ABINGTON TOWNSHIP

FEBRUARY 23, 2021

PLANNING COMMISSION MEETING

TOWNSHIP OF ABINGTON

PLANNING COMMISSION MEETING

A G E N D A
February 23, 2021
7:30 PM

There are two ways for the public to participate in the meeting. Residents can access the meeting online, by a computer, iPad, iPhone or Android at https://zoom.us/j/91211205403. This link will enable residents to hear the meeting and see presentations. There will be no video capabilities. Residents, who are unable to join online, can listen to the meeting by calling 1-929-436-2866 and entering the meeting ID number 912-1120-5403 when prompted.

CALL TO ORDER

ROLL CALL *BROWN, DICELLO, ROBINSON, GAUTHIER, RUSSELL, ROSEN, COOPER, BAKER, STRACKHOUSE*

CONSIDER APPROVAL OF MINUTES

a. Consider approving Meeting Minutes of January 26, 2021.

PRESENTATION

UNFINISHED BUSINESS

NEW BUSINESS

a. Consider to approve the proposed minor subdivision plan for property address 1405 Rothley Avenue - Kevin S Maguire & James J. Maguire, Jr. to create one new building lot for a single-family dwelling use.
The property is zoned within the R-4 Residential District of Ward No. 5.

b. Consider a motion to approve the proposed Minor Land Development for The Galman Group at property address 1250 Greenwood Avenue. The applicant intends to enclose the existing patio located on the rear of the existing building at The Plaza Apartments.

c. Consider a motion to approve the Land Development application, LD-21-01, AQUA Pennsylvania, Inc. at property address 315 Chelsea Avenue, Glenside to upgrade and expand the North Hills Pump Station to implement a PFAS treatment system.

d. Consider a petition to amend Zoning Ordinance by PREIT as referred by the Board of

Commissioners.

PUBLIC COMMENT

ADJOURNMENT

BOARD POLICY ON AGENDA ITEMS

For Information Purposes Only

Board President Announcements
This item on the Board of Commissioners Agenda is reserved for the Board President to make announcements that are required under law for public disclosure, such as announcing executive sessions, or for matters of public notice.

Public Comment
Public Comment on Agenda Items is taken at the beginning of regularly scheduled Public Meetings prior to any votes being cast. When recognized by the presiding Officer, the commenter will have three minutes to comment on agenda items at this first public comment period. All other public comment(s) not specific to an agenda item, if any, are to be made near the end of the public meeting prior to adjournment. Public comment on agenda items at regularly scheduled Board of Commissioner Committee meetings will be after a matter has been moved and seconded and upon call of the Chair for public comment.

Presentations
Should the Board of Commissioners have an issue or entity that requires time to present an issue to the Board, that is more than an oral description relating to an agenda item under consideration, The Board may have that matter listed under Presentations. If nothing is listed under presentations, then there is no business to conduct in that manner.

Consent Agenda
Items of business and matters listed under the Consent Agenda are considered to be routine and non-controversial and will be enacted by one motion and one vote. There will be no separate discussion of these items. If discussion is desired by Board of Commissioner Members, that item is to be identified by the Board member and will be identified and removed from the Consent Agenda, and will be considered separately at the appropriate place on the Agenda.

Unfinished Business
Items for consideration as unfinished business are matters that have been considered for action at a public Board Meeting and have not been tabled to a date certain or voted upon.

New Business
Items for consideration as new business are matters that have been considered for action at the Board Committee Meeting. It is Board practice to not introduce new business at Board Committee Meetings.

BOARD POLICY ON PUBLIC PARTICIPATION

For Information Purposes Only

The Township shall conduct business in accordance with the Commonwealth of Pennsylvania Laws governing the conduct of public meetings and only establish guidelines that shall govern public participation at meetings consistent with the law.

Each commenter shall:

- Direct their comments to the Presiding Officer;
- Speak from the podium or into a microphone designated by the presiding officer;
- State their name for the record;
- Either orally or in writing provide their address for the record;
- Have a maximum of three minutes to make their comments. Each commenter when speaking to a specific agenda item, is to keep their comments relative to that identified agenda item;
- Speak one time per agenda item;
- When commenting on non-agenda items, the commenter is to keep their comments related to matters of the Township of Abington, Montgomery County, Pennsylvania.
- State a question to the Presiding Officer after all commenters have spoken, and;
- Be seated after speaking or upon the request of the presiding officer;
- Not engage in debate, dialogue or discussion;
- Not disrupt the public meeting, and;
- Exercise restraint and sound judgement in avoiding the use of profane language, and the maligning of others.

The stated meeting of the Planning Commission of the Township of Abington was held on Tuesday, January 26, 2021 as a Zoom webinar and teleconference with Chairperson Lucy Strackhouse presiding.

CALL TO ORDER: 7:30 p.m.

ROLL CALL: Present: BROWN, DICELLO, GAUTHIER, ROBINSON, ROSEN, COOPER, BAKER, RUSSELL, STRACKHOUSE

Also Present: County Planner NARCOWICH
Administrative Manager WYRSTA
Commissioner THOMPSON

PLEDGE OF ALLEGIANCE

CONSIDER APPROVAL OF MINUTES:

Mr. Rosen made a MOTION, seconded by Mr. Russell to approve the minutes of the Planning Commission Meeting of December 16, 2020.

MOTION was ADOPTED 9-0.

PRESENTATION: None.

UNFINISHED BUSINESS: None.

NEW BUSINESS:

The newly reappointed Planning Commission members from the Board of Commissioner's meeting last week are:

a. Lucy Strackhouse
b. Ronald Rosen
c. Glenn Cooper

Mr. Rosen made a MOTION, seconded by Ms. Gauthier to reappoint Ms. Lucy Strackhouse as Chairperson and Mr. Dale Russell as Vice Chairman of the Abington Township Planning Commission.

There were no other nominations. Nominations were closed.

MOTION was ADOPTED 9-0.

Application by PREIT to amend Abington Township's Zoning Ordinance:

Ms. Strackhouse announced that the petitioner for PREIT has requested that this matter not be heard at the January 26, 2021 Planning Commission meeting and to be postponed to the February 23, 2021 meeting.

Agenda Item - Land Development Application LD-20-01 – Applicant, ABP Investments, Inc. for property located at 1051, 1053 and 1057 Easton Road at Tyson Avenue, Abington, PA. to demolish existing one-unit building and to construct proposed four-unit townhouses.

Ms. Strackhouse noted that the applicant, ABP Investments, Inc. is proposing to consolidate three existing parcels and subdivide into two new lots on the eastern side of Easton Road approximately 170 feet south of the intersection with Tyson Avenue at 1051, 1053, and 1057 Easton Road. Proposed Lot 1 will have an area of 13,098 square feet and will consist of a triplex (existing twin dwelling plus two attached apartments). Proposed Lot 2 will have an area of 17,823 square feet and will consist of a proposed four-unit townhouse building. Driveway access will remain between the existing triplex and proposed townhomes. The proposed land development will also include the construction of stormwater management facilities and storm sewer and the installation of landscaping.

Mr. Arthur Herling, owner/applicant, gave a presentation of proposed redevelopment noting that the existing stone building that consists of three apartments will be renovated and restored and new homes will be constructed in place of the existing single-family detached dwelling.

There will be a shared-parking arrangement with the 1043 Easton Road property, which is the development he built in 2019. Proposed is to eliminate two driveways off Easton Road, install sidewalk where there is none and build new homes. Photos of the site plan including existing features were presented including the townhomes built in 2019. There are a total of four driveways that will be reduced to two and parking will be added in the rear of the building for residents. There is no sidewalk in front of the twin homes, but there are sidewalks in front of the single-family home, although it is deteriorating, so proposed is to improve the curb and sidewalk including a decorative verge, add a bench or two, and the Shade Tree Commission recommended certain types of trees to plant.

Impervious surface will be reduced with installation of a stormwater management system to control stormwater onsite. Floor plans were presented, and the applicant is working on the outstanding miscellaneous items listed in Boucher & James' letter dated December 21, 2020.

Ms. Strackhouse thanked Mr. Herling for saving the existing stone building as it has been there for over 100 years. She asked for any comments from members of the Planning Commission.

Mr. Rosen questioned whether this will be marketed for rental or sale, and if it is for rent, who is the target market; price of rent; term of lease and how many bedrooms/baths, etc.

Mr. Herling replied market rate rentals will be to whoever is interested. There will be two bedrooms each with a full bathroom on the second floor and a half-bath on the first floor. Price will fluctuate depending on the market; however, approximate rent will range between $1,600-$2,000 and snow removal and landscaping is included. Term of lease is negotiated on a case-by-case basis.

Mr. Baker questioned whether any units will be handicapped accessible.

Mr. Nick Rose, P.E. of Protract Engineering, representing the applicant, replied that it was determined that individual units in a three/four-unit apartment building does not need to comply with ADA requirements, although there is one ADA parking space available as a courtesy to residents for any visitors.

Ms. Gauthier questioned whether a fire escape would be needed for the second and third floors?

Mr. Herling replied there are none currently and that would be addressed during building permit stage.

Mr. Baker commented that no fire escape is needed just an escape and rescue window from the bedrooms.

Ms. Strackhouse questioned whether the existing White Pines and other deciduous trees on both sides of the stone twin will be remain.

Mr. Herling replied they are proposed to be preserved with tree protection and fencing during construction. There is also green space in the back of the property for residents.

Mr. Russell asked when the 1043 Easton Road property was developed, was this development contemplated at the time?

Mr. Herling replied no.

Mr. Russell said if a connection is built between the two lots will an access easement be required.

Mr. Herling replied yes, there would be a shared-parking easement required.

Mr. Russell said since there will be consolidation of three lots into two, does the access easement need to be shown on plan.

Mr. Rose replied proposed access easement is shown in pictorial view as well as noted on the plan as Note 11 stating that "By this plan, common access to driveways and parking is granted between Lot 1, Lot 2 and block 192 Unit 15."

Mr. Russell asked has any consideration been given to making the loop a "one-way?"

Mr. Herling replied we looked at that but decided not to because there are no safety issues.

Ms. Gauthier questioned whether a waiver is needed for width of driveways.

Mr. Herling replied yes, one driveway, in part, is 22 feet wide.

Mr. Russell asked the applicant to consider an ADA apartment unit.

Mr. Herling replied he will consider that for the end unit.

Mr. Baker asked about the elevation facing Easton Road and about proposed lighting for the site.

Mr. Herling replied three of the units face the driveway and the end unit faces Easton Road. Also, proposed are LED parking lot lights that turn on as the sun goes down providing safety for pedestrians and drivers.

Mr. Brown commented that he also appreciates that the stone twin home will remain, and he asked for further details on the units. Also, dumpster area enclosure shown on the plan looks nice, and how will the back of the building interact with the parking area?

Mr. Herling replied an architect will draft an as-built plan to assess the layout of the living space of the units. Regarding the trash enclosure, as part of the easement, all residents will be able to use the trash facility.

Mr. Narcowich clarified that the plan drafted in January 2020 that was last reviewed in April 2020 has been updated. Is that correct? Also, what about the streetscape?

Mr. Herling replied yes, the plan has been revised and we are working on items listed in the Boucher & James' review letter. The plan has been revised to incorporate eight-foot-wide sidewalks in addition to a three-foot-wide verge and a bench or two is proposed. Trash enclosure will have decorative stone and trees around it.

Mr. Narcowich questioned whether there will be fencing or vegetation screening. Also, this area has been designated as an official bicycle route and he recommended that the applicant coordinate with Township staff on installation of wayfinding signage along the road as referenced in the Abington Master Bicycle Plan.

Mr. Herling replied the 1043 Easton Road property has fencing along the property line and that will be continued, and the vegetation in the rear will remain with additional plantings of species as recommended by the Shade Tree Commission. Also, he agreed to speak with Township staff about bicycle route wayfinding signage.

Ms. Gauthier clarified that the outstanding items listed in Boucher & James' review letter dated December 21, 2020 will be addressed by the applicant. Is that correct?

Mr. Rose replied yes.

Mr. Rosen asked about items listed in the EAC's review letter.

Ms. Strackhouse replied the EAC made recommendations in their review letter dated March 30, 2020 for BMP's for stormwater management as follows: "Stormwater Features - Proposed underground infiltration bed beneath new 13-space parking area and two smaller infiltration beds in front of structures to capture rooftop runoff and paved areas via shared trench grate. None include vegetative components. These systems are designed to capture required volume of runoff from site per Township stormwater ordinance. Due to reduction of overall impervious cover (reflecting new lot dimensions), development is exempt from stormwater ordinance's peak rate requirements, and this needs to be confirmed by Township Engineer."

Mr. Rose noted that the Boucher & James' review letter specified the exact same thing. Impervious surface is being decreased and the applicant will install a large detention system under the parking area and a smaller one to the south of the triplex.

Ms. Strackhouse questioned whether pervious paving has been considered for portion of the parking area.

Mr. Rose replied pervious paving is not recommended because it eventually clogs unless it is meticulously taken care of. It would be better to get the stormwater underground into the seepage bed as proposed.

Ms. Gauthier questioned whether the EAC recommended rain barrels or other green areas.

Mr. Herling replied the EAC recommended raingardens, but instead, there will be an underground detention system.

Ms. Gauthier asked why the applicant is not proposing to combine all lots into one development.

Mr. Herling replied he considered that, but it is not permitted in this zoning district.

Ms. Strackhouse asked for any public comments.

Susan Myerov, EAC member, commented that flowthrough planter idea is a common technique for rooftop runoff management while providing an ascetic component to structures like this one, and the EAC does support this infill development project. She recognizes the difficulty using pervious paving, but suggested it, because the entire parking area will be reconstructed, although it does require specialized maintenance, and she thanked the applicant for taking the EAC's suggestions seriously.

Lora Lehmann, resident, asked for the percentage of green space of the multiple properties; also, about fire truck access for the site.

Mr. Rose replied green area is split by units at 74%, 19% and 48% and the minimum is 10%. There is a loop road for fire truck access to get completely around the property.

Ms. Strackhouse asked about waivers requested by the applicant.

Mr. Rose replied waiver requests are listed as Note 10 on the plan as follows:

Mr. Rosen made a MOTION, seconded by Mr. Cooper to approve waiver request from Sections 146-11. A. (4) and 146-11. B. (3) – Property Identification Plan.

MOTION was ADOPTED 9-0.

Mr. Rosen made a MOTION, seconded by Mr. Cooper to approve waiver request from Section 146.11.B. (7) – Existing Features Plan.

MOTION was ADOPTED 9-0.

Mr. Rosen made a MOTION, seconded by Mr. Cooper to approve waiver request from Sections 146-11. G.1. and 146-11. G. 3. – Utility Plan.

MOTION was ADOPTED 9-0.

Mr. Rosen made a MOTION, seconded by Mr. Cooper to approve waiver request from Section 146-11. J. – Recreational Facilities Plan.

MOTION was ADOPTED 9-0.

Mr. Russell made a MOTION, seconded by Mr. Brown to approve waiver request from Section 146-11. L. – Architectural Plan.

MOTION was ADOPTED 9-0.

Mr. Baker made a MOTION, seconded by Mr. Cooper to approve waiver request from Section 146-28. B. - and to permit driveway less than 24 feet wide as shown on the plan. The part of the sidewalk that is 22 ft. wide is in front of Units 2, 3, & 4 of the new building, which is away from the road. PennDOT permit approval is in progress at the current time.

MOTION was ADOPTED 9-0.

Mr. Rosen made a MOTION, seconded by Ms. Robinson to approve waiver request from Section 146-30. A. – Irregular Lot Shape - and to permit the proposed shape of Lot 2.

MOTION was ADOPTED 9-0.

Mr. Cooper made a MOTION, seconded by Mr. Rosen to approve waiver request from Section 146-33. C. – Storm Sewer Protection - and to permit less than 24 inches of cover over one stretch of storm sewer as shown on the plan.

MOTION was ADOPTED 9-0.

Ms. Gauthier made a MOTION, seconded by Mr. Rosen to approve waiver request from Section 146-43. C (3) (a) – Cut and Fill Slopes – and to permit slopes up to 33% due to site limitations for grading.

MOTION was ADOPTED 9-0.

Ms. Gauthier made a MOTION, seconded by Mr. Cooper to approve the Land Development Application LD-20-01- Applicant, ABP Investments, Inc. for property located at 1051, 1053 and 1057 Easton Road at Tyson Avenue, Abington, PA. to demolish existing one-unit building and to construct proposed four-unit townhouses subject to the applicant complying with the Abington Master Bicycle Plan and coordinate with the Township to determine the appropriate wayfinding signage and installation; subject to the applicant completing any outstanding items as listed in Boucher & James' review letter dated December 21, 2020, and all waivers requested by the applicant as listed were approved.

MOTION was ADOPTED 9-0.

Comprehensive Plan Update:

Mr. Narcowich reported that the first round of public outreach has been completed with four workshops being held that assisted with the vison and goals. We drafted chapters on Introduction, Vision, History, Demographics, Existing Land Use, Municipal Services and Infrastructure, Historic Preservation, Housing and Environmental Management & Resilience with four chapters remaining such as Future Land Use, Transportation, Economic Development, and Implementation. Additional public outreach events will be held such as an online survey and another would be an interactive Zoom webinar. Approximate timeline for completion is by November 21, 2021, which is subject to change.

Penn State Abington:

Ms. Strackhouse announced that as of January 4, 2021, Penn State Abington has a new Chancellor, Margo DelliCarpini and she will reach out to the Chancellor to see about getting a dialog with the Planning Commission regarding updated Penn State news.

RCAP Grant:

Ms. Strackhouse announced that Meadowbrook Farm received a $1 million RCAP (Redevelopment Assistance Capital Program) grant, and they will be replacing greenhouses with energy-efficient, state-of-the-art specialized growing facilities.

ADJOURNMENT: 9:10 p.m.

Respectfully submitted,

Liz Vile, Minutes Secretary

PLANNING COMMISSION MEETING

AGENDA ITEM

February 23, 2021

DATE

AGENDA ITEM NUMBER

Administration

DEPARTMENT

FISCAL IMPACT
Cost > $10,000
Yes ☐ No ☑

PUBLIC BID REQUIRED
Cost > $20,100
Yes ☐ No ☑

AGENDA ITEM:

1405 Rothley Avenue -Kevin S. Maguire & James J. Maguire, Jr.

EXECUTIVE SUMMARY:

Consider to approved the proposed minor subdivision plan for property address 1405 Rothley Avenue - Kevin S. Maguire & James J. Maguire, Jr., to create one new building lot for single-family dwelling use. The property is zoned within the R-4 Residential District of Ward No. 5.

PREVIOUS BOARD ACTIONS:

None

RECOMMENDED BOARD ACTIONS:

Consider to approve the proposed minor subdivision plan for property address 1405 Rothley Avenue - Kevin S Maguire & James J. Maguire, Jr. to create one new building lot for a single-family dwelling use. The property is zoned within the R-4 Residential District of Ward No. 5.

Township of Abington

Engineering & Code Department

John L Spiegelman, President
Thomas Hecker, Vice President

Richard J. Manfredi, Manager

SD/LD Review Tracking Application # SD-21-01

Project Name: Minor Residential Subdivision - Kevin & James Maguire
1405 Rothley Ave., Roslyn - 2 lot SD

File Date: 1/14/21 Date Complete _____ 90 Day Clock _____

	Sub. #	Date Sent:	Review Ltr. Recv'd:	Comments (Y/N)
[ ] Reviewing Engr.				
[ ] Traffic Engineer				
[ ] MCPC				
[ ] Fire Marshal				
[ ] Traffic Safety				
[ ] Wastewater/DEP				
[ ] Shade Tree				
[ ] EAC				
[ ] Planning Commission				
[ ] ZHB				
[ ] Solicitor				
[ ] Other:				

1176 Old York Road, Abington PA 19001 | www.abington.org | 267-536-1000 | TTY/TTD: 9-1-1 | Fax 215-884-8271

FAX: (215) 576-7791 PHONE: (215) 887-2165

CHARLES E. SHOEMAKER, INC.
ENGINEERS AND SURVEYORS
SOUTHEAST CORNER OF EASTON & EDGE HILL ROADS
1007 EDGE HILL ROAD
ABINGTON, PENNSYLVANIA 19001

December 21, 2020

Amy Montgomery
Director of Engineering & Code
Abington Township
1176 Old York Road
Abington, PA 19001

RE: MINOR SUBDIVISION APPLICATION
Kevin S. Maguire & James J. Maguire, Applicants
1405 Rothley Avenue
Parcel No. 30-00-59916-00-3, Blk. 215, Unit 027

Dear Ms. Montgomery:

On behalf of the Applicant, we have prepared a Minor Subdivision Plan for the purpose of creating one new single-family residential building lot for future development.

The property is situated in the 'R4' High Density Residential District. The existing dwelling will remain on Lot 1, and Lot 2 will be for future development of a single-family dwelling.

This application package includes the following:

- Ten (10) copies of Final Minor Subdivision Plan dated December 2, 2020;
- One (1) 11x17 reduced copy of the plan;
- Plan Application Submission Checklist;
- Application for Subdivision/Land Development;
- Planning Process Extension Agreement;
- Escrow Agreement for Professional Review Fees;
- Applicant Request for Montgomery County Review;
- Listing of Waivers dated December 21, 2020;
- Zoning Hearing Board Application #20-01 approval dated August 18, 2020;
- Sewage Facilities request for consideration of exemption dated December 3, 2020;
- Abington Township Subdivision/Land Development Application Fee ($300.00) payable to "Abington Township";
- Abington Township Escrow Fee ($2,500.00) payable to "Abington Township";
- CD (PDF Format) containing all submission materials.

Please accept this application on behalf of the Applicants James J. Maguire, Jr. and Kevin S. Maguire. We look forward to presenting this Minor Subdivision Plan to the Township Commissioners.

Please contact our office should you have any questions concerning the enclosed documents.

FAX: (215) 576-7791 PHONE: (215) 887-2165

CHARLES E. SHOEMAKER, INC.
ENGINEERS AND SURVEYORS

Sincerely,

Gary A. Tilford, PLS
Charles E. Shoemaker, Inc.

cc: James J. Maguire, Applicant
Thomas Bowman, Esquire (via email)
CES File #26581

APPLICATION FOR SUBDIVISION/LAND DEVELOPMENT

PROJECT TITLE: 1405 Rothley Avenue Subdivsion

APPLICANT NAME: Kevin S. Maguire & James J. Maguire, Jr.

TO BE COMPLETED BY THE TOWNSHIP
Submission Information:

Application Number: SD-21-01
Received By: Shawn Littlefield
File Date: 1/14/21

Date Complete: _____
90 Day Date: _____
Ward No. _____

REQUIRED MATERIAL FOR ALL SUBDIVISION/LAND DEVELOPMENT APPLICATIONS:

1. This form **MUST** be completed and submitted.
2. A Subdivision/ Land Development Application MUST include all of the items listed in the application checklist in Section V to be considered complete.
3. Incomplete application will **NOT** be placed on the Planning Commission agenda. Incomplete applications will be returned to the applicant.
4. Complete applications must be received at least 45 DAYS (see schedule) prior to the Planning Commission meeting at which it will be heard.
5. Ten (10) full size paper copies, and one (1) 11x17 reduced copy of the plans, plus three (3) copies of each report or study are to be submitted in the initial submission of the complete application. A digital copy of all submitted documents must be included with the application.

   ***It is highly encouraged to submit applications in a digital format**

I. CONTACT INFORMATION

Applicant Information

James J. Maguire, Jr.
Name

1405 Rothley Avenue, Roslyn, PA 19001
Address

215-620-5250
Phone

Fax

abingtonautotops@gmail.com
Email Address

Property Owners Information (if different than applicant)

Kevin S. Maguire and James J. Maguire, Jr.
Name

1405 Rothley Avenue, Roslyn, PA 19001
Address

215-620-5250
Phone

Fax

abingtonautotops@gmail.com
Email Address

Architect/ Planner

Name

Address

Phone

Fax

Email Address

Engineer/ Surveyor

Charles E. Shoemaker, Inc. c/o Gary Tilford, PLS
Name

1007 Edge Hill Road, Abington, PA 19001
Address

Engineer/ Surveyor Cont'd

215-887-2165 — Phone
215-576-7791 — Fax
gtilford@ceshoemaker.com — Email Address

Attorney

Thomas Bowman, Esquire — Name
1156 Easton Road, Roslyn, PA 19001 — Address
215-886-7489 — Phone
Fax
tbowman1999@aol.com — Email Address

II. PROJECT INFORMATION

Application Type:

☑ Minor Subdivision	☐ Minor Land Develop.	☐ Preliminary Major SD & LD
☐ Preliminary Major Subdivision	☐ Prelim. Major Land Develop.	☐ Final Major SD & LD
☐ Final Major Subdivision	☐ Final Major Land Develop.	

Full street address of the property: 1405 Rothley Avenue, Roslyn, PA 19001

Tax Parcel No.: 30-00-59916-00-3 County Deed Book No.: 5973 Page No.: 1258

Description of Proposed Work:
Two lot subdivision, one new building lot and one existing dwelling to remain.

Total Tract Acreage: 16,199 S.F. Project Acreage: 0.3719 Ac.

Zoning District: R4 Existing Number of Lots: 1 Proposed Number of Lots: 2

Existing Sewer Flows: 265 gal/day (one EDU) Proposed Sewer Flows: 530 gal/day (two EDU's)

Proposed Land Use:

☑ Single Family Detached ☐ Single Family Attached ☐ Single Family Semi-Detached
☐ Multi-Family ☐ Commercial ☐ Office ☐ Industrial
☐ Other (Describe):

III. REVIEW

Please complete the following section by circling a response:

- Have you met with the Zoning Officer regarding this plan? Yes ◉ No ○
- Are there known variances/any zoning relief necessary for this project?* Yes ◉ No ○
- If YES, have you submitted an application to the Zoning Hearing Board? Yes ◉ No ○
- Has this plan been heard by the Zoning Hearing Board? Yes ◉ No ○

*Please be advised that if any variances are found to be necessary during the course of the review of this plan, you will be required to go to the Zoning Hearing Board prior to proceeding to the Planning Commission. In addition, you will be requested to grant the Township a waiver to the 90-day action period or an immediate denial of this application will be made, and you will be required to resubmit the application.

It is recommended that ALL Land Development and Major Subdivision applications have a pre-submission meeting to discuss the project prior to full application submittal.

Minor Subdivision applications may request a pre-submission meeting; if one is desired.

Meetings are held the fourth Tuesday of each month beginning at 9:30 a.m. at the Township Administrative Offices.

Applicants assume responsibility of any fees associated with this meeting.

_____ _____

Applicant signature Date

To schedule a pre-submission meeting, please contact the office of the Township Manager at 267-536-1003 or email tcastorina@abingtonpa.gov

IV. WAIVERS

List of Requested Waivers: Attach separate sheet if required.

Section/Requirement:	**Relief Requested:**
SEC. 146-11.A.(4)	IDENTIFICATION PLAN, all tax parcel numbers, owner names and acreage within 400 feet
SEC. 146-11.B.(3)	EXISTING FEATURES PLAN, all property lines and names of owners within 400 feet
SEC. 146-11.B.(7)	EXISTING FEATURES PLAN, all underground utilities within 400 feet

V. SUBMISSION

APPLICATION CHECKLIST

The applicant is responsible for the submission of a complete application. This checklist will aid both the applicant and staff in ensuring that all applications are complete. The following is a per item submission checklist for all Subdivision, Land Development and Conditional Use Applications for the Township of Abington.

- [x] Application Form: completed and signed by the owner/applicant
- [x] 10 (ten) copies of the proposed plan, folded to legal file size. Plan should not be smaller than 1" = 50'and not exceed a sheet size of 24"x 36"
- [x] One (1) reduced copy of the proposed plan, no larger than 11"x17"
- [ ] Two (2) sets of tentative architectural plans for all applications proposing construction or land development
- [ ] One (1) copy of the Recreation Facilities Plan (if required by §146-40)
- [ ] Letter of Sanitary Sewer availability from the Township Wastewater Treatment Department Two
- [x] (2) copies of Sewage Facilities Planning Module Applications
- [x] Letter of Water availability from AQUA PA
- [x] One (1) copy of any previous Zoning Hearing Board decisions related to the subject property
- [x] One (1) Digital copy of all submitted documents
- [x] Application Fee: Check made payable to the Township of Abington
- [x] Escrow Fee: Check made payable to the Township of Abington. Separate check from application fee

VI. SIGNATURE

The undersigned represents that to the best of his/her knowledge and belief, all the above statements are true, correct, and complete.

Signature of Applicant — Date: 12/21/2020

Signature of Property Owner (if different than applicant) — Date

Applicant Request for County Review

This request should be filled out by the applicant and submitted to the municipality where the application is being filed along with digital copies of all plan sets/information. Municipal staff will electronically file the application with the county, and a notice for the prompt payment of any fees will be emailed to the Applicant's Representative.

MONTGOMERY COUNTY PLANNING COMMISSION
MCPC
P.O. Box 311, Norristown, PA 19404-0311
Phone: 610-278-3722
Business Hours: 8:30 A.M. to 4:15 P.M.
www.planning.montcopa.org

Date: _____
Municipality: Abington Township

Proposal Name: 1405 Rothley Avenue Subdivision

Applicant Name: Kevin S. Maguire & James J. Maquire, Jr.
Address: 1405 Rothley Avenue
City/State/Zip: Roslyn, PA, 19001
Phone: 215-620-5250
Email: abingtonautotops@gmail.com

Applicant's Representative: Charles E. Shoemaker, Inc.
Address: c/o Gary Tilford, PLS
1007 Edge Hill Road
City/State/Zip: Abington, PA 19001
Business Phone (required): 215-887-2165
Business Email (required): gtilford@ceshoemaker.com

Type of Review Requested:

(Check All Appropriate Boxes)

- ☐ Land Development Plan
- ☑ Subdivision Plan
- ☐ Residential Lot Line Change
- ☐ Nonresidential Lot Line Change
- ☐ Zoning Ordinance Amendment
- ☐ Zoning Map Amendment
- ☐ Subdivision Ordinance Amendment
- ☐ Curative Amendment
- ☐ Comprehensive / Other Plan
- ☐ Special Review*

**(Not included in any other category - includes parking lot or structures that are not associated with new building square footage)*

Type of Plan:

- ○ Tentative (Sketch)
- ◉ Preliminary / Final

Type of Submission:

- ◉ New Proposal
- ○ Resubmission*

** A proposal is NOT a resubmission if A) The proposed land use changes, or B) The amount of residential units or square footage proposed changes more than 40%, or C) The previous submission was over 5 years ago.*

Zoning:

Existing District: R4 High Density Residential District
Special Exception Granted ○ Yes ◉ No
Variance Granted ◉ Yes ○ No For Dimensional variance for side yard setback (Lot 1) and Lot Width (Lot 2), #20-01

Plan Information:

Tax Parcel Number(s) 30-00-59916-00-3 (Blk 215, Unit 027)

Location *(address or frontage)* 1405 Rothly Avenue
Nearest Cross Street Woodland Road
Total Tract Area 16,199 S.F.
Total Tract Area Impacted By Development 16,199 S.F.

(If the development is a building expansion, or additional building on existing development, or only impacts a portion of the tract, please provide a rough estimate of the land impacted, including associated yards, drives, and facilities.)

Land Use(s)	Number of New Lots	Number of New Units	Senior Housing Yes	Senior Housing No	Open Space Acres*	Nonresidential New Square Feet
Single-Family	1	1	☐	☐	N/A	
Townhouses/Twins			☐	☐		
Apartments			☐	☐		
Commercial						
Industrial						
Office						
Institutional						
Other						

**Only indicate Open Space if it will be on a separate lot or deed restricted with an easement shown on the plan.*

Additional Information: Subdivide the property into two lots. Lot 1 to contain the existing single family dwelling and Lot 2 for future single-family use.

Effective 5/1/18

THE FOLLOWING IS FOR INTERNAL USE ONLY:

PAYMENT

☑ Application Fee Amount: $ 300.00 Check No.: # 266

☑ Review Escrow Fee Amount: $ 2,500.00 Check No.: # 267

DECISION INFORMATION

Approval ☐ Denial ☐ Decision Date: _____

Comments/Conditions:

PLANNING PROCESS EXTENSION AGREEMENT

FOR

1405 Rothley Avenue Subdivision

PROJECT NAME

The Pennsylvania Municipality Planning Code (MPC) and the Abington Township Subdivision and Land Development Ordinance state that action must be taken by the Township within ninety (90) days after a complete application is filed with the Township. In the Township, complicated, unique, and community impactful projects have or may require additional time in order to complete a thorough review before being considered for approval. As such, an applicant may voluntarily waive the timing requirement at any time, but is encouraged to submit this waiver with the completed application.

I, the applicant, hereby voluntarily waive the timing requirement as set forth in the MPC (Section 53 P.S. 10508) and the Abington Township Subdivision and Land Development Ordinance (Section 146-13). Applicant acknowledges that this waiver can be revoked at any time upon written notice to the Township Manager. The time limitations set forth in 53 P.S. 10508 and Section 146-13 of the Abington Township Code shall be calculated from the date that the written revocation is received by the Township Manager.

Signed: _____ Date: 12/21/20
Applicant

Received: _____ Date: _____
Township

ESCROW AGREEMENT FOR PROFESSIONAL REVIEW FEES FOR SUBDIVISION/LAND DEVELOPMENT APPLICATIONS

The undersigned hereby agrees to post an escrow to cover the costs of the review of subdivision and land development applications by the Township's Planner, Engineer, and Solicitor. The amount of said escrow shall be according to the attached "Schedule of Fees" and shall be posted at the time of initial submission of an application to the Township. Said fees shall be placed in an escrow account and any balance remaining shall be returned to the applicant subsequent to the receipt of final approval.

The applicant is advised that the "Schedule of Fees" represents only an estimate of the costs associated with plan review. The completeness and quality of the submission, the complexity of the project, the number of revisions and other factors may cause costs to exceed the established escrow amounts. If during the course of a subdivision/land development review an escrow amount falls to 10% of the original escrow amount or $250, whichever is greater, the Township may require the posting of additional escrow.

NOTE: NO FINAL APPROVALS, CONSTRUCTION, BUILDING OR OCCUPANCY PERMITS SHALL BE ISSUED UNTIL ALL OUTSTANDING PROFESSIONAL REVIEW FEES HAVE BEEN SATISFIED.

Signed: _____ Applicant Date: 12/29/20

Development within the Township of Abington:

Type of Application	Minimum Escrow Deposit	Application Fee
Residential Subdivision Application - maximum of four (4) proposed lots	$2,500.00	$300.00
Residential Subdivision Application - five (5) or more proposed lots	$5,000.00	$500.00
Residential Land Development Application - four (4) or fewer lots	$2,500.00	$300.00
Residential Land Development Application - five (5) or more lots	$5,000.00	$500.00
Non-Residential Subdivision or Land Development Application	$10,000.00	$1,000.00

BE IT FURTHER RESOLVED, that failure to submit the above listed required escrow deposit shall deem an application incomplete. No application shall be processed or reviewed unless and until all of the above fees have been paid.

BE IT FURTHER RESOLVED, that a nonrefundable 15% administrative fee shall be automatically deducted from all escrow deposits.

BE IT FURTHER RESOLVED, that the applicant or his/her agent shall reimburse to the Township from such escrow the reasonable and necessary professional expenses incurred by the Township in the review and approval process of the application and plan, including but not limited to, fees for the services of the Township Engineer related to the review and consideration of the application and plan, and fees for the services of the Township Solicitor related to the

FAX: (215) 576-7791 PHONE: (215) 887-2165

CHARLES E. SHOEMAKER, INC.
ENGINEERS AND SURVEYORS
SOUTHEAST CORNER OF EASTON & EDGE HILL ROADS
1007 EDGE HILL ROAD
ABINGTON, PENNSYLVANIA 19001

December 21, 2020

Amy Montgomery
Director of Engineering & Code
Abington Township
1176 Old York Road
Abington, PA 19001

RE: WAIVERS – 1405 Rothley Avenue Subdivision
Kevin S. Maguire & James J. Maguire, Jr.
Final Minor Subdivision Plan

Dear Ms. Montgomery:

On behalf of the Applicants, we are requesting consideration of the following waivers in connection with the proposed minor subdivision plan. The proposed subdivision is intended to create one new building lot for single-family dwelling use. No public improvements are proposed. Rothley Avenue is currently improved with both curb and sidewalk along the frontage of this property.

WAIVER LIST:

1. **Section 146-11.A.(4) & Section 146-11.B.(3)**
IDENTIFICATION & EXISTING FEATURES PLAN: From the requirement to include all tax parcel numbers, owner's names, lot acreage surrounding site within 400 feet.

2. **Section 146-11.B.(7)**
EXISTING FEATURES PLAN: From the requirement to include all property lines, names of owners, underground and above ground utilities within 400 feet of the site.

Please consider our request when reviewing the Minor Subdivision Plan.

Sincerely,

Gary A. Tilford, PLS
Charles E. Shoemaker, Inc.

cc: James J. Maguire, Applicant (via email)
Thomas Bowman, Esquire, (via email)
CES File #26581

Township of Abington

Engineering & Code Department

John L. Spiegelman, President
Thomas Hecker, Vice President

Richard J. Manfredi, Manager
Amy R. Montgomery, P.E., Director

August 19, 2020

Mr. Brian P. McVan, Esq.
162 S. Easton Rd.
Glenside, PA 19038

Re: Application # 20-01: 1405 Rothley Ave, Roslyn, PA 19001

Dear Mr. McVan,

This letter is sent to inform you that on August 18, 2020, the Zoning Hearing Board of the Township of Abington approved the dimensional relief you requested from Section 602, Figure 6.1 of the Zoning Ordinance of the Township of Abington for the construction of a new single family dwelling on Lot # 2. The relief granted allows the reduction of the side yard setback of Lot # 1 to 7.9 feet instead of the required 10 feet. Additional relief was granted to allow the lot width at the front building setback for Lot # 2 to be reduced to 48 feet and 3 inches instead of the required 50 feet. The property is zoned within the R-4 Residential District of Ward # 5 of the Township of Abington.

A subdivision application must be submitted with the Township within 180 days of the date of the decision. In the event that a subdivision application is not received within this time frame, the approval granted in this letter is voided. If there are any questions that you may have, please feel free to contact me at 267-536-1013.

Sincerely,

Shaun Littlefield
Interim Zoning Officer
Township of Abington

Township of Abington

Engineering & Code Department

John L. Spiegelman, President
Thomas Hecker, Vice President

Richard J. Manfredi, Manager
Amy R. Montgomery, P.E., Director

cc: Zoning Hearing Board Members
Bruce E. Eckel, Esq.
Engineering & Code Department Staff

Township of Abington
Zoning Hearing Board
1176 Old York Road
Abington, Pennsylvania, 19001

Barbara M. Wertheimer, Esq., Zoning Hearing Board, Chairperson
Jose Casalina, Zoning Hearing Board, Vice Chairperson
Michael O'Connor, Zoning Hearing Board, Secretary
John DiPrimio, Zoning Hearing Board Member
Laura Hanes, Zoning Hearing Board Member
Bruce J. Eckel, Zoning Hearing Board Solicitor

DECISION

20-01: This is the application of **Kevin & James Maguire**, owners of the property located at 1405 Rothley Ave, Roslyn, Pa. 19001. The applicants seek dimensional variances from Section 602, Figure 6.1 of the Zoning Ordinance of the Township in order to subdivide their property into two lots. Lot # 1 would contain the existing single family dwelling and Lot # 2 would be offered for development. The side yard setback for Lot # 1 would be reduced to 7.9 feet. The minimum side yard setback is 10 feet for a property within the R-4 Residential District. The lot width at the front building setback for Lot # 2 would be reduced to approximately 48 feet. The minimum required lot width is 50 feet. The property is zoned within the R-4 Residential District of Ward # 5 of the Township of Abington.

Hearing Dates: February 18, 2020, June 16, 2020, July 14, 2020
Decision Date: DATE 8/18/2020
Copy Mailed: DATE 8/19/2020

You are hereby notified that your application has been DENIED/APPROVED/APPROVED WITH THE FOLLOWING CONDITIONS, by decision rendered on August 18, 2020.

BOARD SIGNATURES	Vote	CONDITION(S)
Barbara M. Wertheimer Chairperson, Zoning Hearing Board	Aye: ✓ Nay:	
Jose Casalina Vice Chair, Zoning Hearing Board	Aye: ✓ Nay:	

Michael O'Connor
Secretary, Zoning Hearing Board

Aye: ✓
Nay: _____

_____
John DiPrimio
Zoning Hearing Board Member

Aye: /
Nay: _____

Laura Hanes
Zoning Hearing Board Member

Aye: /
Nay: _____

Dated: August 18, 2020

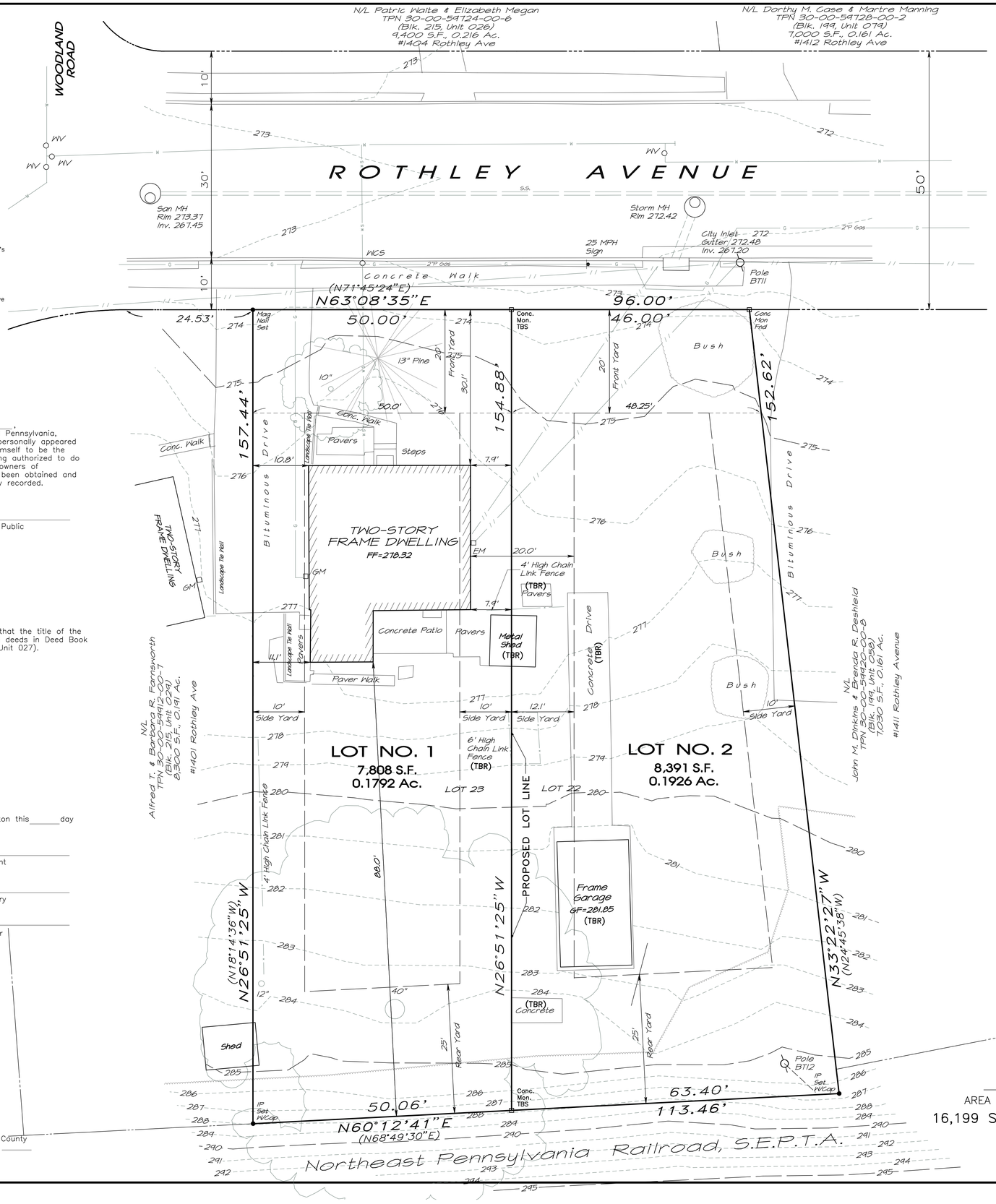
There is a 30-day period after the date of this decision for an aggrieved person to file an appeal in court to contest an approval or denial by the Zoning Hearing Board. Applicants that take action on a Zoning Hearing Board approval during the 30-day appeal period, do so at their own risk.

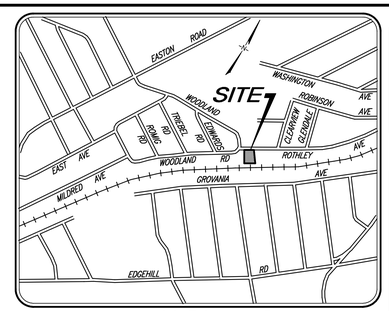
All applicable applications and/or permits must be secured from the Township of Abington within six months of the date of this decision or this decision becomes null and void.

LEGEND

- 385 — EXISTING CONTOUR
- FH — EXISTING FIRE HYDRANT
- PE592 — EXISTING UTILITY POLE
- GV — EXISTING GAS VALVE
- WV — EXISTING WATER VALVE
- CO — EXISTING SEWER CLEAN OUT
- WCS — EXISTING WATER CURB STOP
- EXISTING STORM SEWER w/ INLET
- EXISTING SANITARY SEWER w/ MANHOLE
- EXISTING OVERHEAD WIRE
- E — EXISTING ELECTRIC CONDUIT
- G — EXISTING GAS MAIN
- W — EXISTING WATER MAIN







LOCATION MAP
SCALE: 1" = 800'

'R4' HIGH DENSITY RESIDENTIAL DISTRICT

LOT USE: SEC. 601, Use Matrix Chart
EXISTING USE: Vacant
FUTURE USE: Single-Family Detached Dwelling

REGULATION	Z.O. SEC. No.	REQUIRED	EXISTING	PROPOSED LOT No. 1	PROPOSED LOT No. 1
DIMENSIONAL STANDARDS:	SEC. 602				
LOT AREA, Min.		7,500 FT.	16,199 S.F.	7,808 S.F.	8,391 S.F.
LOT WIDTH @ BSBL, Min.		50 FT.	98.3 FT.	50.0 FT.	48.25 FT. ✱
LOT DEPTH		100 FT.	155.0 FT.	156.2 FT.	153.8 FT.
BUILDING SETBACKS:					
FRONT YARD, Min.		20 FT.	30.1 FT.	30.1 FT.	20 FT.
SIDE YARD, Min.		10 FT.	10.8 FT.	7.9 FT. ✱	10 FT.
REAR YARD, Min.		25 FT.	88.0 FT.	88.0 FT.	25 FT.
LOT COVERAGE:					
BUILDING COVER, Max.		40 %	8.2 % (1,331 S.F.)	12.8 % (996 S.F.)	TBD
IMPERVIOUS COVER, Max.		55 %	18.9 % (3,054 S.F.)	26.8 % (2,089 S.F.)	TBD
GREEN AREA, Min.		45 %	81.1 % (13,145 S.F.)	73.2 % (5,719 S.F.)	TBD
BUILDINGS:					
BUILDING HEIGHT, Max.		35 FT.	21.7 FT.	21.7 FT.	--
BUILDING LENGTH, Max.		100 FT.	38.0 FT.	38.0 FT.	--
RESIDENTIAL DWELLING SEPARATION, Min.		20 FT.	20.2 FT.	20.0 FT.	20.0 FT.
DIMENSIONAL STANDARDS:	SEC. 603				
SIDE YARD, Min. (1)		20 FT.	N/A	N/A	N/A

(1) For every permitted use other than a dwelling unit or community service use, there shall be a minimum of two side yards, neither of which shall be less than 20 feet in width.

✱ VARIANCE GRANTED BY THE ABINGTON TOWNSHIP ZONING HEARING BOARD, CASE No. 20-01, ON 8/18/2020.

WAIVER LISTING:

SEC. 146-11.A.(4)
IDENTIFICATION PLAN: From the requirement to include all tax parcel numbers, owner's names, lot acreage surrounding site within 400 feet.

SEC. 146-11.B.(3)
EXISTING FEATURES PLAN: From the requirement to include all property lines and names of owners within 400 feet.

SEC. 146-11.B.(7)
EXISTING FEATURES PLAN: From the requirement to include all underground and above ground public and private utilities within 400 feet of site.

CERTIFICATIONS

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF MONTGOMERY

On the _____ day of _____, 20____, before me the subscriber, a Notary Public of the Commonwealth of Pennsylvania, residing in _____ County, personally appeared JAMES J. MAGUIRE, JR. & KEVIN S. MAGUIRE, who acknowledged themself to be the owners of TPN: 30-00-59916-00-3, and that as owners, and being authorized to do so, they executed the foregoing plan by signing that they are the owners of the designated land, that all necessary approvals of the plan have been obtained and is endorsed thereon, and desire that the forgoing plan may be duly recorded.

My Commission Expires

Notary Public

CERTIFICATION OF TRUE OWNERSHIP

We, JAMES J. MAGUIRE, JR. & KEVIN S. MAGUIRE do hereby certify that the title of the property is in our name, as recorded in the office for recording of deeds in Deed Book 5973 Page 01258, Co. Parcel No. 30-00-59916-00-3 (Blk 215, Unit 027).

JAMES J. MAGUIRE JR., Co-Owner
TPN: 30-00-59916-00-3

KEVIN S. MAGUIRE, Co-Owner
TPN: 30-00-59916-00-3

TOWNSHIP SIGNATURES

Approved by the Board of Commissioners of the Township of Abington this_____day of _____, 20____.

President

Attest
Secretary

Engineer

MCPC No. 20-0XXX-0XX

PROCESSED and REVIEWED. Report prepared by Montgomery County Planning Commission in accordance with the Municipalities Planning Code.

Certified this date _____

For the Director
Montgomery County Planning Commission

RECORDER OF DEEDS

Recorded in the Office for the Recording of Deeds, in and for the County of Montgomery, in Norristown, PA. in Plan Book _____ Page No. _____ on the _____ day of _____, 20____.

NOTES

1. Boundary information shown taken from deeds and plans of record, and field surveys performed by Charles E. Shoemaker, Inc. during June, 2019.
2. Topographic information shown taken from filed surveys performed by Charles E. Shoemaker, Inc. during June, 2019.
   Horizontal Datum based on NAD 1983, SPC83 Pennsylvania (South), Geoid Model g2003u08 using Boyd Instrument virtual network system.
   Vertical Datum based on NAVD 1988, using Boyd Instrument virtual network system. Bearings shown in parentheses, ie. (N71°45'24"E) are deed bearings.
3. The subject parcel is served by public water by AQUA PA and public sanitary sewer disposal by the Abington Township Wastewater Department.
4. Existing underground utility locations were plotted from utility company plans supplied to us in accordance with PA ONE CALL or by physical survey locations. All underground utility locations are approximate only. Contractors are required by PA ONE CALL to verify the exact locations of all underground utilities prior to commencing excavation activities. Pennsylvania One Call Systems, Inc., phone No. 1-800-242-1776
5. Site area is designated in Zone X, areas determined to be outside the 100-year flood plain as shown on FEMA Flood Insurance Rate Map of Montgomery County, Panel 313 of 451, Map No. 42091C0313G, effective March 2, 2016.
6. There are no identified or mapped wetlands within the subject premises.

REFERENCE PLANS:

a) Plan of Roslyn Gardens, prepared by George B. Mebus, Glenside, Pa., dated December 7, 1948, and last revised March 9, 1949. (Lots 22 & 23)
b) Plan Made for Joseph Dinkins, prepared by Charles E. Shoemaker, Inc., dated May 4, 1964, and last revised November 25, 1964.
c) Plan of Property made for Lois C. Samuel, prepared by Charles E. Shoemaker, Inc, dated January 2, 1975.

SITE AREA

AREA TO THE TITLE LINES
16,199 SF or 0.3719 Acres

PROFESSIONAL LAND SURVEYOR'S CERTIFICATION:

I, GARY A. TILFORD, a registered professional Land Surveyor in the Commonwealth of Pennsylvania, Registration No. 033144-E, do hereby certify to the best of my knowledge, the existing features, topography metes and bounds shown on this plan are in accordance with the minimum standards of practice for Professional Land Surveyors in the Commonwealth of Pennsylvania as adopted by the Pennsylvania Society of Land Surveyors in July of 1996 (or as subsequently adopted).

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — GARY A. TILFORD — LAND SURVEYOR — SU-033144-E

(Signature of Registered Professional Land Surveyor) (Date)

BY	REVISION	NO	DATE

TAX PARCEL NO. 30-00-59916-00-3
BLOCK / UNIT 215 / 027
SITE ADDRESS 1405 ROTHLEY AVENUE ROSLYN, PA. 19001
DEED BOOK - PAGE 5973-1258

OWNER OF RECORD
KEVIN S. & JAMES J., JR MAGUIRE
1405 ROTHLEY AVENUE
ROSLYN, PA. 19001

CHARLES E. SHOEMAKER, INC.
ENGINEERS & SURVEYORS
1007 EDGE HILL ROAD ABINGTON, PA. 19001
PHONE: 215-887-2165 FAX: 215-576-7791
E-MAIL: staff@ceshoemaker.com

SCALE 1" = 10'
0' 5' 10' 20' 30'

FINAL MINOR SUBDIVISION PLAN
of
1405 ROTHLEY AVENUE
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PA.
PREPARED FOR
KEVIN S. MAGUIRE & JAMES J. MAGUIRE, JR.
1405 ROTHLEY AVENUE
ROSLYN, PA. 19001

DATE
DECEMBER 2, 2020
DWG NO.
A-1-1855
JOB NO.
26581
SHEET NO.
1 of 1

FAX: (215) 576-7791

PHONE: (215) 887-2165

CHARLES E. SHOEMAKER, INC.

ENGINEERS AND SURVEYORS

SOUTHEAST CORNER OF EASTON & EDGE HILL ROADS

1007 EDGE HILL ROAD

ABINGTON, PENNSYLVANIA 19001

December 21, 2020

Amy Montgomery
Director of Engineering & Code
Abington Township
1176 Old York Road
Abington, PA 19001

RE: MINOR SUBDIVISION APPLICATION
Kevin S. Maguire & James J. Maguire, Applicants
1405 Rothley Avenue
Parcel No. 30-00-59916-00-3, Blk. 215, Unit 027

Dear Ms. Montgomery:

On behalf of the Applicant, we have prepared a Minor Subdivision Plan for the purpose of creating one new single-family residential building lot for future development.

The property is situated in the 'R4' High Density Residential District. The existing dwelling will remain on Lot 1, and Lot 2 will be for future development of a single-family dwelling.

This application package includes the following:

- Ten (10) copies of Final Minor Subdivision Plan dated December 2, 2020;
- One (1) 11x17 reduced copy of the plan;
- Plan Application Submission Checklist;
- Application for Subdivision/Land Development;
- Planning Process Extension Agreement;
- Escrow Agreement for Professional Review Fees;
- Applicant Request for Montgomery County Review;
- Listing of Waivers dated December 21, 2020;
- Sewage Facilities request for consideration of exemption dated December 3, 2020;
- Abington Township Subdivision/Land Development Application Fee ($300.00) payable to "Abington Township";
- Abington Township Escrow Fee ($2,500.00) payable to "Abington Township";
- CD (PDF Format) containing all submission materials.

Please accept this application on behalf of the Applicants James J. Maguire, Jr. and Kevin S. Maguire. We look forward to presenting this Minor Subdivision Plan to the Township Commissioners.

Please contact our office should you have any questions concerning the enclosed documents.

FAX: (215) 576-7791

PHONE: (215) 887-2165

CHARLES E. SHOEMAKER, INC.
ENGINEERS AND SURVEYORS

Sincerely,

Gary A. Tilford, PLS
Charles E. Shoemaker, Inc.

cc: James J. Maguire, Applicant
Thomas Bowman, Esquire (via email)
CES File #26581

APPLICATION FOR SUBDIVISION/LAND DEVELOPMENT

PROJECT TITLE: 1405 Rothley Avenue Subdivsion

APPLICANT NAME: Kevin S. Maguire & James J. Maguire, Jr.

TO BE COMPLETED BY THE TOWNSHIP
Submission Information:

Application Number: _____ Date Complete: _____

Received By: _____ 90 Day Date: _____

File Date: _____ Ward No. _____

REQUIRED MATERIAL FOR ALL SUBDIVISION/LAND DEVELOPMENT APPLICATIONS:

1. This form **MUST** be completed and submitted.
2. A Subdivision/ Land Development Application MUST include all of the items listed in the application checklist in Section V to be considered complete.
3. Incomplete application will **NOT** be placed on the Planning Commission agenda. Incomplete applications will be returned to the applicant.
4. Complete applications must be received at least 45 DAYS (see schedule) prior to the Planning Commission meeting at which it will be heard.
5. Ten (10) full size paper copies, and one (1) 11x17 reduced copy of the plans, plus three (3) copies of each report or study are to be submitted in the initial submission of the complete application. A digital copy of all submitted documents must be included with the application.

   ***It is highly encouraged to submit applications in a digital format**

I. CONTACT INFORMATION

Applicant Information

James J. Maguire, Jr.
Name

1405 Rothley Avenue, Roslyn, PA 19001
Address

215-620-5250
Phone Fax

abingtonautotops@gmail.com
Email Address

Property Owners Information (if different than applicant)

Kevin S. Maguire and James J. Maguire, Jr.
Name

1405 Rothley Avenue, Roslyn, PA 19001
Address

215-620-5250
Phone Fax

abingtonautotops@gmail.com
Email Address

Architect/ Planner

Name

Address

Phone Fax

Email Address

Engineer/ Surveyor

Charles E. Shoemaker, Inc. c/o Gary Tilford, PLS
Name

1007 Edge Hill Road, Abington, PA 19001
Address

Engineer/ Surveyor Cont'd	215-887-2165	215-576-7791
	Phone	Fax
	gtilford@ceshoemaker.com	
	Email Address	
Attorney	Thomas Bowman, Esquire	
	Name	
	1156 Easton Road, Roslyn, PA 19001	
	Address	
	215-886-7489	
	Phone	Fax
	tbowman1999@aol.com	
	Email Address	

II. PROJECT INFORMATION

Application Type:

- [x] Minor Subdivision
- [ ] Preliminary Major Subdivision
- [ ] Final Major Subdivision
- [ ] Minor Land Develop.
- [ ] Prelim. Major Land Develop.
- [ ] Final Major Land Develop.
- [ ] Preliminary Major SD & LD
- [ ] Final Major SD & LD

Full street address of the property: 1405 Rothley Avenue, Roslyn, PA 19001

Tax Parcel No.: 30-00-59916-00-3 County Deed Book No.: 5973 Page No.: 1258

Description of Proposed Work:
Two lot subdivision, one new building lot and one existing dwelling to remain.

Total Tract Acreage: 16,199 S.F. Project Acreage: 0.3719 Ac.

Zoning District: R4 Existing Number of Lots: 1 Proposed Number of Lots: 2

Existing Sewer Flows: 265 gal/day (one EDU) Proposed Sewer Flows: 530 gal/day (two EDU's)

Proposed Land Use:

- [x] Single Family Detached
- [ ] Single Family Attached
- [ ] Single Family Semi-Detached
- [ ] Multi-Family
- [ ] Commercial
- [ ] Office
- [ ] Industrial
- [ ] Other (Describe):

III. REVIEW

Please complete the following section by circling a response:

- Have you met with the Zoning Officer regarding this plan? Yes ◉ No ○
- Are there known variances/any zoning relief necessary for this project?* Yes ◉ No ○
- If YES, have you submitted an application to the Zoning Hearing Board? Yes ◉ No ○
- Has this plan been heard by the Zoning Hearing Board? Yes ◉ No ○

*Please be advised that if any variances are found to be necessary during the course of the review of this plan, you will be required to go to the Zoning Hearing Board prior to proceeding to the Planning Commission. In addition, you will be requested to grant the Township a waiver to the 90-day action period or an immediate denial of this application will be made, and you will be required to resubmit the application.

It is recommended that ALL Land Development and Major Subdivision applications have a pre-submission meeting to discuss the project prior to full application submittal.

Minor Subdivision applications may request a pre-submission meeting; if one is desired.

Meetings are held the fourth Tuesday of each month beginning at 9:30 a.m. at the Township Administrative Offices.

Applicants assume responsibility of any fees associated with this meeting.

_____ _____

Applicant signature Date

To schedule a pre-submission meeting, please contact the office of the Township Manager at 267-536-1003 or email tcastorina@abingtonpa.gov

IV. WAIVERS

List of Requested Waivers: Attach separate sheet if required.

Section/Requirement:	**Relief Requested:**
SEC. 146-11.A.(4)	IDENTIFICATION PLAN, all tax parcel numbers, owner names and acreage within 400 feet
SEC. 146-11.B.(3)	EXISTING FEATURES PLAN, all property lines and names of owners within 400 feet
SEC. 146-11.B.(7)	EXISTING FEATURES PLAN, all underground utilities within 400 feet

V. SUBMISSION

APPLICATION CHECKLIST

The applicant is responsible for the submission of a complete application. This checklist will aid both the applicant and staff in ensuring that all applications are complete. The following is a per item submission checklist for all Subdivision, Land Development and Conditional Use Applications for the Township of Abington.

- [x] Application Form: completed and signed by the owner/applicant
- [x] 10 (ten) copies of the proposed plan, folded to legal file size. Plan should not be smaller than 1" = 50'and not exceed a sheet size of 24"x 36"
- [x] One (1) reduced copy of the proposed plan, no larger than 11"x17"
- [ ] Two (2) sets of tentative architectural plans for all applications proposing construction or land development
- [ ] One (1) copy of the Recreation Facilities Plan (if required by §146-40)
- [ ] Letter of Sanitary Sewer availability from the Township Wastewater Treatment Department Two
- [x] (2) copies of Sewage Facilities Planning Module Applications
- [x] Letter of Water availability from AQUA PA
- [x] One (1) copy of any previous Zoning Hearing Board decisions related to the subject property
- [x] One (1) Digital copy of all submitted documents
- [x] Application Fee: Check made payable to the Township of Abington
- [x] Escrow Fee: Check made payable to the Township of Abington. Separate check from application fee

VI. SIGNATURE

The undersigned represents that to the best of his/her knowledge and belief, all the above statements are true, correct, and complete.

Signature of Applicant _____ Date _____

Signature of Property Owner (if different than applicant) _____ Date _____

Applicant Request for County Review

This request should be filled out by the applicant and submitted to the municipality where the application is being filed along with digital copies of all plan sets/information. Municipal staff will electronically file the application with the county, and a notice for the prompt payment of any fees will be emailed to the Applicant's Representative.

MONTGOMERY COUNTY PLANNING COMMISSION
MCPC
P.O. Box 311, Norristown, PA 19404-0311
Phone: 610-278-3722
Business Hours: 8:30 A.M. to 4:15 P.M.
www.planning.montcopa.org

Date: _____
Municipality: Abington Township

Proposal Name: 1405 Rothley Avenue Subdivision

Applicant Name: Kevin S. Maguire & James J. Maquire, Jr.
Address: 1405 Rothley Avenue
City/State/Zip: Roslyn, PA, 19001
Phone: 215-620-5250
Email: abingtonautotops@gmail.com

Applicant's Representative: Charles E. Shoemaker, Inc.
Address: c/o Gary Tilford, PLS
1007 Edge Hill Road
City/State/Zip: Abington, PA 19001
Business Phone (required): 215-887-2165
Business Email (required): gtilford@ceshoemaker.com

Type of Review Requested:

(Check All Appropriate Boxes)

- ☐ Land Development Plan
- ☑ Subdivision Plan
- ☐ Residential Lot Line Change
- ☐ Nonresidential Lot Line Change
- ☐ Zoning Ordinance Amendment
- ☐ Zoning Map Amendment
- ☐ Subdivision Ordinance Amendment
- ☐ Curative Amendment
- ☐ Comprehensive / Other Plan
- ☐ Special Review*

**(Not included in any other category - includes parking lot or structures that are not associated with new building square footage)*

Type of Plan:

- ○ Tentative (Sketch)
- ◉ Preliminary / Final

Type of Submission:

- ◉ New Proposal
- ○ Resubmission*

** A proposal is NOT a resubmission if A) The proposed land use changes, or B) The amount of residential units or square footage proposed changes more than 40%, or C) The previous submission was over 5 years ago.*

Zoning:

Existing District: R4 High Density Residential District
Special Exception Granted ○ Yes ◉ No
Variance Granted ◉ Yes ○ No For Dimensional variance for side yard setback (Lot 1) and Lot Width (Lot 2), #20-01

Plan Information:

Tax Parcel Number(s) 30-00-59916-00-3 (Blk 215, Unit 027)

Location *(address or frontage)* 1405 Rothly Avenue
Nearest Cross Street Woodland Road
Total Tract Area 16,199 S.F.
Total Tract Area Impacted By Development 16,199 S.F.

(If the development is a building expansion, or additional building on existing development, or only impacts a portion of the tract, please provide a rough estimate of the land impacted, including associated yards, drives, and facilities.)

Land Use(s)	Number of New Lots	Number of New Units	Senior Housing Yes	Senior Housing No	Open Space Acres*	Nonresidential New Square Feet
Single-Family	1	1	☐	☐	N/A	
Townhouses/Twins			☐	☐		
Apartments			☐	☐		
Commercial						
Industrial						
Office						
Institutional						
Other						

**Only indicate Open Space if it will be on a separate lot or deed restricted with an easement shown on the plan.*

Additional Information: Subdivide the property into two lots. Lot 1 to contain the existing single family dwelling and Lot 2 for future single-family use.

Effective 5/1/18

THE FOLLOWING IS FOR INTERNAL USE ONLY:

PAYMENT

☐ Application Fee Amount: $_____ Check No.: #_____

☐ Review Escrow Fee Amount: $_____ Check No.: #_____

DECISION INFORMATION

Approval ☐ Denial ☐ Decision Date: _____

Comments/Conditions:

PLANNING PROCESS EXTENSION AGREEMENT

FOR

1405 Rothley Avenue Subdivision

PROJECT NAME

The Pennsylvania Municipality Planning Code (MPC) and the Abington Township Subdivision and Land Development Ordinance state that action must be taken by the Township within ninety (90) days after a complete application is filed with the Township. In the Township, complicated, unique, and community impactful projects have or may require additional time in order to complete a thorough review before being considered for approval. As such, an applicant may voluntarily waive the timing requirement at any time, but is encouraged to submit this waiver with the completed application.

I, the applicant, hereby voluntarily waive the timing requirement as set forth in the MPC (Section 53 P.S. 10508) and the Abington Township Subdivision and Land Development Ordinance (Section 146-13). Applicant acknowledges that this waiver can be revoked at any time upon written notice to the Township Manager. The time limitations set forth in 53 P.S. 10508 and Section 146-13 of the Abington Township Code shall be calculated from the date that the written revocation is received by the Township Manager.

Signed: _____ Date: _____
Applicant

Received: _____ Date: _____
Township

ESCROW AGREEMENT FOR PROFESSIONAL REVIEW FEES FOR SUBDIVISION/LAND DEVELOPMENT APPLICATIONS

The undersigned hereby agrees to post an escrow to cover the costs of the review of subdivision and land development applications by the Township's Planner, Engineer, and Solicitor. The amount of said escrow shall be according to the attached "Schedule of Fees" and shall be posted at the time of initial submission of an application to the Township. Said fees shall be placed in an escrow account and any balance remaining shall be returned to the applicant subsequent to the receipt of final approval.

The applicant is advised that the "Schedule of Fees" represents only an estimate of the costs associated with plan review. The completeness and quality of the submission, the complexity of the project, the number of revisions and other factors may cause costs to exceed the established escrow amounts. If during the course of a subdivision/land development review an escrow amount falls to 10% of the original escrow amount or $250, whichever is greater, the Township may require the posting of additional escrow.

NOTE: NO FINAL APPROVALS, CONSTRUCTION, BUILDING OR OCCUPANCY PERMITS SHALL BE ISSUED UNTIL ALL OUTSTANDING PROFESSIONAL REVIEW FEES HAVE BEEN SATISFIED.

Signed: _____ Date: _____
Applicant

Development within the Township of Abington:

Type of Application	Minimum Escrow Deposit	Application Fee
Residential Subdivision Application - maximum of four (4) proposed lots	$2,500.00	$300.00
Residential Subdivision Application - five (5) or more proposed lots	$5,000.00	$500.00
Residential Land Development Application - four (4) or fewer lots	$2,500.00	$300.00
Residential Land Development Application - five (5) or more lots	$5,000.00	$500.00
Non-Residential Subdivision or Land Development Application	$10,000.00	$1,000.00

BE IT FURTHER RESOLVED, that failure to submit the above listed required escrow deposit shall deem an application incomplete. No application shall be processed or reviewed unless and until all of the above fees have been paid.

BE IT FURTHER RESOLVED, that a nonrefundable 15% administrative fee shall be automatically deducted from all escrow deposits.

BE IT FURTHER RESOLVED, that the applicant or his/her agent shall reimburse to the Township from such escrow the reasonable and necessary professional expenses incurred by the Township in the review and approval process of the application and plan, including but not limited to, fees for the services of the Township Engineer related to the review and consideration of the application and plan, and fees for the services of the Township Solicitor related to the

FAX: (215) 576-7791

PHONE: (215) 887-2165

CHARLES E. SHOEMAKER, INC.
ENGINEERS AND SURVEYORS
SOUTHEAST CORNER OF EASTON & EDGE HILL ROADS
1007 EDGE HILL ROAD
ABINGTON, PENNSYLVANIA 19001

December 21, 2020

Amy Montgomery
Director of Engineering & Code
Abington Township
1176 Old York Road
Abington, PA 19001

RE: WAIVERS – 1405 Rothley Avenue Subdivision
Kevin S. Maguire & James J. Maguire, Jr.
Final Minor Subdivision Plan

Dear Ms. Montgomery:

On behalf of the Applicants, we are requesting consideration of the following waivers in connection with the proposed minor subdivision plan. The proposed subdivision is intended to create one new building lot for single-family dwelling use. No public improvements are proposed. Rothley Avenue is currently improved with both curb and sidewalk along the frontage of this property.

WAIVER LIST:

1. **Section 146-11.A.(4) & Section 146-11.B.(3)**
IDENTIFICATION & EXISTING FEATURES PLAN: From the requirement to include all tax parcel numbers, owner's names, lot acreage surrounding site within 400 feet.

2. **Section 146-11.B.(7)**
EXISTING FEATURES PLAN: From the requirement to include all property lines, names of owners, underground and above ground utilities within 400 feet of the site.

Please consider our request when reviewing the Minor Subdivision Plan.

Sincerely,

Gary A. Tilford, PLS
Charles E. Shoemaker, Inc.

cc: James J. Maguire, Applicant (via email)
Thomas Bowman, Esquire, (via email)
CES File #26581

FAX: (215) 576-7791

PHONE: (215) 887-2165

CHARLES E. SHOEMAKER, INC.
ENGINEERS AND SURVEYORS
SOUTHEAST CORNER OF EASTON & EDGE HILL ROADS
1007 EDGE HILL ROAD
ABINGTON, PENNSYLVANIA 19001

December 3, 2020

George R. Wrigley
Director or Wastewater Utilities
Abington Township
1000 Fitzwatertown Road
Roslyn, PA 19001

RE: James J. Maguire, Jr. & Kevin S. Maguire
Act 537 SEWAGE EXEMPTION
1405 Rothley Avenue, Lot #2
Abington Township, Montgomery Co., PA

Dear Mr. Wrigley:

On behalf of James and Kevin Maguire, we have prepared the Act 537 Post Card form for your review. This application is for one (1) EDU for a new single-family dwelling for proposed Lot No. 2 of the subdivision of 1405 Rothley Avenue.

The application package includes the following documents:

1. Act 537 Post Card application form
2. Aqua will serve letter
3. PNDI Search
4. Pending Final Minor Subdivision Plan, A-1-1855 dated 12/02/2020

Should you have any questions or need additional information please let me know. I believe this project is eligible for an exemption by DEP.

If you agree an exemption is applicable, please request the signature by the Township Manager and forward to DEP for review.

Sincerely,

Gary A. Tilford, PLS
Charles E. Shoemaker, Inc.

Cc: James J, Maguire (via email)
Thomas Bowman, Esq. (via email)
Amy Montgomery, P.E., Abington Township (via email)
CES #26581

3800-CD-BCW0359 12/2018

1. **Development Information**

Name of Development 1405 Rothely Ave Subdivsion

Developer Name James J. Maguire

Address 1405 Rothley Avenue, Roslyn, PA 19001

Telephone # 215-620-5250

Email abingtonautotops@gmail.com

2. **Location of Development**

a. County Montgomery

b. Municipality Abington

c. Address or Coordinates 1405 Rothley Avenue, Roslyn, PA 19001

d. Tax Parcel # 30-00-59916-00-3

e. USGS Quad Name Ambler, PA

inches up 0.5 over 0.0

from bottom right corner of map.

f. Located in a High Quality/Exceptional Value watershed?

☐ Yes ☒ No

3. **Type of Development Proposed** (check appropriate box)

☒ Residential ☐ Multi-Residential

Describe One Single-Family Dwelling

☐ Commercial ☐ Institutional

Describe

☐ Brownfield Site Redevelopment

☐ Other (specify)

4. **Size**

a. # of lots One # of EDUs One

b. # of lots since 5/15/72 One

c. Development Acreage 8,391 S.F. or 0.193 Ac.

d. Remaining Acreage 0.0 Ac.

5. **Sewage Flows** 265 gpd

6. **Proposed Sewage Disposal Method** (check applicable boxes)

a. ☒ Sewerage System

☒ Existing (connection only) ☐ New (extension)

☒ Public ☐ Private

☐ Pump Station(s)/Force Main ☒ Gravity

Name of existing system being extended

Abington Township Waste Water System

Interceptor Name Sandy Run

Treatment Facility Name Abington Township Waste Water Plant

NPDES Permit # PA0026867

b. ☐ Construction of Treatment Facility

☐ With Stream Discharge

☐ With Land Application (not including IRSIS)

☐ Other

☐ Repair?

Name of waterbody where point of discharge is proposed (if stream discharge)

c. ☐ Onlot Sewage Disposal Systems (check appropriate box)

☐ Individual onlot system(s) (including IRSIS)

☐ Community onlot system

☐ Large-Volume onlot system

d. ☐ Retaining tanks

Number of Holding Tanks

Number of Privies

7. ☒ **Request Sewage Facilities Planning Module forms in electronic format**

8. **Request for Planning Exemption**

a. Protection of rare, endangered or threatened species

Check one:

☒ The "PNDI Project Environmental Review Receipt" is attached

or

☐ A completed "PNDI Project Planning & Environmental Review Form," (PNDI Form) is attached. I request DEP staff to complete the required PNDI search for my project. I realize that my planning exemption will be considered incomplete and that the DEP processing of my planning exemption request will be delayed, until a "PNDI Project Environmental Review Receipt" and all supporting documentation from jurisdictional agencies (when necessary) is/are received by DEP.

Applicant or Consultant Initials

b. ☒ Plot Plan Attached ☐ Site Reports Attached

c. Onlot Disposal Systems

(1) I certify that the Official Plan shows this area as an onlot service area.

(Signature of Municipal Official) Date

Name (Print) Title

Municipality (must be same as in 2.b.)

Telephone #

(2) I certify that each lot in this subdivision has been tested and is suitable for both a primary and replacement sewage disposal system.

Signature of SEO) Date

Name (Print) Certification #

Telephone #

(3) I certify that each lot in this subdivision is at least 1 acre in size

(Signature of Project Applicant/Agent) Date

d. Public Sewerage Service (i.e., ownership by municipality or authority)

Based upon written documentation, I certify that the facilities proposed for use have capacity and that no overload exists or is projected within 5 years. (Attach documents.)

(Signature of Municipal Official) Date

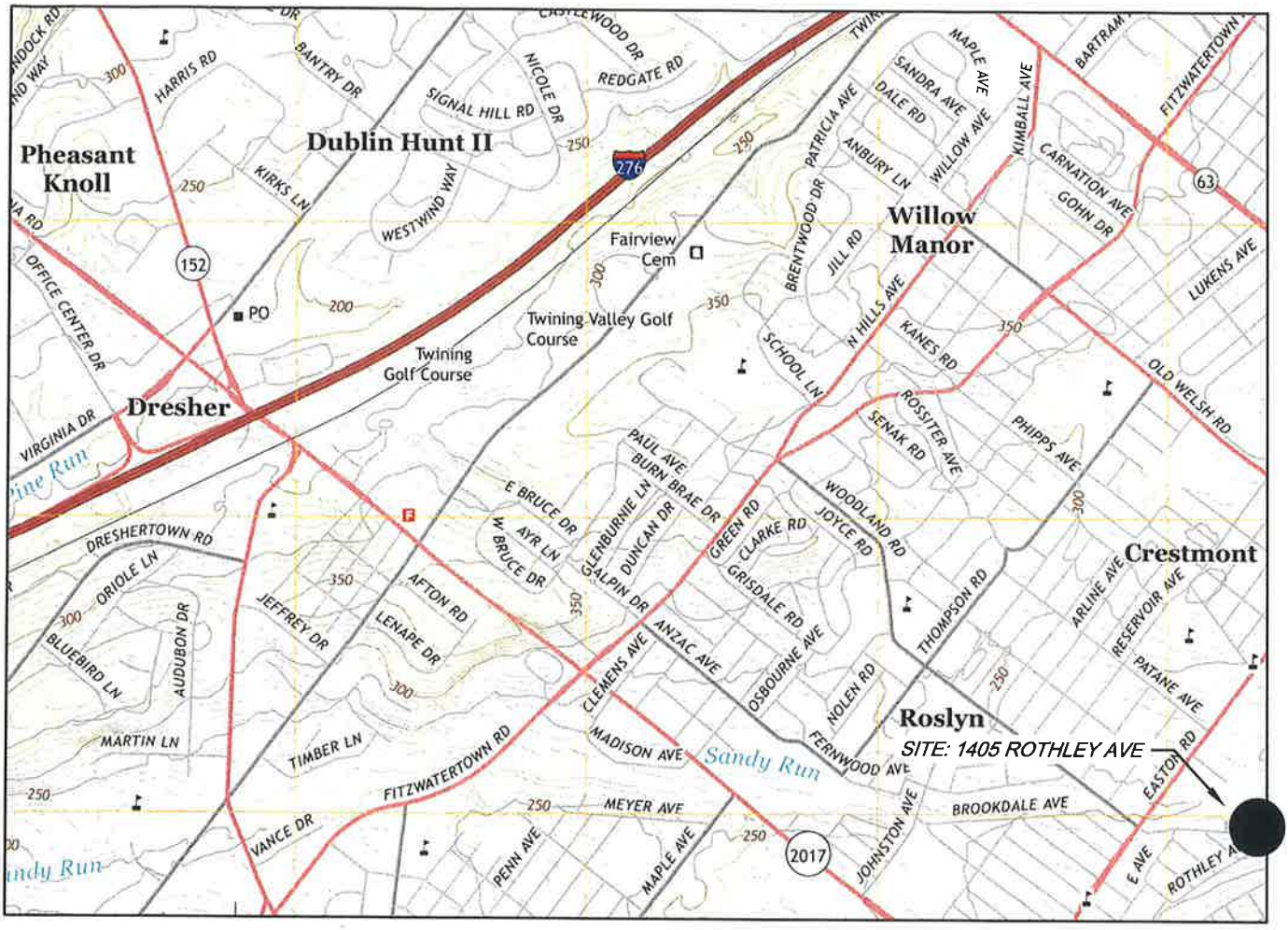
Richard J. Manfredi /Manager

Name (Print) Title

Abington Township

Municipality (must be same as in 2.b.)

Telephone # 267-536-1000



USGS QUADRANGLE
AMBLER, PA

SCALE: 1" = 2000'

AQUA

December 2, 2020

Gary Tilford
Charles E Shoemaker Inc
Abington, PA

Re: Water Availability
1405 Rothley Ave
Abington Twp, Montgomery County

In response to your request, this letter will serve as confirmation that the above referenced property is situated within Aqua Pennsylvania Inc. service territory.

Domestic and fire water service is available to this property and will be provided in accordance with Aqua Pennsylvania, Inc. Rules and Regulations. For further details, visit www.aquaamerica.com.

With regard to our capacity for domestic and fire service for this area, flow data information can be obtained upon written request to Lisa Thomas-Oliva of our Control Center at LATHOMAS-OLIVA@AQUAAMERICA.COM. Include the address with town or township and the nearest intersecting street.

Should you have any further questions or need to request an application for service, contact me at (610) 541-4160 or dlciotti@aquaamerica.com.

Regards,

Deanna L. Ciotti
Special Services Coordinator-New Business Applications
Aqua Pennsylvania, Inc
700 W Sproul Rd
Springfield, PA 19064
O: 610.541.4160

1. PROJECT INFORMATION

Project Name: **1405 Rothley Ave**
Date of Review: **12/2/2020 04:18:50 PM**
Project Category: **Development, Residential, subdivision which will contain 1-2 lots with 1-2 single family living units**
Project Area: **0.64 acres**
County(s): **Montgomery**
Township/Municipality(s): **ABINGTON TOWNSHIP**
ZIP Code:
Quadrangle Name(s): **AMBLER; HATBORO**
Watersheds HUC 8: **Schuylkill**
Watersheds HUC 12: **Lower Wissahickon Creek**
Decimal Degrees: **40.127202, -75.124962**
Degrees Minutes Seconds: **40° 7' 37.9260" N, 75° 7' 29.8615" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

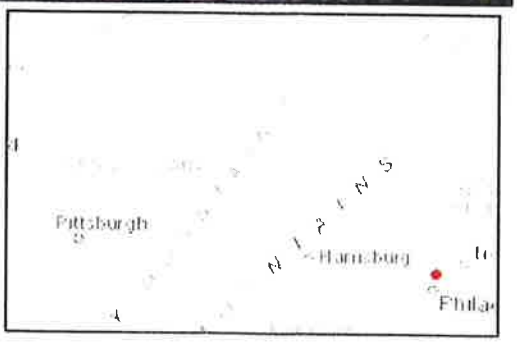
As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

1405 Rothley Ave



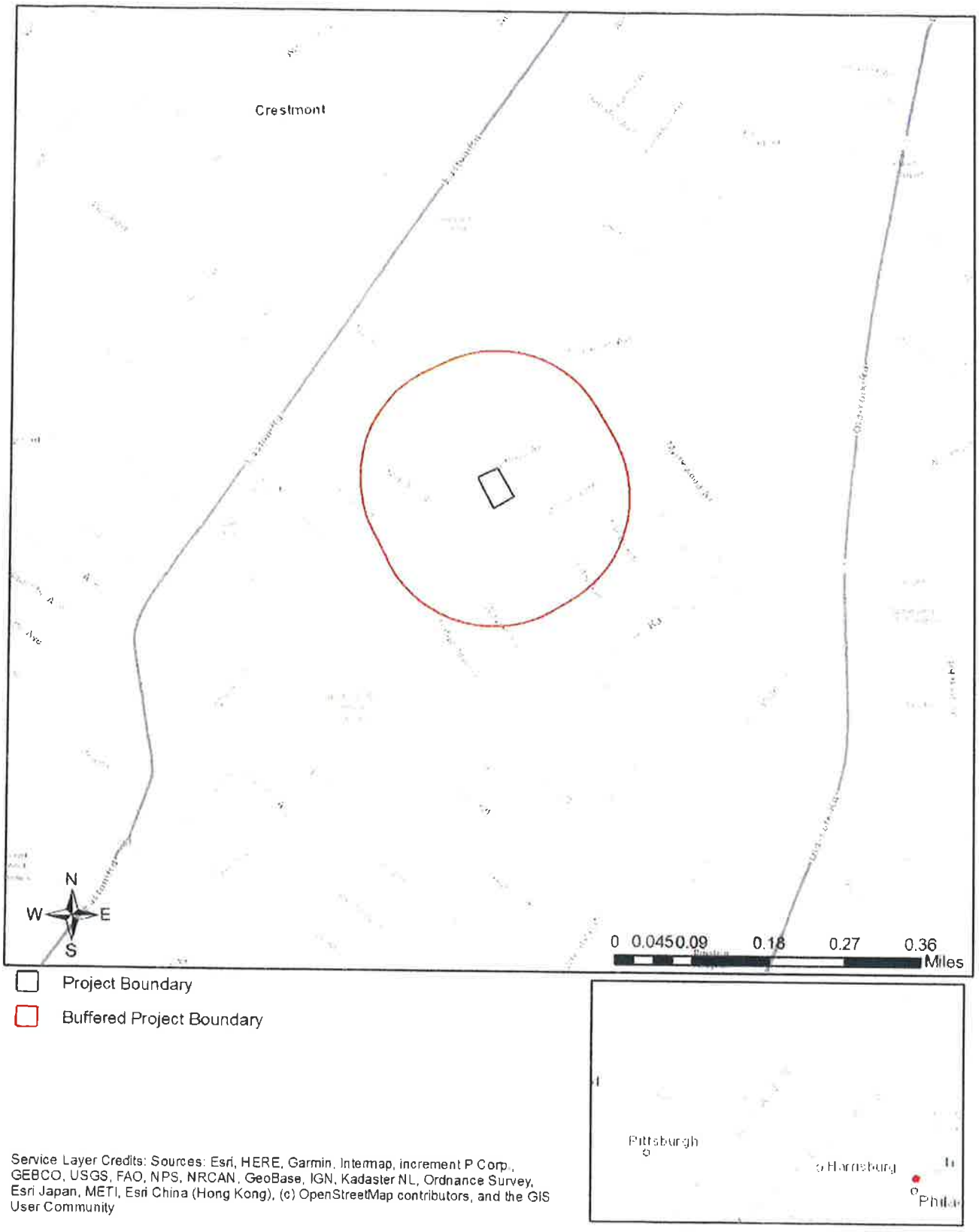
Project Boundary

Buffered Project Boundary



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China

1405 Rothley Ave



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service
RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

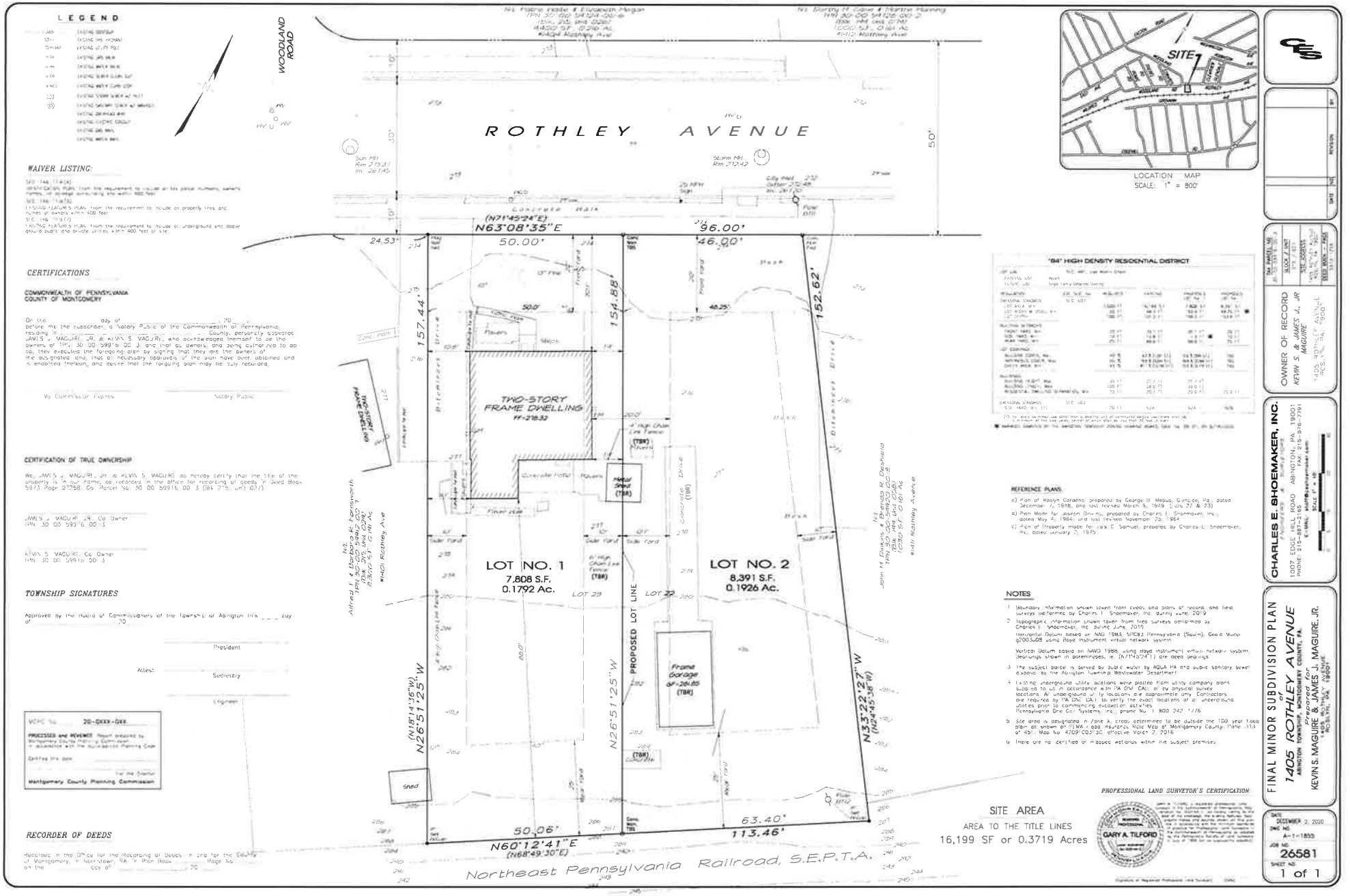
Name: MARGARET GREENBERG
Company/Business Name: CHARLES E. SHOEMAKER, INC.
Address: 1007 EDGE HILL ROAD
City, State, Zip: ABINGTON, PA 19011
Phone: (215) 887-2165 Fax: (215) 576-7791
Email: MGREENBERG@CESHOEMAKER.COM

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Margaret Greenberg
applicant/project proponent signature

DECEMBER 2, 2020
date


LEGEND
WOODLAND ROAD
ROTHLEY AVENUE
50'
(N71°45'24"E)
N63°08'35"E
50.00'
96.00'
46.00'
24.53'
157.44'
154.88'
152.62'
TWO-STORY FRAME DWELLING
FF=218.33
LOT NO. 1
7,808 S.F.
0.1792 Ac.
LOT NO. 2
8,391 S.F.
0.1926 Ac.
PROPOSED LOT LINE
Frame Garage
Shed
(N18°14'35"W)
N26°51'25"W
N26°51'25"W
(N24°45'38"W)
N33°22'27"W
50.06'
N60°12'41"E
(N68°49'30"E)
63.40'
113.46'
Northeast Pennsylvania Railroad, S.E.P.T.A.
Alfred J. & Linda R. Farnsworth
TPN 30-00-59412-00-6
Tax Blk. 245, Unit 0041
12,500 S.F. 0.1961 Ac.
#1400 Rothley Ave
John M. Dykins & Brenda R. Dashield
TPN 30-00-59412-00-8
Tax Blk. 245, Unit 0043
1,030 S.F. 0.1181 Ac.
#1412 Rothley Avenue
N/F
Paul Ramp
#1410 Rothley Avenue
Driveway
Concrete Drive
Concrete Patio
Flagstone Patio
Shed
Metal Shed (TBR)
Frame Garage (TBR)
Concrete Pad
Flagstone Walk
Concrete Walk
Front Yard
Side Yard
Rear Yard
6' High Chain Link Fence (TBR)
Utility Pole
Sign
Inlet
Sanitary Manhole
Sewer Line
Water Line
Gas Line
Electric Line
Overhead Wires
San MH Rim 219.31 Inv. 207.42
Storm MH Rim 210.42
City Hall Datum 232
Datum 232.46
Inv. 209.76
Conc. Mon.
Iron Pin
Set Iron Pin
Found Iron Pin
Found Nail
Set Nail
Found Drill Hole
Set Drill Hole
Found Mon.
Set Mon.
Found Cross
Set Cross
Found Chiseled "X"
Set Chiseled "X"
Found Copper Pin
Set Copper Pin
Found Pipe
Set Pipe
Found Spike
Set Spike
Found Bolt
Set Bolt
Found Rebar
Set Rebar
Found Stone
Set Stone
Found Concrete Mon.
Set Concrete Mon.
Found Terra Cotta Mon.
Set Terra Cotta Mon.
Found Lead Plug
Set Lead Plug
Found Wood Plug
Set Wood Plug
Found Wood Stake
Set Wood Stake
Found Wood Hub
Set Wood Hub
Found Wood Peg
Set Wood Peg
Found Wood Post
Set Wood Post
Found Wood Pile
Set Wood Pile
Found Wood Plank
Set Wood Plank
Found Wood Board
Set Wood Board
Found Wood Beam
Set Wood Beam
Found Wood Timber
Set Wood Timber
Found Wood Log
Set Wood Log
Found Wood Tree
Set Wood Tree
Found Wood Stump
Set Wood Stump
Found Wood Root
Set Wood Root
Found Wood Branch
Set Wood Branch
Found Wood Leaf
Set Wood Leaf
Found Wood Bark
Set Wood Bark
Found Wood Sap
Set Wood Sap
Found Wood Resin
Set Wood Resin
Found Wood Pitch
Set Wood Pitch
Found Wood Tar
Set Wood Tar
Found Wood Creosote
Set Wood Creosote
Found Wood Preservative
Set Wood Preservative
Found Wood Paint
Set Wood Paint
Found Wood Stain
Set Wood Stain
Found Wood Varnish
Set Wood Varnish
Found Wood Lacquer
Set Wood Lacquer
Found Wood Shellac
Set Wood Shellac
Found Wood Oil
Set Wood Oil
Found Wood Wax
Set Wood Wax
Found Wood Polish
Set Wood Polish
Found Wood Finish
Set Wood Finish
Found Wood Coating
Set Wood Coating
Found Wood Protection
Set Wood Protection
Found Wood Treatment
Set Wood Treatment
Found Wood Maintenance
Set Wood Maintenance
Found Wood Repair
Set Wood Repair
Found Wood Replacement
Set Wood Replacement
Found Wood Restoration
Set Wood Restoration
Found Wood Conservation
Set Wood Conservation
Found Wood Preservation
Set Wood Preservation

Township of Abington

Engineering & Code Department

John L. Spiegelman, President
Thomas Hecker, Vice President

Richard J. Manfredi, Manager
Amy R. Montgomery, P.E., Director

August 19, 2020

Mr. Brian P. McVan, Esq.
162 S. Easton Rd.
Glenside, PA 19038

Re: Application # 20-01: 1405 Rothley Ave, Roslyn, PA 19001

Dear Mr. McVan,

This letter is sent to inform you that on August 18, 2020, the Zoning Hearing Board of the Township of Abington approved the dimensional relief you requested from Section 602, Figure 6.1 of the Zoning Ordinance of the Township of Abington for the construction of a new single family dwelling on Lot # 2. The relief granted allows the reduction of the side yard setback of Lot # 1 to 7.9 feet instead of the required 10 feet. Additional relief was granted to allow the lot width at the front building setback for Lot # 2 to be reduced to 48 feet and 3 inches instead of the required 50 feet. The property is zoned within the R-4 Residential District of Ward # 5 of the Township of Abington.

A subdivision application must be submitted with the Township within 180 days of the date of the decision. In the event that a subdivision application is not received within this time frame, the approval granted in this letter is voided. If there are any questions that you may have, please feel free to contact me at 267-536-1013.

Sincerely,

Shaun Littlefield
Interim Zoning Officer
Township of Abington

cc: Zoning Hearing Board Members
Bruce E. Eckel, Esq.
Engineering & Code Department Staff

Township of Abington
Zoning Hearing Board
1176 Old York Road
Abington, Pennsylvania, 19001

Barbara M. Wertheimer, Esq., Zoning Hearing Board, Chairperson
Jose Casalina, Zoning Hearing Board, Vice Chairperson
Michael O'Connor, Zoning Hearing Board, Secretary
John DiPrimio, Zoning Hearing Board Member
Laura Hanes, Zoning Hearing Board Member
Bruce J. Eckel, Zoning Hearing Board Solicitor

DECISION

20-01: This is the application of **Kevin & James Maguire**, owners of the property located at 1405 Rothley Ave, Roslyn, Pa. 19001. The applicants seek dimensional variances from Section 602, Figure 6.1 of the Zoning Ordinance of the Township in order to subdivide their property into two lots. Lot # 1 would contain the existing single family dwelling and Lot # 2 would be offered for development. The side yard setback for Lot # 1 would be reduced to 7.9 feet. The minimum side yard setback is 10 feet for a property within the R-4 Residential District. The lot width at the front building setback for Lot # 2 would be reduced to approximately 48 feet. The minimum required lot width is 50 feet. The property is zoned within the R-4 Residential District of Ward # 5 of the Township of Abington.

Hearing Dates: February 18, 2020, June 16, 2020, July 14, 2020
Decision Date: DATE 8/18/2020
Copy Mailed: DATE 8/19/2020

You are hereby notified that your application has been DENIED/APPROVED/APPROVED WITH THE FOLLOWING CONDITIONS, by decision rendered on August 18, 2020.

BOARD SIGNATURES	Vote	CONDITION(S)
Barbara M. Wertheimer Chairperson, Zoning Hearing Board	Aye: ✓ Nay:	
Jose Casalina Vice Chair, Zoning Hearing Board	Aye: ✓ Nay:	

Michael O'Connor
Secretary, Zoning Hearing Board

Aye: ✓
Nay: _____

John DiPrimio
Zoning Hearing Board Member

Aye: ✓
Nay: _____

Laura Hanes
Zoning Hearing Board Member

Aye: ✓
Nay: _____

Dated: August 18, 2020

There is a 30-day period after the date of this decision for an aggrieved person to file an appeal in court to contest an approval or denial by the Zoning Hearing Board. Applicants that take action on a Zoning Hearing Board approval during the 30-day appeal period, do so at their own risk.

All applicable applications and/or permits must be secured from the Township of Abington within six months of the date of this decision or this decision becomes null and void.

PLANNING COMMISSION MEETING

AGENDA ITEM

February 23, 2021

DATE

AGENDA ITEM NUMBER

Administration

DEPARTMENT

FISCAL IMPACT
Cost > $10,000
Yes ☐ No ☑

PUBLIC BID REQUIRED
Cost > $20,100
Yes ☐ No ☑

AGENDA ITEM:

The Galman Group

EXECUTIVE SUMMARY:

The Galman Group applicant intends to enclose the existing patio located on the rear of the existing building at The Plaza Apartments at property address 1250 Greenwood Avenue, Jenkintown.

PREVIOUS BOARD ACTIONS:

None

RECOMMENDED BOARD ACTIONS:

Consider a motion to approve the proposed Minor Land Development for The Galman Group at property address 1250 Greenwood Avenue. The applicant intends to enclose the existing patio located on the rear of the existing building at The Plaza Apartments.

Township of Abington

Engineering & Code Department

John L Spiegelman, President
Thomas Hecker, Vice President

Richard J. Manfredi, Manager

SD/LD Review Tracking Application # LD-21-02

Project Name: Minor Land Development - The Gilman Group
1250 Greenwood Ave, Jenkintown - Addition

File Date: 1/14/21 Date Complete _____ 90 Day Clock _____

	Sub. #	Date Sent:	Review Ltr. Recv'd:	Comments (Y/N)
[ ] Reviewing Engr.				
[ ] Traffic Engineer				
[ ] MCPC				
[ ] Fire Marshal				
[ ] Traffic Safety				
[ ] Wastewater/DEP				
[ ] Shade Tree				
[ ] EAC				
[ ] Planning Commission				
[ ] ZHB				
[ ] Solicitor				
[ ] Other:				

APPLICATION FOR SUBDIVISION/LAND DEVELOPMENT

PROJECT TITLE: The Plaza Apartments

APPLICANT NAME: Jerry Slipakoff

TO BE COMPLETED BY THE TOWNSHIP
Submission Information:

Application Number: LD 21-02
Received By: Stacey Littlefield
File Date: 1/14/21

Date Complete: _____
90 Day Date: _____
Ward No. 7

REQUIRED MATERIAL FOR ALL SUBDIVISION/LAND DEVELOPMENT APPLICATIONS:

1. This form **MUST** be completed and submitted.
2. A Subdivision/ Land Development Application MUST include all of the items listed in the application checklist in Section V to be considered complete.
3. Incomplete application will **NOT** be placed on the Planning Commission agenda. Incomplete applications will be returned to the applicant.
4. Complete applications must be received at least 45 DAYS (see schedule) prior to the Planning Commission meeting at which it will be heard.
5. Ten (10) full size paper copies, and one (1) 11x17 reduced copy of the plans, plus three (3) copies of each report or study are to be submitted in the initial submission of the complete application. A digital copy of all submitted documents must be included with the application.

   ***It is highly encouraged to submit applications in a digital format**

I. CONTACT INFORMATION

Applicant Information

Jerry Slipakoff - The Galman Group
Name

261 Old York Road, Suite 110, Jenkintown, PA 19046
Address

215 886 2000
Phone

Fax

jslip@galmangroup.com
Email Address

Property Owners Information (if different than applicant)

The Galman Group
Name

261 Old York Road, Suite 110, Jenkintown, PA 19046
Address

215 886 2000
Phone

Fax

jslip@galmangroup.com
Email Address

Architect/ Planner

Brian Mann
Name

323 South York Road, Hatboro ,PA 19040
Address

(215) 442-1780
Phone

Fax

brian@theomniagroup.com
Email Address

Engineer/ Surveyor

Christos Dinoulis -Bohler Engineering
Name

1515 Market Street, Suite 920, Philadelphia, PA 19102
Address

Engineer/ Surveyor Cont'd	267-402-3400 Phone _____ Fax _____ cdinoulis@bohlereng.com Email Address
Attorney	Marc Jonas, Esq. Name 470 Norristown Road, Suite 302, Blue Bell, PA 19422 Address (215) 542-9345 Phone _____ Fax _____ mjonas@eastburngray.com Email Address

II. PROJECT INFORMATION

Application Type:

☐ Minor Subdivision	☑ Minor Land Develop.	☐ Preliminary Major SD & LD
☐ Preliminary Major Subdivision	☐ Prelim. Major Land Develop.	☐ Final Major SD & LD
☐ Final Major Subdivision	☐ Final Major Land Develop.	

Full street address of the property: 1250 Greenwood Ave, Jenkintown, PA 19046

Tax Parcel No.: 30-00-49660-10-9 County Deed Book No.: 5750 Page No.: 01262

Description of Proposed Work: The applicant intends to enclose the existing patio located on the rear of the existing building.

Total Tract Acreage: 11.17 acres Project Acreage: 0.01 acres (479 s.f.)

Zoning District: BC Existing Number of Lots: 1 Proposed Number of Lots: 1

Existing Sewer Flows: No change Proposed Sewer Flows: No change

Proposed Land Use:

☐ Single Family Detached	☐ Single Family Attached	☐ Single Family Semi-Detached	
☑ Multi-Family	☐ Commercial	☐ Office	☐ Industrial
☐ Other (Describe):			

III. REVIEW

Please complete the following section by circling a response:

- Have you met with the Zoning Officer regarding this plan? Yes ◯ No ◉
- Are there known variances/any zoning relief necessary for this project?* Yes ◯ No ◉
- If YES, have you submitted an application to the Zoning Hearing Board? Yes ◯ No ◉
- Has this plan been heard by the Zoning Hearing Board? Yes ◯ No ◉

*Please be advised that if any variances are found to be necessary during the course of the review of this plan, you will be required to go to the Zoning Hearing Board prior to proceeding to the Planning Commission. In addition, you will be requested to grant the Township a waiver to the 90-day action period or an immediate denial of this application will be made, and you will be required to resubmit the application.

It is recommended that ALL Land Development and Major Subdivision applications have a pre-submission meeting to discuss the project prior to full application submittal.

Minor Subdivision applications may request a pre-submission meeting; if one is desired.

Meetings are held the fourth Tuesday of each month beginning at 9:30 a.m. at the Township Administrative Offices.

Applicants assume responsibility of any fees associated with this meeting.

Applicant signature

12.17.2020
Date

To schedule a pre-submission meeting, please contact the office of the Township Manager at 267-536-1003 or email tcastorina@abingtonpa.gov

IV. WAIVERS

List of Requested Waivers: Attach separate sheet if required.

Section/Requirement:	**Relief Requested:**

V. SUBMISSION

APPLICATION CHECKLIST

The applicant is responsible for the submission of a complete application. This checklist will aid both the applicant and staff in ensuring that all applications are complete. The following is a per item submission checklist for all Subdivision, Land Development and Conditional Use Applications for the Township of Abington.

- [x] Application Form: completed and signed by the owner/applicant
- [x] 10 (ten) copies of the proposed plan, folded to legal file size. Plan should not be smaller than 1" = 50'and not exceed a sheet size of 24"x 36"
- [x] One (1) reduced copy of the proposed plan, no larger than 11"x17"
- [x] Two (2) sets of tentative architectural plans for all applications proposing construction or land development
- [ ] One (1) copy of the Recreation Facilities Plan (if required by §146-40)
- [ ] Letter of Sanitary Sewer availability from the Township Wastewater Treatment Department Two
- [ ] (2) copies of Sewage Facilities Planning Module Applications
- [ ] Letter of Water availability from AQUA PA
- [ ] One (1) copy of any previous Zoning Hearing Board decisions related to the subject property
- [x] One (1) Digital copy of all submitted documents
- [x] Application Fee: Check made payable to the Township of Abington
- [x] Escrow Fee: Check made payable to the Township of Abington. Separate check from application fee

VI. SIGNATURE

The undersigned represents that to the best of his/her knowledge and belief, all the above statements are true, correct, and complete.

Signature of Applicant — Date: 12.17.2020

Signature of Property Owner (if different than applicant) VP — Date: 12.17.2020

THE FOLLOWING IS FOR INTERNAL USE ONLY:

PAYMENT

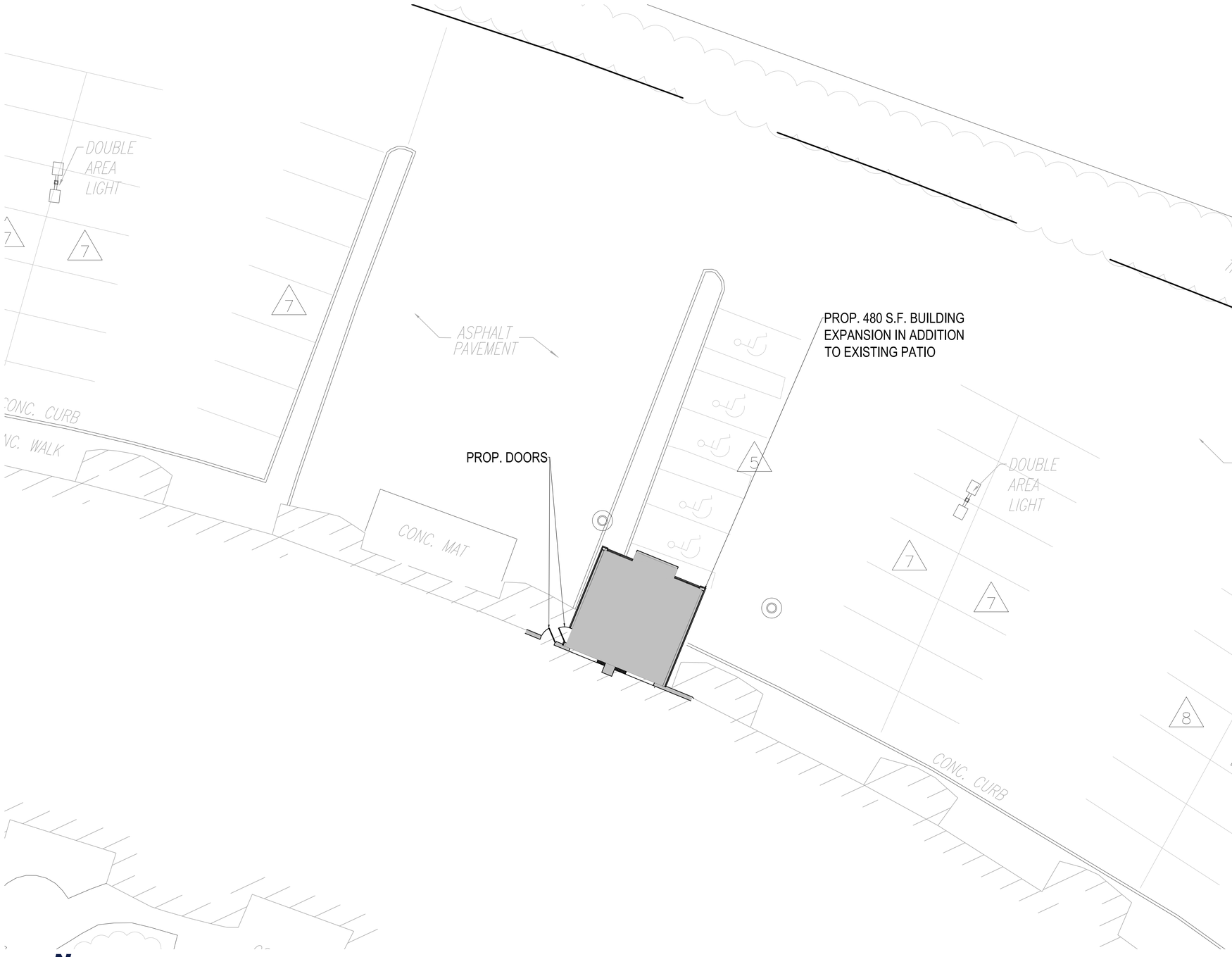
[✓] Application Fee Amount: $ 300.00 Check No.: # 1266488

[✓] Review Escrow Fee Amount: $ 2,500.00 Check No.: # 1266487

DECISION INFORMATION

Approval [ ] Denial [ ] Decision Date: _____

Comments/Conditions:



SITE PLAN GENERAL NOTES

1.) THIS DRAWING REFERENCES A PLAN BY:
a.) CONTROL POINT ASSOCIATES, INC.
1600 MANOR DRIVE, SUITE 210
CHALFONT, PA 18914
ENTITLED: "BOUNDARY & TOPOGRAPHIC SURVEY
PREPARED FOR: GALMAN GROUP"
FILE NO: CP02043
DATED: 05-01-2007

2.) ALL ELEVATIONS SHOWN ARE IN ACCORDANCE WITH THE REFERENCED SURVEYOR'S BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO GROUNDBREAK.

3.) ALL ACCESSIBLE PARKING STALLS, ACCESSIBLE ROUTES, RAMPS AND ALL OTHER PROVISIONS FOR ADA COMPLIANCE (INTERNALLY TO SITE FEATURES AND FROM SITE FEATURES TO PUBLIC WAYS) SHALL BE CONSTRUCTED IN COMPLIANCE WITH ALL APPLICABLE ADA REQUIREMENTS AND REGULATIONS. THE OWNER AND CONTRACTOR SHALL BE RESPONSIBLE FOR ADA COMPLIANCE FOR ALL PROPOSED FEATURES DEPICTED ON THESE PLANS. IT IS THE OWNER'S RESPONSIBILITY TO ESTABLISH AND MAINTAIN CONTINUED COMPLIANCE WITH THE ADA REGULATIONS PERTAINING TO ON AND OFF SITE FEATURES.

4.) ALL FEATURES ARE EXISTING TO REMAIN UNLESS OTHERWISE NOTED.

5.) FEATURES TO BE REMOVED ARE NOTED (TBR).

6.) PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS BY ALL OF THE PERMITTING AUTHORITIES.

7.) THE OWNER/CONTRACTOR SHALL BE FAMILIAR WITH AND RESPONSIBLE FOR ANY/ALL CERTIFICATIONS, INSPECTIONS, ETC. REQUIRED BY ALL GOVERNING JURISDICTIONAL AGENCIES DURING AND AFTER CONSTRUCTION FOR SIGN-OFF AND CERTIFICATE OF OCCUPANCY ISSUANCE, INCLUDING BUT NOT LIMITED TO PROCUREMENT OF SERVICES, SCHEDULING OF FIELD OBSERVATIONS AND COORDINATION WITH REPRESENTATIVES OF THE APPROPRIATE PARTIES. CONTRACTOR IS RESPONSIBLE TO COORDINATE CERTIFICATIONS, SIGN-OFFS, ETC. NECESSARY FOR JOB CLOSE-OUT AND ISSUANCE OF CERTIFICATE OF OCCUPANCY.

8.) ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS, REFERENCED DOCUMENTS, AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY.

9.) THE SOILS REPORT AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND IN CASE OF CONFLICT SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DISCREPANCY BETWEEN SOILS REPORT & PLANS, ETC.

10.) THE PROPERTY SURVEY SHALL BE CONSIDERED A PART OF THESE PLANS.

11.) THESE PLANS ARE BASED ON INFORMATION PROVIDED TO OUR OFFICE AT THE TIME OF PLAN PREPARATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY OUR OFFICE IF ACTUAL SITE CONDITIONS DIFFER FROM THAT SHOWN ON THE PLAN, OR IF THE PROPOSED WORK WOULD BE INHIBITED BY ANY OTHER SITE FEATURES.

12.) ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. 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.

13.) THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL/BUILDING PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, EXACT BUILDING UTILITY LOCATIONS AND SITE LIGHTING ELECTRICAL DESIGN AND LAYOUT.

14.) DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL TOWN, COUNTY, STATE AND FEDERAL LAWS AND APPLICABLE CODES. CONTRACTOR SHALL PROPERLY REMOVE & DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES & LAWS.

15.) THE 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.) THE CONTRACTOR IS TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURE, ETC. TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING THE APPROPRIATE MEASURES AS NECESSARY TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT TO REMAIN, AND PROVIDE A SAFE WORK AREA.

