary sewerage facilities.
75.	105-81	All electric, telephone and communication service facilities, both main and service lines, shall be provided by underground cables, installed in accordance with the prevailing standards and practices of the utility and other companies providing such services. Such facilities shall be located or constructed so as to eliminate the possibility of flood damage. Final plans shall show locations of all utilities and shall be coordinated with landscaping.
76.	105-83(E)	No Removal of a tree shall be permitted unless the applicant obtains a recommendation from the Shade Tree Commission based on a tree survey and removal plan submitted in accordance with Chapter 55 of the Whitemarsh Township Code.
77.	105-89	The developer shall enter into a written agreement with the Township in the manner and form approved by the Solicitor wherein the developer shall agree, to construct or cause to be constructed at his own expense all proposed improvements shown on the approved land development plan, all in strict accordance with the standards and specifications of the Township and within the time specified in said agreement, and to deposit with the Township financial security in an amount sufficient to cover the cost of all subdivision or land development improvements, including both public and private improvements.

CHAPTER 55 - TREE PROTECTION STANDARDS

	Section	Description
78.	55-3(D)	The Tree Survey Plan must include an indication of the total number of existing trees on the lot, and the total number proposed to be removed, in order to demonstrate that the development will not result in the removal of more than 50% of the trees on the lot.
79.	55-4(B)(1)	The plans must be revised to include provisions for tree protection to preserve healthy trees and shrubs on site in accordance with this section of the ordinance. A note must be added to the plans requiring protective fencing to be placed around trees on the property prior to construction. Protective fencing must be shown on the plans in the areas where it will be required. Street trees and other required plant material shall not be planted until the finished grading of the land development has been completed.
80.	55-4(B)(6)(a)	The Planting Requirements Table on Sheet 15 indicates that the required 64" of replacement trees would be 21 Three-inch caliper trees, which totals 63". Additional trees must be provided in order to provide the required 64".

	Section	Description
81.	55-4(B)(6)(f)	The applicant must obtain the approval of the Shade Tree Commission in order to allow the substitution of ornamental/flowering trees, evergreen trees and/or shrubs for required replacement trees.

GRADING, EROSION CONTROL, STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICES ORDINANCE:

	Section	Description
82.	58-4(B)(2)(l)	The Limit of Disturbance must be revised to extend around the riprap apron at EW2, and the proposed work on the adjacent David's Bridal property. The plan must also indicate the area, in square feet, of the limit of disturbance.
83.	58-4(B)(2)(o)	The plans must be revised to show the size, location and construction details for the red shale macadam trail.
84.	58-4(B)(2)(p)	The plan must be revised to show the size, location and construction details of all existing and proposed storm drainage facilities. The following must be addressed: • Additional labels must be added to the Utility Plan. At a minimum, the plans must be revised to show both existing and proposed pipe sizes, length, slopes, and pipe materials. It must be clear which features are new and which are existing. • Page 71 of the stormwater management report indicates the invert of the 24" HDPE at EW-2 to be 47.30, where plan sheets 6 & 7 indicate the same to be 44.29. This discrepancy must be resolved. • The invert of the outfalls to RG-2 and RG-3 must be noted on plan sheets 6 & 7. • The plans must be revised so that the outfall from MH-7 will not discharge towards the stair from the Boardwalk overlook at Green C • Sheet 6 should be revised to indicate that I-12, I-19 and I-22 would be Type 'M' inlets.
85.	58-4(D)(1)	Since the limit of disturbance is greater than one acre, the applicant must obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Pennsylvania Department of Environmental Protection. Once obtained, a copy must be submitted to the Township.
86.	58-5(B)(1)(g)	The plans must be revised to show the location of all existing and proposed utilities, sanitary sewer and waterlines within a minimum of 50 feet from the project site.
87.	58-5(B)(1)(g)	The 'existing storm pipe to remain' must be shown on the Utility Plan, and coordinated with the proposed improvements. The plans must also be revised to indicate the treatment of an existing sanitary sewer manhole in the Northwest corner of the site.

	Section	Description
88.	58-8(H)	All easements must be documented in the form of an easement agreement, approved by the Township Solicitor and recorded at the Recorder of Deeds for Montgomery County.
89.	58-11(G)(1) 58-11(H)(1)	The property owner shall sign an operations and maintenance agreement with the Township addressing stormwater BMPs that are to be privately owned. The plans indicate that the lot owner is responsible for the "Ownership and Maintenance" of the BMPs. The operation and maintenance agreement shall be subject to review and approval of the Township.
90.	58-15(C)	Roof drains shall discharge to infiltration areas or vegetative BMPs to the maximum extent practicable. The plans must be revised to indicate the location of all stormwater roof drains.

RESOLUTION 2004-8:

	Section	Description
91.	I(B)(1), II(D)(15)	The plans must be revised to clearly indicate the limits of any proposed sediment traps/basins. Additionally, contributing drainage areas to each proposed sediment trap must be provided.
92.	I(B)(4)(h)	The plans must be revised to show stabilization of all disturbed areas in order to trap sediment in the runoff water by the use of debris basins, sediment basins, silt traps, or similar measures. Additional measures appear to be needed in various locations including in the area of the proposed boat launch, along the western property line, and EW2.
93.	I(C)(1)(b)	Detailed plans and calculations, including all factors of safety, for all of the proposed retaining walls that are prepared, signed and sealed by a professional engineer licensed in the Commonwealth of Pennsylvania must be submitted to the Township for review. Constructible details and elevation views of all proposed retaining walls as well as the top and bottom of wall elevations must be added to the plans. Note 21 on Sheet 4 must be revised to state that these "shall be submitted to the Township prior to plan approval".
94.	I(C)(2)	The applicant's engineer must provide design calculations demonstrating that the proposed 12" compost filter sock is sized appropriately to accommodate the upstream slope lengths.
95.	I(C)(5)	Fills shall not encroach on natural watercourses, floodways, floodway fringes, constructed channels, or on wetlands unless permitted by the Army Corps of Engineers, Pennsylvania Department of Environmental Protection and approved by the Township.

	Section	Description
96.	I(C)(6)	Fills placed adjacent to natural watercourses, floodways, floodway fringes, constructed channels, or wetlands shall have suitable protection against erosion during periods of flooding, where approved by the Army Corps of Engineers, the Pennsylvania Department of Environmental Protection, and the Township.
97.	II(A)(9)	The Site Sequence of construction must be revised as follows: • Tree Protection Fencing must be installed during Step 8 of the sequence. • Step 10 must be revised to indicate that any modification is subject to the prior approval of the MCCD and Township Engineer.
98.	II(B)(9)	The applicant must submit stage storage curves for each stormwater detention facility.
99.	II(B)(11)	The plans must be revised to show the stormwater basin berm embankment and outlet structure. The plans must indicate the top of berm elevation, top width of berm and side slopes, emergency spillway elevation, elevations of the outlet structure, dimensions and spacing of anti-seep collars and all other pertinent information pertaining to the design and construction of proposed basins.
100.	II(B)(12)	The plans must be revised to provide a cross-section through the outlet structure, emergency spillway, and the berm embankment.
101.	II(B)(16)	The applicant must submit legal descriptions for any proposed rights-of-way, easements, or lands to be offered for dedication.
102.	II(C)(1)	All earth disturbance activities shall limit the rate of stormwater runoff so that no greater runoff is permitted from any point on the site than that of the site at its maximum development potential in its natural condition of the same frequency storm, except where deemed necessary by the Township Engineer. Where farm, field, or disturbed earth is the existing condition, meadow shall be used as the starting basis for such calculations, regardless of the actual conditions.
103.	II(C)(5)	The stormwater calculations must apply rainfall intensities based on NOAA rainfall data for the area.
104.	II(D)(6)	The minimum top width of the basin berm shall be 10 feet. A cutoff trench (keyway) of relative impervious material shall be provided beneath all embankments requiring fill material.
105.	II(D)(8)	Emergency overflow facilities shall be provided for detention facilities to accommodate runoff in excess of design flows. The minimum capacity of all emergency spillways shall be the peak flow rate of the 100-year design storm after development. The emergency spillway shall not discharge over earthen fill or easily erodible material.
106.	II(D)(10)	The plans and supporting calculations must be revised to provide anti-seep collars in order to demonstrate compliance with the requirements of this section of the ordinance.