17.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL REPLACE ALL SIGNAL INTERCONNECT CABLE, CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION.

18.) THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING THE DAMAGE DONE TO ANY EXISTING ITEM DURING CONSTRUCTION SUCH AS BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIR SHALL BE EQUAL TO OR BETTER THAN, EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND NOTIFY CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION START.

19.) ALL CONCRETE SHALL HAVE THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS INDICATED IN SPECIFICATIONS AND REFERENCED DOCUMENTS UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS AND/OR GEOTECHNICAL REPORT.

20.) THE ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION METHODS/MEANS FOR COMPLETION OF THE WORK DEPICTED ON THESE PLANS NOR ANY CONFLICTS/SCOPE REVISIONS WHICH RESULT FROM SAME. CONTRACTOR RESPONSIBLE FOR DETERMINING METHODS/MEANS FOR COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND NOTIFICATION OF OWNER AND ENGINEER OF RECORD WHEN A CONFLICT IS IDENTIFIED.

21.) THE ENGINEER OF RECORD HEREIN IS NOT RESPONSIBLE FOR JOB SITE SAFETY NOR HAS HE BEEN RETAINED FOR SUCH PURPOSES.

22.) ALL CONTRACTORS MUST CARRY STATUTORY WORKERS COMPENSATION, EMPLOYERS LIABILITY INSURANCE AND APPROPRIATE LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE (CGL) ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME BOHLER ENGINEERING, INC., ITS SUB CONSULTANTS AS ADDITIONAL INSURED AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE THE HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED BY THE CONTRACTORS. ALL CONTRACTORS MUST FURNISH BOHLER ENGINEERING, INC. WITH CERTIFICATIONS OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE PRIOR TO COMMENCING WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION. IN ADDITION, ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS BOHLER ENGINEERING, INC. AND ITS SUB CONSULTANTS FROM AND AGAINST ANY DAMAGES, LIABILITIES OR COSTS, INCLUDING REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTORS.

23.) NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER ENGINEERING, INC., NOR THE PRESENCE OF BOHLER ENGINEERING, INC. OR ITS EMPLOYEES AND SUB CONSULTANTS AT A CONSTRUCTION/PROJECT SITE, SHALL RELIEVE THE GENERAL CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. BOHLER ENGINEERING, INC. AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY. BOHLER ENGINEERING, INC. SHALL BE INDEMNIFIED BY THE GENERAL CONTRACTOR AND SHALL BE MADE ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE.

24.) BOHLER ENGINEERING, INC. SHALL REVIEW AND ADVISE OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN CONCEPT AND THE INFORMATION SHOWN IN THE CONSTRUCTION MEANS OR METHODS, COORDINATION OF THE WORK WITH OTHER TRADES OR CONSTRUCTION SAFETY PRECAUTIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. BOHLER ENGINEERING'S REVIEW SHALL BE CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM SHALL NOT INDICATE THAT BOHLER ENGINEERING, INC. HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER ENGINEERING, INC. SHALL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT BROUGHT TO THE ATTENTION OF BOHLER ENGINEERING, INC. IN WRITING BY THE CONTRACTOR. BOHLER ENGINEERING, INC. SHALL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.

25.) IF THE CONTRACTOR DEVIATES FROM THE PLANS AND SPECIFICATIONS, INCLUDING THE NOTES CONTAINED THEREON, WITHOUT FIRST OBTAINING PRIOR WRITTEN AUTHORIZATION FOR SUCH DEVIATIONS FROM THE OWNER AND ENGINEER, IT SHALL BE RESPONSIBLE FOR THE PAYMENT OF ALL COSTS TO CORRECT ANY WORK DONE, ALL FINES OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND IT SHALL INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ALL SUCH COSTS TO CONNECT ANY SUCH WORK AND FROM ALL SUCH FINES AND PENALTIES, COMPENSATION AND PUNITIVE DAMAGES AND COSTS OF ANY NATURE RESULTING THEREFROM.

LEGEND
EXISTING/PROPOSED

- TRACT BOUNDARY
- ZONING BOUNDARY
- CONDOMINIUM UNIT LINE
- MONUMENT/IRON PIPE
- EXISTING TREELINE
- PROPOSED TREELINE
- UTILITY POLE
- INLET
- MANHOLE
- WATER VALVE
- AREA LIGHT
- WATER METER
- TRAFFIC LIGHT
- PROPOSED AREA LIGHTS
- PROPOSED SIGN
- PROPOSED MANHOLE
- PROPOSED INLET
- PROPOSED ENDWALL
- PROPOSED GUIDE RAIL
- PROPOSED FENCE

LEGEND
EXISTING/PROPOSED

- PROPOSED PAVEMENT MARKINGS (STOP)
- ADA PARKING STALLS
- PARKING SPACE COUNT (11)
- PROPOSED BOLLARD
- PROPOSED CURB
- PROPOSED BUILDING AREA
- PROPOSED RETAINING WALL
- LIMITS OF BASIN AREAS
- PROPOSED RIVERSTONE
- PROPOSED CONCRETE PAVEMENT
- PROPOSED RIP-RAP
- PROPOSED GREEN AREA

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

THE INFORMATION, DESIGN AND CONTENT OF THESE PLANS IS PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE, WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER. ONLY APPROVED & SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES. © BOHLER, INC.

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

811 Know what's below. Call before you dig.
PENNSYLVANIA
YOU MUST CALL 811 BEFORE ANY EXCAVATION
WHETHER IT'S ON PRIVATE OR PUBLIC LAND.
1-800-242-1776
www.pa1call.org

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: PP180614
DRAWN BY: TS
CHECKED BY: CD
DATE: 11/4/2020
CAD I.D.: PP203231-SPP-0

PROJECT:
PRELIMINARY/ FINAL LAND DEVELOPMENT PLANS
FOR
GALMAN GROUP

PROPOSED DEVELOPMENT
OLD YORK ROAD & MEETINGHOUSE RD
ABINGTON TOWNSHIP
MONTGOMERY COUNTY
PENNSYLVANIA
BLOCK & LOT: ___-___

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

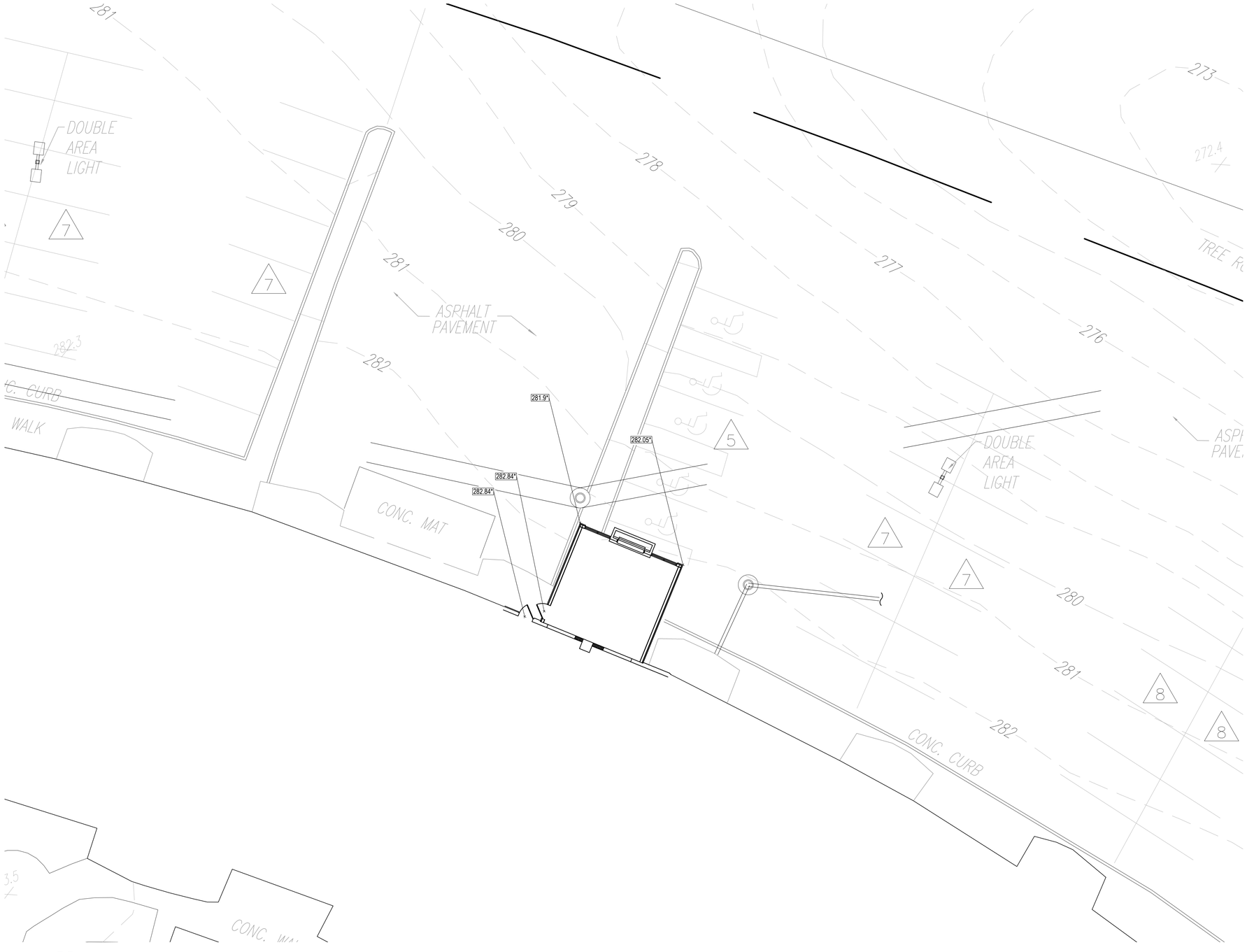
C. BROWN
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE075317
DELAWARE LICENSE No. 18093
NEW JERSEY LICENSE No. 24GE05041400

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C-302

ORG. DATE - 11/4/2020

R:\DWP\2023\10\DRAWINGS\PLAN SETS\LAND DEVELOPMENT\REVISION II\PP203231-SPP-0_-_LAYOUT_C-302.SITE
TS



GRADING & UTILITY NOTES

1.) THE LOCATION OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS SHALL BE CONFIRMED INDEPENDENTLY BY THE CONTRACTOR IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.

2.) ALL UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE, SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION, AT NO COST TO THE OWNER.

3.) IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS, SPECIFICATIONS, AND REFERENCED DOCUMENTS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.

4.) DEFINE AND LOCATE VERTICALLY AND HORIZONTALLY ALL ACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE NOT TO REMAIN. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.

5.) THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AS IDENTIFIED OR REQUIRED FOR PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.

6.) THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, GREASE TRAP REQUIREMENTS/DETAILS, DOOR ACCESS, AND EXTERIOR GRADING. THE UTILITY SERVICE SIZES ARE TO BE DETERMINED BY ARCHITECT. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND ENSURE PROPER DEPTHS ARE ACHIEVED. THE TOWN UTILITY REQUIREMENTS SHALL ALSO BE MET, AS WELL AS COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY/SERVICE. WHERE CONFLICTS EXIST WITH THESE PLANS, THE ENGINEER OF RECORD SHALL BE NOTIFIED PRIOR TO CONSTRUCTION TO RESOLVE SAME.

7.) WATER SERVICE MATERIALS, BURIAL DEPTH, AND COVER REQUIREMENTS SHALL BE SPECIFIED BY THE LOCAL UTILITY COMPANY. CONTRACTOR'S PRICE FOR WATER SERVICE SHALL INCLUDE ALL FEES AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE A COMPLETE WORKING SERVICE.

8.) ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC. ARE TO BE INSTALLED UNDERGROUND. ALL NEW UTILITIES/SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE UTILITY/SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS.

9.) ALL UTILITIES SHOULD BE KEPT TEN (10) FEET APART (PARALLEL), OR WHEN CROSSING, AT 18 INCHES VERTICAL CLEARANCE (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE.) PROVIDE 4.0 FEET OF COVER OVER WATER LINES. A MINIMUM OF 18 INCHES SHALL BE MAINTAINED BETWEEN SANITARY SEWER LINES AND STORM LINES OR WATER LINES. IF THE MINIMUM CLEARANCE CAN NOT BE MAINTAINED, A CONCRETE ENCASEMENT SHALL BE PROVIDED.

10.) ALL WATER JOINTS ARE TO BE MECHANICAL JOINTS WITH THRUST BLOCKING AT ALL CHANGES IN DIRECTION, AND/OR AS DEFINED IN THE SPECIFICATIONS/DETAILS.

11.) THE INSTALLATION OR REPAIR OF ANY UNDERGROUND FACILITIES OR PIPING WHICH CONNECTS TO OR FURNISHES WATER FOR THE FIRE PROTECTION SPRINKLER SYSTEM SHALL BE PERFORMED ONLY BY A LICENSED UTILITY CONTRACTOR, FIRE PROTECTION SPRINKLER CONTRACTOR, OR LICENSED PLUMBER. SEE O.C.G.A. TITLE 25_11-7-(1). A COPY OF THE LICENSE OR CERTIFICATE OF COMPETENCY SHALL BE PROVIDED TO THE INSPECTOR AT THE FINAL INSPECTION.

12.) SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS, AND REFERENCED DOCUMENTS, AND THE RECOMMENDATIONS SET FORTH IN THE REPORT PREPARED AS A RESULT OF THE GEOTECHNICAL INVESTIGATION AND REFERENCED IN THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING WITH SUITABLE MATERIALS AS SPECIFIED IN THE SOILS REPORT. ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM TEST D-1557. MOISTURE CONTENT AT TIME OF PLACEMENT SHALL BE SUBMITTED IN 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 SPECS AND THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT SHALL BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE BY OWNER OR OWNER'S REPRESENTATIVE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL COMPACTED TO 95% OPTIMUM DENSITY (AS DETERMINED BY MODIFIED PROCTOR METHOD).

13.) SEE SPECIFICATIONS FOR BACKFILLING AND COMPACTION REQUIREMENTS ON UTILITY TRENCH. ALL FILL, COMPACTION, AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION SHALL BE AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND SHALL BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS.

14.) THE CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF OSHA DIRECTIVES, OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE "MEANS AND METHODS" REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES.

15.) PAVEMENT SHALL BE SAW CUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.

16.) THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS SHALL BE ADJUSTED, IF REQUIRED, TO MATCH THE GRADING AND UTILITY PLAN(S). THE SANITARY CLEANOUT TOPS SHALL BE RE-INSTALLED IN THE SAME MANNER AS THE ORIGINAL CLEANOUTS.

17.) THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR TO ENSURE 0.75% MINIMUM SLOPE AGAINST ALL ISLANDS, GUTTERS, AND CURBS, 1.0% ON ALL CONCRETE SURFACES, AND 1.5% MINIMUM ON ASPHALT, AND 2.0% MINIMUM IN LANDSCAPED AREAS TO PREVENT PONDING. ANY DISCREPANCIES THAT MAY AFFECT THE PUBLIC SAFETY OR PROJECT COST MUST BE IDENTIFIED TO THE ENGINEER IN WRITING IMMEDIATELY. PROCEEDING WITH CONSTRUCTION WITHOUT NOTIFICATION IS DONE SO AT THE CONTRACTOR'S OWN RISK.

18.) PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 6" ABOVE EXISTING LOCAL ASPHALT GRADE UNLESS OTHERWISE NOTED. FIELD ADJUST TO CREATE A MINIMUM OF 0.75% GUTTER GRADE ALONG CURB FACE. ENGINEER TO APPROVE FINAL CURBING CUT SHEETS PRIOR TO INSTALLATION.

19.) REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.

20.) IN CASE OF DISCREPANCIES BETWEEN PLANS, THE SITE / RECORD PLAN WILL SUPERSEDE IN ALL CASES. THE ENGINEER OF RECORD MUST BE IMMEDIATELY NOTIFIED IN WRITING OF ANY CONFLICTS.

21.) THE CONTRACTOR SHALL BE REQUIRED TO SECURE ALL NECESSARY PERMITS (INCLUDING D.E.P., ETC.) FOR ALL OFF-SITE HAUL AND/OR BORROW SITES. CONTRACTOR SHALL SUPPLY A COPY OF APPROVALS TO ENGINEER AND OWNER PRIOR TO INITIATING WORK.

22.) TOP AND BOTTOM OF WALL ELEVATIONS (TW & BW) REPRESENT THE PROPOSED FINISHED GRADE AT THE FACE OF WALL AND DO NOT REPRESENT THE ELEVATION OF THE PROPOSED WALL (INCLUDING THE CAP UNIT OR FOOTING). THE CONTRACTOR MUST ENSURE ALL WALLS SHOWN HEREON MUST BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER AND THAT SIGNED AND SEALED SHOP DRAWINGS ARE APPROVED BY THE MUNICIPALITY PRIOR TO THEIR CONSTRUCTION. FURTHER THE CONTRACTOR SHALL ENSURE THAT FENCING, GUIDERAIL, UTILITIES, AND OTHER SITE AMENITIES IN THE VICINITY OF THE RETAINING WALL(S), PROPOSED SCHEMATICALLY IN THESE PLANS, SHALL BE CONSIDERED AND INCORPORATED INTO THE RETAINING WALL DESIGN (BY OTHERS).



LEGEND
EXISTING/PROPOSED

- TRACT BOUNDARY
- ZONING BOUNDARY
- CONDOMINIUM UNIT LINE
- MONUMENT/IRON PIPE
- EXISTING TREELINE
- PROPOSED TREELINE
- UTILITY POLE
- INLET
- MANHOLE
- WATER VALVE
- AREA LIGHT
- WATER METER
- TRAFFIC LIGHT
- PROPOSED AREA LIGHTS
- PROPOSED SIGN
- PROPOSED MANHOLE
- PROPOSED INLET
- PROPOSED ENDWALL
- PROPOSED GUIDE RAIL
- PROPOSED FENCE

LEGEND
EXISTING/PROPOSED

- PROPOSED PAVEMENT MARKINGS (STOP)
- ADA PARKING STALLS
- PARKING SPACE COUNT (11)
- PROPOSED BOLLARD
- PROPOSED CURB
- PROPOSED BUILDING AREA
- PROPOSED RETAINING WALL
- LIMITS OF BASIN AREAS
- PROPOSED RIVERSTONE
- PROPOSED CONCRETE PAVEMENT
- PROPOSED RIP-RAP
- PROPOSED GREEN AREA

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PROJECT No.: PP180614
DRAWN BY: TS
CHECKED BY: CD
DATE: 11/4/2020
CAD I.D.: PP203231-SPP-0

PROJECT:

PRELIMINARY/ FINAL LAND DEVELOPMENT PLANS

FOR

GALMAN GROUP

PROPOSED DEVELOPMENT

OLD YORK ROAD & MEETINGHOUSE RD
ABINGTON TOWNSHIP
MONTGOMERY COUNTY
PENNSYLVANIA
BLOCK & LOT: ___-___

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

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NEW JERSEY LICENSE No. 24GE05081400

SHEET TITLE:

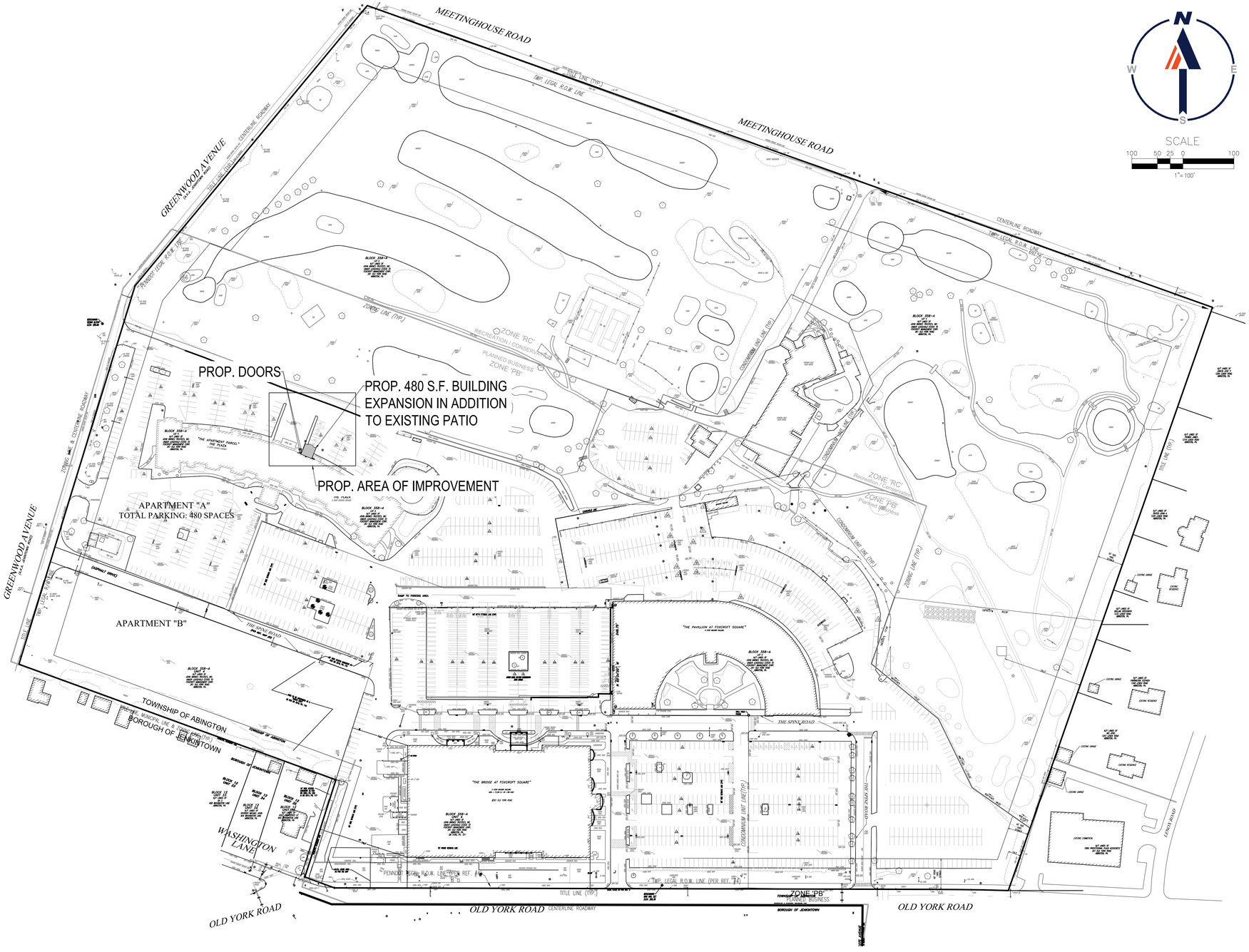
GRADING & UTILITIES PLAN

SHEET NUMBER:

C-401

ORG. DATE - 11/4/2020

R:\DWP\2023\1\DRAWINGS\PLAN SETS\LAND DEVELOPMENT\REVISION FP\PP203231-SPP-0_-_LAYOUT C-401 GRADING & UTIL





SCALE: NTS

GENERAL NOTES

1.) THIS DRAWING REFERENCES:
A.) A PLAN ENTITLED: "ALTA/ACSM LAND TITLE SURVEY"
PREPARED BY: CONTROL POINT ASSOCIATES, INC.
1600 MANOR DRIVE, SUITE 120
CHALFONT, PA 18914
PREPARED FOR: GALMAN GROUP
FILE NO: CP02043
DATED: 04-29-2002
LAST REVISED: 05-01-2007

2.) EQUITABLE OWNER/APPLICANT:
THE GALMAN GROUP
261 OLD YORK ROAD, SUITE 110
JENKINTOWN, PA 19046

3.) ADDRESS:
1250 GREENWOOD AVENUE
JENKINTOWN, PA

4.) ZONING DATA:
ZONED: BC (BUSINESS CENTER)
EXISTING USE: HIGH RISE HOTEL

5.) ZONING REQUIREMENTS:

	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA:	1 ACRE	11.17 ACRES	11.17 ACRES
MAX. BUILDING COVERAGE:	40%	8.2% (40,181 S.F.)	8.2% (40,181 S.F.)
MAX. IMPERVIOUS COVERAGE:	N/A	87%	87%
MAX. BUILDING HEIGHT:	40'	8 STORIES	8 STORIES
MIN. YARD REQUIREMENTS:			
FRONT:	100'	120'	120'
SIDE:	50'	102'	102'
REAR:	50'	296'	296'
MIN. PARKING SETBACKS:	10'	39'	39'

6.) PARKING REQUIREMENTS:

1 SPACE/DWELLING UNIT + 1 PER EMPLOYEE WORKING ON LARGEST SHIFT

TOTAL EXISTING PARKING = 480 SPACES
TOTAL PROPOSED PARKING = 480 SPACES

LEGEND
EXISTING/PROPOSED

- TRACT BOUNDARY
- ZONING BOUNDARY
- CONDOMINIUM UNIT LINE
- MONUMENT/IRON PIPE
- EXISTING TREELINE
- PROPOSED TREELINE
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- AREA LIGHT
- WATER METER
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- PROPOSED AREA LIGHTS
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- PROPOSED MANHOLE
- PROPOSED INLET
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LEGEND
EXISTING/PROPOSED

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- ADA PARKING STALLS
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PROJECT No.:	PP180614
DRAWN BY:	TS
CHECKED BY:	CD
DATE:	11/4/2020
CAD I.D.:	PP203231-SPP-0

PROJECT:
PRELIMINARY/ FINAL LAND DEVELOPMENT PLANS
FOR
GALMAN GROUP

PROPOSED DEVELOPMENT

OLD YORK ROAD & MEETINGHOUSE RD
ABINGTON TOWNSHIP
MONTGOMERY COUNTY
PENNSYLVANIA
BLOCK & LOT: ___ - ___

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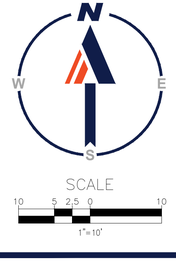
SHEET TITLE:
SITE PLAN OVERALL

SHEET NUMBER:
C-301

ORG. DATE - 11/4/2020

R:\SW\PP203231\DRAWINGS\PLAN SETS\LAND DEVELOPMENT\REVISION #\PP203231-SPP-0-----LAYOUT C-301 SITE OVERALL





SCALE

10 5 2.5 0 10

1"=10'

DEMOLITION NOTES

1.) THIS PLAN REFERENCES DOCUMENTS AND INFORMATION BY:
a.) CONTROL POINT ASSOCIATES, INC.
1600 MANOR DRIVE, SUITE 210
CHALFONT, PA 18914
ENTITLED: "BOUNDARY & TOPOGRAPHIC SURVEY"
PREPARED FOR: GALMAN GROUP
FILE NO: CP02043
DATED: 05-01-2007

2.) THE FIRM OR ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. CONTRACTOR IS TO PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, FOLLOWING ALL THE OSHA REQUIREMENTS, TO INSURE PUBLIC AND CONTRACTOR SAFETY.

3.) ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS, AND REFERENCED DOCUMENTS AS WELL AS ALL FEDERAL, STATE AND LOCAL REGULATIONS. ANY DISCREPANCIES OR DEVIATIONS SHALL BE IDENTIFIED BY THE CONTRACTOR TO THE ENGINEER IN WRITING FOR RESOLUTION PRIOR TO INITIATION OF ACTIVITY.

4.) PRIOR TO STARTING ANY DEMOLITION CONTRACTOR IS RESPONSIBLE FOR/TO:

A. ENSURE COPIES OF ALL PERMITS AND APPROVALS ARE ON SITE FOR REVIEW.

B. THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO SITE DISTURBANCE.

C. ALL UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE, SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.

D. PROTECT AND MAINTAIN IN OPERATION, ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED DURING ALL DEMOLITION ACTIVITIES.

E. FAMILIARIZE THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENT AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AS IDENTIFIED OR REQUIRED FOR PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.

F. COORDINATION WITH UTILITY COMPANIES REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT ON THE AFFECTED PARTIES.

G. A COMPLETE INSPECTION FOR CONTAMINANTS, BY A LICENSED ENVIRONMENTAL TESTING AGENCY, OF ALL BUILDINGS AND/OR STRUCTURES TO BE REMOVED SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL ENVIRONMENTAL REGULATIONS. ALL CONTAMINANTS SHALL BE REMOVED AND DISPOSED OF BY A FEDERALLY LICENSED CONTRACTOR IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. ALL ENVIRONMENTAL WORK INCLUDING HAZARDOUS MATERIAL, SOILS, ASBESTOS, OR OTHER REFERENCED OR IMPLIED HEREIN IS SOLELY THE RESPONSIBILITY OF THE OWNER'S ENVIRONMENTAL CONSULTANT.

5.) THE CONTRACTOR SHALL PROVIDE ALL THE "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE.

6.) IN THE ABSENCE OF SPECIFIC REQUIREMENTS, THE CONTRACTOR SHALL PERFORM EARTH MOVEMENT ACTIVITIES, DEMOLITION AND REMOVAL OF ALL FOUNDATION WALLS, FOOTINGS, AND OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH DIRECTION BY OWNER'S GEOTECHNICAL ENGINEER.

7.) EXPLOSIVES SHALL NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF BOTH THE OWNER AND APPLICABLE GOVERNMENTAL AUTHORITIES. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL MEASURES THAT ARE REQUIRED BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS SHALL BE IN PLACE PRIOR TO STARTING AN EXPLOSIVE PROGRAM. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES.

8.) CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL," AS WELL AS FEDERAL, STATE, AND LOCAL REGULATIONS WHEN DEMOLITION RELATED ACTIVITIES IMPACT ROADWAYS OR ROADWAY RIGHTS-OF-WAY.

9.) THE CONTRACTOR SHALL CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND OTHER ADJACENT FACILITIES. STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY WHERE REQUIRED.

10.) DEMOLITION ACTIVITIES AND EQUIPMENT SHALL NOT USE AREAS OUTSIDE THE DEFINED PROPERTY LINES, WITHOUT WRITTEN PERMISSION OF THE OWNER, AND/OR APPROPRIATE GOVERNMENT AGENCY.

11.) USE DUST CONTROL MEASURES TO LIMIT THE AMOUNT OF AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR TO WITHIN FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, ADJACENT STRUCTURES AND IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION" CONDITION.

12.) THE CONTRACTOR IS RESPONSIBLE TO SAFEGUARD THE SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.

13.) THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED. IT IS NOT INTENDED TO PROVIDE DIRECTION OTHER THAN THAT ALL METHODS AND MEANS ARE TO BE IN ACCORDANCE WITH STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.

14.) THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF HIS ACTIVITIES. ALL REPAIRS SHALL USE NEW MATERIAL. THE REPAIRS SHALL RESTORE THE ITEM TO THE PRE-DEMOLITION CONDITION.

15.) DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL TOWN, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES. THE CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, AND LAWS.

16.) DEMOLITION OF THE EXISTING STRUCTURES AND FOUNDATIONS SHOULD INCLUDE FULL REMOVAL OF ALL REMNANT UTILITIES, FOOTINGS, FOUNDATION WALLS, AND SLABS. REMNANT FOUNDATIONS AND SLABS MAY REMAIN IN PLACE TWO FEET BELOW PAVEMENT SUBGRADES AND LANDSCAPED AREAS, PROVIDED THEY ARE ADEQUATELY BROKEN TO PROMOTE POSITIVE DRAINAGE AND THAT THEY WILL NOT INTERFERE WITH FUTURE CONSTRUCTION. THE RESULTING EXCAVATIONS SHOULD BE BACKFILLED WITH STRUCTURAL FILL PLACED IN MAXIMUM NINE INCH LOOSE LIFTS AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR (ASTM D 1557). ANY IMPORTED MATERIAL PLACED AS STRUCTURAL FILL OR BACKFILL TO RAISE ELEVATIONS OR RESTORE GRADES SHOULD CONSIST OF CLEAN, RELATIVELY WELL GRADED SAND OR GRAVEL WITH A MAXIMUM PARTICLE SIZE OF THREE INCHES AND FIVE PERCENT TO 20 PERCENT OF MATERIAL FINER THAN A #200 SIEVE. SILTY OR CLAYEY SANDS AND GRAVELS WITH HIGHER PERCENTAGE OF FINES AND WITH A LIQUID LIMIT LESS THAN 40 AND A PLASTICITY INDEX LESS THAN 12 MAY BE CONSIDERED SUBJECT TO THE OWNER'S APPROVAL, PROVIDED THAT THE REQUIRED MOISTURE CONTENT AND COMPACTION CONTROLS ARE MET. THE MATERIAL SHOULD BE FREE OF CLAY LUMPS, ORGANICS, AND DELETERIOUS MATERIAL. IMPORTED STRUCTURAL FILL MATERIAL SHOULD BE APPROVED BY A QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO DELIVERY TO THE SITE.

17.) THE CONTRACTOR IS TO NOTIFY THE TOWNSHIP AND TOWNSHIP ENGINEER 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

LEGEND

EXISTING

TRACT BOUNDARY	
MONUMENT/IRON PIPE	
EXISTING CONTOUR	123
SPOT ELEVATION	
SIGN	
UTILITY POLE	
INLET	
MANHOLE	
WATER VALVE	WV
AREA LIGHT	
WATER METER	
TRAFFIC LIGHT	
CURBLINE	
CURBLINE TO BE REMOVED	
STRIPING	
STORM SEWER	
GAS LINE	G
WATER LINE	W
ELECTRIC LINE	E
TELEPHONE LINE	
OVERHEAD LINE	
SANITARY LINE	
TREELINE	
SOIL TYPE	ComB

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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1-800-242-1776
www.pa1call.org

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: PP180614
DRAWN BY: TS
CHECKED BY: CD
DATE: 11/4/2020
CAD I.D.: PP203231-SPP-0

PROJECT:

PRELIMINARY/ FINAL LAND DEVELOPMENT PLANS

FOR

GALMAN GROUP

PROPOSED DEVELOPMENT

OLD YORK ROAD & MEETINGHOUSE RD
ABINGTON TOWNSHIP
MONTGOMERY COUNTY
PENNSYLVANIA
BLOCK & LOT: ___ - ___

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

C. BROWN
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE075317
DELAWARE LICENSE No. 18093
NEW JERSEY LICENSE No. 24GE05041400

SHEET TITLE:

EXISTING CONDITIONS/ DEMOLITION PLAN

SHEET NUMBER:

C-201

ORG. DATE - 11/4/2020

R:\PP\PP203231\DRAWINGS\PLAN SETS\LAND DEVELOPMENT\REVISION #\PP203231-SPP-0-----LAYOUT: C-201 DEMO

PLANNING COMMISSION MEETING

AGENDA ITEM

February 23, 2021

DATE

AGENDA ITEM NUMBER

Administration

DEPARTMENT

FISCAL IMPACT
Cost > $10,000
Yes ☐ No ☑

PUBLIC BID REQUIRED
Cost > $20,100
Yes ☐ No ☑

AGENDA ITEM:

AQUA Pennsylvania, Inc. c/o Brennan Kelly

EXECUTIVE SUMMARY:

The Applicant, AQUA Pennsylvania, Inc. proposes the installation of a PFAS removal system requiring a building addition to the existing well station and improvements with the existing station. The property 315 Chelsea Avenue is located in the R4 High Density Residential District in Ward No. 6.

PREVIOUS BOARD ACTIONS:

None

RECOMMENDED BOARD ACTIONS:

Consider a motion to approve the Land Development application, LD-21-01, AQUA Pennsylvania, Inc. at property address 315 Chelsea Avenue, Glenside to upgrade and expand the North Hills Pump Station to implement a PFAS treatment system.

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

SCOTT FRANCE, AICP
EXECUTIVE DIRECTOR

February 16, 2021

Mr. Rich Manfredi, Manager
Abington Township
1176 Old York Road
Abington, Pennsylvania 19001-3713

Re: MCPC #21-0030-001
Plan Name: North Hills Well Station Improvements
(1 lot comprising 0.19 acres)
Situate: 315 Chelsea Avenue, Cross Street: Walnut Avenue
Abington Township

Dear Mr. Manfredi:

We have reviewed the above-referenced preliminary plan as you requested on January 28, 2020. We forward this letter as a report of our review.

BACKGROUND

AQUA Pennsylvania, Inc., the applicant, proposes to upgrade and expand the North Hills Pump Station to implement a PFAS treatment system. The property is located in the R4 High Density Residential District. The plan is served by public sewer and water. The applicant has submitted a preliminary plan dated December 18, 2020.

COMPREHENSIVE PLAN COMPLIANCE

The plan is consistent with *MONTCO 2040: A New Vision, the Comprehensive Plan for Montgomery County*. This plan designates the project area as "Suburban Residential;" institutional uses are considered to be one of the primary land uses in this category. The proposal is also consistent with the Abington Comprehensive Plan (2007).

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's proposal, however, in the course of our review we have identified the following issues that the applicant and township may wish to consider. Our comments are as follows:

REVIEW COMMENTS

LANDSCAPING

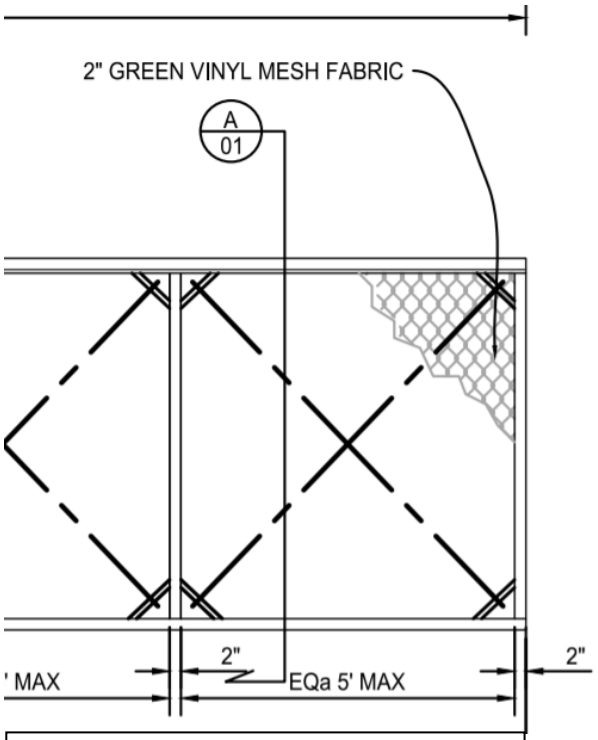
A. Street Trees – The applicant's proposal does not comply with zoning's street tree requirement, due to spatial constraints of utilities and the driveway; this would require a variance. The corner of the lot adjacent to Chelsea Avenue and the abutting property to the northeast may have enough room for a small amount of landscaping (see image on right). If so, we recommend increasing the site's greenery by planting a street tree there. If spatial constraints prevent this, we recommend that other plantings, in the form of shrubs, perennials, and/or ornamental grasses be planted here [§2402.B].



Area that might accommodate a tree or other vegetation

B. Buffer –

1. Plans show a "2" green vinyl mesh fabric" along the proposed fence (see image, right). We suggest the applicant provide photographs of this type of fence and fabric to help explain what this will look like. One potential enhancement would be to substitute a fence with an artificial evergreen lattice screen; we suggest the applicant discuss this possibility with the township planning commission (while also considering the preferences of the neighbors).
2. Because the site is spatially constrained by utilities, stormwater management facilities and security fencing, the applicant should request a variance for use of a limited area buffer instead of a conventional buffer [§2403.B].



Proposed fence from applicant's plan

C. Species Selection –

1. As none of the three proposed types of shrubs are native, we recommend using native varieties instead, as there are many fine

substitutes. For example, the evergreen Ilex or Spirea could be replaced with Ilex glabra (Inkberry Holly).

2. The Plant Schedule contains an error. The third row refers to "STo" and "Ogon Spirea." Instead, this should be labeled "Spirea" or "Taxus" (Yew)?

D. Existing Vegetation – The plans show a 20" caliper tree in the lower left portion of the plan. It appears that this is a dead trunk that was cut about eight feet off the ground; a noteh ould be added to the plan indicating that this is not a living tree.

CONCLUSION

We wish to reiterate that MCPC generally supports the applicant's proposal but we believe that our suggested revisions will better achieve the township's planning objectives for institutional development.

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

Sincerely,

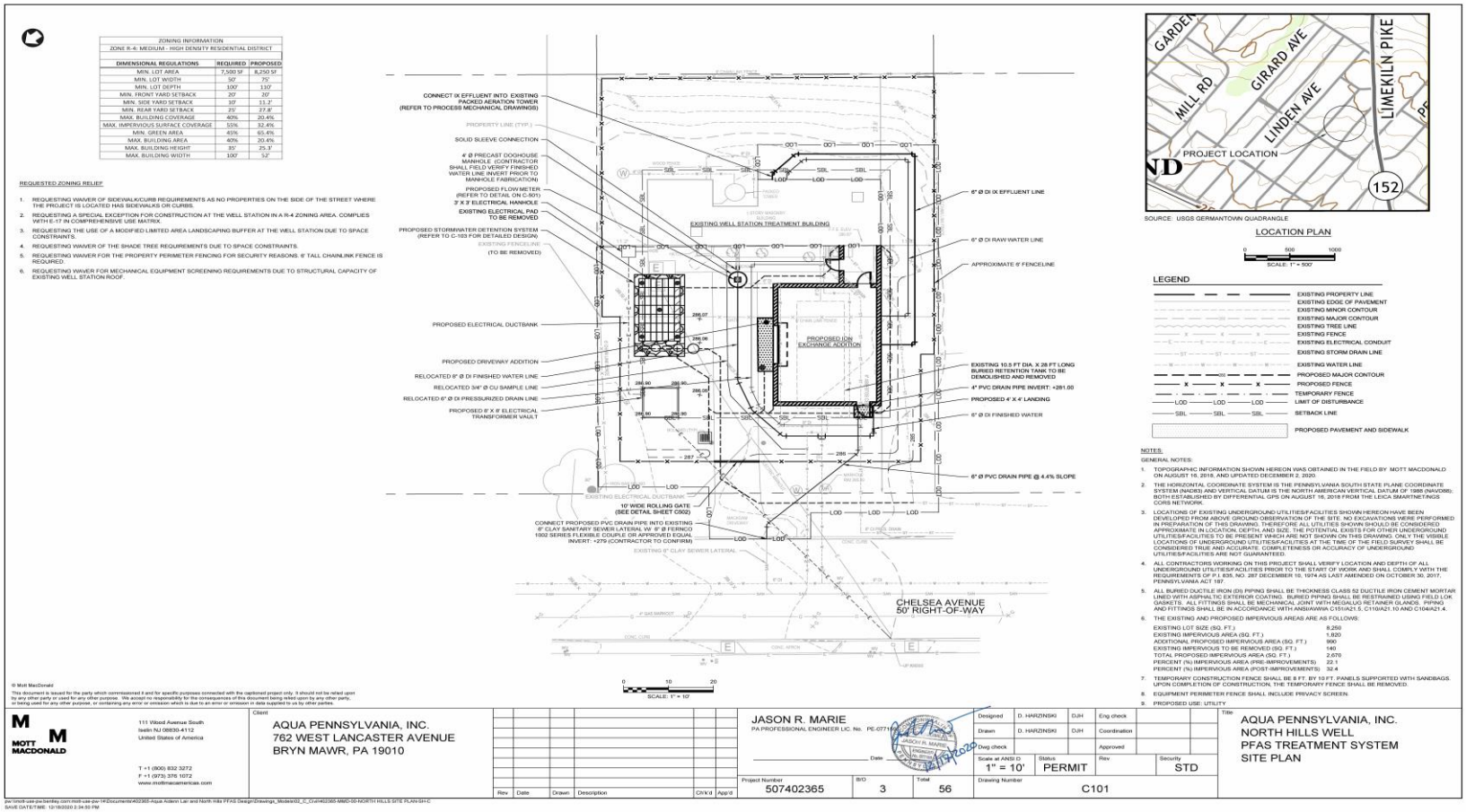
Mike Narcowich, AICP, Assistant Section Chief: Community Planning
mnarcowi@montcopa.org
610-278-5238

c: AQUA Pennsylvania, Inc., Applicant
Jason R. Marie, R.P.E.; Applicant's Representative
Lucy Strackhouse, Chair, Township Planning Commission
Khaled R. Hassan, P.E., Pennoni; Township Engineer
Michael P. Clarke, Esq., Rudolph Clarke, LLC, Township Solicitor

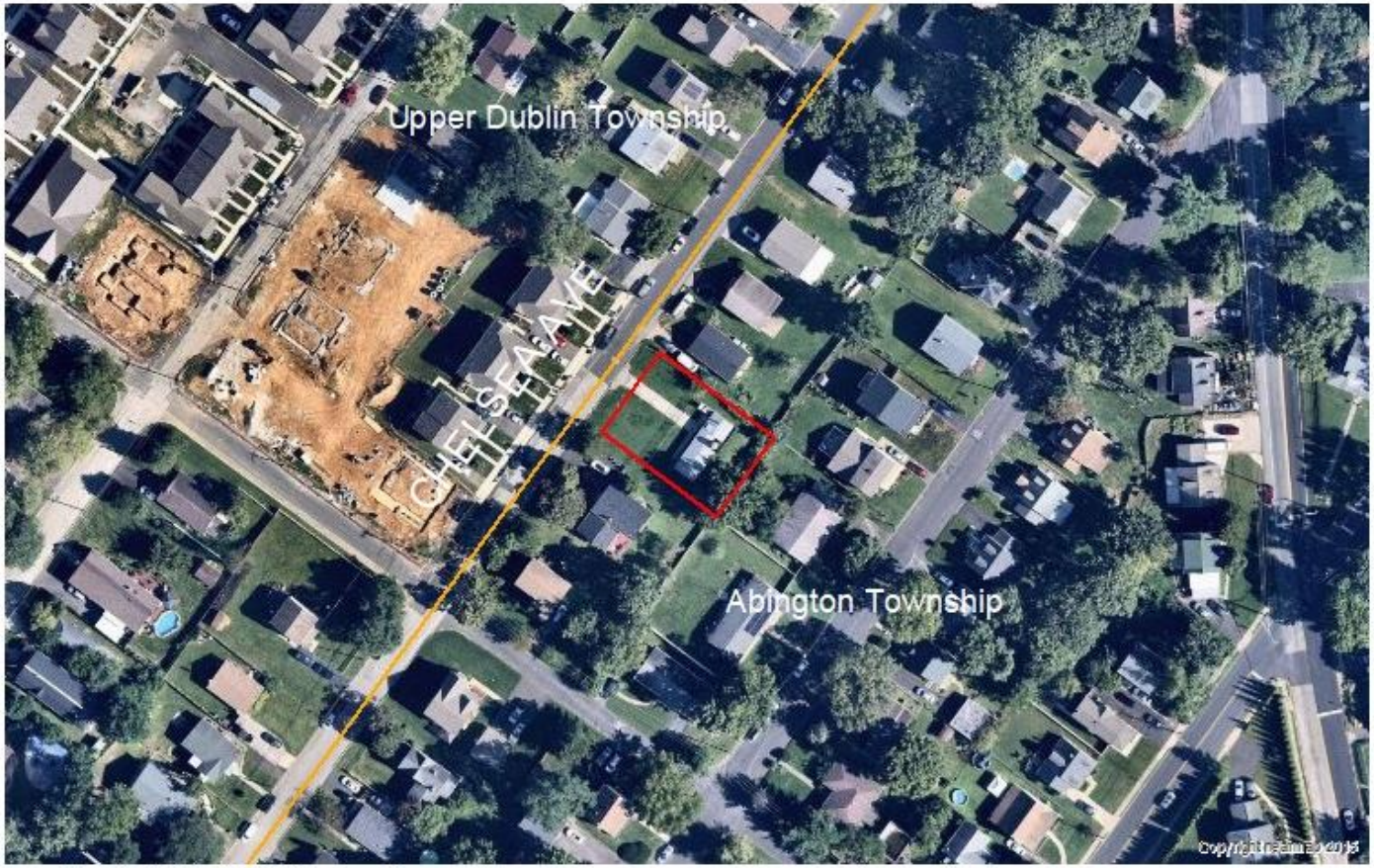
Attachments: A: Plan
B: Aerial Photo

ATTACHMENTS A & B

Plan – North Hills Well Station Improvements



Aerial Image



North Hills Well Station Improvements
MCPC #210030001

Montgomery County Planning Commission
Montgomery County Courthouse - Planning Commission
PO Box 311 • Norristown PA 19404-0311
(p) 610.278.3722 • (f) 610.278.3941
www.montcopa.org/plancom
Aerial photography provided by NearMap.

KUHLS LAW PLLC

Joseph C. Kuhls
Attorney at Law

February 17, 2021

Joseph G. Thurwanger
VP Planning and Engineering
Aqua Pennsylvania
762 West Lancaster Avenue
Bryn Mawr, PA 19010

Re: Abington Township Zoning Hearing Board Application 21-01

Mr. Thurwanger,

As Solicitor to the Abington Township Zoning Hearing Board, I write to confirm that at its Public Meeting last evening the Board voted to approve Aqua Pennsylvania's above-named Application.

Specifically, the Board granted:

- a special exception pursuant to the Abington Township Zoning Ordinance (the "Ordinance") §1906.A to permit an ongoing utility use;
- a variance from Ordinance §2103 (Use A-13.2) to permit a 6-foot-high fence within the front yard setback area;
- a variance from Ordinance §§2403.B.4.a(4) and (5) to permit an alternative landscape buffer; and
- a variance from Ordinance §2601.J.1 to permit a roof-mounted exhaust fan.

The relief outlined above relates to a building addition within an existing well station, and other related site improvements, upon real property commonly referred to as 315 Chelsea Avenue.

This approval is granted subject to the conditions: 1) that development and use of the subject property shall be in substantial conformance with the testimony and exhibits

presented on behalf of the Applicant at the Public Hearing on this matter, including (without limitation) Exhibit "A" attached hereto; 2) that the Applicant shall obtain land development approval or a waiver from that process; and 3) that as part of the land development process or otherwise (in the event of a waiver) the Applicant shall provide o plan of alternative landscaping acceptable to the Township.

An aggrieved party, if any, may file an appeal to the Montgomery County Court of Common Pleas contesting this decision within thirty (30) days. Anyone taking action on this decision within that thirty (30) day period do so at their own risk.

This correspondence constitutes the written decision of the Board to approve the uncontested Application, and no further findings, conclusions, and/or reasons therefore will be issued.

Thank you.



Joseph C. Kuhls

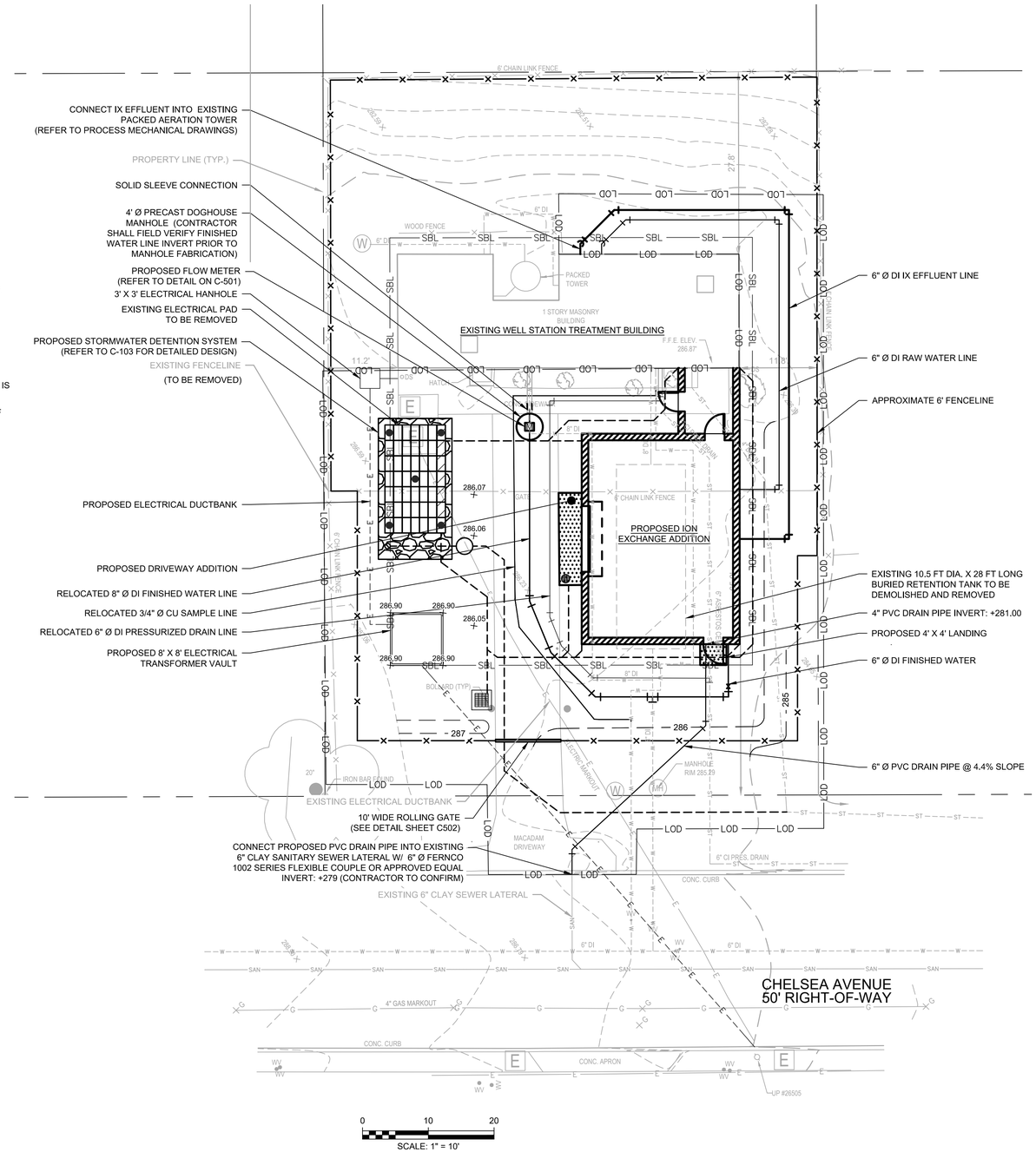
EXHIBIT

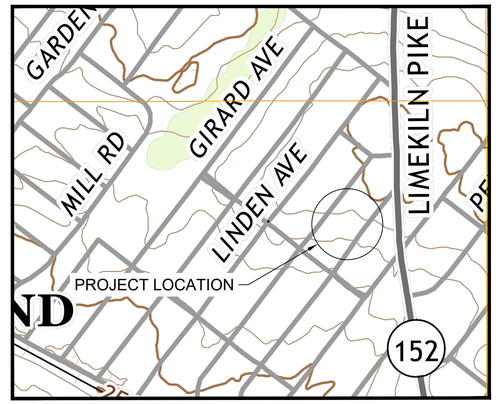
A

ZONING INFORMATION		
ZONE R-4: MEDIUM - HIGH DENSITY RESIDENTIAL DISTRICT		
DIMENSIONAL REGULATIONS	**REQUIRED**	**PROPOSED**
MIN. LOT AREA	7,500 SF	8,250 SF
MIN. LOT WIDTH	50'	75'
MIN. LOT DEPTH	100'	110'
MIN. FRONT YARD SETBACK	20'	20'
MIN. SIDE YARD SETBACK	10'	11.2'
MIN. REAR YARD SETBACK	25'	27.8'
MAX. BUILDING COVERAGE	40%	20.4%
MAX. IMPERVIOUS SURFACE COVERAGE	55%	32.4%
MIN. GREEN AREA	45%	65.4%
MAX. BUILDING AREA	40%	20.4%
MAX. BUILDING HEIGHT	35'	25.3'
MAX. BUILDING WIDTH	100'	52'

REQUESTED ZONING RELIEF

1. REQUESTING WAIVER OF SIDEWALK/CURB REQUIREMENTS AS NO PROPERTIES ON THE SIDE OF THE STREET WHERE THE PROJECT IS LOCATED HAS SIDEWALKS OR CURBS.
2. REQUESTING A SPECIAL EXCEPTION FOR CONSTRUCTION AT THE WELL STATION IN A R-4 ZONING AREA. COMPLIES WITH E-17 IN COMPREHENSIVE USE MATRIX.
3. REQUESTING THE USE OF A MODIFIED LIMITED AREA LANDSCAPING BUFFER AT THE WELL STATION DUE TO SPACE CONSTRAINTS.
4. REQUESTING WAIVER OF THE SHADE TREE REQUIREMENTS DUE TO SPACE CONSTRAINTS.
5. REQUESTING WAIVER FOR THE PROPERTY PERIMETER FENCING FOR SECURITY REASONS. 6' TALL CHAINLINK FENCE IS REQUIRED.
6. REQUESTING WAVER FOR MECHANICAL EQUIPMENT SCREENING REQUIREMENTS DUE TO STRUCTURAL CAPACITY OF EXISTING WELL STATION ROOF.





SOURCE: USGS GERMANTOWN QUADRANGLE

LOCATION PLAN

0 500 1000
SCALE: 1" = 500'

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PROPOSED PAVEMENT AND SIDEWALK

NOTES:

GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS OBTAINED IN THE FIELD BY MOTT MACDONALD ON AUGUST 16, 2018, AND UPDATED DECEMBER 2, 2020.
2. THE HORIZONTAL COORDINATE SYSTEM IS THE PENNSYLVANIA SOUTH STATE PLANE COORDINATE SYSTEM (NAD83) AND VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88); BOTH ESTABLISHED BY DIFFERENTIAL GPS ON AUGUST 16, 2018 FROM THE LEICA SMARTNET/NGS CORS NETWORK.
3. LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM ABOVE GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN PREPARATION OF THIS DRAWING. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THIS DRAWING. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED.
4. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.I. 835, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 30, 2017, PENNSYLVANIA ACT 187.
5. ALL BURIED DUCTILE IRON (DI) PIPING SHALL BE THICKNESS CLASS 52 DUCTILE IRON CEMENT MORTAR LINED WITH ASPHALTIC EXTERIOR COATING. BURIED PIPING SHALL BE RESTRAINED USING FIELD LOK GASKETS. ALL FITTINGS SHALL BE MECHANICAL JOINT WITH MEGALUG RETAINER GLANDS. PIPING AND FITTINGS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C151/A21.5, C110/A21.10 AND C104/A21.4.
6. THE EXISTING AND PROPOSED IMPERVIOUS AREAS ARE AS FOLLOWS:

EXISTING LOT SIZE (SQ. FT.)	8,250
EXISTING IMPERVIOUS AREA (SQ. FT.)	1,820
ADDITIONAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	990
EXISTING IMPERVIOUS TO BE REMOVED (SQ. FT.)	140
TOTAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	2,670
PERCENT (%) IMPERVIOUS AREA (PRE-IMPROVEMENTS)	22.1
PERCENT (%) IMPERVIOUS AREA (POST-IMPROVEMENTS)	32.4

7. TEMPORARY CONSTRUCTION FENCE SHALL BE 8 FT. BY 10 FT. PANELS SUPPORTED WITH SANDBAGS. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY FENCE SHALL BE REMOVED.
8. EQUIPMENT PERIMETER FENCE SHALL INCLUDE PRIVACY SCREEN.
9. PROPOSED USE: UTILITY

© Mott MacDonald

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MOTT MACDONALD

111 Wood Avenue South
Iselin NJ 08830-4112
United States of America

T +1 (800) 832 3272
F +1 (973) 376 1072
www.mottmacamericas.com

Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159

Date

Designed	D. HARZINSKI	DJH	Eng check		
Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

Project Number	B/O	Total
507402365	3	56

Scale at ANSI D	Status	Rev	Security
1" = 10'	PERMIT		STD

Drawing Number: C101

Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
SITE PLAN

pw:\\mott-use-pw.bentley.com:mott-use-pw-14\Documents\402365-Aqua Aidenn Lair and North Hills PFAS Design\Drawings_Models\02_C_Civil\402365-MMD-00-NORTH HILLS SITE PLAN-SH-C
SAVE DATE/TIME: 12/18/2020 2:34:50 PM

MOTT MACDONALD

Abington Township Municipal Building
Engineering Department
1176 Old York Rd.
Abington, PA 19001

Aqua Pennsylvania, Inc.
North Hills Well Station PFAS Treatment System
Abington Township Land Development Application

Our Reference
507402365

December 18, 2020

325 Chestnut St., Suite 300
Philadelphia PA 19106
United States of America

T +1 (215) 627 2277
www.mottmac.com/americas

To Whom It May Concern,

On behalf of Aqua Pennsylvania, Inc., enclosed is the land development Application package for the North Hills Well Station PFAS Treatment System project. The purpose of this project is to add a new ion exchange treatment system for PFAS treatment to the existing well station.

The following items are enclosed for your review:

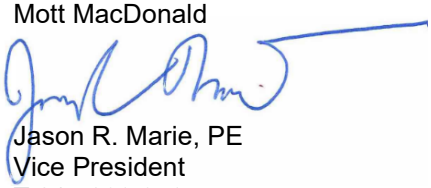
- Land development application forms and project narrative
- Ten (10) copies of the proposed site plan
- Ten (10) copies of the proposed design plan set
- One (1) reduced copy of the proposed site plan
- Two (2) copies of the architectural plan set
- Letter of sanitary sewer availability (email correspondence)
- Two (2) copies of the post construction stormwater management report
- Two (2) copies of the Sewage Facilities Planning Module Application
- One (1) digital copy of all submitted documents
- $1,000 application fee
- $10,000 escrow deposit

We trust that the enclosed information represents a complete land development application. If you have any questions or require additional information, please do not hesitate to contact our office.

MOTT MACDONALD

Very truly yours,

Mott MacDonald



Jason R. Marie, PE
Vice President
T 215.399.9595
jason.marie@mottmac.com

C: B. Kelly (Aqua Pennsylvania)
D. Harzinski, M. Gray (Mott MacDonald)

PRE-SUBMISSION MEETING

It is recommended that applicants for land developments or major subdivisions have a pre-submission meeting with Township staff and consultants to review the proposal prior to filing a complete application with the Township.

A Professional Services Agreement (PSA) is required prior to any pre-submission meeting. In order to complete a PSA with the Township and schedule a pre-submission meeting, contact the Office of the Township Manager by phone: 267-536-1003 or email tcastorina@abingtonpa.gov

All submitted documentation provided should show enough detail for Township staff to review and give informed comments and advice on the proposal. The goal is to provide the applicant with enough feedback to complete his/her application to the satisfaction of the Township and subsequently have as streamlined a process as possible. Therefore, the more detailed information provided upfront, the easier it is to identify any issues ahead of time.

In order for a successful meeting to occur between the applicant and Township Staff, a digital (PDF) file (maximum 10mb) of all required submission materials must be submitted to the Township preferably one (1) week, but no later than three (3) business days, prior to the scheduled meeting. Email all materials to tcastorina@abingtonpa.gov . **If not received within 3 days of the meeting, the meeting will be canceled.** The applicant must bring one (1) scalable, full-size (24"x36") set and eight (8) 11"x17" sets of all drawings and eight (8) 8-1/2"x11" sheets of all written material to the scheduled meeting. It is respectfully requested and expected that the applicant be prepared to present plans to the group via an electronic presentation on a monitor or projectors at the Township building. The following items are required/recommended:

REQUIRED SUBMISSION MATERIALS INCLUDE:

- Project Narrative/Description of the project and identification of any issues the applicant has identified that may need to be resolved prior to land development approval
- Existing Conditions Plan of the property and its relevant surroundings showing a minimum:
  - Existing property lines and dimensions, and any easements
  - Existing Buildings
  - Street and railroad rights-of-way and location of major utilities Topography, natural features, waterways (if present), and other environmental features restricted by overlay districts.
- Existing Conditions Plan overlaid on current aerial, including surrounding properties
- Preliminary Site Plan
- Preliminary Landscape Plan — May be combined or on individual sheets
- Existing and proposed stormwater plans
- Zoning Conformance Table comparing Zoning requirements to proposal. Shall include, but not be limited to, such items as minimum lot area, minimum lot width, minimum yard setbacks, overlay district requirements, etc. See sample below.

Recommended additional submission materials include:

- Identification of site features that could influence the development and the design, including:
  - Views
  - Public connections (pedestrian, bicycle and vehicle connections) and adjacent open spaces

- Character of adjacent residential neighborhoods
- Identification of potential traffic impacts, road improvements, etc.
- Identification of common site amenities to discuss the provision and maintenance of each
- Building plans and elevations
- Colored perspective/rendered elevations of the proposed building(s)
- Rendered site plan
- Perspectives showing community views to the site (from public trails, adjacent residential areas, intersections, entrances into the site)

SAMPLE ZONING CONFORMANCE TABLE:

Zoning _____

	Required	Lot 1	Lot 2	Lot 3
Dimensional Regulations				
Min. Lot Area				
Min. Lot Width				
Min. Lot Depth				
Min. Front Yard Setback				
Min. Side Yard Setback				
Min. Rear Yard Setback				
Max. Building Coverage				
Max. Impervious Surface Coverage				
Min. Green Area				
Max. Building Area				
Max. Building Height				
Max. Building Width				
Parking Requirements				
Use - _____				
Use - _____				

ESCROW AGREEMENT FOR PROFESSIONAL REVIEW FEES FOR PRE-SUBMISSION MEETING

The undersigned hereby agrees to post an escrow to cover the costs of the review of subdivision and land development applications by the Township's Planner, Engineer(s), and Solicitor. The amount of said escrow shall be according to the attached "Schedule of Fees" and shall be posted at the time of initial submission of an application to the Township. Said fees shall be placed in an escrow account and any balance remaining shall be returned to the applicant subsequent to the receipt of final approval.

The applicant is advised that the "Schedule of Fees" represents only an estimate of the costs associated with plan review. The completeness and quality of the submission, the complexity of the project, the number of revisions and other factors may cause costs to exceed the established escrow amounts. If during the course of a subdivision/land development review an escrow amount falls to 10% of the original escrow amount or $250, whichever is greater, the Township may require the posting of additional escrow.

NOTE: NO FINAL APPROVALS, CONSTRUCTION, BUILDING OR OCCUPANCY PERMITS SHALL BE ISSUED UNTIL ALL OUTSTANDING PROFESSIONAL REVIEW FEES HAVE BEEN SATISFIED.

Signature: Brennan T. Kelly
Applicant

Date: 12/14/2020

APPLICATION FOR SUBDIVISION/LAND DEVELOPMENT

PROJECT TITLE: North Hills Well Station Improvements

APPLICANT NAME: Aqua Pennsylvania, Inc. c/o Brennan Kelly, PE

TO BE COMPLETED BY THE TOWNSHIP
Submission Information:

Application Number:_____ Date Complete: _____

Received By:_____ 90 Day Date:_____

File Date: _____ Ward No._____

REQUIRED MATERIAL FOR ALL SUBDIVISION/LAND DEVELOPMENT APPLICATIONS:

1. This form **MUST** be completed and submitted.
2. A Subdivision/ Land Development Application MUST include all of the items listed in the application checklist in Section V to be considered complete.
3. Incomplete application will **NOT** be placed on the Planning Commission agenda. Incomplete applications will be returned to the applicant.
4. Complete applications must be received at least 45 DAYS (see schedule) prior to the Planning Commission meeting at which it will be heard.
5. Ten (10) full size paper copies, and one (1) 11x17 reduced copy of the plans, plus three (3) copies of each report or study are to be submitted in the initial submission of the complete application. A digital copy of all submitted documents must be included with the application.

   ***It is highly encouraged to submit applications in a digital format**

I. CONTACT INFORMATION

Applicant Information

Aqua Pennsylvania Inc. c/o Brennan Kelly, PE, Senior Engineer
Name

762 West Lancaster Avenue, Bryn Mawr, PA 19010
Address

610.645.4297 -
Phone Fax

BTKelly@aquaamerica.com
Email Address

Property Owners Information (if different than applicant)

Same as Applicant.
Name

Address

Phone Fax

Email Address

Architect/ Planner

Mott MacDonald c/o Jason Marie, PE, Vice President
Name

325 Chestnut St, Suite 300, Philadelphia, PA 19106
Address

215.399.9595 -
Phone Fax

jason.marie@mottmac.com
Email Address

Engineer/ Surveyor

Mott MacDonald c/o Jason Marie, PE, Vice President
Name

325 Chestnut St, Suite 300, Philadelphia, PA 19106
Address

Engineer/ Surveyor Cont'd

215.399.9595 | -
Phone | Fax

jason.marie@mottmac.com
Email Address

Attorney

Not Applicable.
Name

Address

Phone | Fax

Email Address

II. PROJECT INFORMATION

Application Type:

☐ Minor Subdivision	☑ Minor Land Develop.	☐ Preliminary Major SD & LD
☐ Preliminary Major Subdivision	☐ Prelim. Major Land Develop.	☐ Final Major SD & LD
☐ Final Major Subdivision	☐ Final Major Land Develop.	

Full street address of the property: 315 Chelsea Avenue, Glenside, PA 19038

Tax Parcel No.: 30137 008 County Deed Book No.:_____ Page No.:_____

Description of Proposed Work: Installation of a PFAS removal system requiring a building addition to the existing well station and improvements within the existing station

Total Tract Acreage: 0.19 Project Acreage: 0.13

Zoning District: R-4 Existing Number of Lots: 1 Proposed Number of Lots: 1

Existing Sewer Flows: 0 GPD Proposed Sewer Flows: 374 GPD

Proposed Land Use:

☐ Single Family Detached	☐ Single Family Attached		☐ Single Family Semi-Detached
☐ Multi-Family	☐ Commercial	☐ Office	☐ Industrial

☑ Other (Describe): Utility Use

III. REVIEW

Please complete the following section by circling a response:

- Have you met with the Zoning Officer regarding this plan? Yes (●) No ( )
- Are there known variances/any zoning relief necessary for this project?* Yes (●) No ( )
- If YES, have you submitted an application to the Zoning Hearing Board? Yes (●) No ( )
- Has this plan been heard by the Zoning Hearing Board? Yes ( ) No (●)

This application is being submitted concurrently with the project's zoning application.

*Please be advised that if any variances are found to be necessary during the course of the review of this plan, you will be required to go to the Zoning Hearing Board prior to proceeding to the Planning Commission. In addition, you will be requested to grant the Township a waiver to the 90-day action period or an immediate denial of this application will be made, and you will be required to resubmit the application.

It is recommended that ALL Land Development and Major Subdivision applications have a pre-submission meeting to discuss the project prior to full application submittal.

Minor Subdivision applications may request a pre-submission meeting; if one is desired.

Meetings are held the fourth Tuesday of each month beginning at 9:30 a.m. at the Township Administrative Offices.

Applicants assume responsibility of any fees associated with this meeting.

Brenna T. Kelly
Applicant signature

12/14/2020
Date

To schedule a pre-submission meeting, please contact the office of the Township Manager at 267-536-1003 or email tcastorina@abingtonpa.gov

IV. WAIVERS

List of Requested Waivers: Attach separate sheet if required.

Section/Requirement:	Relief Requested:
Abington Township Subdivision and Land Development Ordinance Code 146-27 Sidewalks and Curbs	Requesting waiver of sidewalk/curb requirement as no properties on the side of the street where the project is located has sidewalks or curbs.
Abington Township Zoning Ordinance Comprehensive Use Matrix	Requesting a special exception for construction at the well station in a R-4 zoning area. Complies with E-17 in comprehensive use matrix.
Abington Township Zoning Ordinance Figure 24.5 "Buffer Requirements"	Requesting the use of a modified limited area buffer at the well station due to space constraints.
Abington Township Subdivision and Land Development Ordinance Code 146-39 Landscaping	Requesting waiver of the shade tree requirements due to space constraints.
Abington Township Zoning Ordinance Buffer Material	Requesting waiver for the property perimeter fencing for security reasons. 6' tall chainlink fence is required.
Abington Township Subdivision and Land Development Ordinance Code 2601.J Mechanical Equipment Standards	Requesting waiver with respect to the roof screening requirement for one new roof exhaust fan. Additional loading on the existing roof needs to be minimized.
Abington Township Land Development Application - Drawing Size Requirements	Requesting waiver on drawing size requirements. 22"x34" drawings are a required client standard.

V. SUBMISSION

APPLICATION CHECKLIST

The applicant is responsible for the submission of a complete application. This checklist will aid both the applicant and staff in ensuring that all applications are complete. The following is a per item submission checklist for all Subdivision, Land Development and Conditional Use Applications for the Township of Abington.

- [x] Application Form: completed and signed by the owner/applicant
- [x] 10 (ten) copies of the proposed plan, folded to legal file size. Plan should not be smaller than 1" = 50'and not exceed a sheet size of 24"x 36"
- [x] One (1) reduced copy of the proposed plan, no larger than 11"x17"
- [x] Two (2) sets of tentative architectural plans for all applications proposing construction or land development
- [ ] One (1) copy of the Recreation Facilities Plan (if required by §146-40) ***Not Applicable***
- [x] Letter of Sanitary Sewer availability from the Township Wastewater Treatment Department Two
  Please see the attached email correspondence regarding sanitary sewer availability/capacity for the well station.
- [x] (2) copies of Sewage Facilities Planning Module Applications
- [ ] Letter of Water availability from AQUA PA ***Not Applicable***
- [ ] One (1) copy of any previous Zoning Hearing Board decisions related to the subject property
  This application is being submitted concurrently with the project's zoning application.
- [x] One (1) Digital copy of all submitted documents
- [x] Application Fee: Check made payable to the Township of Abington
- [x] Escrow Fee: Check made payable to the Township of Abington. Separate check from application fee

VI. SIGNATURE

The undersigned represents that to the best of his/her knowledge and belief, all the above statements are true, correct, and complete.

Brennan T. Kelly — Signature of Applicant

12/14/2020 — Date

_____ — Signature of Property Owner (if different than applicant)

_____ — Date

THE FOLLOWING IS FOR INTERNAL USE ONLY:

PAYMENT

☐ Application Fee Amount: $_____ Check No.: #_____

☐ Review Escrow Fee Amount: $_____ Check No.: #_____

DECISION INFORMATION

Approval ☐ Denial ☐ Decision Date: _____

Comments/Conditions:

PLANNING PROCESS EXTENSION AGREEMENT

FOR

North Hills Well Station Improvements

PROJECT NAME

The Pennsylvania Municipality Planning Code (MPC) and the Abington Township Subdivision and Land Development Ordinance state that action must be taken by the Township within ninety (90) days after a complete application is filed with the Township. In the Township, complicated, unique, and community impactful projects have or may require additional time in order to complete a thorough review before being considered for approval. As such, an applicant may voluntarily waive the timing requirement at any time, but is encouraged to submit this waiver with the completed application.

I, the applicant, hereby voluntarily waive the timing requirement as set forth in the MPC (Section 53 P.S. 10508) and the Abington Township Subdivision and Land Development Ordinance (Section 146-13). Applicant acknowledges that this waiver can be revoked at any time upon written notice to the Township Manager. The time limitations set forth in 53 P.S. 10508 and Section 146-13 of the Abington Township Code shall be calculated from the date that the written revocation is received by the Township Manager.

Signed: Brian T. Kelly _____ Date: 12/14/2020
Applicant

Received: _____ Date: _____
Township

ESCROW AGREEMENT FOR PROFESSIONAL REVIEW FEES FOR SUBDIVISION/LAND DEVELOPMENT APPLICATIONS

The undersigned hereby agrees to post an escrow to cover the costs of the review of subdivision and land development applications by the Township's Planner, Engineer, and Solicitor. The amount of said escrow shall be according to the attached "Schedule of Fees" and shall be posted at the time of initial submission of an application to the Township. Said fees shall be placed in an escrow account and any balance remaining shall be returned to the applicant subsequent to the receipt of final approval.

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NOTE: NO FINAL APPROVALS, CONSTRUCTION, BUILDING OR OCCUPANCY PERMITS SHALL BE ISSUED UNTIL ALL OUTSTANDING PROFESSIONAL REVIEW FEES HAVE BEEN SATISFIED.

Signed: Brenna T. Kelly Date: 12/14/2020
Applicant

Applicant Request for County Review

This request should be filled out by the applicant and submitted to the municipality where the application is being filed along with digital copies of all plan sets/information. Municipal staff will electronically file the application with the county, and a notice for the prompt payment of any fees will be emailed to the Applicant's Representative.

MONTGOMERY COUNTY PLANNING COMMISSION
MCPC
P.O. Box 311, Norristown, PA 19404-0311
Phone: 610-278-3722
Business Hours: 8:30 A.M. to 4:15 P.M.
www.planning.montcopa.org

Date: 12/12/2020
Municipality: Township of Abington

Proposal Name: North Hills Well Station Improvements

Applicant Name: Aqua Pennsylvania, Inc. c/o Brennan Kelly, F
Address: 762 West Lancaster Avenue
City/State/Zip: Bryn Mawr, PA 19010
Phone: 610.645.4297
Email: BTKelly@aquaamerica.com

Applicant's Representative: Brennan Kelly, PE, Senior Engineer
Address: 762 West Lancaster Avenue
City/State/Zip: Bryn Mawr, PA 19010
Business Phone (required): 610.645.4297
Business Email (required): BTKelly@aquaamerica.com

Type of Review Requested:

(Check All Appropriate Boxes)

- [x] Land Development Plan
- [ ] Subdivision Plan
- [ ] Residential Lot Line Change
- [ ] Nonresidential Lot Line Change
- [ ] Zoning Ordinance Amendment
- [ ] Zoning Map Amendment
- [ ] Subdivision Ordinance Amendment
- [ ] Curative Amendment
- [ ] Comprehensive / Other Plan
- [ ] Special Review*

**(Not included in any other category - includes parking lot or structures that are not associated with new building square footage)*

Type of Plan:

- ○ Tentative (Sketch)
- ◉ Preliminary / Final

Type of Submission:

- ◉ New Proposal
- ○ Resubmission*

** A proposal is NOT a resubmission if A) The proposed land use changes, or B) The amount of residential units or square footage proposed changes more than 40%, or C) The previous submission was over 5 years ago.*

Zoning:

Existing District: R-4
Special Exception Granted ◉ Yes ○ No **Application being review concurrently**
Variance Granted ◉ Yes ○ No For Landscaping, fencing, shade tree, and sidewalk and curbing requirements

Plan Information:

Tax Parcel Number(s) 30137 008

Location *(address or frontage)* 315 Chelsea Ave, Glenside, PA 19038
Nearest Cross Street Walnut Avenue
Total Tract Area 0.19
Total Tract Area Impacted By Development 0.13

(If the development is a building expansion, or additional building on existing development, or only impacts a portion of the tract, please provide a rough estimate of the land impacted, including associated yards, drives, and facilities.)

Land Use(s)	Number of New Lots	Number of New Units	Senior Housing Yes	Senior Housing No	Open Space Acres*	Nonresidential New Square Feet
Single-Family			☐	☐		
Townhouses/Twins			☐	☐		
Apartments			☐	☐		
Commercial						
Industrial						
Office						
Institutional						
Other						

**Only indicate Open Space if it will be on a separate lot or deed restricted with an easement shown on the plan.*

Additional Information:

MOTT MACDONALD

Aqua Pennsylvania, Inc. North Hills Well Station Improvements

Project Narrative

Project:	Aqua Pennsylvania, Inc. North Hills Well Station Improvements		
Our reference:	507402365		
Prepared by:	J. MacMinn	**Date:**	12/18/2020
Approved by:	J. Marie	**Checked by:**	D. Harzinski
Subject:	Project Narrative		

1 Introduction

1.1 Project Background

The North Hills Well facility has a capacity of 475 gpm and is typically operated at 450 gpm. The existing facility includes a packed tower air stripper system for removal of VOCs. From the air stripper, the water is conveyed to a Clearwell where sodium hypochlorite is added for disinfection. The water is then pumped to the distribution system and ammonium sulfate and bimetallic glassy phosphate are added to the pump discharge prior to leaving the facility. **Figure 1.1** presents a process flow schematic of the existing North Hills Well facility.

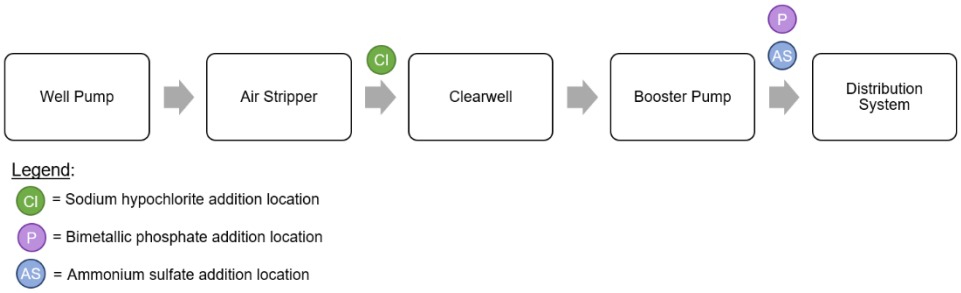


Figure 1.1: North Hills Well Existing Facility Process Flow Schematic

Water quality sampling conducted by Aqua PA at the North Hills Well facility between January 2017 and July 2018 showed the presence of perfluoroalkyl substances (PFAS) contamination in the groundwater source, and Aqua removed the well from active operation in July 2018 and began planning for the implementation of PFAS treatment at the facility.

PROPOSED IMPROVEMENTS

The proposed PFAS treatment system implementation at the North Hills Well facility will include a pre-filter, anion exchange equipment, and a new well pump. **Figure 1.2** presents the proposed process flow schematic for the incorporation of the PFAS treatment system at the North Hills Well facility.

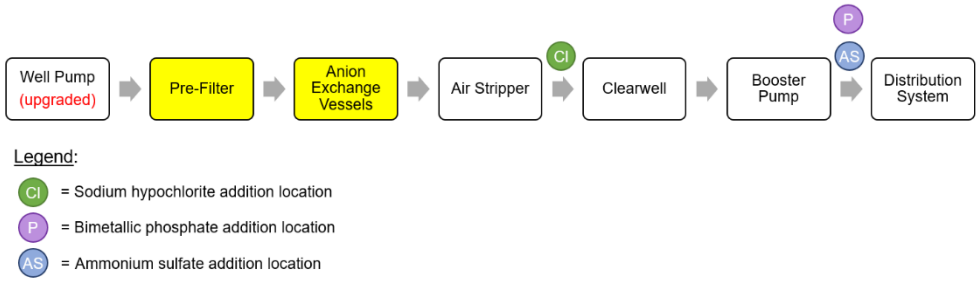


Figure 1.2: Proposed North Hills Well Facility Process Flow Schematic

The pre-filter and anion exchange vessels will be housed in a new building addition at the North Hills Well facility site. The chemical storage and feed systems at the facility will also be upgraded when the PFAS treatment system is implemented. The chemical system upgrades do not involve any changes to types of chemicals fed at the facility, nor the chemical doses or application points. The upgrades will include new storage tanks and feed pumps and the separation of the ammonium sulfate and bimetallic phosphate preparation and feed system into two separate preparation and feed systems, one for each chemical.

In addition to treatment related improvements, stormwater management will be incorporated into the proposed improvements. Please refer to the Aqua PA North Hills PFAS Treatment System Post Construction Stormwater Management Report included in this application for design calculations and details.

2 Abington Township Requirements

After reviewing the zoning and land development requirements set forth by Abington Township the project team, in coordination with Township staff during pre-application meetings, have identified waivers that will be required to obtain zoning and land development approval. The list of the requested waivers is summarized below. The Aqua PA and Mott MacDonald team sought to find the balance between the Abington Township, Aqua PA, and Pennsylvania Department of Environmental Protection (PADEP) treatment requirements.

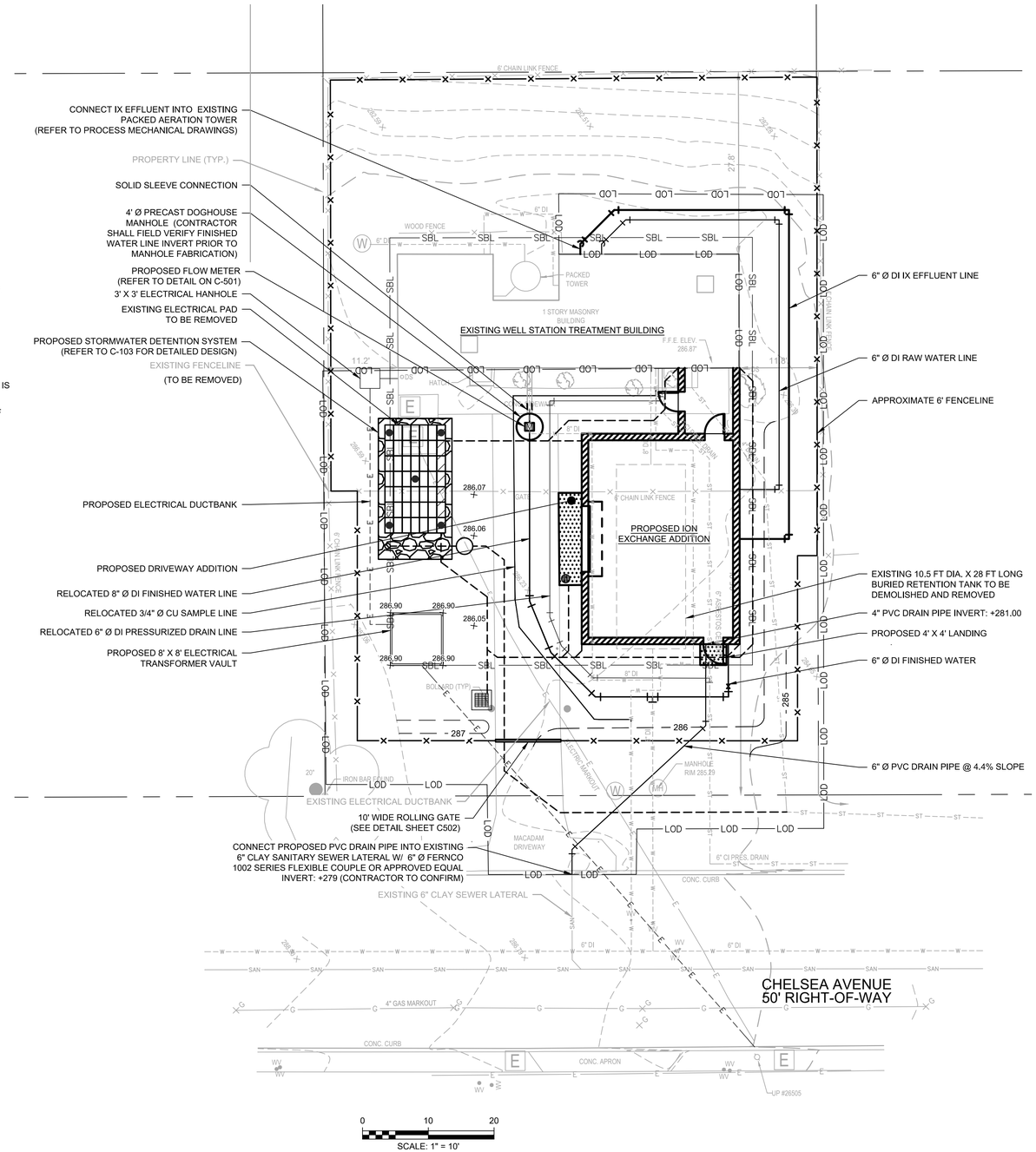
- Requesting waiver of sidewalk/curb requirements;
- Requesting a zoning special exception;
- Requesting modified waiver of buffer requirements;
- Requesting waiver of shade tree requirements;
- Requesting waiver of buffer material requirements;
- Requesting waiver of mechanical equipment screening requirements;
- Requesting waiver of drawing sheet size requirements.

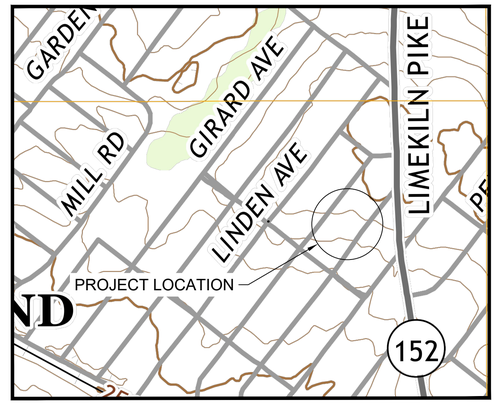
Details regarding each of the requested waivers are included in the land development application.

ZONING INFORMATION		
ZONE R-4: MEDIUM - HIGH DENSITY RESIDENTIAL DISTRICT		
DIMENSIONAL REGULATIONS	**REQUIRED**	**PROPOSED**
MIN. LOT AREA	7,500 SF	8,250 SF
MIN. LOT WIDTH	50'	75'
MIN. LOT DEPTH	100'	110'
MIN. FRONT YARD SETBACK	20'	20'
MIN. SIDE YARD SETBACK	10'	11.2'
MIN. REAR YARD SETBACK	25'	27.8'
MAX. BUILDING COVERAGE	40%	20.4%
MAX. IMPERVIOUS SURFACE COVERAGE	55%	32.4%
MIN. GREEN AREA	45%	65.4%
MAX. BUILDING AREA	40%	20.4%
MAX. BUILDING HEIGHT	35'	25.3'
MAX. BUILDING WIDTH	100'	52'

REQUESTED ZONING RELIEF

1. REQUESTING WAIVER OF SIDEWALK/CURB REQUIREMENTS AS NO PROPERTIES ON THE SIDE OF THE STREET WHERE THE PROJECT IS LOCATED HAS SIDEWALKS OR CURBS.
2. REQUESTING A SPECIAL EXCEPTION FOR CONSTRUCTION AT THE WELL STATION IN A R-4 ZONING AREA. COMPLIES WITH E-17 IN COMPREHENSIVE USE MATRIX.
3. REQUESTING THE USE OF A MODIFIED LIMITED AREA LANDSCAPING BUFFER AT THE WELL STATION DUE TO SPACE CONSTRAINTS.
4. REQUESTING WAIVER OF THE SHADE TREE REQUIREMENTS DUE TO SPACE CONSTRAINTS.
5. REQUESTING WAIVER FOR THE PROPERTY PERIMETER FENCING FOR SECURITY REASONS. 6' TALL CHAINLINK FENCE IS REQUIRED.
6. REQUESTING WAVER FOR MECHANICAL EQUIPMENT SCREENING REQUIREMENTS DUE TO STRUCTURAL CAPACITY OF EXISTING WELL STATION ROOF.





SOURCE: USGS GERMANTOWN QUADRANGLE

LOCATION PLAN

0 500 1000
SCALE: 1" = 500'

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PROPOSED PAVEMENT AND SIDEWALK

NOTES:

GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS OBTAINED IN THE FIELD BY MOTT MACDONALD ON AUGUST 16, 2018, AND UPDATED DECEMBER 2, 2020.
2. THE HORIZONTAL COORDINATE SYSTEM IS THE PENNSYLVANIA SOUTH STATE PLANE COORDINATE SYSTEM (NAD83) AND VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88); BOTH ESTABLISHED BY DIFFERENTIAL GPS ON AUGUST 16, 2018 FROM THE LEICA SMARTNET/NGS CORS NETWORK.
3. LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM ABOVE GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN PREPARATION OF THIS DRAWING. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THIS DRAWING. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED.
4. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.I. 835, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 30, 2017, PENNSYLVANIA ACT 187.
5. ALL BURIED DUCTILE IRON (DI) PIPING SHALL BE THICKNESS CLASS 52 DUCTILE IRON CEMENT MORTAR LINED WITH ASPHALTIC EXTERIOR COATING. BURIED PIPING SHALL BE RESTRAINED USING FIELD LOK GASKETS. ALL FITTINGS SHALL BE MECHANICAL JOINT WITH MEGALUG RETAINER GLANDS. PIPING AND FITTINGS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C151/A21.5, C110/A21.10 AND C104/A21.4.
6. THE EXISTING AND PROPOSED IMPERVIOUS AREAS ARE AS FOLLOWS:

EXISTING LOT SIZE (SQ. FT.)	8,250
EXISTING IMPERVIOUS AREA (SQ. FT.)	1,820
ADDITIONAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	990
EXISTING IMPERVIOUS TO BE REMOVED (SQ. FT.)	140
TOTAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	2,670
PERCENT (%) IMPERVIOUS AREA (PRE-IMPROVEMENTS)	22.1
PERCENT (%) IMPERVIOUS AREA (POST-IMPROVEMENTS)	32.4

7. TEMPORARY CONSTRUCTION FENCE SHALL BE 8 FT. BY 10 FT. PANELS SUPPORTED WITH SANDBAGS. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY FENCE SHALL BE REMOVED.
8. EQUIPMENT PERIMETER FENCE SHALL INCLUDE PRIVACY SCREEN.
9. PROPOSED USE: UTILITY

© Mott MacDonald

This document is issued for the party which commissioned it and for specific purposes connected with the captioned project only. It should not be relied upon by any other party or used for any other purpose. We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

MOTT MACDONALD

111 Wood Avenue South
Iselin NJ 08830-4112
United States of America

T +1 (800) 832 3272
F +1 (973) 376 1072
www.mottmacamericas.com

Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JASON R. MARIE ENGINEER No. 077159 12/17/2020

Date

Designed	D. HARZINSKI	DJH	Eng check		
Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

Project Number	B/O	Total
507402365	3	56

Scale at ANSI D	Status	Rev	Security
1" = 10'	PERMIT		STD

Drawing Number: C101

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
SITE PLAN

pw:\\mott-use-pw.bentley.com:mott-use-pw-14\Documents\402365-Aqua Aidenn Lair and North Hills PFAS Design\Drawings_Models\02_C_Civil\402365-MMD-00-NORTH HILLS SITE PLAN-SH-C
SAVE DATE/TIME: 12/18/2020 2:34:50 PM

AQUA PENNSYLVANIA, INC.

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

NORTH HILLS WELL
PFAS TREATMENT SYSTEM

ACTIVITY NO. 15900892567

DECEMBER 2020

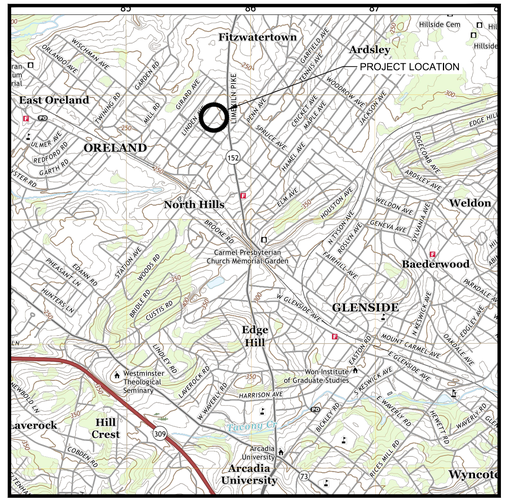
ZONING AND LAND DEVELOPMENT SUBMITTAL

MOTT MACDONALD



JASON R. MARIE
Professional Engineer - Lic. No. PE-077159

pw:\\mott-use-pw.bentley.com:mott-use-pw-14\Documents\402365-Aqua Aidenn Lair and North Hills PFAS Design\Drawings_Models\01_G_General\G-1 AIDENN LAIR



SOURCE: USGS GERMANTOWN QUADRANGLE

LOCATION PLAN

0 2000 4000

SCALE: 1" = 2000'

INDEX OF DRAWINGS

B/O	SHEET NO.	DRAWING TITLE
GENERAL		
1	G001	COVER SHEET
2	G002	INDEX, LOCATION PLAN, AND NOTES
CIVIL		
3	C101	SITE PLAN
4	C102	RECORD SITE PLAN
5	C103	STORMWATER MANAGEMENT AND DRAINAGE PLAN
6	C104	EROSION AND SEDIMENT CONTROL PLAN
7	C501	CIVIL DETAILS (SHEET 1 OF 2)
8	C502	CIVIL DETAILS (SHEET 2 OF 2)
9	C503	STORMWATER MANAGEMENT PLAN DETAILS (SHEET 1 OF 4)
10	C504	STORMWATER MANAGEMENT PLAN DETAILS (SHEET 2 OF 4)
11	C505	STORMWATER MANAGEMENT PLAN DETAILS (SHEET 3 OF 4)
12	C506	STORMWATER MANAGEMENT PLAN DETAILS (SHEET 4 OF 4)
13	C507	SESC DETAILS (SHEET 1 OF 2)
14	C508	SESC DETAILS (SHEET 2 OF 2)
LANDSCAPING		
15	L101	LANDSCAPING PLAN
16	L501	LANDSCAPING DETAILS
PROCESS MECHANICAL		
17	P101	FLOOR PLANS
18	P301	SECTIONS
19	P501	DETAILS
STRUCTURAL		
20	S001	GENERAL NOTES (SHEET 1 OF 2)
21	S002	GENERAL NOTES (SHEET 2 OF 2)
22	S101	FOUNDATION PLAN
23	S102	FINISHED FLOOR PLAN
24	S301	SECTIONS (SHEET 1 OF 3)
25	S302	SECTIONS (SHEET 2 OF 3)
26	S303	SECTIONS (SHEET 3 OF 3)
27	S501	TYPICAL DETAILS (SHEET 1 OF 2)
28	S502	TYPICAL DETAILS (SHEET 2 OF 2)

B/O	SHEET NO.	DRAWING TITLE
ARCHITECTURAL		
29	A101	LIFE SAFETY PLAN
30	A102	FLOOR PLAN, REFLECTED CEILING PLAN, AND ROOF PLAN
31	A201	EXTERIOR ELEVATIONS
32	A301	BUILDING AND WALL SECTIONS
33	A501	DOOR DETAILS AND SCHEDULES
34	A502	WALL AND ROOF DETAILS
ELECTRICAL		
35	E001	GENERAL NOTES, ABBREVIATIONS , AND SYMBOL LEGEND
36	E101	WELL STATION - DEMOLITION PLAN
37	E102	WELL STATION - POWER AND LIGHTING PLAN
38	E401	EXISTING/DEMOLITION ONE LINE DIAGRAM
39	E402	REVISED ONE LINE DIAGRAM
40	E501	DETAILS
41	E601	DIAGRAMS
42	E701	SCHEDULES
MECHANICAL		
43	M001	SYMBOLS, ABBREVIATIONS, AND NOTES
44	M101	DEMOLITION FLOOR PLAN
45	M102	FLOOR PLAN
46	M500	DETAILS
47	M600	SCHEDULES
48	M601	CONTROLS (SHEET 1 OF 2)
49	M602	CONTROLS (SHEET 2 OF 2)
PLUMBING		
50	PL001	SYMBOLS, NOTES, ABBREVIATIONS, AND SCHEDULES
51	PL101	UNDERSLAB AND FLOOR PLAN
52	PL501	DETAILS
53	PL601	RISER DIAGRAMS
FIRE PROTECTION		
54	FP001	SYMBOLS, NOTES, ABBREVIATIONS, AND SCHEDULES
55	FP101	FLOOR PLAN
56	FP501	DETAILS AND RISER DIAGRAM

GENERAL NOTES:

1. INTENDED USE FOR DRAWINGS

   THE CONTRACT DRAWINGS ARE INTENDED TO EXPLAIN THE VARIOUS TYPES OF WORK AND AS SUCH ARE INTERRELATED. WHILE IT IS INTENDED THAT DISCREPANCIES BETWEEN THE VARIOUS DISCIPLINE'S DRAWINGS WILL BE NON-EXISTENT, THERE IS A LIKELIHOOD THAT FIELD ADJUSTMENTS AND CORRECTIONS WILL BE REQUIRED IN THE INTERPRETATION OF THE DOCUMENTS FROM TIME TO TIME.

   THE CONTRACTOR SHALL REFER TO THE DRAWINGS OF THE APPROPRIATE DISCIPLINE WHEN UNDERTAKING THE WORK OF THE DISCIPLINE. HOWEVER HE IS NOT TO DISREGARD OTHER RELATED DRAWINGS IN ORDER TO INSURE PROPER COORDINATION BETWEEN DISCIPLINES. IN THE EVENT OF DISCREPANCIES BETWEEN VARIOUS ELEMENTS OF WORK, THE CONTRACTOR IS TO IMMEDIATELY CONTACT THE ENGINEER FOR CLARIFICATION. IN GENERAL, THE DRAWINGS OF ONE DISCIPLINE SHALL NOT BE USED TO CONSTRUCT THE WORK OF ANOTHER DISCIPLINE UNLESS THE WORK TO BE CONSTRUCTED UNDER THAT DISCIPLINE IS NOT CLEARLY DEFINED. THE CONTRACTOR SHALL BRING THE MATTER TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION AND THE ENGINEER MAY DIRECT THE CONTRACTOR TO USE THOSE CONTRACT DRAWINGS WHICH MOST CLEARLY DEPICT THE WORK.

   IT IS THE INTENT OF THE CONTRACT DRAWINGS TO PROVIDE DETAILED GUIDANCE AS TO WHAT MUST BE CONSTRUCTED, HOWEVER THE METHOD OF CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS ADVISED TO REVIEW THE CONTRACT DRAWINGS OF ALL DISCIPLINES PRIOR TO UNDERTAKING CONSTRUCTION IN ANY AREA SO AS TO ASSURE HIMSELF TO THE COMPLETENESS AND CORRELATION OF THE WORK TO BE BUILT.

2. AVAILABLE INFORMATION AS TO THE LOCATION OF EXISTING SUBSTRUCTURES AND UTILITIES HAS BEEN COLLECTED FROM VARIOUS SOURCES. THE RESULTS OF SUCH INVESTIGATIONS, AS MAY BE SHOWN ON THE CONTRACT DRAWINGS, ARE NOT GUARANTEED AS TO ACCURACY. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL DIG TEST PITS AS NECESSARY TO VERIFY TRUE AND EXACT LOCATIONS OF UNDERGROUND UTILITIES. PAYMENT FOR TEST PITS SHALL BE IN THE LUMP SUM PRICE BID.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES A MINIMUM OF 72 HOURS PRIOR TO EXCAVATION, AND SHALL COMPLY WITH ALL CURRENT MARKOUT REQUIREMENTS OF THE PENNSYLVANIA ONE CALL SYSTEM.
4. EXCAVATIONS OR TRENCHING WITHIN CLOSE PROXIMITY TO UNDERGROUND FACILITIES OR UTILITY POLES WILL REQUIRE PROTECTION TO PREVENT DAMAGE OR INTERRUPTION OF SERVICE TO UNDERGROUND FACILITIES. THE COST TO PROVIDE THIS PROTECTION WILL BE BORNE BY THE CONTRACTOR.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF EXISTING THRUST BLOCKS WHICH ARE RESTRAINING EXISTING UTILITIES. EXISTING THRUST BLOCKS SHALL NOT BE UNDERMINED OR DISTURBED.
6. PRIOR TO ANY CONNECTION TO EXISTING FACILITIES, THE CONTRACTOR SHALL NOTIFY AQUA PENNSYLVANIA, INC. A MINIMUM OF 72 HOURS PRIOR TO SCHEDULED CONNECTION. ALL CONNECTIONS TO EXISTING FACILITIES WILL BE DONE AT THE CONVENIENCE OF AQUA PENNSYLVANIA, INC.
7. EXISTING MAINS TO WHICH CONNECTIONS SHALL BE MADE ARE SIZED AND LOCATED IN ACCORDANCE WITH AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE PREPARED TO ACCOMMODATE CHANGES IN THE SIZE OR LOCATION BY MAINTAINING AT THE JOB SITE ADDITIONAL PIPE, FITTINGS, VALVES, ETC. IN THE RANGES OF SIZE BEING DEALT WITH. THIS ADDITIONAL MATERIAL SHALL BE AVAILABLE TO PREVENT DELAYS IN CONSTRUCTION AND SHALL BE INCLUDED IN THE LUMP SUM PRICE BID.
8. ALL TRENCHES SHALL BE BACKFILLED WITHOUT DELAY. OPEN TRENCHES SHALL BE KEPT TO A MINIMUM. ANY TRENCHES OR OPEN EXCAVATIONS LEFT OPEN OVERNIGHT MUST BE SURROUNDED BY ORANGE WARNING FENCE. WARNING FENCE SHALL BE 48 INCHES HIGH WITH 60 INCH STAKES 10 FEET ON CENTER.
9. UNLESS OTHERWISE SPECIFICALLY PERMITTED, NO WORK SHALL BE DONE BETWEEN THE HOURS OF 6:00 P.M. AND 7:00 A.M. PREVAILING TIME. NO EQUIPMENT SHALL BE STARTED PRIOR TO 7:30 A.M. PREVAILING TIME. IF IT SHALL BECOME ABSOLUTELY NECESSARY TO PERFORM WORK AT NIGHT, AQUA PENNSYLVANIA, INC. SHALL BE INFORMED 72 HOURS IN ADVANCE. GOOD LIGHTING AND ALL OTHER NECESSARY FACILITIES FOR PROPER AND INSPECTION OF THE WORK SHALL BE PROVIDED. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL STATE AND LOCAL LAWS GOVERNING HOURS DURING WHICH CONSTRUCTION EQUIPMENT MAY BE OPERATED.
10. THE CONTRACTOR SHALL PROTECT ALL STRUCTURES, ROADS, PIPELINES, TREES, SHRUBBERY, GRASS AREA, ETC. DURING THE PROGRESS OF THE WORK AND SHALL REMOVE FROM THE SITE ALL DEBRIS AND UNUSED MATERIALS. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL RESTORE THE SITE TO ITS ORIGINAL CONDITION, INCLUDING THE REPLACEMENT OF GRASSED AREAS WHICH HAVE BEEN DAMAGED AT THE CONTRACTOR'S SOLE EXPENSE.
11. THE CONTRACTOR SHALL CONFINE CONSTRUCTION OPERATIONS TO THE AREAS BOUND BY THE CONSTRUCTION LIMIT LINES AS SHOWN ON THE SITE PLANS.
12. EXCEPT AS SPECIFICALLY SHOWN ON THE DRAWINGS, BURIED PIPE SHALL BE INSTALLED WITH 4'-0" MINIMUM COVER OF THE FINAL FINISHED GRADES. ADDITIONAL FITTINGS SHALL BE INSTALLED AS NECESSARY TO MAINTAIN COVER AND TO PROVIDE VERTICAL CLEARANCE BETWEEN THE VARIOUS PIPELINES.
13. THE CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE SYSTEM FOR DEWATERING THE CONSTRUCTION SITE AS REQUIRED TO PROPERLY CONSTRUCT OR PLACE/SET ALL STRUCTURES IN THE DRY. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN SAFE, ADEQUATE TEMPORARY RELIEF MEASURES AGAINST HYDROSTATIC UPLIFT DUE TO A HIGH WATER LEVEL, IF ENCOUNTERED, FOR THE DURATION OF THE WORK UNTIL THE NECESSARY CONSTRUCTION IS COMPLETED. ALL REQUIRED DEWATERING SHALL BE INCLUDED IN THE LUMP SUM PRICE BID.
14. ALL EXISTING CONTOUR LINES AND SPOT ELEVATIONS ARE APPROXIMATE. ALL PROPOSED CONTOURS SHALL BE GRADED TO BLEND INTO EXISTING CONTOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL EXCESS EXCAVATED MATERIAL TO AN OFF-SITE LOCATION AT NO ADDITIONAL COST TO AQUA PENNSYLVANIA, INC.
15. THE CONTRACTOR SHALL MAINTAIN ACCESS ROADS IN A NEAT MANNER AT ALL TIMES.
16. ALL EARTHWORK ACTIVITIES SHALL COMPLY WITH THE MONTGOMERY COUNTY CONSERVATION DISTRICT AND ABINGTON TOWNSHIP RULES AND REGULATIONS GOVERNING EROSION CONTROL.
17. ALL LOCATIONS, DIMENSIONS AND ANGLES OF NEW FACILITIES SHALL BE VERIFIED IN FIELD. MINOR ADJUSTMENTS MAY BE REQUIRED TO AVOID POSSIBLE CONFLICTS WITH EXISTING FACILITIES. THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID.
18. ONSITE SPACE FOR TRAILER, EQUIPMENT STORAGE, STOCKPILING AND OTHER TEMPORARY CONSTRUCTION ACTIVITIES IS LIMITED. THE CONTRACTOR SHALL RESTORE ALL AREAS WHICH ARE DISTURBED AS A RESULT OF HIS CONSTRUCTION ACTIVITIES TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO CONSTRUCTION ACTIVITIES. ADDITIONAL SPACE REQUIRED FOR TEMPORARY CONSTRUCTION ACTIVITIES SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO AQUA PENNSYLVANIA, INC. AND SUCH AREAS SHALL BE RESTORED AND CLEANED UP TO THE SATISFACTION OF AQUA PENNSYLVANIA, INC AND ABINGTON TOWNSHIP.
19. WHERE PIPING IS LAID IN FILL OR DISTURBED EARTH AS A RESULT OF EXCAVATION FOR STRUCTURES, BEDDING, AS SHOWN ON DRAWINGS, DESIGNATED IN THE SPECIFICATIONS OR APPROVED; COMPACTED MATERIAL SHALL BE PROVIDED.
20. THE SITE PIPING PLAN INDICATES THE APPROXIMATE LOCATION OF EXISTING PIPING. THE CONTRACTOR SHALL LOCATE ALL EXISTING PIPING AND VALVES BY TEST PIT AND/OR TEST TRENCH IN ORDER TO AVOID POSSIBLE CONFLICTS WITH NEW PIPING AND/OR CONNECT TO THE SAME. SUCH WORK IS TO BE DONE WELL IN ADVANCE OF THE INSTALLATION OF THE NEW PIPES SO THAT ADJUSTMENTS CAN BE MADE PRIOR TO THE ACTUAL INSTALLATION OF THE NEW PIPING. THE COST OF ALL TEST PITS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID.
21. IN ALL AREAS WHERE THE WORK IS OUTSIDE OF PAVED ROADS, THE CONTRACTOR SHALL INSTALL AND MAINTAIN APPROPRIATE SOIL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE NOTES AND DETAILS ON THE DRAWINGS, REGARDLESS OF WHETHER OR NOT THE LOCATION OF SUCH MEASURES ARE SPECIFICALLY SHOWN ON THE PLANS. SUCH MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SILT FENCES ALONG THE PERIMETER OF DISTURBED AREAS AND AROUND MATERIAL STOCKPILES, AND STONE CONSTRUCTION ENTRANCE PADS AT POINTS OF INGRESS AND EGRESS FROM PAVED ROADS TO UNPAVED AREAS.

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F +1 (973) 376 1072
www.mottmacamericas.com

Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159

Date 12/17/2020

Designed	D. HARZINSKI	DJH	Eng check		
Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

Scale at ANSI D	Status	Rev	Security
AS SHOWN	PERMIT		STD

Project Number	B/O	Total	Drawing Number
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Title

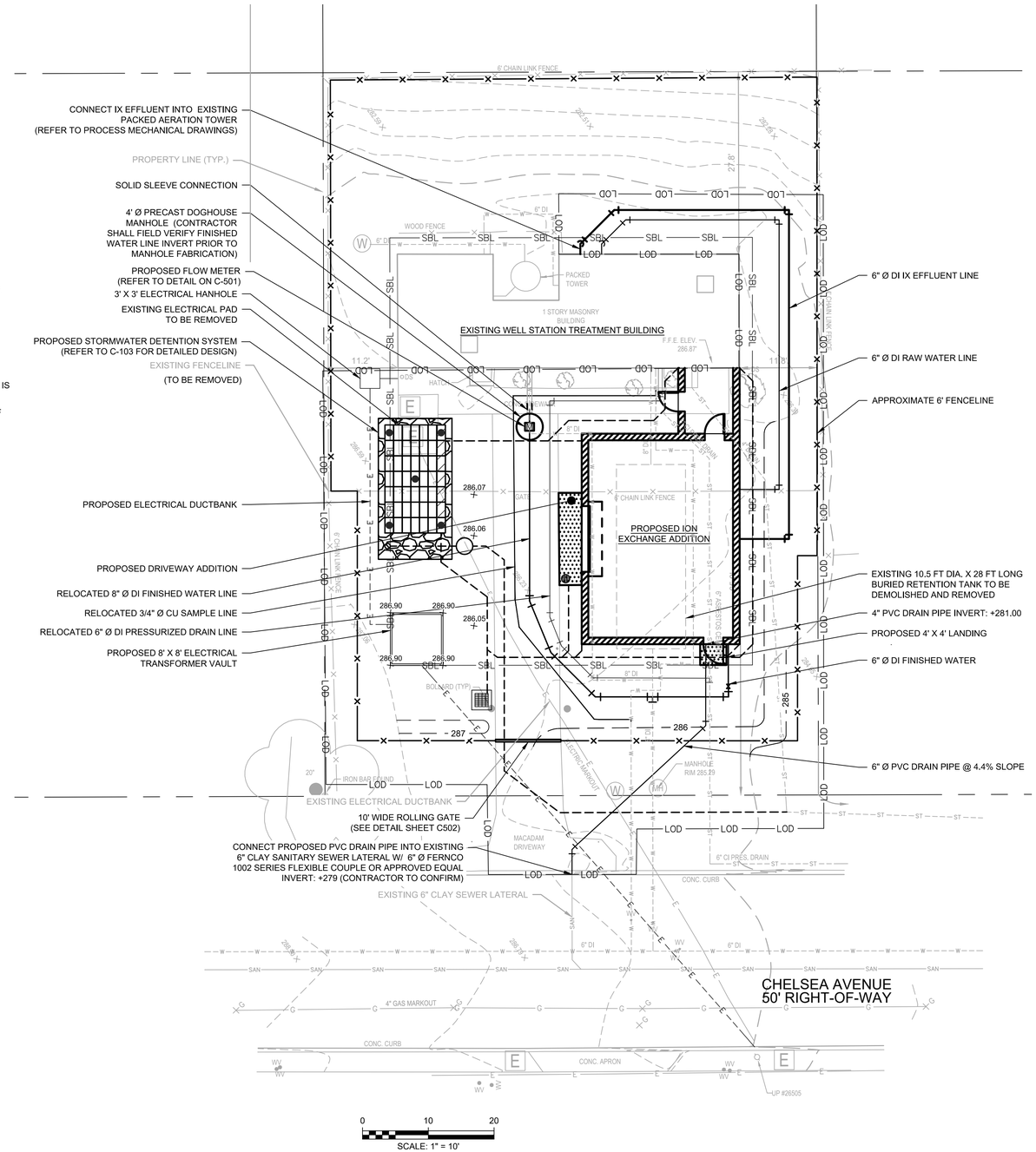
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
GENERAL
INDEX, LOCATION PLAN, AND NOTES

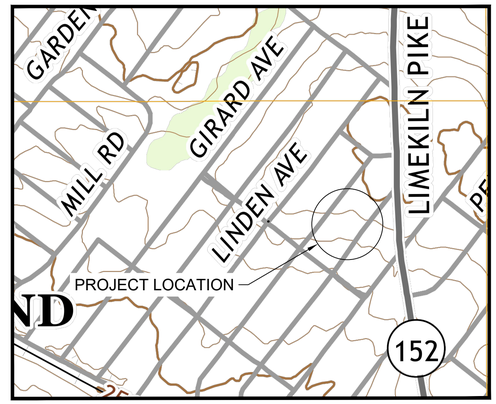
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ZONING INFORMATION		
ZONE R-4: MEDIUM - HIGH DENSITY RESIDENTIAL DISTRICT		
DIMENSIONAL REGULATIONS	**REQUIRED**	**PROPOSED**
MIN. LOT AREA	7,500 SF	8,250 SF
MIN. LOT WIDTH	50'	75'
MIN. LOT DEPTH	100'	110'
MIN. FRONT YARD SETBACK	20'	20'
MIN. SIDE YARD SETBACK	10'	11.2'
MIN. REAR YARD SETBACK	25'	27.8'
MAX. BUILDING COVERAGE	40%	20.4%
MAX. IMPERVIOUS SURFACE COVERAGE	55%	32.4%
MIN. GREEN AREA	45%	65.4%
MAX. BUILDING AREA	40%	20.4%
MAX. BUILDING HEIGHT	35'	25.3'
MAX. BUILDING WIDTH	100'	52'

REQUESTED ZONING RELIEF

1. REQUESTING WAIVER OF SIDEWALK/CURB REQUIREMENTS AS NO PROPERTIES ON THE SIDE OF THE STREET WHERE THE PROJECT IS LOCATED HAS SIDEWALKS OR CURBS.
2. REQUESTING A SPECIAL EXCEPTION FOR CONSTRUCTION AT THE WELL STATION IN A R-4 ZONING AREA. COMPLIES WITH E-17 IN COMPREHENSIVE USE MATRIX.
3. REQUESTING THE USE OF A MODIFIED LIMITED AREA LANDSCAPING BUFFER AT THE WELL STATION DUE TO SPACE CONSTRAINTS.
4. REQUESTING WAIVER OF THE SHADE TREE REQUIREMENTS DUE TO SPACE CONSTRAINTS.
5. REQUESTING WAIVER FOR THE PROPERTY PERIMETER FENCING FOR SECURITY REASONS. 6' TALL CHAINLINK FENCE IS REQUIRED.
6. REQUESTING WAVER FOR MECHANICAL EQUIPMENT SCREENING REQUIREMENTS DUE TO STRUCTURAL CAPACITY OF EXISTING WELL STATION ROOF.





SOURCE: USGS GERMANTOWN QUADRANGLE

LOCATION PLAN

0 500 1000

SCALE: 1" = 500'

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PROPOSED PAVEMENT AND SIDEWALK

NOTES:

GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS OBTAINED IN THE FIELD BY MOTT MACDONALD ON AUGUST 16, 2018, AND UPDATED DECEMBER 2, 2020.
2. THE HORIZONTAL COORDINATE SYSTEM IS THE PENNSYLVANIA SOUTH STATE PLANE COORDINATE SYSTEM (NAD83) AND VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88); BOTH ESTABLISHED BY DIFFERENTIAL GPS ON AUGUST 16, 2018 FROM THE LEICA SMARTNET/NGS CORS NETWORK.
3. LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM ABOVE GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN PREPARATION OF THIS DRAWING. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THIS DRAWING. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED.
4. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.I. 835, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 30, 2017, PENNSYLVANIA ACT 187.
5. ALL BURIED DUCTILE IRON (DI) PIPING SHALL BE THICKNESS CLASS 52 DUCTILE IRON CEMENT MORTAR LINED WITH ASPHALTIC EXTERIOR COATING. BURIED PIPING SHALL BE RESTRAINED USING FIELD LOK GASKETS. ALL FITTINGS SHALL BE MECHANICAL JOINT WITH MEGALUG RETAINER GLANDS. PIPING AND FITTINGS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C151/A21.5, C110/A21.10 AND C104/A21.4.
6. THE EXISTING AND PROPOSED IMPERVIOUS AREAS ARE AS FOLLOWS:

EXISTING LOT SIZE (SQ. FT.)	8,250
EXISTING IMPERVIOUS AREA (SQ. FT.)	1,820
ADDITIONAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	990
EXISTING IMPERVIOUS TO BE REMOVED (SQ. FT.)	140
TOTAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	2,670
PERCENT (%) IMPERVIOUS AREA (PRE-IMPROVEMENTS)	22.1
PERCENT (%) IMPERVIOUS AREA (POST-IMPROVEMENTS)	32.4

7. TEMPORARY CONSTRUCTION FENCE SHALL BE 8 FT. BY 10 FT. PANELS SUPPORTED WITH SANDBAGS. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY FENCE SHALL BE REMOVED.
8. EQUIPMENT PERIMETER FENCE SHALL INCLUDE PRIVACY SCREEN.
9. PROPOSED USE: UTILITY

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Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159

Date 12/18/2020

Designed	D. HARZINSKI	DJH	Eng check		
Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

Project Number	B/O	Total
507402365	3	56

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1" = 10'	PERMIT		STD

Drawing Number: C101

Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
SITE PLAN

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ZONING INFORMATION		
ZONE R-4: MEDIUM - HIGH DENSITY RESIDENTIAL DISTRICT		
DIMENSIONAL REGULATIONS	**REQUIRED**	**PROPOSED**
MIN. LOT AREA	7,500 SF	8,250 SF
MIN. LOT WIDTH	50'	75'
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MIN. FRONT YARD SETBACK	20'	20'
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MIN. REAR YARD SETBACK	25'	27.8'
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MAX. BUILDING WIDTH	100'	52'

REQUESTED ZONING RELIEF

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REVIEWED BY THE MONTGOMERY COUNTY PLANNING COMMISSION

PROCESSED AND REVIEWED. REPORT PREPARED BY THE MONTGOMERY COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE PA MUNICIPALITIES PLANNING CODE.

DATE: ___/___/___

ATTEST: _____

MCPD:_____

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS AT NORRISTOWN, PENNSYLVANIA IN PLAN BOOK _____ PAGE _____ ON THE _____ DAY OF _____,_____.

BY: _____

APPROVED BY THE ABINGTON TOWNSHIP PLANNING COMMISSION THIS _____ DAY OF _____,_____

_____

CHAIRMAN

_____

SECRETARY

APPROVED BY THE ABINGTON TOWNSHIP ENGINEER THIS _____ DAY OF _____,_____

_____

TOWNSHIP ENGINEER

COMMONWEALTH PENNSYLVANIA, COUNTY OF MONTGOMERY, ON THE _____ DAY OF _____, BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, PERSONALLY APPEARED _____, WHO ACKNOWLEDGED THIS PLAN TO BE THE OFFICIAL PLAN OF PROPERTY SHOWN HEREON, SITUATE IN THE TOWNSHIP OF ABINGTON, COUNTY OF MONTGOMERY AND COMMONWEALTH OF PENNSYLVANIA AND DESIRED THAT THIS PLAN BE RECORDED ACCORDING TO LAW.

_____

NOTARY PUBLIC

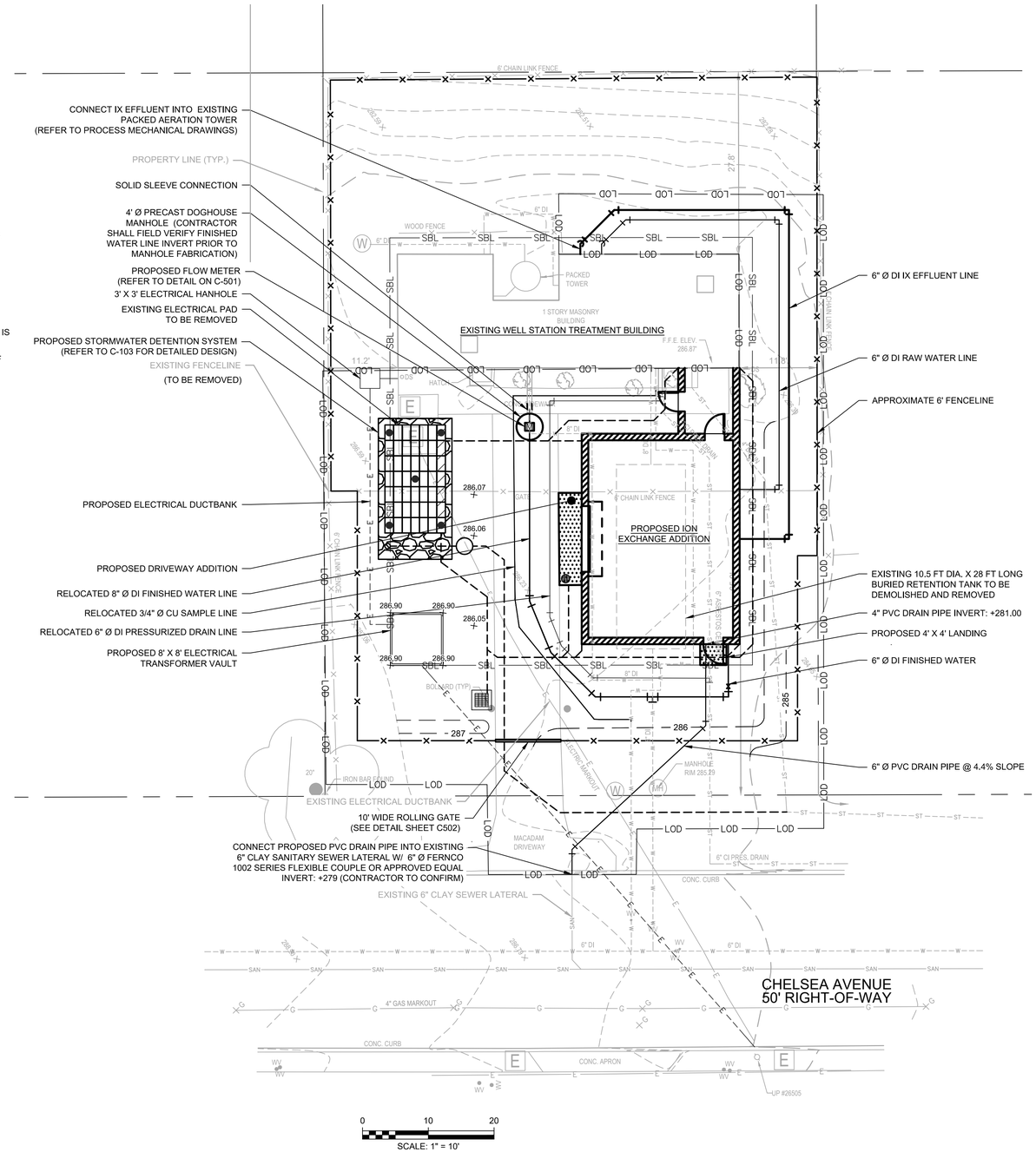
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MY COMMISSION EXPIRES

TO ALL WHOM THESE PRESENTS MAY COME, I (WE) _____ SEND GREETINGS, KNOW YE THAT I (WE) HAVE LAID OUT UPON MY (OUR) LANDS, SITUATED IN THE TOWNSHIP OF ABINGTON, COUNTY OF MONTGOMERY AND COMMONWEALTH OF PENNSYLVANIA, INTENDED TO BE FORTHWITH RECORDED, WITHNESS MY (OUR) HAND AND SEAL THIS ____ DAY OF _____,_____.

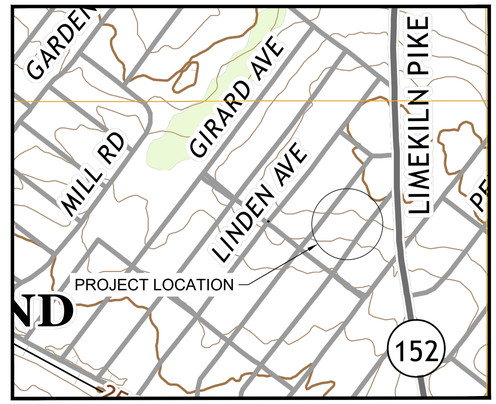
_____

VICE PRESIDENT OF ENGINEERING



0 10 20

SCALE: 1" = 10'



SOURCE: USGS GERMANTOWN QUADRANGLE

LOCATION PLAN

0 500 1000

SCALE: 1" = 500'

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
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- TEMPORARY FENCE
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3. LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM ABOVE GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN PREPARATION OF THIS DRAWING. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THIS DRAWING. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED.
4. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.I. 835, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 30, 2017, PENNSYLVANIA ACT 187.
5. ALL BURIED DUCTILE IRON (DI) PIPING SHALL BE THICKNESS CLASS 52 DUCTILE IRON CEMENT MORTAR LINED WITH ASPHALTIC EXTERIOR COATING. BURIED PIPING SHALL BE RESTRAINED USING FIELD LOK GASKETS. ALL FITTINGS SHALL BE MECHANICAL JOINT WITH MEGALUG RETAINER GLANDS. PIPING AND FITTINGS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C151/A21.5, C110/A21.10 AND C104/A21.4.
6. THE EXISTING AND PROPOSED IMPERVIOUS AREAS ARE AS FOLLOWS:

EXISTING LOT SIZE (SQ. FT.)	8,250
EXISTING IMPERVIOUS AREA (SQ. FT.)	1,820
ADDITIONAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	990
EXISTING IMPERVIOUS TO BE REMOVED (SQ. FT.)	140
TOTAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	2,670
PERCENT (%) IMPERVIOUS AREA (PRE-IMPROVEMENTS)	22.1
PERCENT (%) IMPERVIOUS AREA (POST-IMPROVEMENTS)	32.4

7. TEMPORARY CONSTRUCTION FENCE SHALL BE 8 FT. BY 10 FT. PANELS SUPPORTED WITH SANDBAGS. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY FENCE SHALL BE REMOVED.
8. EQUIPMENT PERIMETER FENCE SHALL INCLUDE PRIVACY SCREEN.
9. PROPOSED USE: UTILITY

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Client

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BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159

COMMONWEALTH OF PENNSYLVANIA PROFESSIONAL JASON R. MARIE ENGINEER No. 077159 12/15/2020

Date _____

Designed	D. HARZINSKI	DJH	Eng check		
Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

Project Number	B/O	Total
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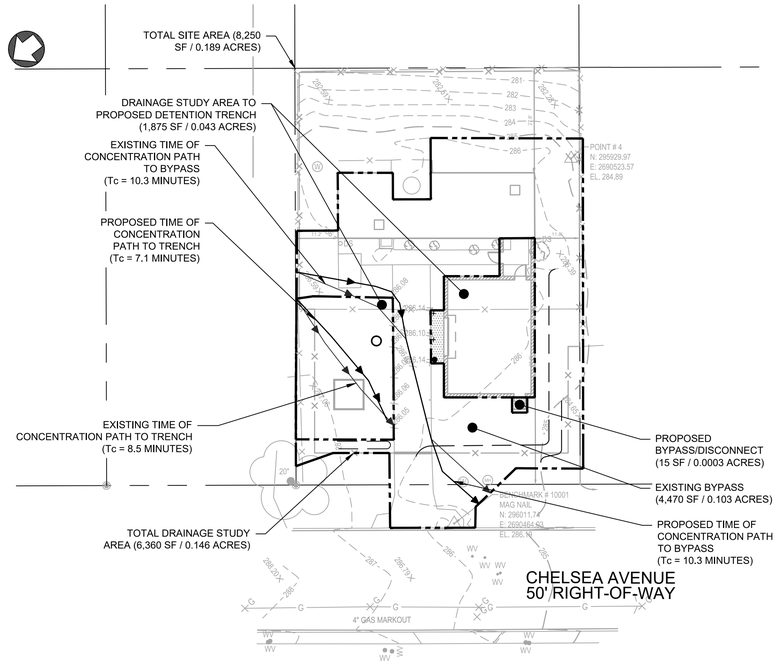
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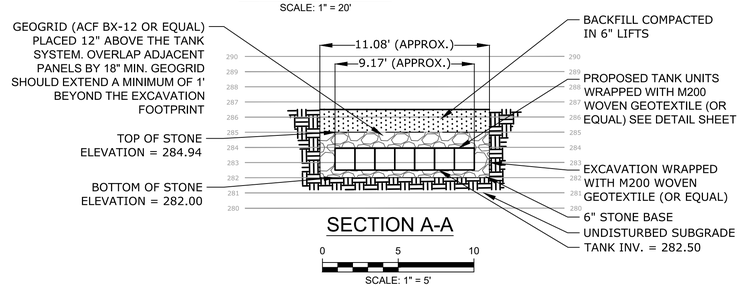
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
RECORD SITE PLAN

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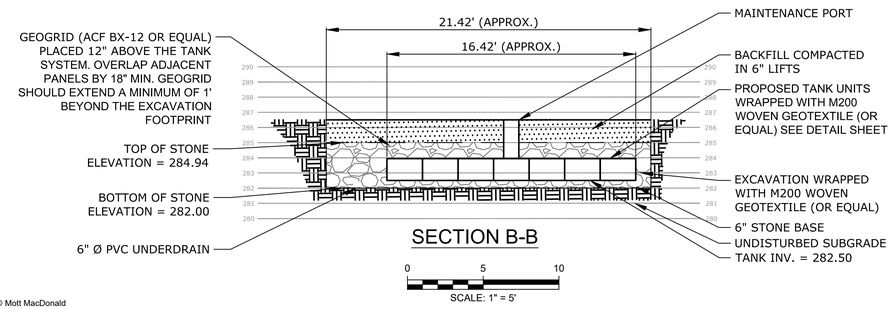
DRAINAGE AREA PLAN

SCALE: 1" = 20'



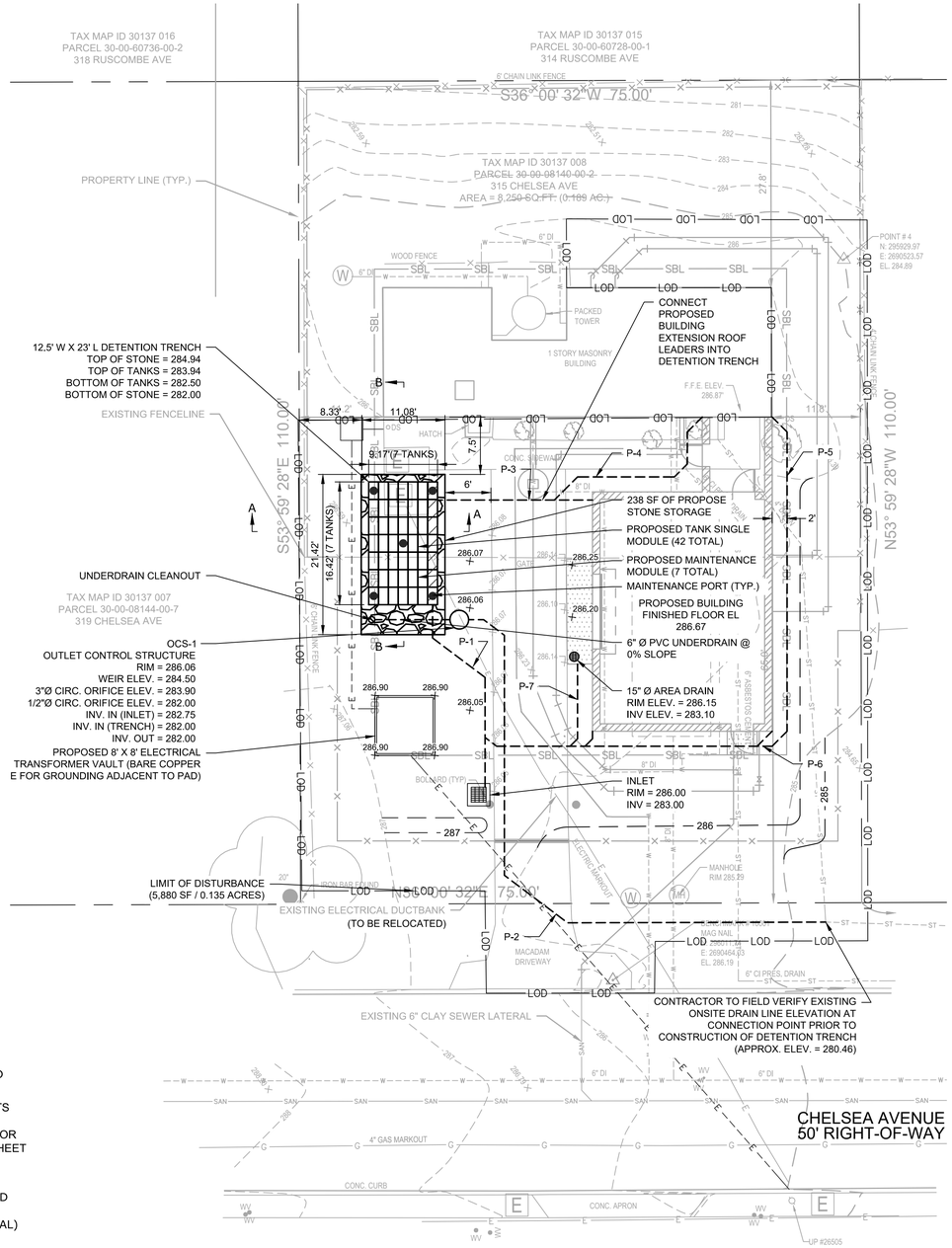
SECTION A-A

SCALE: 1" = 5'



SECTION B-B

SCALE: 1" = 5'



STORMWATER MANAGEMENT PLAN

SCALE: 1" = 10'

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PROPOSED PAVEMENT AND SIDEWALK
- PROPOSED DRAINAGE AREA

NOTES

EXISTING LOT SIZE (SQ. FT.)	8,250
LIMIT OF DISTURBANCE (SQ. FT.)	5,755
TOTAL DRAINAGE AREA (SQ. FT.)	6,360
IMPERVIOUS AREA (SQ. FT.)	2,670
ROOF AREA(SQ. FT.)	1,690
PAVEMENT AREA (SQ. FT.)	980
PERVIOUS AREA (SQ. FT.)	3,690
DCIA AREA (SQ. FT.)	15
AREA TREATED BY DETENTION TRENCH (SQ. FT.)	1,875

PIPE CALCULATIONS

PIPE NUMBER	DIAMETER (IN)	LENGTH (FT)	START INV	END INV	SLOPE (%)	CONNECTS TO	CAPACITY (CFS)	PROPOSED FLOW (CFS)
1	6	44	283.00	282.75	0.57	TRENCH	0.69	0.10
2	4	83	282.00	280.45	1.86	SEWER	0.30	0.14
3	6	21	282.70	282.50	0.95	TRENCH	0.65	0.22
4	6	27	282.80	282.60	0.74	P-3	0.57	0.22
5	6	46	283.40	283.10	0.65	P-6	0.54	0.22
6	6	39	283.10	282.90	0.51	P-1	0.48	0.22
7	6	11	283.10	283.00	0.91	P-6	0.63	0.01

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Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159

COMMONWEALTH OF PENNSYLVANIA — JASON R. MARIE — ENGINEER No. 077159 — PROFESSIONAL

Date 12/17/2020

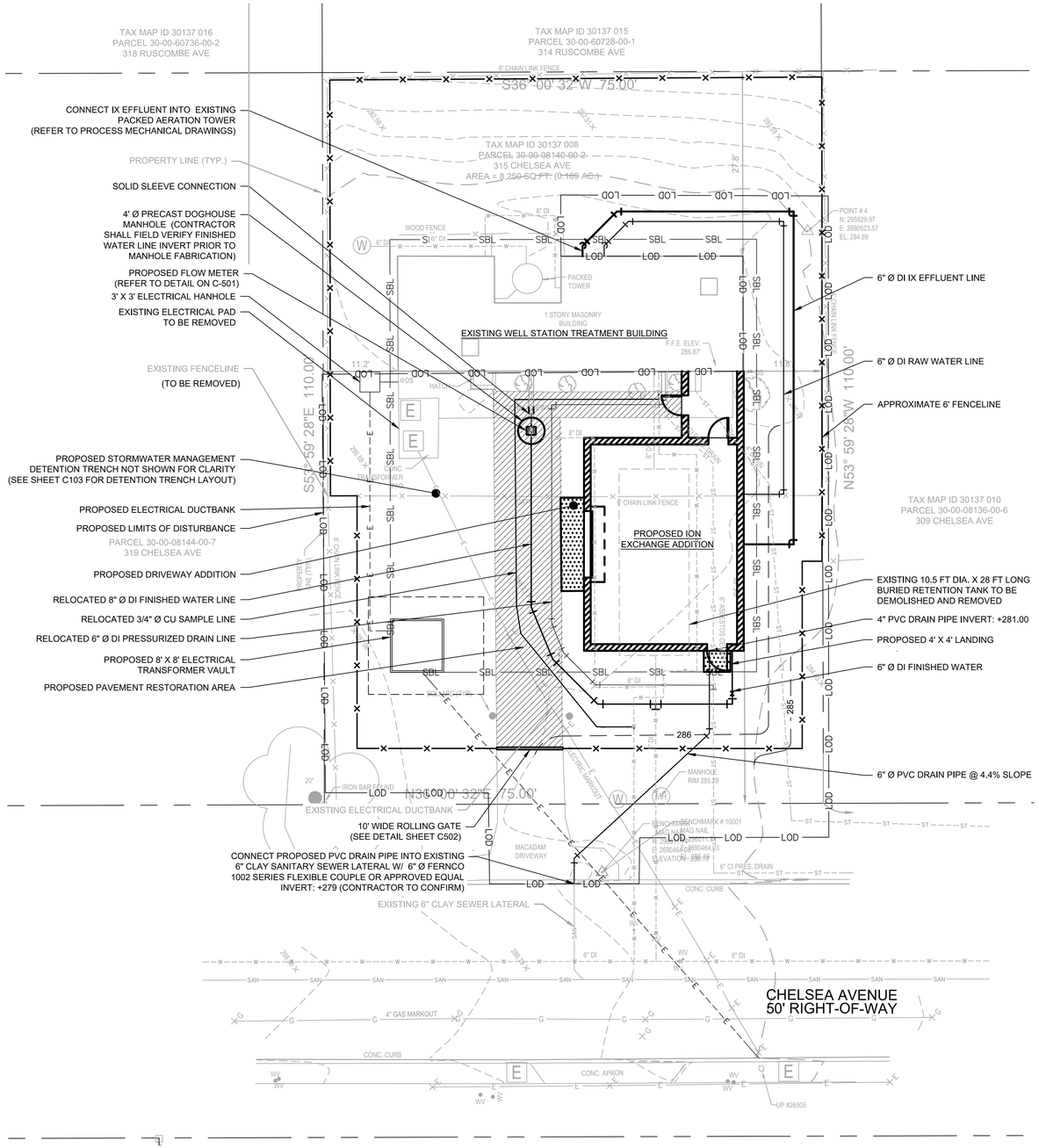
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Drawn	J. MACMINN		Coordination	D. HARZINSKI	
Dwg check	W. CLARK		Approved		
Scale at ANSI D: As Shown	Status: PERMIT		Rev	Security: STD	

Project Number	B/O	Total	Drawing Number
507402365	5	56	C103

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STORMWATER MANAGEMENT AND DRAINAGE PLAN

pw:\\mott-use-pw.bentley.com:mott-use-pw-14\Documents\402365-Aqua Aidenn Lair and North Hills PFAS Design\Drawings_Models\02_C_Civil\402365-MMD-00-NORTH HILLS SITE PLAN-SH-C
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LEGEND

- EXISTING EASEMENT
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PAVEMENT AND SIDEWALK RESTORATION

NOTES:

1. LIMIT OF DISTURBANCE (SQ. FT./AC.) 5,880/0.135
2. VOLUME OF EXCAVATION/FILL (CU. YD.) 40
3. SITE LOCATION IS DETERMINED TO BE OUTSIDE OF THE 500-YEAR FLOODPLAIN (ZONE X).
4. CONTRACTOR SHALL PLACE SILT SOCK AND/OR SILT FENCE ALONG LOD TO MEET CURRENT CODES AND STANDARDS.
5. PRIOR TO PROJECT COMPLETION CONTRACTOR SHALL REPLACE DRIVEWAY PAVEMENT WITHIN LIMITS OF EXISTING DRIVEWAY (REFER TO DETAIL ON C501).
6. THE LIMIT OF DRIVEWAY PAVEMENT RESTORATION INCLUDES TRENCH WIDTH AND WEARING COURSE CUTBACK AREA.

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Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JASON R. MARIE ENGINEER No. 077159 PENNSYLVANIA

Date 12/18/2020

Designed	D. HARZINSKI	DJH	Eng check		
Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

Project Number	B/O	Total
507402365	6	56

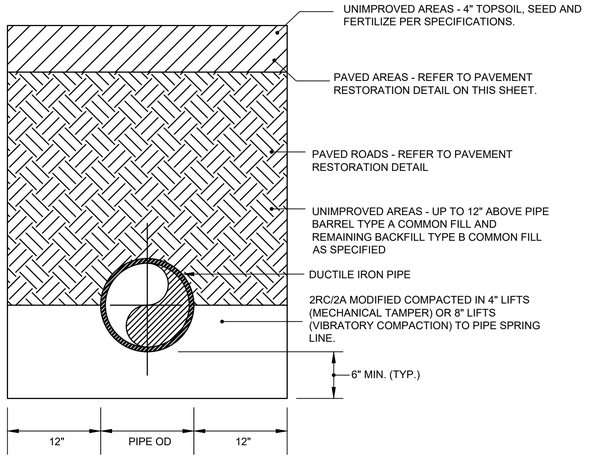
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1"=10'	PERMIT		STD

Drawing Number: C104

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
EROSION AND SEDIMENT CONTROL PLAN

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NOTES:

1. BACKFILL SHALL BE COMPACTED IN 4" LOOSE LIFTS WITH MECHANICAL TAMPER OR 8" LOOSE LIFTS IF VIBRATORY COMPACTION EQUIPMENT IS USED TO 95% OF THE DETERMINED DRY WEIGHT DENSITY.
2. THE CONTRACTOR SHALL RESTORE AND REPLACE SHRUBBERY, FENCING, SOD OR OTHER DISTURBED SURFACES OR STRUCTURES TO CONDITIONS EQUAL TO THAT BEFORE THE WORK BEGAN AND TO THE SATISFACTION OF THE ENGINEER.
3. TOPSOIL SHALL NOT CONTAIN MORE THAN 40 PERCENT CLAY IN THAT PORTION PASSING A NO. 10 SIEVE AND SHALL CONTAIN NOT LESS THAN 5 PERCENT OR MORE THAN 20 PERCENT ORGANIC MATTER AS DETERMINED BY LOSS ON IGNITION OF SAMPLES OVEN-DRIED TO CONSTANT WEIGHT AT 212° FAHRENHEIT.
4. FERTILIZER SHALL BE LAWN OR TURF GRADE 12-12-12.
5. ALL AREAS TO BE SEEDED WHICH ARE LAWN AREAS, WHETHER RESIDENTIAL, COMMERCIAL OR OFFICE AREAS, WHERE LAWNS ARE, OR HAVE BEEN REGULARLY MAINTAINED, SHALL BE SEEDED WITH THE FOLLOWING MIXTURE OR A MIXTURE AS REQUIRED BY THE SOIL CONSERVATION DISTRICT OR OTHER GOVERNING AUTHORITY. (PERCENTAGES ARE BY WEIGHT.)

   40 PERCENT KENTUCKY BLUEGRASS (POA PRATENSIS)
   40 PERCENT CREEPING RED FESCUE (FESTUCA RUBRA)
   20 PERCENT ANNUAL RYEGRASS (LOLIUM MULTIFLORUM)

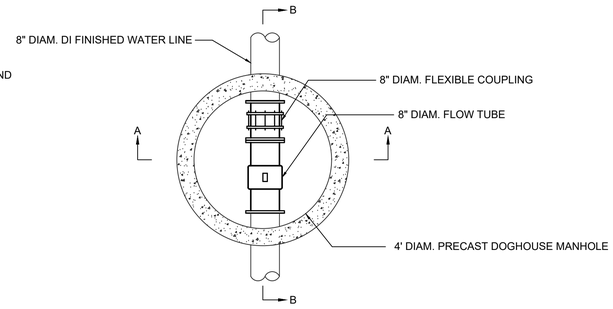
   WHERE SOD IS REQUIRED, THE SOD SHALL BE GREEN, FRESHLY CUT AND OF GOOD QUALITY WITH GRASS FREE FROM ALL NOXIOUS WEEDS. IT SHALL CONTAIN ALL THE DENSE ROOT SYSTEM OF THE GRASS AND SHALL NOT BE LESS THAN 1 1/2" THICK.

6. ALL OTHER AREAS SHALL BE SEEDED WITH THE FOLLOWING MIXTURE:

   90 PERCENT PERENNIAL RYEGRASS (LOLIUM PERENNE)
   10 PERCENT ALSIKE CLOVER (TRIFOLIUM HYBRIDUM)

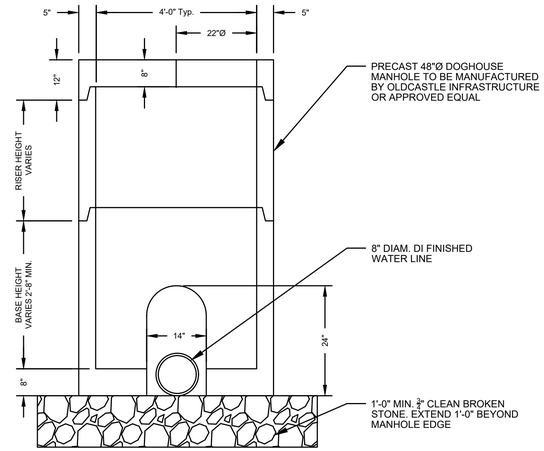
7. ALL SEEDED AND SODDED AREAS SHALL BE CAREFULLY MAINTAINED, TENDED AND WATERED BY THE CONTRACTOR AS NECESSARY TO SECURE A GOOD TURF. SETTLED AREAS SHALL BE FILLED, GRADED AND RESEEDED OR RESODDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONDITION OF THE SEEDED AND SODDED AREAS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL COMPLETION.

TRENCH RESTORATION DETAIL DUCTILE IRON PIPE
NOT TO SCALE



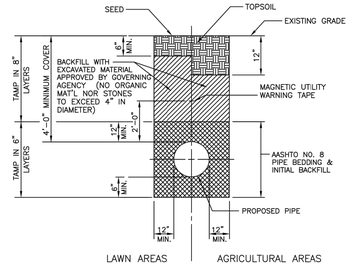
NOTES:

1. CONCRETE 28 DAY COMPRESSIVE STRENGTH F'C = 4,000 PSI
2. STEEL REINFORCEMENT: ASTM A-615, GRADE 60, ASTM A-185



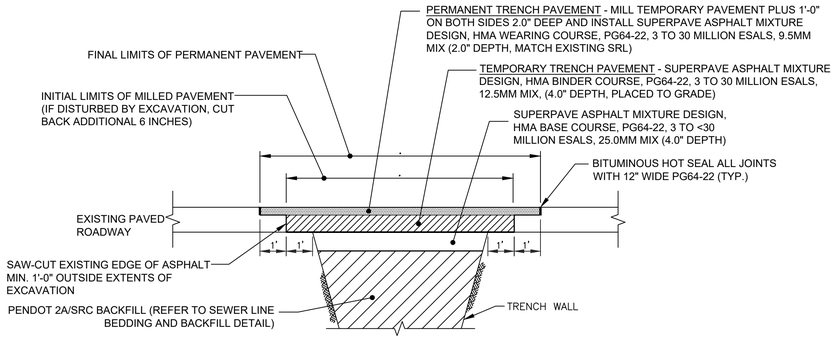
SECTION A-A

FLOWMETER DOGHOUSE MANHOLE DETAIL
NOT TO SCALE



Township of Abington STANDARD DETAIL - SEWER SYSTEM	
TRENCH RESTORATION LAWN / AGRICULTURAL AREAS	DATE: NOVEMBER 2015 DETAIL: 2

TRENCH RESTORATION DETAIL IN PUBLIC R.O.W.
NOT TO SCALE



PAVEMENT RESTORATION NOTES:

1. ALL TRENCHES AND EXCAVATIONS ARE TO BE GIVEN THE STEEPEST SLOPES PRACTICABLE.
2. LIMITS OF TRENCH TO BE CUT TO A NEAT EDGE AND SEALED WITH EMULSIFIED ASPHALT. ASPHALT TO BE SPRINKLED TO PREVENT PICKUP BY TRAFFIC.
3. ALL TRENCHES AND EXCAVATIONS SHALL FOLLOW OSHA REGULATIONS TO PROVIDE FOR PROTECTION OF PERSONNEL IN OR NEAR AN EXCAVATION.
4. ALL PRECAUTIONS SHALL BE TAKEN TO PROTECT EXISTING UTILITIES THAT AREA ADJACENT TO OR CROSSING THE EXCAVATIONS.
5. IF THE CONCRETE ROAD BED BECOMES UNDERMINED DURING CONSTRUCTION, ANY UNDERMINED PORTIONS SHALL BE SAW-CUT AND REMOVED AT NO ADDITIONAL COST TO ENUSRE PROPER COMPACTION AND BACKFILL.
6. EXPOSED HORIZONTAL AND VERTICAL SURFACES SHALL BE PREPARED AS PER PENDOT PUBLICATION 408, SECTION 409.3(g).
7. A MIN. SETTLEMENT PERIOD OF 90-DAYS SHALL BE REQUIRED PRIOR TO FINAL PAVING ACTIVITIES.
8. MIN. HMA LIFT SHALL BE 3X SIZE OF LARGEST AGGREGATE IN MIX.
   MAX. HMA LIFT SHALL BE 5X SIZE OF LARGEST AGGREGATE IN MIX.

PAVEMENT RESTORATION DETAIL
ASPHALT DRIVEWAY
NOT TO SCALE

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Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159
Date 12/17/2020

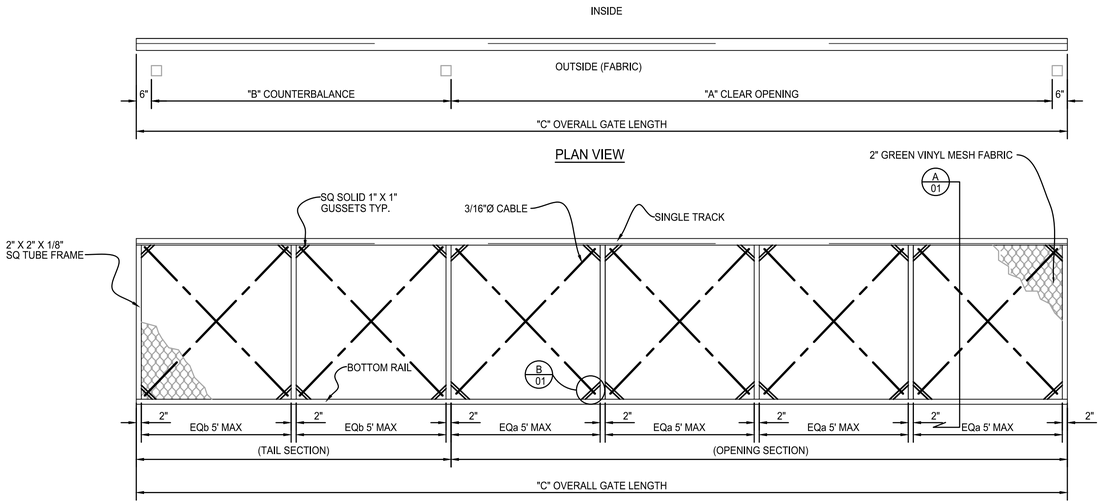
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Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

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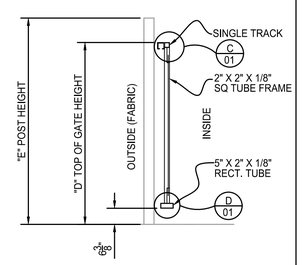
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507402365	7	56	C501

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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
CIVIL DETAILS (SHEET 1 OF 2)

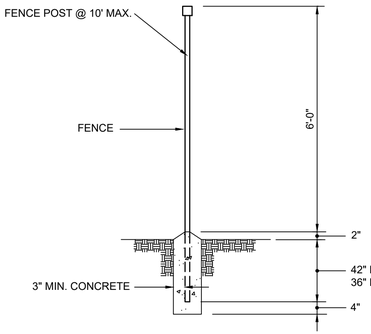
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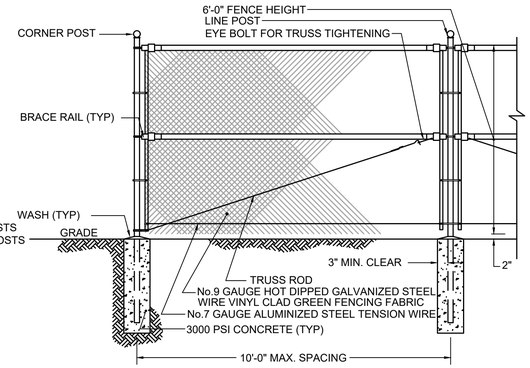
ELEVATION VIEW ALUMINUM CANTILEVER GATE
OUTSIDE LOOKING IN



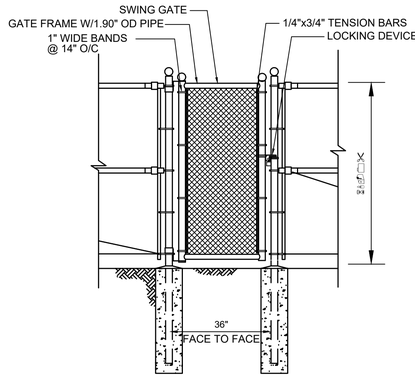
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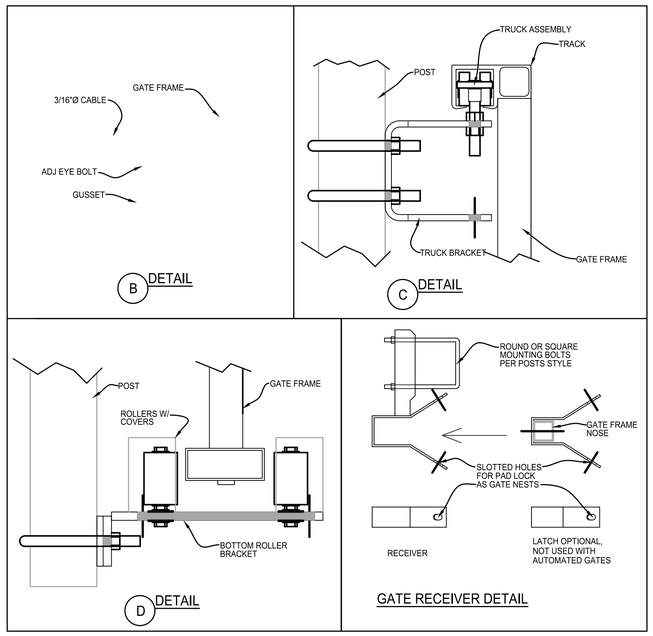
FENCE POST DETAIL



CORNER SECTION



PEDESTRIAN GATE



CRITICAL DIMENSIONS			
	DESCRIPTION	FORMULA	DIMENSION
"A"	CLEAR OPENING	A	10'-0"
"B"	COUNTERBALANCE	A/2	5'-0"
"C"	OVERALL GATE LENGTH	A + B + 12"	16'-0"
"D"	TOP OF GATE HEIGHT	D	6'-0"
"E"	POST HEIGHT	E	10'-0" MAX
ADJOINING FENCE HEIGHT		6'-0"	
BARB ARMS REQUIRED		NO	
GATE STORAGE IN OPEN POSITION (OUTSIDE LOOKING IN)		LEFT	

SLIDING GATE DETAILS
NOT TO SCALE

FENCE DETAILS (RAIL TOP)
NOT TO SCALE

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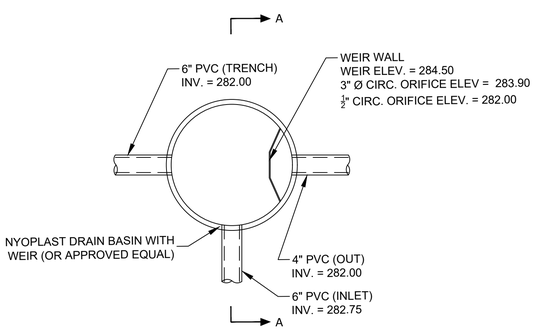
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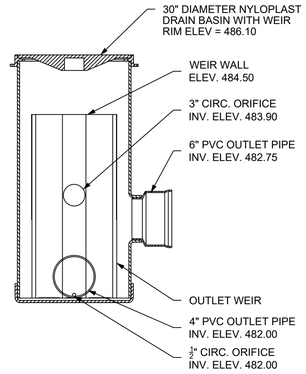
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Drawn	D. HARZINSKI	DJH	Coordination			
Dwg check			Approved			
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Project Number	507402365	B/O	8	Total	56	Drawing Number C502

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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
CIVIL DETAILS (SHEET 2 OF 2)

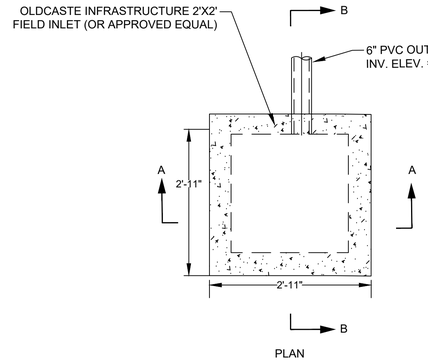
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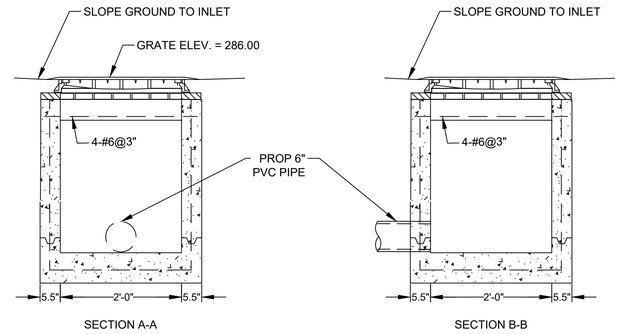




OUTLET CONTROL STRUCTURE DETAIL

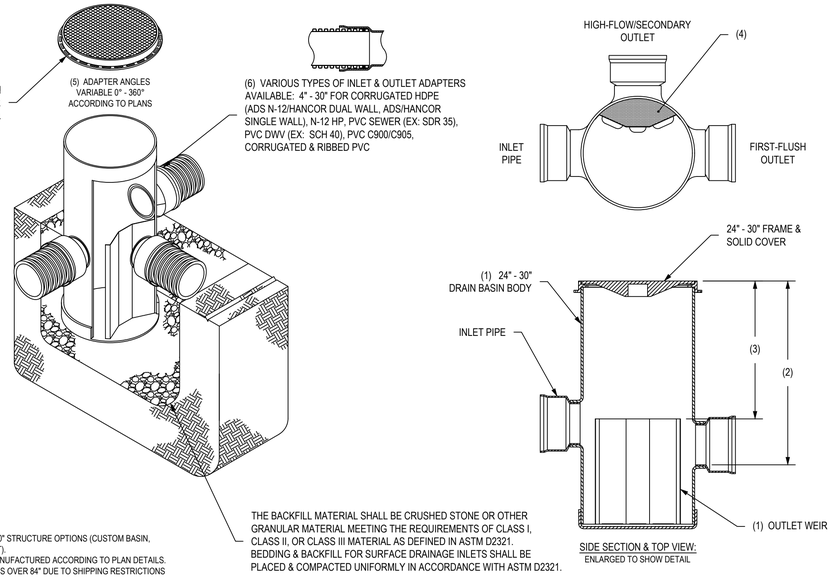
NOT TO SCALE





INLET DETAIL

NOT TO SCALE



1 - WEIR AVAILABLE FOR ALL 24" - 30" STRUCTURE OPTIONS (CUSTOM BASIN, ROAD & HIGHWAY, & CURB INLET).
2 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS SEE DRAWING NO. 7001-110-065.
3 - HEIGHT OF WEIR TO BE DETERMINED BY ENGINEER. **WEIR HEIGHT CANNOT EXCEED 84" DUE TO MANUFACTURING AND SHIPPING RESTRICTIONS.**
4 - WEIR MANUFACTURED TO MINIMIZE LOSS OF OUTLET PIPE OPEN AREA.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
6 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
7 - FRAMES, GRATES, COVERS, HOODS, & BASE PLATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.

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DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 05-10-06			
REVISED BY NMH	PROJECT NO./NAME	TITLE	DRAIN BASIN WITH WEIR QUICK SPEC INSTALLATION DETAIL
DATE 03-16-16			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO.	7004-110-058 REV G

NYLOPLAST DRAIN BASIN WITH WEIR STANDARD DETAIL

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Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JASON R. MARIE ENGINEER No. 077159 12/17/2020

Date

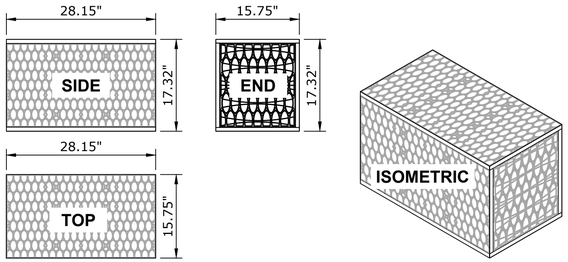
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Drawn	J. MACMINN		Coordination	D. HARZINSKI	
Dwg check	W. CLARK		Approved		
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Project Number	B/O	Total	Drawing Number
507402365	9	56	C503

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STORMWATER MANAGEMENT
PLAN DETAILS (SHEET 1 OF 4)

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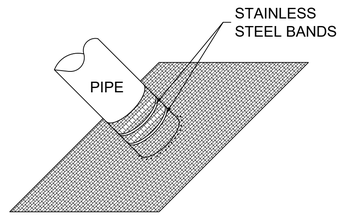
MODULE DATA

GEOMETRY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

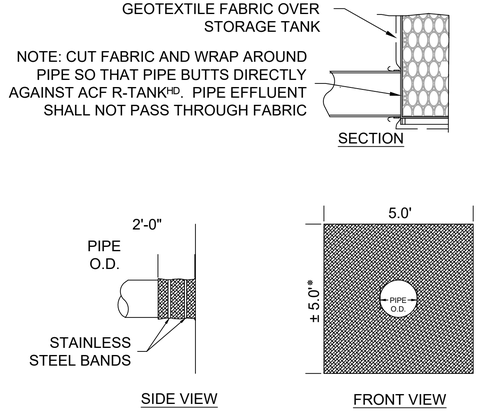
LOAD RATING:
33.4 PSI, (MODULE ONLY)
HS20, (WITH ACF COVER SYSTEM)
MATERIAL:
100% RECYCLED POLYPROPYLENE
SMALL PLATES PER SEGMENT/TOTAL:
5/5

SINGLE - MODULE DETAIL

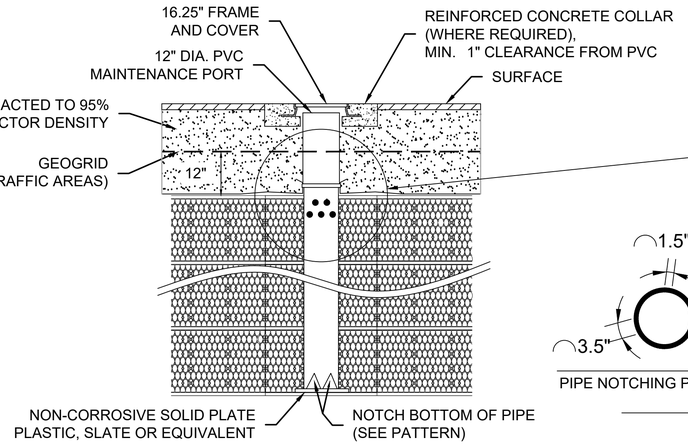
MODULE QUANTITIES	
MODULE TYPE	SINGLE
# OF SINGLE MODULES	42
# OF SINGLE MAINTENANCE MODULES	7
TOTAL SYSTEM STORAGE	402 CF
MODULES STORAGE VOLUME	207 CF
STONE STORAGE VOLUME (40% VOID RATIO)	195 CF
STONE BED FOOTPRINT	238 SF
STONE QUANTITY	18 CY
M200 WOVEN GEOTEXTILE (OR EQUAL) TANK WRAP	459 SF (51 SY)
M200 WOVEN GEOTEXTILE (OR EQUAL) EXCAVATION WRAP	851 SF (95 SY)
M200 WOVEN GEOTEXTILE (OR EQUAL) MAINT. ROW WRAP	88 SF (10 SY)
M200 WOVEN GEOTEXTILE (OR EQUAL) MAINT. ROW BASE FABRIC	95 SF (11 SY)
ACF BX-12 GEOGRID (OR EQUAL)	342 SF (38 SY)
12" MAINTENANCE PORTS	5
12" PIPE BOOTS	2
NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 6" OF BASE.	
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.	

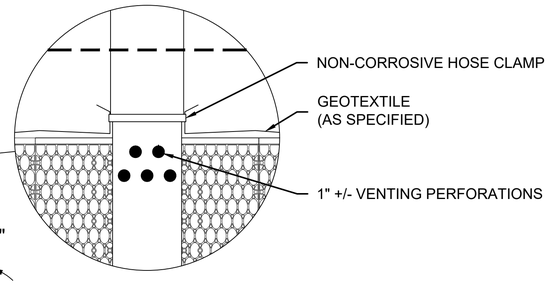


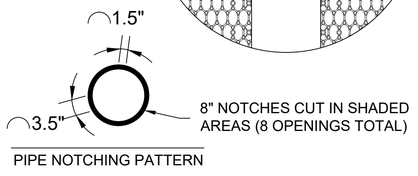
- 12 OZ/SY M200 WOVEN GEOTEXTILE
- FABRIC COLLAR TO FIT OUTSIDE DIAMETER OF INLET/OUTLET PIPE
- * TRIM AS NEEDED



GEOTEXTILE PIPE BOOT





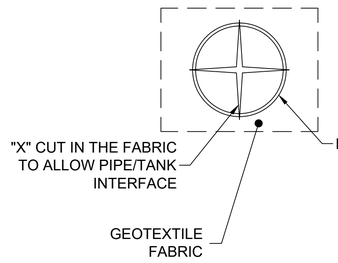


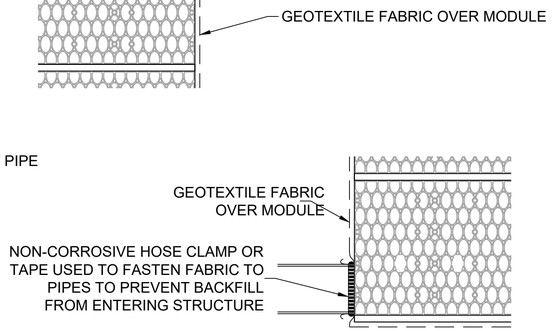
PIPE NOTCHING PATTERN

R-TANK^{HD} TYPICAL MAINTENANCE PORT

NOTES
1. THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. ONLY R-TANK^{HD} AND R-TANK^{SD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.

END VIEW OF PIPE/FABRIC CONNECTION. CUT AN "X" IN THE FABRIC SLIGHTLY LARGER THAN PIPE, PULL THE FABRIC AROUND THE PIPE TO CREATE THE "BOOT" AND THEN SECURE WITH A HOSE-CLAMP.





TYPICAL TANK INLET DETAIL

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Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159
Date 12/17/2020

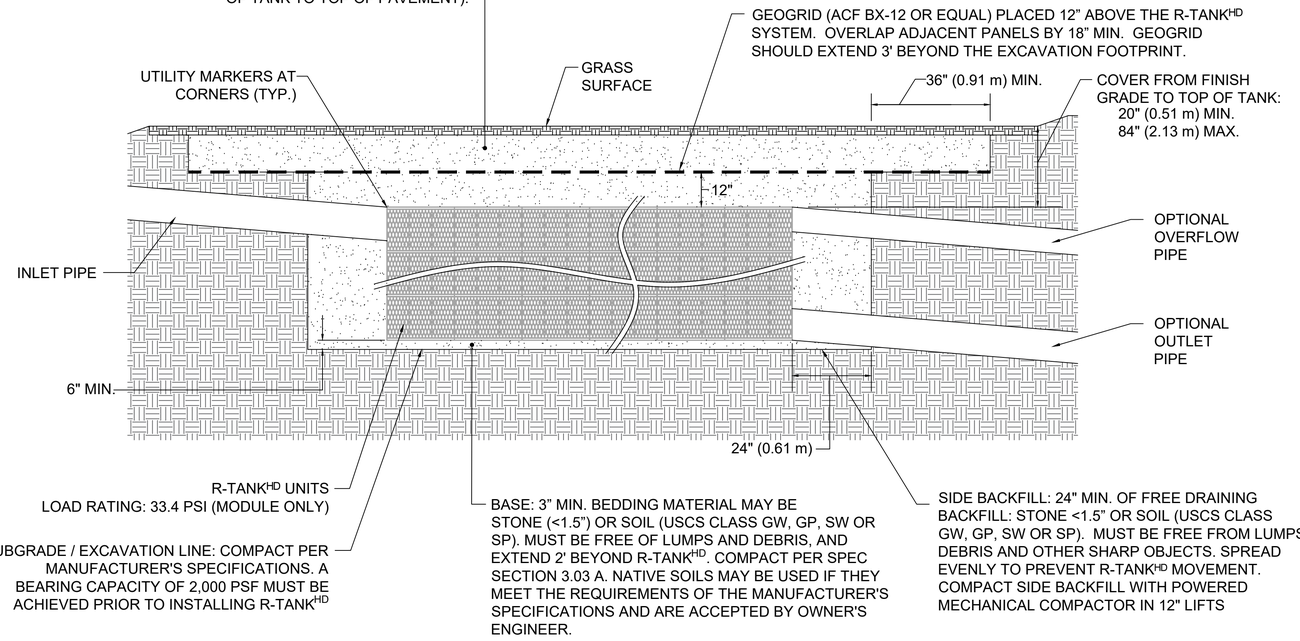
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Drawn	J. MACMINN		Coordination	D. HARZINSKI	
Dwg check	W. CLARK		Approved		
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Project Number	507402365	B/O	10	Total	56
Drawing Number	C504				

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STORMWATER MANAGEMENT
PLAN DETAILS (SHEET 2 OF 4)

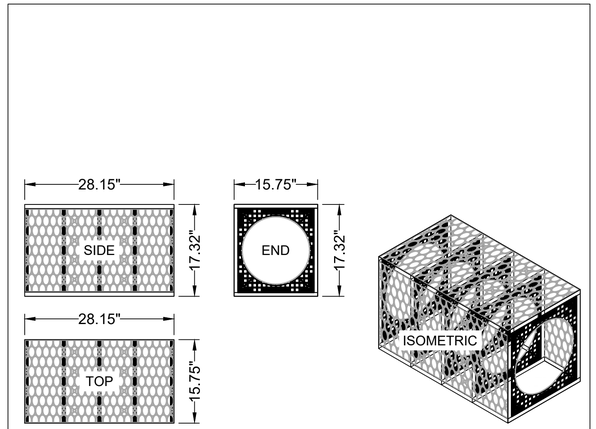
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TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL: STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL: STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT ACF ENVIRONMENTAL IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{HD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{HD} FOOTPRINT.



R-TANK^{HD} & H-20 LOADS - SECTION VIEW



SINGLE R-TANK^{HD} - MAINTENANCE MODULE DETAIL
(FOR MODULE DATA, SEE STANDARD MODULE DETAIL)

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Rev	Date	Drawn	Description	Ch'k'd	App'd

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PA PROFESSIONAL ENGINEER LIC. No. PE-077159
Date 12/17/2020

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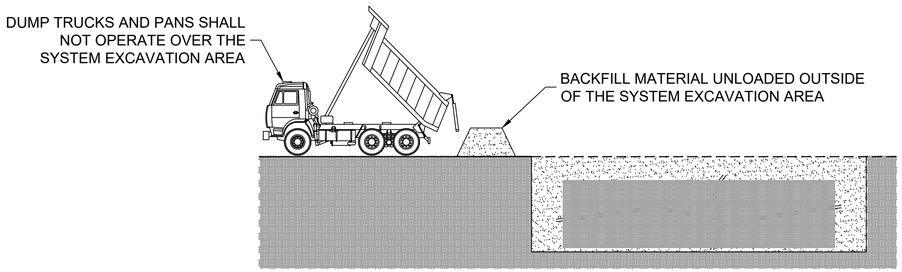
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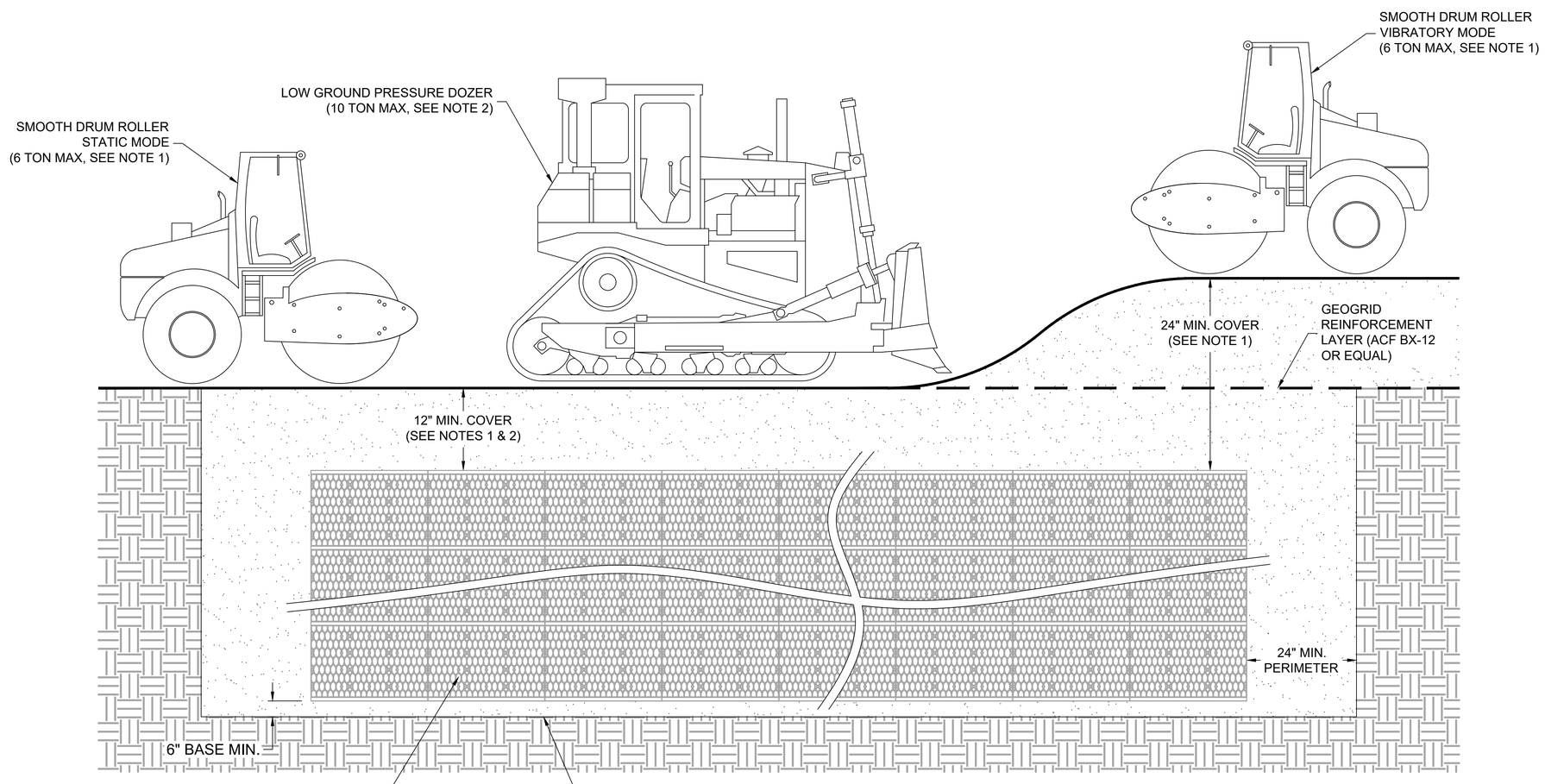
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STORMWATER MANAGEMENT
PLAN DETAILS (SHEET 3 OF 4)

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DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED.
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION.
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT.
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT).
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL ACF REPRESENTATIVE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

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PA PROFESSIONAL ENGINEER LIC. No. PE-077159

COMMONWEALTH OF PENNSYLVANIA — JASON R. MARIE — ENGINEER — No. 077159 — 12/17/2020

Date

Designed	J. MACMINN		Eng check	W. CLARK	
Drawn	J. MACMINN		Coordination	D. HARZINSKI	
Dwg check	W. CLARK		Approved		

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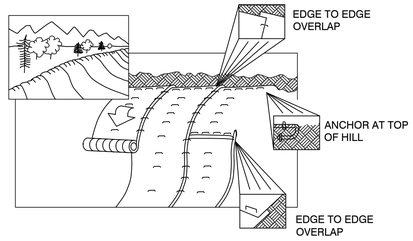
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AQUA PENNSYLVANIA, INC.
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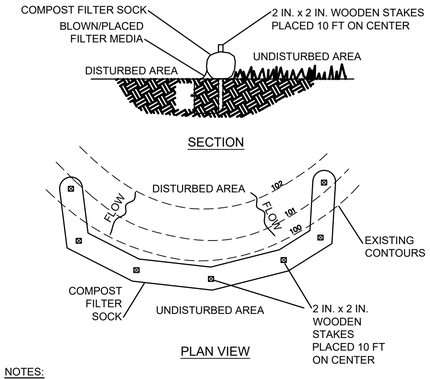
1. EROSION CONTROL MATTING (BLANKETS) SHALL BE USED AT LOCATIONS IDENTIFIED IN THE PLAN AND/OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
2. EROSION CONTROL MATTING SHALL MEET THE REQUIREMENTS SPECIFIED IN THE PLAN AND/OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
3. STAPLES SHALL BE MADE OF 11 GAUGE WIRE, U-SHAPED WITH 6" LEGS AND A 1" CROWN. STAPLES SHALL BE DRIVEN INTO THE GROUND FOR THE FULL LENGTH OF THE STAPLE LEGS.
4. MATTING SHALL BE INSTALLED ACCORDING TO MANUFACTURER SPECIFICATIONS OR AS STATED BELOW:

- EXTEND TOP OF BLANKET 3 FEET PAST THE UPPER EDGE OF THE SLOPE.
- ANCHOR ("KEY") THE UPPER EDGE OF THE BLANKET INTO THE SLOPE USING A 6" DEEP TRENCH AND ROLL THE BLANKET DOWN THE HILL. DOUBLE STAPLE EVERY 12" BEFORE BACKFILLING AND COMPACTING TRENCH.
- AVOID STRETCHING EROSION CONTROL MATTING (LOOSELY) DURING INSTALLATION.
- BRING MAT ROLL BACK OVER THE TOP OF THE TRENCH AND CONTINUE TO ROLL DOWN SLOPE. STAPLE EVERY 12" WHERE MAT EXITS THE TRENCH AT THE TOP OF THE SLOPE.
- WHEN BLANKETS ARE SPLICED DOWN-SLOPE TO ADJOINING MATS (SLOPE OR STREAM BANK MATS), THE UPPER BLANKET SHALL BE PLACED OVER THE LOWER MAT (SHINGLE STYLE) WITH APPROXIMATELY 6" OF OVERLAP. STAPLE THROUGH THE OVERLAPPED AREA EVERY 12".
- OVERLAP ADJACENT BLANKETS 6". STAPLE EDGES OF BLANKETS AND CENTER EVERY 36".

5. IN LIVESTOCK AREAS WHERE EROSION CONTROL MATTING IS APPLIED TO THE SLOPES, FENCING WILL BE USED IF NECESSARY TO EXCLUDE LIVESTOCK, WITH PERMISSION OF THE LANDOWNER.
6. MONITOR WASHOUTS, STAPLE INTEGRITY OR MAT MOVEMENT. REPLACE OR REPAIR AS NECESSARY.

TYPICAL MATTING ON SLOPES

NOT TO SCALE



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.

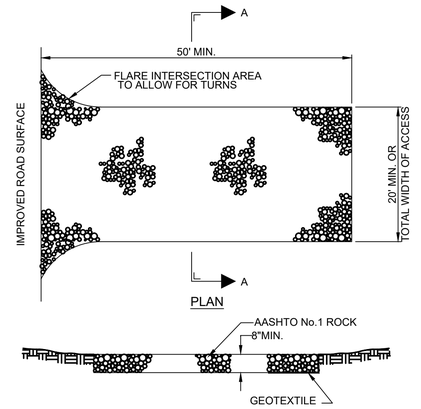
COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE 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.

COMPOST FILTER SOCK

NOT TO SCALE



MAINTENANCE NOTES:

1. 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. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

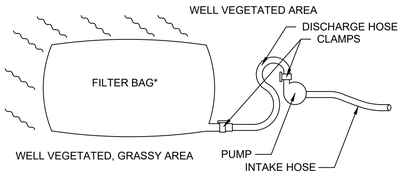
ROCK CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

SOILS DATA WAS OBTAINED FROM THE USDA NRCS WEB SOIL SURVEY			
SYMBOL	DESCRIPTION	LIMITATIONS	RESOLUTIONS
UroB	URBAN LAND–LAWRENCEVILLE COMPLEX, 0 TO 8% SLOPES	HIGH POTENTIAL FOR SURFACE RUNOFF	PUMP GROUNDWATER IN EXCAVATIONS TO A FILTER BAG. STABILIZE DISTURBED AREAS ONCE GRADING IS COMPLETE.

MEASURES TO BE USED IN AREAS OF SEVERE EROSION POTENTIAL SOILS INCLUDE:

1. CONSTRUCTION SHALL BE PERFORMED IN A TIMELY MANNER TO REDUCE THE AMOUNT OF TIME DISTURBED SOILS AND/OR STOCKPILES ARE LEFT ON THE RIGHT-OF-WAY.
2. TRENCH DEWATERING SHALL BE DIRECTED TO FILTER BAGS.
3. EROSION AND SEDIMENT CONTROLS, INCLUDING SILT SOCK OR APPROVED EQUIVALENT, SHALL BE UTILIZED AS NECESSARY.
4. EROSION CONTROL MATTING SHALL BE UTILIZED AS NECESSARY.
5. THE ENVIRONMENTAL INSPECTOR MAY RECOMMEND ADDITIONAL MEASURES BASED ON SITE SPECIFIC CONDITIONS.



NOTES:

1. 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.
2. A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES MUST BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED.
3. BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE FLOW PATH SHALL BE PROVIDED. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%.
4. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED.
5. THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHOULD BE FLOATING AND SCREENED.
6. FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

PUMPED WATER FILTER BAG

NOT TO SCALE

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JASON R. MARIE
PA PROFESSIONAL ENGINEER LIC. No. PE-077159
Date 12/17/2020

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Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

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NTS	PERMIT		STD

Project Number	B/O	Total
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Drawing Number: C507

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
EROSION AND SEDIMENT CONTROL
PLAN DETAILS (SHEET 2 OF 2)

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STAGES OF EARTH DISTURBANCE ACTIVITY

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE.

1. AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, AND THE MONTGOMERY COUNTY CONSERVATION DISTRICT TO AN ON-SITE MEETING.
2. AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM, INC. AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.
3. ALL STRUCTURES ASSOCIATED WITH THE CONSTRUCTION OF SEDIMENT REMOVAL FACILITIES MUST BE ON-SITE PRIOR TO EARTH DISTURBANCE.
4. IF AT ANY TIME PRIOR TO STABILIZATION ANY E&S PROBLEMS OCCUR WHICH REQUIRE ADDITIONAL MEASURES, IMMEDIATE ACTION MUST BE TAKEN TO CORRECT THE PROBLEM.
5. EACH STAGE MUST BE COMPLETED AND STABILIZED PRIOR TO COMMENCING TO THE NEXT STAGE.

EARTHMOVING SCHEDULE

6. INSTALL STONE CONSTRUCTION ENTRANCES FOR TIRE CLEANING AT THE ACCESS-EXIT POINTS FROM THE EARTH DISTURBANCE AREAS AS SHOWN ON THE EROSION CONTROL PLAN.
7. INSTALL COMPOST FILTER SOCK AS SHOWN ON PLAN.
8. INSTALL UNDERGROUND PIPELINE AND CONSTRUCT BUILDING ADDITION.
9. FINISH GRADE AND ESTABLISH PERMANENT SEEDING AS SOON AS POSSIBLE.
10. EROSION CONTROL MEASURES, IN ADDITION TO THOSE SHOWN ON THE PLANS, SHALL BE PROVIDED BY THE CONTRACTOR IF THERE IS EVIDENCE OF SILT, SEDIMENT AND/OR MUD LEAVING THE SITE.
11. ALL EROSION CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS METHODS OF THE PA. DEPARTMENT OF ENVIRONMENTAL PROTECTION, DATED MARCH, 2012.
12. MAINTENANCE OF EROSION AND SEDIMENT CONTROLS:

    DURING THE LIFE OF THE PROJECT, ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE MAINTAINED. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROLS. AFTER EVERY STORM EVENT AND EVERY WEEK, EXAMINE ALL FILTER STRUCTURES AND CONTROL FACILITIES. DAMAGE TO FACILITIES SHALL BE REPAIRED AND ACCUMULATED SEDIMENT REMOVED TO MAINTAIN EFFECTIVENESS OF THE STRUCTURE. ANY SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE REPLACED WITH ROCK FILTER OUTLETS IMMEDIATELY. STONE FILTERS MUST BE REPLACED WHEN CLOGGED WITH SILT. REGRADE, RESEED AND MULCH WASHED-OUT AREAS AS THEY OCCUR. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. MATERIALS CLEANED FROM EROSION AND SEDIMENT CONTROL DEVICES SHALL BE DISPOSED OF ON-SITE, OR OFF-SITE TO AN APPROVED RECEIVING FACILITY.

13. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, REMOVE ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED.
14. 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 ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
15. THE OPERATOR SHALL REMOVE FROM THIS SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THIS SITE.

GENERAL NOTES

1. IN ACCORDANCE WITH CHAPTER 102.12(E) INTERIM STABILIZATION REQUIREMENTS, WHERE IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA IMMEDIATELY AFTER THE FINAL EARTH MOVING HAS BEEN COMPLETED, INTERIM STABILIZATION MEASURES SHALL BE IMPLEMENTED PROMPTLY.
2. THE CONTRACTOR IS RESPONSIBLE TO IMPLEMENT PROCEDURES WHICH ENSURE THAT THE PROPER MEASURES FOR THE RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH, OR FROM, THE PROJECT SITE WILL BE UNDERTAKEN IN ACCORDANCE WITH PA DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS.
3. THE CONTRACTOR IS RESPONSIBLE TO IMPLEMENT PROCEDURES WHICH ENSURE THAT THE DISPOSAL OR RECYCLING OF CONSTRUCTION WASTES ASSOCIATED WITH, OR FROM, THE PROJECT SITE WILL BE UNDERTAKEN IN ACCORDANCE WITH PA DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS.
4. THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN WAS PREPARED BY MOTT MACDONALD, 325 CHESTNUT STREET, SUITE 300, PHILADELPHIA, PA. 19106. TELEPHONE NO. (215) 627-2277. FAX NO. (215) 627-2278.
5. AS THE CONTRACTOR COMPLETES EACH SCHEDULED SECTION OF CONSTRUCTION, THE CONTRACTOR SHALL CLEAN UP DISCARDED MATERIAL AND DEBRIS WITHIN THAT SECTION. THE AREA OF CONSTRUCTION SHALL BE LEFT CLEAN AND FREE OF ANY MATERIAL RESULTING FROM THE CONTRACTOR'S WORK. MATERIALS THAT MAY REQUIRE SPECIAL DISPOSAL (SUCH AS DISCARDED HAZARDOUS MATERIALS) SHALL BE TRANSPORTED TO A LANDFILL THAT IS PERMITTED TO ACCEPT SUCH MATERIALS.
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND DISPOSE OF EXCAVATED MATERIAL AT A DISPOSAL SITE THAT HAS AN APPROVED SOIL EROSION AND SEDIMENTATION CONTROL PLAN.
7. IT IS THE OPERATOR(S) RESPONSIBILITY TO PERFORM ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT THEY PROVIDE CLEAN FILL FOR CONSTRUCTION ACTIVITIES. CLEAN FILL IS DEFINED AS UNCONTAMINATED INERT SOLID MATERIAL WHICH INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES.

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUT 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 SEVEN (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 PRE-CONSTRUCTION MEETING.
3. AT LEAST THREE (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 MAP(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 HEIGHTS SHALL NOT EXCEED 35 FEET. 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. 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.
15. 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.
16. 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.
17. ALL SEDIMENT REMOVED FROM THE BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED IN THE PLAN DRAWINGS.
18. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF THREE (3) TO FIVE (5) INCHES - SIX (6) TO TWELVE (12) INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM FOUR (4) INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF TWO (2) INCHES OF TOPSOIL.
19. 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.
20. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
21. FILL MAERIALS 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.
22. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
23. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
24. SEEPS OR SPRINGS ENCOUNTED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
25. 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.
26. 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 ONE (1) YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION REQUIREMENTS OF THE COUNTY CONSERVATION DISTRICT THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN ONE (1) YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION REQUIREMENTS OF THE COUNTY CONSERVATION DISTRICT.
27. 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. CUR AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
28. 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.
29. 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.
30. 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.
31. UPON COMPETION 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.
32. 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 SUMMARY PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

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PA PROFESSIONAL ENGINEER LIC. No. PE-077156

COMMONWEALTH OF PENNSYLVANIA — JASON R. MARIE — ENGINEER — No. 077156 — PENNSYLVANIA — 12/17/2020

Date

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Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

Project Number	B/O	Total
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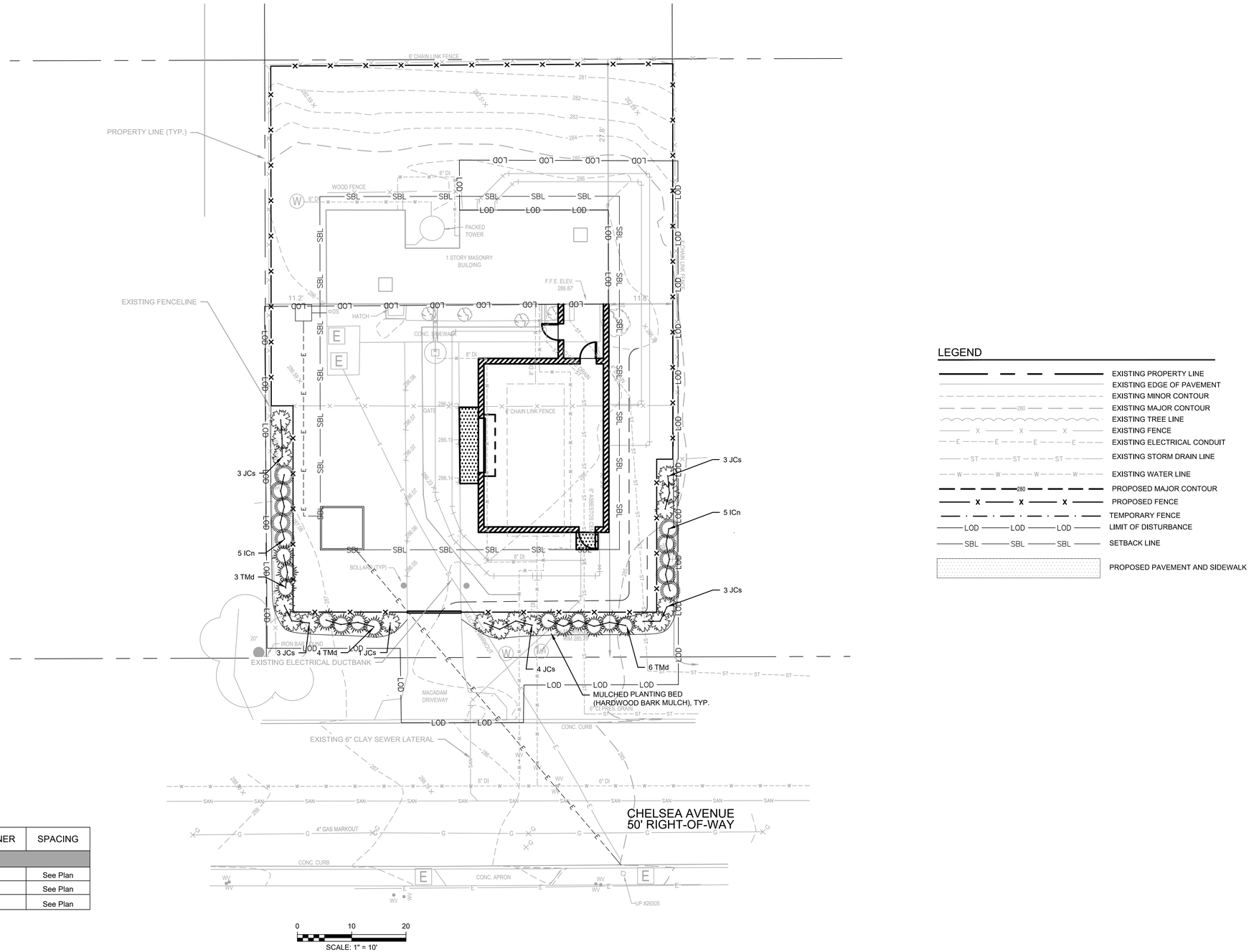
Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
EROSION AND SEDIMENT CONTROL
PLAN DETAILS (SHEET 2 OF 2)

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LANDSCAPE NOTES:

1. THIS PLAN SHALL BE USED FOR LANDSCAPE PLANTING PURPOSES ONLY. EXAMINE ALL ENGINEERING DRAWINGS AND FIELD CONDITIONS FOR SPECIFIC LOCATIONS OF UTILITIES, STRUCTURES, ETC. AND NOTIFY THE PROJECT PROFESSIONAL IN REFERENCE TO ANY DISCREPANCIES OR LOCATION CONFLICTS PRIOR TO PLANTING INSTALLATION.
2. ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1 CURRENT EDITION. THE PLANT MATERIAL SHALL BE TRUE TO SPECIES, VARIETY, SIZE AND BE CERTIFIED DISEASE AND INSECT FREE. THE PROJECT PROFESSIONAL RESERVES THE RIGHT TO REJECT PLANT MATERIAL WHEN DELIVERED TO THE SITE AND UP TO THE TIME OF FINAL ACCEPTANCE.
3. NO PLANT SUBSTITUTIONS SHALL BE PERMITTED WITH REGARDS TO SIZE, SPECIES VARIETY, ETC. WITHOUT WRITTEN PERMISSION OF THE PROJECT PROFESSIONAL. WRITTEN PROOF OF PLANT MATERIAL UNAVAILABILITY MUST BE PROVIDED.
4. LOCATION AND SPACING FOR PROPOSED VEGETATION IS AS SHOWN ON LANDSCAPE PLAN. FINAL ADJUSTMENTS TO BE MADE IN THE FIELD AND AS DIRECTED BY PROJECT PROFESSIONAL TO REFLECT EXISTING SITE CONDITIONS.
5. THE PLANTING PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT QUANTITY DISCREPANCIES OCCUR.
6. ALL PLANT MATERIAL SHALL BE PLANTED IN CONFORMANCE WITH THE TYPICAL PLANTING DETAILS AND ACCEPTED HORTICULTURAL PRACTICES. INSTALL ALL PLANT MATERIAL ON UNDISTURBED GRADE. CUT AND REMOVE BURLAP FROM THE TOP ONE-THIRD OF THE ROOT BALL. NO SYNTHETIC MATERIAL IS TO REMAIN IN PLANTING HOLE. SEE DETAIL SHEET L501 FOR PLANTING DETAILS.
7. PROJECT PROFESSIONAL SHALL HAVE FINAL ACCEPTANCE OF ALL PLANT MATERIAL.
8. PROVIDE PLANTING PITS AS INDICATED ON PLANTING DETAILS.
9. PLANT ROOT FLAIR SHALL BE EXPOSED AT TIME OF PLANTING. PLANTS SHALL BE INSTALLED AT SAME GRADE AS GROWN IN NURSERY.
10. NEWLY INSTALLED PLANT MATERIAL SHALL BE THOROUGHLY WATERED AT THE TIME OF INSTALLATION BY THE LANDSCAPE CONTRACTOR. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE REGULAR WATERING OF PLANT MATERIAL THROUGH THE FIRST YEAR OF GROWTH.
11. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE (1) YEAR AFTER THE DATE OF FINAL ACCEPTANCE.
12. ALL DISTURBED AREAS SHALL RECEIVE TEMPORARY AND PERMANENT STABILIZATION DEPENDING UPON STAGE OF WORK AND TIME OF YEAR.
13. ALL DISTURBED AREAS UNLESS OTHERWISE NOTED HEREIN TO BE RESTORED AS LAWN.
14. WIRE BASKETS ARE TO BE CUT AND FOLDED TO BOTTOM OF PLANTING HOLE AWAY FROM SIDES OF ROOT BALL.
15. PROVIDE SUSTAINED RELEASE 5-10-5 FERTILIZER FOR ALL PLANT MATERIAL IN QUANTITIES AS PER MANUFACTURER'S RECOMMENDATIONS. THOROUGHLY MIX IN TOP 12" OF ALL PLANTING AREAS.
16. ALL PLANTS ARE SHOWN SEMI-MATURE SIZE ON PLANS. SIZES INDICATED IN PLANT LIST ARE SIZES AT TIME OF INSTALLATION.
17. PLANTING PITS ARE TO BE 3X ROOT BALL DIAMETER.
18. TREES TO BE HANDLED BY ROOT BALL ONLY. HANDLING OF TREES BY THE TRUNK OR THE PLACING OF STRAPS AROUND THE TRUNK WILL BE CAUSE FOR IMMEDIATE REJECTION OF PLANT MATERIAL.
19. TREES ARE TO BE LABELED WITH PERMANENT TAG. LABEL TO INCLUDE BOTANICAL NAME AND DATE OF INSTALLATION.
20. ALL DISTURBED AREAS TO BE RESTORED TO THE SATISFACTION OF THE PROJECT PROFESSIONAL.
21. TREES TO BE INSTALLED WITH SAME ORIENTATION AS AT PLACE GROWN. NORTH SIDE OF TREE TO BE IDENTIFIED PRIOR TO DIGGING.
22. CONTRACTOR IS RESPONSIBLE FOR THE INITIAL PRUNING OF TREES. PRUNING TO BE LIMITED TO CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.



LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PROPOSED PAVEMENT AND SIDEWALK

PLANT SCHEDULE

ABR.	QTY.	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
SHRUBS					
ICn	10	Ilex crenata 'Nigra'	Nigra Japanese Holly	30-36"	See Plan
JCs	17	Juniperus chinensis 'Sea Green'	Sea Green Juniper	30-36"	See Plan
STo	13	Taxus x media 'Densiformis'	Ogon Spirea	30-36"	See Plan

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Rev	Date	Drawn	Description	Ch'k'd	App'd

JASON R. HARKINS
REGISTERED LANDSCAPE ARCHITECT Lic. No. LA003194
Date 12/17/2020

Designed	J. HARKINS	JRH	Eng check		
Drawn	J. HARKINS	JRH	Coordination		
Dwg check			Approved		

Project Number	B/O	Total
507402365	15	56

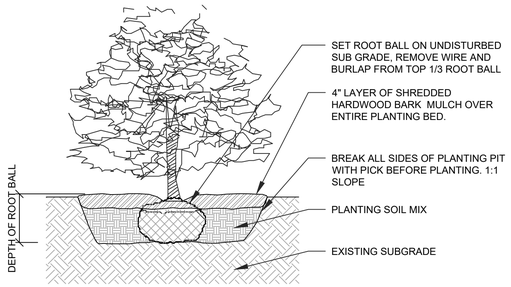
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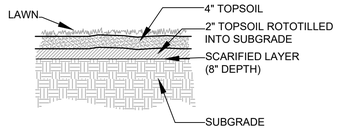
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
LANDSCAPE PLAN

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SHRUB PLANTING DETAIL
NOT TO SCALE



LAWN RESTORATION DETAIL
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Project Number	B/O	Total
507402365	16	56

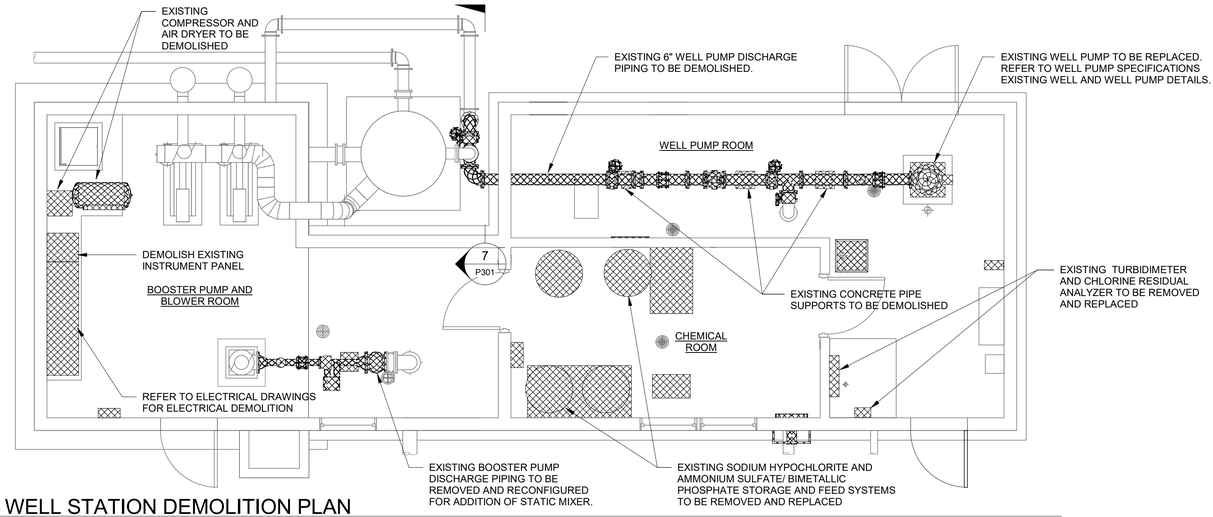
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Title

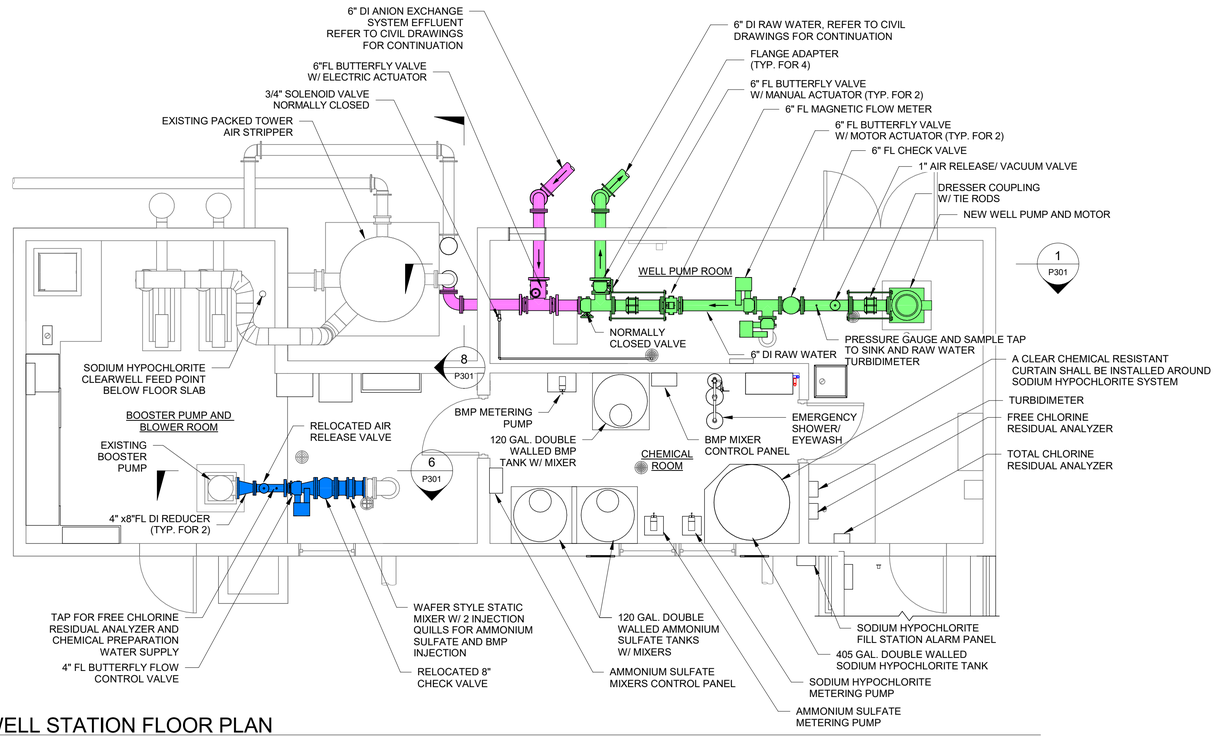
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
LANDSCAPE DETAILS

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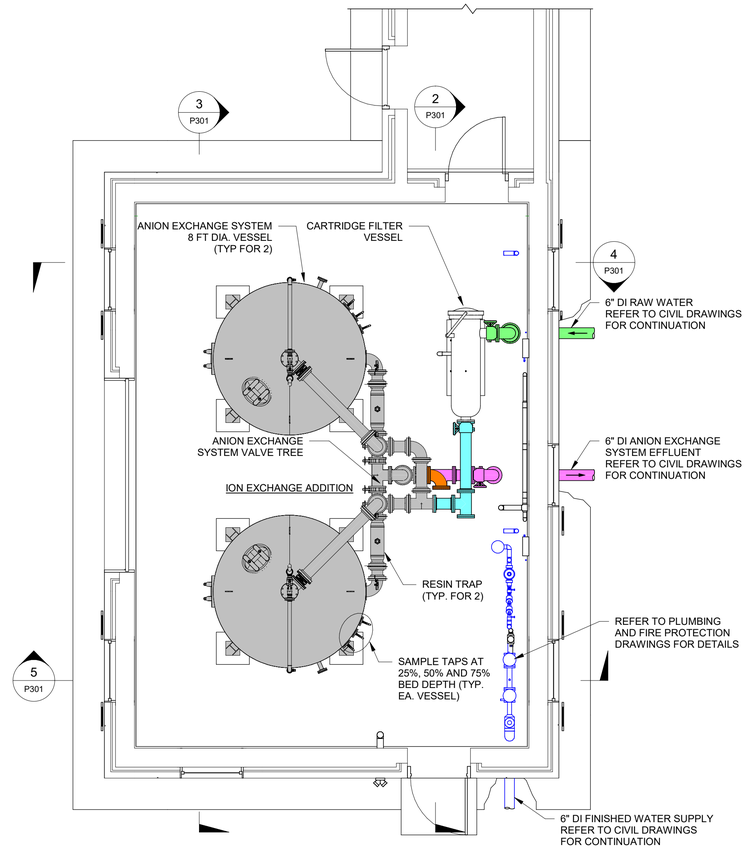
WELL STATION DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



WELL STATION FLOOR PLAN

SCALE: 1/4" = 1'-0"



ION EXCHANGE ADDITION FLOOR PLAN

SCALE: 1/4" = 1'-0"

PROCESS MECHANICAL NOTES:

1. ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE ALL FINAL EQUIPMENT AND PIPING LOCATIONS IN THE FIELD.
2. THE CONTRACTOR SHALL PROVIDE PIPE AND EQUIPMENT SUPPORTS TO ADEQUATELY SUPPORT ALL PROCESS PIPING, EQUIPMENT, AND APPURTENANCES IN PROPER POSITION AND ALIGNMENT, AND TO PREVENT MOVEMENT UNDER ALL OPERATING CONDITIONS.
3. NOT ALL SMALL DIAMETER PIPING, VALVES, AND EQUIPMENT HAVE BEEN SHOWN ON THE PROCESS MECHANICAL PLANS IN ORDER TO PRESERVE CLARITY. REFER TO THE PROCESS INSTRUMENTATION DRAWING I-1 FOR REQUIRED EQUIPMENT.
4. THERE IS AN EXISTING CORROSION CONTROL SYSTEM IN THE VICINITY OF THE AIR STRIPPER THAT CONSISTS OF 32 LB MAGNESIUM ANODES, A TEST STATION, AND INTERCONNECTING WIRING. SHOULD THE EXISTING CORROSION CONTROL SYSTEM BE DISTURBED OR DAMAGED DURING INSTALLATION OF THE EXTERIOR PIPING, THE CONTRACTOR SHALL REPLACE DAMAGED COMPONENTS IN KIND.
5. ALL EXTERIOR ABOVE GRADE PIPING, FITTINGS AND VALVES SHALL BE INSULATED AND HEAT TRACED. INSULATION AND HEAT TRACING SHALL EXTEND TO A BURIED DEPT OF 3'-6" WHERE EXTERIOR ABOVE GRADE PIPING RUNS TRANSITION TO BURIED PIPING. REFER TO HEAT TRACING SPECIFICATION ON THE ELECTRICAL DRAWINGS AND INSULATION SPECIFICATION THIS SHEET.
6. ALL DEMOLISHED MATERIALS AND EQUIPMENT SHALL BE REMOVED FROM THE PROJECT SITE. THE CONTRACTOR SHALL ADHERE TO ALL APPLICABLE REGULATORY REQUIREMENTS REGARDING PROPER DISPOSAL OF DEMOLISHED MATERIALS AND EQUIPMENT. ANY ASSOCIATED COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

PROCESS MECHANICAL LEGEND

- TO BE DEMOLISHED
- RAW WATER
- PRE-FILTER EFFLUENT/ IX SYSTEM INFLUENT
- ION EXCHANGE SYSTEM EFFLUENT
- ION EXCHANGE SYSTEM WASTE
- FINISHED WATER
- ION EXCHANGE SYSTEM SUPPLIER SCOPE

0 2 4 8

SCALE: 1/4" = 1'-0"

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MARK A. TOMPECK
PA PROFESSIONAL ENGINEER LIC. No. PE047894

12/17/20

Designed	M. GRAY		Eng check		
Drawn	M. GRAY		Coordination		
Dwg check	M. TOMPECK		Approved		

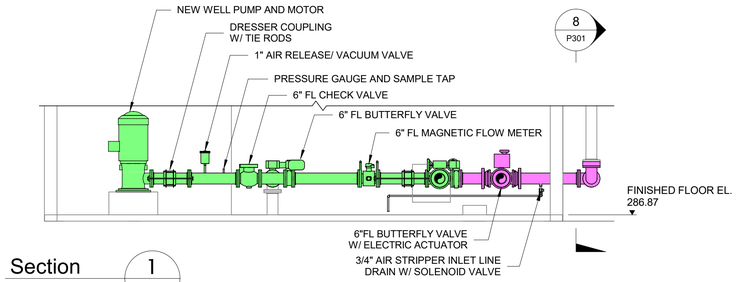
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Project Number	B/O	Total	Drawing Number
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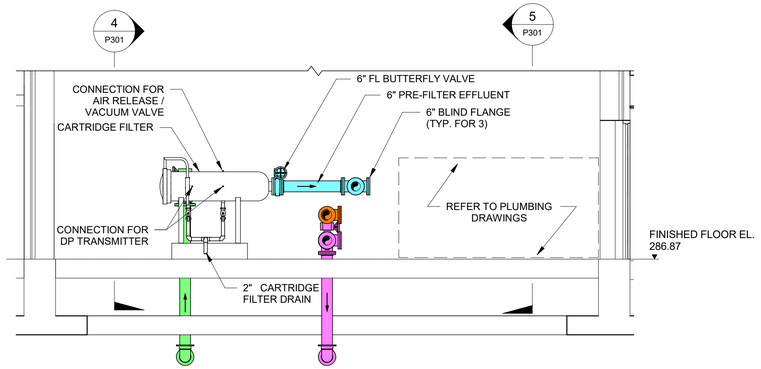
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PROCESS MECHANICAL
FLOOR PLANS

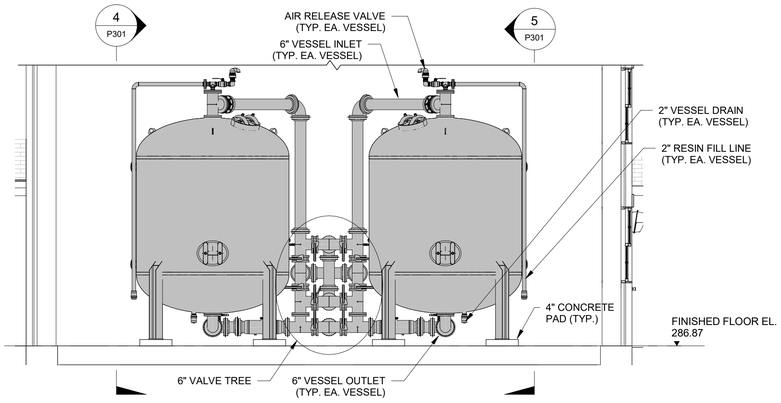
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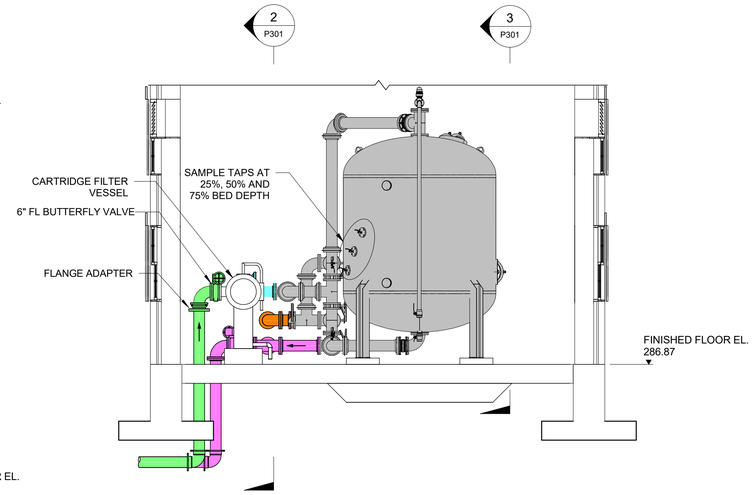
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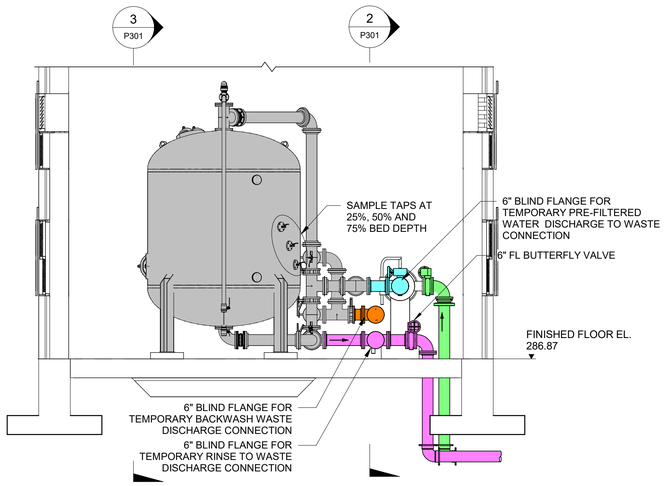
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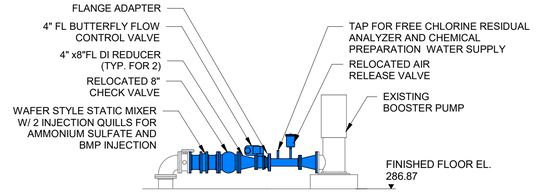
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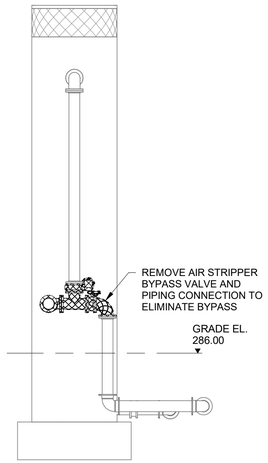
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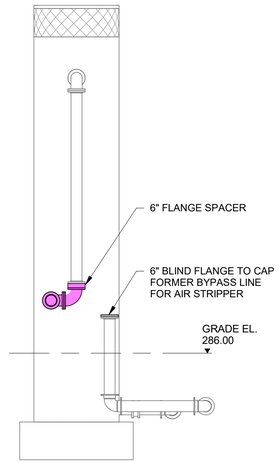
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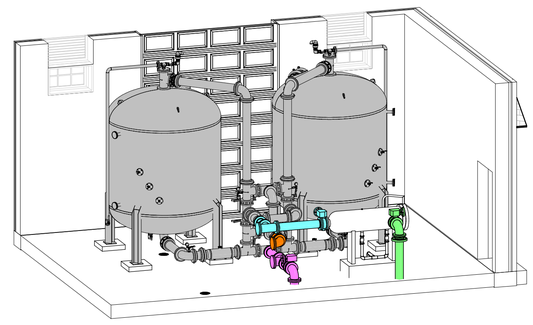
Section 6
SCALE: 1/4" = 1'-0" P101



Section 7
SCALE: 1/4" = 1'-0" P101



Section 8
SCALE: 1/4" = 1'-0" P101



3D-VIEW - ION EXCHANGE ADDITION
SCALE: NONE

0 2 4 8
SCALE: 1/4" = 1'-0"

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Rev	Date	Drawn	Description	Ch'k'd	App'd

MARK A. TOMPECK
PA PROFESSIONAL ENGINEER LIC. No. PE047894

12/17/20

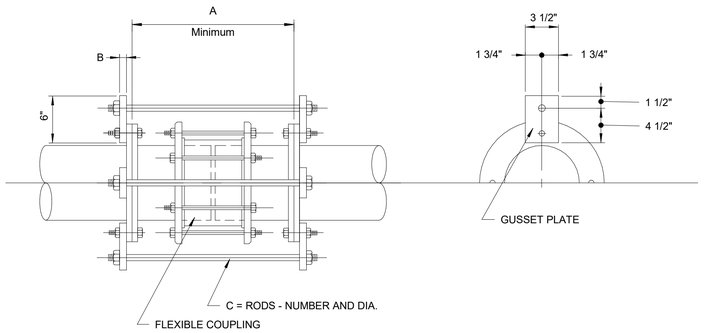
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Drawn	M. GRAY		Coordination		
Dwg check	M. TOMPECK		Approved		

Scale	Status	Rev	Security
As Shown	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	18	56	P301

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PROCESS MECHANICAL
SECTIONS

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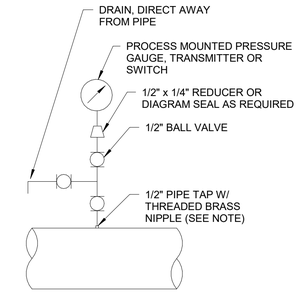


PIPE DIA.	1 1/2"-4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"
A	16"	16"	16"	20"	20"	20"	20"	24"	24"	24"	24"
B	3/8"	3/4"	3/4"	7/8"	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	1 3/8"
C	2-5/8"	2-5/8"	2-3/4"	3-3/4"	4-3/4"	4-3/4"	4-3/4"	4-7/8"	4-7/8"	6-7/8"	8-1"

FLEXIBLE COUPLING W/ THRUST PROTECTION

NOT TO SCALE

Detail 1
SCALE: NTS



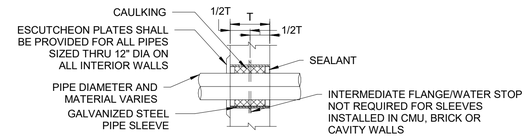
NOTE:

PRESSURE TRANSMITTER PIPE TAPS SHALL BE 1" AND SHALL BE LOCATED AT THE PIPE HORIZONTAL CENTERLINE.

PRESSURE GAUGE, TRANSMITTER AND SWITCH INSTALLATION DETAIL

NOT TO SCALE

Detail 2
SCALE: NTS



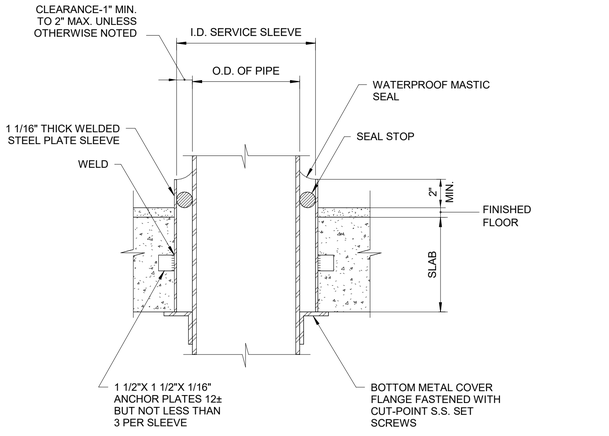
NOTE: PIPE SLEEVES INSTALLED IN BRICK, CMU OR CAVITY WALLS SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. APPLY BONDING AGENT TO CLEAN DRY SURFACES BEFORE PLACING GROUT

CAULKED PIPE SLEEVE FOR CONCRETE, CMU, BRICK OR CAVITY WALLS (EXTERIOR)

EXTERIOR PIPE PENETRATION DETAIL

NOT TO SCALE

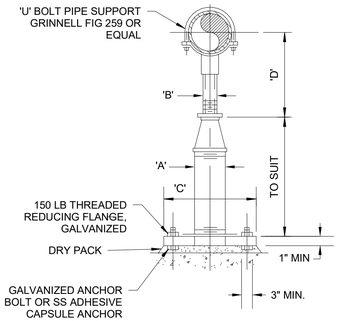
Detail 3
SCALE: NTS



SLAB SLEEVE DETAIL

NOT TO SCALE

Detail 4
SCALE: 12" = 1'-0"



NOTES:

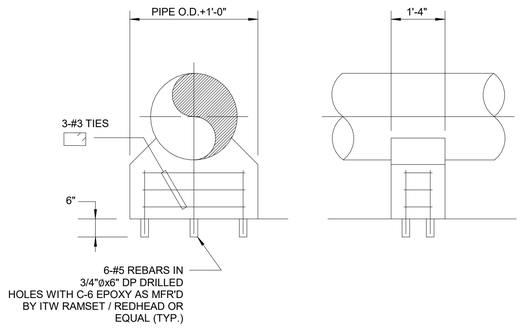
1. UNDER VALVES, METERS OR OTHER SPECIAL APPURTENANCES A FABRICATED SUPPORT PIECE MAY BE UTILIZED AS ACCEPTABALE TO ENGINEER

ADJUSTABLE PIPE SUPPORT

NOT TO SCALE

Detail 5
SCALE: 12" = 1'-0"

ADJUSTABLE PIPE SUPPORT APPROX. DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C	D MIN.	D MAX.
2	2	1	9	8	11
3	2	1	9	8	11
3	2	1	9	8	12
4	3	2	9	10	14
6	3	2	9	11	15
8	3	2	9	13	16
10	3	2	9	14	18
12	3	2	9	15	19
14	4	3	11	18	20
16	4	3	11	19	22



CONCRETE PIPE SUPPORT DETAIL

NOT TO SCALE

Detail 6
SCALE: 12" = 1'-0"

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Scale	Status	Rev	Security
As Shown	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	19	56	P501

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PROCESS MECHANICAL
DETAILS

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GENERAL STRUCTURAL NOTES

1. THE STRUCTURAL DESIGN OF THIS PROJECT IS BASED UPON APPROPRIATE PORTIONS OF THE FOLLOWING:
   - A. INTERNATIONAL BUILDING CODE, 2015.
   - B. AMERICAN CONCRETE INSTITUTE "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" ACI 318-14.
   - C. AMERICAN CONCRETE INSTITUTE "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES AND COMMENTARY" ACI 350-06.
   - D. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-10.
   - E. AISC "STEEL CONSTRUCTION MANUAL" - FOURTEENTH EDITION, 2013.
   - F. AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS, AISC 341-10.
   - G. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI 530-13, 530.1-13.
   - H. FLOOD RESISTANT DESIGN AND CONSTRUCTION ASCE 24-14.
2. DETAILS SHOWN IN ANY SECTION APPLY TO ALL SIMILAR SECTIONS, UNLESS OTHERWISE NOTED.
3. PRIOR TO MOBILIZATION AND ANY FABRICATION, THE CONTRACTOR SHALL CONDUCT EXPLORATORY EXCAVATION TESTS AT PROPOSED FOUNDATION LOCATIONS TO ENSURE THERE ARE NO CONFLICTS WITH ANY EXISTING UNDERGROUND UTILITIES OR ELECTRICAL DUCTBANKS. IF UNKNOWN UNDER-GROUND UTILITIES OR ELECTRICAL DUCTBANKS ARE FOUND, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY.
4. THE CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL FIELD CONDITIONS, DIMENSIONS, LOCATIONS, ELEVATIONS, AND DETAILS SHOWN ON THE CONTRACT DRAWINGS BEFORE PROCEEDING. THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF THE EXISTING STRUCTURES AND CLEARANCES TO NEW CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
5. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL FLOOR DEPRESSIONS, LOUVERS, DOORS, AND OPENINGS WITH THE PROCESS, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS PRIOR TO PROCEEDING WITH FABRICATION AND CONSTRUCTION. IN CASE OF ANY DISCREPANCIES, NOTIFY THE ENGINEER IMMEDIATELY.
6. EQUIPMENT FOUNDATIONS AND PLATFORMS SHOWN ON THE STRUCTURAL DRAWINGS HAVE BEEN SIZED AND DESIGNED BASED ON THE EQUIPMENT LISTED, OR APPROVED EQUAL. THE CONTRACTOR SHALL VERIFY THIS INFORMATION WITH CERTIFIED EQUIPMENT DRAWINGS, ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF ANY EQUIPMENT DIFFERENT FROM THE LIST IS CHOSEN, CONTRACTOR SHALL PROVIDE DESIGN DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A REGISTERED NEW JERSEY PROFESSIONAL ENGINEER FOR THE PROPOSED EQUIPMENT. THE DESIGN FOR THE PROPOSED EQUIPMENT SHALL BE IN ACCORDANCE WITH THE CURRENT CODES AND PROJECT SPECIFICATIONS. THE PROPOSED MATERIALS SHALL MEET OR EXCEED THE ONES USED IN THE ORIGINAL DESIGN IN TERMS OF STRENGTH, SERVICEABILITY, AND DURABILITY.
7. CONTRACTOR SHALL VERIFY ACTUAL EQUIPMENT WEIGHTS WITH CERTIFIED VENDOR DRAWINGS. IF CERTIFIED EQUIPMENT WEIGHTS INCREASE MORE THAN 10% OF EQUIPMENT WEIGHTS SHOWN IN THE STRUCTURAL DRAWINGS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY FOR VERIFICATION OF THE DESIGN PRIOR TO CONSTRUCTION.
8. STRUCTURAL DRAWINGS MAY NOT SHOW ALL EQUIPMENT PADS AND OTHER EQUIPMENT SUPPORTS REQUIRED. REFER TO ELECTRICAL, PROCESS, AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
9. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN A COMPLETE SYSTEM FOR DEWATERING THE CONSTRUCTION SITE TO PROPERLY CONSTRUCT ALL STRUCTURES IN THE DRY. SUCH PROCEDURES SHALL AVOID DISTURBANCE OF THE SOIL STRUCTURE.
10. THE CONTRACTOR SHALL FULLY BRACE AND OTHERWISE PROTECT THE WORK IN PROGRESS UNTIL THE BUILDING AND/OR STRUCTURE IS COMPLETED AND SAFE TO REMOVE BRACING.
11. REFER TO THE PROJECT SPECIFICATIONS MANUAL FOR COMPLETE INFORMATION. WHERE ANY DISCREPANCY IS DETERMINED BETWEEN THESE NOTES AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY.