Section	Description
107. II(D)(11)	This section of the ordinance requires that all outlet pipes through the basin berm shall be reinforced concrete pipe, designed to withstand the loading caused by a fully saturated berm and shall have watertight joints using O-ring joint pipe. The plans must be revised to provide labels for all proposed storm sewer pipes in order to demonstrate compliance with the requirements of this section of the ordinance.
108. II(D)(12)	The invert of the inlet pipes into a basin shall be a minimum of six (6) inches above the basin floor or lining so that it can be adequately drained during and after rainstorms.
109. II(D)(13)	Energy dissipaters and/or level spreaders shall be installed at points where pipes or drainage ways drain to or from basins. Energy dissipaters shall comply with criteria in the Erosion and Sediment Control Manual, published by the Pennsylvania Department of Environmental Protection or the Engineering Field Manual for Conservation Practices, SCS. Energy dissipating device calculations shall be submitted to the Township for review.
110. II(E)(2)(g)(vii)	The proposed stormwater piping must be revised so that the minimum slope in a pipe shall not be less than 0.5%.

ADDITIONAL COMMENTS

111. The plans must be revised to indicate that any access electronic gates will be hard wired to an electric meter billed to the homeowner's association, and that the gates would be electronically controlled by a key FOB provided to all residents. Additionally, a manual key must be housed in a knox box installed adjacent to each gate. Also, provide confirmation that any gates have been approved by the Fire Marshal.

112. The Cleanup/Work Plan (CWP) must be submitted to the Township for review.

113. The proposed improvements will require the applicant to obtain a Chapter 105 Water Obstruction and Encroachment General Permit, administered by the Pennsylvania Department of Environmental Protection (PADEP) Bureau of Waterways Engineering and Wetlands. Once obtained, the permit must be submitted to the Township.

Any future submission of the design plans for this project must be accompanied by a letter, prepared by the applicant's engineer, which addresses each of the comments contained in this report. Should you have any questions regarding this matter, please do not hesitate to contact me at this office.

Sincerely,

James J. Hersh, PE
Township Engineer

c: Mr. Sean Halbom – Assistant Township Manager
Mr. Charles L. Guttenplan, AICP – Director of Planning and Zoning
Mr. Sean Kilkenny, Esq.; The Law Offices of Sean Kilkenny, LLC – Township Solicitor
Mr. Allen B. Mason, P.E., Carroll Engineering – Whitemarsh Township Authority Engineer
Mr. Jim Vesey, 901 Washington Partners L.P. – Applicant / Owner
Mr. James P. Bannon, Jr., PE – Nave Newell, Applicant's Engineer
Ms. Sarah Peck – Progressive New Homes

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WHITEMARSH TOWNSHIP

To: Charlie L. Guttenplan, Director of Planning & Zoning/Zoning Officer

From: NICHOLAS W. WEAVER, FIRE MARSHAL

Subject: **SLD #05-14 901 Washington Street**

Date: September 15, 2020

cc:

This application is approved with the following condition:

1. A fire hydrant is to be added in front of building three (3).

Nicholas W. Weaver
Fire Marshal
616 Germantown Pike
Lafayette Hill, PA 19444
Phone: 610-825-3535 ext. 2614
Email: nweaver@whitemarshtwp.org