EXCAVATION, FILL AND COMPACTION NOTES

1. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION WORK WITH CAUTION SO AS NOT TO DAMAGE OR DISRUPT SERVICE OF EXISTING SEWERS, DUCTBANKS, WATER MAINS OR OTHER SUBSURFACE UTILITIES OR APPURTENANCES. ANY INTERFERENCE SHALL BE REPORTED TO THE ENGINEER.
2. EXISTING UNDERGROUND DUCTBANKS AND UTILITIES MAY OR MAY NOT BE SHOWN ON THE CONTRACT DRAWINGS. THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THE CONTRACT DRAWINGS ARE NOT GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING DUCTBANKS AND UTILITIES. THE CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICES IN OPERATION AND SHALL PROTECT THEM FROM DAMAGE DURING CONSTRUCTION.
3. WHEN EXCAVATING IN THE VICINITY OF EXISTING WATER MAINS, SANITARY SEWERS AND OTHER UNDERGROUND UTILITIES, THE CONTRACTOR SHALL EXPOSE THOSE LINES BY HAND EXCAVATION ONLY AND EXERCISE EXTREME CAUTION FOR PROTECTION OF THE EXISTING UTILITIES DURING CONSTRUCTION. "IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUIDES, OR TIE-DOWNS MAY BE NECESSARY."
4. UNLESS OTHERWISE NOTED PLACE STRUCTURAL BACKFILL IN 8" LIFTS AND COMPACT TO A MINIMUM OF 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY OBTAINABLE PER ASTM D1557. BACKFILLING AGAINST EXISTING AND NEW FOUNDATION WALLS SHALL BE DONE CAREFULLY USING SMALL COMPACTION EQUIPMENT.
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MANAGEMENT AND CONTROL OF GROUNDWATER DURING SITE ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT ANY ADDITIONAL INVESTIGATIONS NECESSARY TO EVALUATE THE NEED FOR CONTROL OF GROUNDWATER.

FOUNDATION NOTES

1. FOUNDATIONS HAVE BEEN DESIGNED AND PROPORTIONED BASED ON THE NET ALLOWABLE BEARING PRESSURE OF 2500 PSF, AS SPECIFIED IN GEOTECHNICAL REPORT BY DUFFIELD ASSOCIATES, INC. DATED OCTOBER 8, 2018. CONTRACTOR SHALL VERIFY THIS REQUIRED VALUE WITH GEOTECHNICAL ENGINEER DURING EXCAVATION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER FOR A FOUNDATION RE-EVALUATION.
2. THE ACTUAL FIELD CONDITIONS AS FOUND DURING THE CONSTRUCTION PERIOD SHALL GOVERN THE FOUNDATION REQUIREMENTS.
3. WHERE SOIL OF THE REQUIRED BEARING CAPACITY IS FOUND AT A LOWER ELEVATION, THE BOTTOM OF FOUNDATION SHALL BE LOWERED IF SO REQUIRED TO CONFORM TO THE ACTUAL SOIL BEARING STRATA ELEVATION. AS DETERMINED BY THE ENGINEER, THE BOTTOM ELEVATION OF THE FOUNDATION ELEMENT MAY BE LOWERED, THE TOTAL THICKNESS OF THE FOUNDATION ELEMENT MAY BE VARIED TO SUIT THE FIELD CONDITIONS OR REPLACE WITH COMPACTED FILL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OBTAIN SUCH INSTRUCTIONS BEFORE PROCEEDING WITH CONSTRUCTION OF THE FOUNDATIONS.
4. ALL BEARING STRATA UNDER FOUNDATION ELEMENTS SHALL BE PROTECTED FROM FREEZING. UNDER NO CIRCUMSTANCES SHALL ANY FOOTING, FOUNDATION ELEMENT, OR SLAB ON GRADE SHALL BE PLACED ON FROZEN MATERIAL.
5. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, ALL FOUNDATIONS FOR PROPOSED STRUCTURES SHALL HAVE A LAYER OF CRUSHED STONE NO LESS THAN 6-INCHES THICK PLACED DIRECTLY BENEATH THE PROPOSED FOUNDATION. THE STONE LAYER SHALL EXTEND A MINIMUM OF 12 INCHES BEYOND THE EXTREMITIES OF THE FOUNDATION. CRUSHED STONE SHALL MEET THE REQUIREMENTS OF AGGREGATE STANDARD SIZE NO. 57 AS DEFINED BY STATE DOT STANDARD SPECIFICATIONS.

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CONCRETE MASONRY UNITS NOTES

1. ALL MASONRY DESIGN AND CONSTRUCTION SHALL CONFORM TO ACI "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI 530-13/ASCE 5-13/TMS 402-13), "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI 530.1-13/ASCE 6-13/TMS 602-13), AND COMMENTARIES RESPECTIVELY, UNLESS MODIFIED BY THE CONTRACT DOCUMENTS.
2. MASONRY CONSTRUCTIONS ON THIS PROJECT SHALL BE ACCOMPLISHED UNDER A CONTINUAL LEVEL C QUALITY ASSURANCE FROM A TESTING AND INSPECTING AGENCY IN ACCORDANCE WITH THE PROVISIONS OF ACI 530-13/ASCE 5-13/TMS 402-13 CHAPTER 3, SECTION 3.1.3, PROVIDED BY THE GENERAL CONTRACTOR. REPORTS SHALL BE SUBMITTED TO THE ENGINEER.
3. CONSTRUCT REINFORCED MASONRY AS NOTED ON THE PLANS AND DETAILS AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE "UNIT MASONRY" SPECIFICATION 04 20 00.
4. MASONRY UNITS SHALL CONFORM TO ASTM C90 MEDIUM WEIGHT WITH A MINIMUM COMPRESSIVE STRENGTH OF 1,900 PSI, TO PROVIDE NET AREA COMPRESSIVE STRENGTH OF MASONRY f'm OF 1,500 PSI, UNLESS OTHERWISE NOTED. PERFORM COMPRESSIVE STRENGTH COMPLIANCE BY PRISM TEST METHOD. USE ONLY MASONRY UNITS THAT ARE A MIN. OF 50% SOLID. REFER TO THE SPECIFICATIONS FOR TESTING FREQUENCIES.
5. ALL CONCRETE MASONRY UNITS SHALL BE PLACED IN RUNNING BOND PATTERN UNLESS OTHERWISE NOTED.
6. USE TYPE "S" MORTAR IN ACCORDANCE WITH ASTM C270 WITH A MINIMUM DESIGN COMPRESSIVE STRENGTH OF 1800 PSI. USE FULL-BEDDED JOINTS FOR ALL MASONRY UNITS. REMOVE MORTAR PROTRUDING INTO CELL CAVITIES THAT ARE TO BE REINFORCED AND GROUTED. ALLOW A MIN. OF 24 HOURS FOR MORTAR TO CURE BEFORE PLACING GROUT. REFER TO THE SPECIFICATIONS FOR TESTING REQUIREMENTS.
7. USE GROUT CONFIRMING TO ASTM C-476 WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI IN 28 DAYS, TESTED IN ACCORDANCE WITH ASTM C1019. AGGREGATE TO CONFORM TO ASTM C404 FOR COARSE GROUT AND SLUMP OF 8" TO 11". TEST SAMPLES FOR COMPRESSIVE STRENGTH. REFER TO THE SPECIFICATION FOR TESTING REQUIREMENTS.
8. PROVIDE SOLID GROUTED REINFORCED VERTICAL CELLS IN UNIT MASONRY AS SPECIFIED ON PLANS. IN ADDITION, PROVIDE SOLID GROUTED REINFORCED VERTICAL CELLS AT ALL CORNERS, INTERSECTIONS AND ADJACENT TO ALL OPENINGS GREATER THAN 16 INCHES, END OF WALLS, AND EACH SIDE OF CONTROL JOINTS. THESE BARS SHALL BE THE SAME SIZE AS THE SCHEDULED REINFORCING SPECIFIED FOR EACH WALL.
9. PROVIDE BENT CORNER BARS OF THE SAME TOTAL AREA AS HORIZONTAL REINFORCING, OR AS SPECIFIED IN THE BOND COURSES. CORNER BAR SHALL RUN OUTSIDE OF ANY VERTICAL STEEL PASSING THROUGH THE CELL.
10. REINFORCING FOR MASONRY SHALL CONFORM TO ASTM A-615, GRADE 60. PROVIDE THE FOLLOWING MINIMUM LAP SPLICES, UNLESS NOTED OTHERWISE ON PLANS:

#4 BARS:	24"	#7 BARS:	42"
#5 BARS:	30"	#8 BARS:	48"
#6 BARS:	36"	#9 BARS:	54"

11. REINFORCE HORIZONTAL JOINTS AT 16" O.C. WITH CONTINUOUS 2 - #9 GAGE GALVANIZED LADDER-TYPE REINFORCEMENT. PROVIDE PREFABRICATED "TEE" AND "CORNER" PIECES.
12. PROVIDE SAWED BLOCK CLEANOUT HOLES AT THE BASE OF EACH VERTICAL REINFORCED CELL. LOCATE CLEANOUT BELOW FINISH GRADE ELEVATION WHERE POSSIBLE.
13. IN LOW-LIFT GROUTING USE A MAX. LIFT OF 5'-0" WITH MIN. HALF HOUR MAX. ONE HOUR BETWEEN LIFTS. VIBRATE EACH LIFT AND RECONSOLIDATE UPPER PORTION OF PREVIOUS LIFT AFTER PLACING NEXT LIFT.
14. WHERE ANCHOR BOLTS ARE SET IN MASONRY WALL, FILL BLOCK CELLS WITH GROUT FOR BOLTED COURSE, ONE COURSE ABOVE AND TWO COURSES BELOW ANCHOR ELEVATION.
15. INSTALL MASONRY CONTROL JOINTS WHERE SHOWN ON PLANS, AND AT CHANGES IN WALL HEIGHT AND THICKNESS.
16. PROVIDE BOND BEAM WITH HORIZONTAL REINFORCEMENT CONTINUOUSLY AT FLOOR AND ROOF LEVELS, AT TOP OF WALLS UNLESS NOTED OTHERWISE, AND ABOVE AND BELOW OPENINGS. MINIMUM REINFORCEMENT SHALL BE (2) #5 OR (1) #7 PER BOND BEAM. LINTELS SHALL HAVE 8" MINIMUM BEARING AT EACH END, UNLESS OTHERWISE NOTED.
17. FOR WALLS REQUIRING A FIRE RESISTANCE RATING, PROVIDE TO THE ENGINEER A CERTIFICATION INDICATING THAT THE MANUFACTURER OF THE CONCRETE MASONRY UNITS HAS COMPLIED WITH ALL THE REQUIREMENTS OF THE UL LISTINGS AS SPECIFIED ON THE ARCHITECTURAL DRAWINGS.
18. COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR MASONRY LAYOUT AND LOCATIONS OF OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
19. MASONRY OPENINGS FOR WINDOWS, LOUVERS, VENTS, ETC. SHALL BE FORMED AND INSTALLED AT THE LOCATIONS SHOWN ON THE DESIGN DRAWINGS, USING CAST-IN-PLACE CMU LINTELS OR PRECAST CONCRETE LINTELS AND REINFORCED AS SHOWN ON THE DESIGN DRAWINGS. SAW CUTTING OF THE CMU WALLS WILL NOT BE PERMITTED.

PRE-ENGINEERED METAL TRUSSES NOTES

1. TRUSSES SHALL BE DESIGNED FABRICATED AND ERECTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE AISC.
2. TRUSSES SHALL BE DESIGNED BY THE PRE-ENGINEERED METAL TRUSS MANUFACTURER TO SUPPORT ALL SUPERIMPOSED DEAD AND LIVE LOADS INDICATED. SUBMIT DESIGN CALCULATIONS AND ERECTION DRAWINGS COMPLETE WITH MEMBER PLACEMENTS AND CONNECTORS FOR TRUSS TO SUPPORTING STRUCTURE AND TRUSS TO TRUSS CONNECTIONS. DESIGN CALCULATIONS AND ERECTION DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL REGISTERED ENGINEER CURRENTLY LICENSED IN THE STATE OF PENNSYLVANIA.
3. DESIGN TRUSSES FOR THE FOLLOWING LOADS:

   SUPERIMPOSED ROOF LIVE LOADS
   - A. SNOW LOAD = REFER TO ROOF SNOW LOAD DIAGRAM

   SUPERIMPOSED ROOF DEAD LOADS
   - A. ASHPALT SHINGLES = 3 PSF (TOP CHORD)
   - B. PLYWOOD SHEATHING = 1.75 PSF (TOP CHORD)
   - C. GYPSUM CEILING = 3 PSF (BOTTOM CHORD)
   - D. HATCHES = 275 LBS POINT LOAD (TOP CHORD)
   - E. METAL TRUSSES = 3 PSF (TOP AND BOTTOM CHORD)
   - F. COLLATERAL = 35 PSF AND 100 POUND POINT LOAD AT ANY PANEL POINT (BOTTOM CHORD)
4. LOADS INDICATED ABOVE ARE MINIMUM DESIGN LOADS AND SHALL NOT BE CONSTRUED TO BE ALL LOADS APPLICABLE TO THE DESIGN OF THE PREFABRICATED METAL TRUSS. DEAD LOADS INFERRED BY THE EQUIPMENT LOADS AND CONSTRUCTION LOADS SHALL BE INCLUDED IN THE DESIGN.
5. VERIFY AND COORDINATE EQUIPMENT WEIGHTS, LOCATIONS, AND ATTACHMENT REQUIREMENTS PRIOR TO TRUSS FABRICATION. EQUIPMENT SUPPLIER SHALL BE RESPONSIBLE FOR THE DESIGN OF THE VERTICAL AND LATERAL SUPPORT OF THEIR EQUIPMENT. TRUSS MANUFACTURER SHALL PROVIDE ADDITIONAL DIAGONAL WEB MEMBERS AT CONCENTRATED LOAD LOCATIONS.

CAST-IN-PLACE CONCRETE NOTES

1. REINFORCED CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
   - A. ALL LIQUID CONTAINMENT STRUCTURES OR COMPONENTS SHALL CONFORM TO ACI STANDARD 350-06,"CODE ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES"
   - B. ALL OTHER STRUCTURES SHALL CONFORM TO ACI 318-14, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
   - C. ALL STRUCTURES SHALL CONFORM TO ACI PUBLICATION SP 66-(04),"ACI DETAILING MANUAL," EXCEPT AS SPECIFICALLY MODIFIED BY THE CONTRACT DRAWINGS AND THE SPECIFICATIONS
2. ALL CONCRETE USED ON THE PROJECT SHALL HAVE A SPECIFIED 28-DAY COMPRESSIVE STRENGTH OF f'c = 4,500 PSI. SUCH STRENGTHS SHALL BE DETERMINED BY A TESTING LABORATORY. FOR FURTHER REQUIREMENTS, SEE THE SPECIFICATIONS. CRYSTALLINE WATERPROOFING ADMIXTURE SHALL BE PROVIDED AT ALL LIQUID CONTAINMENT STRUCTURES.
3. ALL CONCRETE, REGARDLESS OF SPECIFIED DESIGN STRENGTH, SHALL CONTAIN STONE OR GRAVEL AGGREGATE SUCH THAT THE WEIGHT OF THE HARDENED CONCRETE IS 145 POUNDS PER CUBIC FOOT (+3%) WITH THE INCLUSION OF AIR ENTRAINMENT.
4. FOR AIR ENTRAINMENT REQUIREMENTS SEE SPECIFICATION.
5. ALL REINFORCEMENT STEEL SHALL HAVE A MINIMUM YIELD STRENGTH, fy = 60 KSI AND SHALL BE NEW DOMESTIC DEFORMED BILLET- STEEL CONFORMING TO ASTM A615, GRADE 60, EXCEPT WHERE WELDING IS INDICATED. REINFORCEMENT SHALL CONFORM TO ASTM A706 UNLESS NOTED OTHERWISE.
6. ALL DETAILING, BENDING, PLACEMENT, AND SUPPORT OF REINFORCEMENT SHALL CONFORM TO THE STANDARDS CITED IN NOTE 1, EXCEPT AS MODIFIED BY THE CONTRACT DRAWING.
7. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL OF THE STANDARD AND SPECIAL ACCESSORIES FOR SUPPORTING, HOLDING AND TYING REINFORCEMENT ADEQUATELY IN ITS PROPER POSITION. THIS WILL INCLUDE SUPPORT BARS OR INDIVIDUAL HIGH CHAIRS FOR TOP REINFORCEMENT AND BOLSTERS FOR BOTTOM REINFORCEMENT AND WIRING ALL REINFORCEMENT IN PLACE. THE CONTRACTOR SHALL DESIGN AND DETAIL SPECIAL SUPPORTS AS REQUIRED AND SUBMIT DETAILS AND LAYOUTS FOR REVIEW BY THE ENGINEER.
8. ALL REINFORCEMENT STEEL BARS SHALL BE SPLICED AT ALL LAP POINTS, BENT AS REQUIRED, AND DEVELOPED AS PER THE TYPICAL DETAILS AND SCHEDULES. CONTINUOUS TOP REINFORCEMENT SHALL BE SPLICED MIDWAY BETWEEN SUPPORTS AND CONTINUOUS BOTTOM REINFORCEMENT AT THE SUPPORTS, UNLESS OTHERWISE SHOWN ON DRAWINGS.
9. CLEAR CONCRETE COVER OVER PRINCIPLE REINFORCEMENT SHALL BE AS CALLED FOR IN THE TYPICAL DETAILS AND OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.
10. ALL EXPOSED CONCRETE EDGES SHALL BE TOOLED TO A 3/4" RADIUS OR CHAMFERED AS PER THE CONTRACT DRAWINGS.
11. THE SPACING OF REINFORCEMENT SHOWN ON THE CONTRACT DRAWINGS IS THE MAXIMUM PERMITTED. IT MAY BE REDUCED FOR CONSTRUCTION CONSIDERATIONS BUT IS NOT TO BE EXCEEDED.
12. THE CONTRACTOR SHALL COORDINATE PLACEMENT OF ALL PIPE SLEEVES OR BOX OUT FOR ALL OPENINGS, ETC., REQUIRED FOR VARIOUS TRADES AS SHOWN ON THE STRUCTURAL, ARCHITECTURAL, PROCESS, HEATING AND VENTILATION, ELECTRICAL AND PLUMBING CONTRACT DRAWINGS.
13. ALL WELDED WIRE REINFORCEMENT (WWR) SHALL CONFORM TO ASTM A1064 AND MUST BE PREFABRICATED AS SHEETS, NOT ROLLS. PROVIDE MINIMUM 6 INCH LAPS, TYPICAL. PROVIDE ADEQUATE SUPPORTS AND BOLSTERING TO PRESERVE THE SPECIFIED POSITION OF THE MESH DURING CONCRETE PLACEMENT AND FINISHING.
14. PROVIDE AND MAINTAIN ADEQUATE SHORING UNTIL THE STRUCTURE HAS BEEN COMPLETED AND CONCRETE HAS ACHIEVED FINAL STRENGTH.
15. WHEN CASTING NEW CONCRETE AGAINST EXISTING CONCRETE, EXISTING CONCRETE SURFACES SHALL BE ROUGHENED TO PROVIDE A CONCRETE SURFACE PROFILE (CSP 6) IN ACCORDANCE WITH THE INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI) UNLESS NOTED OTHERWISE. SURFACE MUST BE STRUCTURALLY SOUND AND FREE OF OIL, GREASE, DUST,COATINGS, ETCETERA. CONTRACTOR SHALL REPAIR EXISTING CRACKS IN ACCORDANCE TO THE ACI 224.1R-07 RECOMMENDATIONS. APPLY SIKA ARMATEC 110 EPOCEM BONDING AGENT OR APPROVED EQUAL,UNLESS NOTED OTHERWISE.
16. WHEN INSTALLING FIELD DRILLED EPOXY ADHESIVE ANCHORING SYSTEMS OR CORE DRILLING EXISTING STRUCTURAL SLABS, COLUMNS, OR WALLS, CONTRACTOR SHALL PERFORM NON-DESTRUCTIVE TESTING TO LOCATE EXISTING STRUCTURAL REINFORCEMENT THAT WILL NOT BE CUT DURING INSTALLATION. ANY INTERFERENCES THAT MAY AFFECT NEW WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
17. ALL ELECTRICAL, PROCESS, AND MECHANICAL CONCRETE HOUSEKEEPING PAD ELEVATIONS SHALL BE IN COMPLIANCE WITH ASTM E1155 FLOOR SURFACE CLASSIFICATION - "FLAT" FF = 35, FL = 25.

ADHESIVE ANCHORING SYSTEMS NOTES

1. USE AN EPOXY ADHESIVE SUCH AS HIT-RE 500 V3 MANUFACTURED BY HILTI OR APPROVED EQUAL.
2. DIAMETER OF HOLE SHALL BE AS RECOMMENDED BY MANUFACTURER FOR THE PARTICULAR PRODUCT SPECIFIED IN THE DRAWINGS.
3. HOLES SHALL BE DRILLED WITH A HAMMER DRILL.
4. ALL MANUFACTURER REQUIREMENTS REGARDING INSTALLATION OF ADHESIVE ANCHORS SHALL BE STRICTLY ADHERED TO.
5. THE POST INSTALLED ANCHORED THREADED RODS AND REBARS SHALL BE TESTED AFTER INSTALLATION IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATION AT CONTRACTORS EXPENSE. TESTING PROCEDURES AND RESULTS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER.

PLYWOOD ROOF SHEATHING NOTES

1. PLYWOOD SHALL CONFORM TO CONCEALED APA PERFORMANCE RATED PANELS FOR WALLS, ROOF, AND FLOOR SHEATHING.
2. ROOF SHEATHING SHALL BE 3/4" STRUCTURAL 1, EXPOSURE 1 SPAN-RATED PANELS.
3. ROOF DIAPHRAGM SHEATHING SHALL BE FASTENED WITH #10 SELF-TAPPING SCREWS @ 4" O.C. AROUND PERIMETER AND AT ALL OPENING AND #10 SELF-TAPPING SCREWS @ 4" O.C. FIELD.
4. PROVIDE CONTINUOUS DIAPHRAGM AROUND PERIMETER OF BUILDING AND ROOF LINES EQUAL IN DEPTH TO TRUSS MEMBER.
5. PROVIDE CONTINUOUS BLOCKING AT RIDGES, VALLEYS, CORNERS, AND EDGES.

STRUCTURAL STEEL NOTES

1. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC 360-16 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", 2016
2. STRUCTURAL STEEL SHALL CONFORM TO ASTM A6 STANDARD SPECIFICATION FOR GENERAL REQUIREMENTS FOR ROLLED STRUCTURAL STEEL BARS, PLATES, SHAPES AND STEEL PILES COVERED BY THE FOLLOWING SPECIFICATIONS:

ROLLED STRUCTURAL STEEL WIDE FLANGE SHAPES:	ASTM A992	Fy=50 KSI	Fu=65 KSI
MISCELLANEOUS SHAPES INCLUDING ANGLES, CHANNELS, PLATES, ETCETERA:	ASTM A36	Fy=36 KSI	Fu=58 KSI
HOLLOW STRUCTURAL SECTIONS:	ASTM A500	Fy=46 KSI	Fu=58 KSI

3. UNLESS OTHERWISE NOTED, ALL BOLTS SHALL BE 3/4 INCH DIAMETER A325 AND SHALL BE USED IN BEARING TYPE CONNECTIONS. ALL HIGH STRENGTH BOLTS SHALL MEET THE REQUIREMENTS OF THE "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". ALL ASTM A325 BOLTS WITH NUTS AND WASHERS SHALL BE GALVANIZED. ALL ASTM A490 BOLTS WITH NUTS AND WASHERS SHALL BE COATED WITH A ZINC/ALUMINUM CORROSIVE PROTECTIVE COATING.
4. ALL STRUCTURAL STEEL SHALL BE GALVANIZED UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS.
5. ALL STEEL SURFACES TO BE GALVANIZED SHALL BE PREPARED IN ACCORDANCE WITH SSPC-SP8 "PICKLING", IMMEDIATELY PRIOR TO GALVANIZING.
6. GALVANIZED ITEMS SHALL BE ZINC-COATED BY THE HOT-DIP METHOD IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS: ASTM A123, A143, A153, A384, A385, A386. FIELD TOUCH-UP ANY GALVANIZING DAMAGED BY WELDING OR OTHER FIELD ACTIVITY USING COLD GALVANIZING PAINT.
7. SHOP AND FIELD WELDING SHALL CONFORM TO THE REQUIREMENTS OF PART 8 OF THE AISC MANUAL, UNLESS OTHERWISE NOTED. WELDING SHALL BE PERFORMED BY CURRENTLY CERTIFIED WELDERS IN ACCORDANCE WITH THE AWS D1.1 "STRUCTURAL WELDING CODE-STEEL, LATEST EDITION. ALL CONNECTIONS SHALL USE E70XX ELECTRODES.

DESIGN LOADS CRITERIA

NOTE: IT SHALL BE UNLAWFUL TO PLACE, OR CAUSE TO PERMIT TO BE PLACED, ON ANY FLOOR OR ROOF OF A BUILDING, STRUCTURE, OR PORTION THEREOF, A LOAD GREATER THAN IS PERMITTED BY THESE REQUIREMENTS:

1. GENERAL INFORMATION:
   IBC BUILDING CLASSIFICATION: RISK CATEGORY III
   SITE EXPOSURE CATEGORY: C
2. DEAD LOADS:
   STRUCTURE: ACTUAL WEIGHT
3. LIVE LOADS:
   ROOF: 20 PSF
   PLATFORMS/STAIRS: 100 PSF
   GROUND FLOOR: 250 PSF
4. SNOW LOADS:
   GROUND: 30 PSF
   ROOF: SEE ROOF SNOW LOAD DIAGRAM
   SNOW EXPOSURE: C_e = 0.9
   SNOW IMPORTANCE: I_s = 1.10
   THERMAL FACTOR: C_t = 1.10
5. WIND LOADS:
   BASIC WIND SPEED: 120 MPH
   WIND EXPOSURE: C
6. EARTHQUAKE DESIGN DATA:
   SEISMIC IMPORTANCE FACTOR, I_e: 1.25
   SPECTRAL RESPONSE ACCELERATIONS:
   S_s: 0.209 g
   S_1: 0.062 g
   SITE CLASS: D
   SPECTRAL RESPONSE ACCELERATIONS:
   S_{ds}: 0.223 g
   S_{d1}: 0.099 g
   SEISMIC DESIGN CATEGORY: B
7. GEOTECHNICAL INFORMATION:
   SEE THE GEOTECHNICAL REPORT BY DUFFIELD ASSOCIATES, INC. DATED OCTOBER 8, 2018
   NET ALLOWABLE BEARING PRESSURE: 2.5 KSF
   K_o: 0.44
   K_a: 0.28
   K_p: 3.53
   γ_{moist}: 130 pcf

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AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

TODD R. HEACOCK
PA PROFESSIONAL ENGINEER LIC. NO. PE039598R
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL TODD R. HEACOCK ENGINEER
Date 12/17/2020

Designed	J. EL-KHOURI		Eng check		
Drawn	J. EL-KHOURI		Coordination		
Dwg check	H. DILEK		Approved		

Project Number	B/O	Total
507402365	20	56

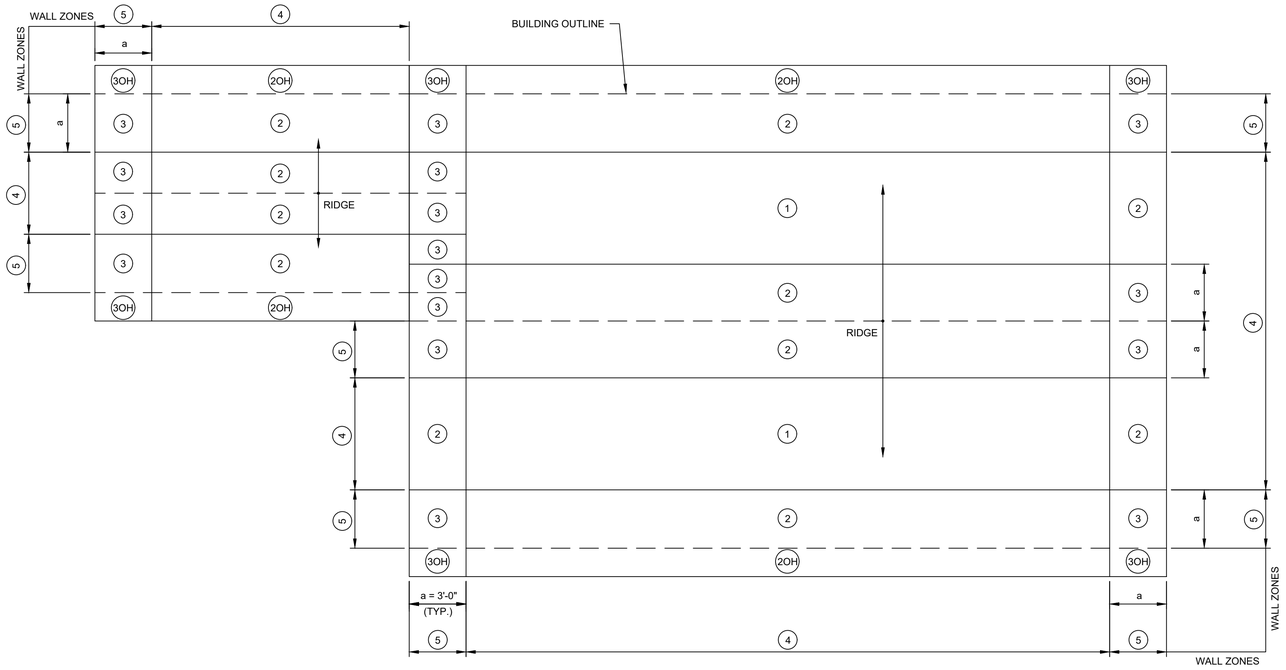
Scale at ANSI D	Status	Rev	Security
NTS	PERMIT	Rev0	STD

Drawing Number: S001

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
GENERAL NOTES (SHEET 1 OF 2)

pw:\\mott-use-pw.bentley.com:mott-use-pw-14\Documents\402365-Aqua Aidenn Lair and North Hills PFAS Design\Drawings_Models\08_S_Structural\507402365-MMD-00-S001
SAVE DATE/TIME: 12/15/2020 4:03:47 PM



C&C ENCLOSED BUILDING - WIND LOAD DIAGRAM

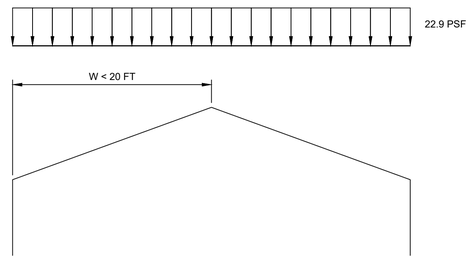
ROOF COMPONENTS & CLADDING GROSS WIND PRESSURES (PSF)												
MAXIMUM POSITIVE AND NEGATIVE (PSF) - ROOF												
AREA / ZONE	10 SQ. FT		20 SQ. FT		50 SQ. FT		100 SQ. FT		200 SQ. FT		500 SQ. FT	
	POS.	NEG.	POS.	NEG.	POS.	NEG.	POS.	NEG.	POS.	NEG.	POS.	NEG.
ZONE 1	30.5	-33.3	29.6	-31.6	28.5	-29.3	27.6	-27.6	27.6	-27.6	27.6	-27.6
ZONE 2	30.5	-38.9	29.6	-37.2	28.5	-35.0	27.6	-33.3	27.6	-33.3	27.6	-33.3
ZONE 2 OH	-	-61.5	-	-59.8	-	-57.5	-	-55.8	-	-55.8	-	-55.8
ZONE 3	30.5	-38.9	29.6	-37.2	28.5	-35.0	27.6	-33.3	27.6	-33.3	27.6	-33.3
ZONE 3 OH	-	-61.5	-	-59.8	-	-57.5	-	-55.8	-	-55.8	-	-55.8

COMPONENTS & CLADDING WALL WIND PRESSURES (PSF)												
MAXIMUM POSITIVE AND NEGATIVE (PSF) - WALLS												
AREA / ZONE	10 SQ. FT		20 SQ. FT		50 SQ. FT		100 SQ. FT		200 SQ. FT		500 SQ. FT	
	POS.	NEG.	POS.	NEG.	POS.	NEG.	POS.	NEG.	POS.	NEG.	POS.	NEG.
ZONE 4	33.3	-36.1	31.8	-34.6	29.8	-32.6	28.3	-31.1	26.8	-29.6	24.8	-27.6
ZONE 5	33.3	-44.6	31.8	-41.6	29.8	-37.6	28.3	-34.6	26.8	-31.6	24.8	-27.6

WIND LOAD DATA (BUILDING)

1. WIND LOADS ARE BASED ON ASCE 7-10, MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.
2. WIND DESIGN CRITERIA: SEE DRAWING S001
3. ALL ROOFING AND WALL COMPONENTS INCLUDING, BUT NOT LIMITED TO ROOF MATERIALS, TRUSSES, TRUSS AND OUTRIGGER TO SUPPORTING STRUCTURE CONNECTIONS, DOORS, AND WINDOWS SHALL BE DESIGNED TO WITHSTAND DESIGN WIND PRESSURES. EACH COMPONENT AND CLADDING SHALL BE TREATED AS BOTH A COMPONENT AND CLADDING AND AS A MAIN WIND FORCE RESISTING SYSTEM (MWFRS) IN ORDER TO DETERMINE THE CONTROLLING WIND PRESSURE.
4. ENCIRCLED NUMBERS DENOTE WIND ZONE NUMBER - SEE DIAGRAMS.
5. LINEAR INTERPOLATION BETWEEN AREA VALUES IS ACCEPTABLE.
6. COMPONENT TRIBUTARY AREA SHALL BE L x W OR L x 1/3 L WHICHEVER IS GREATEST.
7. DEDUCT 0.9 x APPLICABLE DEAD LOADS FOR NET UPLIFT PRESSURES.

BALANCED SNOW LOAD



BALANCED SNOW LOAD DIAGRAM

LEGEND:

C.J.	CONTROL JOINT
DN	DOWN
E.J.	EXPANSION JOINT
EL.	ELEVATION
EMB.	EMBEDMENT
F.D.	FLOOR DRAIN
H.K.P.	HOUSE KEEPING PAD
H.P.	HIGH POINT
M.C.J.	MASONRY CONTROL JOINT
L.P.	LOW POINT
L#	LINTEL TYPE
T/G	TOP OF GRADE
T.O.C.	TOP OF CONCRETE
W.P.	WORK POINT
W-#	WALL TYPE

SNOW DRIFT LOAD

SNOW DRIFT LOAD DIAGRAM

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Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

TODD R. HEACOCK
PA PROFESSIONAL ENGINEER LIC. NO. PE039598R
COMMONWEALTH OF PENNSYLVANIA — TODD R. HEACOCK — PROFESSIONAL ENGINEER
Date 12/17/2020

Designed	J. EL-KHOURI		Eng check		
Drawn	J. EL-KHOURI		Coordination		
Dwg check	H. DILEK		Approved		

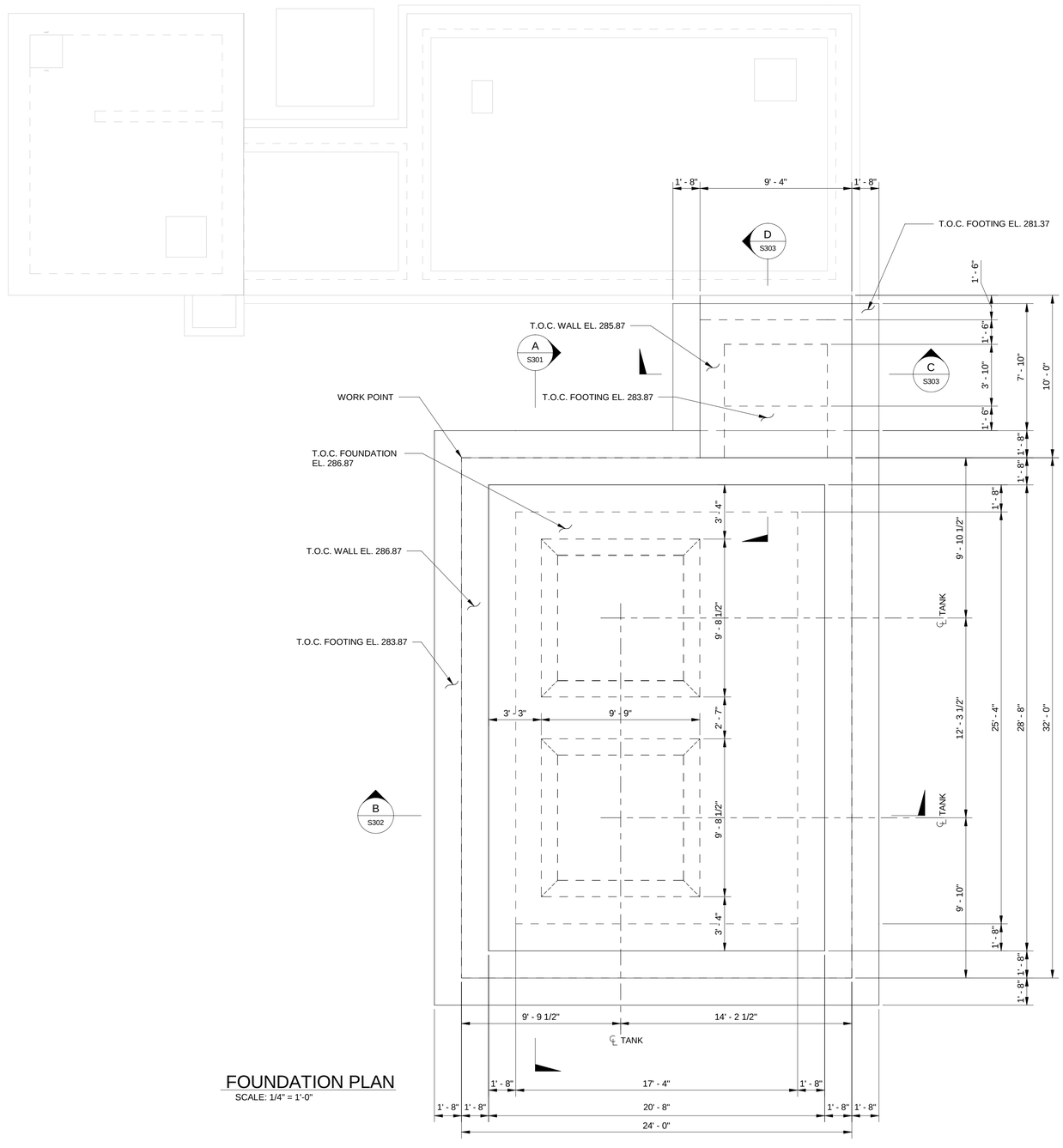
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NTS	PERMIT	Rev0	STD

Project Number	B/O	Total	Drawing Number
507402365	21	56	S002

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
GENERAL NOTES (SHEET 2 OF 2)

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SAVE DATE/TIME: 12/15/2020 4:03:26 PM



FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

NOTES:

1. FOR GENERAL AND STRUCTURAL NOTES SEE DRAWINGS S001 AND S002.
2. THE CONTRACTOR SHALL REFER TO THE PROCESS, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

0 2 4 8

SCALE: 1/4" = 1'-0"

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Rev	Date	Drawn	Description	Ch'k'd	App'd

TODD R. HEACOCK
PA PROFESSIONAL ENGINEER LIC. NO. PE039598R

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL ENGINEER — TODD R. HEACOCK — PENNSYLVANIA

Date 12/17/2020

Designed	J. EL-KHOURI		Eng check		
Drawn	J. EL-KHOURI		Coordination		
Dwg check	H. DILEK		Approved		

Scale	Status	Rev	Security
1/4"=1'-0"	PERMIT		STD

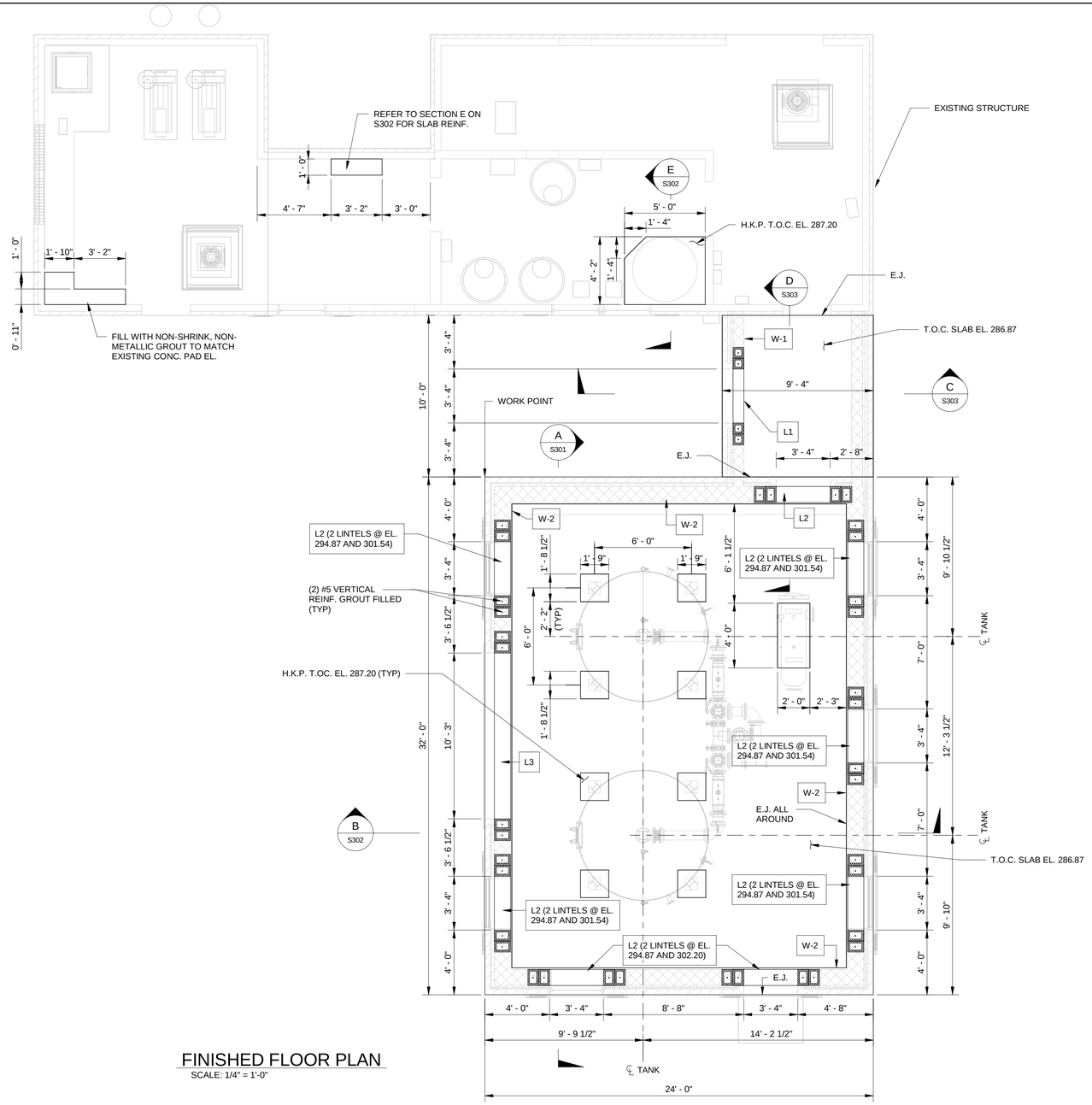
Project Number	B/O	Total
507402365	22	56

Drawing Number: S101

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
FOUNDATION PLAN

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FINISHED FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTES:

1. FOR GENERAL AND STRUCTURAL NOTES SEE DRAWINGS S001 AND S002.
2. THE CONTRACTOR SHALL REFER TO THE PROCESS, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
3. CONTRACTOR SHALL VERIFY ACTUAL EQUIPMENT WEIGHTS W/ CERTIFIED VENDOR DRAWINGS. IF CERTIFIED EQUIPMENT WEIGHTS INCREASE MORE THAN 5% OF THE EQUIPMENT WEIGHTS SHOWN IN THE TABLE, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY FOR VERIFICATION OF EQUIPMENT SUPPORTS PRIOR TO CONSTRUCTION.

DESIGN CRITERIA	
EQUIPMENT	DESIGN OPERATING LOADS (LBS)
AIX VESSEL 1	46,400
AIX VESSEL 2	46,400
AIX VALVE SKID	5,200
120 GALLON TANK (TYP. FOR 3)	1,400
405 GALLON TANK	4,500
CARTRIDGE FILTER	1,100

0 2 4 8

SCALE: 1/4" = 1'-0"

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BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

TODD R. HEACOCK
PA PROFESSIONAL ENGINEER LIC. NO. PE039598R
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL TODD R. HEACOCK ENGINEER
Date 12/17/2020

Designed	J. EL-KHOURI		Eng check		
Drawn	J. EL-KHOURI		Coordination		
Dwg check	H. DILEK		Approved		
Scale	1/4"=1'-0"	Status	PERMIT	Rev	Security STD

Project Number	B/O	Total	Drawing Number
507402365	23	56	S102

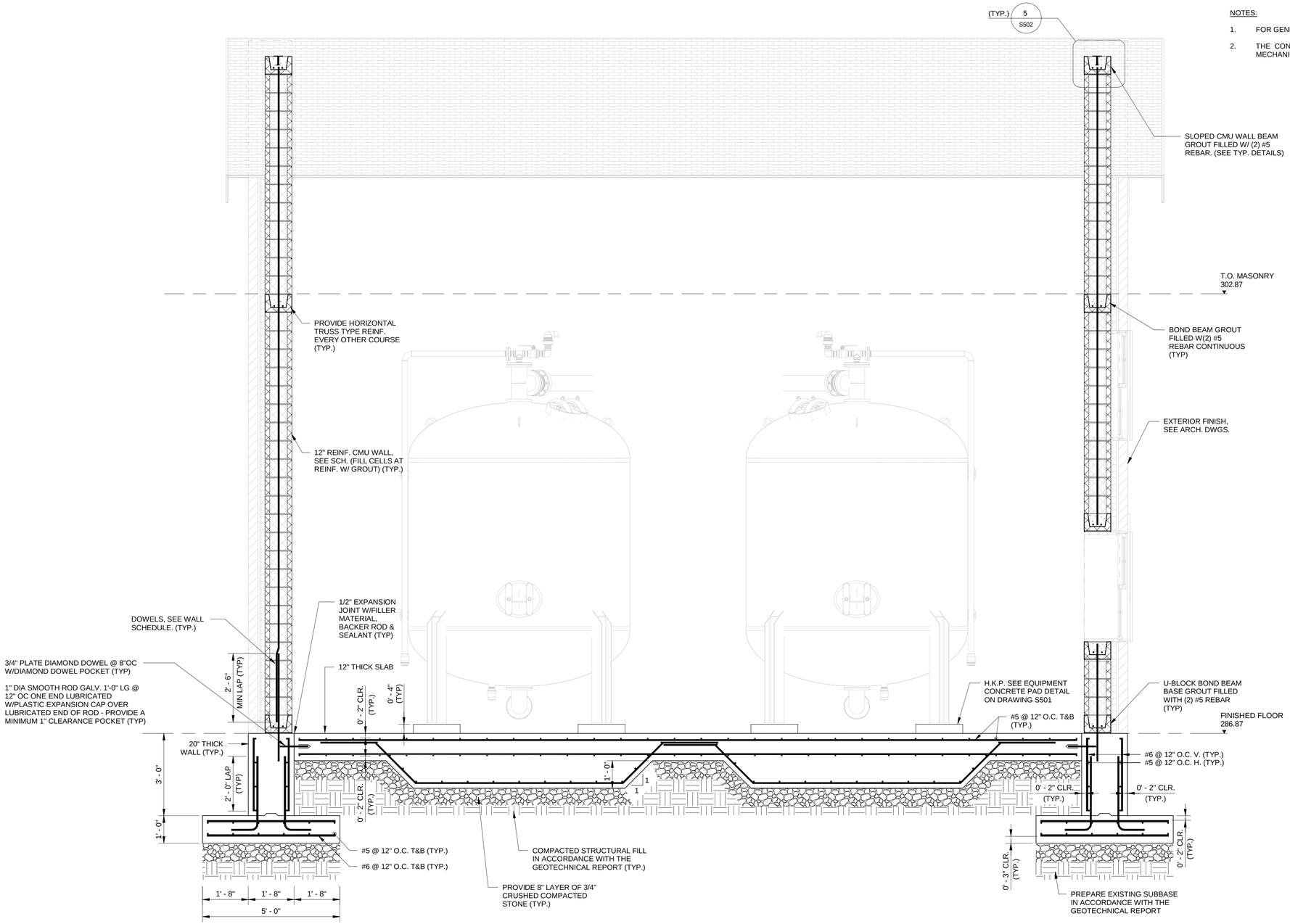
Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
FINISHED FLOOR PLAN

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NOTES:

1. FOR GENERAL AND STRUCTURAL NOTES SEE DRAWINGS S001 AND S002.
2. THE CONTRACTOR SHALL REFER TO THE PROCESS, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.



Section A
SCALE: 1/2" = 1'-0" S101

0 1 2 4
SCALE: 1/2" = 1'-0"

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TODD R. HEACOCK
PA PROFESSIONAL ENGINEER LIC. NO. PE039598R
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL TODD R. HEACOCK ENGINEER
Date 12/17/2020

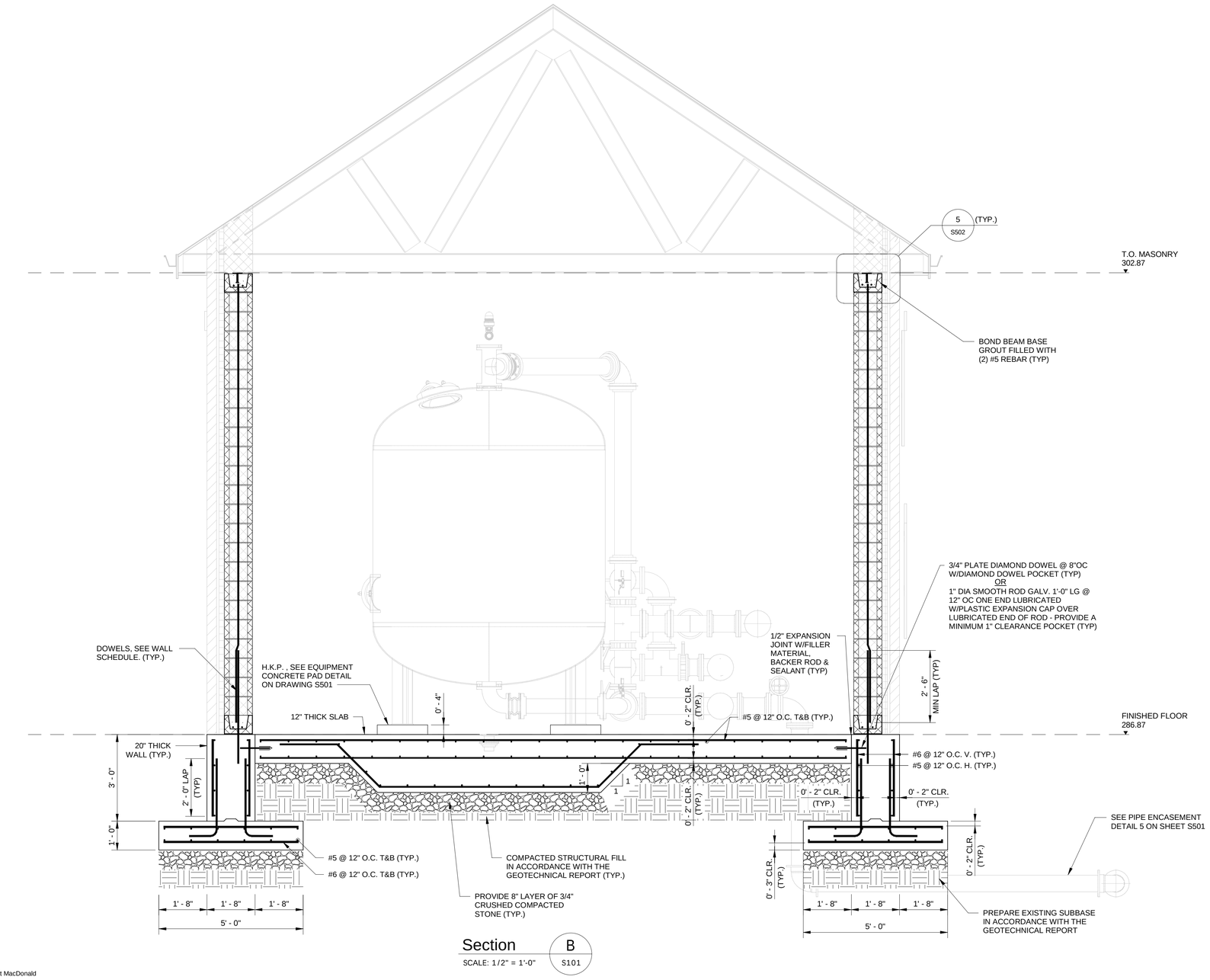
Designed	J. EL-KHOURI		Eng check		
Drawn	J. EL-KHOURI		Coordination		
Dwg check	H. DILEK		Approved		
Scale	1/2"=1'-0"	Status	PERMIT	Rev	Security STD
Project Number	507402365	B/O	24	Total	56
Drawing Number	S301				

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
SECTION - SHEET 1 OF 3

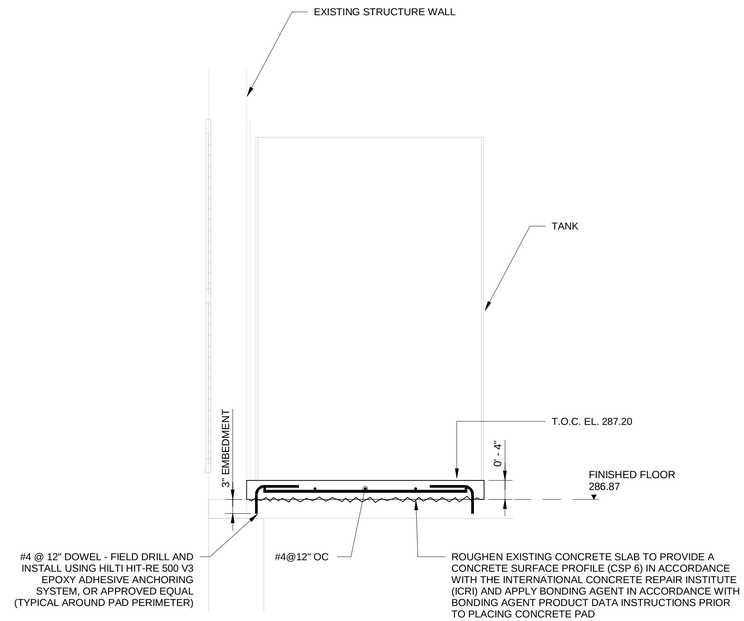
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NOTES:

1. FOR GENERAL AND STRUCTURAL NOTES SEE DRAWINGS S001 AND S002.
2. THE CONTRACTOR SHALL REFER TO THE PROCESS, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.



Section B
SCALE: 1/2" = 1'-0"
S101



Section E
SCALE: 3/4" = 1'-0"
S102

0 1 2 3
SCALE: 3/4" = 1'-0"

0 1 2 4
SCALE: 1/2" = 1'-0"

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TODD R. HEACOCK
PA PROFESSIONAL ENGINEER LIC. NO. PE039598R
COMMONWEALTH OF PENNSYLVANIA — Registered Professional — TODD R. HEACOCK — PROFESSIONAL ENGINEER
Date 12/17/2020

Designed	J. EL-KHOURI		Eng check		
Drawn	J. EL-KHOURI		Coordination		
Dwg check	H. DILEK		Approved		
Scale	As Shown	Status	PERMIT	Rev	Security STD
Project Number	507402365	B/O	25	Total	56
Drawing Number	S302				

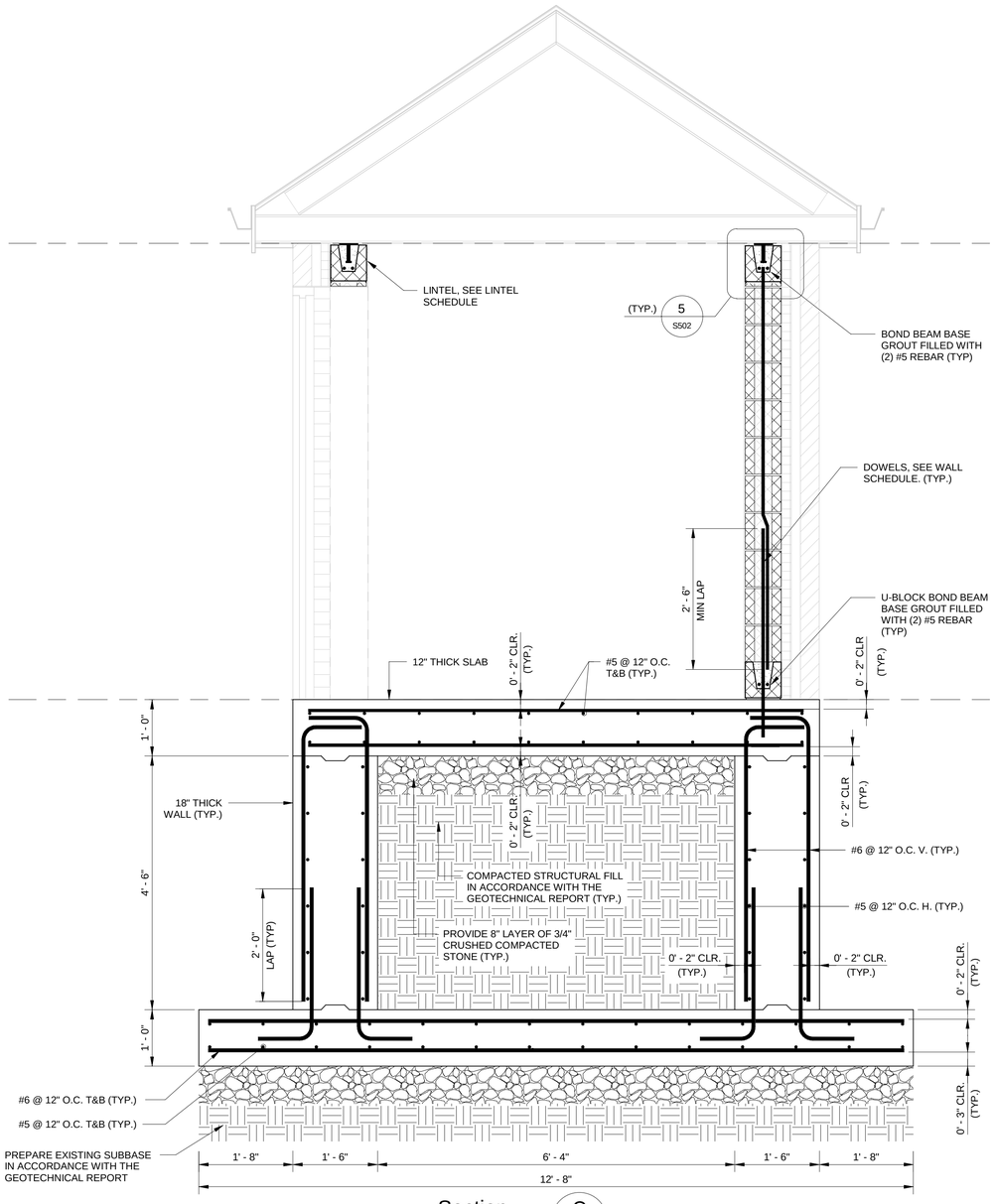
Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
SECTIONS - SHEET 2 OF 3

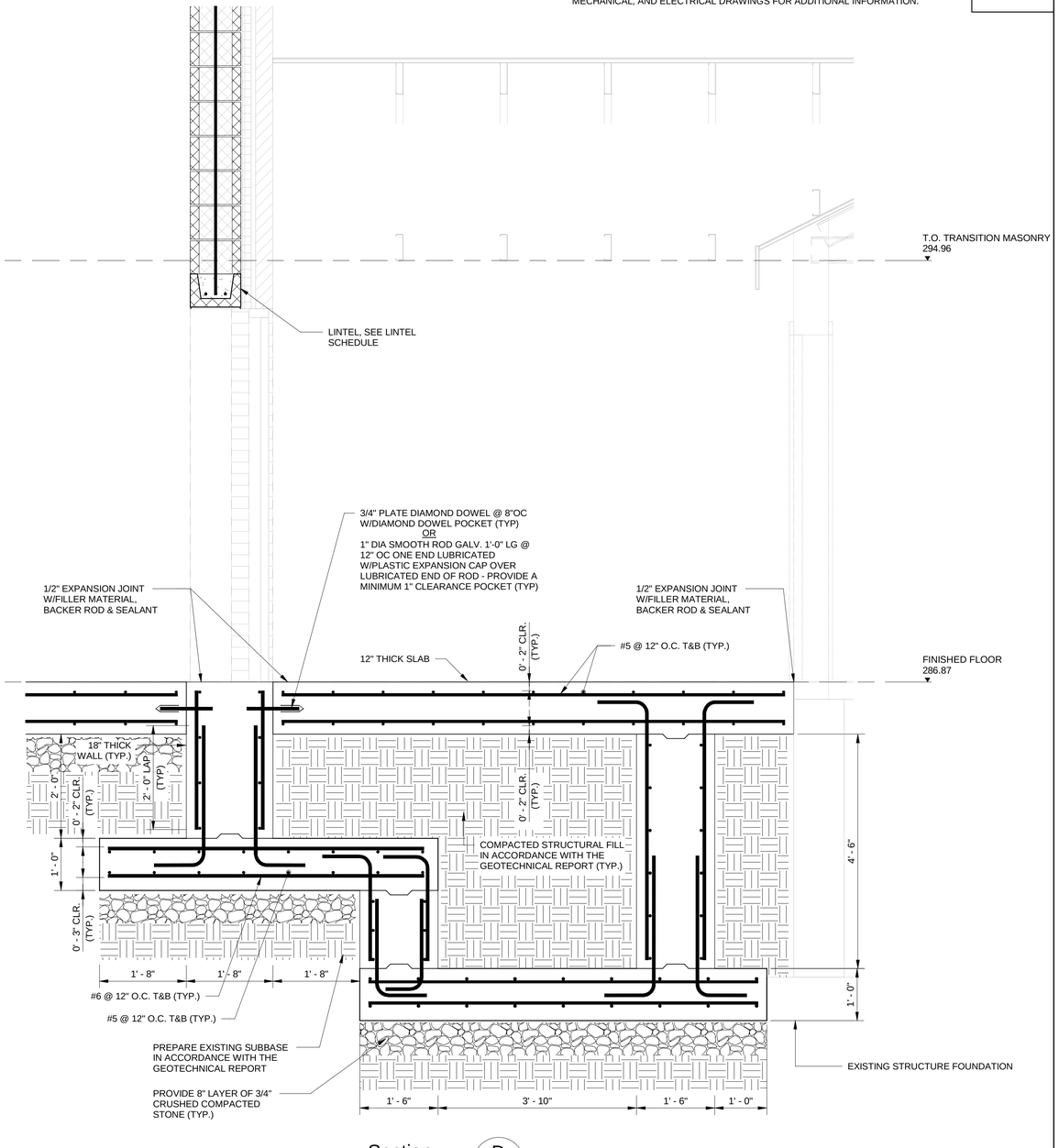
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NOTES:

1. FOR GENERAL AND STRUCTURAL NOTES SEE DRAWINGS S001 AND S002.
2. THE CONTRACTOR SHALL REFER TO THE PROCESS, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.



Section C
SCALE: 3/4" = 1'-0" S101



Section D
SCALE: 3/4" = 1'-0" S101

0 1 2 3
SCALE: 3/4" = 1'-0"

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Dwg check	H. DILEK		Approved		
Scale	3/4"=1'-0"	Status	PERMIT	Rev	Security STD

Project Number	B/O	Total	Drawing Number
507402365	26	56	S303

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
SECTIONS - SHEET 3 OF 3

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TENSION LAP SPLICE & DEVELOPMENT (ℓd) BAR LENGTHS - WALLS & SLABS											
BAR SIZE		CONCRETE COVER TO BAR									
INCH POUND	SOFT METRIC	0.75 IN.		1.00 IN.		1.50 IN.		2.0 IN.		3.0 IN.	
		TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	#10	16	16	16	16	16	16	16	16	16	16
#4	#13	24	19	20	16	20	16	20	16	20	16
#5	#16	36	28	29	22	24	19	24	19	24	19
#6	#19	48	37	40	31	29	22	29	22	29	22
#7	#22	78	60	64	50	48	37	42	33	33	23
#8	#25	96	74	80	62	60	47	48	37	42	29
#9	#29	117	90	98	76	74	57	60	46	42	32
#10	#32	140	108	119	92	91	79	74	57	47	36
#11	#36	166	127	141	108	109	84	89	68	51	40

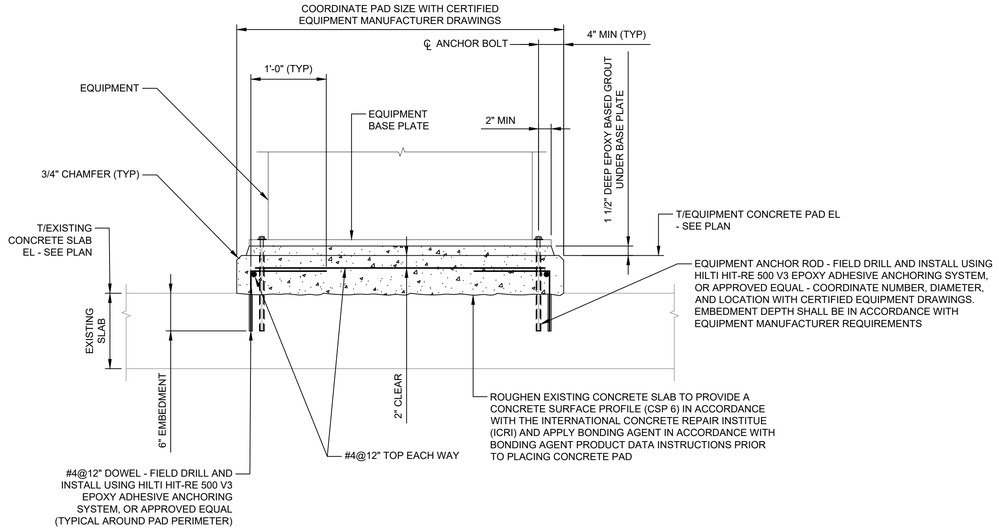
COMPRESSION LAP SPLICE & DOWEL EMBEDMENT			
BAR SIZE		DOWEL EMBEDMENT	COMPRESSION LAP
INCH POUND	SOFT METRIC		
#3	#10	8	12
#4	#13	10	15
#5	#16	12	19
#6	#19	15	23
#7	#22	17	27
#8	#25	19	30
#9	#29	22	34
#10	#32	24	38
#11	#36	27	42

NOTES:
1. CONCRETE TO BE NORMAL WEIGHT CONCRETE WITH A 28 DAY ULTIMATE COMPRESSIVE STRENGTH f'c = 4,500 PSI.
2. REINFORCEMENT TO BE UNCOATED BARS CONFORMING TO ASTM A615, GRADE 60.
3. LENGTHS SHOWN IN TABLE HAVE BEEN CALCULATED AS PER SECTIONS 25.4.2.2 AND 25.5.2.1 OF THE ACI CODE.
4. LENGTHS SHOWN ARE TYPE "B" CLASS LAPS. WHERE LESS THAN 1/2 OF THE REINFORCING IS LAPPED AT ANY ONE LAP LOCATION.
5. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BAR.
6. LENGTHS SHOWN IN TABLE ARE BASED UPON A MINIMUM CENTER-TO-CENTER BAR SPACING OF TWICE THE CONCRETE COVER PLUS ONE BAR DIAMETER.
7. CLEAR COVER TO REINFORCEMENT TO BE NOT LESS THAN THE NOMINAL BAR DIAMETER.

NOTES:
1. CONCRETE TO HAVE A MINIMUM 28 DAY ULTIMATE COMPRESSIVE STRENGTH f'c = 4,500 PSI.
2. REINFORCEMENT TO CONFORM TO ASTM A615 - GRADE 60.

REINFORCEMENT LAP SPLICE, DEVELOPMENT & EMBEDMENT SHCEDULES 4,500 PSI
NTS — 1

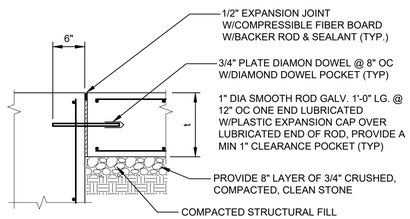
NOTES:
1. FOR GENERAL AND STRUCTURAL NOTES SEE DRAWING S001 AND S002.
2. THE CONTRACTOR SHALL REFER TO THE PROCESS, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.



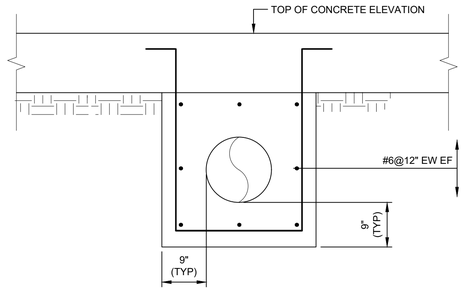
EQUIPMENT CONCRETE PAD DETAIL
NTS — 2

THE MINIMUM CLEAR COVER FOR REINFORCEMENT - BARS SHALL BE ONE BAR DIAMETER OR THE VALUES TABULATED BELOW, WHICHEVER IS THE GREATER	
SLABS (EXTERIOR)	2"
SLABS EXPOSED TO LIQUIDS	2"
GIRDERS & BEAMS (EXTERIOR)	2"
SLABS (INTERIOR)	3/4"
GIRDERS & BEAMS (TO STIRRUPS) INTERIOR	1 1/2"
TIED COLUMNS & PIERS (TO TIES)	
SURFACES EXPOSED TO EARTH & WEATHER	2"
OTHER SURFACES	1 1/2"
FOUNDATION ELEMENTS	
FORMED SURFACES	2"
SURFACES PLACED AGAINST EARTH	3"
WALLS	
SURFACES EXPOSED TO EARTH & LIQUID	2"
SURFACES EXPOSED TO WEATHER	2"
OTHER SURFACES	1"

CONCRETE COVER FOR REINFORCEMENT SCHEDULE
NTS — 3



SLAB EXPANSION JOINT (EJ) AT SLAB DETAIL
NTS — 4



NOTE: ALL PIPING AND CONDUITS BELOW STRUCTURES TO BE ENCASED, UNLESS NOTED OTHERWISE.

PIPE CONCRETE ENCASEMENT DETAIL
NTS — 5

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Client
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BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

TODD R. HEACOCK
PA PROFESSIONAL ENGINEER LIC. NO. PE039598R
COMMONWEALTH OF PENNSYLVANIA — TODD R. HEACOCK — PROFESSIONAL ENGINEER
Date 12/17/2020

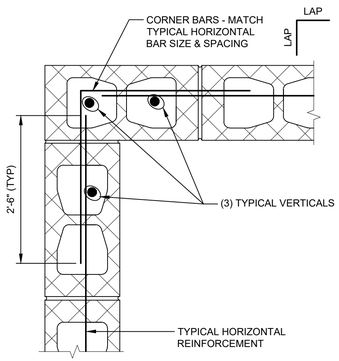
Designed	H. DILEK		Eng check		
Drawn	C. THOMPSON		Coordination		
Dwg check	H. DILEK		Approved		

Scale at ANSI D	Status	Rev	Security
NTS	PERMIT	Rev0	STD

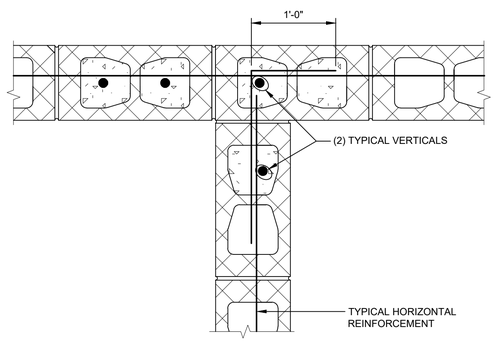
Project Number	B/O	Total	Drawing Number
507402365	27	56	S501

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
TYPICAL DETAILS (SHEET 1 OF 2)

pw:\\mott-use-pw.bentley.com:mott-use-pw-14\Documents\402365-Aqua Aidenn Lair and North Hills PFAS Design\Drawings_Models\08_S_Structural\507402365-MMD-00-S501
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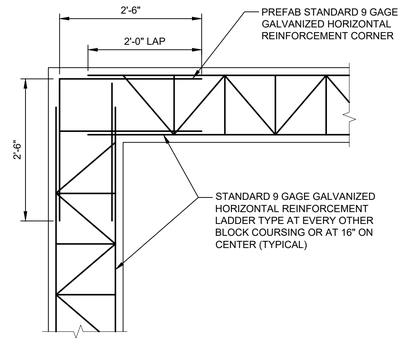


CMU EXTERIOR CORNER

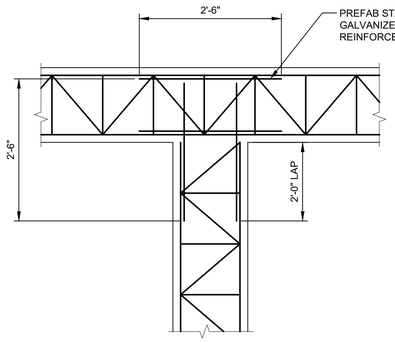


CMU INTERIOR CORNER

SINGLE MAT PLAN

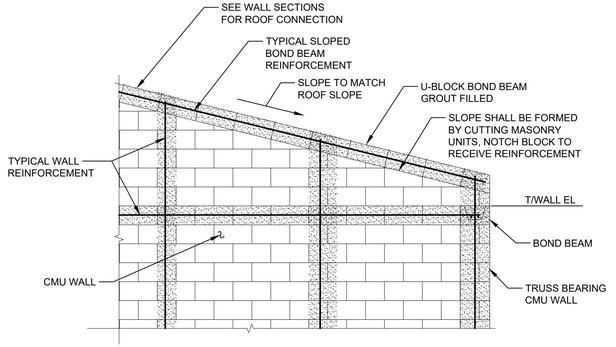


CMU EXTERIOR CORNER

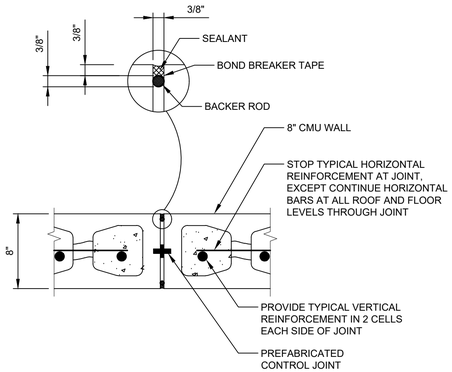


CMU INTERIOR CORNER

MASONRY REINFORCEMENT DETAILS 1
NTS



SLOPED CMU WALL REINFORCEMENT DETAIL 2
NTS

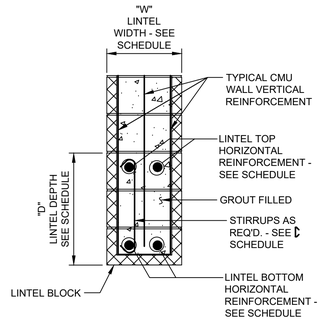


NOTE
12" CMU WALL WITH TWO (2) LAYERS OF REINFORCEMENT IS SIMILAR.

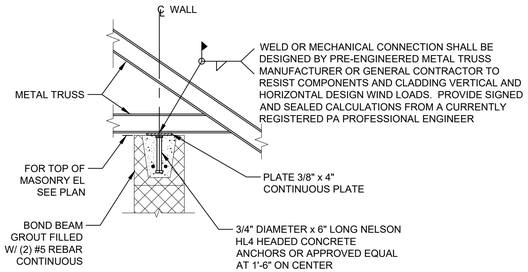
CMU CONTROL JOINT DETAIL 3
NTS

NOTES:

1. FOR GENERAL AND STRUCTURAL NOTES SEE DRAWING S001 AND S002.
2. THE CONTRACTOR SHALL REFER TO THE PROCESS, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.



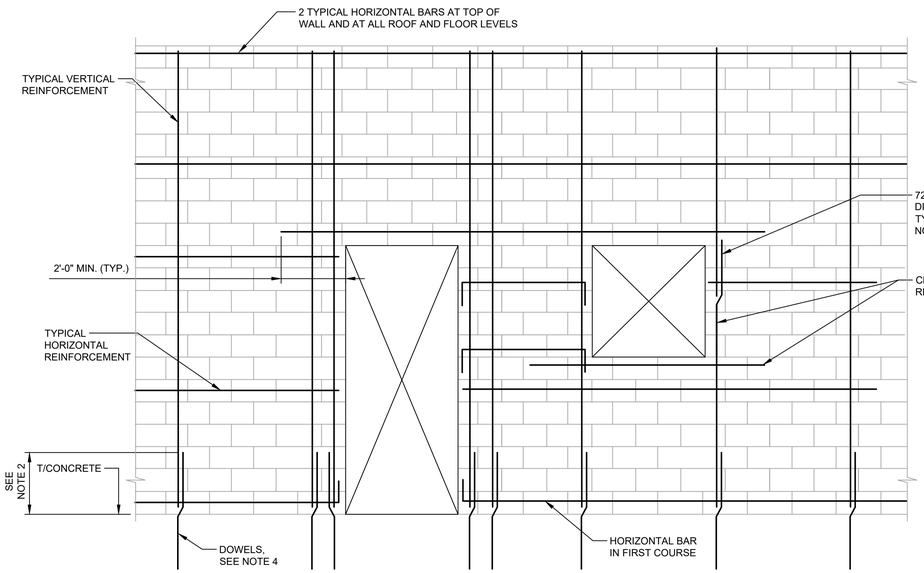
CMU LINTEL SECTION DETAIL - C STIRRUP 4
NTS



TRUSS TO MASONRY WALL CONNECTION

OUTRIGGER TO BOND BEAM MASONRY WALL CONNECTION

ROOF TO CMU WALL CONNECTION DETAILS 5
NTS



ELEVATION

NOTES:

1. FOR TYPICAL WALL REINFORCEMENT, SEE WALL SECTIONS AND DETAILS FOR ADDITIONAL INFORMATION. FOR MINIMUM REINFORCEMENT REQUIREMENTS, SEE GENERAL STRUCTURAL NOTES.
2. LAP VERTICAL REINFORCEMENT WITH WALL DOWELS 48 BAR DIAMETERS (2'-0" MINIMUM). LAP ALL OTHER VERTICAL BARS 72 BAR DIAMETERS.
3. STAGGER SPLICES IN ADJACENT HORIZONTAL BARS IN THE SAME COURSE BY 2'-0".
4. PROVIDE DOWEL BARS IN FOUNDATION TO MATCH ALL VERTICAL REINFORCEMENT.
5. SEE TYPICAL DETAILS FOR ADDITIONAL REINFORCEMENT AT WALL INTERSECTIONS AND CORNERS.
6. GROUT EACH SIDE OF OPENING AS NOTED IN TYPICAL OPENING REINFORCEMENT DETAILS.

CMU WALL REINFORCEMENT DETAIL 6
NTS

CMU LINTEL SCHEDULE

MARK	DIMENSION W x D	OPENING SIZE	MINIMUM END BEARING	REINFORCEMENT		
				BOTTOM	TOP	STIRRUPS
L1	8 x 16	< 4'-0"	8"	2 #5	-	-
L2	12 x 16	< 4'-0"	16"	2 #5	-	-
L3	12 x 24	< 12'-0"	16"	2 #6	2 #6	#3 @ 12"

STRUCTURAL WALL SCHEDULE

MARK	MATERIAL	REINFORCEMENT	REMARKS
W-1	8" CMU	# 5 @ 16" O.C.	TRANSITION BLDG EXTERIOR WALLS
W-2	12" CMU	# 6 @ 24" O.C.	ION EXCHANGE BLD EXTERIOR WALLS

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL TODD R. HEACOCK ENGINEER
Date 12/17/2020

Project Number	B/O	Total
507402365	28	56

Designed	H. DILEK		Eng check		
Drawn	C. THOMPSON		Coordination		
Dwg check	H. DILEK		Approved		

Scale at ANSI D	Status	Rev	Security
NTS	PERMIT	Rev0	STD

Drawing Number
S502

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
STRUCTURAL
TYPICAL DETAILS (SHEET 2 OF 2)

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GENERAL NOTES

1. ALL WORK, MATERIALS AND WORKMANSHIP SHALL BE PERFORMED IN STRICT ACCORDANCE WITH, AND SHALL CONFORM WITH, ALL FEDERAL, STATE AND LOCAL CODES, ORDINANCES, RULES AND REGULATIONS, TO THE PUBLISHED SPECIFICATIONS AND RECOMMENDED PRACTICES OF THE MANUFACTURERS AND THE APPROPRIATE APPLICABLE STANDARDS. WHERE SUCH CODES, RULES AND REGULATIONS ARE AT VARIANCE WITH THE PLANS AND NOTES, SAID CODES, RULES AND REGULATIONS, ETC. SHALL TAKE PRECEDENCE OVER THE PLANS AND NOTES.
2. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE BUILDING CODES AND REGULATIONS AND PAYING FOR OBTAINING ALL NECESSARY AND REQUIRED INSPECTIONS, APPROVALS AND PERMITS, NECESSARY TO PERFORM ALL WORK AND SERVICES HEREIN NOTED OR INDICATED ON THE DRAWINGS.
3. DETAILS ON THE DRAWINGS ARE SHOWN AT SPECIFIC LOCATIONS AND ARE INTENDED TO SHOW GENERAL REQUIREMENTS THROUGHOUT. DETAILS NOTED "TYP" IMPLY ALL CONDITIONS TREATED SIMILARLY.
4. MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED BUT NECESSARY FOR PROPER CONSTRUCTION OF ANY PART OF THE WORK SHALL BE INCLUDED AS IF THEY WERE INDICATED ON THE DRAWINGS.

ABBREVIATIONS

A.F.F	ABOVE FINISHED FLOOR	FIN.FL.LVL.	FINISHED FLOOR LEVEL	STL	STEEL
ALUM	ALUMINUM	FRP	FIBER REINFORCED PLASTIC	SQ. FT.	SQUARE FEET
APPROX	APPROXIMATELY	GA	GAUGE	T.O.	TOP OF
C.J.	CONTROL JOINT	GAL	GALLONS	TYP	TYPICAL
CMU	CONCRETE MASONRY UNIT	GALV	GALVANIZED	THK	THICK
CONC	CONCRETE	HM	HOLLOW METAL	UH	UNIT HEATER
CONT	CONTINUOUS	HORIZ	HORIZONTAL	UL	UNDERWRITER'S LABORATORY
D	DEEP	HR	HOUR	V	VENT
DIA	DIAMETER	HW	HARDWARE	W	WIDE
DIM	DIMENSION	L	LEADER	W/	WITH
D.S.	DOWNSPOUT	LBS	POUNDS	W/O	WITHOUT
DWGS	DRAWINGS	MAX	MAXIMUM	Ø	DIAMTER
EA	EACH	MECH	MECHANICAL	@	AT
EF	EXHAUST FAN	MIN	MINIMUM	&	AND
ELEV	ELEVATION	M.O.	MASONRY OPENING	℄	CENTERLINE
ETC.	ETCETERA	NO	NUMBER	#	NUMBER
EUH	ELECTRIC UNIT HEATER	O.C.	ON CENTER		
EQ	EQUAL	PEMB	PRE-ENGINEERED METAL BUILDING		
F	FLUE	SS	STAINLESS STEEL		
FCU	FAN COIL UNIT				

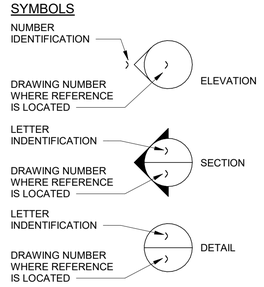
LIFE SAFETY LEGEND

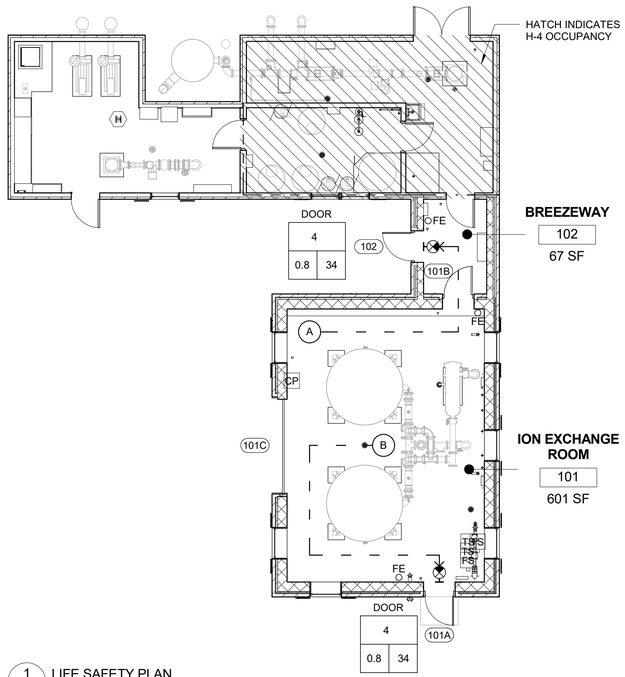
- 60'-0" — — — EGRESS PATH WITH TOTAL DISTANCE NOTED
- (X) TRAVEL DISTANCE PATH
- FE ○ FIRE EXTINGUISHER UL RATED 2A:10B:C FIRE EXTINQUISHERS MOUNTED ON WALL OR STRUCTURE PER NFPA 10
- EMERGENCY EXIT SIGN- SHADED QUADRANT INDICATES LIGHTED FACE (WALL MOUNTED)

EGRESS DOOR OPENING



SYMBOLS





1 / A101 LIFE SAFETY PLAN
1/8" = 1'-0"

TRAVEL DISTANCES		
POINT	TO OUTSIDE (DOOR NO.)	MAX. ALLOWED DISTANCE per NJ IBC TABLE 1016.1
A	30'	200'
B	42'	200'

Aqua PA - North Hills Site - Building Code Analysis

Applicable Codes:

2015 International Building Code
2015 International Existing Building Code
ASHRAE Standard 90.1 - 2013 (Commercial)
2015 Internation Mechanical Code
2015 International Fuel Gas Code
2015 International Electric Code
2015 International Plumbing Code
2015 International Fire Code

Scope of Work:

Minor renovations to the existing building to provide new interior doors, exterior windows, mechanicaal systems, electrical upgrades, sprinkler system in a portion of the building, and to generally bring the building up to code. Additionally, the existing chemical storage amounts will be increased. An addition will be placed toward the street to house new tanks for processing.

No of Stories above grade plane:
Existing - 1 story (no change)
Addition - 1 story

Height of Structure above Grade Plane:
Existing - 12'-6" +/-
Addition - 20'-0"?

Use and Occupancy Classification (IBC Chapter 3):

Existing:
It is not readily apparent what the code classification at time of building erection. In current standards this would most likely be a mixed use facility.

Proposed:
Mixed-Use/Separated - All spaces to be considered Moderate Hazard Factory Industrial Group (F-1), except for original building. Checmical Storage Area and adjacent mechanical rooms to be considered High Hazard Group (H-4).

Proposed Floor Area

Moderate Hazard Factory Industrial Group F-1	1210 sf
High Hazard Group H-4	475 sf
Total	1685 sf

Special Detailed Requirements Based on Use and Occupancy (IBC Chapter 4)

414.0 Hazardous Materials does not apply to this project

Per 415.3, "Group H occupancies shall be provided with an automatic fire detection system in accordance with Section 907.2"

Per 415.4 "Group H occupancies shall be provided with an automatic sprinkler system in accordance with Section 903.2.5"

Table 307.1(1) and 307 (2)

Maximum Allowable Quantity per Control Area of Hazardous Materials Posing a Physical Hazard					
Chemical	Material	Storage (Dry pounds)		Use-Closed System (Liquid Gallons)	
		Allowed	Actual	Allowed	Actual
Ammonium Sulfate	Corrosive	1000	500	500	240
Bimetallic Glassy Phosphate (BMP)	Corrosive	1000	500	500	120
12.5% Sodium Hypochlorite	Corrosive	1000	N/A	500	405
	Totals	**1000**	**1000**	500	765

* The Aggregate quantity in use and storage exceeds the allowable, and therefore the chemical storage room shall be H-4 Occupancy Use Group

* The allowable quantities can be increased 100% in buildings equipped throughout with an approved automatic sprinkler system.

General Building Height and Area Limitations (IBC Chapter 5)

Height Limitations - Feet (Table 504.3)

Occupancy Classification	Type II/A	Type II/B	Type V/A	Type V/B
F-1, Non-Sprinklered	65	55	50	40
F-1, Sprinklered	85	75	70	60
H-4, Non-Sprinklered	65	55	50	40
H-4, Sprinklered	85	75	70	60

***Height of building (20'-0") falls within allowable height limits**

Height Limitations - Stories (Table 504.4)

Occupancy Classification	Type II/A	Type II/B	Type V/A	Type V/B
F-1, Non-Sprinklered	4	2	2	1
F-1, Sprinklered	5	3	3	2
H-4, Non-Sprinklered	5	3	3	2
H-4, Sprinklered	6	4	4	3

***Height of building (1 story) falls within allowable height limits**

Allowable Area - Square Feet (table 506.2)

Occupancy Classification	Type II/A	Type II/B	Type V/A	Type V/B
F-1, Non-Sprinklered	25,000	45,000	14,000	8,500
F-1, Sprinklered	100,000	62,000	56,000	34,000
H-4, Non-Sprinklered	37,500	17,500	18,000	6,500
H-4, Sprinklered	150,000	70,000	72,000	26,000

***Area of building (1,685sf) falls within allowable area limits**

Required Separation of Occupancies (IBC Table 508.4)

Separation between F-1 and H-4, Non-Sprinklered — 2 hr
Separation between F-1 and H-4, Sprinklered — 1 hr
*Note - Sprinklered applies to buildings equipped throughout with an approved automatic sprinkler system.

Type of Construction (IBC Chapter 6)

Fire Resitance Rating Requirements for Building Elements in hours (Table 601)

Building Element	Type II/A	Type II/B	Type V/A	Type V/B
Primary Structural Frame	1	0	1	0
Exterior Bearing Wall	1	0	1	0
Non-Bearing Wall and Partitions - Interior	0	0	0	0

***Area of building (1,685sf) falls within allowable area limits**

Fire Resitance Rating Requirements for Exterior Walls Based on Fire Separation Distance in hours (Table 602)

Fire Separation Distance	H Occupancy	F-1 Occupancy
<5'	3	2
5' to <10'	2	1
10' to 30' - II/B and V/B	1	0

***Connector to be 10' long between addition and H-4 occupancy**

Fire and Smoke Protection Features (IBC Chapter 7)

Table 705.5 Exterior walls shall be fire-resistance-rated in accordance with Tables 601 and 602 and this section. ***The required fire-resistance rating of exterior walls with a fire separation distance of greater than 10 feet (3048 mm) shall be rated for exposure to fire from the inside.*** The required fire-resistance rating of exterior walls with a fire separation distance of less than or equal to 10 feet (3048 mm) shall be rated for exposure to fire from both sides Table 705.8 determines that where there is a fire separation distance of 10 to less than 15', in a non-sprinklered building, the maximum area allowable for an unprotected opening is 15% of the wall. Please note if reduced to 5' to less than 10', that goes to 10%.

Exterior wall will be 48,960 sq. inches
10% 4896 sq. inches allowable
15% 7344 sq. inches allowable

Man door	2880	0 replace with rated door
Window 1	2000	2000
Window 2	3600	4000 approximate increased size
Louver 1	576	576 may stay, may be deleted
Louver 2	576	576 may stay, may be deleted
	9632	7152

Interior Finishes (IBC Chapter 8)

Fire Protection Systems (IBC Chapter 9)

903.2.5.1 States that "An automatic sprinkler system shall be installed in Group H occupancies."

*** An Automatic Sprinkler system is required for the H-4 Occupancy**

Means of Egress (IBC Chapter 10)

Occupant Load

Use	GSF/occ.	sq ft	# of occupants
F-1	100	1515	16
H-4	200	170	1
		Total # of Occupants	17

1028.4.2 States "Where an egress court serving a building or portion thereof is less than 10 feet (3048 mm) in width, the egress court walls shall have not less than 1-hour fire-resistance-rated construction for a distance of 10 feet (3048 mm) above the floor of the egress court. Openings within such walls shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour.

Note: There is an exception that this rating is not required due to the occupant load of this building being less than 10 (17 occupants through three doors is 5.66 occupants per door).

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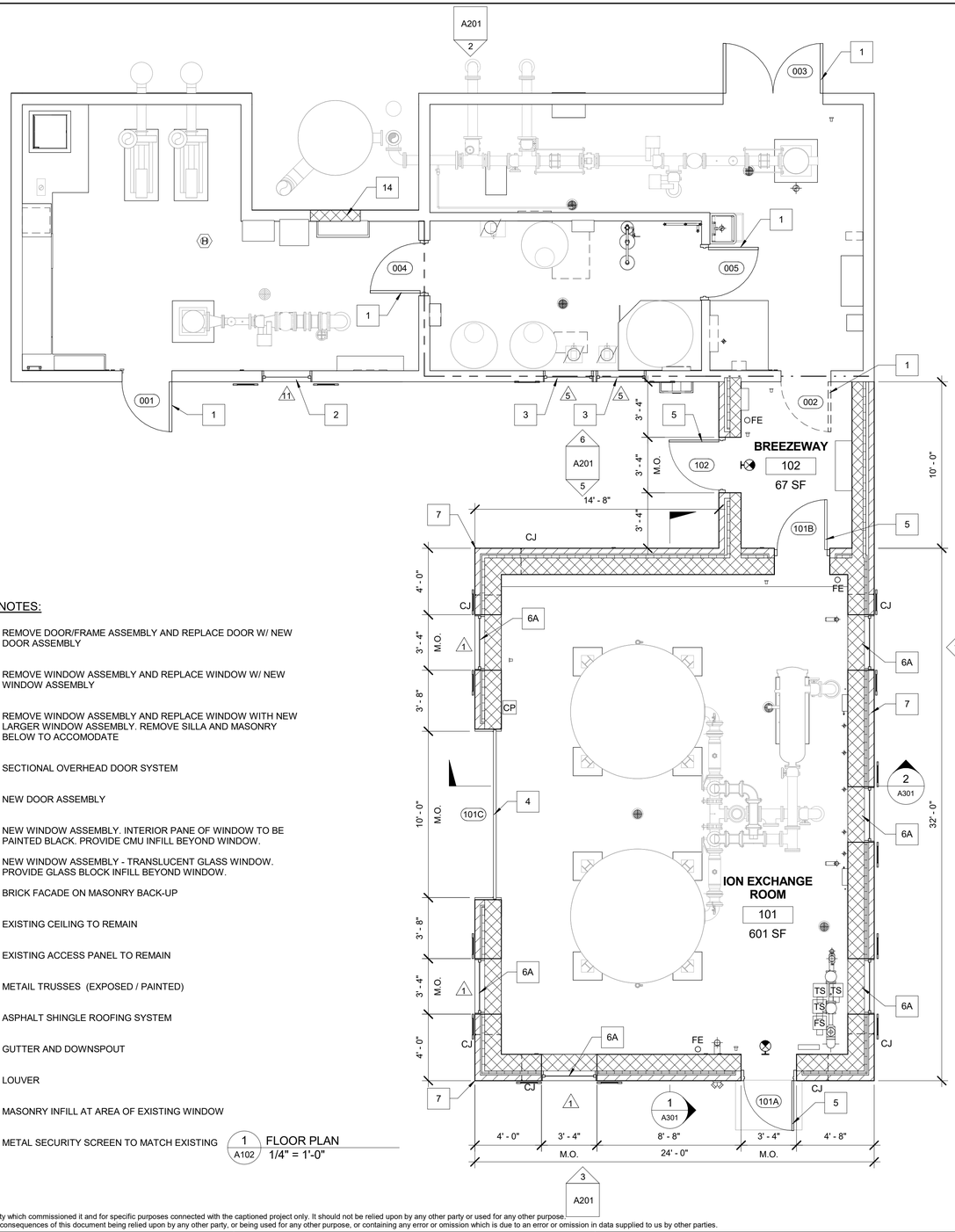
ANTHONY FRANCIS PEDRO
Professional Engineer Lic. NO. PE084832
COMMONWEALTH OF PENNSYLVANIA
12/17/2020
DATE

Designed	M.SHANNON		Eng check		
Drawn	J.DEGIROLAMO		Coordination		
Dwg check	R.FRITZ		Approved		
Scale	1/8" = 1'-0"	Status	PERMIT	Rev	Security STD

Project Number	B/O	Total	Drawing Number
507402365	29	56	A101

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
LIFE SAFETY PLAN

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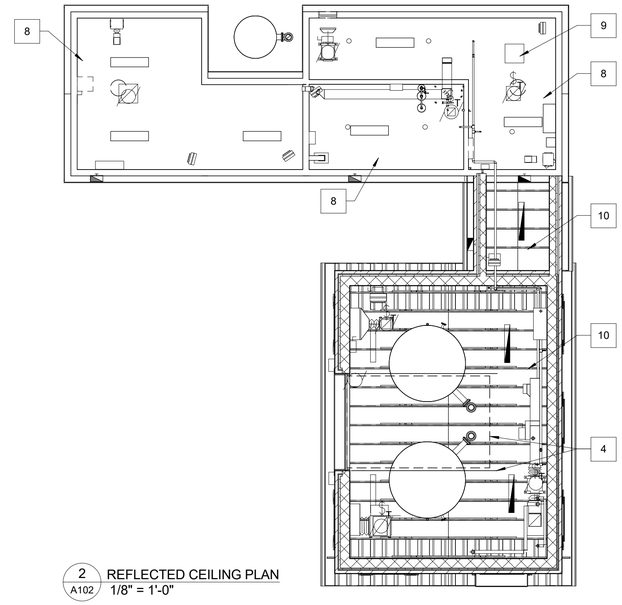


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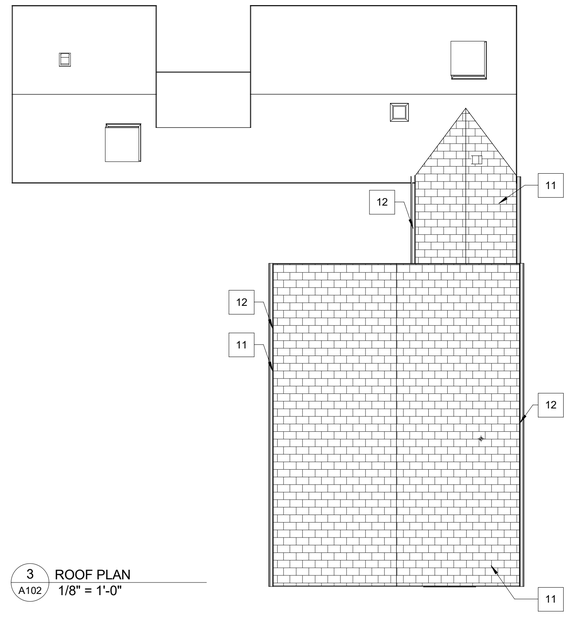
KEYNOTES:

1	REMOVE DOOR/FRAME ASSEMBLY AND REPLACE DOOR W/ NEW DOOR ASSEMBLY
2	REMOVE WINDOW ASSEMBLY AND REPLACE WINDOW W/ NEW WINDOW ASSEMBLY
3	REMOVE WINDOW ASSEMBLY AND REPLACE WINDOW WITH NEW LARGER WINDOW ASSEMBLY. REMOVE SILLA AND MASONRY BELOW TO ACCOMODATE
4	SECTIONAL OVERHEAD DOOR SYSTEM
5	NEW DOOR ASSEMBLY
6A	NEW WINDOW ASSEMBLY. INTERIOR PANE OF WINDOW TO BE PAINTED BLACK. PROVIDE CMU INFILL BEYOND WINDOW.
6B	NEW WINDOW ASSEMBLY - TRANSLUCENT GLASS WINDOW. PROVIDE GLASS BLOCK INFILL BEYOND WINDOW.
7	BRICK FACADE ON MASONRY BACK-UP
8	EXISTING CEILING TO REMAIN
9	EXISTING ACCESS PANEL TO REMAIN
10	METAIL TRUSSES (EXPOSED / PAINTED)
11	ASPHALT SHINGLE ROOFING SYSTEM
12	GUTTER AND DOWNSPOUT
13	LOUVER
14	MASONRY INFILL AT AREA OF EXISTING WINDOW
15	METAL SECURITY SCREEN TO MATCH EXISTING

1 A102 FLOOR PLAN
1/4" = 1'-0"



2 A102 REFLECTED CEILING PLAN
1/8" = 1'-0"



3 A102 ROOF PLAN
1/8" = 1'-0"

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Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO
Professional Engineer Lic. NO. PE084832
COMMONWEALTH OF PENNSYLVANIA — No. 084832
12/17/2020
DATE

Designed	M.SHANNON		Eng check		
Drawn	J.DEGIROLAMO		Coordination		
Dwg check	R.FRITZ		Approved		

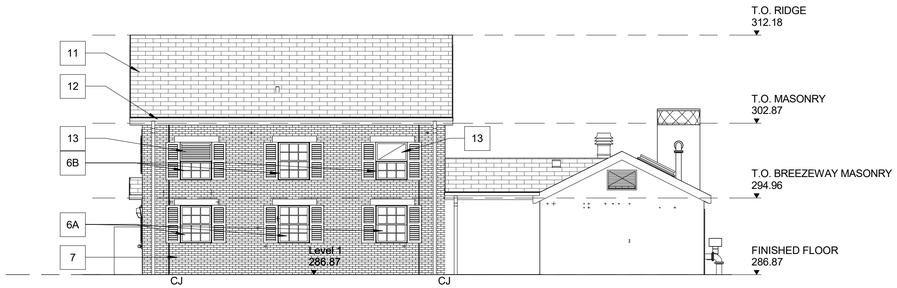
Project Number	B/O	Total
507402365	30	56

Scale	Status	Rev	Security
VARIES	PERMIT		STD

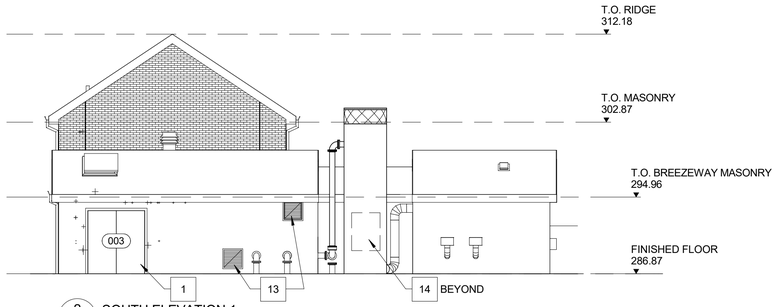
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Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
FLOOR PLAN, REFLECTED CEILING PLAN, AND ROOF PLAN

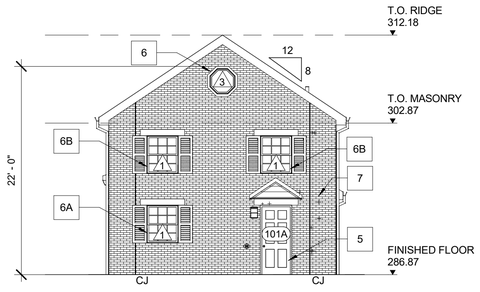
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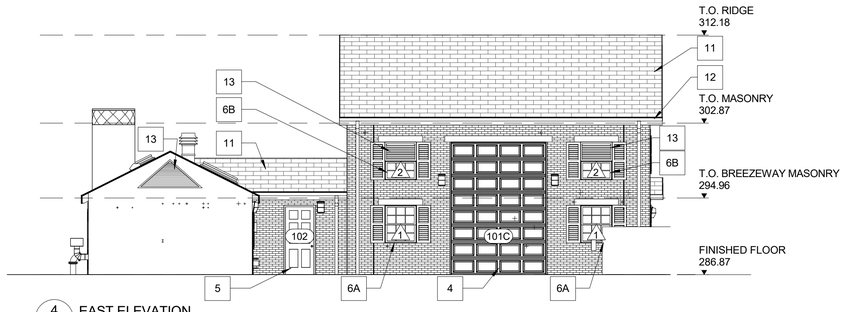
1 A201 WEST ELEVATION
1/8" = 1'-0"



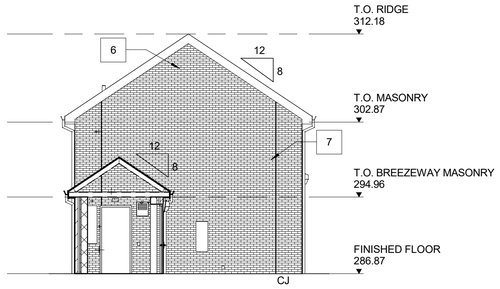
2 A201 SOUTH ELEVATION 1
1/8" = 1'-0"



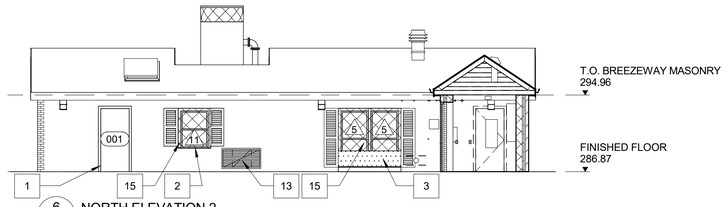
3 A201 NORTH ELEVATION 1
1/8" = 1'-0"



4 A201 EAST ELEVATION
1/8" = 1'-0"



5 A201 SOUTH ELEVATION-2
1/8" = 1'-0"



6 A201 NORTH ELEVATION 2
1/8" = 1'-0"

KEYNOTES:

1	REMOVE DOOR/FRAME ASSEMBLY AND REPLACE DOOR W/ NEW DOOR ASSEMBLY
2	REMOVE WINDOW ASSEMBLY AND REPLACE WINDOW W/ NEW WINDOW ASSEMBLY
3	REMOVE WINDOW ASSEMBLY AND REPLACE WINDOW WITH NEW LARGER WINDOW ASSEMBLY. REMOVE SILLA AND MASONRY BELOW TO ACCOMODATE
4	SECTIONAL OVERHEAD DOOR SYSTEM
5	NEW DOOR ASSEMBLY
6A	NEW WINDOW ASSEMBLY. INTERIOR PANE OF WINDOW TO BE PAINTED BLACK. PROVIDE CMU INFILL BEYOND WINDOW.
6B	NEW WINDOW ASSEMBLY - TRANSLUCENT GLASS WINDOW. PROVIDE GLASS BLOCK INFILL BEYOND WINDOW.
7	BRICK FACADE ON MASONRY BACK-UP
8	EXISTING CEILING TO REMAIN
9	EXISTING ACCESS PANEL TO REMAIN
10	METAIL TRUSSES (EXPOSED / PAINTED)
11	ASPHALT SHINGLE ROOFING SYSTEM
12	GUTTER AND DOWNSPOUT
13	LOUVER
14	MASONRY INFILL AT AREA OF EXISTING WINDOW
15	METAL SECURITY SCREEN TO MATCH EXISTING

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0 4 8 16
SCALE: 1/8" = 1'-0"

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No. 084832
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Project Number	B/O	Total
507402365	31	56

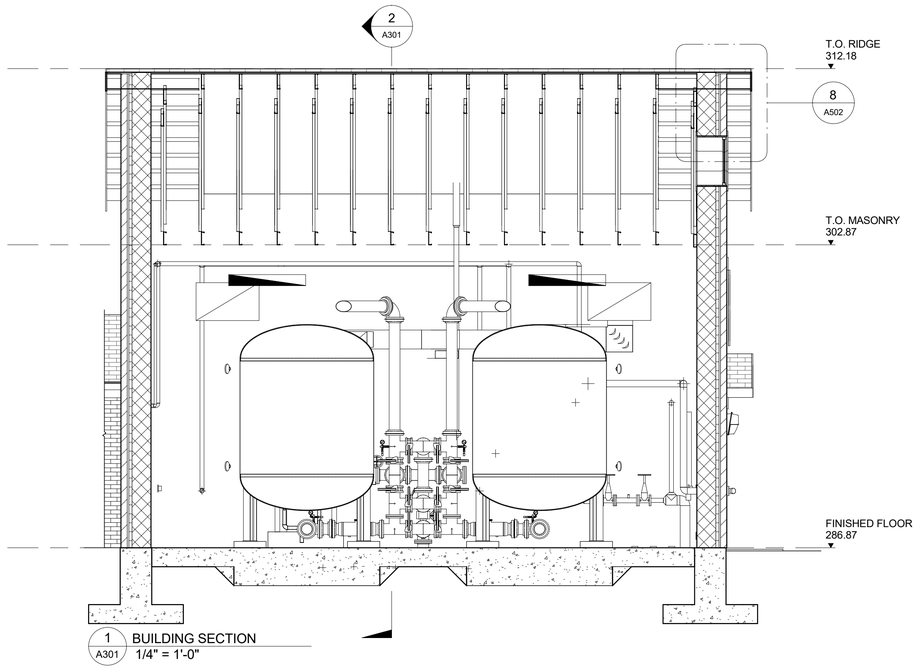
Scale	Status	Rev	Security
1/8" = 1'-0"	PERMIT		STD

Drawing Number: A201

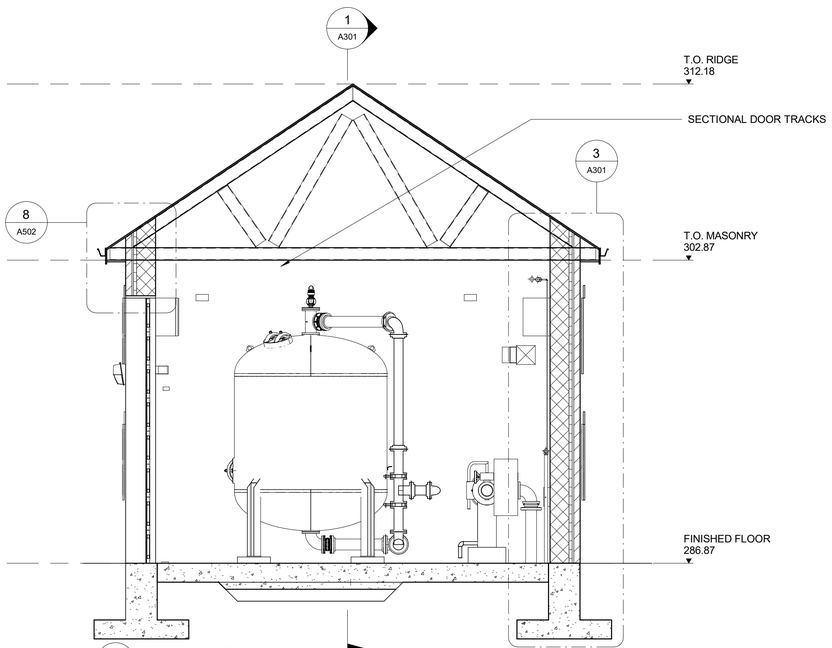
Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
EXTERIOR ELEVATIONS

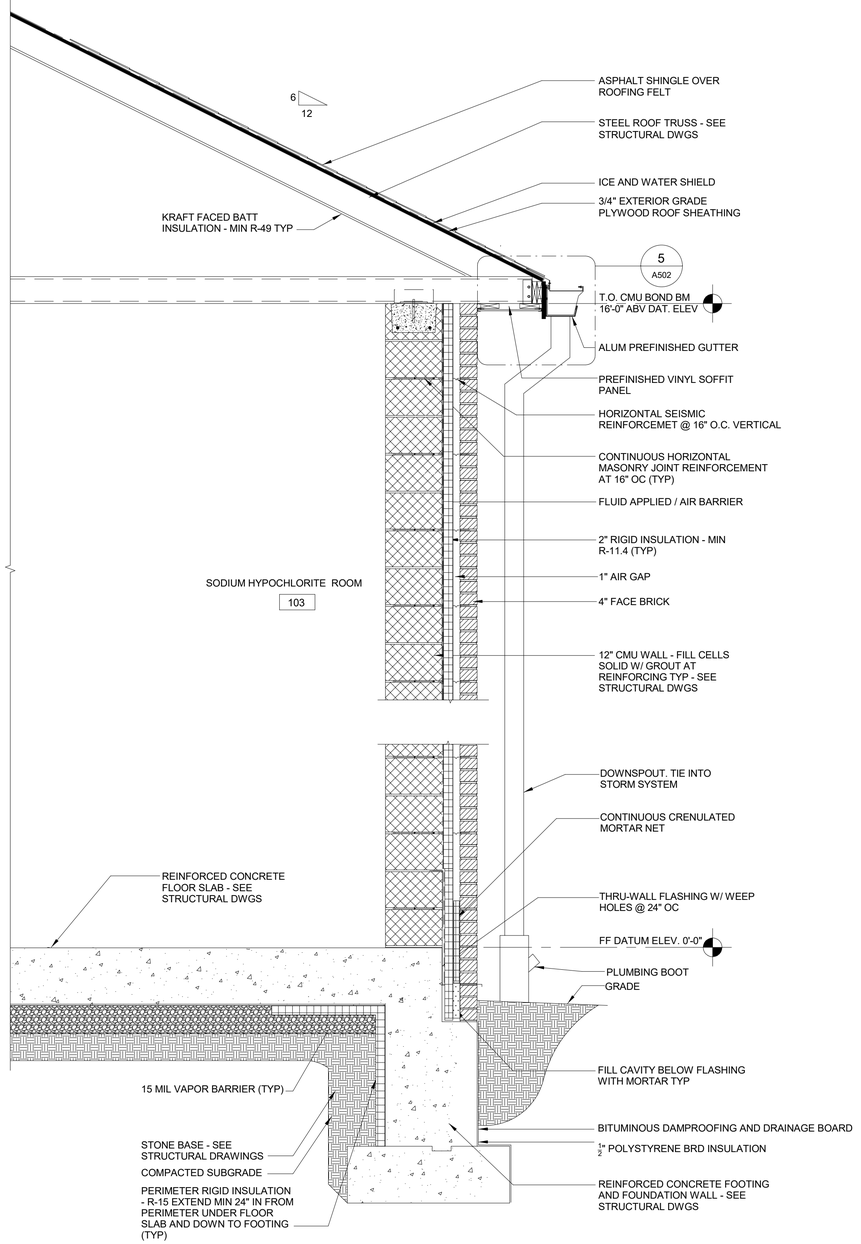
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1 A301 BUILDING SECTION
1/4" = 1'-0"



2 A301 BUILDING SECTION
1/4" = 1'-0"



3 A301 WALL SECTION
3/4" = 1'-0"

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Professional Engineer Lic. NO. PE084832
COMMONWEALTH OF PENNSYLVANIA — Registered Professional Engineer — No. 084832
12/17/2020
DATE

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Drawn	J.DEGIROLAMO		Coordination		
Dwg check	R.FRITZ		Approved		

Scale	Status	Rev	Security
VARIES	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	32	56	A301

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
BUILDING AND WALL SECTIONS

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DOOR AND FRAME SCHEDULE

DOOR NO.	DOOR							FRAME							HARDWARE SET	COMMENTS
	WIDTH	HEIGHT	THK	MATERIAL	TYPE	FINISH	FIRE RATING	WIDTH	HEIGHT	MATERIAL	TYPE	FINISH	FIRE RATING	JAMB/HEAD		
001	3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	6'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	
002	3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	3'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	1
003	(2)3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	6'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	
004	(2)3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	6'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	
005	3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	3'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	
101A	3'-0"	7'-2"	1-3/4"	HM	A	PAINT	-	3'-4"	7'-4"	HM	1	PAINT	-	J1/H1	HW - X	
101B	3'-0"	7'-2"	1-3/4"	HM	A	PAINT	-	3'-4"	7'-4"	HM	1	PAINT	-	J1/H1	HW - X	2
101C	10'-0"	14'-0"	-	STL	B	-	-	-	-	-	-	PAINT	-	J2/H2	HW - X	
102	3'-0"	7'-2"	1-3/4"	HM	A	PAINT	-	3'-4"	7'-4"	HM	1	PAINT	-	J1/H1	HW - X	

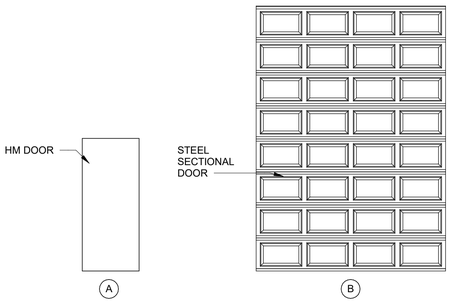
1 - PROVIDE 6"x6" LOUVER WITH FUSABLE LINK
2 - PROVIDE 1" UNDERCUT AT BOTTOM OF DOOR

ROOM FINISH SCHEDULE

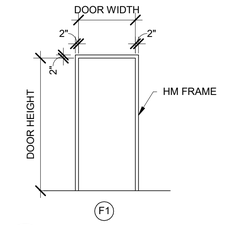
ROOM NAME	FLOOR FINISH	BASE	WALL FINISH	CEILING		COMMENTS
				MATERIAL	HEIGHT	
ION EXCHANGE ROOM	PAINTED	-	PAINT	PAINT	VARIES	
BREEZEWAY	SEALED	-	PAINT	PAINT	VARIES	

WINDOW SCHEDULE

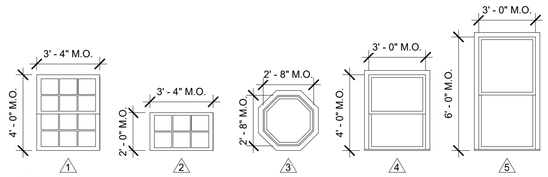
WINDOW TYPE	OPENING		WINDOW TYPE				DETAIL			GLASS TYPE	COMMENTS
	WIDTH	HEIGHT	TYPE	MATERIAL	TYPE	FINISH	HEAD	JAMB	SILL		
1	3'-4"	4'-0"	A	HM	A	FACTORY	WH1	WJ1	WS1	INSULATING GLAZING	
2	3'-4"	2'-0"	A	HM	A	FACTORY	WH1	WJ1	WS1	INSULATING GLAZING	
3	2'-8"	2'-8"	A	HM	A	FACTORY	WH1	WJ1	WS1	INSULATING GLAZING	
4	3'-0"	4'-0"	A	HM	A	FACTORY	-	-	-	INSULATING GLAZING	
5	3'-0"	6'-0"	A	HM	A	FACTORY	-	-	-	INSULATING GLAZING	



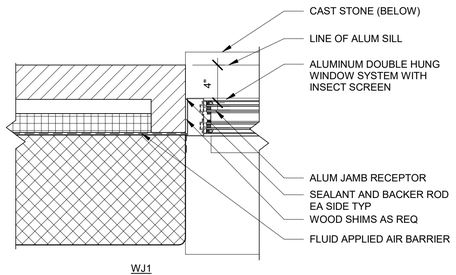
1 A501 DOOR TYPES
1/4" = 1'-0"



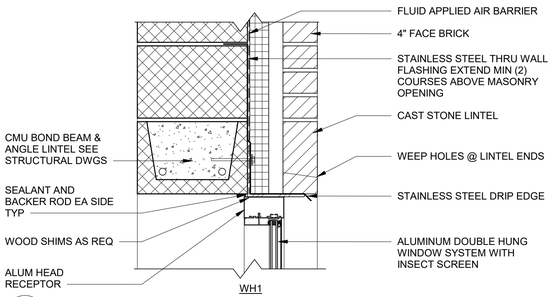
2 A501 FRAME TYPES
1/4" = 1'-0"



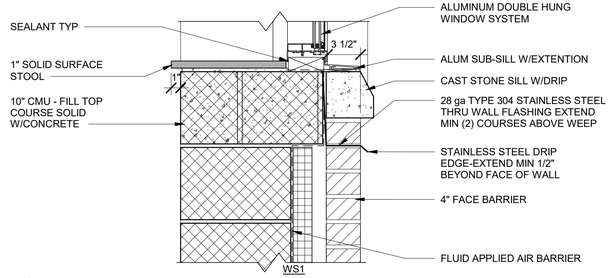
3 A501 WINDOW TYPES
1/4" = 1'-0"



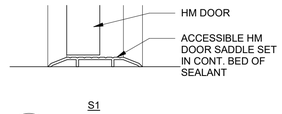
4 A501 WINDOW JAMB DETAIL
1 1/2" = 1'-0"



5 A501 WINDOW HEAD DETAIL
1 1/2" = 1'-0"



6 A501 WINDOW SILL DETAIL
1 1/2" = 1'-0"



7 A501 SADDLE DETAIL
3" = 1'-0"

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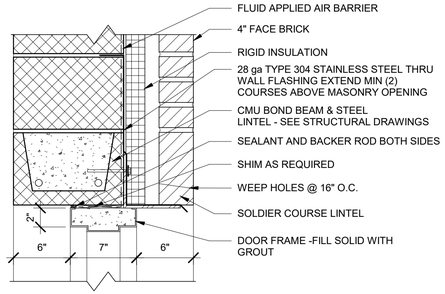
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VARIES	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	33	56	A501

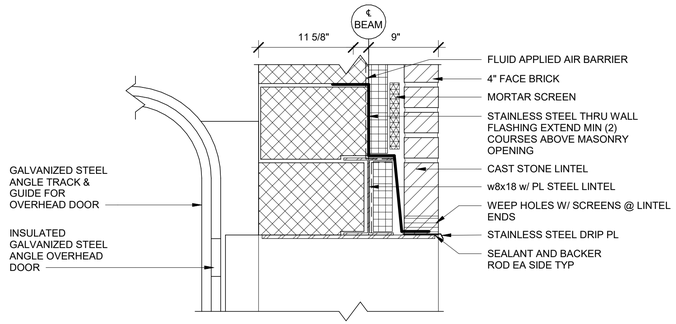
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
DOOR DETAILS AND SCHEDULES

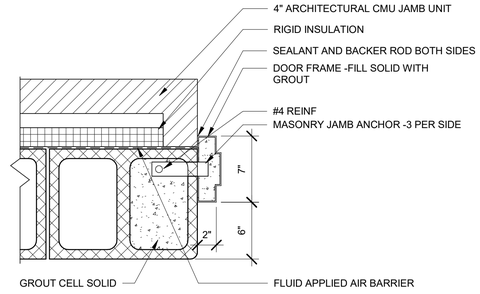
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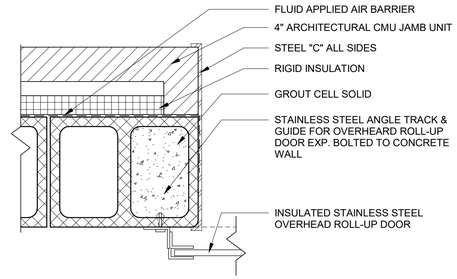
H1



H2

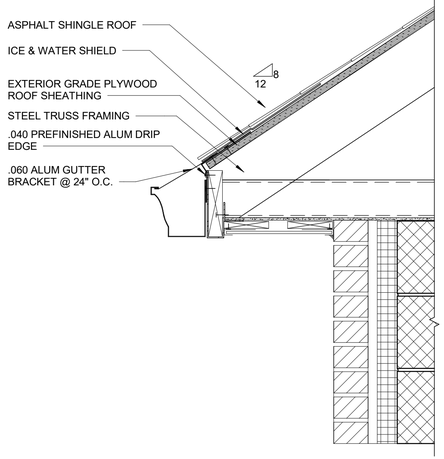


J1

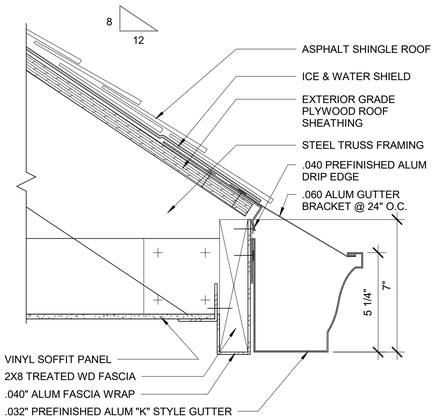


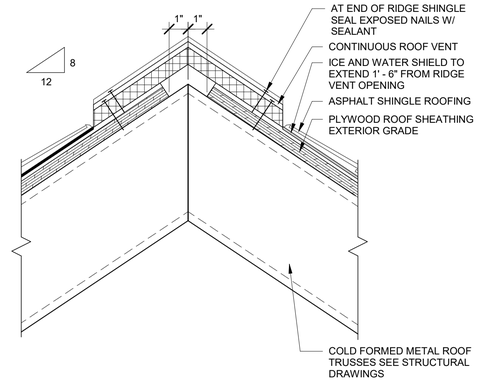
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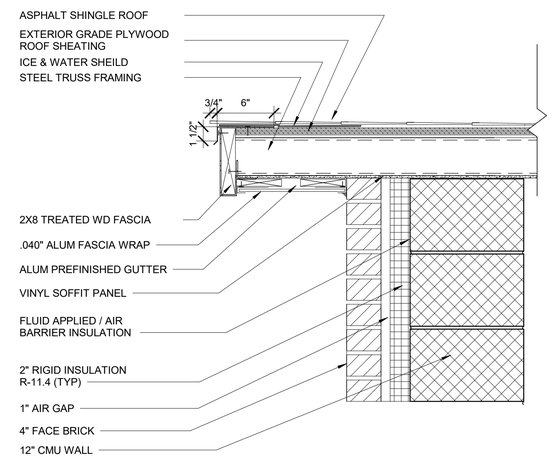
1 A502 DOOR HEAD DETAILS
1 1/2" = 1'-0"



2 A502 DOOR JAMB DETAILS
1 1/2" = 1'-0"





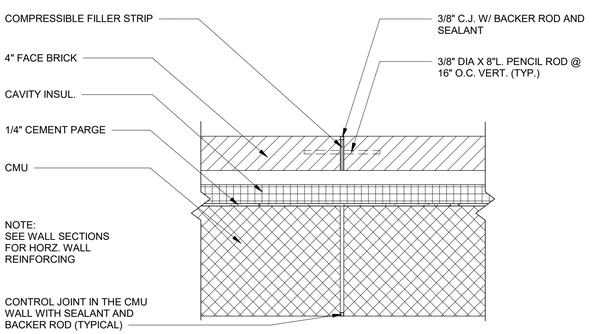


3 A502 SECTION
1 1/2" = 1'-0"

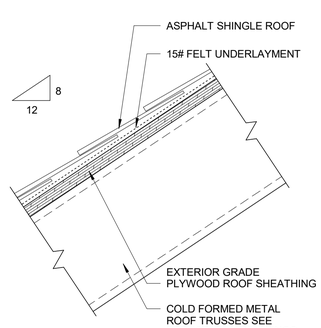
4 A502 ROOF EAVE DETAIL
1 1/2" = 1'-0"

5 A502 GUTTER DETAIL
3" = 1'-0"

6 A502 RIDGE VENT DETAIL
3" = 1'-0"



7 A502 CONTROL JOINT DETAIL
1 1/2" = 1'-0"



8 A502 TYPICAL ASPHALT SHINGLE ROOF DETAIL
3" = 1'-0"

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12/17/2020
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Dwg check	R.FRITZ		Approved		

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VARIES	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	34	56	A502

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
WALL AND ROOF DETAILS

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SYMBOLS LEGEND

- 3/4" CONDUIT WITH 2#12 AWG COPPER WIRES. UON.
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- UNDERGROUND CONDUIT
- PP/1 — HOMERUN, AS DESIGNATED ON DRAWING
- A / a PP/1 — LIGHTING FIXTURE
  - A INDICATES FIXTURE TYPE
  - PP/1 INDICATES PANEL NAME WITH CIRCUIT NUMBER
  - a INDICATES SWITCH DESIGNATION
- A / a PP/1 — EMERGENCY LIGHTING FIXTURE WITH BATTERY BACKUP
  - A INDICATES FIXTURE TYPE
  - PP/1 INDICATES PANEL NAME WITH CIRCUIT NUMBER
  - a INDICATES SWITCH DESIGNATION
- EXTERIOR WALL PACK FIXTURE
- EXTERIOR EMERGENCY WALL PACK FIXTURE WITH BATTERY BACKUP
- EXIT LIGHT FIXTURE, WALL MOUNTED WITH BATTERY BACKUP
- $ — SINGLE POLE TOGGLE SWITCH, 20A, 120/277 VAC - 42" AFF, UON.
- $3 — THREE WAY SINGLE POLE TOGGLE SWITCH, 20A, 120/277 VAC - 42" AFF, UON.
- $4 — FOUR WAY SINGLE POLE TOGGLE SWITCH, 20A, 120/277 VAC - 42" AFF, UON.
- (J) OR [J] — JUNCTION BOX
- [PB] — PULL BOX
- GFI — DUPLEX RECEPTACLE, 20A,125V, GROUND FAULT TYPE - NEMA 5-20R
- DUPLEX RECEPTACLE, 20A, 125V, GROUND TYPE - 18" AFF, UON. NEMA 5-20R
- CH GFI — DUPLEX RECEPTACLE, 20A,125V, GROUND FAULT TYPE - NEMA 5-20R, COUNTER HEIGHT
- [F] — FIRE ALARM MANUAL PULL STATION
- [F] 15cd — FIRE ALARM AUDIBLE/VISUAL DEVICE (ADA COMPLIANT (15 CD UNLESS OTHERWISE NOTED))
- [F] 15cd — FIRE ALARM VISUAL DEVICE (ADA COMPLIANT (15 CD UNLESS OTHERWISE NOTED))
- (S) — FIRE ALARM SMOKE DETECTOR
- (S) SD — FIRE ALARM DUCT SMOKE DETECTOR
- (H) — FIRE ALARM HEAT DETECTOR
- [TS] — TAMPER SWITCH
- [FS] — WATER FLOW SWITCH

- [P-103] — CONDUIT TAG
- (4) — DRAWING PLAN NOTE SYMBOL
- INDICATES REMOVAL
- (ST) — SHUNT TRIP
- EF-1 — IDENTIFICATION OF EQUIPMENT
- (2) — MOTOR - NUMERAL INDICATES HORSEPOWER
- UNFUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT SWITCH UNFUSED TYPE
- GROUNDING
- (M) — UTILITY METER
- ENCLOSED CIRCUIT BREAKER
- 200A 3P — CIRCUIT BREAKER
- (DM) — DIGITAL METER
- PANEL BOARD
- T — TRANSFORMER

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRIC SAFETY CODE, N.F.P.A., O.S.H.A. REGULATIONS AND ALL OTHER EXISTING CODES AND REGULATIONS OF AUTHORITIES WHICH HAVE JURISDICTION.
2. THE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT EVERY DETAIL OR CONDUIT IS SHOWN. EXISTING CONDITIONS AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BEFORE COMMENCING ANY FABRICATION, ORDERING ANY MATERIAL, OR PERFORMING ANY WORK. ANY DEPARTURE FROM CONCEPT SHOWN ON THE CONTRACT DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ALL ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND/OR REQUIRED FOR THE FULL INTEGRITY OF THE CONTRACT SHALL BE FURNISHED, INSTALLED AND CONNECTED BY THE CONTRACTOR, EXCEPT WHERE EQUIPMENT SHOWN IS IDENTIFIED AS "EXISTING" OR OTHERWISE NOTED ON THE DRAWINGS.
3. UNLESS OTHERWISE NOTED, EQUIPMENT AND MATERIALS TO BE PROVIDED SHALL BEAR LISTING AND LABELING BY A NATIONALLY RECOGNIZED TESTING AGENCY WHERE SUCH STANDARD HAD BEEN ESTABLISHED FOR THAT TYPE OF EQUIPMENT/MATERIAL.
4. THE CONTRACTOR SHALL SUBMIT DETAILED EQUIPMENT LAYOUT PLANS, SECTIONS, AND MOUNTING DETAILS SHOWING PROPOSED LOCATION OF ALL EQUIPMENT AND REQUIRED WORKING/SERVICE CLEARANCES PRIOR TO INSTALLATION.
5. CONTRACTOR SHALL VISIT THE PROJECT SITE AND EXAMINE AND CONFIRM EXISTING CONDITIONS. ALL CHANGES SHALL BE PRESENTED DURING SHOP DRAWING SUBMITTALS FOR ENGINEER'S APPROVAL.
6. CONDUITS SHALL CONTAIN AN INSULATED GROUND WIRE BONDED TO ENCLOSURES AND SIZED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC, IF SIZE IS NOT SHOWN ON THE CONTRACT DRAWINGS.
7. THE CONTRACTOR SHALL PROVIDE CONDUIT FITTINGS, CONNECTORS, CLAMPS, HARDWARE, HANGERS, AND SUPPORTS AS NECESSARY FOR A COMPLETE INSTALLATION.
8. THE CONTRACTOR SHALL PROVIDE TAGS FOR EQUIPMENT, CONDUITS, AND CABLES THAT ARE INSTALLED UNDER THIS CONTRACT. TAG IDENTIFICATIONS SHALL BE IN ACCORDANCE WITH CONTRACT DRAWINGS. TAGS FOR CONDUITS SHALL BE AS DESCRIBED IN SPECIFICATIONS.
9. UNUSED OPENINGS IN CONDUITS, BOXES, DISCONNECT SWITCHES, CABINETS, AND PANEL BOARDS SHALL BE CAPPED OR PLUGGED.
10. UPDATE EXISTING PANELBOARD DIRECTORIES TO REFLECT THE CIRCUITING IN EXISTING PANELBOARDS AFFECTED BY THIS ALTERATION.
11. CONTRACTOR SHALL PROVIDE THE NECESSARY MATERIALS, LABOR AND ATTENDANCE FOR THE OPERATION OF TEMPORARY LIGHT AND CONSTRUCTION POWER AS REQUIRED DURING WORKING HOURS FOR THE ENTIRE CONSTRUCTION PERIOD.
12. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ANY EXISTING CIRCUITS AFFECTED BY THIS ALTERATION. RECONNECT ALL ALTERED OR REROUTED WORK TO ITS FULLY FUNCTIONAL STATE PRIOR TO ALTERATION.
13. PROVIDE ALL NECESSARY TEMPORARY WIRING TO MAINTAIN EXISTING INSTALLATIONS WHICH MUST REMAIN IN SERVICE DURING CONSTRUCTION PERIOD.
14. ALL BRANCH CIRCUITS 20A OR LESS OVER 75 FEET IN LENGTH SHALL BE RUN WITH #10 CONDUCTOR, UNLESS OTHERWISE NOTED.
15. SCHEDULE ALL DISCONNECTION AND INTERRUPTIONS OF ELECTRICAL SERVICE, COMMUNICATIONS AND SUPERVISORY SYSTEMS WITH THE OWNER AND ENGINEER.
16. CONTRACTORS SHALL FOLLOW ALL OWNER SITE SAFETY WORK PROCESSES PROCEDURES, FOR EXAMPLE, WORK PERMITS, SAFETY TASK ANALYSES, LOCKOUT TAGOUT (LOTO), LOCK, TAG AND TRY, AND RED TAG, ETC.
17. CONTRACTORS SHALL COORDINATE ALL WORK ACTIVITIES WITH OPERATIONS, MAINTENANCE, AND OTHER CONTRACTORS.
18. EQUIPMENT ARRANGEMENT AND CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY AND MAY DIFFER IN ACCORDANCE WITH ACTUAL FIELD CONDITIONS.
19. THE NUMBER, SIZE AND TYPE OF CONDUCTORS AND CONDUITS SHOWN IN THESE DRAWINGS ARE BASED ON DESIGN CRITERIA. THE CONTRACTOR SHALL MAKE ADJUSTMENTS WHERE NECESSARY TO REFLECT THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE INSTALLED PER APPROVED SHOP DRAWINGS.
20. POWER OR CONTROL CONDUCTORS SHALL NOT BE IN THE SAME CONDUIT AS INSTRUMENTATION WIRES. POWER AND INSTRUMENTATION CONDUITS SHALL BE PLACED A MINIMUM DISTANCE OF 12 INCHES APART.
21. EXPOSED CONDUIT AND SURFACE MOUNTED EQUIPMENT NOT OTHERWISE SHOWN OR DETAILED SHALL BE SUPPORTED FROM WALLS AND/OR CEILINGS BY APPROVED STAINLESS STEEL HANGERS OF ANGLE OR CHANNEL CONSTRUCTION.
22. EXPANSION FITTINGS SHALL BE FURNISHED AND INSTALLED WHERE CONDUITS PASS STRUCTURAL JOINTS. FITTINGS SHALL BE OZ/GEDNEY TYPE "DXX" OR EQUAL.
23. EXACT CONDUIT STUB-UP LOCATIONS ARE TO BE DETERMINED BY THE ELECTRICAL CONTRACTOR BASED ON THE CERTIFIED MANUFACTURER'S DRAWINGS OF THE RESPECTIVE EQUIPMENT. CONDUITS SHALL BE INSTALLED TO AGREE WITH THE EQUIPMENT FURNISHED.
24. ALL CONDUITS SHALL BE PROVIDED WITH AN EQUIPMENT GROUNDING CONDUCTOR SIZED PER THE NATIONAL ELECTRICAL CODE. THE GROUNDING CONDUCTOR SHALL BE BONDED TO METALLIC CONDUIT AND EQUIPMENT GROUNDING LUGS AT EACH END PER SPECIFICATIONS.
25. ALL ALARM AND CONTROL CONDUITS SHALL BE PROVIDED WITH 20% SPARE CONDUCTORS (MINIMUM 2).
26. CONDUIT NOT OTHERWISE INDICATED SHALL BE 3/4" RGS WITH 2#12 AND 1#12 GND CONDUCTORS, MINIMUM.
27. ALL CONDUITS PASSING THROUGH CONCRETE FLOORS OR WALLS BELOW GRADE SHALL BE INSTALLED WITH APPROVED CONDUIT SEAL.
28. SOME CONDUIT AND FEEDERS MAY NOT BE SHOWN ON THE PLANS FOR CLARITY.
29. CONDUIT INSTALLED INDOORS SHALL BE RIGID GALVANIZED STEEL (RGS) TYPE, EXCEPT FINAL CONNECTION TO MOTORS AND VIBRATING EQUIPMENT, WHICH SHALL BE LIQUID TIGHT FLEXIBLE MOTOR CONDUIT.
30. ALL EQUIPMENT DEVICES CONDUIT AND WIRING ARE NEW UNLESS OTHERWISE INDICATED.
31. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ANY EXISTING CIRCUITS AFFECTED BY THIS ALTERATION. RECONNECT ALL ALTERED OR REROUTED WORK TO ITS FULLY FUNCTIONAL STATE PRIOR TO ALTERATION. ANTICIPATE THAT ADDITIONAL HOME RUNS BACK TO SOURCE OF POWER WILL BE REQUIRED.
32. CONTRACTOR SHALL WIRE AND INSTALL SAFETY SWITCHES FURNISHED UNDER ANOTHER DIVISION.
33. SUBMIT POWER SYSTEMS STUDY PRIOR TO ELECTRICAL DISTRIBUTION EQUIPMENT SUBMITTAL. ANY SUBMISSION OF DISTRIBUTION EQUIPMENT PRIOR TO THE POWER SYSTEMS STUDY WILL BE REJECTED.

ABBREVIATIONS

A, AMP	AMPERE	LSI	LONG, SHORT, INSTANTANEOUS
AC	ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
AF	AMPERE FRAME	MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MCP	MAIN CONTROL PANEL
AFG	ABOVE FINISHED GROUND	MECH	MECHANICAL
AHB	AMP - HORIZONTAL BUS	MER	MECHANICAL EQUIPMENT ROOM
AHU	AIR HANDLING UNIT	MFG	MANUFACTURER
AIC	AMPS OF INTERRUPTING CURRENT	MH	MANHOLE
AMP	AMPER	MLO	MAIN LUGS ONLY
APPROX	APPROXIMATELY	MOV	MOTOR OPERATED VALVE
AT	AMPERE TRIP	MRTU	MISSION REMOTE TERMINAL UNIT
ATS	AUTOMATIC TRANSFER SWITCH	MTG	MOUNTING
AVB	AMP - VERTICAL BUS	MTS	MANUAL TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE	N, NEUT	NEUTRAL
BAS	BUILDING AUTOMATION SYSTEM	N.T.S.	NOT TO SCALE
BKR	BREAKER	NEC	NATIONAL ELECTRIC CODE
BLDG	BUILDING	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
BMS	BUILDING MANAGEMENT SYSTEM	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
C, CDT	CONDUIT	No.	NUMBER
CAT	CATALOG	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
CB	CIRCUIT BREAKER	P	POLE(S)
CKT(S)	CIRCUIT(S)	PECO	PHILADELPHIA ELECTRIC COMPANY
CP	CONTROL PANEL	PH, Ø	PHASE
CU	COPPER	PLC	PROGRAMMABLE LOGIC CONTROLLER
DISC	DISCONNECT	PMR	POWER MONITOR RELAY
DPDT	DOUBLE POLE DOUBLE THROW	PNL	PANEL
DS	DOOR SWITCH	PSI	PER SQUARE INCH
DWG	DRAWING	PVC	POLY VINYL CHLORIDE CONDUIT (SCHEDULE D)
DWG(S)	DRAWING(S)	PVC/RGS	PVC COATED RGS CONDUIT
E, ELEC	ELECTRIC, ELECTRICAL	PWR	POWER
EC	EMPTY CONDUIT	RA	RIGID ALUMINUM
EG	EQUIPMENT GROUNDING CONDUCTOR	RECPT	RECEPTACLE
EM	EMERGENCY	REF	REFERENCE
EMH	ELECTRICAL MANHOLE	RFI	REQUEST FOR INFORMATION
EMI	ELECTRO MAGNETIC INTERFERENCE	RGS	RIGID GALVANIZED STEEL CONDUIT
EMT	ELECTRO-METALLIC TUBINGEMTELECTRICAL METALLIC TUBING	RSP	RAW SEWAGE PUMP
		RTU	REMOTE TELEMETRY UNIT
EQUIP	EQUIPMENT	RVAT	REDUCED VOLTAGE AUTO TRANSFORMER
ETC	(ET CETERA) AND OTHER THINGS	RVSS	REDUCED VOLTAGE SOFT STARTER
ETM	ELAPSED TIME METER	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
EUH	ELECTRIC UNIT HEATER	SPD	SURGE PROTECTIVE DEVICE
EWD	ELECTRICAL WIRING DIAGRAM	SPEC	SPECIFICATION
EWH	ELECTRIC WATER HEATER	SS	STAINLESS STEEL
EX	EXISTING TO REMAIN	TBA	TO BE ABANDONED
EXIST	EXISTING	TBD	TO BE DISCONNECTED
FACP	FIRE ALARM CONTROL PANEL	TBM	TO BE MODIFIED
FBD	FURNISHED BY ANOTHER DIVISION	TBR	TO BE REMOVED
FBV	FURNISHED BY VENDOR	TBRL	TO BE RELOCATED
FF	FINISHED FLOOR	TBRP	TO BE REPLACED
FS	FLOAT SWITCH	TBRF	TO BE REFED
FVNR	FULL VOLTAGE NON REVERSIBLE	TC	TRAY CABLE
G, GND	GROUND	TLS	TANK LEVEL SYSTEM
GB	GROUND BUS	TRIS	TO REMAIN IN SERVICE
GDP	GENERATOR DISTRIBUTION PANEL	TWAX	TWINAXIAL CABLE
GEC	GROUNDING ELECTRODE CONDUCTOR	TWSC	TWISTED SHIELDED CONDUCTOR CABLE
GFI	GROUND FAULT CIRCUIT INTERRUPT	TWSP	TWISTED SHIELDED PAIR
HP	HORSEPOWER	TYP	TYPICAL
HVAC	HEATING, AIR CONDITIONING, AND REFRIGERATION	UL	UNDERWRITERS LABORATORIES
		UON	UNLESS OTHERWISE NOTED
HZ	HERTZ	UTP	UNSHIELDED TWISTED PAIR
I/O	INPUT/OUTPUT	V	VOLT
IC	INTERRUPTING CURRENT	VA	VOLT-AMPS
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS	VAC	VOLTS ALTERNATING CURRENT
		VFD	VARIABLE FREQUENCY DRIVE
IGB	ISOLATED GROUND BUS	W	WATT
IMC	INTERMEDIATE METAL CONDUIT	WIU	WEATHERPROOF WHILE IN USE COVER
J.BOX,	JBJUNCTION BOX	W	WIRE(S)
KCMIL	THOUSAND CIRCULAR MILS	WP	WEATHER PROOF
KVA	KILOVOLT AMPERE	XP	EXPLOSION PROOF
KW	KILOWATT		
KWH	KILOWATT HOURS		
LCP	LOCAL CONTROL PANEL		
LED	LIGHT EMITTING DIODE		
LIC	LEVEL INDICATING CONTROLLER		
LS	LEVEL SENSOR (ULTRASONIC LEVEL DETECTOR)		

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Date _____

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Drawn	H. PATEL		Coordination	M. GREY	
Dwg check	W. NYE		Approved	W. NYE	

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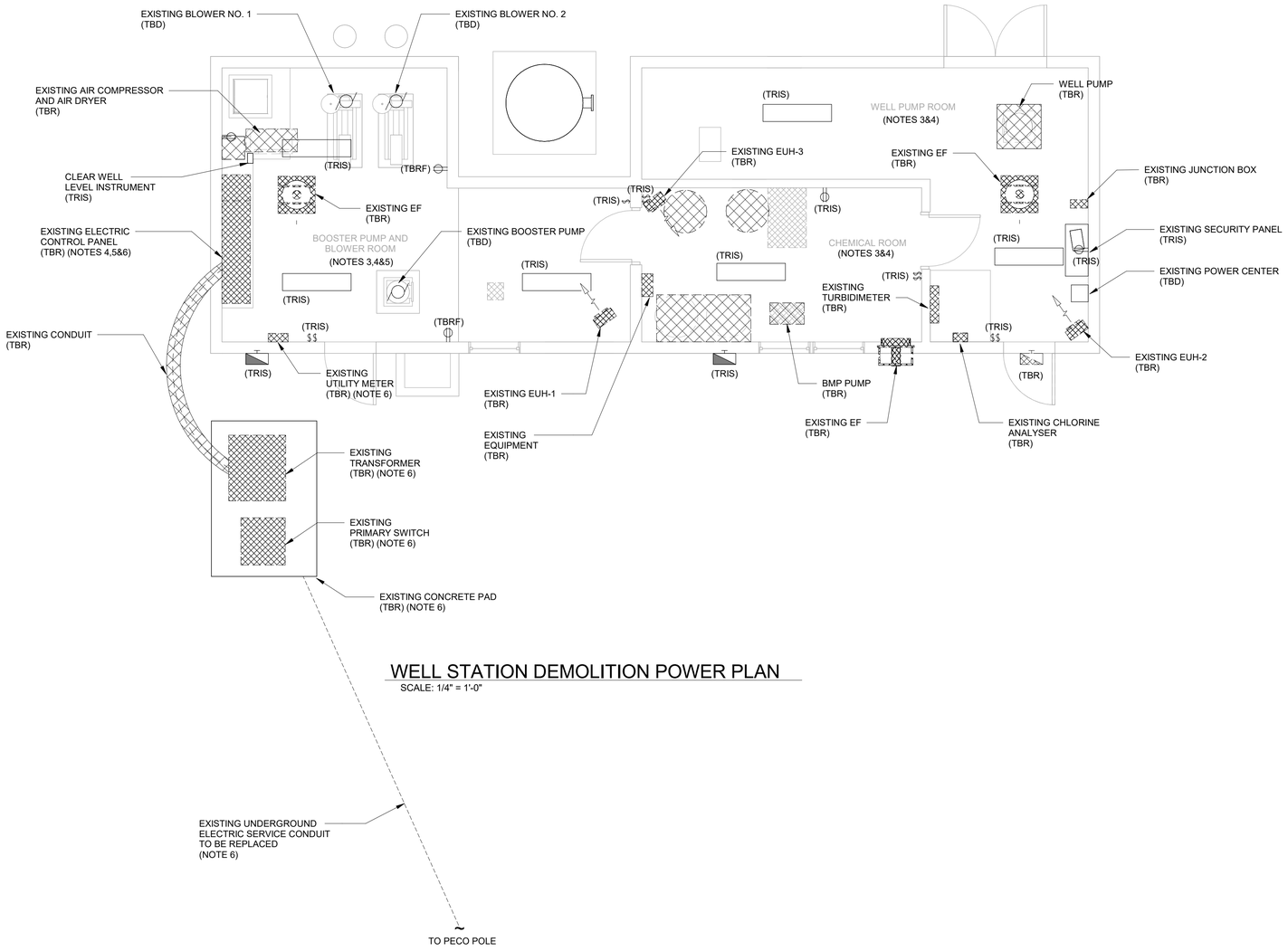
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Drawing Number: E001

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ELECTRICAL
GENERAL NOTES, ABBREVIATIONS AND SYMBOL LEGEND

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WELL STATION DEMOLITION POWER PLAN

SCALE: 1/4" = 1'-0"

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SCALE: 1/4" = 1'-0"

NOTES:

1. REFER TO DRAWING E001 FOR GENERAL NOTES, ABBREVIATIONS AND SYMBOL LEGEND.
2. REFER TO DRAWING E401 FOR EXISTING/DEMOLITION ONE LINE DIAGRAM.
3. EXISTING EQUIPMENT/DEVICE TO BE REMOVED AS INDICATED ON PLAN. DISCONNECT AND REMOVE WIRING BACK TO SOURCE. DISCONNECT AND REMOVE ABOVE GROUND CONDUITS AS INDICATED.
4. EQUIPMENT/DEVICE INDICATED TO REMAIN IN SERVICE (TRIS) FED FROM ABOVE FLOOR SLAB TO BE REFED FROM REPLACEMENT PANEL. DISCONNECT AND SAFE OFF EXISTING CIRCUITS ABOVE CEILING ADJACENT TO EXISTING ELECTRICAL CONTROL PANEL FOR REUSE.
5. EQUIPMENT/DEVICE INDICATED TO REMAIN IN SERVICE (TRIS) FED FROM FLOOR SLAB BELOW TO BE REFED FROM REPLACEMENT PANEL. DISCONNECT, REMOVE CONDUIT AND WIRING BACK TO SOURCE AND SAFE OFF AT EQUIPMENT/DEVICE FOR REUSE.
6. EXISTING PRIMARY SERVICE TO BE REMOVED AND REPLACED WITH 480/277V SECONDARY SERVICE. COORDINATE SERVICE REPLACEMENT WITH PECO.

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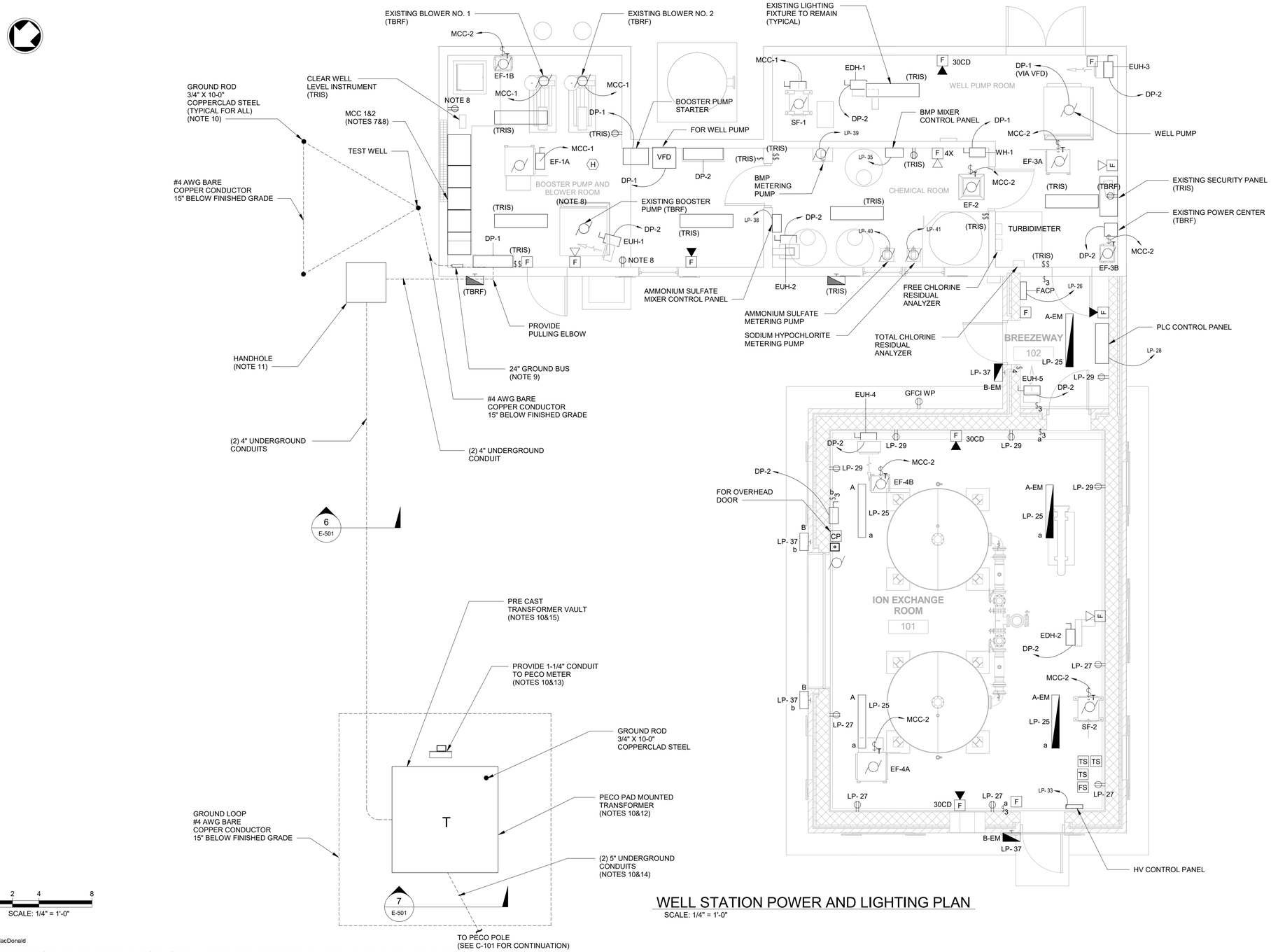
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Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL PFAS
TREATMENT SYSTEM
ELECTRICAL - WELL STATION
DEMOLITION PLAN

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WELL STATION POWER AND LIGHTING PLAN

SCALE: 1/4" = 1'-0"

NOTES:

1. REFER TO DRAWING E001 FOR GENERAL NOTES, ABBREVIATIONS AND SYMBOL LEGEND.
2. REFER TO DRAWING E402 FOR REVISED ONE LINE DIAGRAM.
3. REFER TO DRAWING E501 FOR ELECTRICAL DETAILS.
4. REFER TO DRAWING E601 FOR CONTROL DIAGRAMS AND FIRE ALARM RISER DIAGRAM.
5. REFER TO DRAWING E701 FOR CONDUIT & CABLE AND LUMINAIRE SCHEDULES.
6. ALL INSTRUMENTS ARE NOT SHOWN ON THIS PLAN. REFER TO PROCESS DRAWINGS.
7. EQUIPMENT/DEVICE INDICATED TO REMAIN IN SERVICE (TRIS) PREVIOUSLY FED FROM ABOVE FLOOR SLAB TO BE REFED FROM PANEL LP. EXTEND EXISTING CONDUIT AND WIRING MADE SAFE FROM DEMOLITION TO PANEL LP AS REQUIRED.
8. EQUIPMENT/DEVICE INDICATED TO REMAIN IN SERVICE (TRIS) FED FROM FLOOR SLAB BELOW TO BE REFED PANEL LP. RUN 2#12, 1#12GND-3/4"C. FROM PANEL LP TO EQUIPMENT/DEVICE MADE SAFE FROM DEMOLITION.
9. REFER TO DETAIL #3 ON DRAWING E501 FOR GROUND BUS DETAIL.
10. COORDINATE SERVICE INSTALLATION REQUIREMENTS WITH PECO.
11. PROVIDE 36"W X 36"L X 24"D HANDHOLE WITH H20 COVER AND PENTHEAD BOLTS. PROVIDE "ELECTRIC" LOGO ON COVER. TYPE PG AS MANUFACTURED BY QUAZITE.
12. PROVIDE 15KV LOAD BREAK ELBOWS AND TERMINATE IN ACCORDANCE WITH PECO REQUIREMENTS. INSTALL PT'S, CT'S IN TRANSFORMER FURNISHED BY PECO. WIRE CT'S AND PT'S TO TRANSFORMER SECONDARY.
13. INSTALL PT'S METER, METER SOCKET AND METER FURNISHED BY PECO. INSTALL METER ON U-CHANNEL MOUNTED TO 3" POLES IN ACCORDANCE WITH PECO REQUIREMENTS.
14. PROVIDE 35KV CABLE TO POLE ACCROS STEET AS PER PECO REQUIREMENTS.
15. PROVIDE PRE CAST TRANSFORMER AS PER PECO REQUIREMENTS. CONTRACTOR TO COORDINATE PENETRATONS WITH MANUFACTURER.

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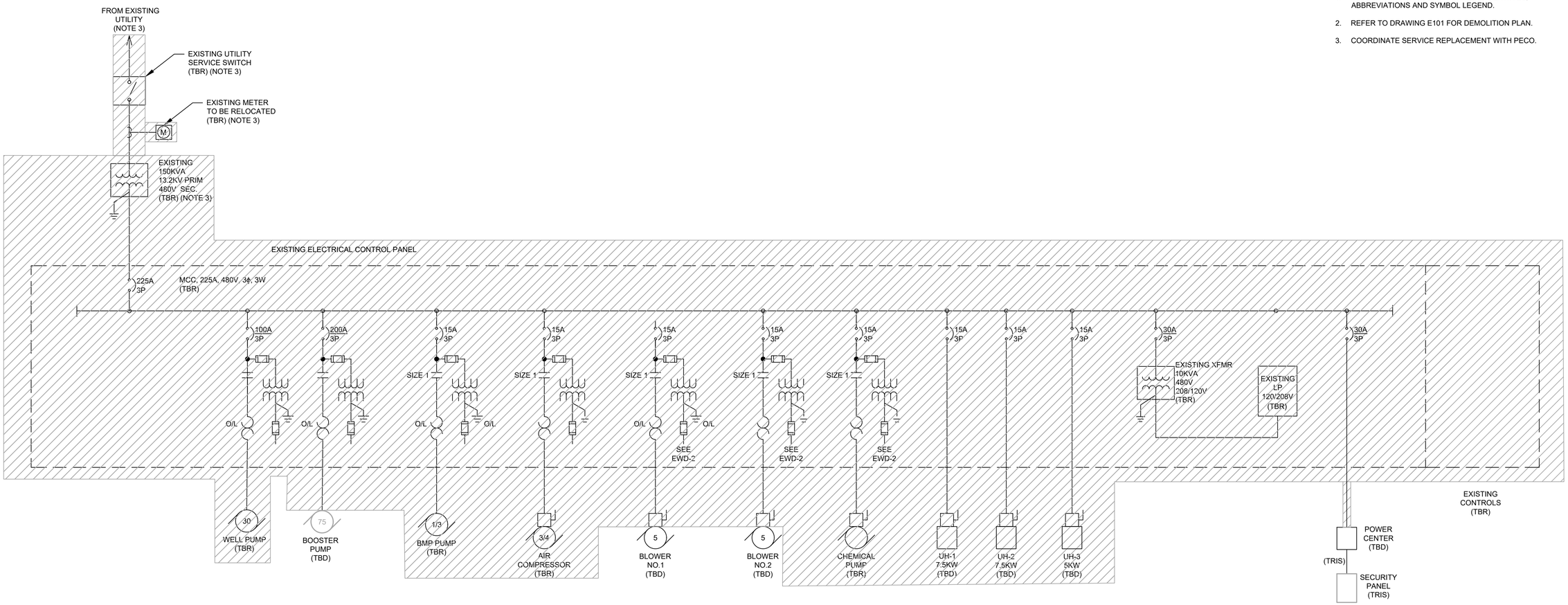
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL PFAS TREATMENT SYSTEM
ELECTRICAL - WELL STATION POWER AND LIGHTING PLAN

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NOTES:

1. REFER TO DRAWING E001 FOR GENERAL NOTES, ABBREVIATIONS AND SYMBOL LEGEND.
2. REFER TO DRAWING E101 FOR DEMOLITION PLAN.
3. COORDINATE SERVICE REPLACEMENT WITH PECO.



EXISTING/DEMOLITION ONE-LINE DIAGRAM

NTS

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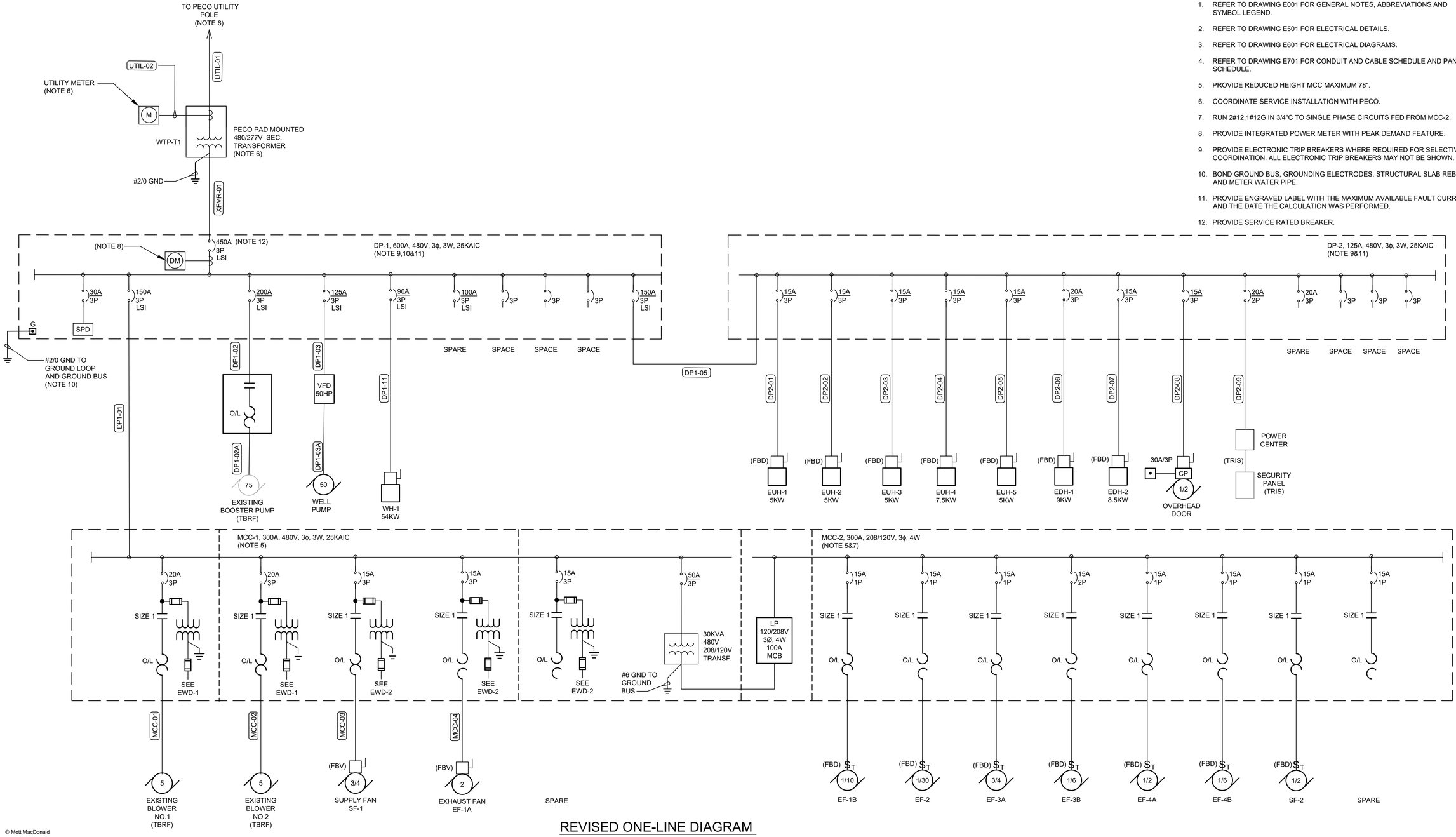
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Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ELECTRICAL - EXISTING/DEMOLITION ONE LINE DIAGRAM

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NOTES:

1. REFER TO DRAWING E001 FOR GENERAL NOTES, ABBREVIATIONS AND SYMBOL LEGEND.
2. REFER TO DRAWING E501 FOR ELECTRICAL DETAILS.
3. REFER TO DRAWING E601 FOR ELECTRICAL DIAGRAMS.
4. REFER TO DRAWING E701 FOR CONDUIT AND CABLE SCHEDULE AND PANEL SCHEDULE.
5. PROVIDE REDUCED HEIGHT MCC MAXIMUM 78".
6. COORDINATE SERVICE INSTALLATION WITH PECO.
7. RUN 2#12,1#12G IN 3/4"C TO SINGLE PHASE CIRCUITS FED FROM MCC-2.
8. PROVIDE INTEGRATED POWER METER WITH PEAK DEMAND FEATURE.
9. PROVIDE ELECTRONIC TRIP BREAKERS WHERE REQUIRED FOR SELECTIVE COORDINATION. ALL ELECTRONIC TRIP BREAKERS MAY NOT BE SHOWN.
10. BOND GROUND BUS, GROUNDING ELECTRODES, STRUCTURAL SLAB REBAR AND METER WATER PIPE.
11. PROVIDE ENGRAVED LABEL WITH THE MAXIMUM AVAILABLE FAULT CURRENT AND THE DATE THE CALCULATION WAS PERFORMED.
12. PROVIDE SERVICE RATED BREAKER.

REVISED ONE-LINE DIAGRAM

NTS

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Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

WILLIAM R. NYE
PA PROFESSIONAL ENGINEER LIC. No. PE085929

Date

Designed	W. NYE		Eng check	F. MESCALL	
Drawn	H. PATEL		Coordination	M. GREY	
Dwg check	W. NYE		Approved	W. NYE	

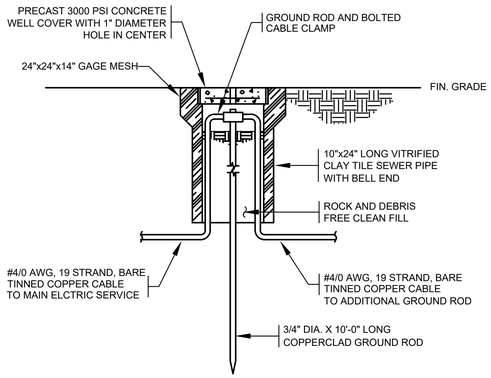
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NTS	PERMIT		STD

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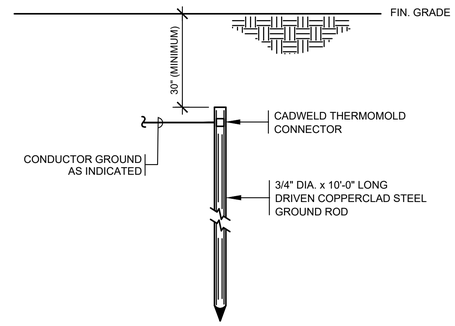
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ELECTRICAL - REVISED
ONE LINE DIAGRAM

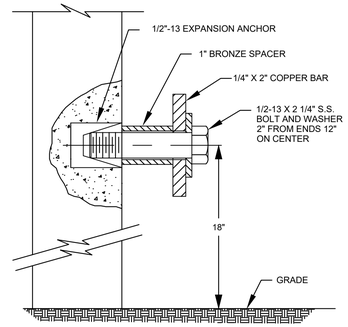
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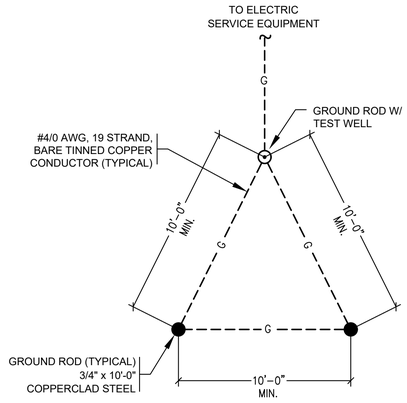
1. TYPICAL GROUND TEST WELL DETAIL
N.T.S



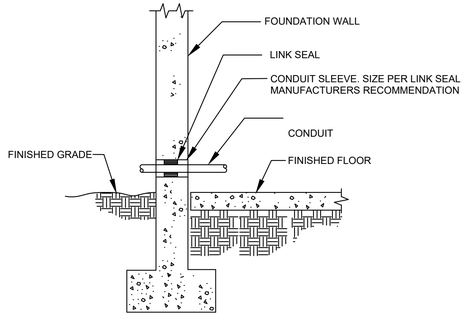
2. TYPICAL GROUND ROD DETAIL
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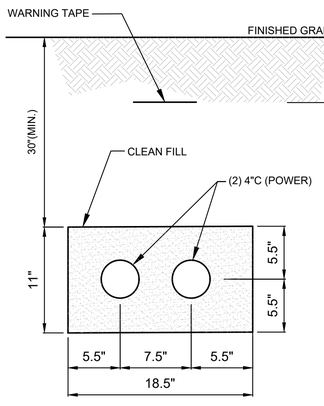
3. GROUND BUS AND SUPPORT DETAIL
N.T.S



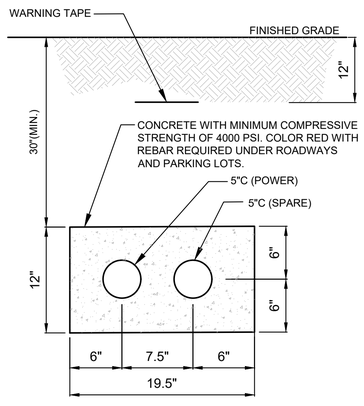
4. TYPICAL TRIAD GROUNDING DETAIL
N.T.S



5. ABOVE GRADE WALL PENETRATION DETAIL
NTS



6. DUCT BANK DETAIL
N.T.S



7. DUCT BANK DETAIL
N.T.S

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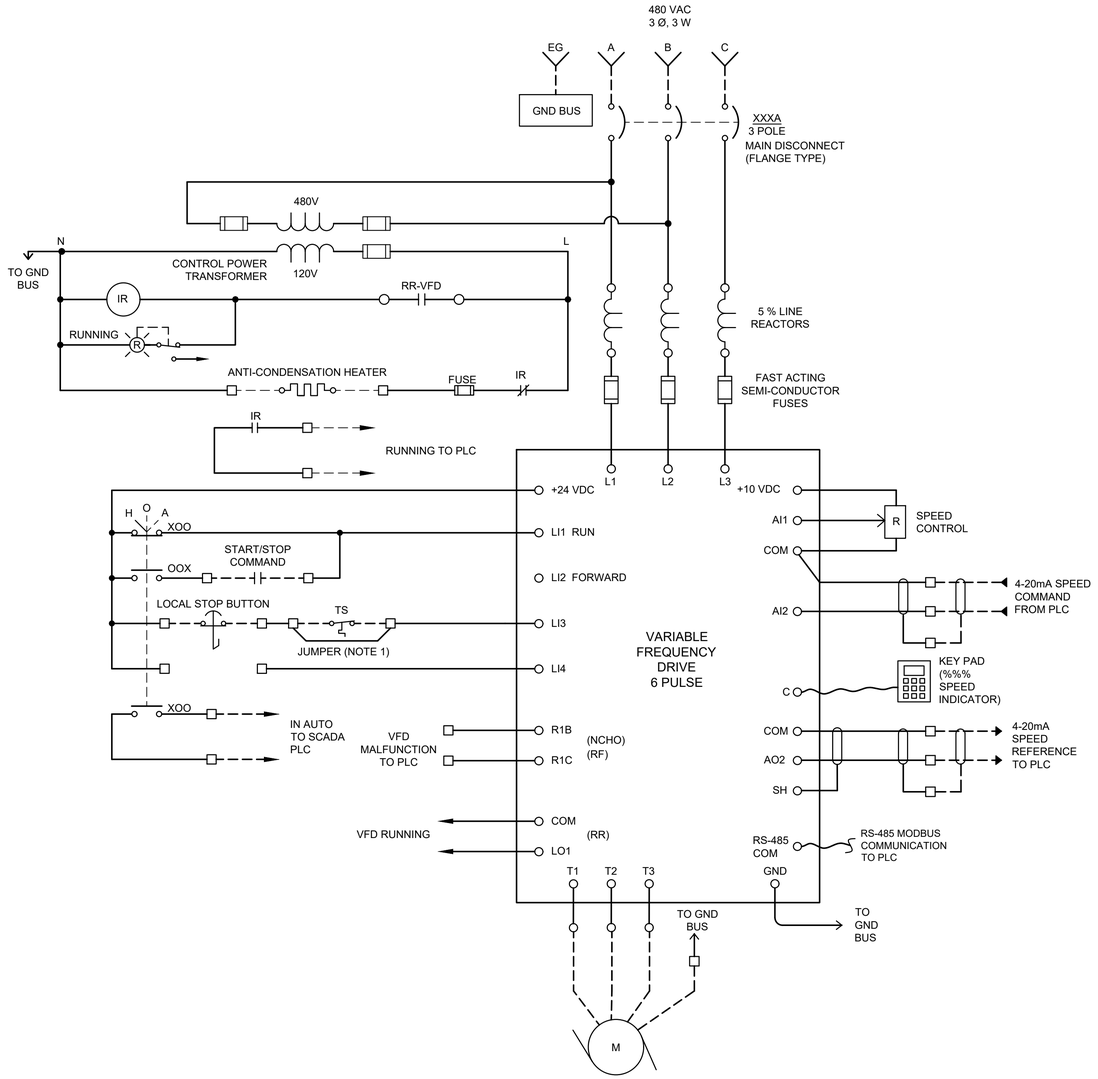
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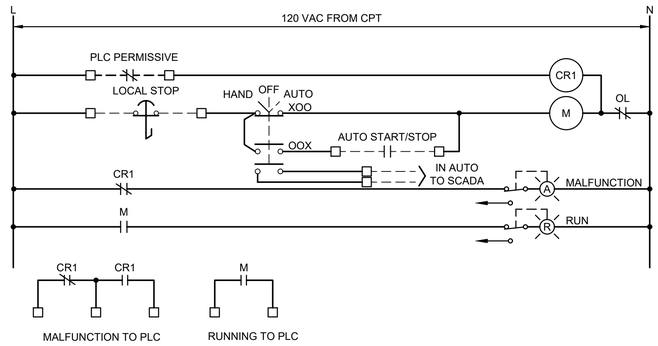
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ELECTRICAL
DETAILS

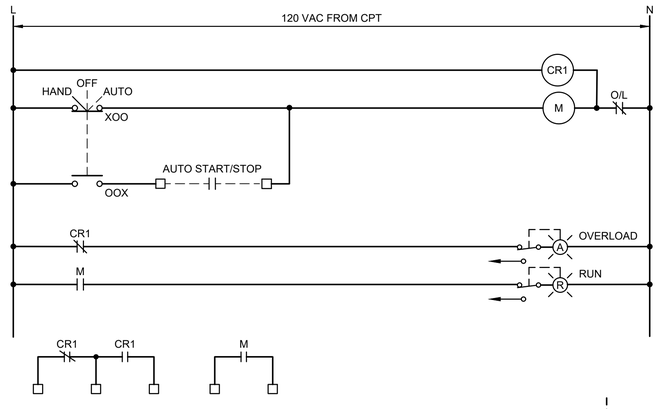
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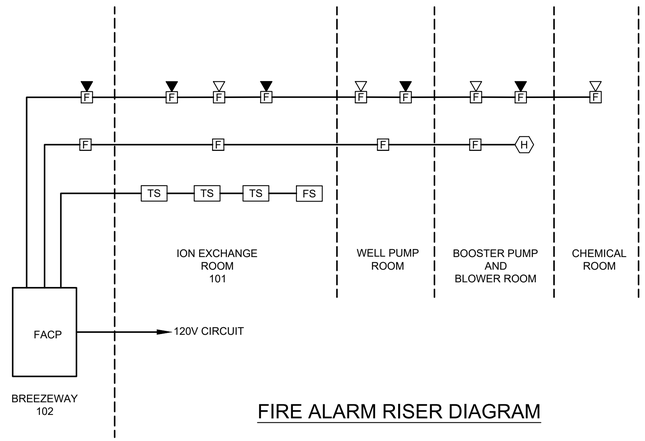
VFD SYSTEM
THREE LINE DIAGRAM



MCC-EWD-1



MCC-EWD-2



FIRE ALARM RISER DIAGRAM

NOTES:

1. REMOVE JUMPER WHERE TEMPERATURE SWITCH IS UTILIZED.

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Dwg check	W. NYE		Approved	W. NYE	

Scale at ANSI D	Status	Rev	Security
NTS	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	41	56	E601

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ELECTRICAL
DIAGRAMS

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CABLE AND RACEWAY SCHEDULE

TAG	PARALLEL RUNS	RACEWAY SIZE	CONDUCTOR OR CABLE IN EACH RUN	FROM DEVICE	TO DEVICE	NOTES REMARK
UTIL-01	2	5"	TBD 35KV	PECO UTILITY POLE	PAD MOUNTED PECO TRANSFORMER	PROVIDE CONDCUCTORS AS PER PECO REQUIREMENTS
UTIL-02	1	1-1/2"	TBD	PAD MOUNTED PECO TRANSFORMER	PECO METER	PROVIDE CONDCUCTORS AS PER PECO REQUIREMENTS
XFMR-01	2	4"	3#250KCMIL, 1#1/0G	PAD MOUNTED PECO TRANSFORMER	DP-1	
DP1-01	1	1-1/2"	3#1/0, 1#6G	DP-1	MCC-1	
DP1-02	1	2"	3#3/0, 1#6G	DP-1	BOOSTER PUMP STARTER	
DP1-02A	2	2"	3#3/0, 1#6G	BOOSTER PUMP STARTER	BOOSTER PUMP	
DP1-03	1	1 1/2"	3#1, 1#6G	DP-1	WELL PUMP VFD	
DP1-03A	1	1 1/2"	3#1, 1#6G	WELL PUMP VFD	WELL PUMP	
DP1-04	1	1-1/2"	3#2, 1#8G	DP-1	WH-1	
DP1-05	1	1-1/2"	3#1/0, 1#6G	DP-1	DP-2	
DP2-01	1	3/4"	3#12, 1#12G	DP-2	EUH-1	
DP2-02	1	3/4"	3#12, 1#12G	DP-2	EUH-2	
DP2-03	1	3/4"	3#12, 1#12G	DP-2	EUH-3	
DP2-04	1	3/4"	3#12, 1#12G	DP-2	EUH-4	
DP2-05	1	3/4"	3#12, 1#12G	DP-2	EUH-5	
DP2-06	1	3/4"	3#12, 1#12G	DP-2	EDH-1	
DP2-07	1	3/4"	3#12, 1#12G	DP-2	EDH-2	
DP2-08	1	3/4"	3#12, 1#12G	DP-2	OVERHEAD DOOR	
DP2-09	1	3/4"	3#12, 1#12G	DP-2	SECURITY PANEL VIA POWER CENTER	
MCC-01	1	3/4"	3#12, 1#12G	MCC-1	BLOWER NO. 1	
MCC-02	1	3/4"	3#12, 1#12G	MCC-1	BLOWER NO. 2	
MCC-03	1	3/4"	3#12, 1#12G	MCC-1	SUPPLY FAN SF-1	
MCC-04	1	3/4"	3#12, 1#12G	MCC-1	EXHAUST FAN EF-1A	
LP-25	1	3/4"	2#12, 1#12G	LP	ION EXCHANGE ROOM LTG	
LP-26	1	3/4"	2#12, 1#12G	LP	FACP	
LP-27	1	3/4"	2#12, 1#12G	LP	ION EXCHANGE RECEPT.	
LP-28	1	3/4"	2#12, 1#12G	LP	PLC CONTROL PANEL	
LP-29	1	3/4"	2#12, 1#12G	LP	ION EXCHANGE ROOM RECEPT.	
LP-30	1	3/4"	2#12, 1#12G	LP	INSTRUMENTATION POWER	
LP-31	1	3/4"	2#12, 1#12G	LP	EYE WASH CONTROL PANEL	
LP-32	1	3/4"	2#12, 1#12G	LP	INSTRUMENTATION POWER	
LP-33	1	3/4"	2#12, 1#12G	LP	HV CONTROL PANEL	
LP-34	1	3/4"	2#12, 1#12G	LP	INSTRUMENTATION POWER	
LP-35	1	3/4"	2#12, 1#12G	LP	B.M.P. MIXER CP	
LP-36	1	3/4"	2#12, 1#12G	LP	INSTRUMENTATION POWER	
LP-37	1	3/4"	2#12, 1#12G	LP	EXTERIOR LIGHTING	
LP-38	1	3/4"	2#12, 1#12G	LP	A.S. MIXER CP	
LP-39	1	3/4"	2#12, 1#12G	LP	BMP METERING PUMP	
LP-40	1	3/4"	2#12, 1#12G	LP	A.S. METERING PUMP	
LP-41	1	3/4"	2#12, 1#12G	LP	SODIUM HYP. METERING PUMP	

NOTE:

1. NOT ALL CONDUIT ARE SHOWN ON PLANS FOR CLARITY.
2. RUN 2#12,1#12G IN 3/4"C FOR ALL 120V AND 208V, 1Ø CIRCUITS UNLESS OTHERWISE NOTED.
3. PROVIDE CONDUIT AND WIRING AS REQUIRED FOR INSTRUMENTATION.

LUMINAIRE SCHEDULE

FIXTURE DES.	FIXTURE MOUNT TYPE	LAMP WATTS	LAMP TYPE	LAMP VOLTS	MANUFACTURER AND CATALOG NUMBER (OR APPROVED EQUAL)	ACCESSORIES/REMARKS
A	CEILING MOUNT	64	LED	120	LITHONIA VAP 6000LM PCL WD MVOLT GZ10 35K 80CRI	UL LISTED FOR WET LOCATIONS, NEMA 4X
A-EM	CEILING MOUNT	64	LED	120	LITHONIA VAP 6000LM PCL WD MVOLT GZ10 35K 80CRI E15WCP	UL LISTED FOR WET LOCATIONS, NEMA 4X WITH BATTERY BACKUP CONNECT BATTERY AHEAD OF LOCAL SWITCHING
B	WALL MOUNT	39	LED	120	LITHONIA TWH LED-10C-1000-40K-T3M-120-PE	UL LISTED FOR WET LOCATIONS, NEMA 3R WITH PHOTOCELL
B-EM	WALL MOUNT	39	LED	120	LITHONIA TWH LED-10C-1000-40K-T3M-120-PE-ELCW	UL LISTED FOR WET LOCATIONS, NEMA 3R WITH PHOTOCELL AND BATTERY BACKUP CONNECT BATTERY AHEAD OF LOCAL SWITCHING

PANEL:			LP		LOCATION:				BUILDING			
CKT#	BKR.	POLE	DESCRIPTION	VA	PHASE A	PHASE B	PHASE C	VA	DESCRIPTION	POLE	BKR.	CKT#
1	20	1	EXISTING LOAD		0				EXISTING LOAD	1	20	2
3	20	1	EXISTING LOAD			0			EXISTING LOAD	1	20	4
5	20	1	EXISTING LOAD				0		EXISTING LOAD	1	20	6
7	20	1	EXISTING LOAD		0				EXISTING LOAD	1	20	8
9	20	1	EXISTING LOAD			0			EXISTING LOAD	1	20	10
11	20	1	EXISTING LOAD				0		EXISTING LOAD	1	20	12
13	20	1	EXISTING LOAD		0				EXISTING LOAD	1	20	14
15	20	1	EXISTING LOAD			0			EXISTING LOAD	1	20	16
17	20	1	EXISTING LOAD				0		EXISTING LOAD	1	20	18
19	20	1	EXISTING LOAD		0				EXISTING LOAD	1	20	20
21	20	1	EXISTING LOAD			0			EXISTING LOAD	1	20	22
23	20	1	EXISTING LOAD				0		EXISTING LOAD	1	20	24
25	20	1	ION EXCHANGE ROOM LTG	335	535			200	FACP	1	20	26
27	20	1	ION EXCHANGE ROOM RECEPT.	900		1100		200	PLC CONTROL PANEL	1	20	28
29	20	1	ION EXCHANGE ROOM RECEPT.	900			1100	200	INSTRUMENTATION POWER	1	20	30
31	20	1	EYE WASH CONTROL PANEL	200	400			200	INSTRUMENTATION POWER	1	20	32
33	20	1	HV CONTROL PANEL	200		400		200	INSTRUMENTATION POWER	1	20	34
35	20	1	B.M.P. MIXER CP	200			400	200	INSTRUMENTATION POWER	1	20	36
37	20	1	EXTERIOR LIGHTING	100	300			200	A.S. MIXER CP	1	20	38
39	20	1	BMP METERING PUMP	696		1392		696	A.S. METERING PUMP	1	20	40
41	20	1	SODIUM HYP. METERING PUMP	696			696		SPARE	1	20	42
			TOTAL CONNECTED LOAD (VA) PER PHASE:		1235	2892	2196					
			CONNECTED LOAD (AMPS) PER PHASE		10	24	18					
			TOTAL CONNECTED LOAD (VA):		6323							
			TOTAL CONNECTED LOAD (AMPS):		18							

OPTIONS							
VOLTS L-L:	208	MAIN OVERCURRENT:	100A MCB	BUS MATERIAL:	Cu	MOUNTING:	SURFACE
VOLTS L-N:	120	MAIN BUS RATING:	100A	NEUTRAL SIZE:	100%	ENCLOSURE TYPE:	NEMA 12
PHASE:	3	MINIMUM A.I.C.:	10kA	GROUND:	EQUIPMENT		
WIRE:	4						

NOTES:

1. RUN 2#12,1#12G IN 3/4"C FOR ALL 120V CIRCUIT UNLESS OTHERWISE NOTED.
2.

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Project Number	B/O	Total
507402365	42	56

Drawing Number: E701

Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ELECTRICAL
SCHEDULES

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HVAC LEGEND

NEW WORK

DEMOLITION WORK

M
MOTORIZED DAMPER

BDD
BACK DRAFT DAMPER

MANUAL VOLUME DAMPER

FIRE DAMPER WITH ACCESS DOOR

COMBINATION FIRE / SMOKE DAMPER
WITH ACCESS DOOR

(CFM)
CEILING MOUNTED SUPPLY DIFFUSER,
360° AIR PATTERN, WITH NOTED AIR FLOW

RR
CFM
CEILING MOUNTED RETURN OR EXHAUST REGISTER

RG
CFM
CEILING MOUNTED RETURN OR EXHAUST GRILLE

SUPPLY DUCT ELBOW WITH TURNING VANES
(PLAN, UP, DOWN)

RETURN OR EXHAUST DUCT ELBOW
WITH
TURNING VANES (PLAN, UP, DOWN)

TG
TRANSFER GRILLE

U/D
1" UNDERCUT DOOR

OAC
OPENING IN WALL ABOVE CEILING

SIZE
DG
DOOR GRILLE

T
WALL MOUNTED TEMPERATURE SENSOR,
MOUNT 5'-0" ABOVE FINISHED FLOOR

INDICATES POINT OF CONNECTION BETWEEN
NEW AND EXISTING

INDICATES POINT OF DISCONNECTION

HVAC ABBREVIATIONS

AC	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AMP	AMPERE
APD	AIR PRESSURE DROP
ARCH	ARCHITECTURAL
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BCPR	BRANCH CIRCUIT PROTECTION RATING
B/D	BELT DRIVE
BDD	BACK DRAFT DAMPER
BHP	BREAK HORSEPOWER
BLDG.	BUILDING
BOT.	BOTTOM
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
CD	CONDENSATE DRAIN
CF	CIRCULATING FAN
CFM	CUBIC FEET PER MINUTE
CO	CARBON MONOXIDE
CONT.	CONTINUATION
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CR	CEILING REGISTER
CU	CONDENSING UNIT
CU. FT.	CUBIC FEET
CUH	CABINET UNIT HEATER
DB	DRY BULB
dBA	DECIBELS
DD	DIRECT DRIVE
DDC	DIRECT DIGITAL CONTROLS
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EFT	ENTERING FLUID TEMPERATURE
EL	ELEVATION
ELEC.	ELECTRICAL
ER	EXHAUST REGISTER
ERV	ENERGY RECOVERY UNIT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EXH.	EXHAUST
°F	DEGREE, FAHRENHEIT
FBL	FIXED BLADE LOUVER
FC	FLEXIBLE CONNECTOR
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FSD	COMBINATION FIRE / SMOKE DAMPER
FT	FEET
FT. WG.	FEET OF WATER COLUMN GAUGE
G	GAS
GA.	GAUGE
GAL	GALLONS
GPM	GALLONS PER MINUTE
H	HEIGHT
HP	HORSEPOWER
HR	HOURS
HZ	HERTZ
IN.	INCHES
IN. WG.	INCHES OF WATER COLUMN GAUGE
I.V.D.	INLET VANE DAMPER
kW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LF	LINEAR FEET
LFT	LEAVING FLUID TEMPERATURE
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPERES
LV	LOUVER
MAX	MAXIMUM
MBCA	MINIMUM BRANCH CIRCUIT AMPACITY
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPERES
MD	MOTORIZED DAMPER
MECH.	MECHANICAL
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MVD	MOTORIZED VANE DAMPER
NC	NORMALLY CLOSED
NFA	NET FREE AREA
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
O.C.	ON CENTER
OSA	OUTSIDE SUPPLY AIR
P	PUMP
PD	PRESSURE DROP
PH	PHASE
PRESS.	PRESSURIZATION
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH, GAUGE
QTY	QUANTITY
RA	RETURN AIR
RF	RETURN FAN
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RLA	RUNNING LOAD AMPERES
RM	ROOM
R.O.	ROOF OPENING
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SENS.	SENSIBLE
SF	SUPPLY FAN
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SQ	SQUARE
SQ. FT.	SQUARE FEET
SP	STATIC PRESSURE
SR	SUPPLY REGISTER
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
V	VOLT
VAV	VARIABLE AIR VOLUME TERMINAL UNIT
VD	VOLUME DAMPER
VIF	VERIFY IN FIELD
VFD	VARIABLE FREQUENCY DRIVE
W	WIDTH
W/	WITH
WB	WET BULB
W.C.	WATER COLUMN
WG	WATER GAUGE
WMS	WIRE MESH SCREEN

GENERAL NOTES

1. DUE TO THE SMALL SCALE OF THE DRAWINGS THE DUCTWORK AND PIPING SHOWN ARE DIAGRAMMATIC. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS TO AVOID CONFLICTS WITH STRUCTURAL ELEMENTS, LIGHTING FIXTURES, PLUMBING AND SPRINKLER PIPING.
2. DUE TO TIGHT SPACE CONDITIONS, COORDINATION OF DUCT, PIPE, CONDUITS AND STRUCTURAL MEMBER LOCATIONS IS CRITICAL. GENERAL CONTRACTOR SHALL PREPARE COORDINATION DRAWINGS TO BE SIGNED BY ALL TRADES. COORDINATION DRAWINGS SHOULD INCLUDE ALL DUCTWORK, PIPING, LIGHTING FIXTURES, ETC. OBTAIN ENGINEER'S APPROVAL PRIOR TO DUCTWORK AND PIPING INSTALLATION.
3. PRIOR TO ORDERING OR FABRICATING ANY NEW EQUIPMENT, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CLEARANCES. EQUIPMENT LOCATIONS AND CONNECTION SIZES SHALL BE DERIVED FROM THE MANUFACTURER'S CERTIFIED DRAWINGS FOR THE SPECIFIC EQUIPMENT THAT WILL ACTUALLY BE FURNISHED AND INSTALLED FOR THIS PROJECT. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.
4. THE DETAILS INDICATED ON THE DRAWINGS AS TYPICAL SHALL APPLY TO ALL SIMILAR CONDITIONS UNLESS NOTED SPECIFICALLY OTHERWISE.
5. PROVIDE ALL NECESSARY DUCT TRANSITIONS FROM THE INDICATED DUCT SIZE TO THE ACTUAL EQUIPMENT DUCT COLLAR SIZE.
6. ALL DUCT ELBOWS SHALL BE EITHER VANED OR LONG RADIUS ELBOWS.
7. PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCT CONNECTIONS TO EQUIPMENT.
8. PROVIDE ADJUSTABLE AIR VOLUME DAMPERS AT ALL DUCT BRANCHES, AND IN THE DUCTS TO CEILING DIFFUSERS, SUPPLY, AND RETURN/EXHAUST REGISTERS.
9. ALL SPACE TEMPERATURE SENSORS (THERMOSTATS) SHALL BE MOUNTED AT 5'-0" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.
10. WHEN PIPES, DUCTS AND OTHER HANGING ITEMS ARE SUPPORTED FROM THE STRUCTURAL ELEMENTS, THE CONTRACTOR SHALL PROVIDE THE MISCELLANEOUS STEEL NECESSARY TO SUPPORT PIPING, DUCTWORK AND MECHANICAL EQUIPMENT.
11. SHOULD DISCREPANCIES OCCUR BETWEEN CONTRACT DRAWINGS AND CONTRACT SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS IN CONJUNCTION WITH APPLICABLE LOCAL CODES, STANDARDS, RULES, LAWS, ETC. SHALL APPLY.

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Certificate No. 24GA28016600

Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO, PE
Professional Engineer (License No. PE084832)
REGISTERED PROFESSIONAL ENGINEER PE084832 COMMONWEALTH OF PENNSYLVANIA
DATE 12/16/2020

Designed	J. WANG		Eng check		
Drawn	D. GONZALEZ		Coordination		
Dwg check	M. LAPILUSA		Approved		

Scale	Status	Rev	Security
NTS	PERMIT		STD

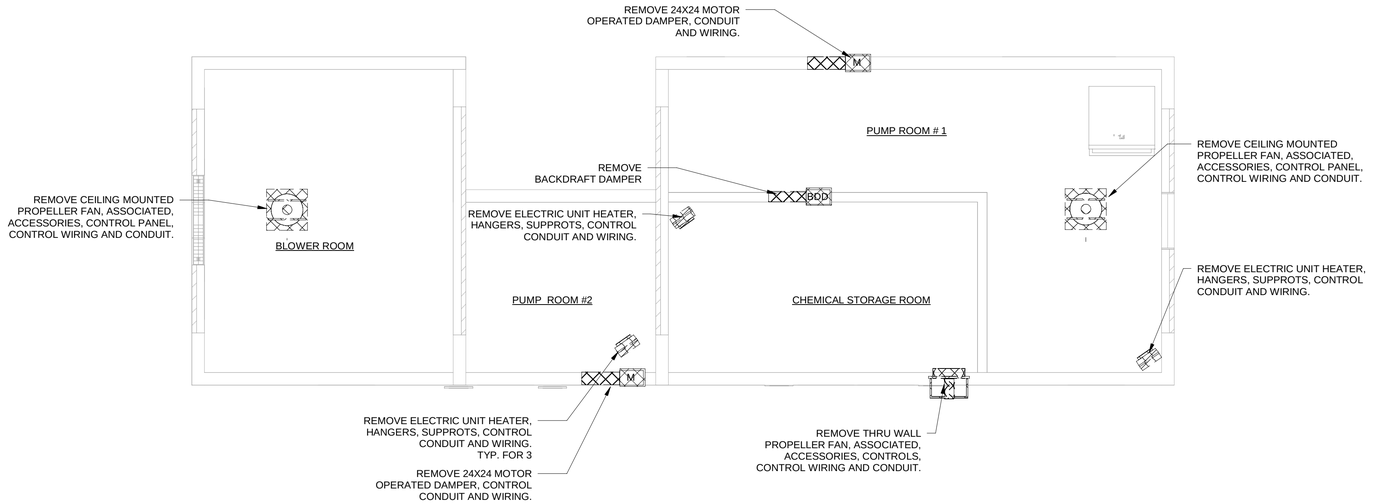
Project Number	B/O	Total
507402365	43	56

Drawing Number
M001

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
MECHANICAL - HVAC
SYMBOLS, ABBREVIATIONS, AND
NOTES

NOTES:

1. SEE DWG M001 FOR SYMBOLS, ABBREVIATIONS, AND NOTES
2. SEE DWG M102 FOR NEW FLOOR PLAN
3. SEE DWG M500 FOR DETAILS
4. SEE DWG M600 FOR SCHEDULES
5. SEE DWG M601, 602 FOR CONTROLS



MECHANICAL - HVAC DEMO FLOOR PLAN

SCALE: 1/4" = 1'-0"

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SCALE: 1/4" = 1'-0"

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ANTHONY FRANCIS PEDRO, PE
Professional Engineer in DC, MD. PE084832

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER PE084832

DATE 12/16/2020

Designed	J. WANG		Eng check		
Drawn	D. GONZALEZ		Coordination		
Dwg check	M. LAPILUSA		Approved		

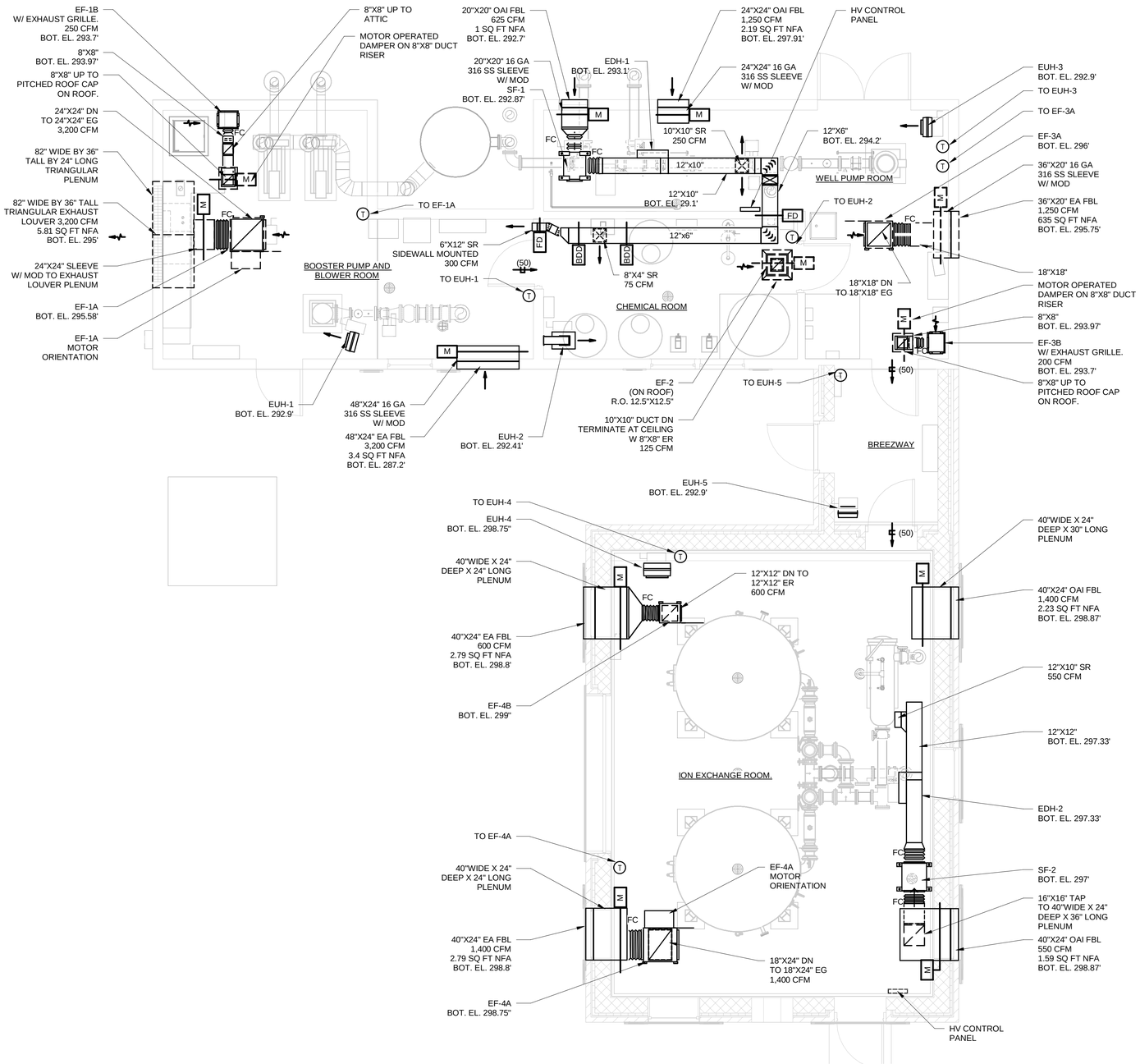
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1/4"=1'-0"	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	44	56	M101

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
MECHANICAL-HVAC
DEMOLITION FLOOR PLAN

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NOTES:

1. SEE DWG M001 FOR SYMBOLS, ABBREVIATIONS, AND NOTES
2. SEE DWG M101 FOR DEMOLITION FLOOR PLAN
3. SEE DWG M500 FOR DETAILS
4. SEE DWG M600 FOR SCHEDULES
5. SEE DWG M601, 602 FOR CONTROLS

MECHANICAL-HVAC FLOOR PLAN

SCALE: 1/4" = 1'-0"

SCALE: 1/4" = 1'-0"

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Rev	Date	Drawn	Description	Ch'k'd	App'd

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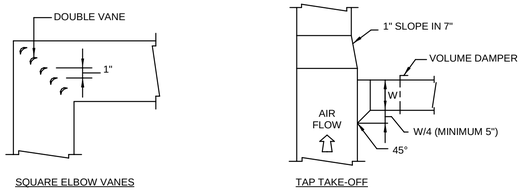
DATE 12/16/2020

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Drawn	D. GONZALEZ		Coordination		
Dwg check	M. LAPILUSA		Approved		
Scale	1/4"=1'-0"	Status	PERMIT	Rev	Security STD
Project Number	507402365	B/O	45	Total	56
Drawing Number	M102				

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
MECHANICAL-HVAC
FLOOR PLAN

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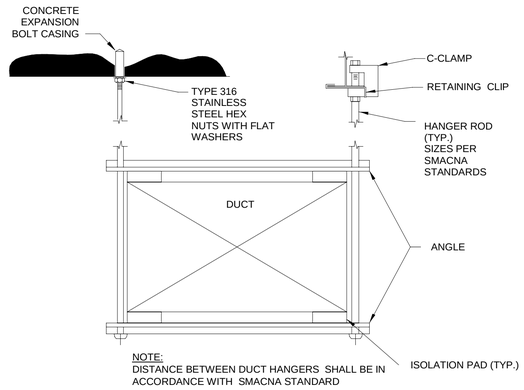
SQUARE ELBOW VANES

TAP TAKE-OFF

RECTANGULAR DUCT DETAIL

Detail 1

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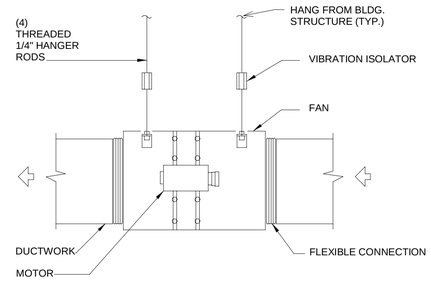
NOTE:
DISTANCE BETWEEN DUCT HANGERS SHALL BE IN ACCORDANCE WITH SMACNA STANDARD

HANGING DUCTWORK

NOT TO SCALE

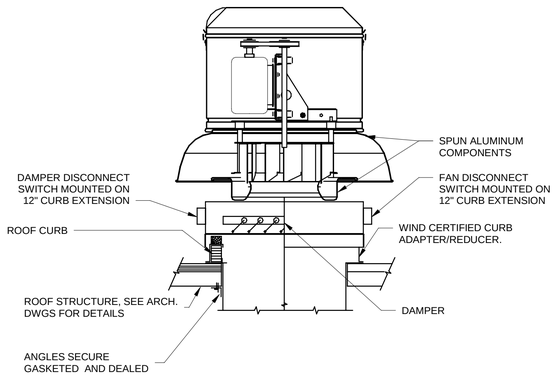
Detail 2

SCALE:1" = 0'-1"



Detail 3

SCALE:1" = 0'-1"



NOTES:

1. SEE SPECIFICATION 15050 FOR ADDITIONAL WIND RESTRAINT INSTALLATION REQUIREMENTS.

ROOF MOUNTED FAN DETAIL

Detail 4

SCALE:NTS

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ANTHONY FRANCIS PEDRO, PE
Professional Engineer LIC.NO. PE084832

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ANTHONY FRANCIS PEDRO ENGINEER PE084832

DATE 12/16/2020

Designed	J. WANG		Eng check		
Drawn	D. GONZALEZ		Coordination		
Dwg check	M. LAPILUSA		Approved		

Scale	Status	Rev	Security
NTS	PERMIT		STD

Project Number	B/O	Total
507402365	46	56

Drawing Number: M500

Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
MECHANICAL - HVAC
DETAILS

FAN SCHEDULE

TAG	LOCATION	ROOM SERVED	MANUFACTURER & MODEL NO.	FAN TYPE	DRIVE	AIR FLOW CFM	ESP IN. WC.	FAN RPM	BHP	FLA A	MOTOR TYPE	MOTOR RPM	MOTOR HP	MOTOR V/PH/Hz	WEIGHT LBS	NOTES
EF-1A	ATTIC	BOOTER PUMP/BLOWER RM	GREENHECK- BSQ-160HP-20	INLINE	BELT	3,200	0.75	1,749	1.35	3.40	TEFC	1,725	2	460/3/60	151	1,11-12,14-16
EF-1B	BOOTER PUMP/BLOWER RM	BOOTER PUMP/BLOWER RM	GREENHECK SP-A390-VG	CEILING FAN	DIRECT	250	0.50	1,301	-	1.50	TENV	1,550	49 WATTS	115/1/60	30	12-14,16,18
EF-2	ROOF	CHEMICAL ROOM	GREENHECK- LDP-70	PENTHOUSE FAN	DIRECT	125	0.50	1,665	0.02	-	TEFO	1,665	1/30	115/1/60	107	1-12
EF-3A	ATTIC	WELL PUMP ROOM	GREENHECK SQ-130-VG	INLINE	DIRECT	1,250	0.75	1,353	0.30	13.80	ODP	1,725	3/4	115/1/60	61	11-16,19
EF-3B	WELL PUMP ROOM	WELL PUMP ROOM	GREENHECK SP-A390-VG	CEILING FAN	DIRECT	200	0.50	1,301	-	1.50	TENV	1,550	37 WATTS	115/1/60	30	12-14,16,18
EF-4A	ION EXCHANGE ROOM	ION EXCHANGE ROOM	GREENHECK BSQ-160HP-5	INLINE	BELT	1,400	0.75	1,078	0.35	9.80	TEFC	1,725	1/2	115/1/60	126	1,11-12,14-16
EF-4B	ION EXCHANGE ROOM	ION EXCHANGE ROOM	GREENHECK SQ-95-vg	INLINE	DIRECT	600	0.50	1,638	0.12	4.40	ODP	1,725	1/6	115/1/60	53	1,11-12,14-16
SF-1	WELL PUMP ROOM	VARIOUS	GREENHECK bsq-80-7	INLINE	BELT	625	1.00	2,150	0.46	1.60	TEFC	1,725	3/4	460/3/3	117	1,11-12,14-16
SF-2	ION EXCHANGE ROOM	ION EXCHANGE ROOM	GREENHECK SQ-120-VG	INLINE	DIRECT	550	0.50	1,007	0.09	9.80	ODP	1,725	1/2	115/1/60	58	1,11-12,14-16

NOTES:
1. NEMA PREMIUM EFFICIENT MOTOR
2. NEMA 3R DISCONNECT SWITCH
3. JUNCTION BOX
4. HIGH WIND RATED
5. HINGED CURB CAP
6. FOAM SEALS
7. 120 VOLT MOTORIZED DAMPERS IN NEMA 3R ENCLOSURE WITH END SWITCH
8. TIE DOWN POINTS
9. STAINLESS STEEL FASTERNERS AND BIRDSCREENS
10. 18" HIGH INSULATED ROOF CURBS
11. HI-PRO POLYESTER ON FAN, AND ACCESSORIES
12. SEE SPECIFICATION 15071-VIBRATION AND WIND CONTROL FOR ADDITIONAL REQUIREMENTS
13. VARIGREEN DRIVE
14. ISOLATORS, BRACKETS AND SPRINGS FOR HANGING
15. INSULATED HOUSING
16. 120 VOLT MOTORIZED DAMPERS IN NEMA 12 ENCLOSURE WITH END SWITCH
17. FOR SIDEWALL INSTALLATION
18. ROOF JACK VENT

ELECTRIC DUCT HEATER SCHEDULE

TAG No.	LOCATION	MANUFACTURER	MODEL	CAPACITY KW	CFM	DUCT SIZE IN. X IN.	MIN AIR VELOCITY FPM	MAX. AIR P.D. IN.W.C.	EAT F	LAT F	AMPS	V/PH/HZ	REMARKS
EDH-1	WELLPUMP ROOM	QMARK	-	9.0	625	12X10	200	0.03	0.0	50.0	10.8	460/3/60	1-8
EDU-2	ION EXCHANGE ROOM	QMARK	-	8.5	550	12X12	158	0.03	0.0	50.0	10.2	460/3/60	1-8

NOTES:
1. 24V CONTROL VOLTAGE (PROVIDE TRANSFORMER AS REQUIRED)
2. SCR CONTROL
3. FAN RELAY/AIR FLOW SWITCH
4. NEMA 12 ENCLOSURE CONSTRUCTION
5.DUCT-STAT W/REMOTE DIAL
6. NEMA 12 DISCONNECT
7.TERMINAL BOX OVERHANG- SEE PLANS FOR LOCATION
8. THERMAL CUTOUT

ELECTRIC UNIT HEATER SCHEDULE

TAG No.	LOCATION	MANUFACTURER & MODEL NO.	CAPACITY KW	CAPACITY BTUH	TEMPERATURE RISE F	TOTAL AMPS	V/PH/HZ	NOTES
EUH-1	BOOSTER PUMP/BLOWER RM	QMARK-MUH0541	5.0	17,060	45	6.2	480/3/60	1-5
EUH-2	CHEMICAL ROOM	QMARK-QWD05432	5.0	17,060	23	6	480/3/60	3,6-9
EUH-3	WELL PUMP ROOM	QMARK-MUH0541	5.0	17,060	45	6.2	480/3/60	1-5
EUH-4	ION EXCHANGE ROOM	QMARK-MUH074	7.5	25,590	37	9.39	480/3/60	1-5
EUH-5	BREEZEWAY	QMARK-MUH0541	5.0	17,060	45	6.2	480/3/60	1-5

NOTES
1. INTEGRAL SUMMER FAN SWITCH AND FAN RELAY
2. MAGNETIC CONTACTORS, THERMAL CUTOUTS W/ AUTOMATIC RESET
3. STAINLESS STEEL SWIVEL WALL/CEILING MOUNTING BRACKET
4. WALL MOUNTED THERMOSTAT
5. INTEGRAL 24V CONTROL AND DISCONNECT
6. EPOXY PAINTED STAINLESS STEEL PARTS, HOUSING, GRILLES AND FAN BLADES.
7. NEMA 4X DISCONNECT AND WALL THERMOSTAT
8. HEATER ON LIGHT
9.THREE POSITION SELECTOR SWITCH

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Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO, PE
Professional Engineer, LIC.NO. PE084832

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ANTHONY FRANCIS PEDRO ENGINEER PE084832

DATE 12/16/2020

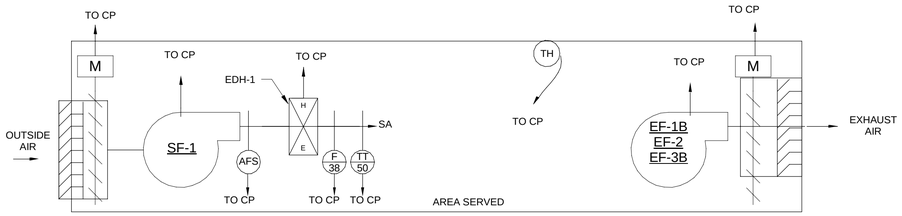
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Dwg check	M. LAPILUSA		Approved		

Scale	Status	Rev	Security
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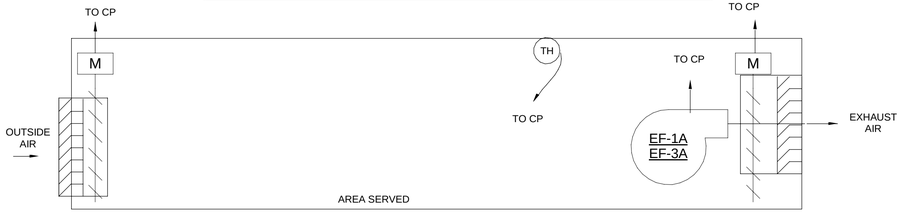
Project Number	B/O	Total
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Drawing Number: M600

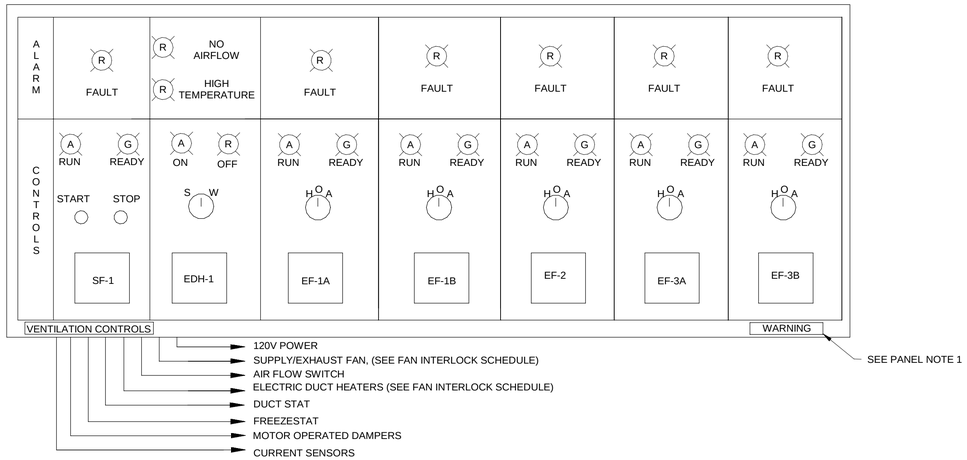
Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
MECHANICAL - HVAC
SCHEDULES



SUPPLY FAN , ELECTRIC DUCT HEATER & EXHAUST FAN NORMAL VENTILATION SYSTEM CONTROL DIAGRAM



THERMOSTATICALLY CONTROLLED SYSTEM EF-1A AND 3A



FANS VENTILATION CONTROL PANEL

FAN INTERLOCK SCHEDULE

UNIT NO.	LOCATION	AREA SERVED	INTERLOCKS		PANEL NOTES
			WITH	CONTROL	
SF-1	WELL PUMP ROOM	WELL ROOM, PUMP RM, BLOWER AND CHEMICAL ROOM	MOD'S/EDH-1/ EF-1B/EF-2/EF-3B	START/STOP	1-4
EF-1B, EF-2,EF-3B	WELL PUMP RM, BOOSTER PUMP/ BLOWER RM AND CHEMICAL RM	WELL PUMP RM, BOOSTER PUMP/ BLOWER RM AND CHEMICAL RM	MOD'S/SF-1	H-O-A	1-4
EF-1A,EF-3A	WELL PUMP RM, BOOSTER PUMP/BLOWER RM	WELL PUMP RM, BOOSTER PUMP/BLOWER RM	MOD'S	H-O-A/ THERMOSTAT	1-4
SF-2	ION EXCHANGE ROOM.	ION EXCHANGE ROOM.	MOD'S/EDH-2/ EF-4B	START/STOP	1-3
EF-4A	ION EXCHANGE ROOM.	ION EXCHANGE ROOM.	MOD'S	H-O-A/ THERMOSTAT	1-3
EF-4B	ION EXCHANGE ROOM.	ION EXCHANGE ROOM.	MOD'S/SF-2	H-O-A/	1-3

SUPPLY FAN , ELECTRIC DUCT HEATER & EXHAUST FAN NORMAL VENTILATION SYSTEM

A. DUCT HEATER - SEQUENCE OF OPERATION

GENERAL:

1. PROVIDE ALL PROGRAMMABLE CONTROLLERS, RELAYS, SENSORS, COMPONENTS, TRANSFORMERS, WIRING AND CONDUIT TO ACHIEVE ALL SEQUENCES OF OPERATION.
2. COORDINATE POWER AND WIRING WITH OTHER TRADES.

INTERLOCKS:

1. AS SHOWN IN SCHEDULE.

DUCT HEATER OPERATION:

HEATER SHALL HAVE PACKAGE CONTROLS. THE SYSTEM SHALL BE PROVIDED WITH A MODULATING SCR CONTROLLER, DUCT MOUNTED TEMPERATURE SENSOR. THE DUCT TEMPERATURE SENSOR SHALL MODULATE THE HEATERS TO MAINTAIN DISCHARGE AIR TEMPERATURE SET POINT OF 50 dF (ADJUSTABLE).

DUCT HEATER SYSTEM SHALL HAVE A SUMMER/WINTER SWITCH WHICH SHALL ENABLE/DISABLE THE HEATER.

ALARMS/SAFETY

1. EDH-1 SHALL HAVE AN AIR-FLOW SWITCH WHICH SHALL PREVENT THE HEATER FROM OPERATING WHEN THE SUPPLY FAN IS NOT RUNNING.
2. EDH-1 SHALL HAVE A HIGH LIMIT TEMPERATURE SWITCH WHICH SHALL SHUT THE HEATER DOWN ON A HIGH TEMPERATURE CONDITION.
3. FREEZE - A DISCHARGE AIR TEMPERATURE SENSOR SHALL SHUTDOWN THE UNIT UPON DETECTION OF AN (ADJUSTABLE) DISCHARGE AIR TEMPERATURE OF 38° F. AN ALARM SHALL BE SENT TO THE CONTROL PANEL. THE LOCAL STOP BUTTON SHALL SERVE AS THE RESET FOR THIS CONDITION.

B. SUPPLY AND EXHAUST FAN - SEQUENCE OF OPERATION

GENERAL:

1. PROVIDE ALL PROGRAMMABLE CONTROLLERS, RELAYS, SENSORS, COMPONENTS, TRANSFORMERS, WIRING AND CONDUIT TO ACHIEVE ALL SEQUENCES OF OPERATION.
2. COORDINATE POWER AND WIRING WITH OTHER TRADES.

INTERLOCKS:

1. AS SHOWN IN SCHEDULE.

FAN OPERATION:(SF-1,SF-2)

FAN:	FAN SHALL OPERATE VIA START/STOP SWITCH.
START POSITION:	FAN SHALL ACTIVATE ONCE ALL ASSOCIATED DAMPERS HAVE PROVEN OPEN VIA END SWITCHES.
STOP POSITION:	THE FAN SHALL DEACTIVATE AND ALL ASSOCIATED DAMPERS SHALL CLOSE.

FAN OPERATION:(EF-1B, EF-2, EF-3B,EF-4B)

FAN:	FAN SHALL OPERATE VIA HOA SWITCH.
HAND POSITION:	FAN SHALL ACTIVATE ONCE ALL ASSOCIATED DAMPERS HAVE PROVEN OPEN VIA END SWITCHES.
OFF POSITION:	FAN SHALL DEACTIVATE AND ALL ASSOCIATED DAMPERS SHALL CLOSE.
AUTO POSITION:	FAN SHALL BE INTERLOCKED WITH SUPPLY FAN, OPERATION SHALL BE AS DESCRIBED IN THE HAND/OFF POSITIONS.

ALARMS/SAFETY

1. A FAULT ALARM SHALL BE GENERATED FOR EXHAUST FANS WHEN A SIGNAL IS RECEIVED FROM EF-1B, 2, 3B AND 4B'S CURRENT SENSOR WHEN THE FAN FAILS TO START UPON COMMAND.
2. LACK OF AIRFLOW FOR SF-1,SF-2 - AN AIRFLOW SWITCH SHALL BE PROVIDED. AN ALARM SHALL BE SENT TO THE CONTROL PANEL WHICH SHALL SHUT DOWN THE VENTILATION SYSTEM. THE LOCAL STOP BUTTON SHALL SERVE AS A RESET FOR THIS CONDITION

THERMOSTATICALLY CONTROLLED SYSTEM EF-1A,3A, AND 4A

GENERAL:

1. PROVIDE ALL PROGRAMMABLE CONTROLLERS, RELAYS, SENSORS, COMPONENTS, TRANSFORMERS, WIRING AND CONDUIT TO ACHIEVE ALL SEQUENCES OF OPERATION.
2. COORDINATE POWER AND WIRING WITH OTHER TRADES.

INTERLOCKS:

1. AS SHOWN IN SCHEDULE.

FAN:	FAN SHALL OPERATE VIA HOA SWITCH.
HAND POSITION:	FAN SHALL ACTIVATE ONCE ALL ASSOCIATED DAMPERS HAVE PROVEN OPEN VIA END SWITCHES.
OFF POSITION:	FAN SHALL DEACTIVATE AND ALL ASSOCIATED DAMPERS SHALL CLOSE.
AUTO POSITION:	FAN SHALL BE CONTROLLED BY THE ROOM THERMOSTAT TO MAINTAIN A ROOM TEMPERATURE SETPOINT OF 95° F (ADJUSTABLE). THE FAN SHALL OPERATE AS DESCRIBED IN THE HAND POSITION UNTIL THE THERMOSTAT IS SATISFIED. ONCE THE THERMOSTAT IS SATISFIED, THE FAN SHALL OPERATE AS DESCRIBED IN THE OFF POSITION.

ALARMS/SAFETY

1. A FAULT ALARM SHALL BE GENERATED FOR EXHAUST FANS WHEN A SIGNAL IS RECEIVED FROM EF-1A,3A, AND 4A'S CURRENT SENSOR WHEN THE FAN FAILS TO START UPON COMMAND.

LEGEND

- CENTRIFUGAL FAN
- PLENUM FAN
- ROOF MOUNTED UPBLAST FAN
- LOUVERED PENTHOUSE
- FILTER ASSEMBLY
- HEATING, ELECTRIC COIL
- DUCT HEATER, ELECTRIC
- RC — RESET CONTROLLER
- F — FREEZSTAT
- A — AMBER LIGHT (WARNING)
- R — RED LIGHT (EQUIPMENT OFF)
- G — GREEN LIGHT (EQUIPMENT ON)
- DAMPER, PARALLEL
- LOUVER
- M — ELECTRIC ACTUATOR
- MS — MOTOR STARTER
- DPS — DIFFERENTIAL PRESSURE SWITCH
- AFS — AIR FLOW SWITCH
- TH — THERMOSTAT
- T — ROOM TEMPERATURE SENSOR
- TT — TEMPERATURE SENSOR
- SD — SMOKE DETECTOR
- LLC — LOW LIMIT CONTROLLER
- H A — OFF-AUTO SWITCH
- H O A — HAND OFF-AUTO SWITCH
- S W — SUMMER/WINTER SWITCH
- KEYED BYPASS
- PUSHED BUTTON

C/P	CONTROL PANEL
EA	EXHAUST AIR
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR

PANEL NOTES

1. PLACE A RED WARNING SIGN CONSPICUOUSLY ON THE FACE OF EACH HVAC CONTROL PANEL WHICH READS AS FOLLOWS:

> WARNING
> THIS PANEL IS CONNECTED TO MULTIPLE SOURCES OF POWER

2. PANELS HALL BE NEMA 12 WITH DOOR INTERLOCKED DISCONNECT DOOR.
3. PROVIDE EQUIPMENT NUMBER UNDER EACH OPERATING CONTROL.
4. ALL CONTROL DEVICES ASSOCIATED WITH THE CHEMICAL STORAGE ROOM SHALL BE NEMA 4X AND CORROSION RESISTANT RATED.

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BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO, PE
Professional Engineer, Lic. No. PE084832
REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF PENNSYLVANIA ENGINEER PE084832
DATE 12/16/2020

Designed	J. WANG		Eng check		
Drawn	D. GONZALEZ		Coordination		
Dwg check	M. LAPILUSA		Approved		

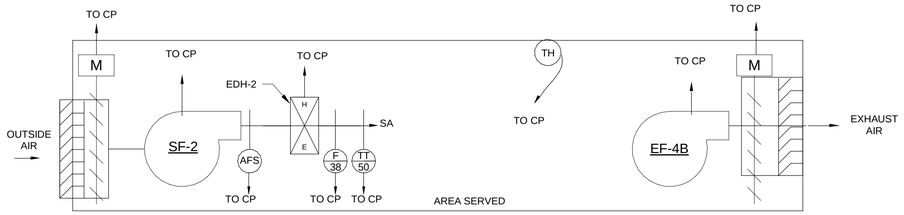
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NTS	PERMIT		STD

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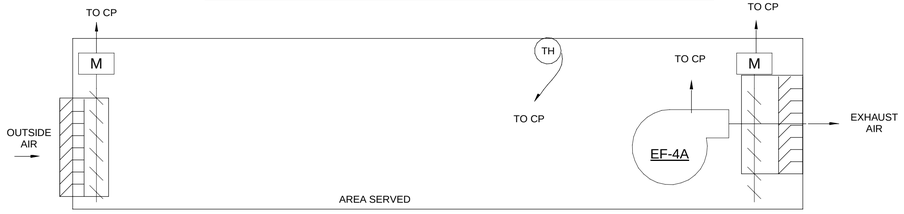
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
MECHANICAL - HVAC CONTROLS- SHEET 1 OF 2

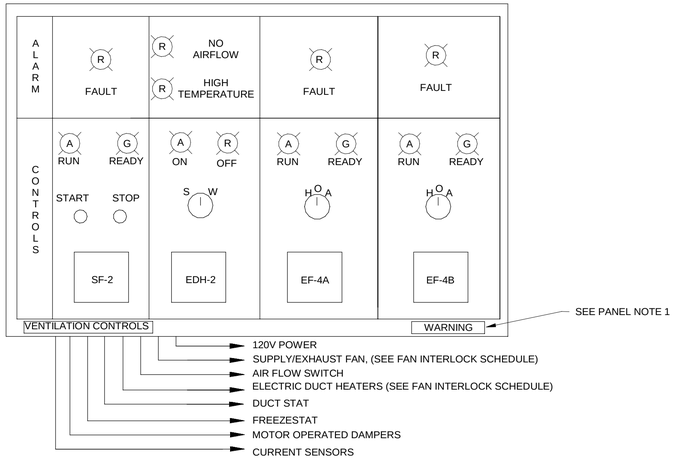
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SUPPLY FAN , ELECTRIC DUCT HEATER & EXHAUST FAN NORMAL VENTILATION SYSTEM CONTROL DIAGRAM



THERMOSTATICALLY CONTROLLED SYSTEM EF- 4A



FANS VENTILATION CONTROL PANEL

LEGEND

- CENTRIFUGAL FAN
- PLENUM FAN
- ROOF MOUNTED UPBLAST FAN
- LOUVERED PENTHOUSE
- FILTER ASSEMBLY
- E / C — HEATING, ELECTRIC COIL
- DUCT HEATER, ELECTRIC
- RC — RESET CONTROLLER
- F — FREEZSTAT
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- KEYED BYPASS
- PUSHED BUTTON

C/P	CONTROL PANEL
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> WARNING
> THIS PANEL IS CONNECTED TO MULTIPLE SOURCES OF POWER

2. PANELS HALL BE NEMA 12 WITH DOOR INTERLOCKED DISCONNECT DOOR.
3. PROVIDE EQUIPMENT NUMBER UNDER EACH OPERATING CONTROL.

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Professional Engineer, PA No. PE084832
COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ANTHONY FRANCIS PEDRO — ENGINEER — PE084832
DATE 12/16/2020

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Drawn	D. GONZALEZ		Coordination		
Dwg check	M. LAPILUSA		Approved		

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Project Number	B/O	Total
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Drawing Number: M602

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
MECHANICAL - HVAC
CONTROLS-SHEET 2 OF 2

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PLUMBING SYMBOLS

DOMESTIC COLD WATER

DOMESTIC HOT WATER PIPING

HOT WATER RETURN PIPING

VENT PIPING

STORM DRAIN PIPING

SANITARY PIPING (ABOVEGROUND)

SANITARY PIPING BELOW GROUND

NATURAL GAS PIPING

GAS VENT PIPING

DEMOLISH PIPING

ABANDON PIPING

DEMOLISH FIXTURE

DETECTOR (CARBON MONOXIDE AND COMBUSTIBLE GAS)

PIPE DOWN

PIPE UP

PIPE RISE

GAS COCK (GAS VALVE)

GATE VALVE OR BALL VALVE

PRESSURE REDUCING VALVE

TRAP

CHECK VALVES

FLOOR DRAIN

ROOF DRAIN/AREA DRAIN

SHOWER HEAD

PIPE REDUCER

PIPE UNION

TEMPERATURE & PRESSURE RELIEF VALVE

DIRECTION OF FLOW

HOSE BIBB

CLEANOUT

CLEANOUT DECK PLATE

PIPE CAP

LIMITS OF VENDOR

LIMITS OF WORK

CONNECTION TO EXISTING SYSTEM

POINT OF DISCONNECTION

PLUG VALVE

NG METER

NG REGULATOR

IDENTIFICATION TARGET:
A = DETAIL NUMBER
XXX = SHEET NUMBER ON WHICH DETAIL IS LOCATED

PLUMBING ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	IE	INVERT ELEVATION
A.D.	ACCESS DOOR	IW	INDIRECT WASTE
AV	ACID VENT	KS	KITCHEN SINK
AW	ACID WASTE	LAV	LAVATORY
CO	CLEANOUT	L	LEADER
CODP	CLEANOUT DECK PLATE	MS	MOP SINK
C.L. ℄	CENTER LINE	NG	NATURAL GAS
CFH	CUBIC FEET PER HOUR	N.I.C.	NOT IN CONTRACT
CW	DOMESTIC COLD WATER	NFWH	NON-FREEZE WALL HYDRANT
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	P/	PER
DN.	DOWN	RD	ROOF DRAIN
DWG.	DRAWING	RM	ROOM
EL	ELEVATION	PRV	PRESSURE REDUCING VALVE
EM EW	EMERGENCY EYE WASH	RPZA	REDUCED PRESSURE ZONE ASSEMBLY
EES	EMERGENCY EYEWASH + SHOWER	RT	RUNNING TRAP
EXIST (E)	EXISTING	S/SAN	SANITARY
FAI	FRESH AIR INLET	SS	SAMPLE SINK
FD	FLOOR DRAIN	SL	SLEEVE
FT	FOOT/FEET	SH	SHOWER
FIN.	FINISH	SH DR	SHOWER DRAIN
FL.	FLOOR	TYP	TYPICAL
F.U.	FIXTURE UNITS	TD	TRENCH DRAIN
G	GAS	TW	TEMPERED WATER
GAL	GALLONS	UR	URINAL
GPF	GALLONS PER FLUSH	V	VENT
GPH	GALLONS PER HOUR	VTR	VENT THROUGH ROOF
GPM	GALLONS PER MINUTE	W	WASTE
HB	HOSE BIBB	WC	WATER CLOSET
HP	HORSEPOWER	WCO	WALL CLEANOUT
HW	DOMESTIC HOT WATER	WH	WATER HEATER
HWR	DOMESTIC HOT WATER RETURN	WHA	WATER HAMMER ARRESTER

GENERAL PLUMBING NOTES

1. THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED FOR THE PERFORMANCE OF WORK AND PAY ALL FEES IN CONNECTION THEREWITH.
2. CONTRACTOR SHALL CHECK AND VERIFY THE EXACT LOCATION OF ALL PIPE PENETRATIONS, PIPE ELEVATIONS, AREA DRAINS, ETC.
3. PROVIDE SHUT OFF VALVES AND UNIONS/FLANGES AT BASE OF ALL RISERS, MAINS, ALL BRANCHES AND ALL FIXTURE/EQUIPMENT CONNECTIONS IN ORDER TO ISOLATE FOR MAINTENANCE PURPOSES.
4. PROVIDE ACCESS DOORS FOR VALVES, AND ANY OTHER EQUIPMENT AND ACCESSORIES THAT REQUIRE ACCESS FOR MAINTENANCE OR OPERATION WHICH ARE LOCATED BEHIND WALLS AND PARTITIONS OR CONCEALED IN HUNG CEILINGS. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR.
5. THE CONTRACTOR SHALL COORDINATE PLUMBING WORK WITH ALL OTHER TRADES AND VERIFY DIMENSION AND CONDITIONS AT THE SITE PRIOR TO BEGINNING WORK. NO ADDITIONAL COSTS WILL BE ACCEPTED IF ATTRIBUTED TO FAILURE TO COORDINATE OR VERIFY.
6. ALL PLUMBING LINES SHOWN ARE DIAGRAMMATIC AND NOT INTENDED TO SHOW EXACT LOCATIONS. THE CONTRACTOR SHALL INSTALL PIPING SYSTEM TO MINIMIZE LENGTH OF RUNS AND AVOID INTERFERENCES.
7. ALL PIPING BELOW GRADE SHALL BE INSTALLED TO CLEAR FOOTINGS AND SHALL NOT BE INSTALLED WITHIN OR BELOW THE TRIANGULAR BEARING PLANE OF ALL FOOTINGS.
8. THE CONTRACTOR SHALL PROVIDE SEAL SLEEVES INSTALLED IN FIRE-RATED WALLS, CEILINGS AND FLOORS WITH FIRE-PROOF MATERIAL EQUAL TO THE RATING OF THE RESPECTIVE WALLS, CEILINGS AND FLOORS.
9. INSTALL PIPING AS STRAIGHT AND DIRECT AS POSSIBLE FORMING RIGHT ANGEL OR PARALLEL LINES WITH BUILDING WALLS, NEATLY SPACED, RISERS PLUMB AND TRUE, AND AVOID INTERFERENCE WITH OTHER CONSTRUCTION.
10. ALL PIPE SLEEVES SHALL BE COORDINATED WITH STRUCTURAL ENGINEER FOR SIZE, LOCATION AND ELEVATION.
11. APPLICABLE CODES:
    - INTERNATIONAL BUILDING CODE, 2015
    - INTERNATIONAL PLUMBING CODE, 2015

PIPE SCHEDULE

SYSTEM	LOCATION	MATERIAL	TYPE	STANDARD	JOINTS	FITTINGS
DOMESTIC WATER	ABOVE GROUND	COPPER	TYPE L	ASTM B88	SOLDERED	WROUGHT COPPER
DOMESTIC WATER	BURIED	COPPER	TYPE K	ASTM B88	COMPRESSION	WROUGHT COPPER
SANITARY/VENT	ABOVE GROUND	CAST IRON	NO-HUB	ASTM A 888 CISPI 301	HUBLESS COUPLINGS	CAST IRON
SANITARY/VENT	BURIED	CAST IRON	HUB+SPIGOT	ASTM A 74	RUBBER GASKET	CAST IRON

EMERGENCY EYEWASH + SHOWER SCHEDULE

TAG NO.	LOCATION	MANUFACTURER	MODEL	TYPE	FLOW RATE (GPM)	NOTES
EES-1	CHEMICAL ROOM	BRADLEY	S19314FSS	COMBINATION EYEWASH/SHOWER	20	INCLUDE FLOW SWITCH AND LOCAL ALARM

TRAP PRIMER SCHEDULE

TAG	LOCATION	EQUIPMENT SERVED	INLET (IN)	OUTLET (IN)	POWER			MANUFACTURER	NOTES
					WATTS	VA	V/PH/HZ		
TP-1	ION EXCHANGE ROOM	FLOOR DRAINS	1/2"	1/2"	6.3	8.8 HOLDING 12.1 IN RUSH	120/1/60	PRECISION PLUMBING PRODUCTS	1, 2
TP-2	ION EXCHANGE ROOM	FLOOR DRAINS	1/2"	1/2"	6.3	8.8 HOLDING 12.1 IN RUSH	120/1/60	PRECISION PLUMBING PRODUCTS	1, 2

NOTES: 1. INCLUDE DISTRIBUTION UNIT, DU SERIES. 2. 16 GAUGE STEEL ACCESS DOOR

ELECTRIC WATER HEATER SCHEDULE

TAG NO.	LOCATION	MANUFACTURER	MODEL	TYPE	RATING (KW)	VOLTS/PH	CURRENT (AMPS)	TEMP RISE (@ 20 GPM)	NOTES
WH-1	CHEMICAL ROOM	EEMAX	AP054480 EFD N4X	INSTANTANEOUS	54	408/3	65	18 °F	1, 2

NOTES:
1. UNFUSED DISCONNECT TO BE INCLUDED WITH WATER HEATER
2. WATERPROOF CORROSION RESISTANT 304 STAINLESS STEEL CABINET

MIXING VALVE SCHEDULE

SERVICE	LOCATION	AREA SERVED	SIZE			OUTLET TEMP (DEG. F)	MANUFACTURER (OR APPROVED EQUAL)	MODELS (OR APPROVED EQUAL)	NOTES
			CW	HW	TW				
MV-1	CHEMICAL ROOM	EES	1"	1"	1-1/4"	90°	BRADLEY	S19-2250	1, 2

NOTES: 1. RATED FOR EMERGENCY SHOWERS 2. ASSE 1071 CERTIFIED

FIXTURE SCHEDULE

TAG	FIXTURE TYPE	WASTE	VENT	HOT WATER	COLD WATER	DESCRIPTION
SS	SAMPLE SINK	1-1/2"	1-1/2"	NOT PROVIDED	NOT PROVIDED	ONE PIECE MOLDED DURASTONE, WALL MOUNTED, 20" X 24" X 14" BASIN

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DATE 12/17/2020

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Drawn	D. STICCO		Coordination		
Dwg check	M. LAPILUSA		Approved		

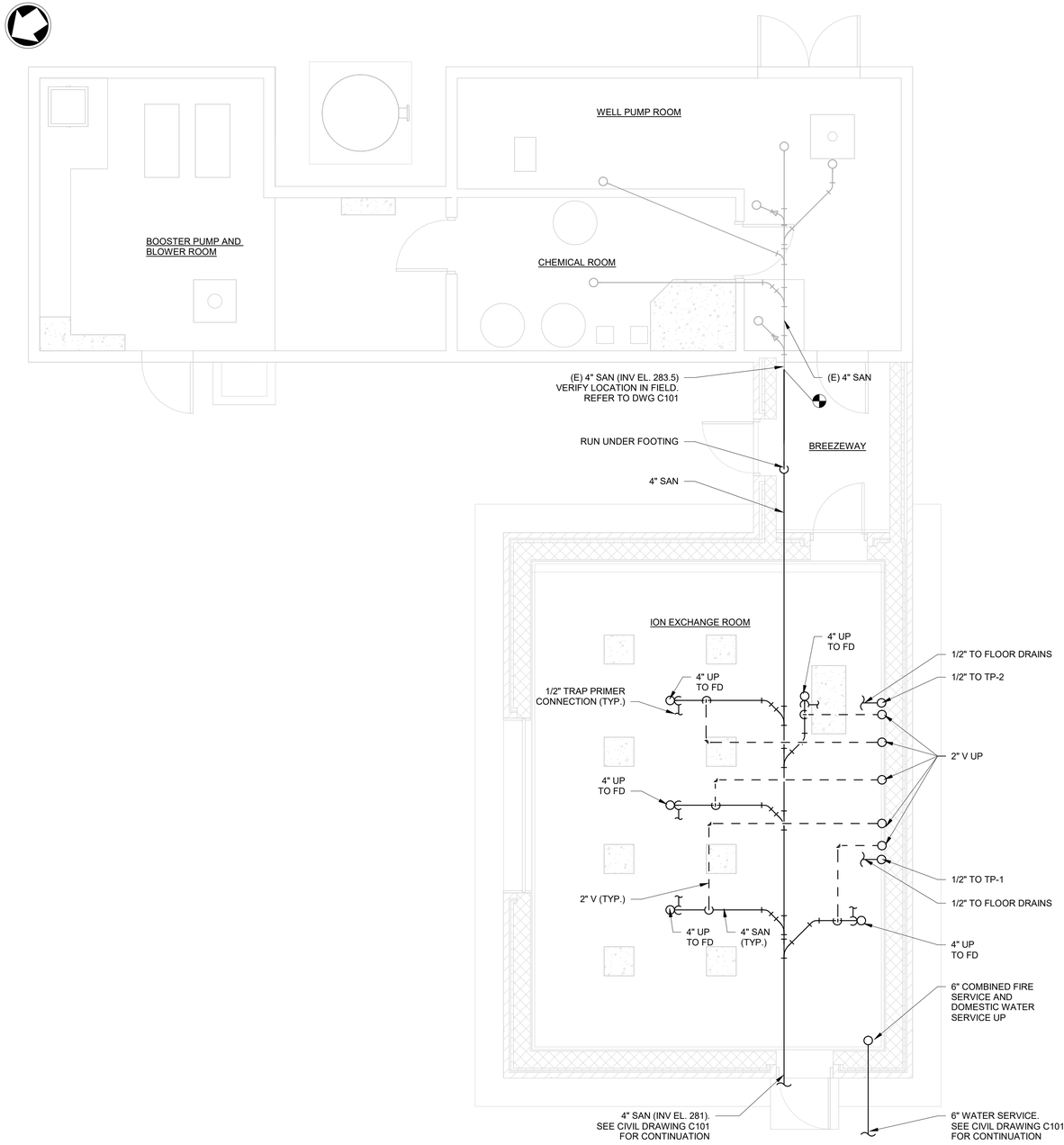
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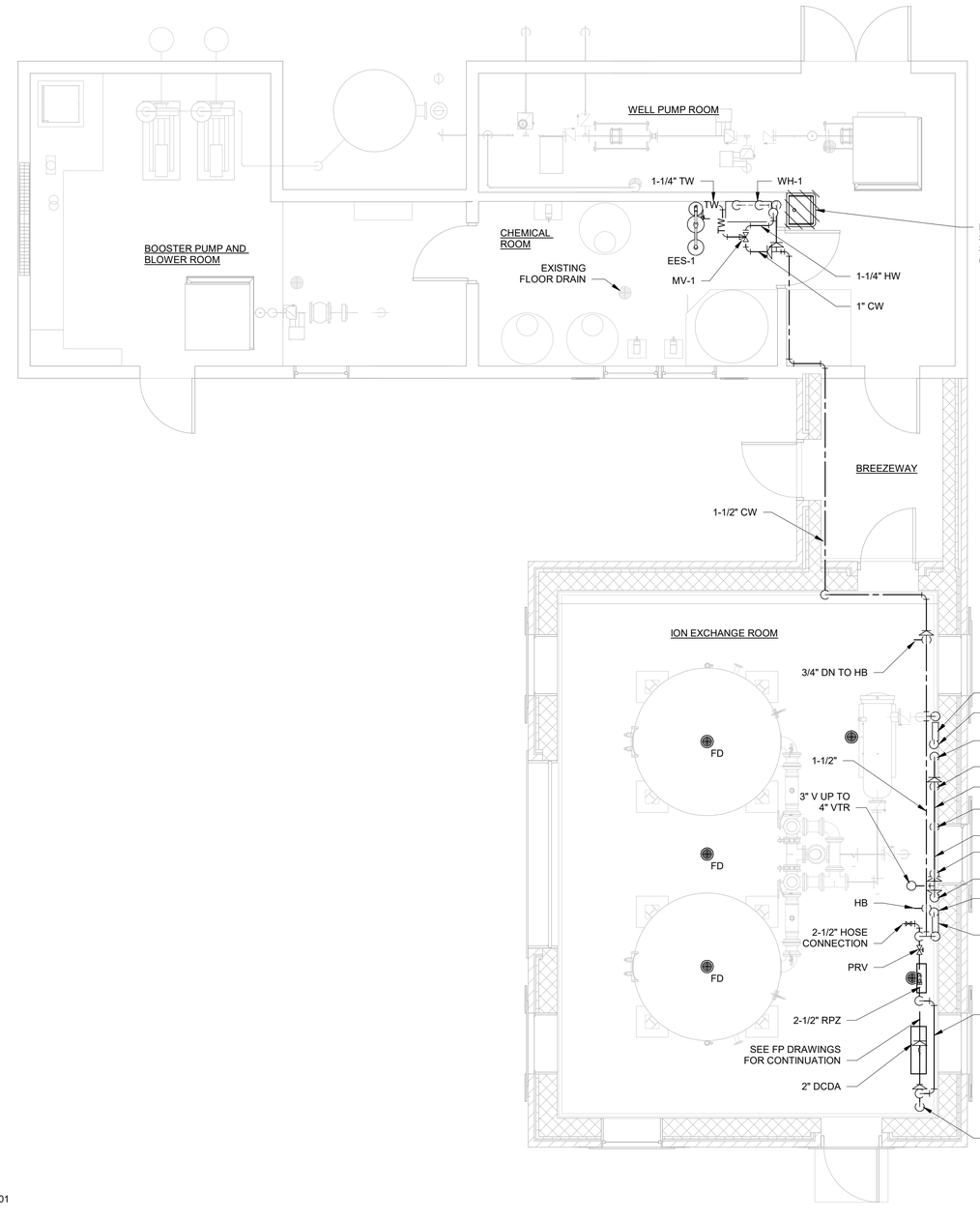
Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PLUMBING
SYMBOLS, NOTES, ABBREVIATIONS, AND SCHEDULES

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PLUMBING UNDERSLAB

SCALE: 1/4" = 1'-0"



NOTES:

1. INSTALL SAMPLE SINK AND CONNECT TO EXISTING PIPING

PLUMBING FLOOR PLAN

SCALE: 1/4" = 1'-0"

0 2 4 8

SCALE: 1/4" = 1'-0"

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DATE 12/17/2020

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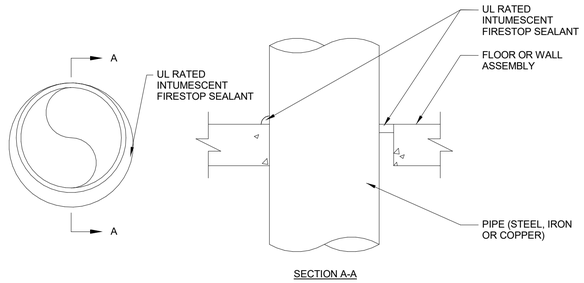
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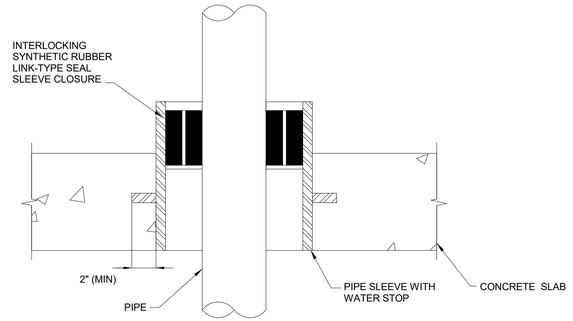
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PLUMBING
UNDERSLAB AND FLOOR PLAN

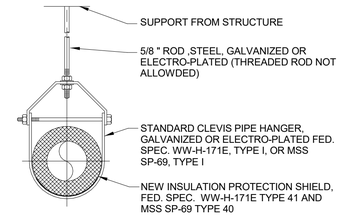
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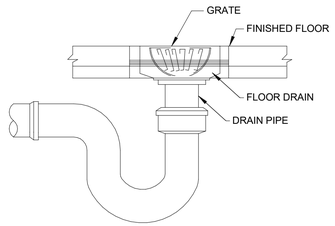
PIPE PENETRATION (PER UL NO. C-AJ-1291) 1
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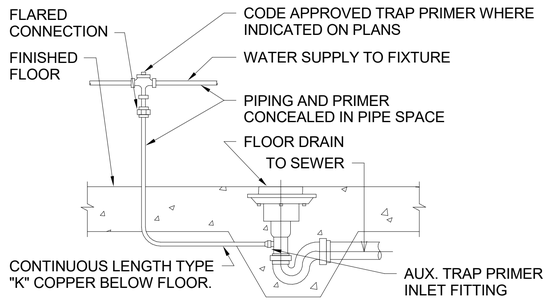
SLEEVE CLOSURE THROUGH CONCRETE SLAB 2
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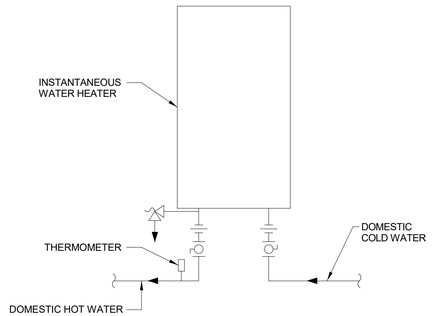
CEILING HUNG CLEVIS
HANGER FOR INSULATED PIPE 3
NTS



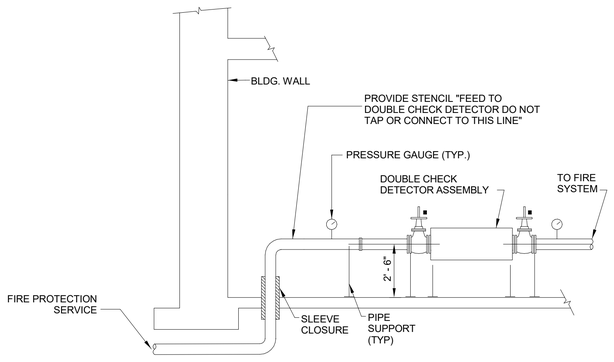
FLOOR DRAIN 4
NTS



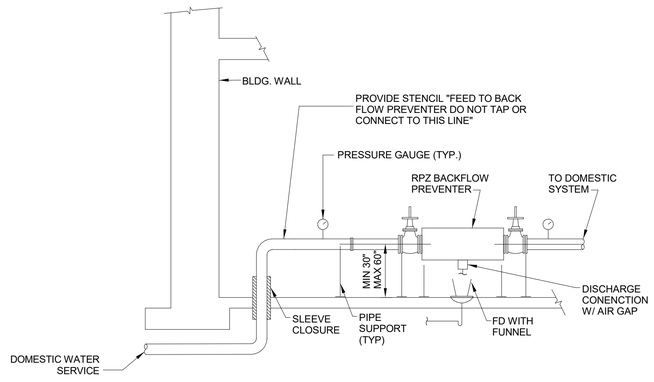
FLOOR DRAIN DETAIL 5
NTS



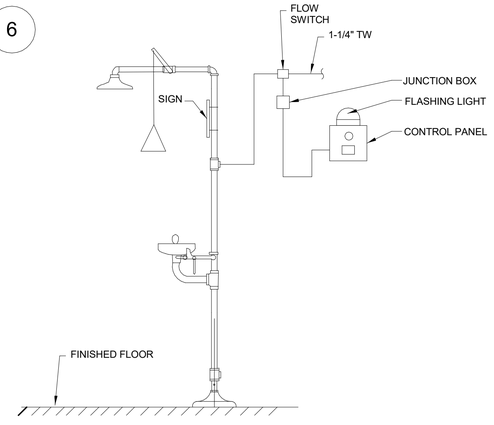
WATER HEATER DETAIL 6
NTS



BACKFLOW PREVENTER (FIRE SERVICE) DETAIL 7
NTS



BACKFLOW PREVENTER (DOMESTIC WATER) DETAIL 8
NTS



EMERGENCY EYEWASH SHOWER DETAIL 9
NTS

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Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

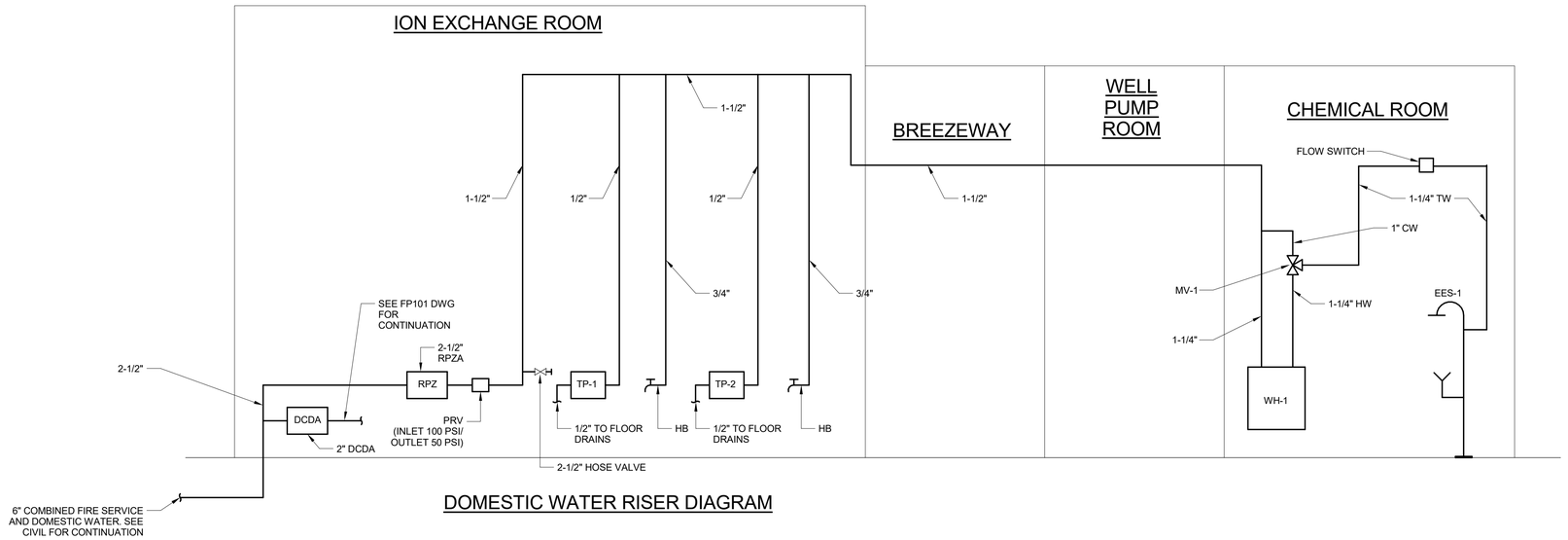
Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO, PE
Professional Engineer No. PE084832
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER PE084832
DATE 12/17/2020

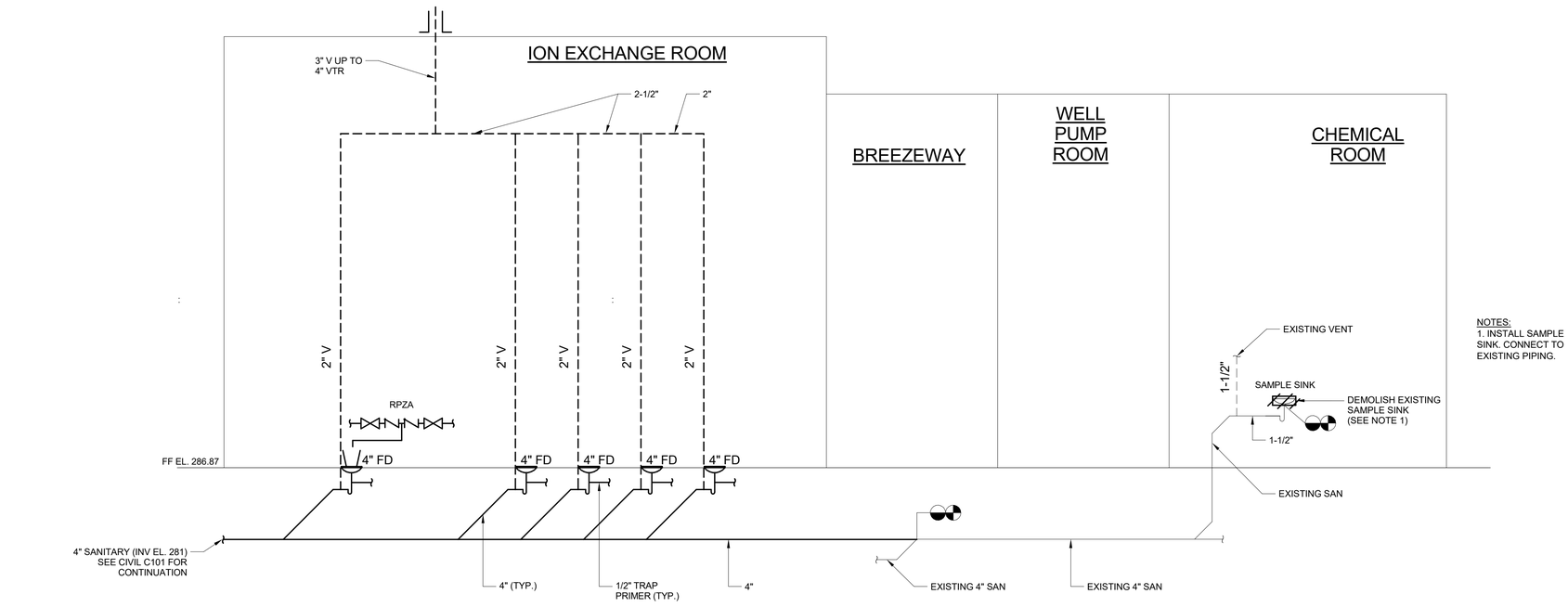
Designed	C. KEOUGH		Eng check		
Drawn	D. STICCO		Coordination		
Dwg check	M. LAPILUSA		Approved		
Scale: NTS	Status: PERMIT		Rev	Security: STD	
Project Number: 507402365	B/O: 52	Total: 56	Drawing Number: PL501		

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PLUMBING
DETAILS



DOMESTIC WATER RISER DIAGRAM



NOTES:
1. INSTALL SAMPLE SINK. CONNECT TO EXISTING PIPING.

SANITARY RISER DIAGRAM

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Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO, PE
Professional Engineer, Commonwealth of PA, ID. PE084832

DATE 12/17/2020

Designed	C. KEOUGH		Eng check		
Drawn	D. STICCO		Coordination		
Dwg check	M. LAPILUSA		Approved		

Scale	Status	Rev	Security
NTS	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	53	56	PL601

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PLUMBING
RISER DIAGRAMS

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SYMBOLS AND LEGEND

●	CONCEALED SPRINKLER
○	UPRIGHT SPRINKLER
▲	SIDEWALL SPRINKLER
TS ⋈	OS&Y VALVE W/ TAMPER SWITCH
■	TAMPER SWITCH
—□	FLOW SWITCH
⋈	VALVE, GENERAL
⋈▶	CHECK VALVE
Ⓩ	RISER CHECK VALVE
c—	PIPE DOWN
o—	PIPE UP
E—	PIPE CAP
—SPRK—	SPRINKLER PIPE

ABD	AUTOMATIC BALL DRIP
CONTIN.	CONTINUATION
FS	FLOW SWITCH
FT	FEET
GPM	GALLONS PER MINUTE
DN	DOWN
DWG.	DRAWINGS
FDC	FIRE DEPT. CONNECTION
GPM	GALLONS PER MINUTE
MIN	MINIMUM
NPT	MATIONAL PIPE THREAD
PSI	POUNDS PER SQUARE INCH
SL.	SLEEVE
SP	SPRINKLER
TYP	TYPICAL
TS	TAMPER SWITCH
W/	WITH

GENERAL NOTES

1. WORK SHALL BE COMPLETE IN ALL RESPECTS, INCLUDING CONNECTION TO EXISTING SPRINKLER SYSTEM, ALL NEW SPRINKLER WORK PER THE PLANS, AND ALL REQUIRED ACCESSORIES, DRAINS AND TEST CONNECTIONS.
2. WORK SHALL INCLUDE ALL LABOR AND MATERIAL FOR A WET TYPE AUTOMATIC SPRINKLER SYSTEM WITHIN THE BUILDING WHERE INDICATED ON PLANS.
3. PROVIDE ALL REQUIRED SPRINKLER HEADS, PIPING, HANGERS, SUPPORTS, AND DRAINS.
4. PROVIDE "AS-BUILT" DRAWINGS.
5. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIALS, AND LABOR REQUIRED TO SATISFY A COMPLETE WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.
6. THE WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH NFPA 13 (LATEST EDITION), ALL CODES AND OTHER NFPA REGULATIONS GOVERNING WORK OF THIS NATURE.
7. ALL EQUIPMENT AND MATERIALS SHALL BE AS SPECIFIED OR "APPROVED EQUAL" BY THE ENGINEER OR ARCHITECT.
8. THE DRAWINGS INCLUDED AS PART OF THIS SET OF CONSTRUCTION DOCUMENTS ARE DEFINED AS PRELIMINARY SPRINKLER PLANS AS SPECIFIED IN NFPA 13. FINAL WORKING DRAWINGS SHALL BE PREPARED BY THE SPRINKLER CONTRACTOR AND REVIEWED BY THE ENGINEER.
9. DO NOT SCALE THIS DRAWING FOR EXACT DIMENSIONS. VERIFY ALL FIGURES, CONDITIONS, AND DIMENSIONS AT THE JOB SITE.
10. THE SPRINKLER PLANS ARE INTENDED TO BE DIAGRAMTIC. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION.
11. DESIGN AND INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF NFPA 13 AND LOCAL FIRE AND BLDG. CODES.
12. HANGER INSTALLATION AND SPACING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF NFPA 13
13. FIELD FOREMAN TO VERIFY LOCATION OF HIGH TEMPERATURE SPRINKLERS AND INSTALL HIGH TEMPERATURE SPRINKLERS IF REQUIRED IN ACCORDANCE WITH NFPA 13
14. COORDINATE NEW SPRINKLER HEAD ELEVATIONS WITH FINISHED CEILING HEIGHT.
15. OBTAIN ALL APPROVALS BEFORE STARTING INSTALLATION.
16. ARRANGEMENTS OF SPRINKLER HEADS IS DIAGRAMMATIC AND ACTUAL ARRANGEMENTS SHALL BE AS REQUIRED BY FIELD CONDITIONS.
17. CONTRACTOR SHALL COORDINATE SPRINKLER PIPING AND HEAD LOCATIONS WITH DUCTWORK AND LIGHTING FIXTURES.
18. ALL SPRINKLER LINES SHALL BE AVOIDING INTERFERENCE WITH LIGHTING FIXTURES, DUCTS AND PIPING.
19. PROVIDE EXPOSED PIPES WITH APPROVED TYPE, SINGLE PIECE, CAST BRASS OR CAST IRON ESCUTCHEONS, CHROME PLATED, FIRMLY HELD IN PLACE.
20. PROVIDE PENDANT SPRINKLER HEADS WITH SPECIAL TYPE CHROME PLATED ESCUTCHEONS, FIRMLY HELD IN PLACE.
21. TEST ENTIRE SYSTEM PIPING HYDROSTATICALLY FOR TWO HOURS AT 200 P.S.I. OR AT 50 P.S.I. ABOVE MAXIMUM WORKING PRESSURE (WHICHEVER IS GREATER) AND IN ACCORDANCE WITH ALL REQUIREMENTS OF THE REFERENCED CODES.
22. PROVIDE HYDRANT FLOW TEST IN ACCORDANCE WITH NFPA STANDARDS.
23. APPLICABLE CODES:
    -INTERNATIONAL BUILDING CODE, 2015
    -INTERNATIONAL FIRE CODE, 2015

SPRINKLER SYSTEM NOTES

1. THE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED AND SHALL CONFORM WITH NFPA 13:
   - A. THE INSTALLATION COMPONENTS, SPACING, LOCATION, POSITION & TYPE OF SYSTEMS SHALL CONFORM TO CHAPTERS 4 AND 5.
   - B. THE OCCUPANCY OF THE AREAS TO BE SPRINKLERED IN ACCORDANCE WITH SECTION 2-1 AND AS SPECIFIED ON THE PLANS.
   - C. PIPING SPECIFICATIONS, SYSTEM TEST PIPES, PROTECTION AGAINST CORROSION, FITTINGS, VALVES, HANGERS, GUARDS AND SHIELDS SHALL BE IN ACCORDANCE WITH CHAPTER 3.
   - D. STOCK OF EXTRA SPRINKLERS SHALL BE FURNISHED AS PER SECTION 3-2.9 (REQUIRED FOR EACH TEMPERATURE RATING).
   - E. SPACING, LOCATION AND POSITION OF SPRINKLERS SHALL BE IN ACCORDANCE WITH CHAPTER 5.
   - F. ALL BLIND SPACES EXCEEDING SIX INCHES IN WIDTH OR DEPTH WHICH CONTAIN COMBUSTIBLE MATERIAL SHALL BE SPRINKLERED.
   - G. ALL NEW PIPING PASSING THROUGH FIRE RESISTANT WALLS SHALL HAVE A MAXIMUM OF 1/2" SPACE PACKED WITH FIRE STOPPING.
   - H. MINIMUM CLEARANCE OF SPRINKLER DEFLECTOR TO CEILING SHALL BE AS PER SECTION 5-5.4.
   - I. DISTANCE OF SPRINKLER FROM HEAT SOURCE SHALL BE IN ACCORDANCE WITH TABLE 5-3.1.4.2..
   - J. DRAINAGE SHALL CONFORM TO SECTION 5-14.2.
   - K. ALL VALVES SHALL BE IDENTIFIED AS REQUIRED BY PARAGRAPH 3-8.
   - L. DRAIN VALVES AND TEST VALVES SHALL BE APPROVED TYPE AS PER SECTION 3-8.2.
   - M. HANGERS SHALL BE OF A TYPE APPROVED FOR USE WITH THE PIPE OR TYPE INVOLVED. SPRINKLER PIPING SHOULD BE SUPPORTED BY ROUND WROUGHT IRON U-TYPE OR APPROVED ADJUSTABLE HANGERS.
   - N. SPRINKLERS SHALL BE AN APPROVED TYPE AS PER SECTION 5-4.
   - O. TEMPERATURE RATING SHALL COMPLY WITH SECTION 5-3.1.4.

SPRINKLER SCHEDULE

SYMBOL	TYPE	RESPONSE	FINISH	SIZE (IN)	TEMPERATURE RATING (F)	K FACTOR	MAX COVERAGE (FT)	MIN FLOW (GPM)	MIN PRESSURE (PSI)	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	APPROVED FOR ORDINARY HAZARD CLASSIFICATION
O	UPRIGHT	STANDARD	CHROME PLATED	1/2"	165	5.62	10X13	14.8	7	RELIABLE	G	UL/FM

SPRINKLER DESIGN CRITERIA

OCCUPANCY CLASSIFICATION	ORDINARY HAZARD GROUP 1
SPACING	130 SQ. FT
DENSITY	0.15 GPM/SQ. FT
ACTIVE SPRINKLERS	SEE PLANS
HOSE STREAM AT SOURCE	250 GPM

WATER PRESSURE

AVAILABLE WATER PRESSURE AT STREET	100 PSI

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BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO, PE
Professional Registration NO. PE084832
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ANTHONY FRANCIS PEDRO ENGINEER PE084832
DATE 12/17/2020

Designed	C. KEOUGH		Eng check		
Drawn	D. STICCO		Coordination		
Dwg check	M. LAPILUSA		Approved		

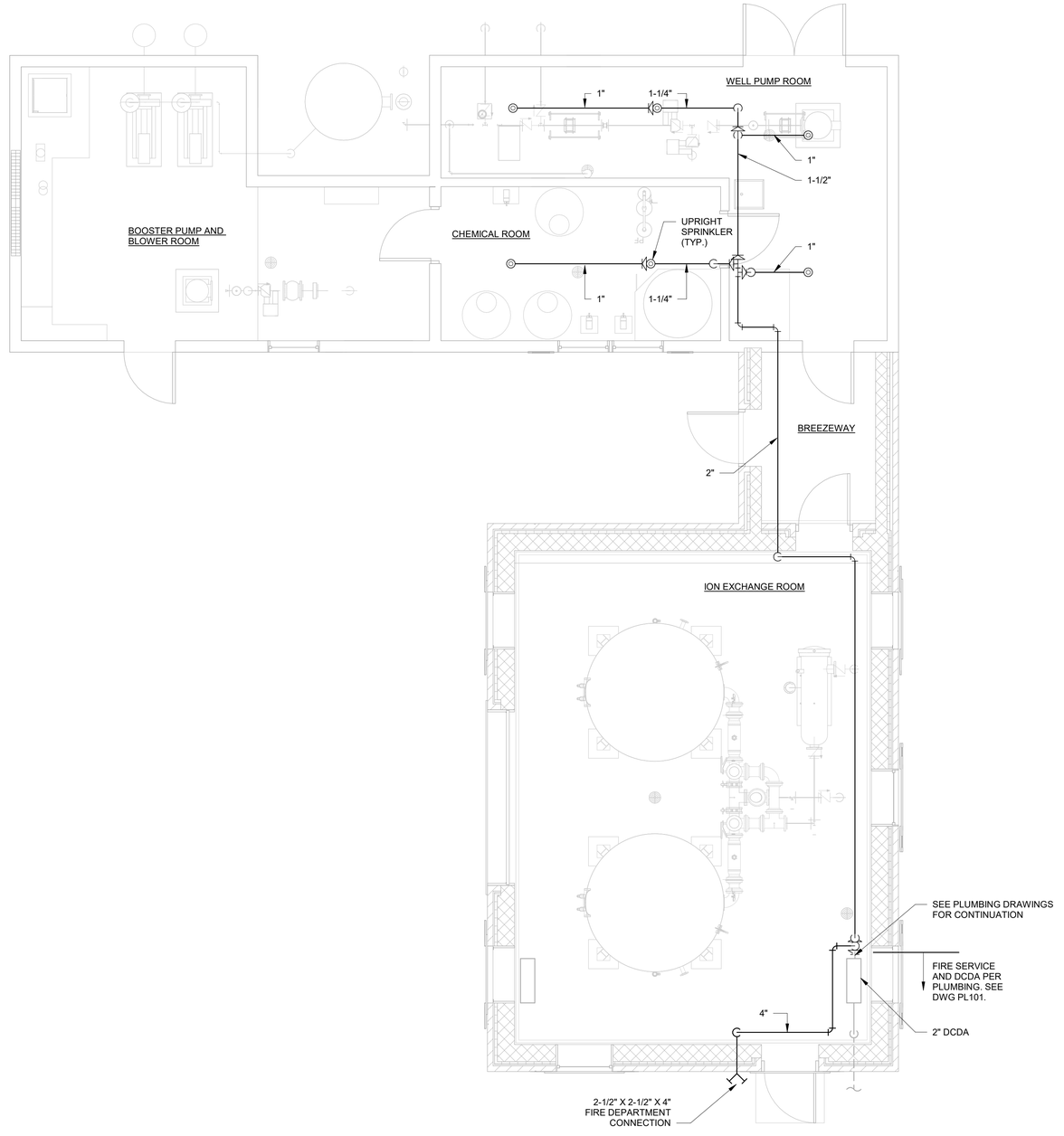
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Scale	Status	Rev	Security
NTS	PERMIT		STD

Drawing Number: FP001

Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
FIRE PROTECTION
SYMBOLS, NOTES, ABBREVIATIONS, AND SCHEDULES

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SHEET NOTES:

1. SPRINKLER PIPE SHALL BE INSTALLED BELOW THE EXISTING CEILING.
2. SPRINKLER PIPE SHALL BE SUPPORTED FROM EXISTING TRUSS.
3. SPRINKLER PIPING SHALL BE A MINIMUM OF 7'-0" ABOVE FINISHED FLOOR.
4. REFER TO ARCHITECTURAL DRAWINGS FOR INFORMATION ON EXISTING BUILDING CONSTRUCTION.

FLOOR PLAN

SCALE: 1/4" = 1'-0"

0 2 4 8

SCALE: 1/4" = 1'-0"

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Rev	Date	Drawn	Description	Ch'k'd	App'd

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Professional Engineer, License No. PE084832

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ANTHONY FRANCIS PEDRO ENGINEER PE084832

DATE 12/17/2020

Project Number	B/O	Total
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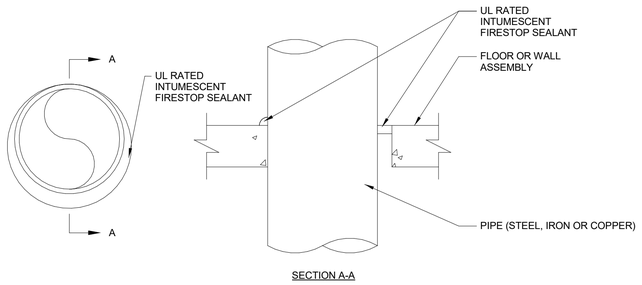
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Dwg check	M. LAPILUSA		Approved		

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1/4"=1'-0"	PERMIT		STD

Drawing Number: FP101

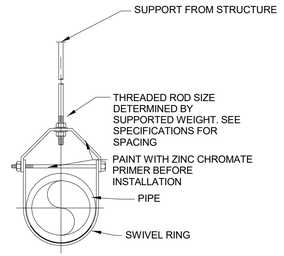
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AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
FIRE PROTECTION
FLOOR PLAN



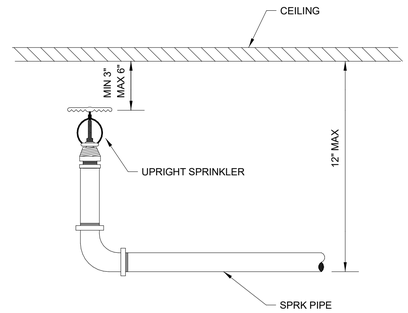
PIPE PENETRATION (PER UL NO. C-AJ-1291) 1

NTS



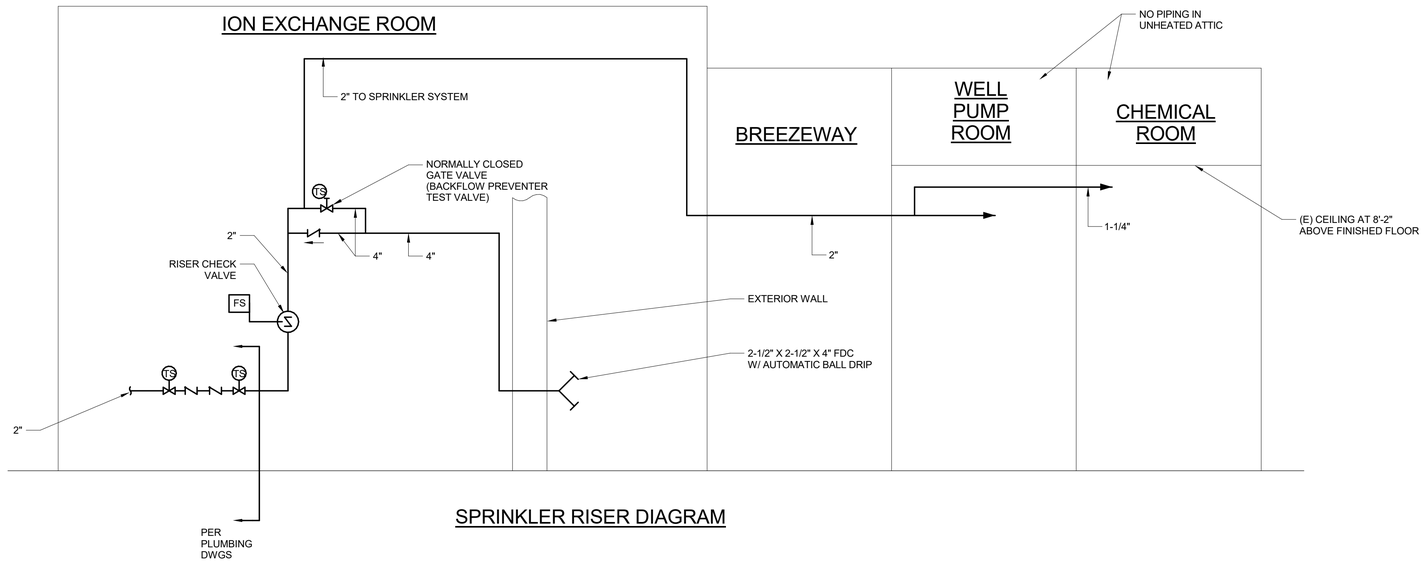
PIPE SUPPORT DETAIL 2

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UPRIGHT SPRINKLER 3

NTS



SPRINKLER RISER DIAGRAM

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Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO, PE
Professional Engineer, State of MD. PE084832

DATE 12/17/2020

Designed	C. KEOUGH		Eng check		
Drawn	D. STICCO		Coordination		
Dwg check	M. LAPILUSA		Approved		

Scale	Status	Rev	Security
NTS	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	56	56	FP501

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
FIRE PROTECTION
DETAILS AND RISER DIAGRAM

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GENERAL NOTES

1. ALL WORK, MATERIALS AND WORKMANSHIP SHALL BE PERFORMED IN STRICT ACCORDANCE WITH, AND SHALL CONFORM WITH, ALL FEDERAL, STATE AND LOCAL CODES, ORDINANCES, RULES AND REGULATIONS, TO THE PUBLISHED SPECIFICATIONS AND RECOMMENDED PRACTICES OF THE MANUFACTURERS AND THE APPROPRIATE APPLICABLE STANDARDS. WHERE SUCH CODES, RULES AND REGULATIONS ARE AT VARIANCE WITH THE PLANS AND NOTES, SAID CODES, RULES AND REGULATIONS, ETC. SHALL TAKE PRECEDENCE OVER THE PLANS AND NOTES.
2. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE BUILDING CODES AND REGULATIONS AND PAYING FOR OBTAINING ALL NECESSARY AND REQUIRED INSPECTIONS, APPROVALS AND PERMITS, NECESSARY TO PERFORM ALL WORK AND SERVICES HEREIN NOTED OR INDICATED ON THE DRAWINGS.
3. DETAILS ON THE DRAWINGS ARE SHOWN AT SPECIFIC LOCATIONS AND ARE INTENDED TO SHOW GENERAL REQUIREMENTS THROUGHOUT. DETAILS NOTED "TYP" IMPLY ALL CONDITIONS TREATED SIMILARLY.
4. MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED BUT NECESSARY FOR PROPER CONSTRUCTION OF ANY PART OF THE WORK SHALL BE INCLUDED AS IF THEY WERE INDICATED ON THE DRAWINGS.

ABBREVIATIONS

A.F.F	ABOVE FINISHED FLOOR	FIN.FL.LVL.	FINISHED FLOOR LEVEL	STL	STEEL
ALUM	ALUMINUM	FRP	FIBER REINFORCED PLASTIC	SQ. FT.	SQUARE FEET
APPROX	APPROXIMATELY	GA	GAUGE	T.O.	TOP OF
C.J.	CONTROL JOINT	GAL	GALLONS	TYP	TYPICAL
CMU	CONCRETE MASONRY UNIT	GALV	GALVANIZED	THK	THICK
CONC	CONCRETE	HM	HOLLOW METAL	UH	UNIT HEATER
CONT	CONTINUOUS	HORIZ	HORIZONTAL	UL	UNDERWRITER'S LABORATORY
D	DEEP	HR	HOUR	V	VENT
DIA	DIAMETER	HW	HARDWARE	W	WIDE
DIM	DIMENSION	L	LEADER	W/	WITH
D.S.	DOWNSPOUT	LBS	POUNDS	W/O	WITHOUT
DWGS	DRAWINGS	MAX	MAXIMUM	Ø	DIAMTER
EA	EACH	MECH	MECHANICAL	@	AT
EF	EXHAUST FAN	MIN	MINIMUM	&	AND
ELEV	ELEVATION	M.O.	MASONRY OPENING	℄	CENTERLINE
ETC.	ETCETERA	NO	NUMBER	#	NUMBER
EUH	ELECTRIC UNIT HEATER	O.C.	ON CENTER		
EQ	EQUAL	PEMB	PRE-ENGINEERED METAL BUILDING		
F	FLUE	SS	STAINLESS STEEL		
FCU	FAN COIL UNIT				

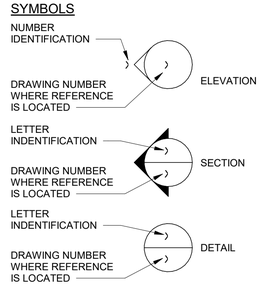
LIFE SAFETY LEGEND

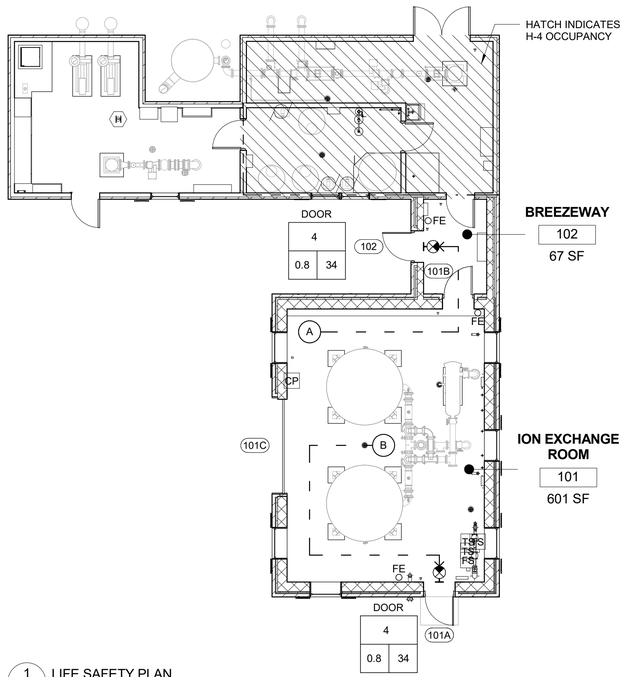
- 60'-0" — — — EGRESS PATH WITH TOTAL DISTANCE NOTED
- (X) TRAVEL DISTANCE PATH
- FE ○ FIRE EXTINGUISHER UL RATED 2A:10B:C FIRE EXTINQUISHERS MOUNTED ON WALL OR STRUCTURE PER NFPA 10
- EMERGENCY EXIT SIGN- SHADED QUADRANT INDICATES LIGHTED FACE (WALL MOUNTED)

EGRESS DOOR OPENING



SYMBOLS





1 A101 LIFE SAFETY PLAN
1/8" = 1'-0"

TRAVEL DISTANCES		
POINT	TO OUTSIDE (DOOR NO.)	MAX. ALLOWED DISTANCE per NJ IBC TABLE 1016.1
A	30'	200'
B	42'	200'

Aqua PA - North Hills Site - Building Code Analysis

Applicable Codes:

2015 International Building Code
2015 International Existing Building Code
ASHRAE Standard 90.1 - 2013 (Commercial)
2015 Internation Mechanical Code
2015 International Fuel Gas Code
2015 International Electric Code
2015 International Plumbing Code
2015 International Fire Code

Scope of Work:

Minor renovations to the existing building to provide new interior doors, exterior windows, mechanicaal systems, electrical upgrades, sprinkler system in a portion of the building, and to generally bring the building up to code. Additionally, the existing chemical storage amounts will be increased. An addition will be placed toward the street to house new tanks for processing.

No of Stories above grade plane:
Existing - 1 story (no change)
Addition - 1 story

Height of Structure above Grade Plane:
Existing - 12'-6" +/-
Addition - 20'-0"?

Use and Occupancy Classification (IBC Chapter 3):

Existing:
It is not readily apparent what the code classification at time of building erection. In current standards this would most likely be a mixed use facility.

Proposed:
Mixed-Use/Separated - All spaces to be considered Moderate Hazard Factory Industrial Group (F-1), except for original building. Checmical Storage Area and adjacent mechanical rooms to be considered High Hazard Group (H-4).

Proposed Floor Area

Moderate Hazard Factory Industrial Group F-1	1210 sf
High Hazard Group H-4	475 sf
Total	1685 sf

Special Detailed Requirements Based on Use and Occupancy (IBC Chapter 4)

414.0 Hazardous Materials does not apply to this project

Per 415.3, "Group H occupancies shall be provided with an automatic fire detection system in accordance with Section 907.2"

Per 415.4 "Group H occupancies shall be provided with an automatic sprinkler system in accordance with Section 903.2.5"

Table 307.1(1) and 307 (2)

Maximum Allowable Quantity per Control Area of Hazardous Materials Posing a Physical Hazard					
Chemical	Material	Storage (Dry pounds)		Use-Closed System (Liquid Gallons)	
		Allowed	Actual	Allowed	Actual
Ammonium Sulfate	Corrosive	1000	500	500	240
Bimetallic Glassy Phosphate (BMP)	Corrosive	1000	500	500	120
12.5% Sodium Hypochlorite	Corrosive	1000	N/A	500	405
	Totals	**1000**	**1000**	500	765

* The Aggregate quantity in use and storage exceeds the allowable, and therefore the chemical storage room shall be H-4 Occupancy Use Group

* The allowable quantities can be increased 100% in buildings equipped throughout with an approved automatic sprinkler system.

General Building Height and Area Limitations (IBC Chapter 5)

Height Limitations - Feet (Table 504.3)

Occupancy Classification	Type II/A	Type II/B	Type V/A	Type V/B
F-1, Non-Sprinklered	65	55	50	40
F-1, Sprinklered	85	75	70	60
H-4, Non-Sprinklered	65	55	50	40
H-4, Sprinklered	85	75	70	60

***Height of building (20'-0") falls within allowable height limits**

Height Limitations - Stories (Table 504.4)

Occupancy Classification	Type II/A	Type II/B	Type V/A	Type V/B
F-1, Non-Sprinklered	4	2	2	1
F-1, Sprinklered	5	3	3	2
H-4, Non-Sprinklered	5	3	3	2
H-4, Sprinklered	6	4	4	3

***Height of building (1 story) falls within allowable height limits**

Allowable Area - Square Feet (table 506.2)

Occupancy Classification	Type II/A	Type II/B	Type V/A	Type V/B
F-1, Non-Sprinklered	25,000	45,000	14,000	8,500
F-1, Sprinklered	100,000	62,000	56,000	34,000
H-4, Non-Sprinklered	37,500	17,500	18,000	6,500
H-4, Sprinklered	150,000	70,000	72,000	26,000

***Area of building (1,685sf) falls within allowable area limits**

Required Separation of Occupancies (IBC Table 508.4)

Separation between F-1 and H-4, Non-Sprinklered — 2 hr
Separation between F-1 and H-4, Sprinklered — 1 hr
*Note - Sprinklered applies to buildings equipped throughout with an approved automatic sprinkler system.

Type of Construction (IBC Chapter 6)

Fire Resitance Rating Requirements for Building Elements in hours (Table 601)

Building Element	Type II/A	Type II/B	Type V/A	Type V/B
Primary Structural Frame	1	0	1	0
Exterior Bearing Wall	1	0	1	0
Non-Bearing Wall and Partitions - Interior	0	0	0	0

***Area of building (1,685sf) falls within allowable area limits**

Fire Resitance Rating Requirements for Exterior Walls Based on Fire Separation Distance in hours (Table 602)

Fire Separation Distance	H Occupancy	F-1 Occupancy
<5'	3	2
5' to <10'	2	1
10' to 30' - II/B and V/B	1	0

***Connector to be 10' long between addition and H-4 occupancy**

Fire and Smoke Protection Features (IBC Chapter 7)

Table 705.5 Exterior walls shall be fire-resistance-rated in accordance with Tables 601 and 602 and this section. ***The required fire-resistance rating of exterior walls with a fire separation distance of greater than 10 feet (3048 mm) shall be rated for exposure to fire from the inside.*** The required fire-resistance rating of exterior walls with a fire separation distance of less than or equal to 10 feet (3048 mm) shall be rated for exposure to fire from both sides Table 705.8 determines that where there is a fire separation distance of 10 to less than 15', in a non-sprinklered building, the maximum area allowable for an unprotected opening is 15% of the wall. Please note if reduced to 5' to less than 10', that goes to 10%.

Exterior wall will be 48,960 sq. inches
10% 4896 sq. inches allowable
15% 7344 sq. inches allowable

Man door	2880	0 replace with rated door
Window 1	2000	2000
Window 2	3600	4000 approximate increased size
Louver 1	576	576 may stay, may be deleted
Louver 2	576	576 may stay, may be deleted
	9632	7152

Interior Finishes (IBC Chapter 8)

Fire Protection Systems (IBC Chapter 9)

903.2.5.1 States that "An automatic sprinkler system shall be installed in Group H occupancies."

*** An Automatic Sprinkler system is required for the H-4 Occupancy**

Means of Egress (IBC Chapter 10)

Occupant Load

Use	GSF/occ.	sq ft	# of occupants
F-1	100	1515	16
H-4	200	170	1
		Total # of Occupants	17

1028.4.2 States "Where an egress court serving a building or portion thereof is less than 10 feet (3048 mm) in width, the egress court walls shall have not less than 1-hour fire-resistance-rated construction for a distance of 10 feet (3048 mm) above the floor of the egress court. Openings within such walls shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour.

Note: There is an exception that this rating is not required due to the occupant load of this building being less than 10 (17 occupants through three doors is 5.66 occupants per door).

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AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

ANTHONY FRANCIS PEDRO
Professional Engineer Lic. NO. PE084832
COMMONWEALTH OF PENNSYLVANIA
12/17/2020
DATE

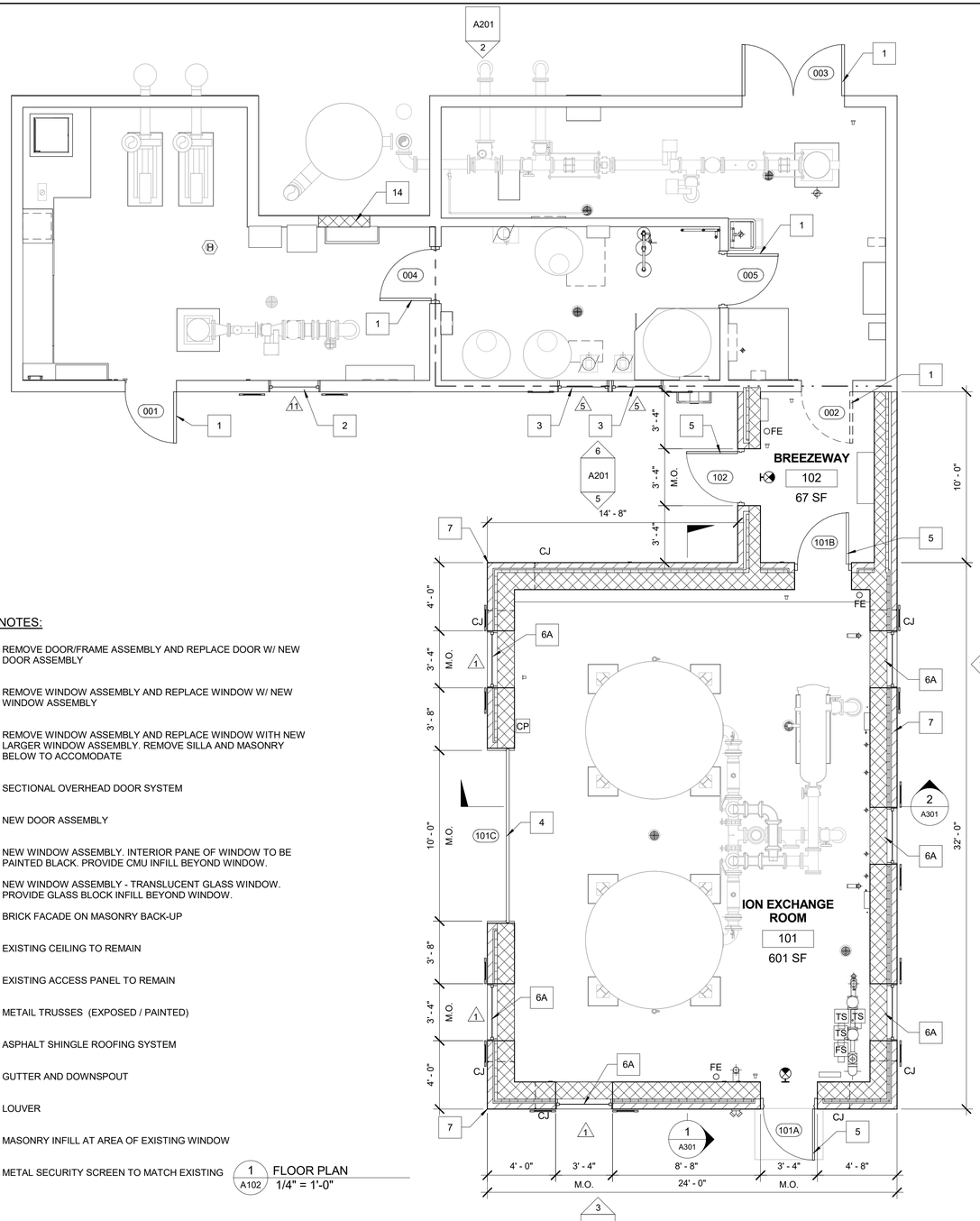
Designed	M.SHANNON		Eng check		
Drawn	J.DEGIROLAMO		Coordination		
Dwg check	R.FRITZ		Approved		

Scale	Status	Rev	Security
1/8" = 1'-0"	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	29	56	A101

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
LIFE SAFETY PLAN

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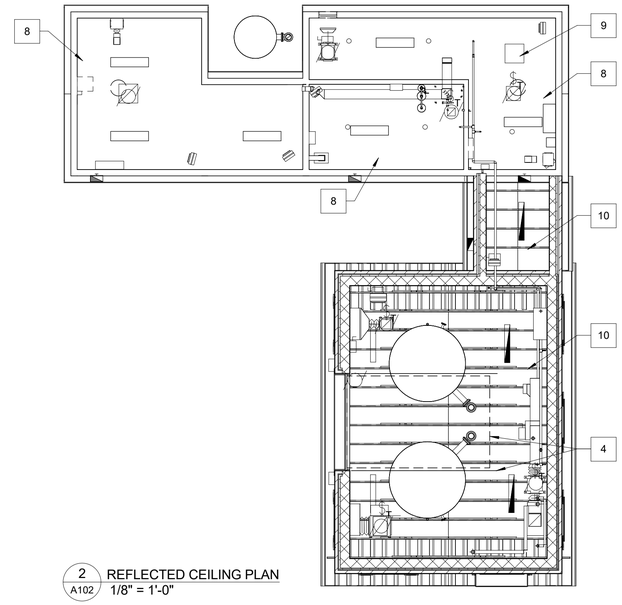


A201 4

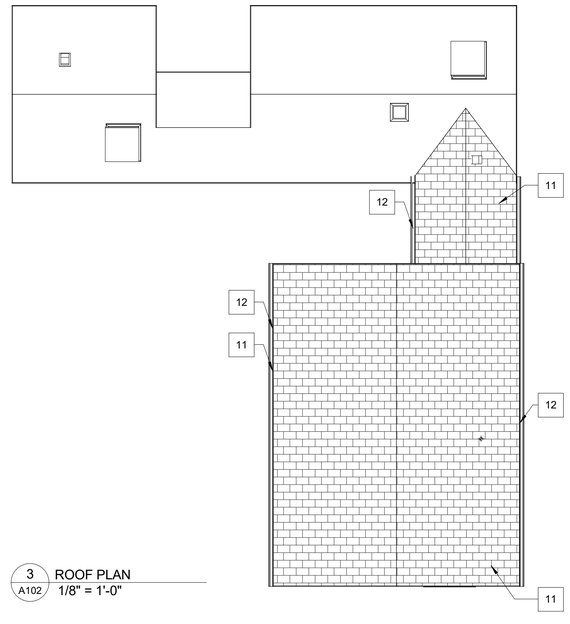
KEYNOTES:

1	REMOVE DOOR/FRAME ASSEMBLY AND REPLACE DOOR W/ NEW DOOR ASSEMBLY
2	REMOVE WINDOW ASSEMBLY AND REPLACE WINDOW W/ NEW WINDOW ASSEMBLY
3	REMOVE WINDOW ASSEMBLY AND REPLACE WINDOW WITH NEW LARGER WINDOW ASSEMBLY. REMOVE SILLA AND MASONRY BELOW TO ACCOMODATE
4	SECTIONAL OVERHEAD DOOR SYSTEM
5	NEW DOOR ASSEMBLY
6A	NEW WINDOW ASSEMBLY. INTERIOR PANE OF WINDOW TO BE PAINTED BLACK. PROVIDE CMU INFILL BEYOND WINDOW.
6B	NEW WINDOW ASSEMBLY - TRANSLUCENT GLASS WINDOW. PROVIDE GLASS BLOCK INFILL BEYOND WINDOW.
7	BRICK FACADE ON MASONRY BACK-UP
8	EXISTING CEILING TO REMAIN
9	EXISTING ACCESS PANEL TO REMAIN
10	METAIL TRUSSES (EXPOSED / PAINTED)
11	ASPHALT SHINGLE ROOFING SYSTEM
12	GUTTER AND DOWNSPOUT
13	LOUVER
14	MASONRY INFILL AT AREA OF EXISTING WINDOW
15	METAL SECURITY SCREEN TO MATCH EXISTING

1 / A102 FLOOR PLAN
1/4" = 1'-0"



2 / A102 REFLECTED CEILING PLAN
1/8" = 1'-0"



3 / A102 ROOF PLAN
1/8" = 1'-0"

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12/17/2020
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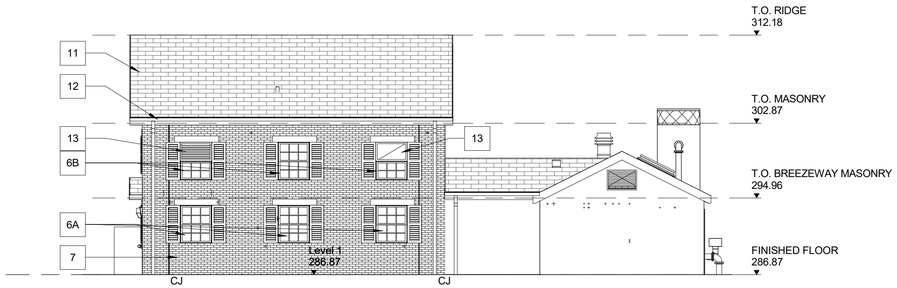
Project Number	B/O	Total
507402365	30	56

Scale	Status	Rev	Security
VARIES	PERMIT		STD

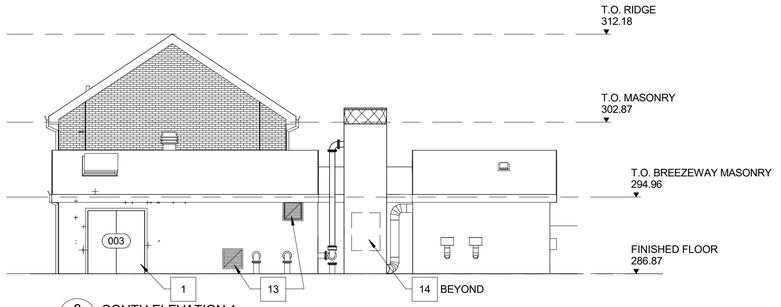
Drawing Number: A102

Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
FLOOR PLAN, REFLECTED CEILING PLAN, AND ROOF PLAN

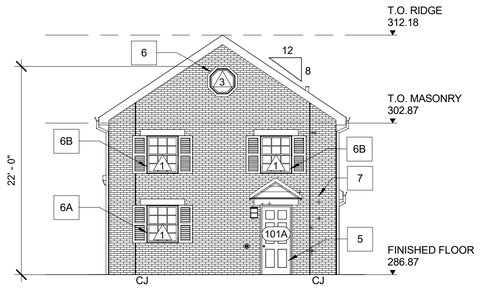
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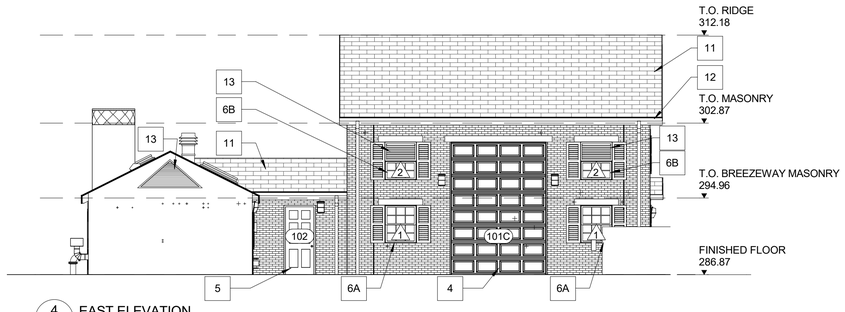
1 A201 WEST ELEVATION
1/8" = 1'-0"



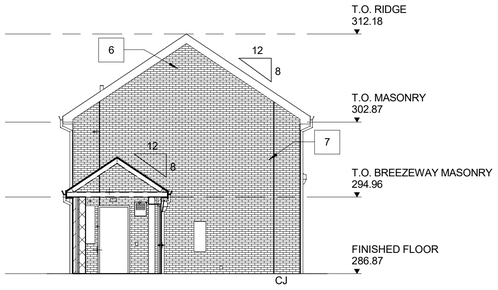
2 A201 SOUTH ELEVATION 1
1/8" = 1'-0"



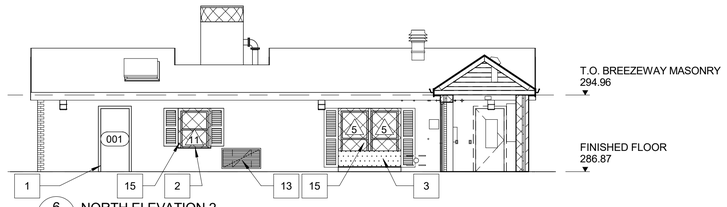
3 A201 NORTH ELEVATION 1
1/8" = 1'-0"



4 A201 EAST ELEVATION
1/8" = 1'-0"



5 A201 SOUTH ELEVATION-2
1/8" = 1'-0"



6 A201 NORTH ELEVATION 2
1/8" = 1'-0"

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0 4 8 16
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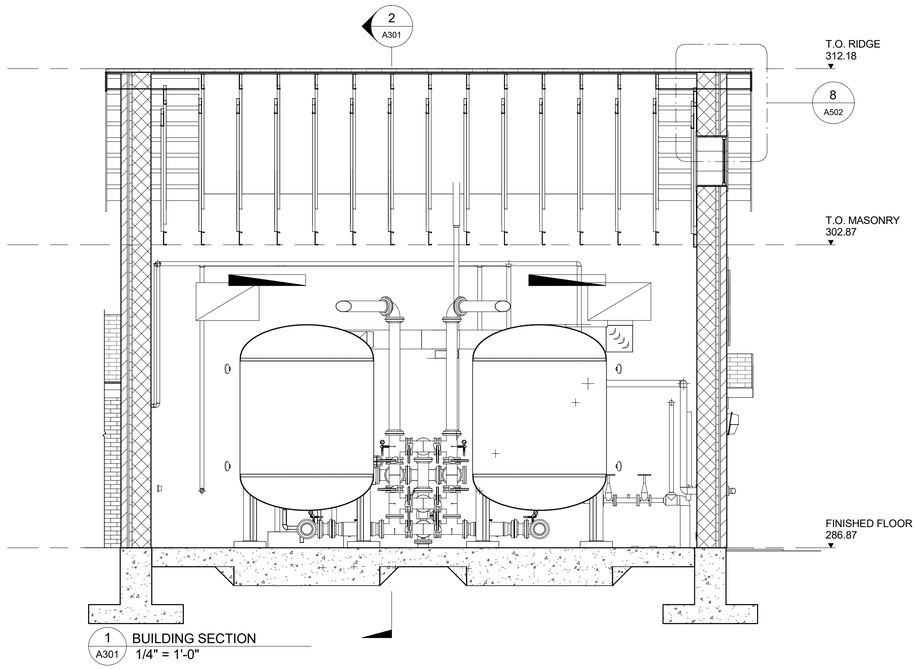
Project Number	B/O	Total
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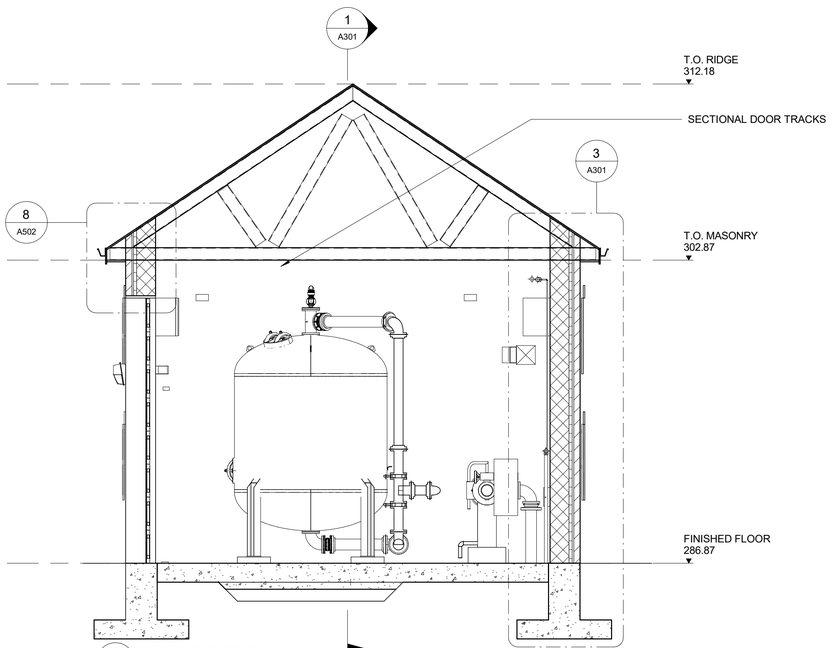
Drawing Number
A201

Title
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
EXTERIOR ELEVATIONS

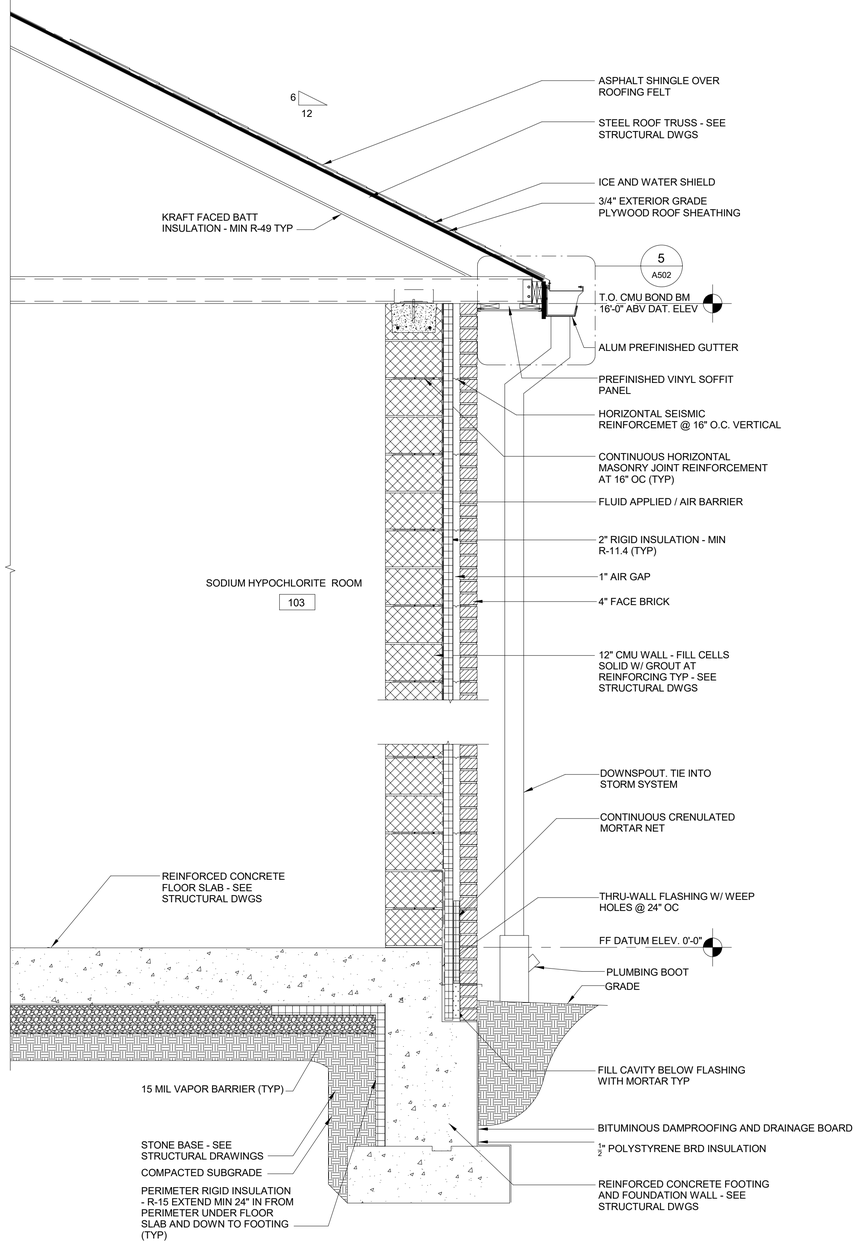
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1 A301 BUILDING SECTION
1/4" = 1'-0"



2 A301 BUILDING SECTION
1/4" = 1'-0"



3 A301 WALL SECTION
3/4" = 1'-0"

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Dwg check	R.FRITZ		Approved		

Scale	Status	Rev	Security
VARIES	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	32	56	A301

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
BUILDING AND WALL SECTIONS

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DOOR AND FRAME SCHEDULE

DOOR NO.	DOOR							FRAME							HARDWARE SET	COMMENTS
	WIDTH	HEIGHT	THK	MATERIAL	TYPE	FINISH	FIRE RATING	WIDTH	HEIGHT	MATERIAL	TYPE	FINISH	FIRE RATING	JAMB/HEAD		
001	3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	6'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	
002	3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	3'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	1
003	(2)3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	6'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	
004	(2)3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	6'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	
005	3'-0"	6'-8"	1-3/4"	HM	A	PAINT	-	3'-4"	6'-10"	HM	1	PAINT	-	X/X	HW - X	
101A	3'-0"	7'-2"	1-3/4"	HM	A	PAINT	-	3'-4"	7'-4"	HM	1	PAINT	-	J1/H1	HW - X	
101B	3'-0"	7'-2"	1-3/4"	HM	A	PAINT	-	3'-4"	7'-4"	HM	1	PAINT	-	J1/H1	HW - X	2
101C	10'-0"	14'-0"	-	STL	B	-	-	-	-	-	-	PAINT	-	J2/H2	HW - X	
102	3'-0"	7'-2"	1-3/4"	HM	A	PAINT	-	3'-4"	7'-4"	HM	1	PAINT	-	J1/H1	HW - X	

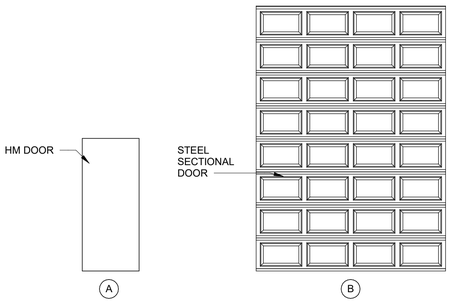
1 - PROVIDE 6"x6" LOUVER WITH FUSABLE LINK
2 - PROVIDE 1" UNDERCUT AT BOTTOM OF DOOR

ROOM FINISH SCHEDULE

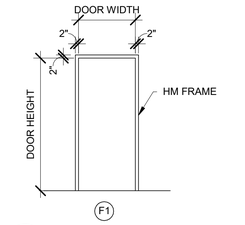
ROOM NAME	FLOOR FINISH	BASE	WALL FINISH	CEILING		COMMENTS
				MATERIAL	HEIGHT	
ION EXCHANGE ROOM	PAINTED	-	PAINT	PAINT	VARIES	
BREEZEWAY	SEALED	-	PAINT	PAINT	VARIES	

WINDOW SCHEDULE

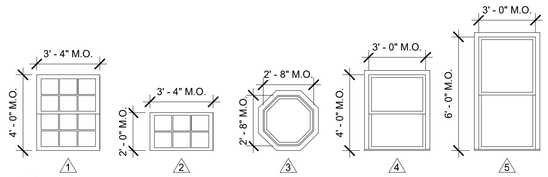
WINDOW TYPE	OPENING		WINDOW TYPE				DETAIL			GLASS TYPE	COMMENTS
	WIDTH	HEIGHT	TYPE	MATERIAL	TYPE	FINISH	HEAD	JAMB	SILL		
1	3'-4"	4'-0"	A	HM	A	FACTORY	WH1	WJ1	WS1	INSULATING GLAZING	
2	3'-4"	2'-0"	A	HM	A	FACTORY	WH1	WJ1	WS1	INSULATING GLAZING	
3	2'-8"	2'-8"	A	HM	A	FACTORY	WH1	WJ1	WS1	INSULATING GLAZING	
4	3'-0"	4'-0"	A	HM	A	FACTORY	-	-	-	INSULATING GLAZING	
5	3'-0"	6'-0"	A	HM	A	FACTORY	-	-	-	INSULATING GLAZING	



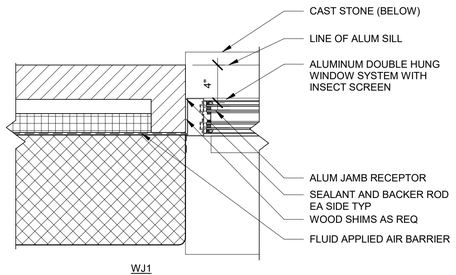
1 A501 DOOR TYPES
1/4" = 1'-0"



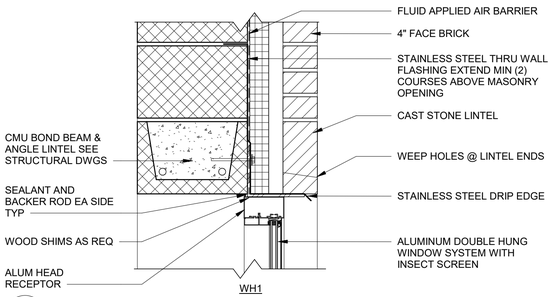
2 A501 FRAME TYPES
1/4" = 1'-0"



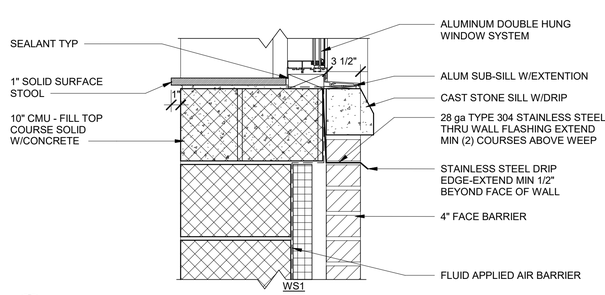
3 A501 WINDOW TYPES
1/4" = 1'-0"



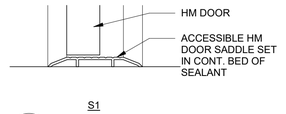
4 A501 WINDOW JAMB DETAIL
1 1/2" = 1'-0"



5 A501 WINDOW HEAD DETAIL
1 1/2" = 1'-0"



6 A501 WINDOW SILL DETAIL
1 1/2" = 1'-0"



7 A501 SADDLE DETAIL
3" = 1'-0"

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12/17/2020
DATE

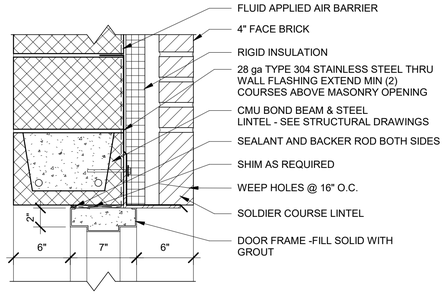
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Dwg check	R.FRITZ		Approved		

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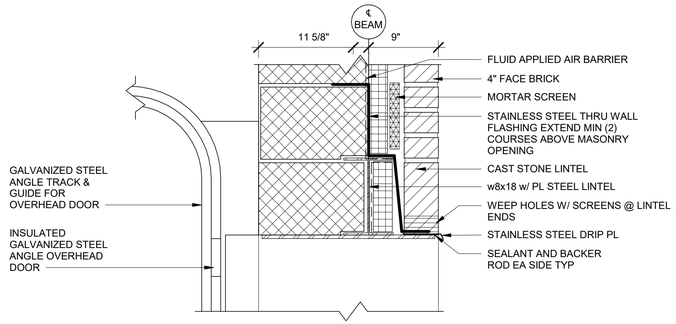
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Title

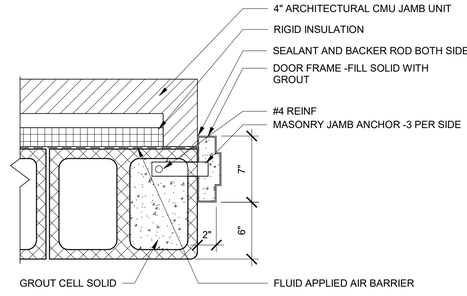
AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
DOOR DETAILS AND SCHEDULES



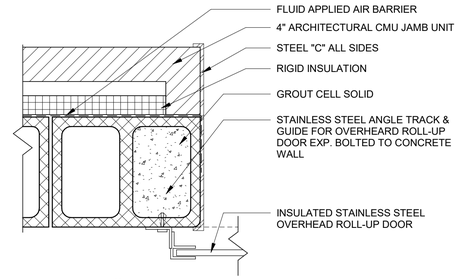
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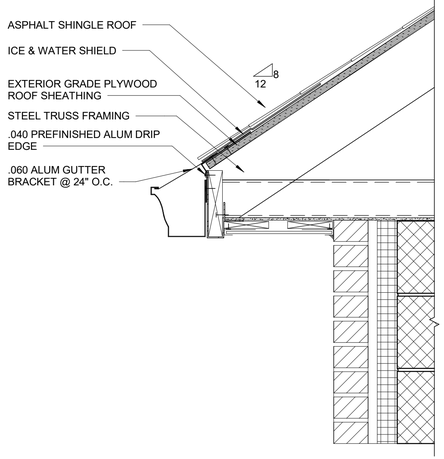


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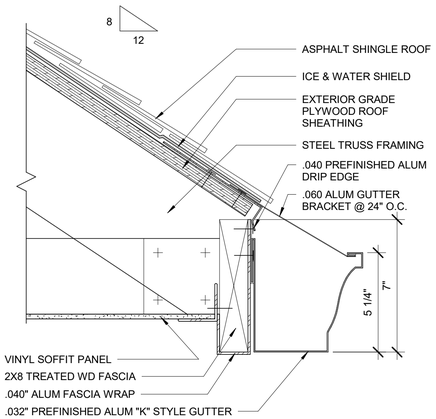


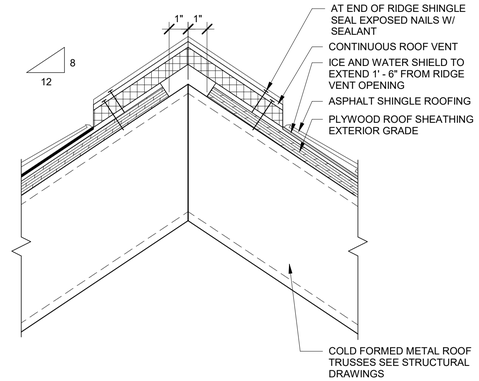
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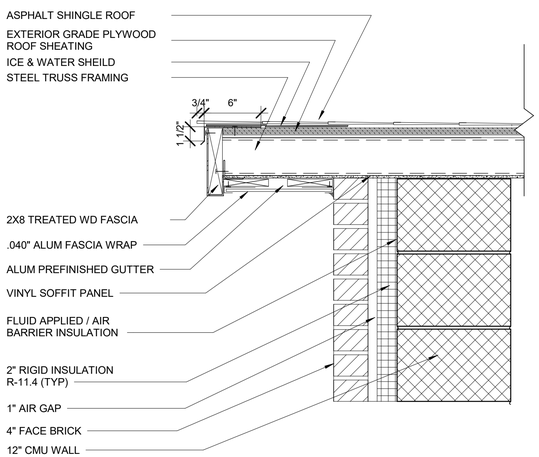
1 A502 DOOR HEAD DETAILS
1 1/2" = 1'-0"



2 A502 DOOR JAMB DETAILS
1 1/2" = 1'-0"





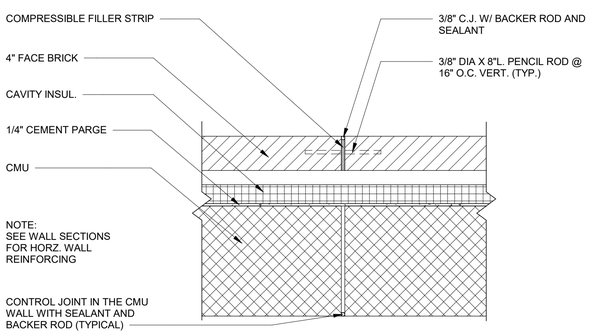


3 A502 SECTION
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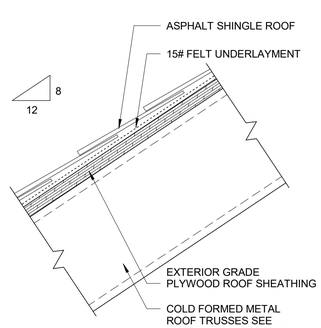
4 A502 ROOF EAVE DETAIL
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5 A502 GUTTER DETAIL
3" = 1'-0"

6 A502 RIDGE VENT DETAIL
3" = 1'-0"



7 A502 CONTROL JOINT DETAIL
1 1/2" = 1'-0"



8 A502 TYPICAL ASPHALT SHINGLE ROOF DETAIL
3" = 1'-0"

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12/17/2020
DATE

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Drawn	J.DEGIROLAMO		Coordination		
Dwg check	R.FRITZ		Approved		

Scale	Status	Rev	Security
VARIES	PERMIT		STD

Project Number	B/O	Total	Drawing Number
507402365	34	56	A502

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
ARCHITECTURAL
WALL AND ROOF DETAILS

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MOTT MACDONALD

AQUA Pennsylvania

Aqua PA North Hills Well PFAS Treatment System
Post Construction Stormwater Management Report

Abington Township, Montgomery County, PA

Date: December 2020



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Aqua PA North Hills Well PFAS Treatment System
Post Construction Stormwater Management Report

Abington Township, Montgomery County, PA

Date: December 2020

Issue and revision record

Revision	Date	Originator	Checkout	Approver	Descriptor
0	12/2020	J. MacMinn	W. Clark	W. Clark	Issued for PADEP

Information class: **Standard**

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1 Executive Summary

This report provides an engineering analysis of the stormwater management practices for the Aqua Pennsylvania North Hills Well PFAS Treatment System project. The methods of analysis included use of the stormwater modelling software HydroCad and Rational Method Calculations. The methods of analysis were used to demonstrate the meeting of the proposed requirements for the following facilities:

- Detention Trench

The resulting data for the stormwater facilities can be found in Section 4 and in the appendices. The completed model and worksheets show that the post-construction stormwater runoff meets the Wissahickon Creek Act 167 and Township of Abington flow and volume requirements. The report shows that the proposed stormwater BMPs for the Aqua PA North Hills Well PFAS Treatment System site will allow the proposed project to comply with the applicable standards and specifications defined by the Chapter 142 of Abington Township Code – Stormwater Management, and the Wissahickon Creek Watershed Act 167 Stormwater Management Plan.

2 Introduction/Overview

The North Hills Well Facility is owned and operated by Aqua Pennsylvania (Aqua) and is located in Glenside (Abington Township), PA (See Figure 1 for a Location Map and Appendix I for PCSM Plan). The Aqua PA North Hills Well PFAS Treatment System site is being improved to include facilities for the treatment of PFAS from groundwater. The project will propose a building addition on the existing facility to house the proposed GAC filters along with pavement restoration on the existing driveway. The electrical pad is proposed to be relocated from the front of the existing wellhouse to the front of the site. Stormwater management facilities are proposed to meet the regulatory requirements for this type of redevelopment.

3 Regulatory Compliance

Regulatory jurisdiction over stormwater runoff from the Aqua PA North Hills Well PFAS Treatment System site is the responsibility of the Township of Abington. This Post-Construction Stormwater Management Plan fulfills the requirements of Chapter 142 of Abington Township Code – Stormwater Management, and the Wissahickon Creek Watershed Act 167 Stormwater Management Plan.

The following paragraphs present the requirements Wissahickon Creek Watershed Act 167 Stormwater Management Plan, under Section 5 Criteria and Standards for New Development and redevelopment in the Wissahickon Creek Watershed, and indicates how they will be addressed.

3.1 Post-Construction Stormwater Management Plan General Requirements

This site is subject to the requirements of the Wissahickon Creek Watershed Act 167 Stormwater Management Plan and Chapter 142: Stormwater Management of the Abington Township Code and shall comply with the following criteria:

Maintain Water Quality

- Developed areas will provide adequate storage and treatment facilities necessary to capture and treat stormwater runoff specifically for water quality purposes.
- The required water quality volume (WQ_V) is the storage capacity needed to capture and treat a portion of the stormwater runoff from the developed areas of the site.

Maintain Groundwater Recharge

- Recharging rainfall into the ground replenishes the groundwater that provides baseflow to streams, provides water quality treatment, and maintains groundwater quantity for drinking water purposes. Stormwater management measures can be designed to promote groundwater recharge.
- Where practicable and appropriate the recharge volume shall be infiltrated on site. The recharge volume (Re_v) shall be equal to 1.0 inch of runoff (I) over all propose impervious surfaces.

Prevent Streambank erosion

- Detaining the 2-year proposed conditions storm to the one-year existing conditions storm and detaining the 1-year storm a minimum of 24 hours to minimize the number of storms causing stream bank erosion.

Stormwater peak rate control and management districts

- The Wissahickon Creek Watershed is broken into management districts that dictate the flow requirements. The Aqua PA North Hills Well PFAS Treatment System site is located in District B, which states the following peak rate reductions:

Proposed		Existing
2-year	Reduce to	1-year
5-year	Reduce to	2-year
10-year	Reduce to	5-year
25-year	Reduce to	10-year
50-year	Reduce to	25-year
100-year	Reduce to	50-year

See Section 4 - *Hydrologic and Hydraulic Analysis* for calculations to show how water quality, volume and peak flow requirements of the *Wissahickon Creek Watershed Act 167 Stormwater Management Plan* have been met. One of the objectives in minimizing changes in runoff volume and rate of runoff flow is to preserve the integrity of stream channels and any receiving streams.

Under existing conditions, onsite stormwater runoff flows overland across the site to the west to the Chelsea Avenue. Under proposed conditions, runoff from proposed impervious areas consisting of the proposed building addition and driveway extension will be routed to a Detention Trench via a system of roof leaders and driveway drain, and flow from the proposed electrical pad and surrounding grass area will be routed overland to an inlet that connects to the Detention Trench.

The proposed Detention Trench will discharge to an outfall pipe that will connect to the existing storm sewer on site.

Stormwater management will be provided by a Detention Trench to attenuate peaks in post-development runoff. The Detention Trench will also provide storage volume of post-development runoff. The underlying site soils are not suitable for infiltration, so the stormwater volume will be slow released from the trench to the existing onsite storm sewer by following the PADEP Managed Release Concept procedure. Therefore, increases in the rate of stormwater runoff and increases in stormwater runoff volume will be controlled. See calculations in Section 4.

3.2 Site Description and Analysis

The proposed Aqua PA North Hills Well PFAS Treatment System site is located in the Township of Abington, in Montgomery County, Pennsylvania.

Aerial images depict the Aqua PA North Hills Well PFAS Treatment System site as the existing well house facility located on Chelsea Avenue and bordered by residential properties. There is an existing concrete walkway extending from Chelsea Avenue to the existing well house. There are no known wetlands located within the proposed redevelopment site. The runoff rate under the existing conditions was calculated based on this site land use.

The project proposes to redevelop the existing well facility and will drain to a single point of interest West of the site. The Detention Trench will be installed to comply with regulatory stormwater requirements. The drainage area of the project site is 0.146 acres, with existing slope of approximately 0%-8%. The site is part of the Wissahickon Creek watershed. Chapter 93.9f from the PADEP Code indicates that the length of Wissahickon Creek at the project discharge location is classified as “TSF, MF, WWF” with no exemptions. TSF (trout stocking) indicates maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and

additional flora and fauna which are indigenous to a warm water habitat. MF (migratory fishes) indicates the passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which move to or from flowing waters to complete their life cycle in other waters. WWF (warm-water fishes) indicates the maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat. See Existing Conditions figure in Appendix E for site topographic information.

Based on the Natural Resources Conservation Service (NRCS) Web Soil Survey, the surficial geology within the area of interest consists of Urban land-Duffield complex (UrhB). A detailed description of the Urban land-Duffield complex are not provided in the NRCS Web Soil Survey and a hydrologic soil group was not provided. The Philadelphia Stormwater Management Guidance Manual provides a unique hydrologic soil group for urban land (Ub), which was used for the existing site analysis. See Section 4 for the existing site's hydrologic analysis.

Finally, the site lies in an "Area of Minimal Flood Hazard" denoted as Zone X. A portion of the relevant FEMA Flood Map has been included as Figure 2.

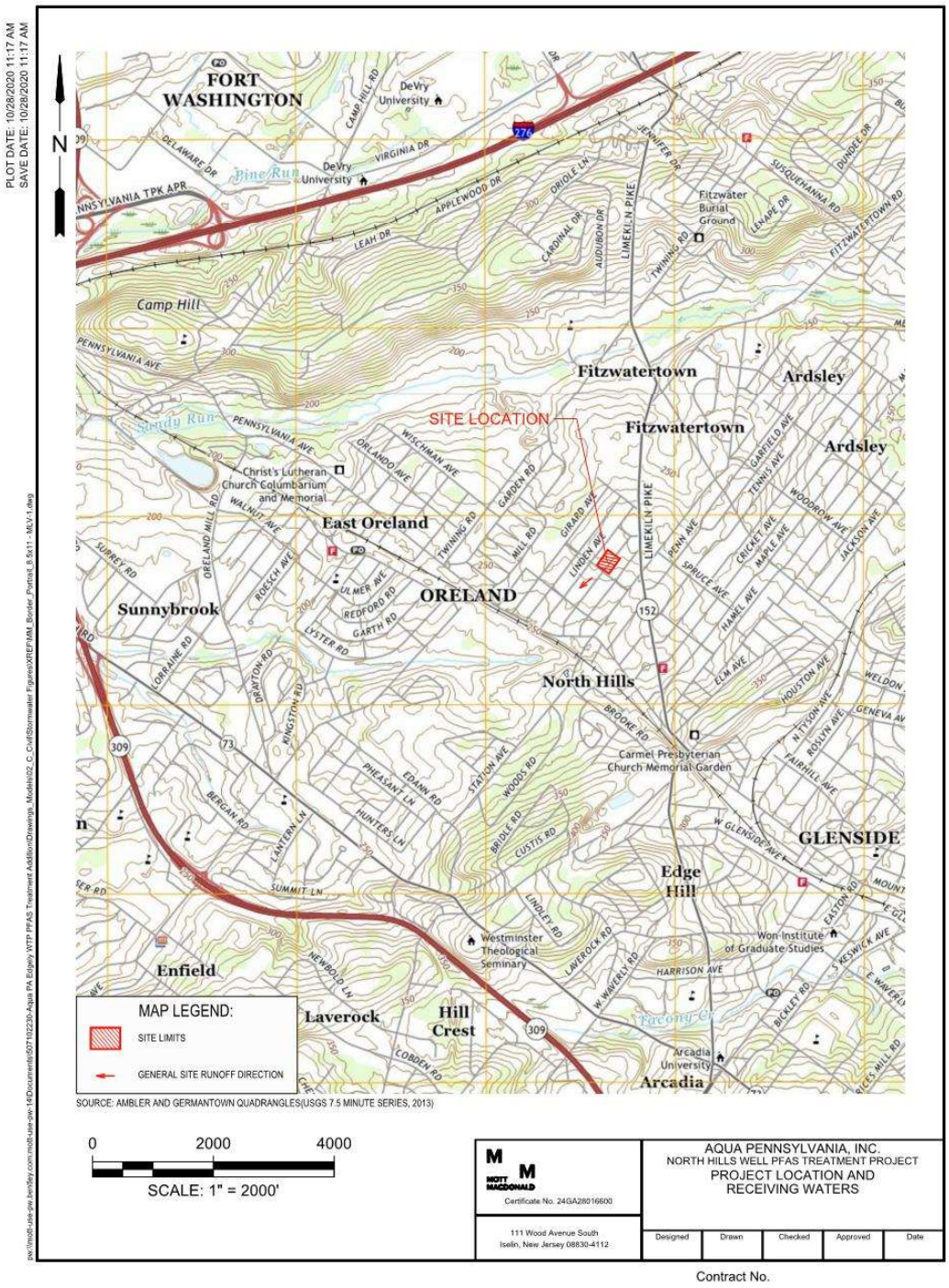


Figure 1: USGS Map showing project site and flow path to receiving waters

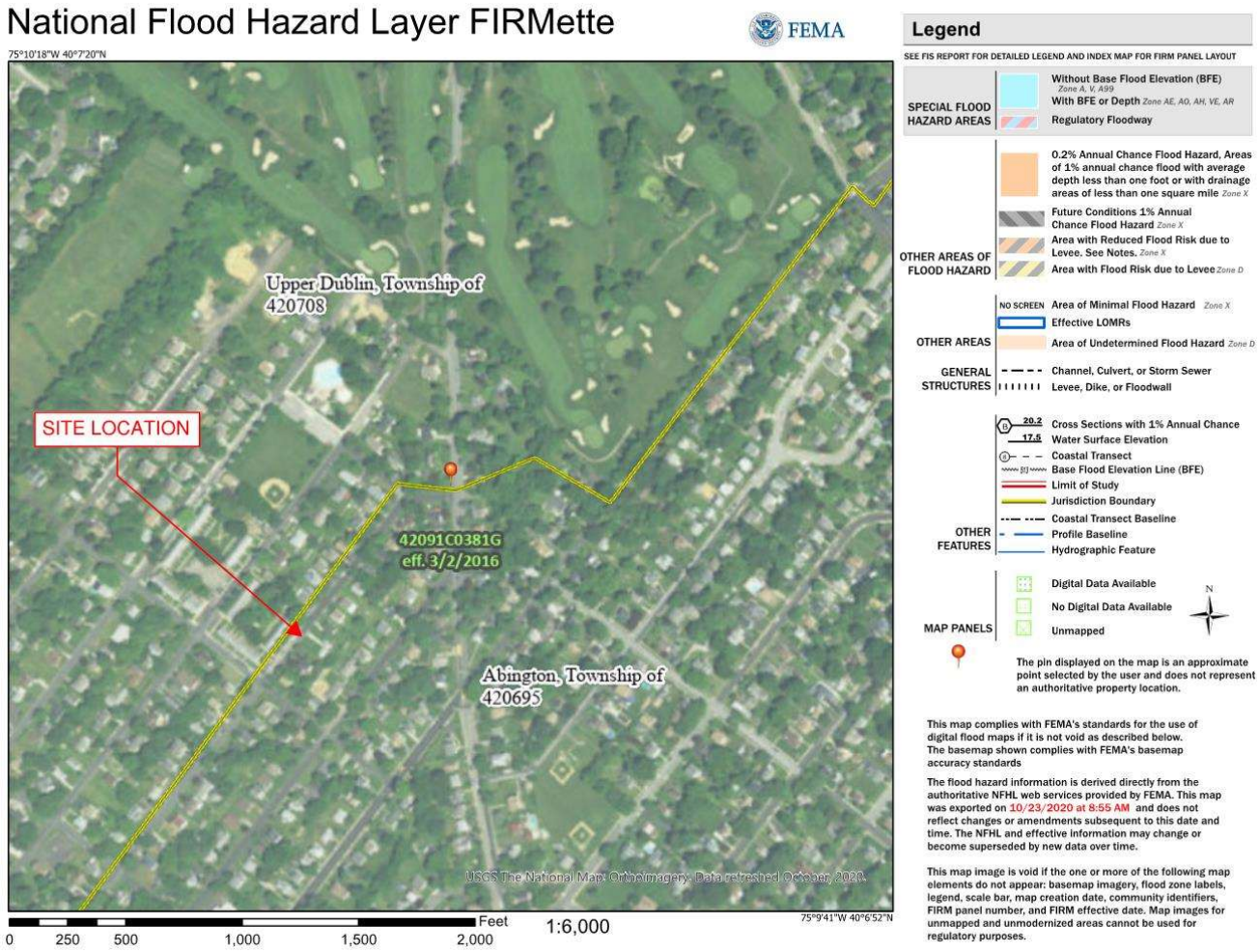


Figure 2: FEMA Flood Map

3.3 Site Characteristics and Assessment of Soil & Geology

The subsurface investigation consisting of two test pits and two double ring infiltration tests, was completed by Duffield Associates on October 14, 2020. The two infiltration tests were performed in the test pits and were performed in general accordance with ASTM D 3385.

The test pits and infiltration tests were performed at the location of the proposed Detention Trench, on the lawn to the north of the site. See Appendix G for the geotechnical evaluation report

The results of the infiltration tests are summarized as follows:

Table 1: Infiltration Testing Summary

Test No.	Test Depth Below grade (feet)	USDA Description	USCS Classification	Field Infiltration Rate (in/hr)
DRI-1	4.0	Brown clayey SILT trace fine sand	ML	0.12
DRI-2	4.0	Brown clayey SILT trace fine sand	ML	0.07

Duffield Associates Geotechnical Evaluation concludes that the existing soil is not conducive to infiltration and using stormwater infiltration design methodology is not feasible and is not recommended. Therefore, PADEP's Managed Release Concept will be utilized for the proposed detention trench to meet recharge volume requirements.

3.4 Project Best Management Practices (BMP)

BMPs have been designed according to the recommendations set out in the Pennsylvania Best Management Practices Manual.

Detention trench: A Detention Trench will be constructed in the existing lawn at the northern corner of the site. The Detention Trench is being designed to capture runoff from the proposed impervious areas. Runoff from the proposed building extension and driveway extension will be routed to the trench via roof leaders and underdrains. Runoff from the proposed electrical pad and the lawn to the north of the proposed electrical pad will be also be routed overland to an inlet connected to the trench. The trench temporarily stores and slowly releases runoff through an outlet control structure which discharges to a pipe that ties into the existing site storm sewer. The trench bottom will have an approximate base area 238 square feet and will have a depth of 2.94 feet.

The trench will utilize ACF R-Tank HD modules to adequately convey stormwater flows. 49 R-tanks will be installed on a 6" stone bed, with 12" of stone on top and on the northeaster, southeastern, and southwestern sides. The stone will extend 48" off the northwestern side of the modules, so an underdrain connecting to an outlet control structure can be installed. Additionally, the detention trench is to be lined with an impermeable geomembrane.

As mentioned in Section 3.3, the underlying on site soils are not sufficient for infiltration. Therefore, PADEP's Managed Release Concept (MRC) will be utilized for the proposed Detention Trench. A 0.5" orifice is proposed at the bottom of the outlet control structure to meet the MRC flow requirements and Act 167 water quality and recharge volume.

See the Post-Construction Stormwater Management Plan drawing for the location construction details of the infiltration trench.

3.5 Construction Sequence

BMP construction and inspections will be performed based on recommendations from the Pennsylvania Stormwater BMP Manual. The overall sequence of BMP construction is as follows:

1. At least seven (7) days before starting any earth disturbance activities, the owner and/or operator shall notify the PADEP and Montogermy County Conservation District by either telephone or certified mail of the intent to commence earth disturbance activities. Attendance at a pre-construction conference is required upon request of the PADEP.
2. At least three (3) days before starting any earth disturbance activities, contractors involved in these activities shall notify the Pennsylvania One Call system at 1-800-242-1776 to determine the location of existing underground utilities.
3. Install rock construction entrances.
4. Install compost filter sock downslope of any proposed disturbed/excavated area and stockpiles as shown on the E&S Plan.
5. Perform clearing and grubbing to those areas described in each stage of work. Dispose of excess topsoil off-site. The Contractor is responsible for ensuring that off-site waste areas have an E&S plan approved by the local conservation district or PADEP prior to being activated.
6. Install and maintain proper Erosion and Sediment Control Measures during construction.
7. Construct process piping and building extension according to specifications within these plan sheets including stabilization measures.
8. Excavate detention trench bottom to a uniform, level uncompacted subgrade free from rocks and debris. Do NOT compact subgrade.
9. Place impermeable geotextile along bottom and sides of trench. Geotextile rolls should overlap by a minimum of 16 inches within the trench. Fold back and secure excess geotextile during stone placement.
10. Install geomembrane liner.
11. Place uniformly graded, clean-washed stone in a 6-inch lift for stormwater module base. Install modular storage on top of stone per manufacturer specifications.
12. Install upstream and downstream control structures, inlets, cleanouts, etc.
13. Place uniformly graded, clean washed stone in 8-inch lifts around and above stormwater modules, lightly compacting between lifts.
14. Fold and secure geotextile over detention trench with minimum overlap of 16-inches.
15. Place topsoil over detention trench to bring ground elevation to grade.
16. Perform grading activities detailed by proposed grading, notes, and details shown on the plan drawings. As per project specifications, additional temporary placement of compost filter sock may be necessary at the contractor's discretion should accelerated erosion be observed during grading activities.
17. Place topsoil in areas to be vegetated. If work is completed outside of the germinating season, then immediately provide temporary seeding and mulch to newly graded slopes.
18. Apply permanent seed mix and mulch to disturbed areas as specified and in accordance with this plan.
19. Any temporary measures (such as compost filter sock and weighted sediment filter tubes) installed by contractor during grading shall remain in place until final stabilization has a minimum

uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding and other movements. The Engineer shall inspect final stabilization prior to removal of temporary measures.

20. Clean work area of any debris created during the construction sequence.

Detention Trench: The detention trench will be installed per the overall construction sequence above. Prior to construction, the area of the detention trench will be protected from compaction by installing orange safety fencing that will be used to protect the area throughout the project.

The detention trench will not be put into service until stabilization of disturbed areas is complete to prevent sedimentation and/or damage from construction activity. Erosion and Sediment Control Measures will be installed as required during construction (refer to E&S Plan).

After completion of construction on site, the trench will be inspected after rainfall events (> 1-inch rainfall depth) to verify that runoff drains within 72 hours. The trench will also be inspected for accumulation of construction sediment, erosion control measures and signs of water contamination/spills. At this time, accumulated sediment will be removed from the trench if required.

3.6 Operation and Maintenance

A maintenance program that provides for routine inspection, as well as repair and replacement as necessary, is essential to effective and efficient operation of the proposed stormwater BMPs. Implementation of the following maintenance plan is a key component in achieving the intent of this PCSM Plan and minimizing negative impacts of stormwater runoff from the proposed facilities. The permittee and any co-permittees shall be responsible for long-term operation and maintenance of the stormwater BMPs unless a different person is identified in the Notice of Termination and has agreed to long-term operation and maintenance of the stormwater BMPs. A formal long-term operation and maintenance plan will be provided in subsequent stages of the undertaking, outlining additional details of maintenance schedules, procedures and reporting requirements.

Aqua Pennsylvania will be responsible for the proper construction, stabilization, and maintenance of erosion and sediment controls and post-construction stormwater management facilities which include the vegetated areas. Vegetated areas will be inspected for erosion, distressed vegetation and bare ground. General maintenance will include the regular removal of debris and litter to help prevent possible damage to vegetated areas. Growth of woody vegetation will be controlled by mowing (approximately two times per year) and clearing as appropriate.

Detention Trench:

- The trench will be inspected after runoff events event (> 1-inch rainfall depth) to make sure that runoff drains down within 72 hours. The trench will also be inspected for accumulation of sediment, damage to outlet control structures, erosion control measures, and signs of water contamination/spills. Accumulated sediment will be removed from the trench as required, and sediment will be properly disposed of. Sediment to be removed by flooding infiltration to allow for particles to float to the top of the system.

  The trench will be inspected and cleaned at least two times per year and after runoff events (> 1-inch rainfall depth).
- The inlet and outlet control structure will be inspected and cleaned at least two times per year and after runoff events (>1 inch rainfall depth.)

3.7 Additional Stormwater Impacts/Benefits

Thermal impacts:

Infiltration of runoff collected in the trench will mitigate thermal impacts from post construction stormwater. Because the detention trench is sub-surface it will further mitigate thermal impacts. It is not expected that runoff collected in the trench and discharged will be retained in the trench for more than 24 hours, thus providing additional mitigation of potential thermal impacts of discharge from the trench. Excessive riprapping and concrete channels is being avoided, to minimize the transfer of heat to the runoff.

Riparian Buffer:

The project is not located within 150 feet of a perennial or intermittent river, stream, or creak, or lake, pond, or reservoir. The project is not located within a watershed of an Exceptional Value or High Quality. The project will eliminate the net change in stormwater volume, rate and quality for stormwater events up to and including the 2-year/24-hour storm. The project will use various structural and non-structural BMPs to meet the water quantity and quality requirements. The peak runoffs will be attenuated with a detention trench. The stormwater will be routed through structural and non-structural BMPs and discharged overland towards the stream which is greater than 150' away from the site. The project falls into the definition of a non-discharge alternative. See Section 4 for compliance calculations and descriptions. Therefore, a riparian forest buffer management plan is not required.

Anti-Degradation Techniques:

Anti-degradation techniques have been employed as part of the project BMP design. The proposed detention trench will store and slowly release the net change in stormwater volume for stormwater events up to and including the 100-year/24-hour storm. The project will use various structural and non-structural BMPs to meet the water quantity and quality requirements. The peak runoffs will be attenuated per the Wissahickon Creek Act 167 requirements. The stormwater will be routed through a structural BMP and discharged to the onsite storm sewer which connects into the existing stormwater network associated with sewer outfall 24 W. Therefore, the project falls into the definition of a nondischarge alternative. See Section 4 for compliance calculations and description.

4 Hydrologic and Hydraulic Analysis

This Section outlines the hydrologic calculations that were performed in order to design the stormwater BMPs for the Aqua PA North Hills Well PFAS Treatment System site, and to verify that requirements for stormwater runoff volume and peak rate would be met.

4.1 Existing Conditions

The total drainage area to the point of analysis including site and offsite areas is 0.146 acres of open spaced grassed land, an existing facility, and an existing driveway. In general, the ground slopes to the west in the front yard. The side yards and yard behind the existing building drain to the east. The roof off the existing building drains to a system of roof leaders that discharge to the side yards and flow to the east. A floor drain from the existing building connects to the onsite storm sewer that drains to an offsite retention basin. The onsite soils were identified using the USDA's Web Soil Survey. The project site consists of Urban land-Duffield complex (UrhB) which does not have a Hydrologic Soil Group designation from USDA (see Appendix E for a breakdown of existing condition soils type and curve numbers). Existing condition curve numbers for Urban land-Duffield complex were taken from the Philadelphia Water Department's Stormwater Management Guidance Manual. The time of concentration was calculated using TR-55 methodology, and the routing is shown in the Existing Conditions figure in Appendix E. For times of concentration less than 5 minutes, a minimum time of concentration of 5 minutes was assumed.

Under existing conditions, the land use breakdown is given in Table 3. The drainage area boundaries are shown in the Existing Conditions figure in Appendix E.

Table 2: Existing Conditions Land Use

DA	Cover	Soils	HSG	Area (sq ft)	Area (acres)	CN	CN*A	Weighted CN
Site								
EX-TRENCH	MEADOW	UrhB	Ub	1,875	0.043	58	2.50	58
EX-BYPASS	MEADOW	UrhB	Ub	2,665	0.061	58	3.55	58
EX-BYPASS	IMPERVIOUS	UrhB	Ub	1,820	0.042	98	4.09	98
Grand Total				**6,360**	**0.146**		**10.14**	**69.4**

Precipitation data was obtained from NOAA Atlas 14. The rainfall data is summarized in Table 4 and these rainfall depths were applied to the model as a NRCS Type II rainfall.

Table 3: 24-Hour Design Rainfall Depths

Recurrence Interval (years)	Rainfall (inches)
1	2.73
2	3.29
5	4.14
10	4.86
25	5.90
50	6.79
100	7.74

4.2 Proposed Conditions

The proposed site will consist of the existing well building and walkway, with a proposed addition on the building extending to the northwest, and a proposed extension of the driveway to the building extension. A 238 square foot detention trench was designed to meet the regulatory stormwater requirements. Flow from the proposed impervious area will be directed to the subsurface infiltration trench, and the outflow from the trench will be discharged via 4" PVC pipe to the existing 4" onsite storm sewer. The existing 4" onsite storm sewer drains into the existing Abington Township stormwater network associated sewer outfall 24 W.

The land use breakdown under proposed conditions is given in Table 5. The drainage area boundaries are shown in the Proposed Conditions figure in Appendix F.

Table 4: Proposed Condition Land Use

DA	Cover	Soils	HSG	Area (sq ft)	Area (acres)	CN	CN*A	Weighted CN
Site								
PR-TRENCH	MEADOW	UrhB	Ub	900	0.021	58	1.20	58
PR-TRENCH	IMPERVIOUS	UrhB	Ub	975	0.022	98	2.19	98
PR-BYPASS	MEADOW	UrhB	Ub	2,790	0.064	58	3.71	58
PR-BYPASS	IMPERVIOUS	UrhB	Ub	1,695	0.039	98	3.81	98
Grand Total				**6,630**	**0.146**		**10.920**	**74.8**

4.3 Model Development

A model was developed in HydroCad to simulate existing and proposed flow. This model was used to determine the existing and proposed runoff volumes and peak runoff rates. The proposed flows were routed through the roof leader system and road inlet to the proposed Detention Trench and the attenuated flow rates calculated. Model inputs and summary and output reports can be found in Appendix H.

4.4 Stormwater Management Rules Compliance

The project meets the requirements set forth under the Wissahickon Creek Act 167 Stormwater Management Plan and the Township of Abington Code, Chapter 142 Stormwater Management.

The following paragraphs present each requirement and indicate how they will be addressed. Regulatory requirements are shown in italics, and the corresponding compliance methods follow.

4.4.1 Volume Control

4.4.1.1 Water Quality Volume

The low impact development practices provided in the Pennsylvania BMP Manual shall be utilized for all regulated activities to the maximum extent practicable. Water Volume Controls shall be implemented using the Design Storm Method in Subsection A or the Simplified Method in Subsection B below. For regulated activity areas equal to or less than one (1) acre that do not require hydrologic routing to design the stormwater facilities, this Ordinance establishes no preference for either methodology; therefore, the applicant may select either methodology on the basis of economic considerations, the intrinsic limitations on applicability of the analytical procedures associated with each methodology, and other factors. All regulated activities greater than one (1) acre must use the Design Storm Method.

A. *The Design Storm Method (CG-1 in the BMP Manual) is applicable to any size of regulated activity. This method requires detailed modeling or calculations based on site conditions.*

1. *The post-development total runoff volume for all storms equal to or less than the 2-year, 24-hour storm event shall not be increased.*
2. *For modeling purposes:*
    a. *Existing (predevelopment) non-forested pervious areas must be considered meadow.*
    b. *20% of existing impervious area, when present, shall be considered meadow in the model for existing conditions.*

B. *The Simplified Method (CG-2 in the Pennsylvania BMP Manual) provided below is independent of site conditions and should be used if the Design Storm Method is not followed. This method is not applicable to regulated activities greater than one (1) acre, or for projects that require design of stormwater storage facilities. For new impervious surfaces:*

1. *Stormwater facilities shall capture at least the first two (2) inches of runoff from all new impervious surfaces. (Note: An asterisk (*) in equations denotes multiplication.)*

    *Volume (cubic feet) = (2/12) * Impervious Surfaces (square feet)*

2. *At least the first one (1) inch of runoff from new impervious surfaces shall be permanently removed from the runoff flow-- i.e., it shall not be released into the surface waters of the Commonwealth. Removal options include reuse, evaporation, transpiration, and infiltration.*

    *Volume (cubic feet) = (1/12) * Impervious Surfaces (square feet)*

The following calculation formula is to be used to determine the water quality storage volume in cubic feet:

$WQ_v = [(P)*(Rv)*(A)]/12$

Where:

WQv = Water quality volume (acre-feet)

P = 1 inch

A = Area of the project contributing to the water quality BMP (acres)

*Rv = 0.05 + 0.009(I) where I is the percent of the area that is impervious surface (Impervious surface/A)*100*

The CG-1 method was selected at the water quality volume methodology for the Aqua PA North Hills site, and therefore there must be no increase in stormwater runoff volume for the 1-year and 2-year storms. However, because infiltration is not possible on the site, the stormwater runoff volumes cannot be reduced. Instead, the water quality volume will be detained by the detention basin and slowly released through a 0.5” orifice at the bottom of the trench.

The detention trench collects flows from an area of 1,875 square feet (0.043 acres), of which 975 square feet (0.022 acres) is impervious. Therefore, the water quality volume is as followed:

P = 1.00

A = 0.038 acres

Rv = 0.05 + 0.009((0.022/0.043)*100) = 0.510

WQv = 1*0.043*0.510/12 = 0.00183 acre-feet = **79.7 cubic feet**

This volume will be collected and stored below the detention trench's 3" primary orifice, and slowly released to the existing onsite storm sewer. The orifice is located 1.9' above the trench bottom, at an elevation of 283.90. The volume below the orifice is 298 cubic feet which is greater than the required water quality volume of 79.7 cubic feet.

For modeling, the existing non-forested areas were considered meadow, as required. The existing 140 square foot electrical pad is to be removed, and therefore 20% of it's area (28 square feet) was treated as meadow in the model.

4.4.1.2 Groundwater Recharge Volume

Infiltration best management practices (BMP) shall meet the following minimum requirements unless the site qualifies for an exemption from the infiltration requirements of this chapter as listed in 142-106:

1. *Infiltration BMPs intended to receive runoff from developed areas shall be selected based on suitability of soils and site conditions and shall be constructed on soils that have the following characteristics:*
    a. *A minimum soil depth of 24 inches between the bottoms of the infiltration BMPs and bedrock or other limiting zones such as clay layers.*
    b. *An infiltration rate sufficient to accept the additional stormwater load (stormwater load is the quantity above the pre-project condition quantity) and dewater completely as determined by field tests conducted by the applicant's qualified person.*
    c. *All open-air infiltration facilities shall be designed to completely infiltrate the recharge (infiltration) volume (Re_v) within three days (72 hours) from the end of the design storm.*
    d. *All subsurface and contained facilities such as capture-and-reuse systems must have storage available equivalent to the water volume control amount within three days (72 hours) from the end of the design storm.*
    e. *Pretreatment shall be provided prior to infiltration.*
2. *The size of the infiltration facility shall be based on upon the following volume criteria:*
    a. *Where practicable and appropriate the recharge volume shall be infiltrated on site. The recharge volume shall be equal to 1.0 inch of runoff (I) over all proposed impervious surfaces.*
    b. *The Re_v = (1/12) * (I)*

    Where:
    Re_v = Recharge Volume (cubic feet)
    I = Impervious Area with the limits of earth disturbance (square feet)

As stated in the geotechnical investigation prepared by Duffield Associates, the onsite soils are not suitable for infiltration. A detention trench utilizing PADEP's Managed Release Concept is proposed to collect and slowly release the recharge volume.

The proposed building, driveway extension and new electrical pad result in an increase of 990 square feet of impervious. Therefore, the recharge volume is as followed:

R_{ev} = (1/12) * 990 = **82.5 cubic feet**

The recharge volume was accomplished by demonstrating that the proposed detention trench has the required storage volume to detain the volume below the 3" primary orifice. The orifice is located 1.9' above the trench bottom, at an elevation of 283.90. The volume below the orifice is 298 cubic feet (see volume calculations in Appendix B).

4.4.2 Peak Flow Control

4.4.2.1 Streambank Erosion

A. *If a perennial or intermittent stream passes through the site, the applicant shall create a riparian buffer extending a minimum of 50 feet to either side of the top-of-bank of the channel. The buffer area shall be established and maintained in an undisturbed state. This buffer area may be maintained as a meadow with minimal mowing of the grassed area, or as a forested buffer, being planted with appropriate native vegetation (refer to Appendix B of the BMP Manual for plant lists). If the applicable rear or side yard setback is less than 50 feet, the buffer width may be reduced to 25% of the setback to a minimum of 10 feet. If an existing buffer is legally prescribed (i.e., deed, covenant, easement, etc.) and it exceeds the requirements of this chapter, the existing buffer shall be maintained. This buffer requirement is for perennial or intermittent streams and does not include lakes or wetlands.*

B. *Applicants shall adhere to the following stream bank erosion/channel protection requirements:*

   1. *In addition to the control of water quality volume (in order to minimize the impact of stormwater runoff on downstream stream bank erosion), the primary requirement is to design a BMP to detain the proposed conditions two-year, twenty-four-hour storm event to the existing conditions one-year flow using the SCS Type II distribution. Additionally, provisions shall be made (such as adding a small orifice at the bottom of the outlet structure or a sand filter) so that the proposed conditions one-year, twenty-four-hour storm event takes at least 24 hours to drain from the facility from a point when the maximum volume of water from the one-year, twenty-four-hour storm event is captured (i.e., the maximum water surface elevation is achieved in the facility). Release of water can begin at the start of the storm (i.e., the invert of the water volume control or [or water quality] orifice is at the invert of the facility).*

   2. *The minimum orifice size in the outlet structure to the BMP shall be three inches in diameter where possible, and a trash rack shall be installed to prevent clogging. On sites with small drainage areas contributing to this BMP that do not provide enough runoff volume to allow a twenty-four-hour attenuation with the three-inch orifice, the calculations shall be submitted showing this condition. Orifice sizes less than three inches can be utilized, provided that the design will prevent clogging of the intake. It is recommended that the design, to accommodate maintenance, include a sand or porous media filter.*

In the Abington Township code, Table 106.1P – Eligibility for Exemptions for the Montgomery County Portions of the Watershed outlines the eligibility for exemptions from certain requirements based on the total impervious area and total limit of disturbance of the project. The North Hills WTP improvements project is a redevelopment project proposing less than 1,000 square feet of impervious cover with a total earth disturbance of 5,755 square feet. Therefore, based on Table 106.1P, this project is exempt from meeting the streambank erosion requirements.

4.4.2.2 Stormwater Peak Rate Control and Management

1) *The Wissahickon Creek Watershed has been divided into stormwater management districts as shown on the Management District Map.*
   a) *The peak rate requirements specified in Table 409.1W below shall be implemented in addition to all other applicable requirements.*

b) Standards for managing peak rates of runoff from each subarea in the Wissahickon Creek Watershed for the two-, five-, ten-, twenty-five-, fifty-, and one-hundred-year storm events are shown in Table 409.1W. Development sites located in each of the management districts must control proposed condition runoff rates to existing condition runoff rates for the design storms in accordance with Table 409.1W.

Table 409.1W

Peak Rate Control Standards by Stormwater Management District in the Wissahickon Creek Watershed

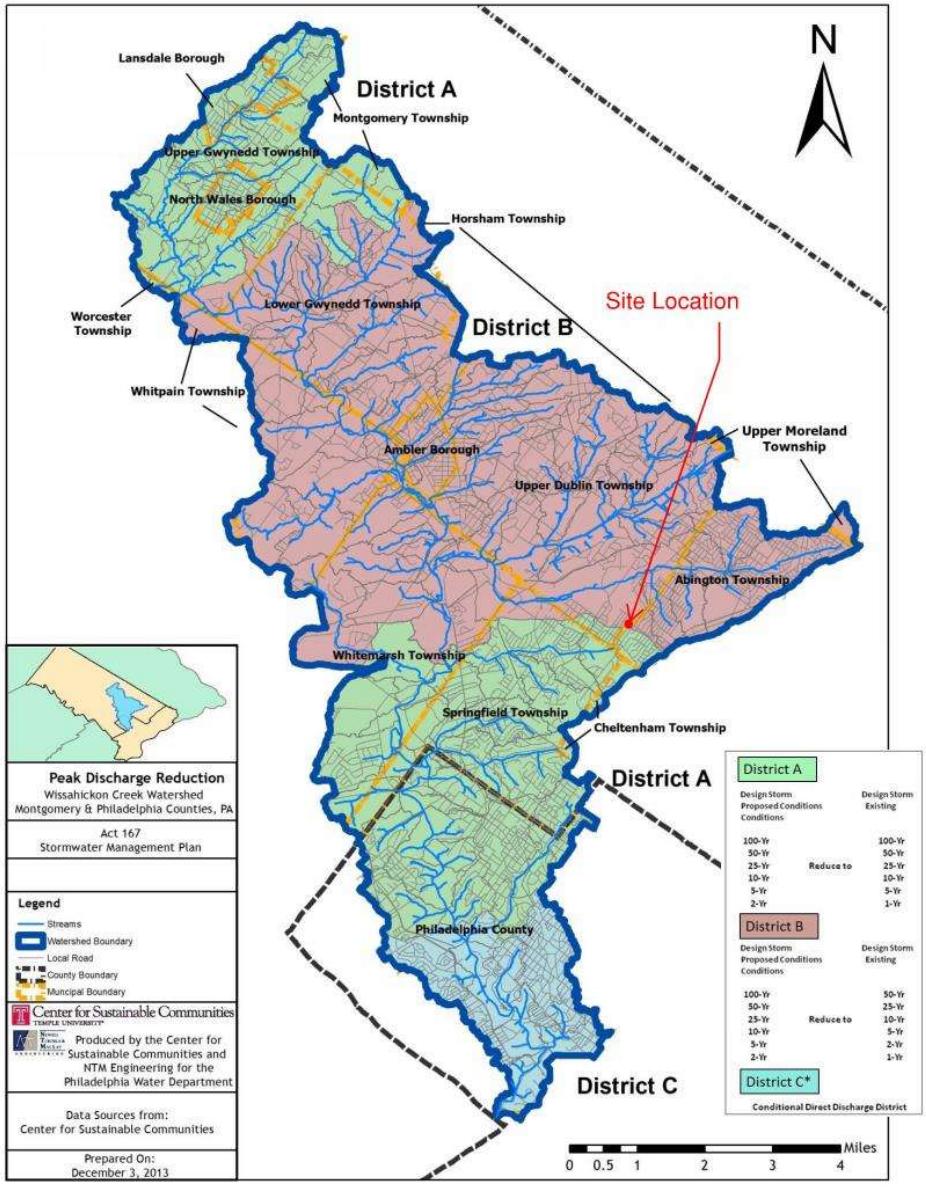
District	*Proposed*		*Existing*
A	*2-year*	*Reduce to*	*1-year*
	5-year	*Reduce to*	*5-year*
	10-year	*Reduce to*	*10-year*
	25-year	*Reduce to*	*25-year*
	50-year	*Reduce to*	*50-year*
	100-year	*Reduce to*	*100-year*

District	*Proposed*		*Existing*
B	*2-year*	*Reduce to*	*1-year*
	5-year	*Reduce to*	*2-year*
	10-year	*Reduce to*	*5-year*
	25-year	*Reduce to*	*10-year*
	50-year	*Reduce to*	*25-year*
	100-year	*Reduce to*	*50-year*

c) Proposed condition rates of runoff from any regulated activity shall not exceed the peak release rates of runoff from existing conditions for the design storms specified on the Stormwater Management District Watershed Map.

The Aqua PA North Hills Well PFAS Treatment System is located in District B, as shown on Figure 2, and is therefore subject to the peak runoff rate controls for that district. A Detention Trench is utilized to provide storage attenuation to prevent any increases in the rate of stormwater runoff from disturbed areas, thus it meets the township requirements. The model indicates that the trench will reduce the 2-year rate below the existing 1-year rate, the 5-year rate below the existing 2-year rate, the 10-year below the existing 5-year rate, the 25-year rate below the existing 10-year rate, the 50-year rate below the existing 25-year rate, and the 100-year rate below the existing 50-year rate, as specified for District B. The attenuated flows are summarized in Tables 5 and 6.

Figure 4.4.E Peak Rate Management District Map for the Wissahickon Watershed



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Figure 3: Wissahickon Creek Watershed Management Districts

4.4.2.3 Managed Release Concept Release Rate

The stormwater release rate from the managed release concept BMP for the 1.2-inch/2-hour storm should not exceed 0.01 cubic feet per second (cfs) from the equivalent impervious area.

The equivalent impervious area flowing to the detention trench is 0.043 acres, which corresponds to an allowable release rate of 0.00043 cfs. A 0.5" orifice is proposed at the bottom of the outlet control structure to meet this managed release rate. The HydroCAD software displays flows to the nearest 0.01 cfs, so the outfall flow shows 0.00 cfs in order to display compliance. The managed release concept release rate is shown in Table 6.

Table 5: Total Peak Flow Summary

Recurrence Interval (Yrs)	Existing Bypass Q (cfs)	Proposed Bypass Q (cfs)	Existing Disturbed Q (cfs)	Proposed Disturbed Q (cfs)	Total Existing Q (cfs)	Total Proposed Q (cfs)
1	0.08	0.07	0.01	0.01	0.08	0.07
2	0.12	0.11	0.02	0.01	0.13	0.12
5	0.19	0.18	0.04	0.01	0.21	0.18
10	0.25	0.24	0.07	0.01	0.29	0.25
25	0.35	0.34	0.11	0.02	0.40	0.34
50	0.43	0.42	0.15	0.07	0.51	0.43
100	0.53	0.51	0.20	0.14	0.63	0.61

Table 6: Peak Flow Reduction Summary

Recurrence Interval (Yrs)	Existing Disturbed Q (cfs)	Maximum Allowable Proposed Peak Flow (cfs)	Proposed Disturbed Q (cfs)	Proposed Less than Allowable? (Y/N)
1	0.01	0.01	0.01	Yes
2	0.02	0.01	0.01	Yes
5	0.04	0.02	0.01	Yes
10	0.07	0.04	0.01	Yes
25	0.11	0.07	0.02	Yes
50	0.15	0.11	0.07	Yes
100	0.20	0.15	0.14	Yes
Managed Release Rate		0.00	0.00	Yes

5 Conclusion

As demonstrated in the sections above, the design of the proposed stormwater BMPs for the Aqua PA North Hills Well PFAS Treatment System site will allow the proposed project to comply with the applicable regulatory requirements under Chapter 142 of Abington Township Code – Stormwater Management and the Wissahickon Creek Watershed Act 167 Stormwater Management Plan.

Appendices

A. Rainfall Data

NOAA Atlas 14, Volume 2, Version 3
Location name: Glenside, Pennsylvania, USA*
Latitude: 40.1169°, Longitude: -75.1679°
Elevation: 286.53 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.345** (0.315-0.378)	**0.411** (0.375-0.450)	**0.484** (0.441-0.530)	**0.537** (0.489-0.587)	**0.600** (0.543-0.656)	**0.645** (0.581-0.706)	**0.688** (0.617-0.755)	**0.728** (0.649-0.801)	**0.775** (0.684-0.857)	**0.810** (0.710-0.900)
10-min	**0.551** (0.504-0.603)	**0.657** (0.600-0.720)	**0.776** (0.707-0.848)	**0.859** (0.781-0.939)	**0.957** (0.866-1.05)	**1.03** (0.925-1.12)	**1.09** (0.981-1.20)	**1.15** (1.03-1.27)	**1.23** (1.08-1.36)	**1.27** (1.12-1.42)
15-min	**0.689** (0.629-0.754)	**0.826** (0.755-0.905)	**0.981** (0.894-1.07)	**1.09** (0.988-1.19)	**1.21** (1.10-1.33)	**1.30** (1.17-1.42)	**1.38** (1.24-1.52)	**1.46** (1.30-1.60)	**1.54** (1.36-1.71)	**1.60** (1.40-1.78)
30-min	**0.944** (0.863-1.03)	**1.14** (1.04-1.25)	**1.39** (1.27-1.52)	**1.57** (1.43-1.72)	**1.80** (1.63-1.96)	**1.96** (1.76-2.14)	**2.12** (1.90-2.32)	**2.27** (2.02-2.49)	**2.45** (2.17-2.71)	**2.59** (2.27-2.88)
60-min	**1.18** (1.08-1.29)	**1.43** (1.31-1.57)	**1.79** (1.63-1.95)	**2.05** (1.87-2.24)	**2.39** (2.17-2.62)	**2.65** (2.39-2.91)	**2.92** (2.62-3.20)	**3.18** (2.83-3.50)	**3.52** (3.11-3.89)	**3.78** (3.32-4.20)
2-hr	**1.41** (1.28-1.55)	**1.72** (1.56-1.89)	**2.15** (1.95-2.36)	**2.48** (2.25-2.72)	**2.93** (2.64-3.21)	**3.29** (2.94-3.60)	**3.64** (3.24-4.00)	**4.00** (3.53-4.40)	**4.50** (3.92-4.97)	**4.88** (4.21-5.42)
3-hr	**1.55** (1.40-1.70)	**1.88** (1.71-2.07)	**2.36** (2.14-2.60)	**2.73** (2.47-3.00)	**3.23** (2.91-3.56)	**3.63** (3.25-4.00)	**4.05** (3.60-4.46)	**4.47** (3.93-4.94)	**5.05** (4.38-5.61)	**5.51** (4.72-6.14)
6-hr	**1.94** (1.77-2.14)	**2.34** (2.14-2.59)	**2.93** (2.67-3.23)	**3.41** (3.09-3.76)	**4.09** (3.67-4.50)	**4.64** (4.14-5.11)	**5.23** (4.62-5.76)	**5.86** (5.11-6.46)	**6.74** (5.78-7.48)	**7.46** (6.30-8.32)
12-hr	**2.36** (2.16-2.61)	**2.85** (2.61-3.15)	**3.59** (3.27-3.97)	**4.21** (3.82-4.65)	**5.12** (4.60-5.64)	**5.89** (5.24-6.49)	**6.74** (5.92-7.43)	**7.66** (6.63-8.48)	**9.02** (7.63-10.0)	**10.2** (8.44-11.4)
24-hr	**2.73** (2.52-2.97)	**3.29** (3.04-3.58)	**4.14** (3.83-4.50)	**4.86** (4.47-5.28)	**5.90** (5.40-6.39)	**6.79** (6.16-7.34)	**7.74** (6.99-8.37)	**8.78** (7.86-9.49)	**10.3** (9.11-11.1)	**11.6** (10.1-12.5)
2-day	**3.15** (2.89-3.43)	**3.80** (3.49-4.14)	**4.79** (4.40-5.22)	**5.61** (5.14-6.10)	**6.77** (6.18-7.35)	**7.75** (7.03-8.40)	**8.79** (7.92-9.53)	**9.90** (8.86-10.7)	**11.5** (10.2-12.5)	**12.8** (11.3-14.0)
3-day	**3.33** (3.07-3.62)	**4.01** (3.70-4.37)	**5.04** (4.64-5.48)	**5.88** (5.41-6.38)	**7.07** (6.48-7.67)	**8.07** (7.36-8.74)	**9.12** (8.27-9.88)	**10.3** (9.23-11.1)	**11.9** (10.6-12.9)	**13.2** (11.7-14.3)
4-day	**3.51** (3.25-3.81)	**4.23** (3.92-4.59)	**5.29** (4.89-5.74)	**6.15** (5.68-6.67)	**7.38** (6.78-7.99)	**8.39** (7.68-9.08)	**9.46** (8.62-10.2)	**10.6** (9.60-11.5)	**12.2** (11.0-13.3)	**13.6** (12.1-14.7)
7-day	**4.10** (3.81-4.43)	**4.91** (4.57-5.31)	**6.08** (5.65-6.58)	**7.04** (6.53-7.61)	**8.41** (7.77-9.08)	**9.54** (8.78-10.3)	**10.7** (9.83-11.6)	**12.0** (10.9-13.0)	**13.9** (12.5-15.0)	**15.3** (13.7-16.6)
10-day	**4.66** (4.36-5.01)	**5.57** (5.21-5.98)	**6.79** (6.34-7.30)	**7.78** (7.25-8.36)	**9.16** (8.50-9.82)	**10.3** (9.50-11.0)	**11.4** (10.5-12.2)	**12.6** (11.6-13.5)	**14.3** (13.0-15.4)	**15.7** (14.1-16.9)
20-day	**6.30** (5.94-6.70)	**7.48** (7.05-7.95)	**8.92** (8.40-9.49)	**10.1** (9.46-10.7)	**11.6** (10.9-12.3)	**12.8** (12.0-13.6)	**14.0** (13.1-14.9)	**15.3** (14.2-16.2)	**16.9** (15.6-18.0)	**18.2** (16.7-19.4)
30-day	**7.85** (7.44-8.27)	**9.25** (8.77-9.75)	**10.8** (10.2-11.4)	**12.0** (11.3-12.6)	**13.6** (12.8-14.3)	**14.8** (13.9-15.6)	**15.9** (15.0-16.8)	**17.1** (16.0-18.0)	**18.6** (17.3-19.7)	**19.7** (18.3-20.9)
45-day	**9.98** (9.50-10.5)	**11.7** (11.2-12.3)	**13.5** (12.8-14.2)	**14.8** (14.1-15.6)	**16.5** (15.7-17.3)	**17.8** (16.8-18.6)	**18.9** (17.9-19.9)	**20.1** (18.9-21.1)	**21.4** (20.2-22.6)	**22.4** (21.1-23.7)
60-day	**12.0** (11.4-12.5)	**14.0** (13.4-14.7)	**16.0** (15.3-16.8)	**17.5** (16.7-18.3)	**19.3** (18.4-20.2)	**20.7** (19.7-21.7)	**21.9** (20.8-23.0)	**23.1** (21.9-24.2)	**24.5** (23.2-25.8)	**25.5** (24.1-26.8)

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

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

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

B. Calculation Sheet

AQUA NORTH HILLS TREATMENT PLANT

EXISTING CONDITIONS CURVE NUMBER CALCULATIONS

ID	DA	Cover	Soils	HSG	Area	Area (Acres)	CN	CN*A	Weighted CN
	EX-SITE-TRENCH								
	EX-SITE TRENCH	MEADOW	UrhB	B	1875	0.043	58	2.50	58.0
	EX-SITE-TRENCH	IMPERVIOUS	UrhB	B	0	0.000	98	0.00	98.0
		EX-SITE-TRENCH			**1,875**	**0.043**		**2.50**	**58.0**
	EX-SITE BYPASS	MEADOW	UrhB	B	2665	0.061	58	3.55	58.0
	EX-SITE BYPASS	IMPERVIOUS	UrhB	B	1820	0.042	98	4.09	98.0
		EX-SITE-BYPASS			**4,485**	**0.103**		**7.64**	**74.2**
	Grand Total				**6,360**	**0.146**		**10.140**	**69.4**

AQUA NORTH HILLS TREATMENT PLANT

EXISTING CONDITIONS CURVE NUMBER CALCULATIONS (20% EXISTING IMPERVIOUS TO BE REMOVED CONSIDERED MEADOW)

ID	DA	Cover	Soils	HSG	Area	Area (Acres)	CN	CN*A	Weighted CN
	EX-SITE-TRENCH								
	EX-SITE TRENCH	MEADOW	UrhB	B	1875	0.043	58	2.50	58.0
	EX-SITE-TRENCH	IMPERVIOUS	UrhB	B	0	0.000	98	0.00	98.0
		EX-SITE-TRENCH			**1,875**	**0.043**		**2.50**	**58.0**
	EX-SITE BYPASS	MEADOW	UrhB	B	2693	0.062	58	3.59	58.0
	EX-SITE BYPASS	IMPERVIOUS	UrhB	B	1792	0.041	98	4.03	98.0
		EX-SITE-BYPASS			**4,485**	**0.103**		**7.62**	**74.0**
	Grand Total				**6,360**	**0.146**		**10.114**	**69.3**

AQUA NORTH HILLS TREATMENT PLANT

PROPOSED CONDITIONS CURVE NUMBER CALCULATIONS

ID	DA	Cover	Soils	HSG	Area	Area (Acres)	CN	CN*A	Weighted CN
	PR-SITE-TRENCH								
	PR-SITE TRENCH	MEADOW	UrhB	B	900	0.021	58	1.20	58.0
	PR-SITE-TRENCH	IMPERVIOUS	UrhB	B	975	0.022	98	2.19	98.0
		PR-SITE-TRENCH			**1,875**	**0.043**		**3.39**	**78.8**
	PR-SITE BYPASS	MEADOW	UrhB	B	2790	0.064	58	3.71	58.0
	PR-SITE BYPASS	IMPERVIOUS	UrhB	B	1695	0.039	98	3.81	98.0
		PR-SITE-BYPASS			**4,485**	**0.103**		**7.53**	**73.1**
	Grand Total				**6,360**	**0.146**		**10.920**	**74.8**

EXISTING CONDITIONS
SITE EXISTING TRENCH -Tc CALCULATIONS

SHEET FLOW	
Manning's n	0.24
Flow length, ft	42
2-Yr 24-Hr rainfall, in	3.29
Land slope, %	1.24
Sheet flow time, min	**8.5**

TIME OF CONC., mins	**8.5**

EXISTING CONDITIONS
SITE EXISTING BYPASS -Tc CALCULATIONS

SHEET FLOW	
Manning's n	0.24
Flow length, ft	29
2-Yr 24-Hr rainfall, in	3.29
Land slope, %	1.66
Sheet flow time, min	**5.6**

Manning's n	0.011
Flow length, ft	32
2-Yr 24-Hr rainfall, in	3.29
Land slope, %	0.50
Sheet flow time, min	**0.8**

Manning's n	0.24
Flow length, ft	21
2-Yr 24-Hr rainfall, in	3.29
Land slope, %	2.29
Sheet flow time, min	**3.8**

TIME OF CONC., mins	**10.3**

PROPOSED CONDITIONS
SITE PROPOSED TRENCH -Tc CALCULATIONS

SHEET FLOW	
Manning's n	0.24
Flow length, ft	38
2-Yr 24-Hr rainfall, in	3.29
Land slope, %	1.58
Sheet flow time, min	**7.1**

TIME OF CONC., mins	**7.1**

PROPOSED CONDITIONS
SITE PROPOSED BYPASS -Tc

SHEET FLOW	
Manning's n	0.24
Flow length, ft	26
2-Yr 24-Hr rainfall, in	3.29
Land slope, %	1.81
Sheet flow time, min	**5.0**

Manning's n	0.011
Flow length, ft	40
2-Yr 24-Hr rainfall, in	3.29
Land slope, %	0.42
Sheet flow time, min	**1.1**

Manning's n	0.24
Flow length, ft	21
2-Yr 24-Hr rainfall, in	3.29
Land slope, %	1.71
Sheet flow time, min	**4.3**

TIME OF CONC., mins	**10.3**

AQUA PA NORTH HILLS
PROPOSED CONDITIONS RUNOFF COEFFICIENT CALCULATIONS FOR PROPOSED INLETS

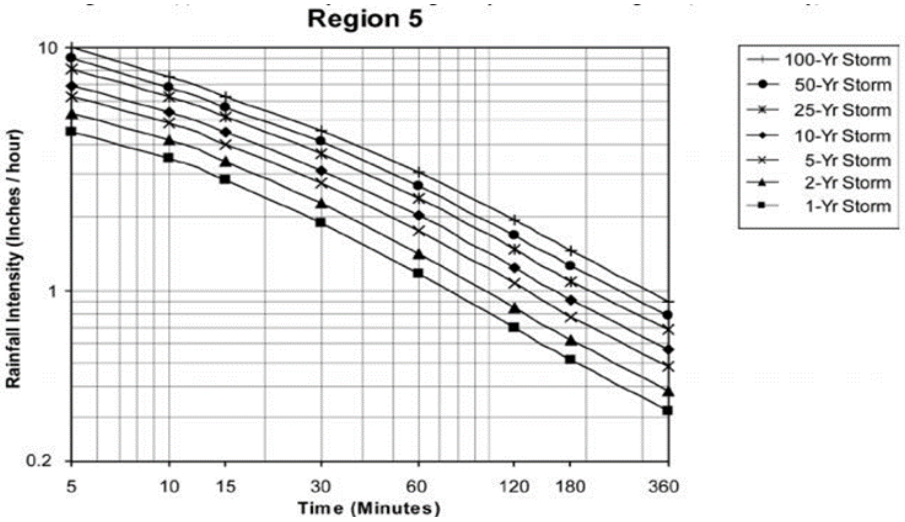
***Note: Rational C Coefficients adopted from PA Erosion and Sediment Pollution Control Program Manual, Mar 2012, Table 5.2**

DA	Land Use	Soils	HSG	Area	Area (Acres)	C	C*A	RC
INLET	IMP	UrhB	N/A	65	0.001	0.86	0.001	0.86
INLET	MEAD	UrhB	N/A	900	0.021	0.14	0.003	0.14
INLET Total					**0.022**		**0.004**	**0.19**
DRAIN	IMP	UrhB	N/A	50	0.001	0.86	0.001	0.86
DRAIN Total					**0.001**		**0.001**	**0.86**

The "RC" value is an area averaged runoff coefficient value (arithmatic mean) calculated as:

$$RC = \frac{\sum_{i=1}^{n} C_i \, x \, Area_i}{\sum_{i=1}^{n} Area_i}$$

Rainfall Intensity Curve



AQUA PA EDGELY WTP

RATIONAL METHOD PEAK FLOW CALCULATIONS FOR PROPOSED INLETS

Return Period (Yrs) 2

DA	Area (Acres)	RC	Tc (mins)	Rainfall Intensity (in/hr)	Q (cfs)
INLET	0.022	0.19	7.10	3.3	0.014
DRAIN	0.001	0.86	7.10	3.3	0.003

Return Period (Yrs) 10

DA	Area (Acres)	RC	Tc (mins)	Rainfall Intensity (in/hr)	Q (cfs)
INLET	0.022	0.19	7.10	4.9	0.020
DRAIN	0.001	0.86	7.10	4.9	0.005

Return Period (Yrs) 100

DA	Area (Acres)	RC	Tc (mins)	Rainfall Intensity (in/hr)	Q (cfs)
INLET	0.022	0.19	7.10	7.7	0.032
DRAIN	0.001	0.86	7.10	7.7	0.008

INLET CAPACITY CHECK

ID	Drain Type	Design Flow, cfs	Grate Open Area, sq ft	Depth of Flow, ft	Grate Perimeter, ft	Grate Flow Capacity, cfs	Inlet Collection Capacity, cfs
IN-1	2' x 2' Inlet	0.032	1.5	0.17	8.4	2.98	1.94
DRAIN	Driveway Area Drain	0.005	0.4	0.17	3.9	0.79	0.90

AQUA PA NORTH HILLS
PROPOSED DRAINAGE PIPES CAPACITY ANALYSIS

Pipe ID	P-1	
Upstream Str	INLET	
Downstream Str	OCS	
peak Discharge, cfs	0.100	100-Year Flow
Pipe Diamater, in	6.00	
Manning's N	0.011	
% Slope	0.57	
diameter of pipe, d, ft	0.5	
wetted area, sf =	0.20	
wetted perimeter, P, ft =	1.57	
R =	0.13	
Slope, ft/ft =	0.005682	
Full Flow Velocity, ft/s =	**2.55**	
Full Flow Q, cfs =	**0.50**	**Capacity Ok**

Pipe ID	P-2	
Upstream Str	OCS	
Downstream Str	SEWER	
peak Discharge, cfs	0.140	100-Year Flow
Pipe Diamater, in	4.00	
Manning's N	0.011	
% Slope	1.86	
diameter of pipe, d, ft	0.333333	
wetted area, sf =	0.09	
wetted perimeter, P, ft =	1.05	
R =	0.08	
Slope, ft/ft =	0.018594	
Full Flow Velocity, ft/s =	**3.52**	
Full Flow Q, cfs =	**0.31**	**Capacity Ok**

Pipe ID	P-3	
Upstream Str	BUILDING	
Downstream Str	TRENCH	
peak Discharge, cfs	0.220	100-Year Flow
Pipe Diamater, in	6.00	
Manning's N	0.011	
% Slope	0.95	
diameter of pipe, d, ft	0.5	
wetted area, sf =	0.20	
wetted perimeter, P, ft =	1.57	
R =	0.13	
Slope, ft/ft =	0.009524	
Full Flow Velocity, ft/s =	**3.30**	
Full Flow Q, cfs =	**0.65**	**Capacity Ok**

Pipe ID	P-4	
Upstream Str	BUILDING	
Downstream Str	P-3	
peak Discharge, cfs	0.220	100-Year Flow
Pipe Diamater, in	6.00	
Manning's N	0.011	
% Slope	0.74	
diameter of pipe, d, ft	0.5	
wetted area, sf =	0.20	
wetted perimeter, P, ft =	1.57	
R =	0.13	
Slope, ft/ft =	0.007407	
Full Flow Velocity, ft/s =	**2.91**	
Full Flow Q, cfs =	**0.57**	**Capacity Ok**

Pipe ID	P-5	
Upstream Str	ROOF	
Downstream Str	P-6	
peak Discharge, cfs	0.220	100-Year Flow
Pipe Diamater, in	6.00	
Manning's N	0.011	
% Slope	0.65	
diameter of pipe, d, ft	0.5	
wetted area, sf =	0.20	
wetted perimeter, P, ft =	1.57	
R =	0.13	
Slope, ft/ft =	0.006522	
Full Flow Velocity, ft/s =	**2.73**	
Full Flow Q, cfs =	**0.54**	**Capacity Ok**

Pipe ID	P-6	
Upstream Str	P-5	
Downstream Str	P-1	
peak Discharge, cfs	0.220	100-Year Flow
Pipe Diamater, in	6.00	
Manning's N	0.011	
% Slope	0.51	
diameter of pipe, d, ft	0.5	
wetted area, sf =	0.20	
wetted perimeter, P, ft =	1.57	
R =	0.13	
Slope, ft/ft =	0.005128	
Full Flow Velocity, ft/s =	**2.43**	
Full Flow Q, cfs =	**0.48**	**Capacity Ok**

Pipe ID	P-7	
Upstream Str	RIVEWAY	
Downstream Str	P-6	
peak Discharge, cfs	0.010	100-Year Flow
Pipe Diamater, in	6.00	
Manning's N	0.011	
% Slope	0.91	
diameter of pipe, d, ft	0.5	
wetted area, sf =	0.20	
wetted perimeter, P, ft =	1.57	
R =	0.13	
Slope, ft/ft =	0.009091	
Full Flow Velocity, ft/s =	**3.23**	
Full Flow Q, cfs =	**0.63**	**Capacity Ok**

PIPE SIZING SUMMARY								
PIPE NUMBER	**DIAMETER (IN)**	**LENGTH (FT)**	**START INV**	**END INV**	**SLOPE (%)**	**CONNECTS TO**	**CAPACITY (CFS)**	**PROPOSED FLOW (CFS)**
1	6	44	283.00	282.75	0.57	TRENCH	0.69	0.10
2	4	83	282.00	280.45	1.86	EX 4" ONSITE STORM SEWER	0.30	0.14
3	6	21	282.70	282.50	0.95	TRENCH	0.65	0.22
4	6	27	282.80	282.60	0.74	P-3	0.57	0.22
5	6	46	283.40	283.10	0.65	P-6	0.54	0.22
6	6	39	283.10	282.90	0.51	P-1	0.48	0.22
7	6	11	283.10	283.00	0.91	P-6	0.63	0.01
EX 4" ONSITE STORM SEWER	4	140	280.45	275.32	3.66	SEWER SYSTEM	0.43	0.14

CALCULATION FOR VOLUME STORAGE
FOR DETENTION TRENCH

Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 3.59" for 25-YR event
Inflow = 0.20 cfs @ 12.06 hrs, Volume= 561 cf
Outflow = 0.02 cfs @ 13.03 hrs, Volume= 561 cf, Atten= 92%, Lag= 58.1 min
Primary = 0.02 cfs @ 13.03 hrs, Volume= 561 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 283.95' @ 13.03 hrs Surf.Area= 240 sf Storage= 307 cf

Plug-Flow detention time= 391.3 min calculated for 561 cf (100% of inflow)
Center-of-Mass det. time= 390.9 min (1,212.7 - 821.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

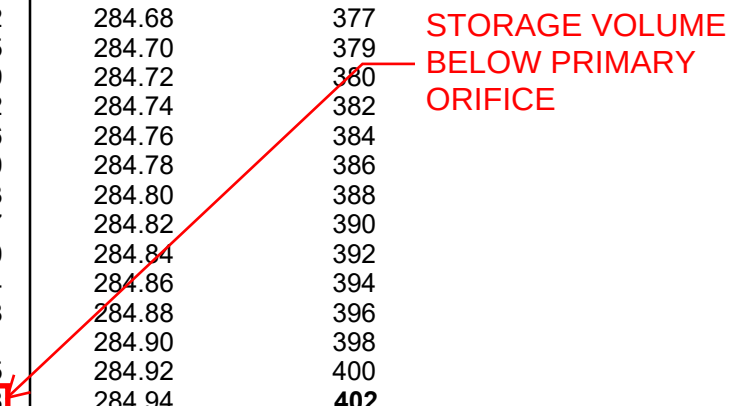
PRIMARY ORIFICE ELEVATION

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**4.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.01 cfs @ 13.03 hrs HW=283.95' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.78 fps)
└**3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 6.69 fps)

Stage-Area-Storage for Pond 7P: PR-TRENCH

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
282.00	0	283.04	144	284.08	319
282.02	2	283.06	148	284.10	321
282.04	4	283.08	152	284.12	323
282.06	6	283.10	155	284.14	325
282.08	8	283.12	159	284.16	327
282.10	10	283.14	162	284.18	329
282.12	12	283.16	166	284.20	331
282.14	13	283.18	170	284.22	333
282.16	15	283.20	173	284.24	334
282.18	17	283.22	177	284.26	336
282.20	19	283.24	180	284.28	338
282.22	21	283.26	184	284.30	340
282.24	23	283.28	187	284.32	342
282.26	25	283.30	191	284.34	344
282.28	27	283.32	195	284.36	346
282.30	29	283.34	198	284.38	348
282.32	31	283.36	202	284.40	350
282.34	33	283.38	205	284.42	352
282.36	35	283.40	209	284.44	354
282.38	36	283.42	212	284.46	356
282.40	38	283.44	216	284.48	357
282.42	40	283.46	220	284.50	359
282.44	42	283.48	223	284.52	361
282.46	44	283.50	227	284.54	363
282.48	46	283.52	230	284.56	365
282.50	48	283.54	234	284.58	367
282.52	51	283.56	237	284.60	369
282.54	55	283.58	241	284.62	371
282.56	59	283.60	245	284.64	373
282.58	62	283.62	248	284.66	375
282.60	66	283.64	252	284.68	377
282.62	69	283.66	255	284.70	379
282.64	73	283.68	259	284.72	380
282.66	77	283.70	262	284.74	382
282.68	80	283.72	266	284.76	384
282.70	84	283.74	270	284.78	386
282.72	87	283.76	273	284.80	388
282.74	91	283.78	277	284.82	390
282.76	94	283.80	280	284.84	392
282.78	98	283.82	284	284.86	394
282.80	102	283.84	288	284.88	396
282.82	105	283.86	291	284.90	398
282.84	109	283.88	295	284.92	400
282.86	112	283.90	298	284.94	**402**
282.88	116	283.92	302		
282.90	119	283.94	305		
282.92	123	283.96	308		
282.94	127	283.98	310		
282.96	130	284.00	311		
282.98	134	284.02	313		
283.00	137	284.04	315		
283.02	141	284.06	317		



TRENCH DISCHARGE TO SEWER CALCULATION

Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 5.27" for 100-YR event
Inflow = 0.29 cfs @ 12.06 hrs, Volume= 823 cf
Outflow = 0.14 cfs @ 12.23 hrs, Volume= 823 cf, Atten= 54%, Lag= 10.5 min
Primary = 0.14 cfs @ 12.23 hrs, Volume= 823 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 284.31' @ 12.23 hrs Surf.Area= 240 sf Storage= 341 cf

Plug-Flow detention time= 310.0 min calculated for 823 cf (100% of inflow)
Center-of-Mass det. time= 309.6 min (1,120.6 - 811.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**4.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.13 cfs @ 12.23 hrs HW=284.30' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.53 fps)
- **3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 7.27 fps)

Hydrograph for Pond 7P: PR-TRENCH

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	282.00	0.00
2.50	0.00	0	282.00	0.00
5.00	0.00	0	282.00	0.00
7.50	0.00	3	282.03	0.00
10.00	**0.01**	**15**	**282.16**	**0.00**
12.50	**0.04**	**318**	**284.06**	**0.06**
15.00	0.01	302	283.92	0.01
17.50	0.01	286	283.83	0.01
20.00	0.00	255	283.66	0.01
22.50	0.00	217	283.44	0.01
25.00	0.00	171	283.19	0.01
27.50	0.00	112	282.86	0.01
30.00	0.00	63	282.58	0.00
32.50	0.00	25	282.26	0.00
35.00	0.00	5	282.06	0.00
37.50	0.00	1	282.01	0.00
40.00	0.00	0	282.00	0.00
42.50	0.00	0	282.00	0.00
45.00	0.00	0	282.00	0.00
47.50	0.00	0	282.00	0.00
50.00	0.00	0	282.00	0.00
52.50	0.00	0	282.00	0.00
55.00	0.00	0	282.00	0.00
57.50	0.00	0	282.00	0.00
60.00	0.00	0	282.00	0.00
62.50	0.00	0	282.00	0.00
65.00	0.00	0	282.00	0.00
67.50	0.00	0	282.00	0.00
70.00	0.00	0	282.00	0.00
72.50	0.00	0	282.00	0.00
75.00	0.00	0	282.00	0.00
77.50	0.00	0	282.00	0.00
80.00	0.00	0	282.00	0.00
82.50	0.00	0	282.00	0.00
85.00	0.00	0	282.00	0.00
87.50	0.00	0	282.00	0.00
90.00	0.00	0	282.00	0.00
92.50	0.00	0	282.00	0.00
95.00	0.00	0	282.00	0.00
97.50	0.00	0	282.00	0.00
100.00	0.00	0	282.00	0.00

TRENCH FULLY DRAINED IN 40 HOURS

LESS THAN MAXIMUM ALLOWED OF 72 HOURS

C. BMP Worksheets

Instructions

Instructions | General | Volume | Rate | Quality

If prompted by Excel after opening the DEP Post-Construction Stormwater Management (PCSM) Spreadsheet, enable editing and macros. This spreadsheet consists of five hyperlink tabs: Instructions, General, Volume, Rate and Quality. Each tab has a corresponding worksheet. To begin, click on the General tab. **NOTE - The spreadsheet is intended for the evaluation of volume, rate, and water quality for discharges to a single receiving water.** If for example there are 3 post-construction discharge points to Mud Run and 3 post-construction discharge points to Clear Creek, two spreadsheets should be completed (one each for Mud Run and Clear Creek).

Only those cells that are highlighted are available for data entry by the user:

Click on the button below to open detailed instructions on the use of the DEP PCSM Spreadsheet:

OPEN INSTRUCTIONS

If you have questions concerning use of this spreadsheet, contact the Bureau of Clean Water a RA-EPChapter102@pa.gov.

General Information

Instructions | *General* | Volume | Rate | Quality

Project Name: **Aqua PA Edgetly WTP**

Application Type:

County: **Bucks**

Municipality: **Bristol Township**

Project Type: **Other**

○ New Project ◉ Minor / Major Amendment

Area: **0.19** acres
(In Watershed)

Total Earth Disturbance: **0.13** acres
(In Watershed)

No. of Post-Construction Discharge Points: **1**

Start DP Numbering at: **001**

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
001	0.04	0.04	0.00	0.02	Discharge to MS4		Yes
Undetained Areas	0.10	0.09	0.04	0.00	Discharge to MS4		
Totals:	**0.15**	**0.13**	**0.042**	**0.0223**			

PROJECT SITE MEETS SMALL SITE EXCEPTION - RATE WORKSHEET NOT REQUIRED

Volume Management

Project: Aqua PA Edgetly WTP

Instructions | General | *Volume* | Rate | Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): **3.29** inches

Alternative 2-Year / 24-Hour Storm Even _____ inches

Alternative Source: _____

Pre-Construction Conditions: *No. Rows:* **2** ☐ *Exempt from Meadow in Good Condition* ☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious	0.04	B	98	0.041	3.06	466
Pervious as Meadow	0.10	B	58	1.448	0.37	141
TOTAL (ACRES):	**0.15**				**TOTAL (CF):**	**607**

Post-Construction Conditions: *No. Rows:* **4**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Industrial	0.02	B	98	0.041	3.06	244
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	0.02	B	58	1.448	0.37	28
Impervious Areas: Industrial	0.04	B	98	0.041	3.06	433
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	0.06	B	58	1.448	0.37	87
TOTAL (ACRES):	**0.15**				**TOTAL (CF):**	**792**

ET CHANGE IN VOLUME TO MANAGE (CF): **185**

Non-Structural BMP Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Description: **CREDIT (CF):**

Structural BMP Volume Credits: *No. Structural BMPs:* *Start BMP Numbering at:*

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001		Infiltration Trench	Y	Off-Site	0.04	272	238	0.00	72	No	2.9	298		

Totals:

*Soils not suitable for infiltration.
Proposed BMP is a Detention Trench

INFILTRATION & ET CREDITS (CF):	
MANAGED RELEASE CREDIT (CF):	**272**
NET CHANGE IN VOLUME TO MANAGE (CF):	**185**
TOTAL CREDITS (CF):	**272**

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Aqua PA Edgetly WTP

Instructions | General | Volume | *Rate* | Quality

SMALL SITE EXCEPTION SATISFIED: RATE CONTROL NOT REQUIRED

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	**3.29**	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):		Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):		Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):		Alternative 100-Year 24-Hour Storm Event (in):	

☐ **Report Summary of Peak Rates Only**

☐ **Time of Concentration (Tc) - Pre-Constructio** ☐ ***Use Default (0.1 hr)***

☐ **Time of Concentration (Tc) - Post-Construction** ☐ ***Use Default (0.1 hr)***

Peak Rate Analysis:

	Pre-Construction	Post-Construction without BMPs
Disturbed Area (mi^2)	0.000	0.000
	Runoff Depth (inches)	
2-Year Storm:	0.86	1.14
10-Year Storm:		
50-Year Storm:		
100-Year Storm:		
	Unit Peak Discharge (csm/in)	

2-Year Storm:		
10-Year Storm:		
50-Year Storm:		
100-Year Storm:		
	Peak Discharge Rate (cfs)	
2-Year Storm:		
10-Year Storm:		
50-Year Storm:		
100-Year Storm:		

Water Quality

Project: Aqua PA Edgetly WTP

PRINT

Instructions | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious	Impervious (Mixed Use)	0.04	B	466	116	0.35	2.57	3.38	0.01	0.07
Pervious as Meadow	Grassland/Herbaceous	0.10	B	141	49	0.22	2.30	0.43	0.00	0.02
	TOTAL (ACRES):	**0.15**					**TOTALS:**	**3.81**	**0.01**	**0.10**

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Industrial	Industrial	0.02	B	244	81.00	0.24	2.01	1.23	0.00	0.03
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	0.02	B	28	48.80	0.22	2.30	0.09	0.00	0.00
Impervious Areas: Industrial	Industrial	0.04	B	433	81.00	0.24	2.01	2.19	0.01	0.05
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	0.06	B	87	48.80	0.22	2.30	0.26	0.00	0.01

TOTAL (ACRES):	**0.15**	**TOTALS:**	**3.78**	**0.01**	**0.10**

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	**0.00**	**0.00**	**0.01**

☑ **Characterize Undetained Areas (for Untreated Stormwater)** *No. Rows:*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	**0.0003**	**B**	**98**	**0.041**	**3.06**	**3**

Non-Structural BMP Water Quality Credits:

☑ Pervious Undetained Area Credit

TSS	TP	TN
0.00	0.00	0.00

☐ Other (attach calculations)

Structural BMP Water Quality Credits:

☑ *Use default BMP Outflows and Median BMP Outflow Concentrations*

DP No.	BMP No.	BMP Name	MRC?	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001		Infiltration Trench	Y	0.04	272			272	-	-	-	-	-	-

*Soils not suitable for infiltration.
Proposed BMP is a Detention Trench

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	**0.00**	**0.00**	**0.00**
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	**0.01**	**0.00**	**0.00**
NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):	**0.00**	**0.00**	**0.00**
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	**0.01**	**0.00**	**0.00**
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	**3.81**	**0.01**	**0.10**

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

John MacMinn	12/17/2020
Spreadsheet User Name	Date

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MANAGED RELEASE CONCEPT (MRC) DESIGN SUMMARY

Complete One Design Summary Sheet for Each BMP Designed for MRC

GENERAL INFORMATION

Applicant Name:	**Aqua Pennsylvania, Inc.**	Project Name:	**North Hills Well PFAS Treatment Sysem**
Applicant Address:	**762 West Lancaster Ave**	Municipality:	**Abington Township**
City, State, Zip:	Bryn Mawr, PA 19010	County:	**Montgomery**

Permit Type: ☐ NPDES PAG-02 ☐ NPDES IP ☐ ESCGP ☐ ESP

	Pre-Development	Post-Development	Change
Impervious Area (acres):	0.042	0.061	0.019

MRC BMP INFORMATION

MRC BMP Type: **Detention Trench** Stormwater BMP Manual Section: **6.4.4**

Will the BMP Include Vegetation? ☐ Yes ☒ No

If Yes, Identify Proposed Vegetation:

For Non-Vegetated BMPs Will There Be Pre- or Post-Treatment? ☐ Yes (Pre-) ☐ Yes (Post-) ☒ No

If Yes, Identify Proposed Pre- or Post-Treatment:

Name of Surface Water to Receive MRC BMP Discharges: **N/A – Discharging to existing storm sewer system**

Designated Use of Surface Water: **N/A** Existing Use of Surface Water (if different):

Is the Surface Water Impaired? ☐ Yes ☒ No

If Yes, Identify Cause(s):

Will the BMP have an impermeable liner? ☒ Yes ☐ No

If Yes, explain why a liner is proposed: **Liner is proposed because infiltration is not possible on site and because the proposed BMP is near onsite electrical equipment**

BMP Media Description: **Stormwater storage modules with additional stone storage**

Are Any Deviations from MRC Design Standards Proposed? ☒ Yes ☐ No

If Yes, Identify Deviations: **An IWS of 1 foot is recommended to encourage infiltration, however the underlying site soils are not suitable for infiltration. The MRC orifice was placed at the bottom of the BMP resulting in an IWS of 0 feet.**

MRC BMP DESIGN VALUES AND STANDARDS

Parameter	Design Value	Design Standard
Actual Contributing Impervious Area to BMP (acres)	**0.02238**	
Equivalent Contributing Impervious Area to BMP (acres)	**0.02204**	
Total Drainage Area to BMP (acres)	**0.043**	
MRC BMP Release Rate (cfs)	**0.00**	*No greater than 0.01 cfs / acre of equivalent contributing impervious*
Underdrain Outflow Rate During 1.2-Inch/2-Hour Storm (cfs)	**0.00**	*<= MRC BMP Release Rate (cfs)*
Maximum Storm Event Routed to MRC BMP	**100-yr (7.74 inch)**	

MRC BMP Design Summary
Revised, August 25, 2020

Parameter	Design Value	Design Standard
BMP Footprint Area (ft^2)	**238**	
Bottom BMP Elevation (Native Soils) (ft)	**282.00**	
2-Yr/24-Hr Storm Ponding Depth (ft)	**0.82**	*1 ft (recommended) (2 ft max)*
Maximum Ponding Depth (ft)	**2.31**	*4 ft (max)*
Overflow Bypass Elevation (ft)	**284.50**	
Media Depth (ft)	**2.94**	*2 ft (min) – 4 ft (max)*
Media Void Space (%)	**Modules 95%, Stone 40%**	
Internal Water Storage (IWS) Depth (ft)	**0 Feet – Underlying soils are not suitable for infiltration**	*1 ft recommended*
Top of IWS Elevation (ft)	**N/A**	
Underdrain Pipe Diameter (in)	**6**	
Underdrain Orifice Diameter (in)	**0.5**	
Underdrain Outlet Elevation (ft)	**282.00**	
IWS Available for Routing (%)	**N/A**	*50% max*
Separation Distance (Groundwater) (ft)	**Greater than 2**	*1 ft (min) (2 ft recommended)*
Infiltration Rate (in/hr)	**N/A**	
Volume of Overflow During 1.2-Inch/2-Hour Storm (cf)	**0**	*0 (No overflow allowed)*
1-Yr/24-Hr **Pre**-Development Peak Rate (cfs)	**0.01**	
2-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**0.01**	*1-Yr/24-Hr Pre-Development Peak Rate (or per approved Act 167 Plan)*
10-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**0.01**	*10-Yr/24-Hr Pre-Development Peak Rate*
50-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**0.07**	*50-Yr/24-Hr Pre-Development Peak Rate*
100-Yr/24-Hr **Post**-Development Peak Rate (cfs)	**0.14**	*100-Yr/24-Hr Pre-Development Peak Rate*
Total 2-Yr/24-Hr Runoff Volume Managed by BMP (cf)	**106**	
Ponding Time @ 2-Yr/24-Hr Storm (hrs)	**30**	*72 hrs (surface), 7 days (underground)*
Ponding Time @ 10-Yr/24-Hr Storm (hrs)	**35**	*72 hrs (surface), 7 days (underground)*
Ponding Time @ 50-Yr/24-Hr Storm (hrs)	**37.50**	*72 hrs (surface), 7 days (underground)*
Ponding Time @ 100-Yr/24-Hr Storm (hrs)	**40**	*72 hrs (surface), 7 days (underground)*

W. Michael Clark, PE, LEED AP, ENV SP

Licensed P.E. Name

Licensed P.E. Signature

PE082720

License No.

12/18/2020

Date

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
W. MICHAEL CLARK
ENGINEER
PE082720

12/18/2020

D. Soil Report

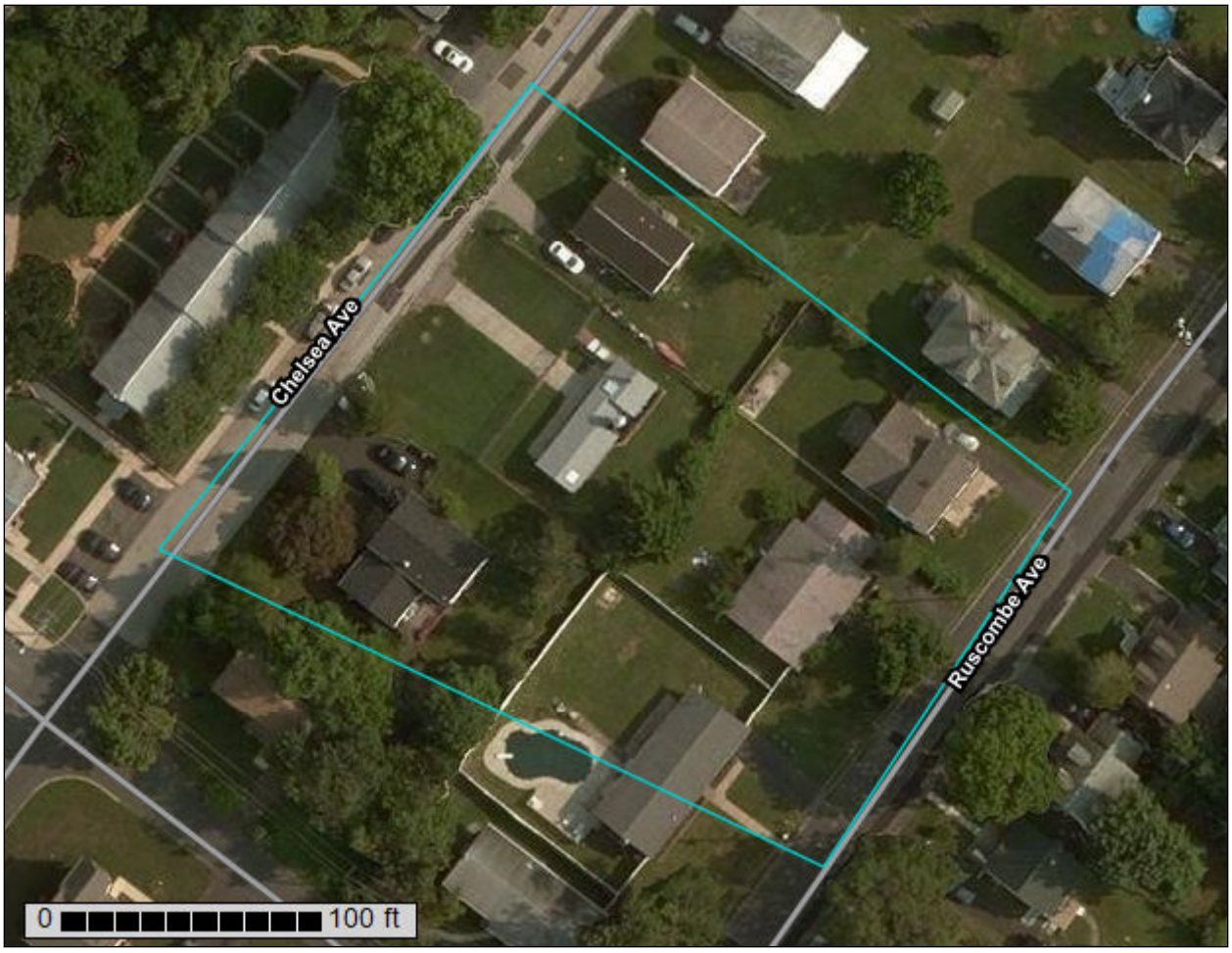
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Montgomery County, Pennsylvania



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:772 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

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:
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 15, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 17, 2014—Aug 14, 2014

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UrhB	Urban land-Duffield complex, 0 to 8 percent slopes	1.2	100.0%
Totals for Area of Interest		**1.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Montgomery County, Pennsylvania

UrhB—Urban land-Duffield complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2dtyv
Elevation: 200 to 1,500 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 44 to 57 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 65 percent
Duffield and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artifically covered areas

Typical profile

H1 - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 100 inches to lithic bedrock
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Duffield

Setting

Landform: Valleys
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 53 inches: silty clay loam
H3 - 53 to 72 inches: silt loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 48 to 120 inches to lithic bedrock

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Clarksburg

Percent of map unit: 4 percent
Landform: Valley flats
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Penlaw

Percent of map unit: 4 percent
Landform: Swales
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Thorndale

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

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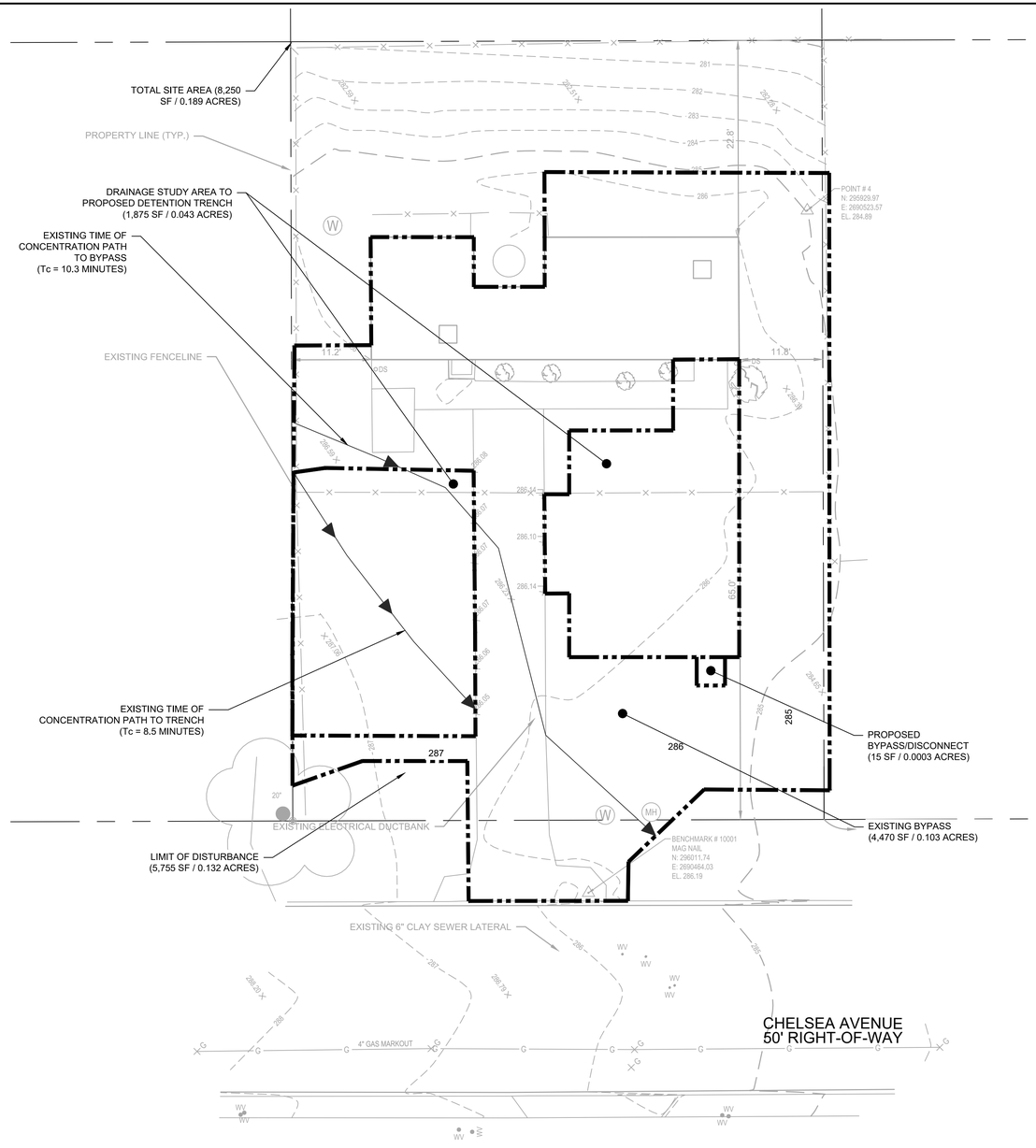
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E. Existing Conditions Stormwater Management Map



EXISTING CONDITIONS DRAINAGE AREA PLAN

0 10 20

SCALE: 1" = 10'

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PROPOSED PAVEMENT AND SIDEWALK
- PROPOSED DRAINAGE AREA

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Client

AQUA PENNSYLVANIA, INC.
762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

Date

Project Number	B/O	Total
507402365		

Designed	J. MACMINN		Eng check	W. CLARK	
Drawn	J. MACMINN		Coordination	D. HARZINSKI	
Dwg check	D. HARZINSKI		Approved		

Scale at ANSI D	Status	Rev	Security
As Shown	PERMIT		STD

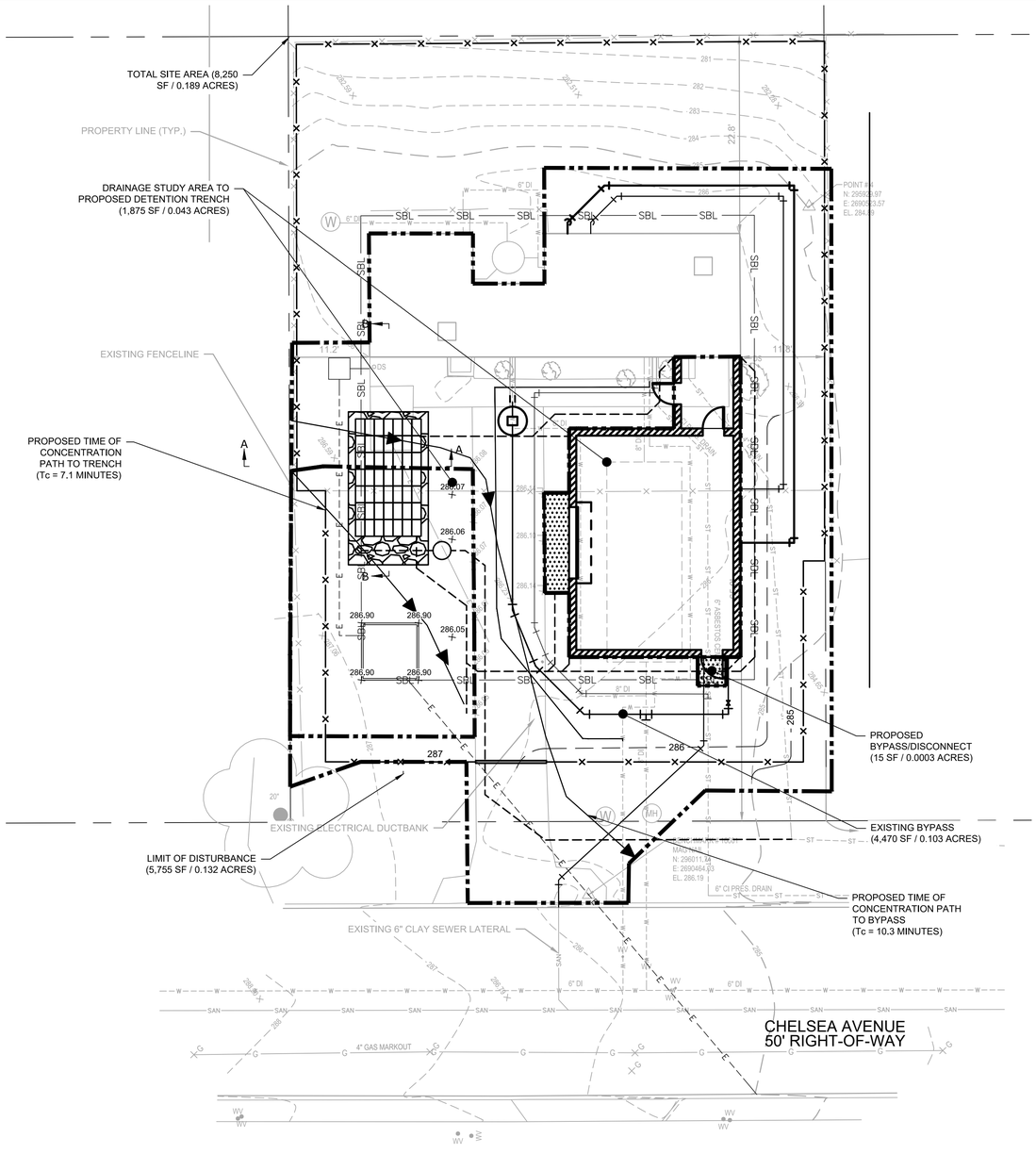
Drawing Number

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
EXISTING CONDITIONS
DRAINAGE PLAN

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F. Proposed Conditions Stormwater Management Map



LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PROPOSED PAVEMENT AND SIDEWALK
- PROPOSED DRAINAGE AREA

PROPOSED DRAINAGE AREA PLAN

0 10 20

SCALE: 1" = 10'

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Designed	J. MACMINN		Eng check	W. CLARK	
Drawn	J. MACMINN		Coordination	D. HARZINSKI	
Dwg check	D. HARZINSKI		Approved		

Scale at ANSI D	Status	Rev	Security
As Shown	PERMIT		STD

Drawing Number

Title

AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PROPOSED CONDITIONS
DRAINAGE PLAN

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G. Infiltration Memo

DUFFIELD ASSOCIATES
Soil, Water & the Environment

Duffield Associates, Inc.
211 N. 13th Street, Suite 704
Philadelphia, PA 19107
Phone: 215.545.7295
Fax: 215.875.7356
duffnet.com

October 23, 2020

Jason Marie, P.E.
Mott MacDonald, LLC
325 Chestnut Street, Suite 300
Philadelphia, PA 19106

RE: Project No. 12816.GA
Infiltration Testing Services
North Hills Well Station – Stormwater Management Improvements
Aqua Pennsylvania North Hills Well Station
Glenside, Pennsylvania

Dear Mr. Marie:

Duffield Associates Inc. (Duffield) has completed our subsurface investigation and infiltration testing services related to a proposed improvements to be constructed at the Aqua Pennsylvania North Hills Well Station located at 315 Chelsea Avenue in Glenside, Pennsylvania. The following report summarizes the data obtained in the field program, and includes recommendations for use in the design of the proposed stormwater management improvements at the site.

To assist with this evaluation, Duffield was provided with a drawing entitled "North Hills Well PFAS Treatment System, Proposed Site Plan," as prepared by Mott MacDonald (undated).

A stormwater management feature associated with the proposed site improvements is proposed in the northern portion of the site. The existing site conditions in this area are relatively flat, grass covered ground surface. Several existing underground utilities (electric and communications) are located in this portion of the site.

FIELD TESTING PROGRAM

Prior to the start of our fieldwork, PA One Call was contacted to mark out public utilities. The field program was performed on October 14, 2020 and consisted of a two test pits and double ring infiltration tests. The test pits and infiltration tests were located in the field by Mott MacDonald's representative at the approximate locations indicated on the plans provided. The approximate infiltration test locations are indicated on the enclosed site plan.

Two backhoe excavated test pits were performed on site for the purpose of infiltration testing. Each test pit was extended to the proposed test depth of 4 feet below the ground surface. In each test pit, a double ring infiltrometer testing was performed. The double ring infiltrometer tests, designated DRI-1 and DRI-2, were performed in general accordance with ASTM D 3385. The double ring

infiltrometer test set-up utilized a 7.5-inch diameter inner ring and a 15-inch diameter outer ring. The drop in the water level within the inner ring was measured over time. Each test was run for a duration of 5 hours following a 1 hour saturation period. The enclosed test pit and infiltration testing logs were prepared by our field geologist.

At completion of the testing, the pits were overexcavated an additional 2 feet to further evaluate the soil conditions beneath the infiltration testing depth. The test pits were then backfilled with the excavated soils tamped in place with the backhoe bucket.

No environmental characterization or testing was performed as part of this evaluation.

SUBSURFACE CONDITIONS

The conditions encountered at the site generally consisted of a surficial layer of topsoil overlying a thin layer of apparent fill soils. The fill consisted of sandy silt soils overlying a layer of gravel/ sand with varying amounts of asphalt debris to depths of 2.5 to 2.8 feet below the ground surface. The natural site soils underlying the fill consisted of a stiff consistency clayey silt material to the extent of the excavation, approximately 6 feet below grade.

Groundwater seepage was not observed during the field testing.

INFILTRATION TEST RESULTS

The results of the double ring infiltration testing are summarized in the table below and on the enclosed test data sheets. The infiltration rates presented are the actual field test rates, with no factor of safety applied.

TEST NO.	TEST DEPTH BELOW GRADE (FT)	USDA DESCRIPTION	USCS CLASSIFICATION	FIELD INFILTRATION RATE (IN/HR)
DRI-1	4.0 ft	Brown clayey SILT, trace fine sand	ML	0.12
DRI-2	4.0 ft	Brown clayey SILT, little fine to medium sand	ML	0.07

DESIGN RECOMMENDATIONS

The site soils at the proposed bottom of stormwater system elevation were observed to consist of predominately fine-grained soils. These soils are generally not conducive to infiltration, as reflected in the very low infiltration rates observed in the tests performed at this depth (0.07 to 0.12 in/hr). These rates are below the typically accepted minimum rate of 0.25 in/hr needed for infiltration design. **Therefore, the use of stormwater infiltration design methodology on this site does not seem feasible and is not recommended.**

Based on the regional groundwater conditions and information obtained during the field program, it is not likely that groundwater will be encountered during construction of the stormwater feature.

These recommendations have been prepared according to generally accepted soil engineering standards, and are based on the conditions encountered by the sampling performed at the site. It is noted that, although soil quality has been inferred from the interpolation of the sampling data, subsurface conditions beyond the sampling points are, in fact, unknown. As a result, these recommendations may require modifications based on the conditions encountered and exposed during construction excavation. Should any conditions encountered during construction differ from those described in this report, this office should be notified immediately in order to review and possibly modify these recommendations. The cost for construction review is not part of the existing agreement. This report applies solely to the size, type, and location of the structures described herein. In the event that changes are proposed, this report will not be considered valid unless the changes have been reviewed and the recommendations of this report modified and re-approved in writing by Duffield Associates, Inc.

We have appreciated the opportunity to assist you on this project. If there are any questions regarding the enclosed, please do not hesitate to contact us.

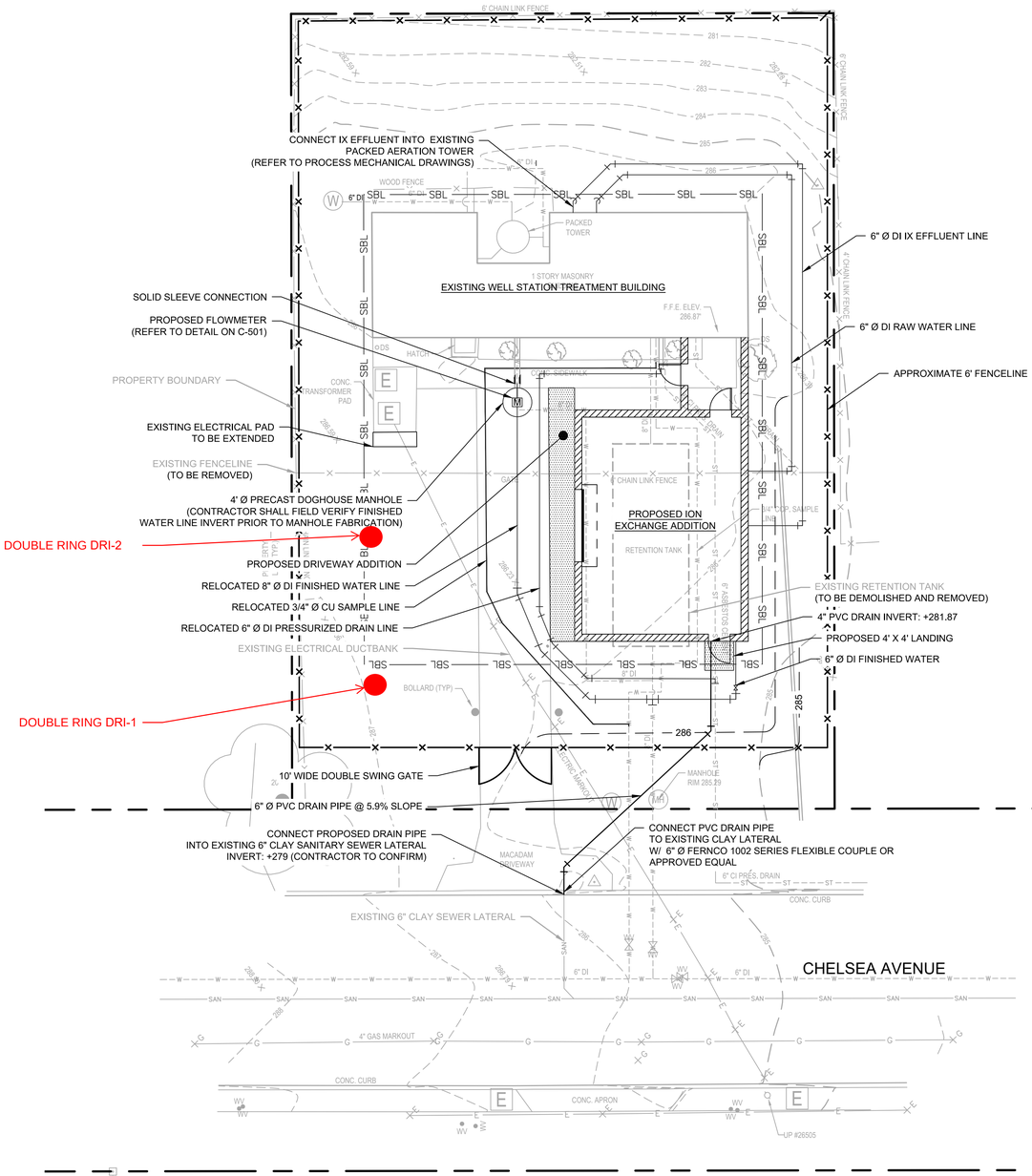
Very truly yours,

DUFFIELD ASSOCIATES, INC.

Stacy B. Ziegler, P.E., LEED AP BD+C
Senior Geotechnical Engineer

DG/SBZ
WORD\12816GA.1020.Aqua PA North Hills.RPT

Enclosures: Test Location Plan
Infiltration Testing Logs (2)
General Notes



0 10 20
SCALE: 1" = 10'

LEGEND

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING TREE LINE
- EXISTING FENCE
- EXISTING ELECTRICAL CONDUIT
- EXISTING STORM DRAIN LINE
- EXISTING WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED FENCE
- TEMPORARY FENCE
- LIMIT OF DISTURBANCE
- SETBACK LINE
- PROPOSED PAVEMENT AND SIDEWALK

NOTES:

GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION SHOWN HEREON WAS OBTAINED IN THE FIELD BY MOTT MACDONALD ON AUGUST 16, 2018.
2. THE HORIZONTAL COORDINATE SYSTEM IS THE PENNSYLVANIA SOUTH STATE PLANE COORDINATE SYSTEM (NAD83) AND VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). BOTH ESTABLISHED BY DIFFERENTIAL GPS ON AUGUST 16, 2018 FROM THE LEICA SMARTNET/NGS CORS NETWORK.
3. LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM ABOVE GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN PREPARATION OF THIS DRAWING. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THIS DRAWING. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED.
4. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.I. 835, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 30, 2017, PENNSYLVANIA ACT 187.
5. ALL BURIED DUCTILE IRON (DI) PIPING SHALL BE THICKNESS CLASS 52 DUCTILE IRON CEMENT MORTAR LINED WITH ASPHALTIC EXTERIOR COATING. BURIED PIPING SHALL BE RESTRAINED USING FIELD LOK GASKETS. ALL FITTINGS SHALL BE MECHANICAL JOINT WITH MEGALUG RETAINER GLANDS. PIPING, FITTINGS, AND COATINGS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C151/A21.5, C110/A21.10 AND C104/A21.4.
6. ZONING REQUIREMENTS FOR R-4 RESIDENTIAL DISTRICTS ARE AS FOLLOWS:

LOT SIZE (SQ. FT.)	7,500
FRONT YARD SETBACK (FT.)	20
SIDE YARD SETBACK (EACH) (FT.)	10
REAR YARD SETBACK (FT.)	25
TOTAL IMPERVIOUS SURFACE (%)	55

7. THE EXISTING AND PROPOSED IMPERVIOUS AREAS ARE AS FOLLOWS:

EXISTING LOT SIZE (SQ. FT.)	8,250
EXISTING IMPERVIOUS AREA (SQ. FT.)	1,781
ADDITIONAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	967
TOTAL PROPOSED IMPERVIOUS AREA (SQ. FT.)	2,748
PERCENT (%) IMPERVIOUS AREA (PRE-IMPROVEMENTS)	21.5
PERCENT (%) IMPERVIOUS AREA (POST-IMPROVEMENTS)	33.3

8. TEMPORARY CONSTRUCTION FENCE SHALL BE 8 FT. BY 10 FT. PANELS SUPPORTED WITH SANDBAGS. UPON COMPLETION OF CONSTRUCTION, THE TEMPORARY FENCE SHALL BE REMOVED.
9. EQUIPMENT PERIMETER FENCE SHALL INCLUDE PRIVACY SCREEN.

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Client

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762 WEST LANCASTER AVENUE
BRYN MAWR, PA 19010

Rev	Date	Drawn	Description	Ch'k'd	App'd

MARK A. TOMPECK
PA PROFESSIONAL ENGINEER LIC. No. PE-047894R
Date 8/04/2020

Designed	D. HARZINSKI	DJH	Eng check		
Drawn	D. HARZINSKI	DJH	Coordination		
Dwg check			Approved		

Project Number	B/O	Total
507402365	3	53

Scale at ANSI D	Status	Rev	Security
1" = 10'	60%		STD

Drawing Number: C101

Title: AQUA PENNSYLVANIA, INC.
NORTH HILLS WELL
PFAS TREATMENT SYSTEM
PROPOSED SITE PLAN

Infiltration Testing Log

Project Name:	Aqua PA North Hills 12816.GA	**Date:**	10/14/2020
Project Address:	315 Chelsea Avenue Glenside, PA	**Weather:**	63° Sunny
Testing Company:	Duffield Associates, Inc.	**Tester's Name:**	Andrew Goff
Phone Number:	302-239-6634	**Email Address:**	dgoff@duffnet.com

Test Number:	DRI-1	**Test Pit/Boring Hole Number:**		**Test Method:**	Double Ring Infiltrometer
Test Depth (feet):	4.0	**Surface Elevation (feet):**	287.0	**Instrument Diameter (inches):**	7.5 and 15

Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0.0 - 1.1	Topsoil	
1.1 - 2.4	FILL: Orange-Brown sandy SILT, little fine gra	
2.4 - 2.8	FILL: Varicolored silty fine to coarse GRAVEL	
	little fine sand	
2.8 - 6.0	Brown clayey SILT, trace fine sand	
	**No Groundwater seepage observed	

Presoak

Time:	Time Interval:	Measurement, (INCHES):	Drop in water level, (INCHES):
9:00	Start	8.75	---
9:30	30	8.50	0.25
10:00	30	8.25	0.25

Infiltration Testing

Time:	Time Interval (15 minutes):	Measurement, (INCHES):	Drop in water level, (INCHES):	Infiltration rate (inches per hour):	Remarks:
10:00	**0**	**8.75**	**---**	**---**	
10:30	**30**	**8.63**	**0.12**	**0.24**	
11:00	**60**	**8.50**	**0.13**	**0.26**	
11:30	**90**	**8.37**	**0.13**	**0.26**	
12:00	**120**	**8.25**	**0.12**	**0.24**	
12:30	**150**	**8.25**	**0.00**	**0.00**	
1:00	**180**	**8.12**	**0.13**	**0.26**	
1:30	**210**	**8.12**	**0.00**	**0.00**	
2:00	**240**	**8.00**	**0.12**	**0.24**	
2:30	**270**	**8.00**	**0.00**	**0.00**	
3:00	**300**	**7.88**	**0.12**	**0.24**	

Stabilized Infiltration Testing Rate (inches per hour): **0.12**

Infiltration Testing Log

Project Name:	Aqua PA North Hills 12816.GA	**Date:**	10/14/2020
Project Address:	315 Chelsea Avenue Glenside, PA	**Weather:**	63° Sunny
Testing Company:	Duffield Associates, Inc.	**Tester's Name:**	Andrew Goff
Phone Number:	302-239-6634	**Email Address:**	dgoff@duffnet.com

Test Number:	DRI-2	**Test Pit/Boring Hole Number:**		**Test Method:**	Double Ring Infiltrometer
Test Depth (feet):	4.0	**Surface Elevation (feet):**	287.0	**Instrument Diameter (inches):**	7.5 and 15

Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0.0 - 0.9	Topsoil	
0.9 - 1.7	FILL: Orange-Brown sandy SILT, little fine gra	
1.7 - 2.5	FILL: Varicolored silty fine to medium SAND,	
	little coarse gravel, little asphalt debris	
2.5 - 6.0	Brown clayey SILT, little fine to medium sand	
	**No Groundwater seepage observed	

Presoak

Time:	Time Interval:	Measurement, (INCHES):	Drop in water level, (INCHES):
9:10	Start	8.50	---
9:40	30	8.37	0.13
10:10	30	8.37	0.00

Infiltration Testing

Time:	Time Interval (15 minutes):	Measurement, (INCHES):	Drop in water level, (INCHES):	Infiltration rate (inches per hour):	Remarks:
10:10	**0**	**8.50**	**---**	**---**	
10:40	**30**	**8.37**	**0.13**	**0.26**	
11:10	**60**	**8.37**	**0.00**	**0.00**	
11:40	**90**	**8.25**	**0.12**	**0.24**	
12:10	**120**	**8.25**	**0.00**	**0.00**	
12:40	**150**	**8.13**	**0.12**	**0.24**	
1:10	**180**	**8.13**	**0.00**	**0.00**	
1:40	**210**	**8.13**	**0.00**	**0.00**	
2:10	**240**	**8.00**	**0.13**	**0.26**	
2:40	**270**	**8.00**	**0.00**	**0.00**	
3:10	**300**	**8.00**	**0.00**	**0.00**	

Stabilized Infiltration Testing Rate (inches per hour): **0.07**

GENERAL NOTES

DUFFIELD ASSOCIATES uses the following definitions and terminology to classify and correlate the field and laboratory samples.

VISUAL UNIFIED CLASSIFICATIONS: The soil samples are described by color, major constituent, modifiers (by percentage), and density (or consistency). Coarse Grained or Granular Soils have more than 50% of their dry weight retained on a No. 200 sieve; they are described as: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a No. 200 sieve; they are described as: clays or clayey silts if they are cohesive and silts if they are noncohesive. In addition to gradation, granular soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their strength or consistency and their plasticity.

The Unified Soil Classification symbols are:

COARSE GRAINED SOILS

GW - Well graded gravels
GP - Poorly graded gravels
GM - Silty gravels
GC - Clayey gravels
SW - Well graded sands
SP - Poorly graded sands
SM - Silty sands
SC - Clayey sands

FINE GRAINED SOILS

ML - Silts of low plasticity
CL - Clays of low to medium plasticity
OL - Organic silt clays of low plasticity
MH - Silts of high plasticity
CH - Clays of high plasticity
OH - Organic silt clays of high plasticity
PT - Peat and highly organic soils

SIZE DESCRIPTION

F - Fine
M - Medium
C - Coarse
G - Gravel

MODIFIERS (PERCENTAGE)

Tr -	Trace	1 - 10%
Ltl -	Little	11 - 20%
Some		21 - 35%
& -	And	36 - 50%

COLOR

Or - Orange
Yel - Yellow
Br - Brown
Blk - Black
Gr - Gray
R - Red
Vc - Varicolored
Dk - Dark
Lt - Light

DENSITY: COARSE GRAINED SOILS

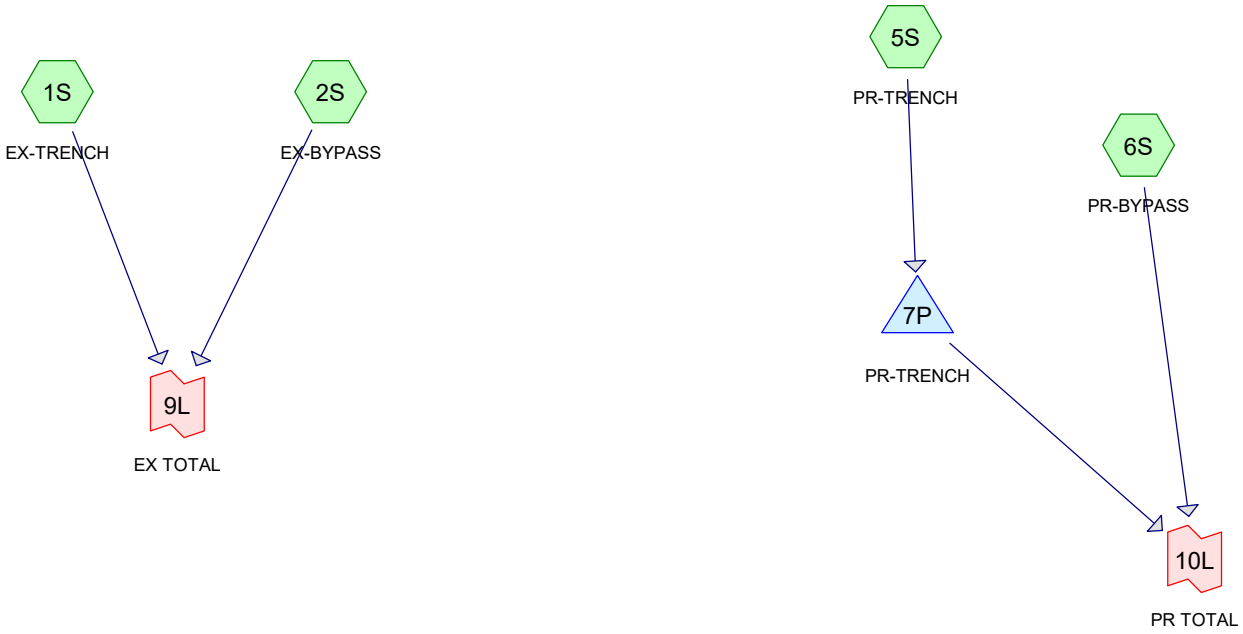
Very loose	4 blows/ft or less
Loose	5 to 10 blows/ft
Medium	11 to 30 blows/ft
Dense	31 to 50 blows/ft
Very Dense	51 blows/ft or more

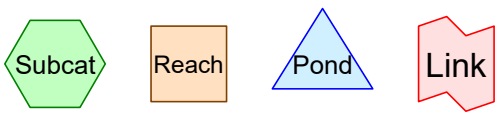
CONSISTENCY: FINE GRAINED SOILS

Very soft	2 blows/ft or less
Soft	3 to 4 blows/ft
Medium	5 to 8 blows/ft
Stiff	9 to 15 blows/ft
Very stiff	16 to 30 blows/ft
Hard	31 blows/ft or more

NOTE: The Standard Penetration Test "N" value is the number of blows per foot of a 140 pound hammer falling 30 inches on a 2 inch O.D. split spoon sampler, except where otherwise noted.

H. Model Input and Output Report





Routing Diagram for Aqua PA North Hills - Model 12-9-20
Prepared by {enter your company name here}, Printed 12/17/2020
HydroCAD® 10.00-25 s/n 10777 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,462	98	IMP (2S, 5S, 6S)
8,258	58	MEADOW UrhB (1S, 2S, 5S, 6S)
12,720	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
0	HSG D	
12,720	Other	1S, 2S, 5S, 6S
12,720		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchme Numbers
0	0	0	0	4,462	4,462	IMP	
0	0	0	0	8,258	8,258	MEADOW UrhB	
0	**0**	**0**	**0**	**12,720**	**12,720**	**TOTAL AREA**	

Time span=0.00-100.00 hrs, dt=0.05 hrs, 2001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-TRENCH Runoff Area=1,875 sf 0.00% Impervious Runoff Depth=0.19"
Tc=8.5 min CN=58 Runoff=0.01 cfs 30 cf

Subcatchment 2S: EX-BYPASS Runoff Area=4,485 sf 39.96% Impervious Runoff Depth=0.74"
Tc=20.6 min CN=74 Runoff=0.08 cfs 277 cf

Subcatchment 5S: PR-TRENCH Runoff Area=1,875 sf 52.00% Impervious Runoff Depth=1.00"
Tc=14.2 min CN=79 Runoff=0.06 cfs 155 cf

Subcatchment 6S: PR-BYPASS Runoff Area=4,485 sf 37.79% Impervious Runoff Depth=0.70"
Tc=20.6 min CN=73 Runoff=0.07 cfs 260 cf

Pond 7P: PR-TRENCH Peak Elev=282.61' Storage=68 cf Inflow=0.06 cfs 155 cf
Outflow=0.01 cfs 155 cf

Link 9L: EX TOTAL Inflow=0.08 cfs 307 cf
Primary=0.08 cfs 307 cf

Link 10L: PR TOTAL Inflow=0.07 cfs 416 cf
Primary=0.07 cfs 416 cf

Total Runoff Area = 12,720 sf Runoff Volume = 723 cf Average Runoff Depth = 0.68"
64.92% Pervious = 8,258 sf 35.08% Impervious = 4,462 sf

Summary for Subcatchment 1S: EX-TRENCH

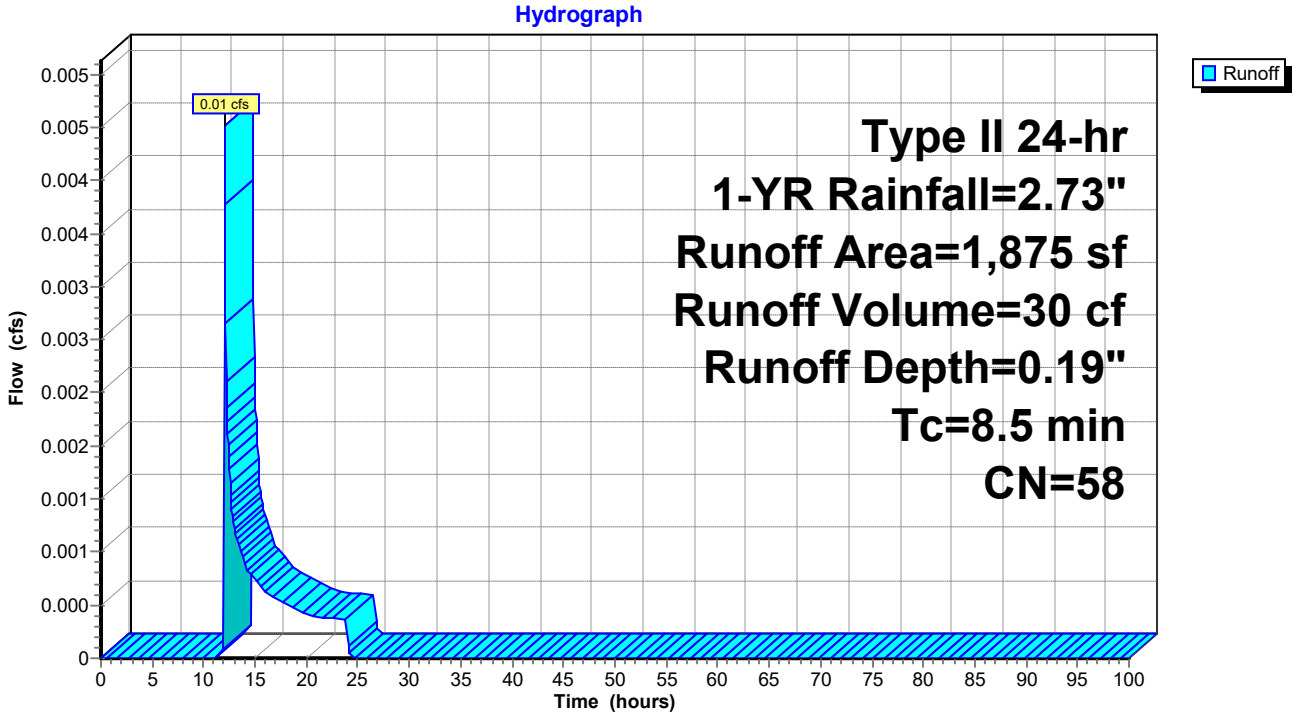
Runoff = 0.01 cfs @ 12.06 hrs, Volume= 30 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.73"

	Area (sf)	CN	Description
*	1,875	58	MEADOW UrhB
*	0	98	IMP ELECTRICAL PAD/Driveway
	1,875	58	Weighted Average
	1,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment 1S: EX-TRENCH



Summary for Subcatchment 2S: EX-BYPASS

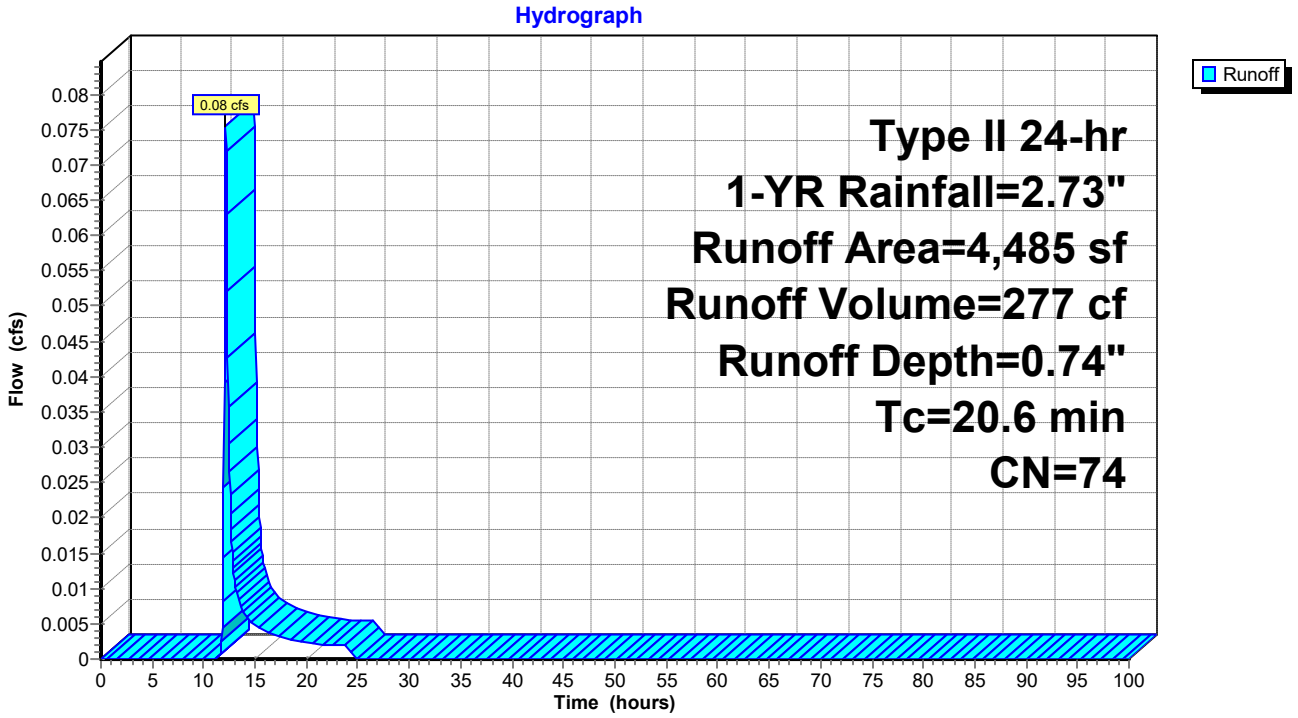
Runoff = 0.08 cfs @ 12.16 hrs, Volume= 277 cf, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.73"

	Area (sf)	CN	Description
*	1,792	98	IMP
*	2,693	58	MEADOW UrhB
	4,485	74	Weighted Average
	2,693		60.04% Pervious Area
	1,792		39.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 2S: EX-BYPASS



Summary for Subcatchment 5S: PR-TRENCH

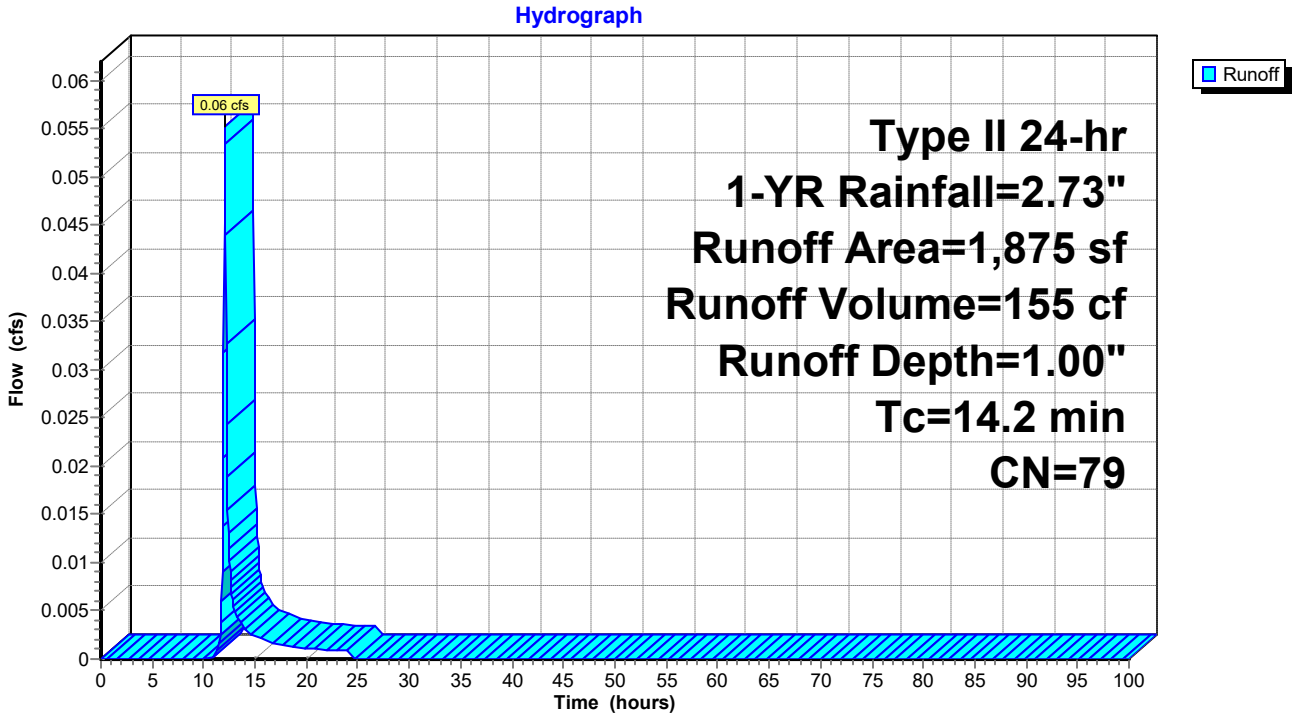
Runoff = 0.06 cfs @ 12.07 hrs, Volume= 155 cf, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.73"

	Area (sf)	CN	Description
*	900	58	MEADOW UrhB
*	975	98	IMP
	1,875	79	Weighted Average
	900		48.00% Pervious Area
	975		52.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1					**Direct Entry,**
7.1					**Direct Entry,**
14.2	0	Total			

Subcatchment 5S: PR-TRENCH



Summary for Subcatchment 6S: PR-BYPASS

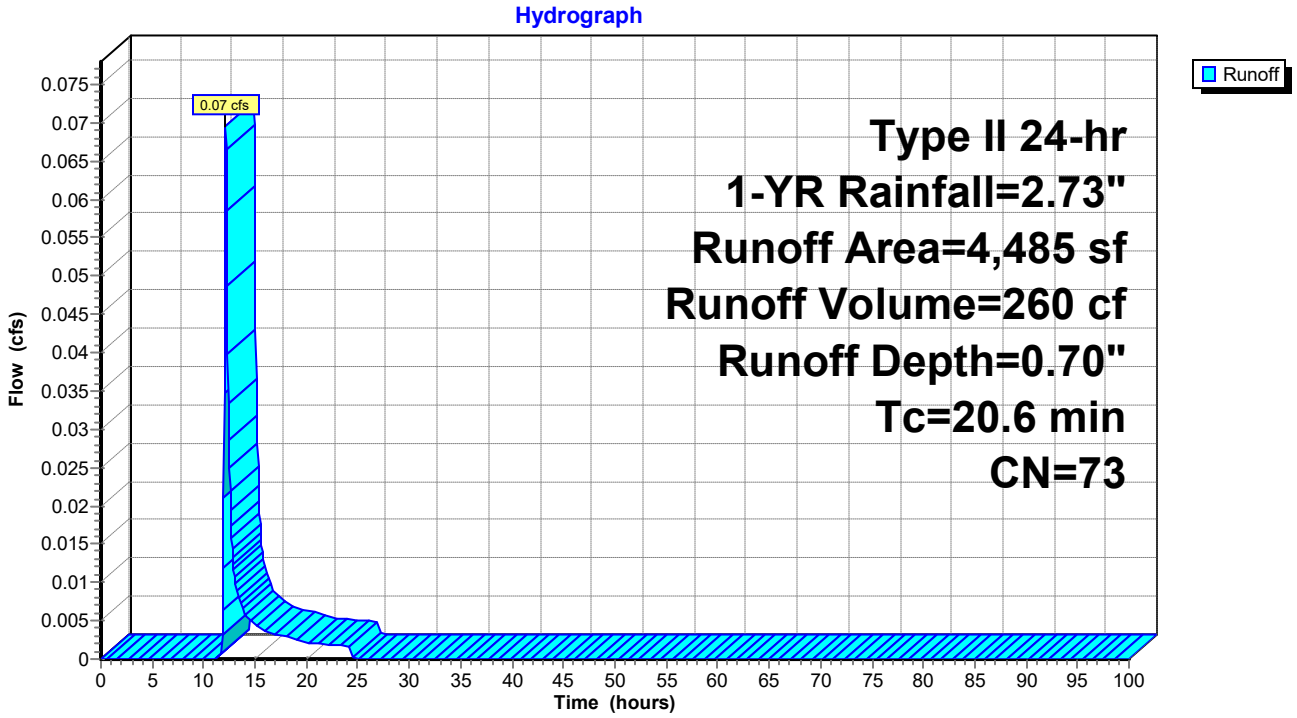
Runoff = 0.07 cfs @ 12.16 hrs, Volume= 260 cf, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=2.73"

	Area (sf)	CN	Description
*	2,790	58	MEADOW UrhB
*	1,695	98	IMP
	4,485	73	Weighted Average
	2,790		62.21% Pervious Area
	1,695		37.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 6S: PR-BYPASS



Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 1.00" for 1-YR event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 155 cf
Outflow = 0.01 cfs @ 13.03 hrs, Volume= 155 cf, Atten= 91%, Lag= 57.3 min
Primary = 0.01 cfs @ 13.03 hrs, Volume= 155 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 282.61' @ 13.03 hrs Surf.Area= 240 sf Storage= 68 cf

Plug-Flow detention time= 159.4 min calculated for 155 cf (100% of inflow)
Center-of-Mass det. time= 159.5 min (1,018.5 - 859.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**1.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.01 cfs @ 13.03 hrs HW=282.61' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 3.71 fps)

Pond 7P: PR-TRENCH - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

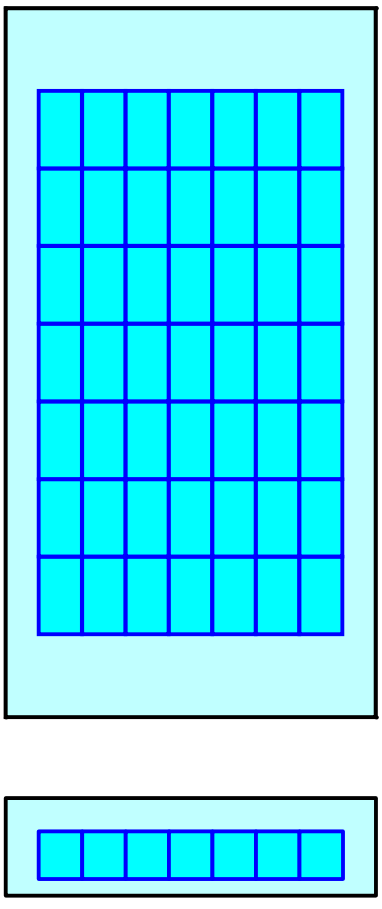
7 Chambers/Row x 2.35' Long = 16.42' Row Length +30.0" End Stone x 2 = 21.42' Base Length
7 Rows x 15.7" Wide + 12.0" Side Stone x 2 = 11.19' Base Width
6.0" Base + 17.3" Chamber Height + 12.0" Cover = 2.94' Field Height

49 Chambers x 4.2 cf = 206.9 cf Chamber Storage
49 Chambers x 4.4 cf = 217.8 cf Displacement

705.3 cf Field - 217.8 cf Chambers = 487.6 cf Stone x 40.0% Voids = 195.0 cf Stone Storage

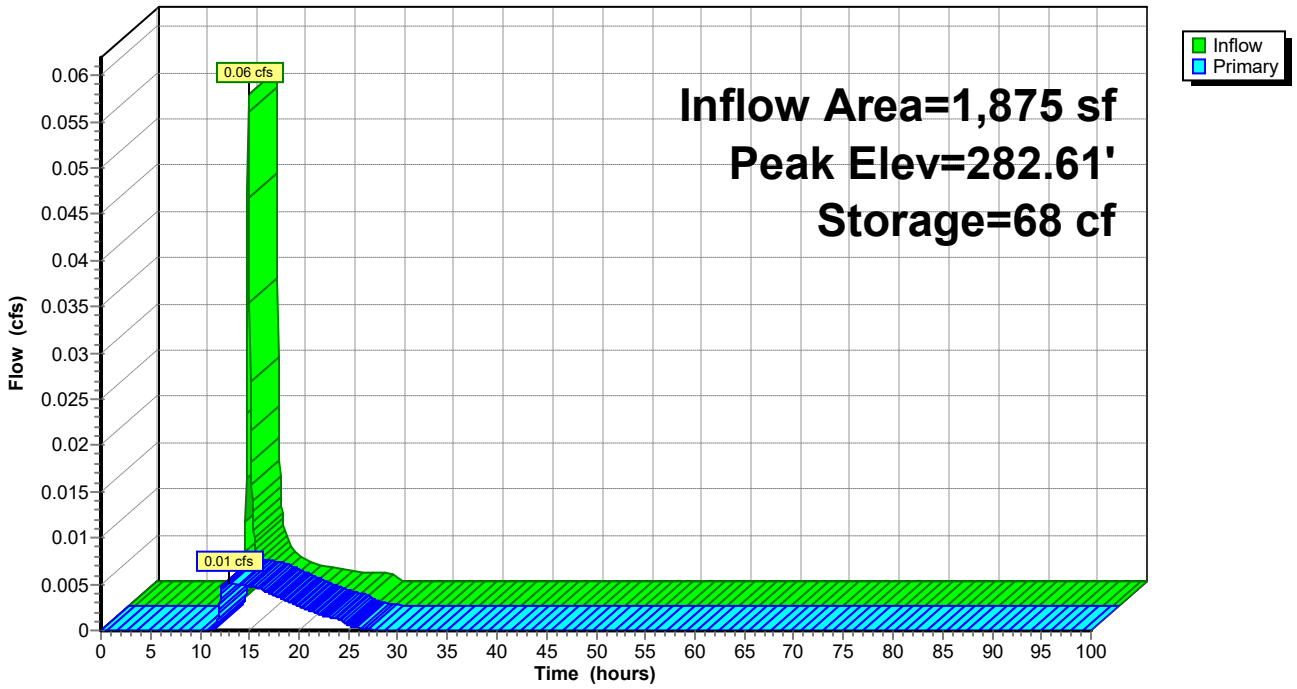
Chamber Storage + Stone Storage = 401.9 cf = 0.009 af
Overall Storage Efficiency = 57.0%
Overall System Size = 21.42' x 11.19' x 2.94'

49 Chambers
26.1 cy Field
18.1 cy Stone



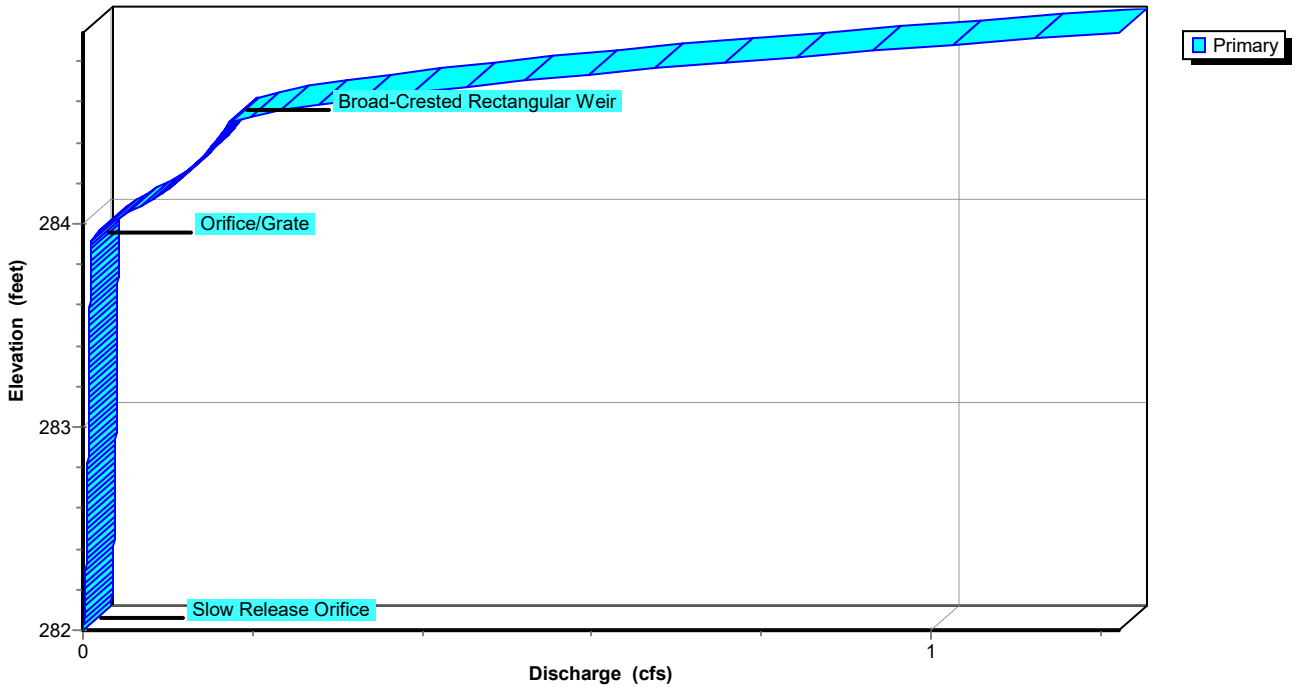
Pond 7P: PR-TRENCH

Hydrograph

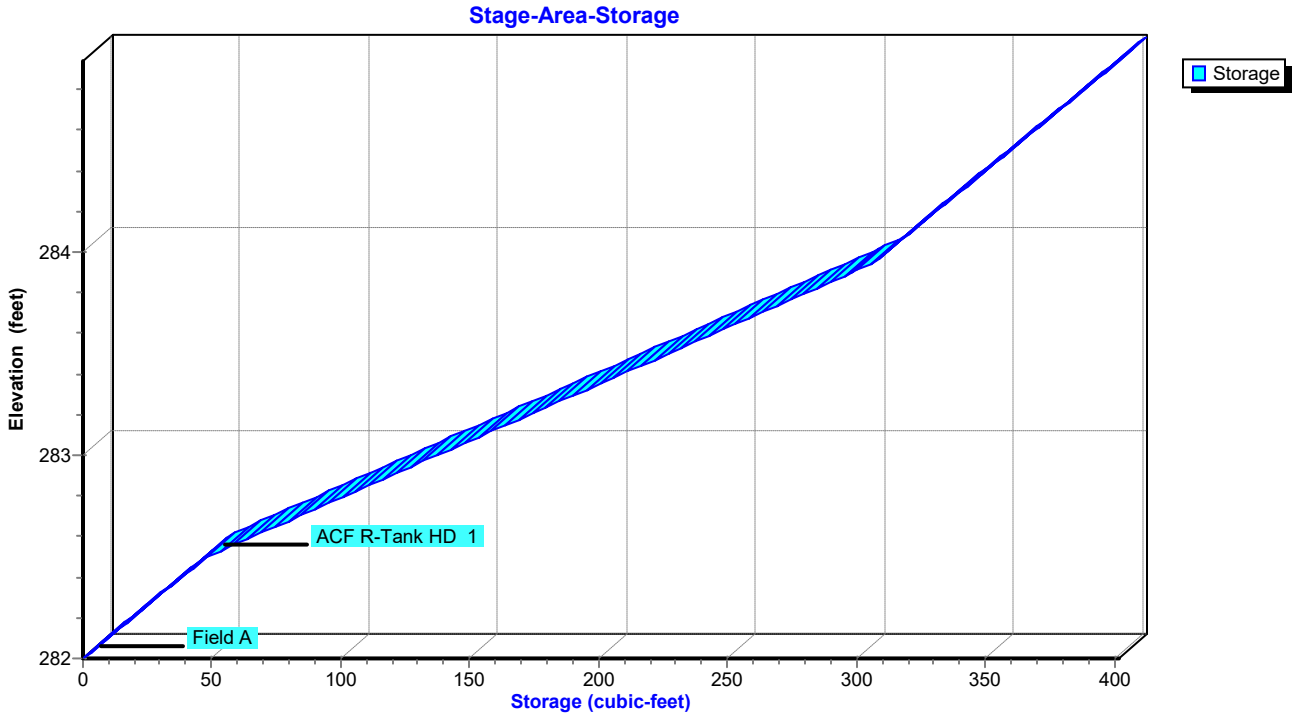


Pond 7P: PR-TRENCH

Stage-Discharge



Pond 7P: PR-TRENCH

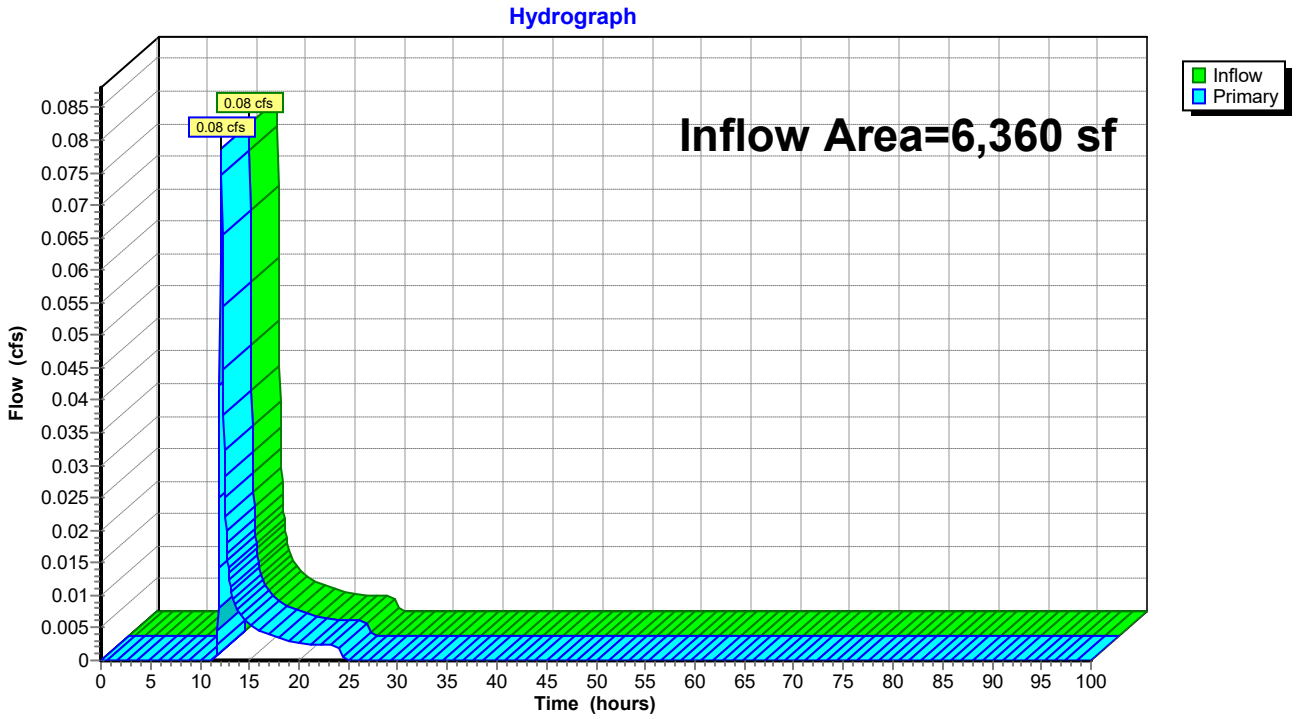


Summary for Link 9L: EX TOTAL

Inflow Area = 6,360 sf, 28.18% Impervious, Inflow Depth = 0.58" for 1-YR event
Inflow = 0.08 cfs @ 12.15 hrs, Volume= 307 cf
Primary = 0.08 cfs @ 12.15 hrs, Volume= 307 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 9L: EX TOTAL

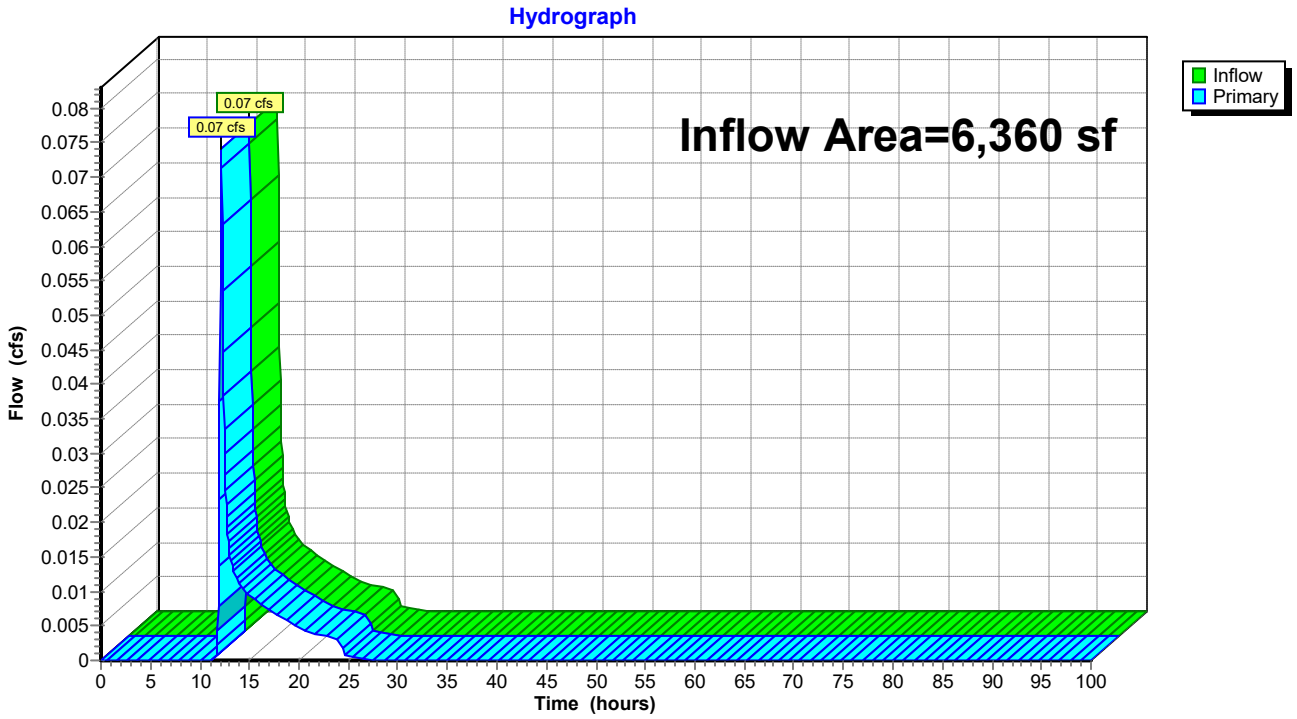


Summary for Link 10L: PR TOTAL

Inflow Area = 6,360 sf, 41.98% Impervious, Inflow Depth = 0.78" for 1-YR event
Inflow = 0.07 cfs @ 12.16 hrs, Volume= 416 cf
Primary = 0.07 cfs @ 12.16 hrs, Volume= 416 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 10L: PR TOTAL



Time span=0.00-100.00 hrs, dt=0.05 hrs, 2001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-TRENCH Runoff Area=1,875 sf 0.00% Impervious Runoff Depth=0.37"
Tc=8.5 min CN=58 Runoff=0.02 cfs 58 cf

Subcatchment 2S: EX-BYPASS Runoff Area=4,485 sf 39.96% Impervious Runoff Depth=1.10"
Tc=20.6 min CN=74 Runoff=0.12 cfs 410 cf

Subcatchment 5S: PR-TRENCH Runoff Area=1,875 sf 52.00% Impervious Runoff Depth=1.40"
Tc=14.2 min CN=79 Runoff=0.08 cfs 219 cf

Subcatchment 6S: PR-BYPASS Runoff Area=4,485 sf 37.79% Impervious Runoff Depth=1.04"
Tc=20.6 min CN=73 Runoff=0.11 cfs 389 cf

Pond 7P: PR-TRENCH Peak Elev=282.82' Storage=106 cf Inflow=0.08 cfs 219 cf
Outflow=0.01 cfs 219 cf

Link 9L: EX TOTAL Inflow=0.13 cfs 468 cf
Primary=0.13 cfs 468 cf

Link 10L: PR TOTAL Inflow=0.12 cfs 608 cf
Primary=0.12 cfs 608 cf

Total Runoff Area = 12,720 sf Runoff Volume = 1,077 cf Average Runoff Depth = 1.02"
64.92% Pervious = 8,258 sf 35.08% Impervious = 4,462 sf

Summary for Subcatchment 1S: EX-TRENCH

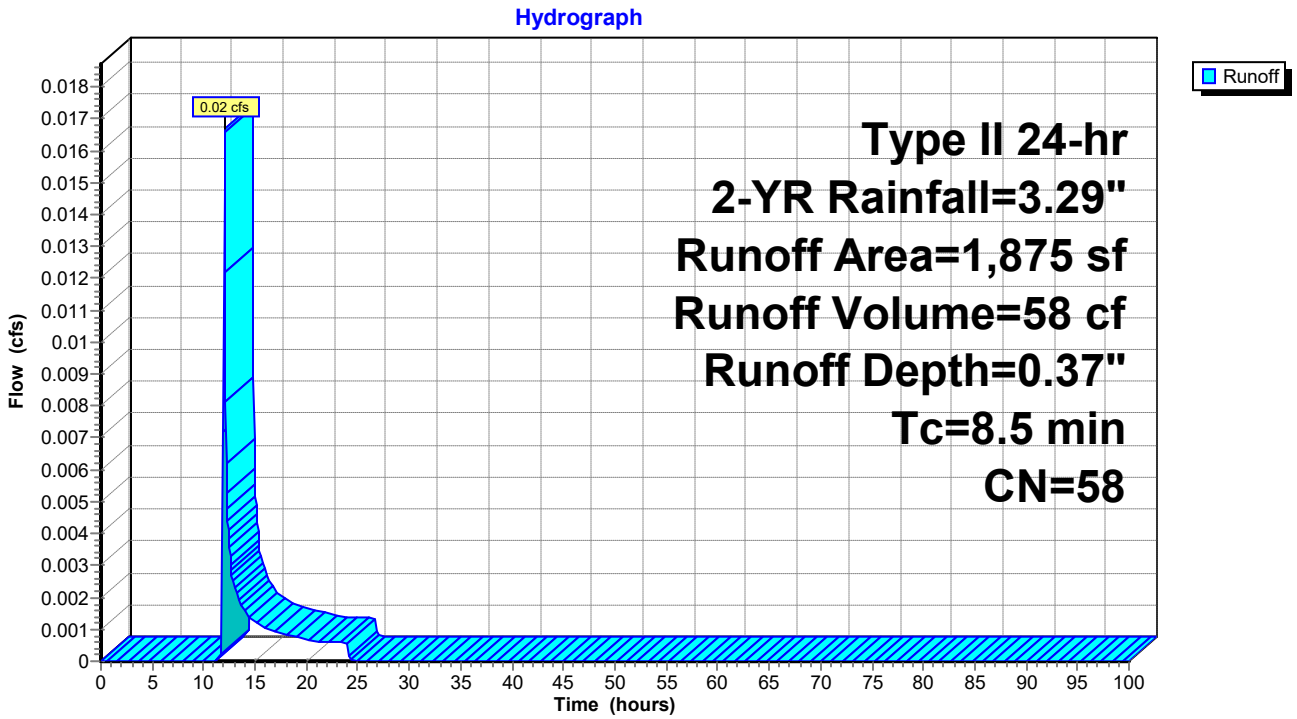
Runoff = 0.02 cfs @ 12.04 hrs, Volume= 58 cf, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.29"

	Area (sf)	CN	Description
*	1,875	58	MEADOW UrhB
*	0	98	IMP ELECTRICAL PAD/Driveway
	1,875	58	Weighted Average
	1,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment 1S: EX-TRENCH



Summary for Subcatchment 2S: EX-BYPASS

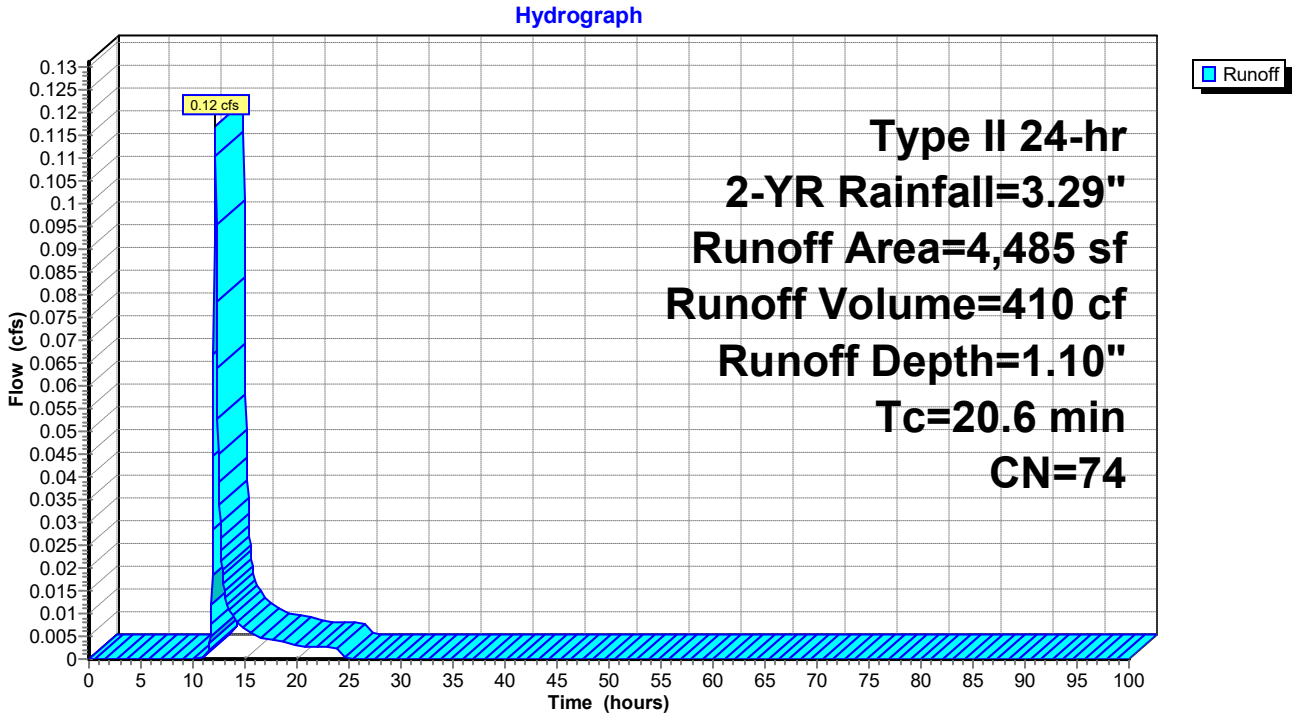
Runoff = 0.12 cfs @ 12.15 hrs, Volume= 410 cf, Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.29"

	Area (sf)	CN	Description
*	1,792	98	IMP
*	2,693	58	MEADOW UrhB
	4,485	74	Weighted Average
	2,693		60.04% Pervious Area
	1,792		39.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 2S: EX-BYPASS



Summary for Subcatchment 5S: PR-TRENCH

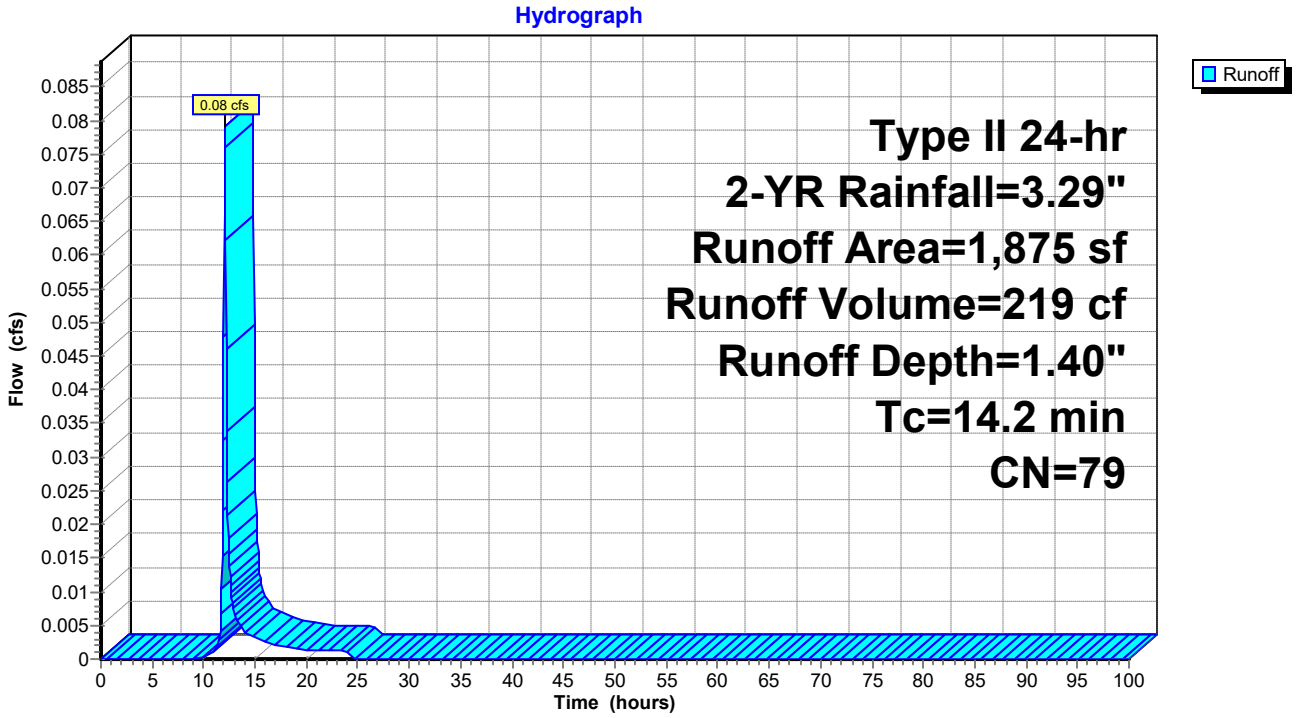
Runoff = 0.08 cfs @ 12.07 hrs, Volume= 219 cf, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.29"

	Area (sf)	CN	Description
*	900	58	MEADOW UrhB
*	975	98	IMP
	1,875	79	Weighted Average
	900		48.00% Pervious Area
	975		52.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1					**Direct Entry,**
7.1					**Direct Entry,**
14.2	0	Total			

Subcatchment 5S: PR-TRENCH



Summary for Subcatchment 6S: PR-BYPASS

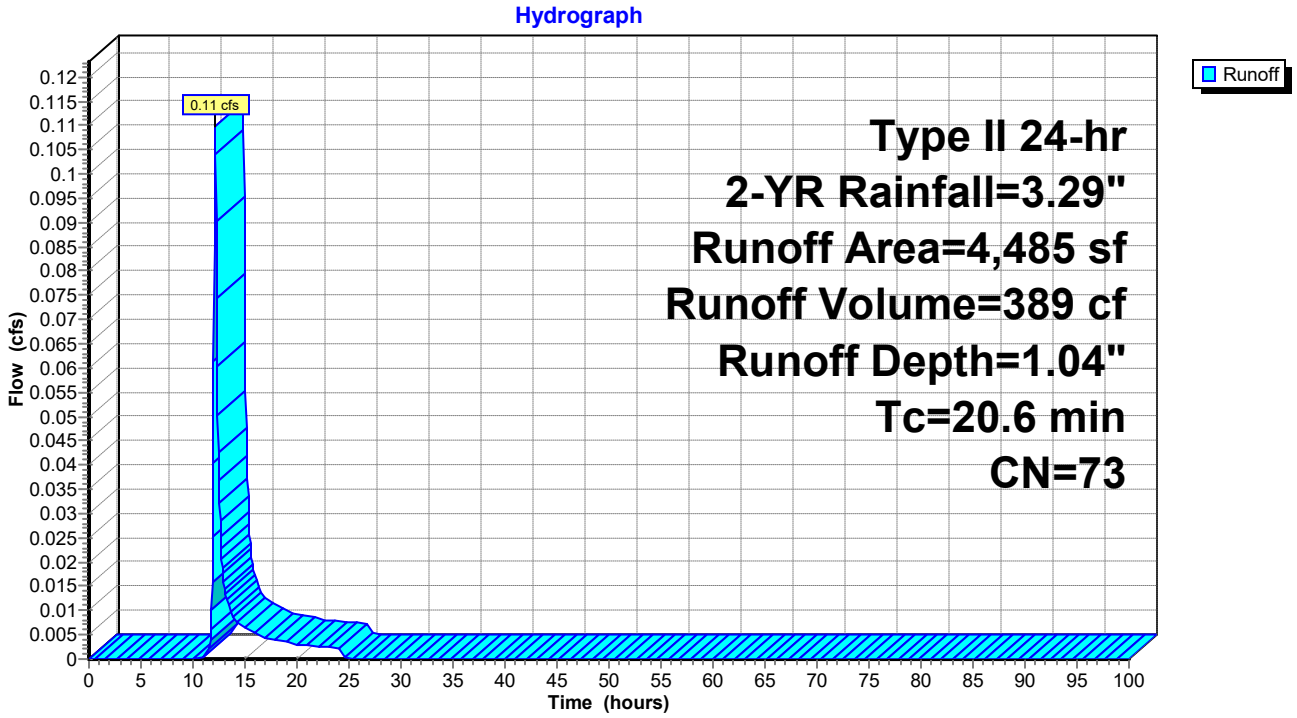
Runoff = 0.11 cfs @ 12.15 hrs, Volume= 389 cf, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.29"

	Area (sf)	CN	Description
*	2,790	58	MEADOW UrhB
*	1,695	98	IMP
	4,485	73	Weighted Average
	2,790		62.21% Pervious Area
	1,695		37.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 6S: PR-BYPASS



Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 1.40" for 2-YR event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 219 cf
Outflow = 0.01 cfs @ 13.25 hrs, Volume= 219 cf, Atten= 93%, Lag= 71.0 min
Primary = 0.01 cfs @ 13.25 hrs, Volume= 219 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 282.82' @ 13.25 hrs Surf.Area= 240 sf Storage= 106 cf

Plug-Flow detention time= 211.4 min calculated for 219 cf (100% of inflow)
Center-of-Mass det. time= 211.5 min (1,060.3 - 848.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**1.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.01 cfs @ 13.25 hrs HW=282.82' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 4.31 fps)

Pond 7P: PR-TRENCH - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

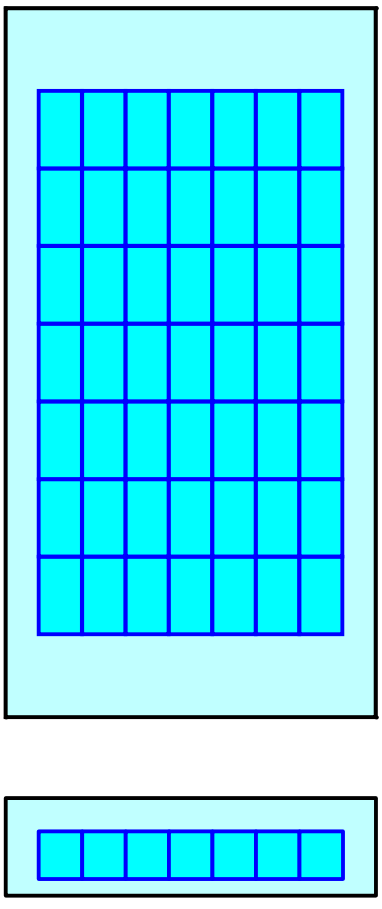
7 Chambers/Row x 2.35' Long = 16.42' Row Length +30.0" End Stone x 2 = 21.42' Base Length
7 Rows x 15.7" Wide + 12.0" Side Stone x 2 = 11.19' Base Width
6.0" Base + 17.3" Chamber Height + 12.0" Cover = 2.94' Field Height

49 Chambers x 4.2 cf = 206.9 cf Chamber Storage
49 Chambers x 4.4 cf = 217.8 cf Displacement

705.3 cf Field - 217.8 cf Chambers = 487.6 cf Stone x 40.0% Voids = 195.0 cf Stone Storage

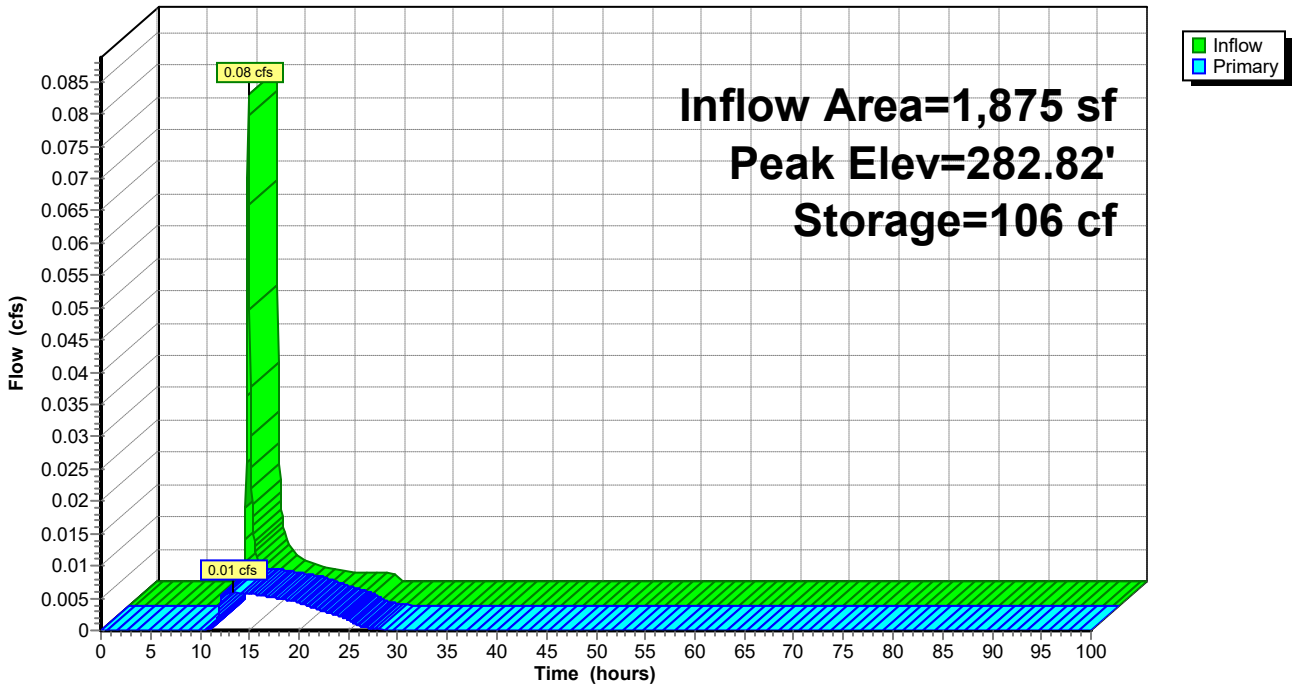
Chamber Storage + Stone Storage = 401.9 cf = 0.009 af
Overall Storage Efficiency = 57.0%
Overall System Size = 21.42' x 11.19' x 2.94'

49 Chambers
26.1 cy Field
18.1 cy Stone



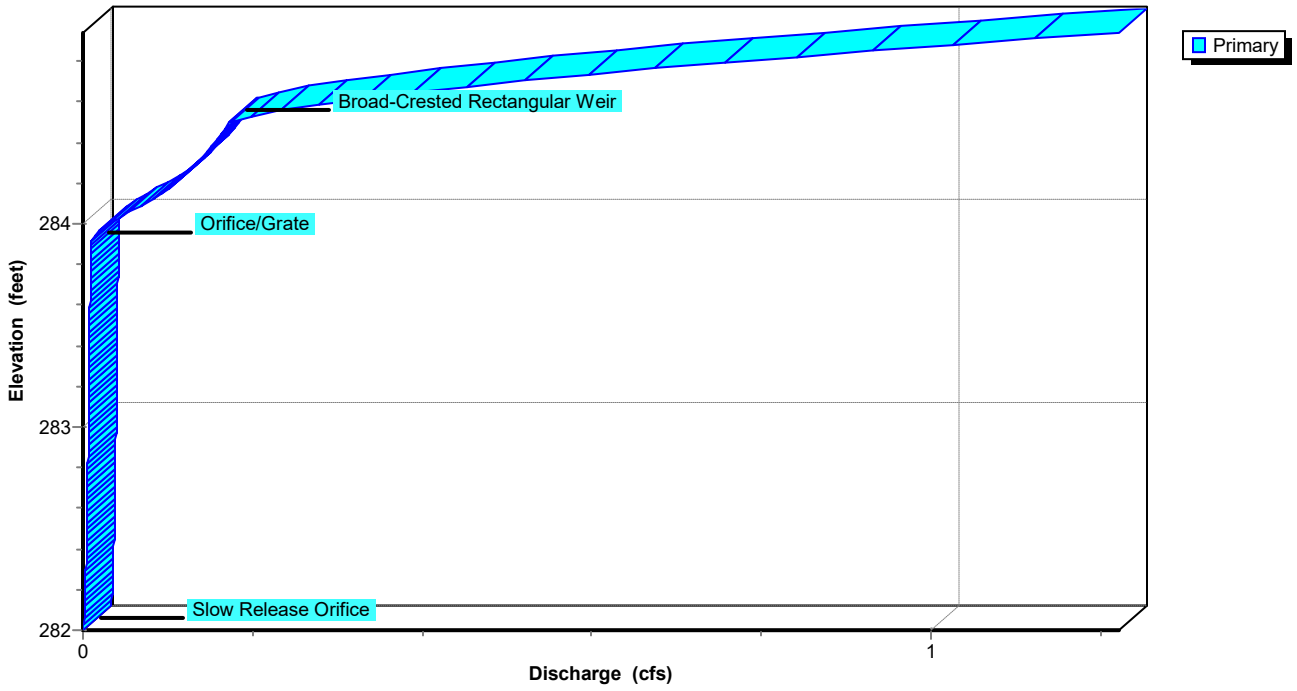
Pond 7P: PR-TRENCH

Hydrograph

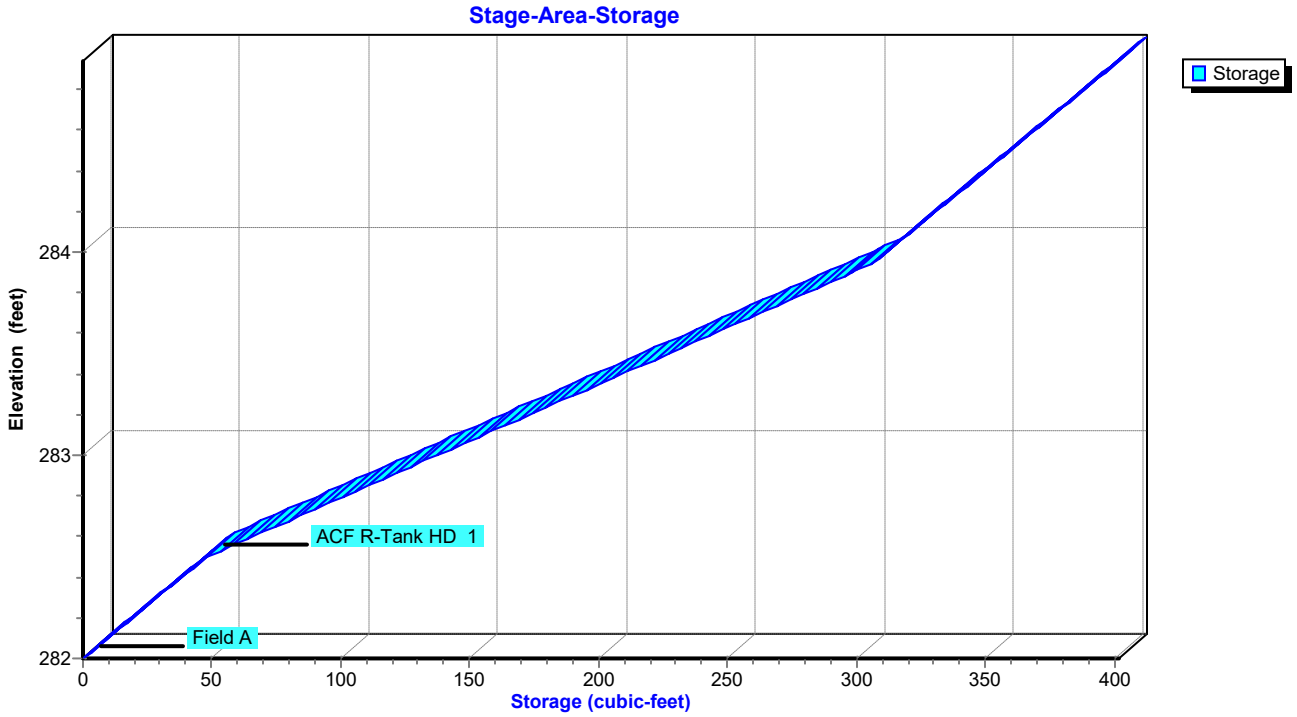


Pond 7P: PR-TRENCH

Stage-Discharge



Pond 7P: PR-TRENCH

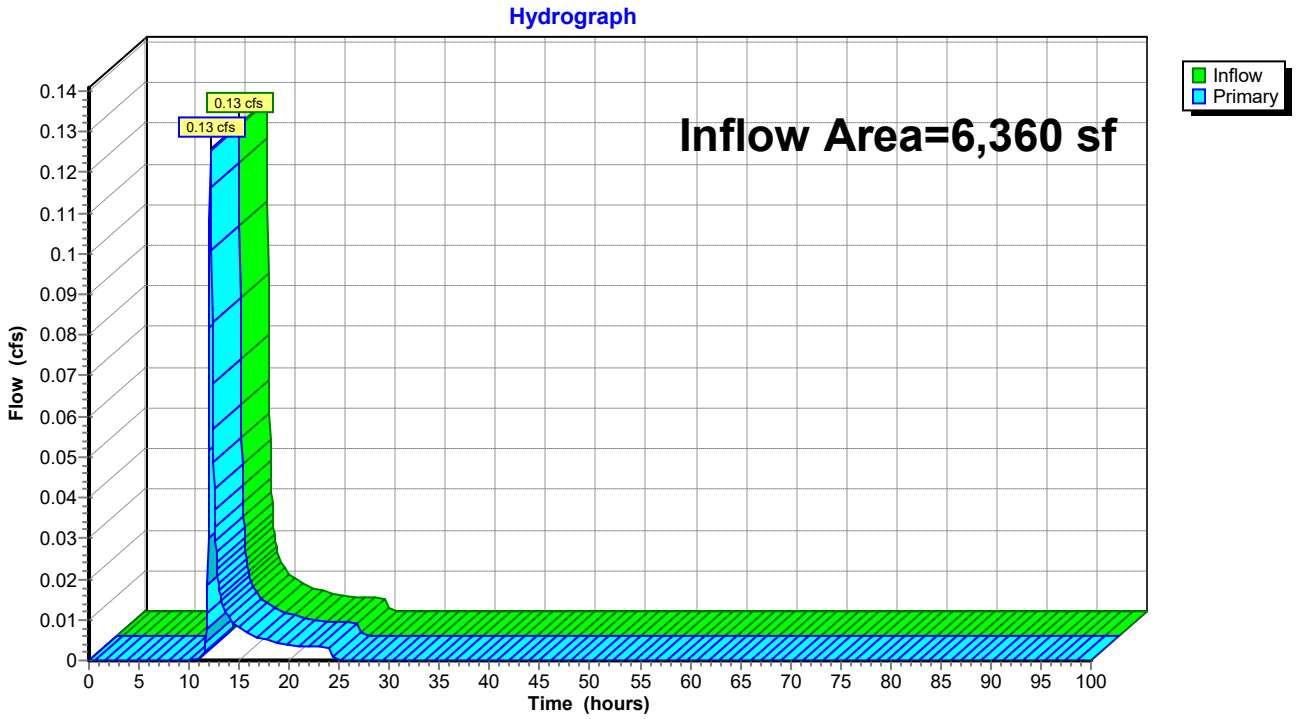


Summary for Link 9L: EX TOTAL

Inflow Area = 6,360 sf, 28.18% Impervious, Inflow Depth = 0.88" for 2-YR event
Inflow = 0.13 cfs @ 12.14 hrs, Volume= 468 cf
Primary = 0.13 cfs @ 12.14 hrs, Volume= 468 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 9L: EX TOTAL

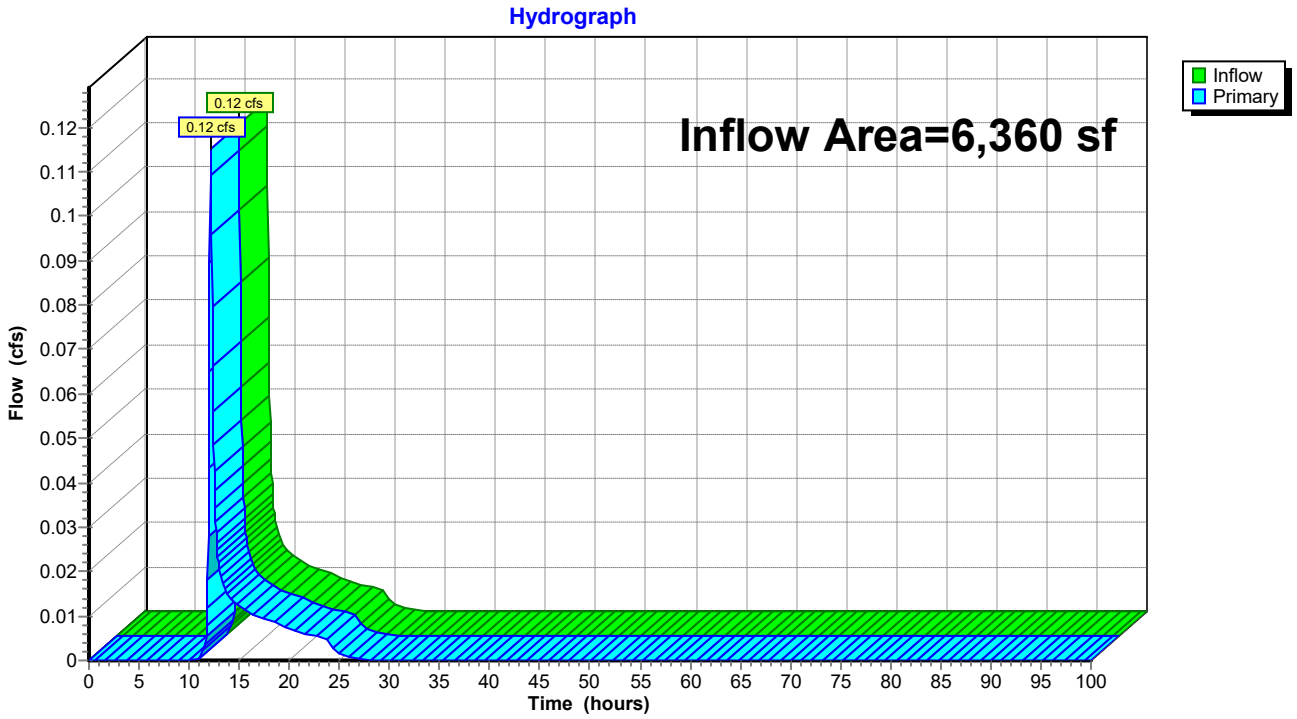


Summary for Link 10L: PR TOTAL

Inflow Area = 6,360 sf, 41.98% Impervious, Inflow Depth = 1.15" for 2-YR event
Inflow = 0.12 cfs @ 12.15 hrs, Volume= 608 cf
Primary = 0.12 cfs @ 12.15 hrs, Volume= 608 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 10L: PR TOTAL



Time span=0.00-100.00 hrs, dt=0.05 hrs, 2001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-TRENCH Runoff Area=1,875 sf 0.00% Impervious Runoff Depth=0.73"
Tc=8.5 min CN=58 Runoff=0.04 cfs 114 cf

Subcatchment 2S: EX-BYPASS Runoff Area=4,485 sf 39.96% Impervious Runoff Depth=1.70"
Tc=20.6 min CN=74 Runoff=0.19 cfs 635 cf

Subcatchment 5S: PR-TRENCH Runoff Area=1,875 sf 52.00% Impervious Runoff Depth=2.08"
Tc=14.2 min CN=79 Runoff=0.12 cfs 325 cf

Subcatchment 6S: PR-BYPASS Runoff Area=4,485 sf 37.79% Impervious Runoff Depth=1.63"
Tc=20.6 min CN=73 Runoff=0.18 cfs 609 cf

Pond 7P: PR-TRENCH Peak Elev=283.18' Storage=169 cf Inflow=0.12 cfs 325 cf
Outflow=0.01 cfs 325 cf

Link 9L: EX TOTAL Inflow=0.21 cfs 749 cf
Primary=0.21 cfs 749 cf

Link 10L: PR TOTAL Inflow=0.18 cfs 933 cf
Primary=0.18 cfs 933 cf

Total Runoff Area = 12,720 sf Runoff Volume = 1,683 cf Average Runoff Depth = 1.59"
64.92% Pervious = 8,258 sf 35.08% Impervious = 4,462 sf

Summary for Subcatchment 1S: EX-TRENCH

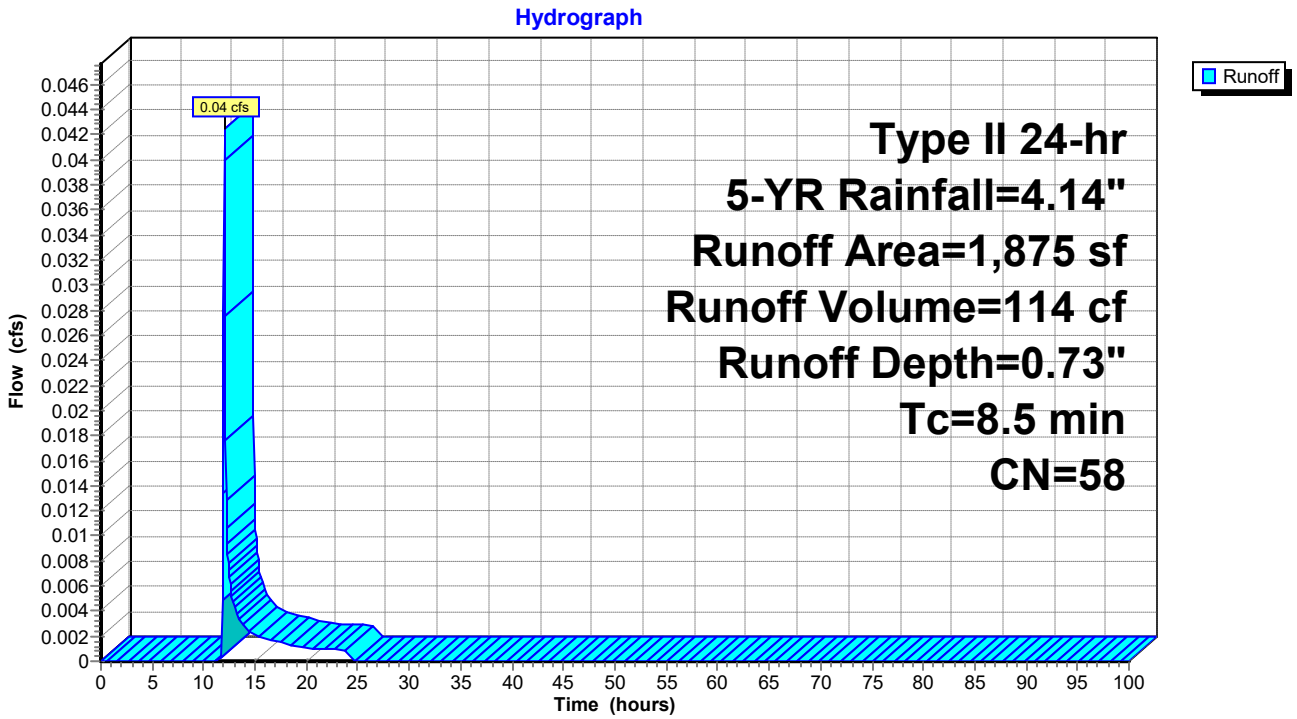
Runoff = 0.04 cfs @ 12.02 hrs, Volume= 114 cf, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-YR Rainfall=4.14"

	Area (sf)	CN	Description
*	1,875	58	MEADOW UrhB
*	0	98	IMP ELECTRICAL PAD/Driveway
	1,875	58	Weighted Average
	1,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment 1S: EX-TRENCH



Summary for Subcatchment 2S: EX-BYPASS

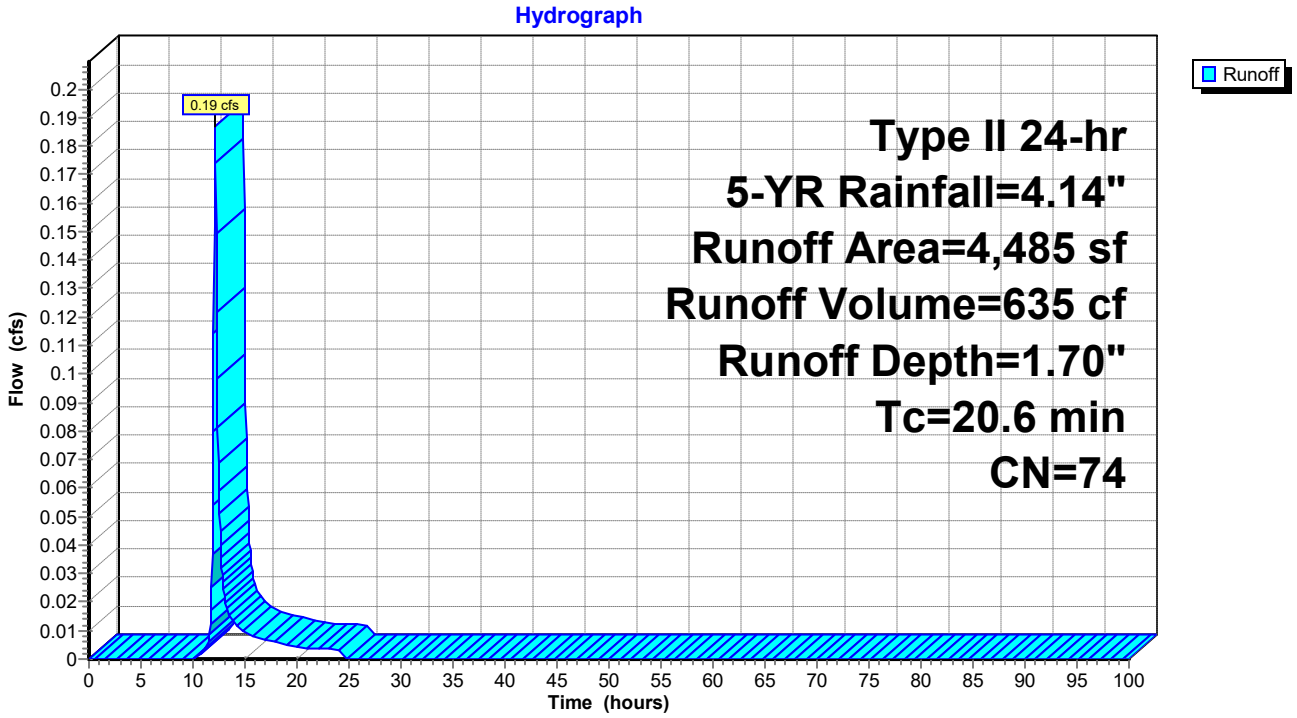
Runoff = 0.19 cfs @ 12.14 hrs, Volume= 635 cf, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-YR Rainfall=4.14"

	Area (sf)	CN	Description
*	1,792	98	IMP
*	2,693	58	MEADOW UrhB
	4,485	74	Weighted Average
	2,693		60.04% Pervious Area
	1,792		39.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 2S: EX-BYPASS



Summary for Subcatchment 5S: PR-TRENCH

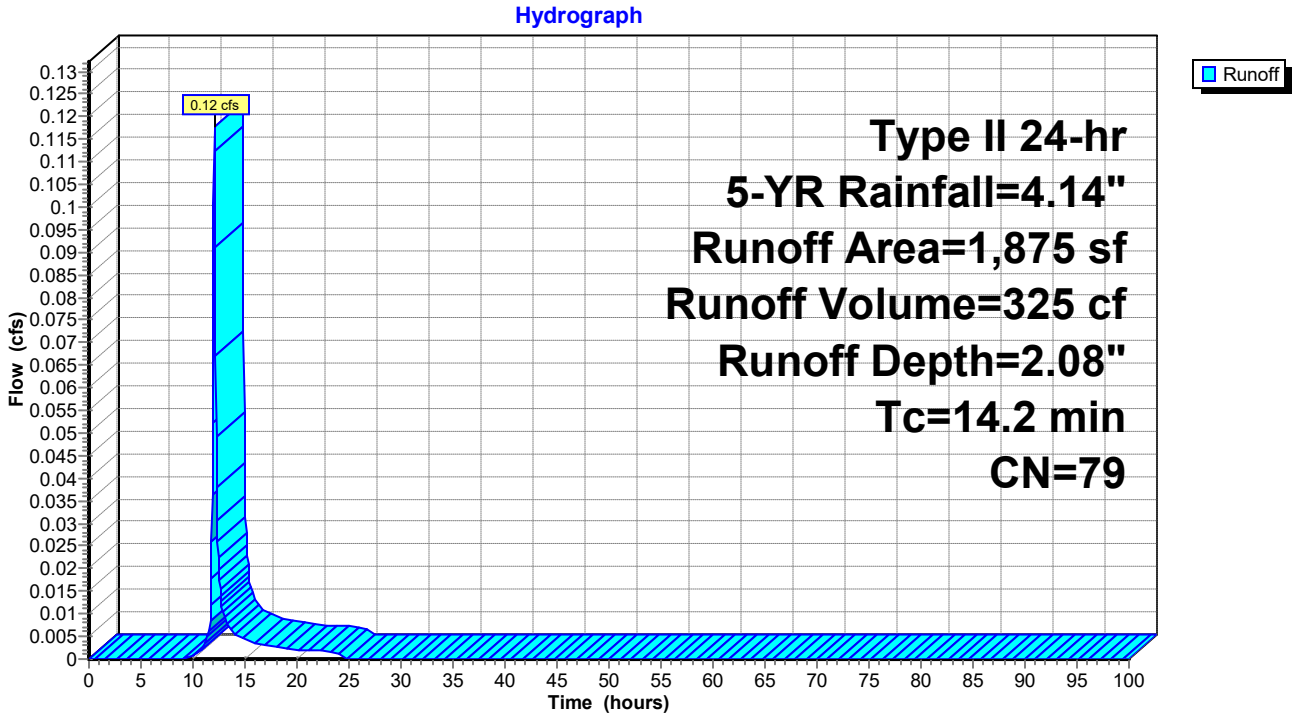
Runoff = 0.12 cfs @ 12.06 hrs, Volume= 325 cf, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-YR Rainfall=4.14"

	Area (sf)	CN	Description
*	900	58	MEADOW UrhB
*	975	98	IMP
	1,875	79	Weighted Average
	900		48.00% Pervious Area
	975		52.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1					**Direct Entry,**
7.1					**Direct Entry,**
14.2	0	Total			

Subcatchment 5S: PR-TRENCH



Summary for Subcatchment 6S: PR-BYPASS

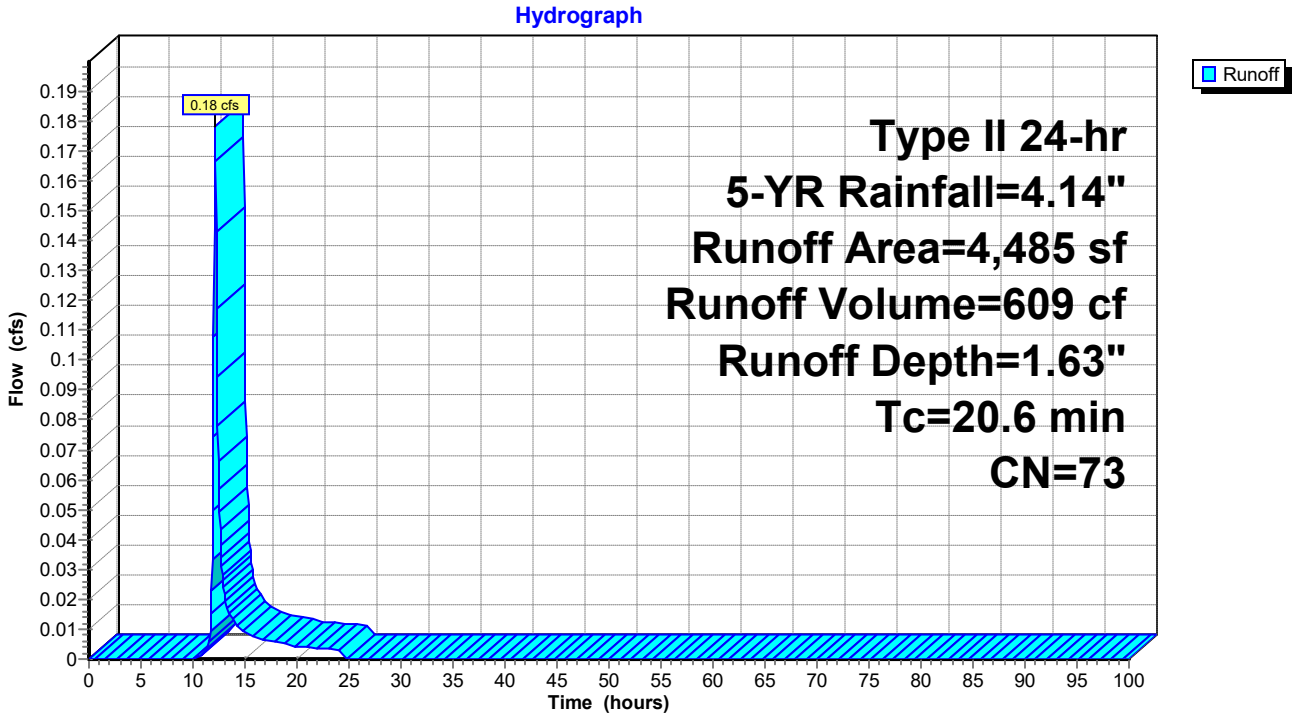
Runoff = 0.18 cfs @ 12.14 hrs, Volume= 609 cf, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-YR Rainfall=4.14"

	Area (sf)	CN	Description
*	2,790	58	MEADOW UrhB
*	1,695	98	IMP
	4,485	73	Weighted Average
	2,790		62.21% Pervious Area
	1,695		37.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 6S: PR-BYPASS



Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 2.08" for 5-YR event
Inflow = 0.12 cfs @ 12.06 hrs, Volume= 325 cf
Outflow = 0.01 cfs @ 13.54 hrs, Volume= 325 cf, Atten= 94%, Lag= 88.8 min
Primary = 0.01 cfs @ 13.54 hrs, Volume= 325 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 283.18' @ 13.54 hrs Surf.Area= 240 sf Storage= 169 cf

Plug-Flow detention time= 286.7 min calculated for 324 cf (100% of inflow)
Center-of-Mass det. time= 286.9 min (1,124.4 - 837.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**1.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.01 cfs @ 13.54 hrs HW=283.18' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 5.18 fps)

Pond 7P: PR-TRENCH - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

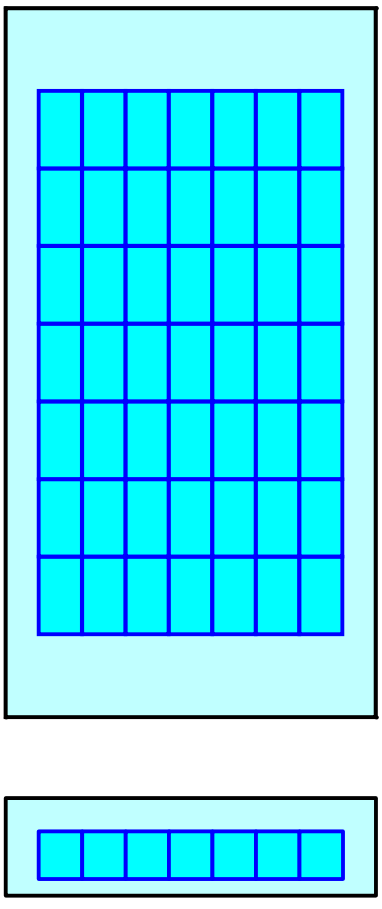
7 Chambers/Row x 2.35' Long = 16.42' Row Length +30.0" End Stone x 2 = 21.42' Base Length
7 Rows x 15.7" Wide + 12.0" Side Stone x 2 = 11.19' Base Width
6.0" Base + 17.3" Chamber Height + 12.0" Cover = 2.94' Field Height

49 Chambers x 4.2 cf = 206.9 cf Chamber Storage
49 Chambers x 4.4 cf = 217.8 cf Displacement

705.3 cf Field - 217.8 cf Chambers = 487.6 cf Stone x 40.0% Voids = 195.0 cf Stone Storage

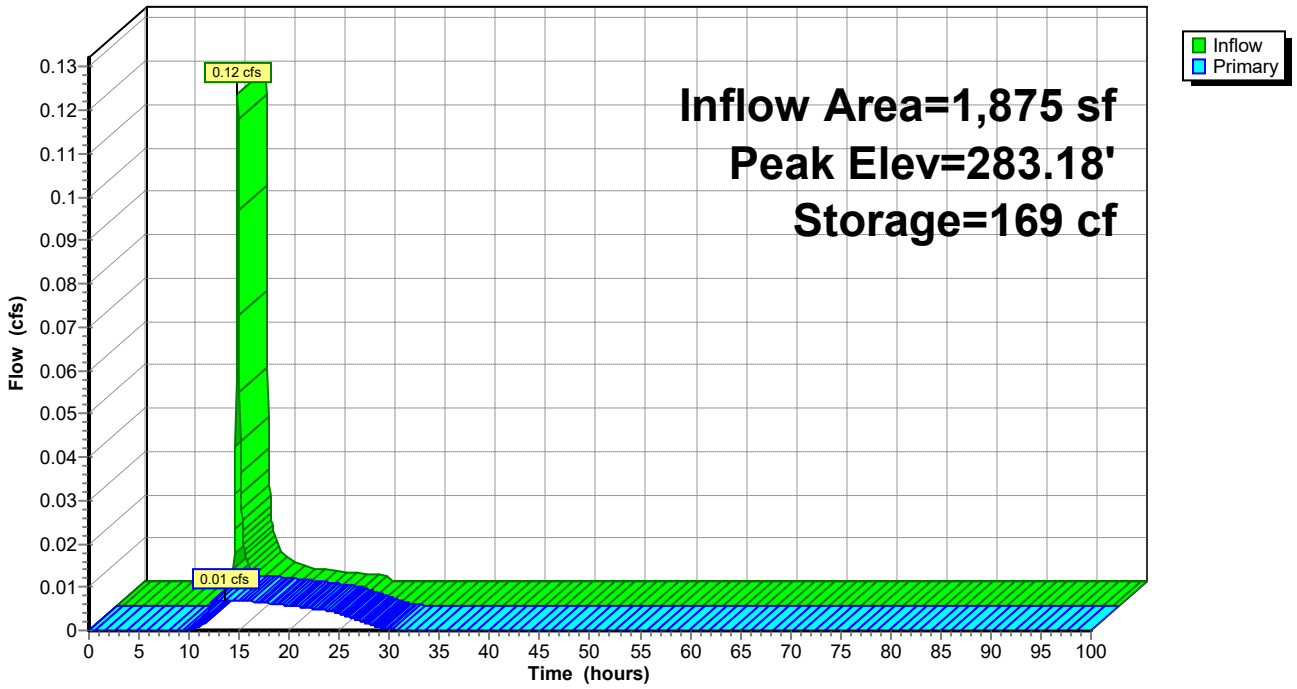
Chamber Storage + Stone Storage = 401.9 cf = 0.009 af
Overall Storage Efficiency = 57.0%
Overall System Size = 21.42' x 11.19' x 2.94'

49 Chambers
26.1 cy Field
18.1 cy Stone



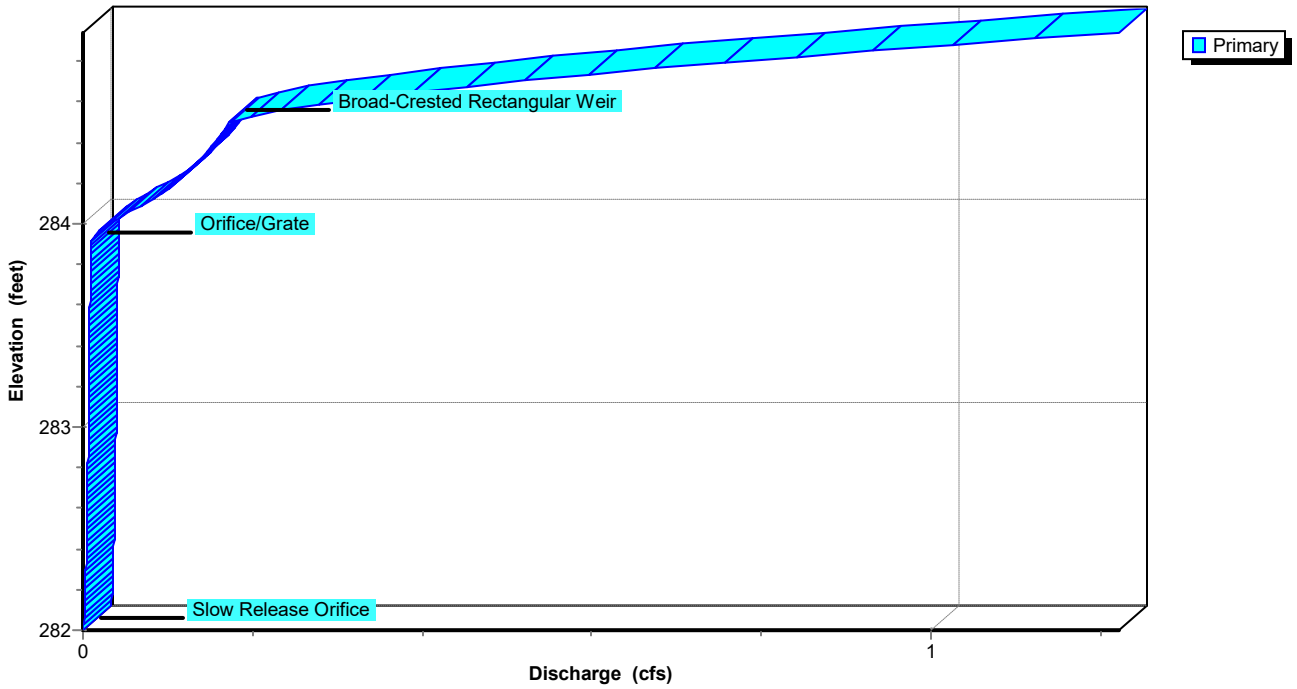
Pond 7P: PR-TRENCH

Hydrograph

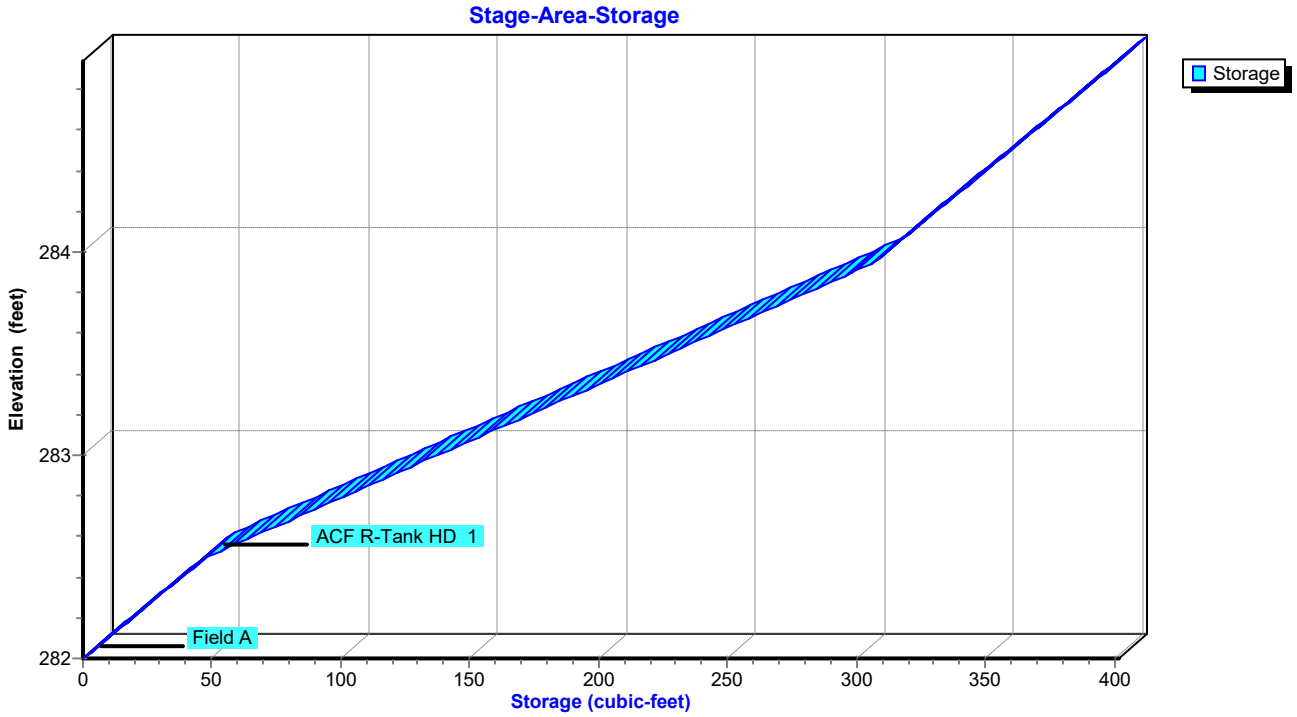


Pond 7P: PR-TRENCH

Stage-Discharge



Pond 7P: PR-TRENCH

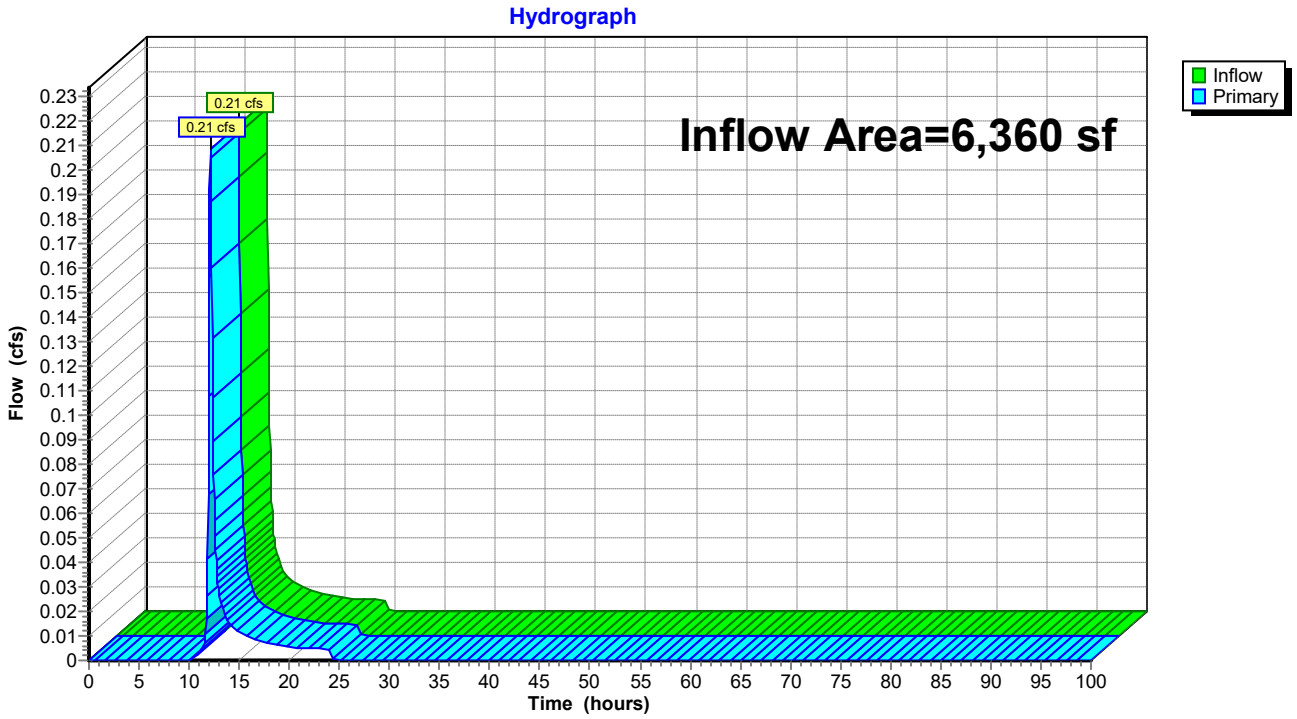


Summary for Link 9L: EX TOTAL

Inflow Area = 6,360 sf, 28.18% Impervious, Inflow Depth = 1.41" for 5-YR event
Inflow = 0.21 cfs @ 12.12 hrs, Volume= 749 cf
Primary = 0.21 cfs @ 12.12 hrs, Volume= 749 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 9L: EX TOTAL

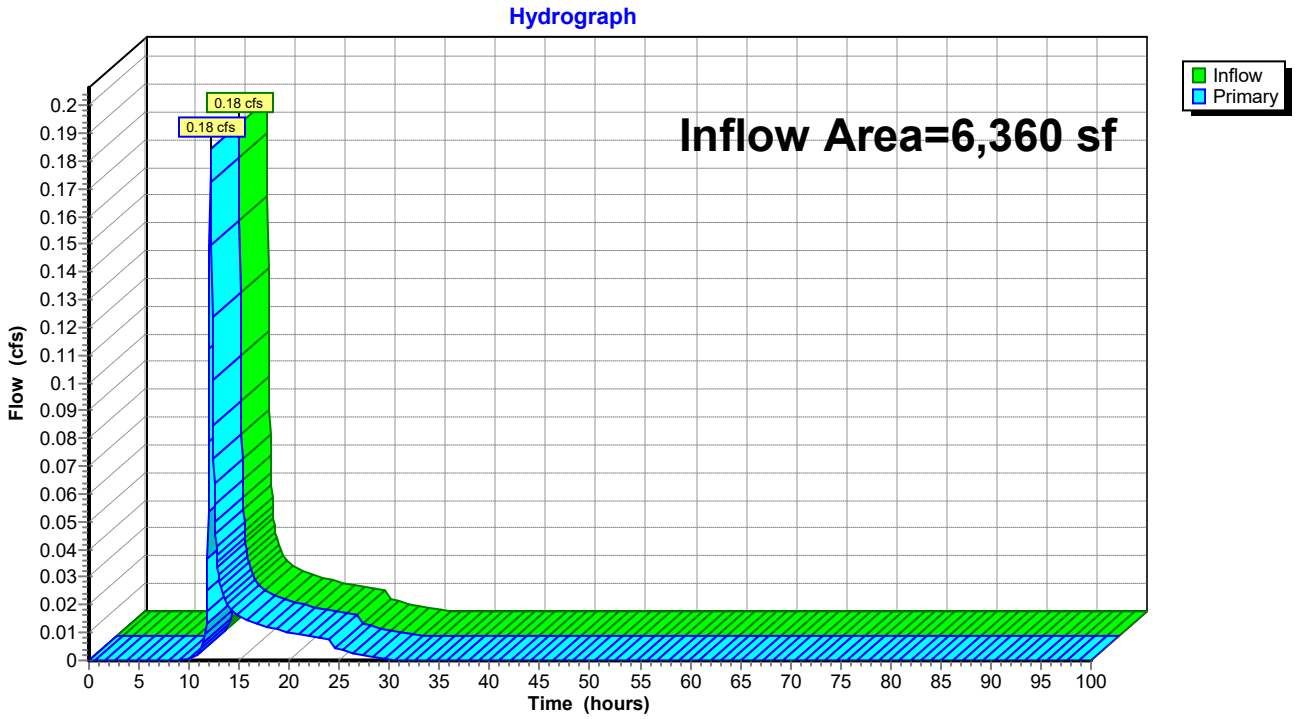


Summary for Link 10L: PR TOTAL

Inflow Area = 6,360 sf, 41.98% Impervious, Inflow Depth = 1.76" for 5-YR event
Inflow = 0.18 cfs @ 12.14 hrs, Volume= 933 cf
Primary = 0.18 cfs @ 12.14 hrs, Volume= 933 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 10L: PR TOTAL



Time span=0.00-100.00 hrs, dt=0.05 hrs, 2001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-TRENCH Runoff Area=1,875 sf 0.00% Impervious Runoff Depth=1.09"
Tc=8.5 min CN=58 Runoff=0.07 cfs 171 cf

Subcatchment 2S: EX-BYPASS Runoff Area=4,485 sf 39.96% Impervious Runoff Depth=2.25"
Tc=20.6 min CN=74 Runoff=0.25 cfs 842 cf

Subcatchment 5S: PR-TRENCH Runoff Area=1,875 sf 52.00% Impervious Runoff Depth=2.68"
Tc=14.2 min CN=79 Runoff=0.15 cfs 419 cf

Subcatchment 6S: PR-BYPASS Runoff Area=4,485 sf 37.79% Impervious Runoff Depth=2.17"
Tc=20.6 min CN=73 Runoff=0.24 cfs 811 cf

Pond 7P: PR-TRENCH Peak Elev=283.51' Storage=229 cf Inflow=0.15 cfs 419 cf
Outflow=0.01 cfs 419 cf

Link 9L: EX TOTAL Inflow=0.29 cfs 1,013 cf
Primary=0.29 cfs 1,013 cf

Link 10L: PR TOTAL Inflow=0.25 cfs 1,230 cf
Primary=0.25 cfs 1,230 cf

Total Runoff Area = 12,720 sf Runoff Volume = 2,243 cf Average Runoff Depth = 2.12"
64.92% Pervious = 8,258 sf 35.08% Impervious = 4,462 sf

Summary for Subcatchment 1S: EX-TRENCH

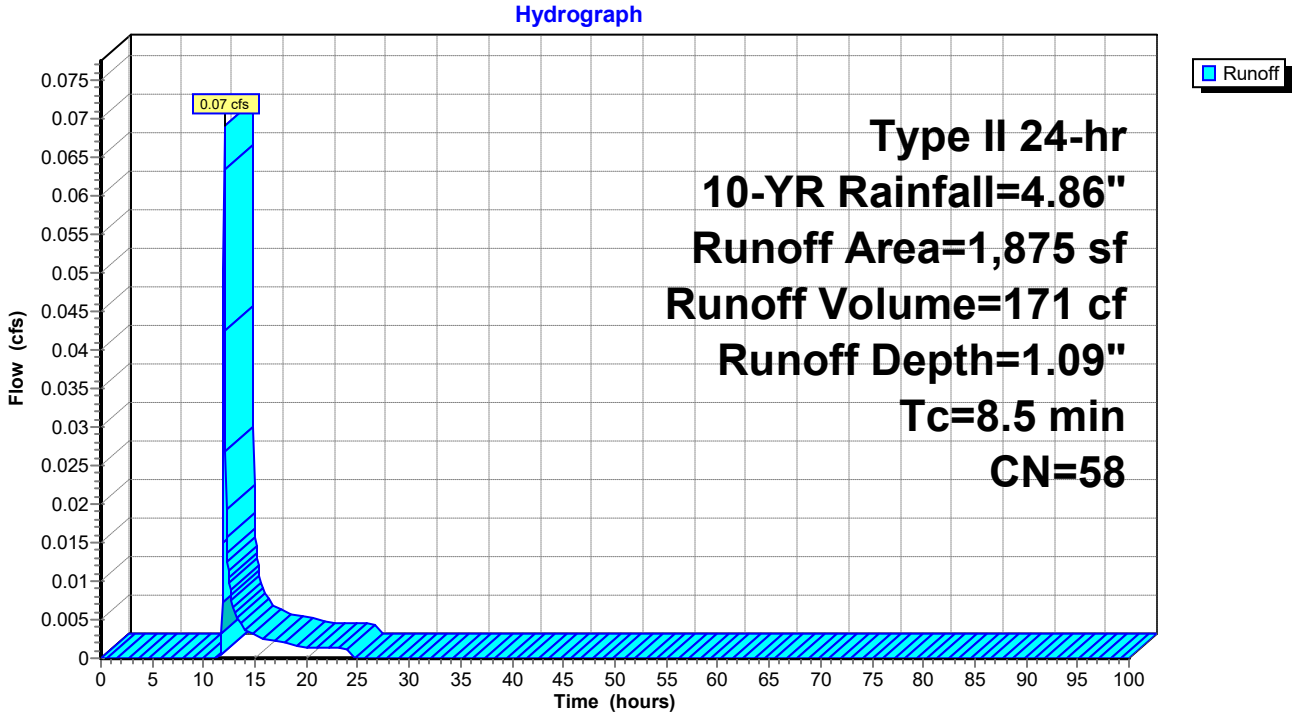
Runoff = 0.07 cfs @ 12.01 hrs, Volume= 171 cf, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=4.86"

	Area (sf)	CN	Description
*	1,875	58	MEADOW UrhB
*	0	98	IMP ELECTRICAL PAD/Driveway
	1,875	58	Weighted Average
	1,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment 1S: EX-TRENCH



Summary for Subcatchment 2S: EX-BYPASS

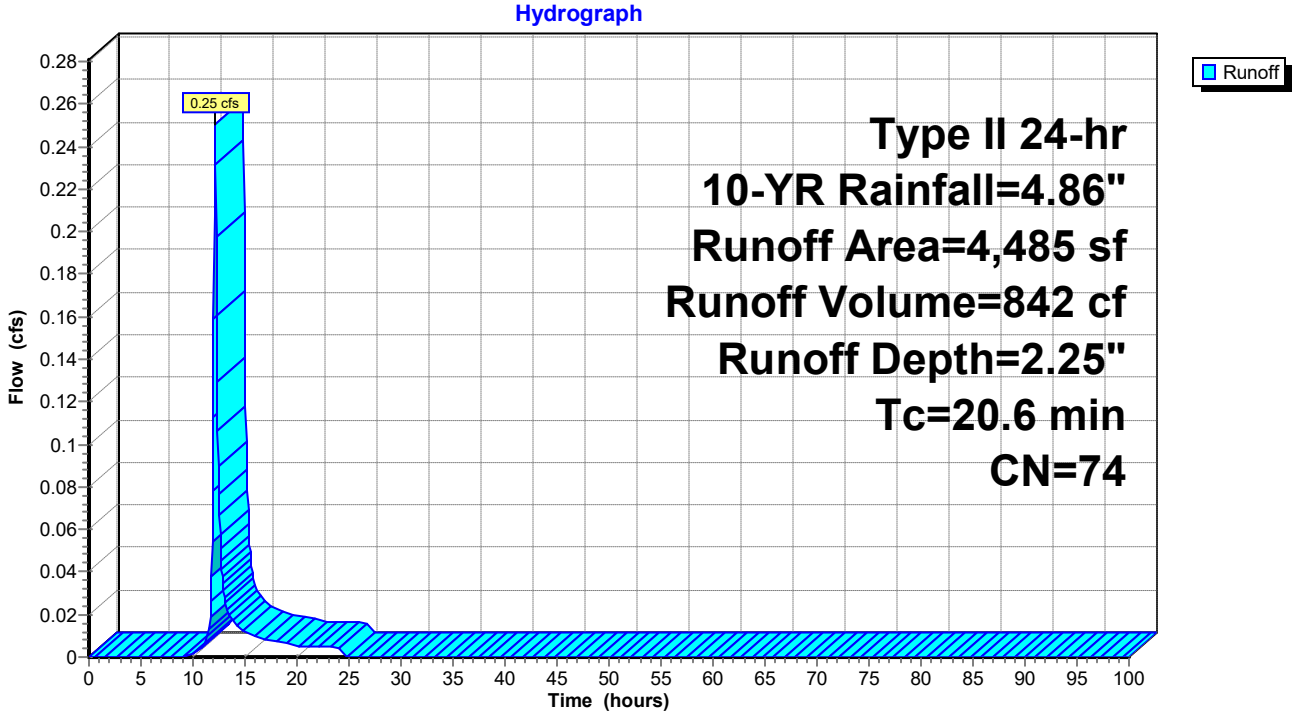
Runoff = 0.25 cfs @ 12.14 hrs, Volume= 842 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=4.86"

	Area (sf)	CN	Description
*	1,792	98	IMP
*	2,693	58	MEADOW UrhB
	4,485	74	Weighted Average
	2,693		60.04% Pervious Area
	1,792		39.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 2S: EX-BYPASS



Summary for Subcatchment 5S: PR-TRENCH

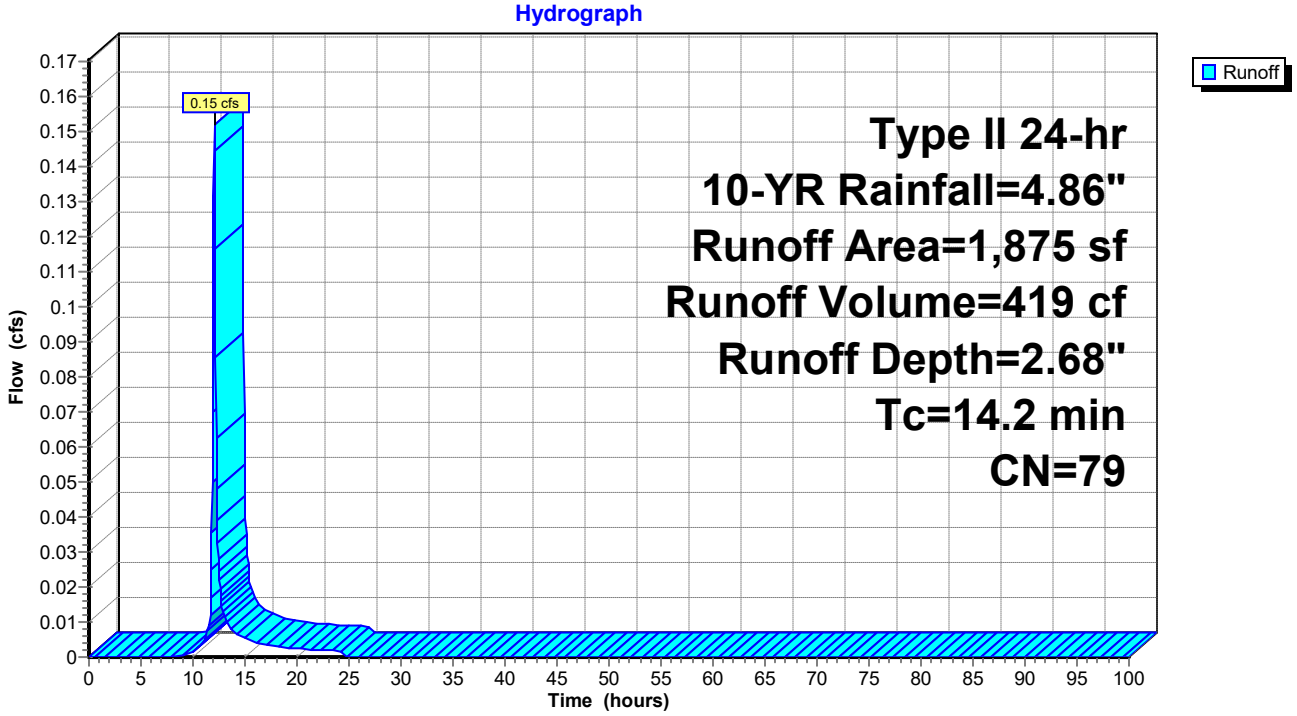
Runoff = 0.15 cfs @ 12.06 hrs, Volume= 419 cf, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=4.86"

	Area (sf)	CN	Description
*	900	58	MEADOW UrhB
*	975	98	IMP
	1,875	79	Weighted Average
	900		48.00% Pervious Area
	975		52.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1					**Direct Entry,**
7.1					**Direct Entry,**
14.2	0	Total			

Subcatchment 5S: PR-TRENCH



Summary for Subcatchment 6S: PR-BYPASS

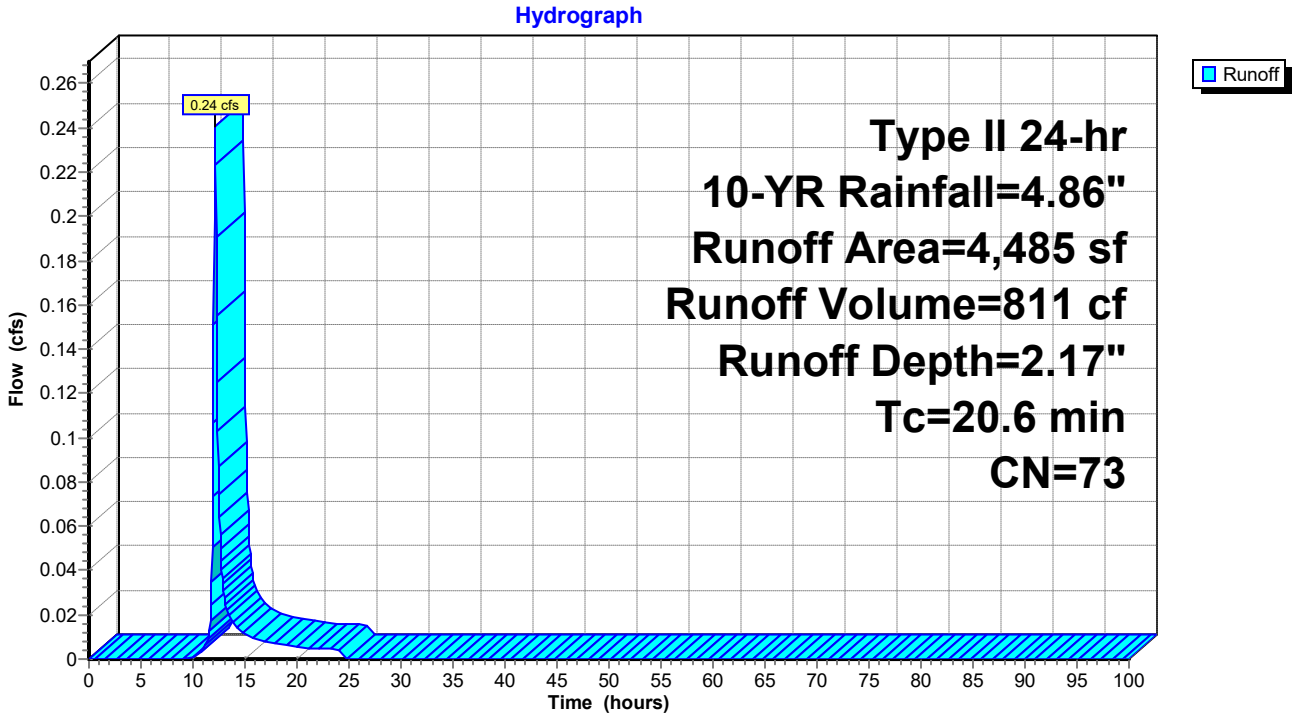
Runoff = 0.24 cfs @ 12.14 hrs, Volume= 811 cf, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=4.86"

	Area (sf)	CN	Description
*	2,790	58	MEADOW UrhB
*	1,695	98	IMP
	4,485	73	Weighted Average
	2,790		62.21% Pervious Area
	1,695		37.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 6S: PR-BYPASS



Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 2.68" for 10-YR event
Inflow = 0.15 cfs @ 12.06 hrs, Volume= 419 cf
Outflow = 0.01 cfs @ 13.72 hrs, Volume= 419 cf, Atten= 95%, Lag= 99.7 min
Primary = 0.01 cfs @ 13.72 hrs, Volume= 419 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 283.51' @ 13.72 hrs Surf.Area= 240 sf Storage= 229 cf

Plug-Flow detention time= 344.3 min calculated for 419 cf (100% of inflow)
Center-of-Mass det. time= 343.8 min (1,174.0 - 830.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**1.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.01 cfs @ 13.72 hrs HW=283.51' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 5.88 fps)

Pond 7P: PR-TRENCH - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

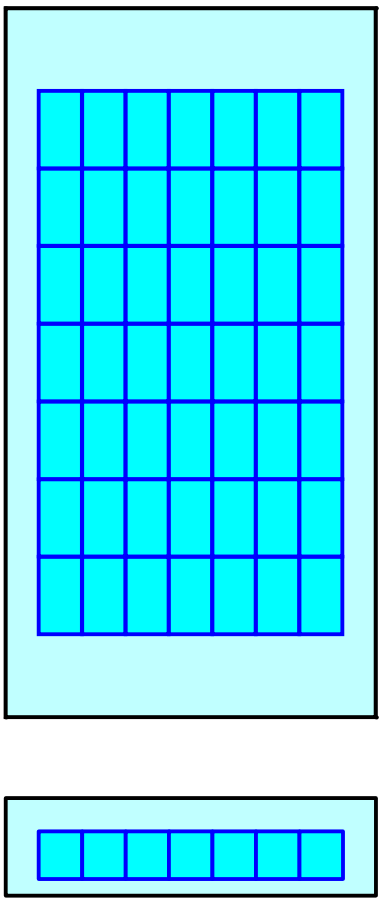
7 Chambers/Row x 2.35' Long = 16.42' Row Length +30.0" End Stone x 2 = 21.42' Base Length
7 Rows x 15.7" Wide + 12.0" Side Stone x 2 = 11.19' Base Width
6.0" Base + 17.3" Chamber Height + 12.0" Cover = 2.94' Field Height

49 Chambers x 4.2 cf = 206.9 cf Chamber Storage
49 Chambers x 4.4 cf = 217.8 cf Displacement

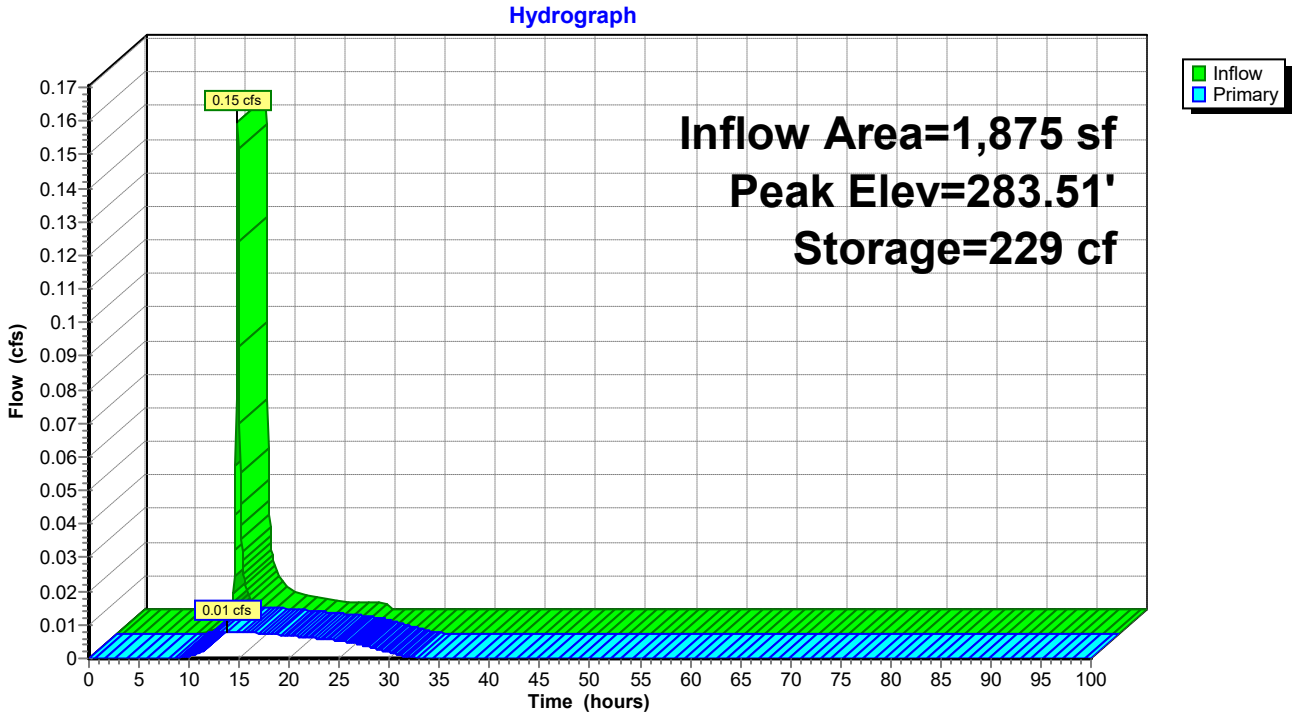
705.3 cf Field - 217.8 cf Chambers = 487.6 cf Stone x 40.0% Voids = 195.0 cf Stone Storage

Chamber Storage + Stone Storage = 401.9 cf = 0.009 af
Overall Storage Efficiency = 57.0%
Overall System Size = 21.42' x 11.19' x 2.94'

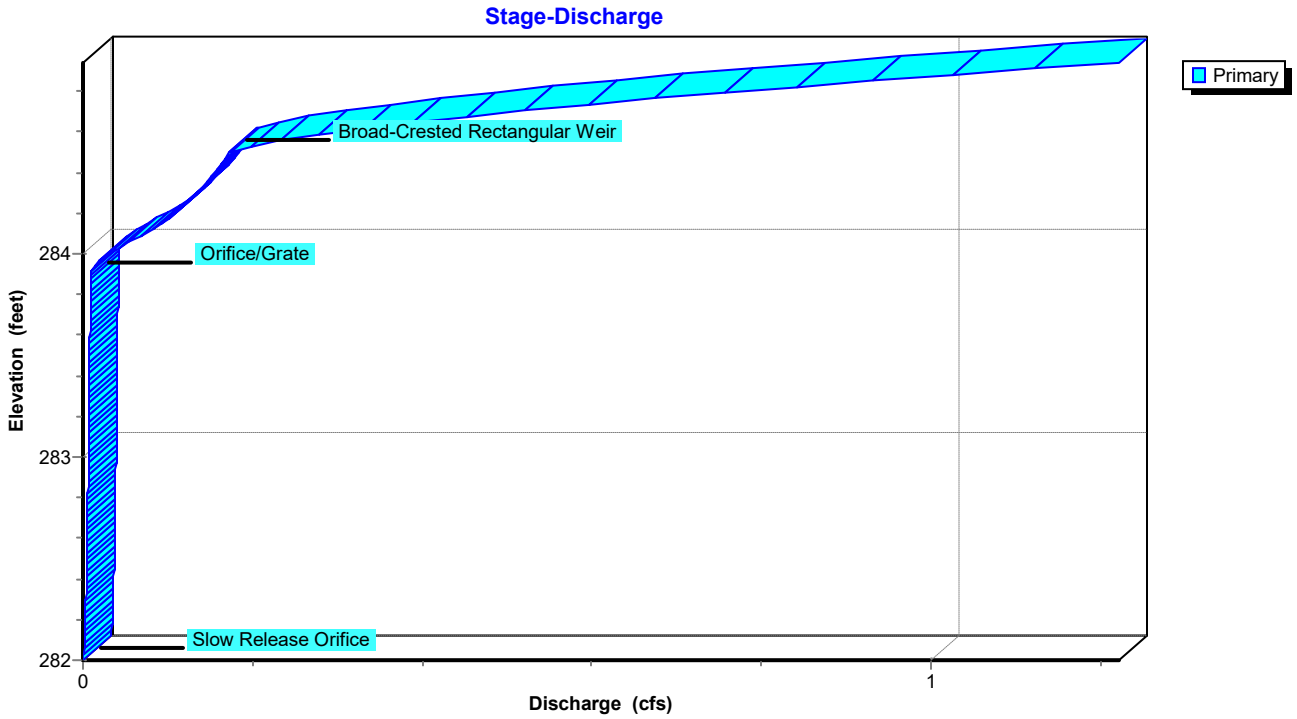
49 Chambers
26.1 cy Field
18.1 cy Stone



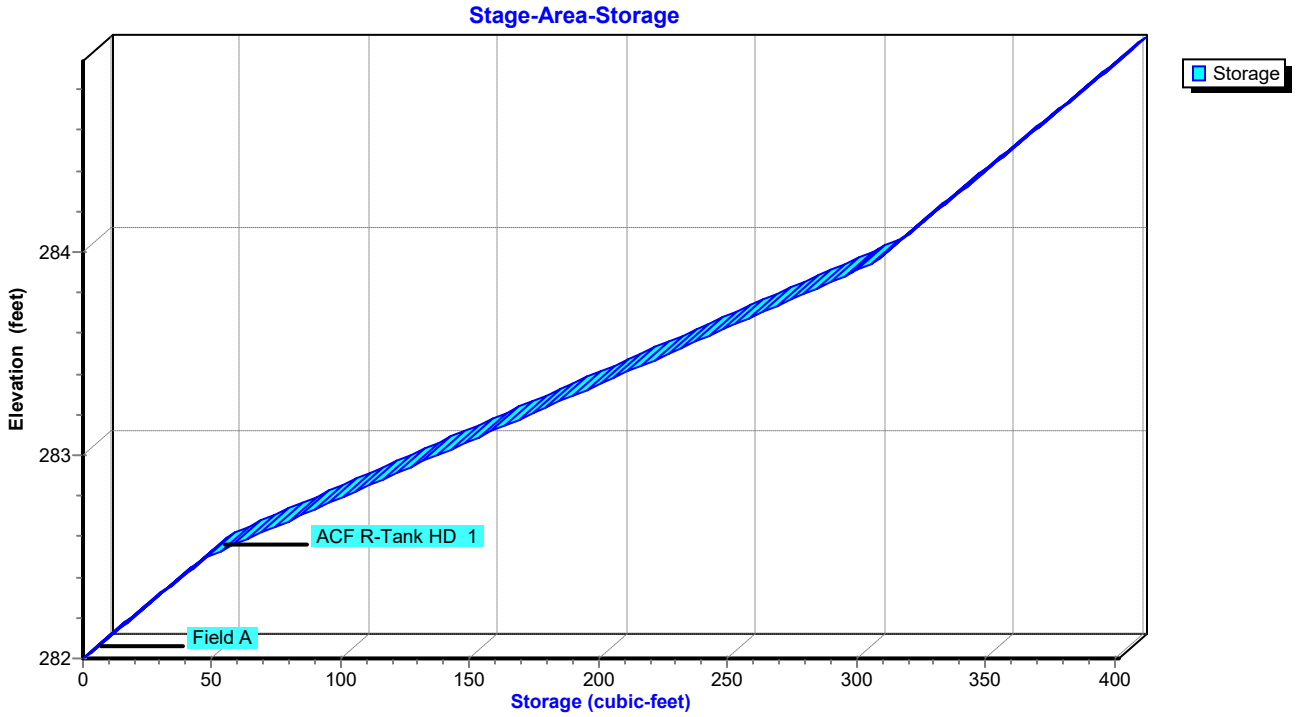
Pond 7P: PR-TRENCH



Pond 7P: PR-TRENCH



Pond 7P: PR-TRENCH

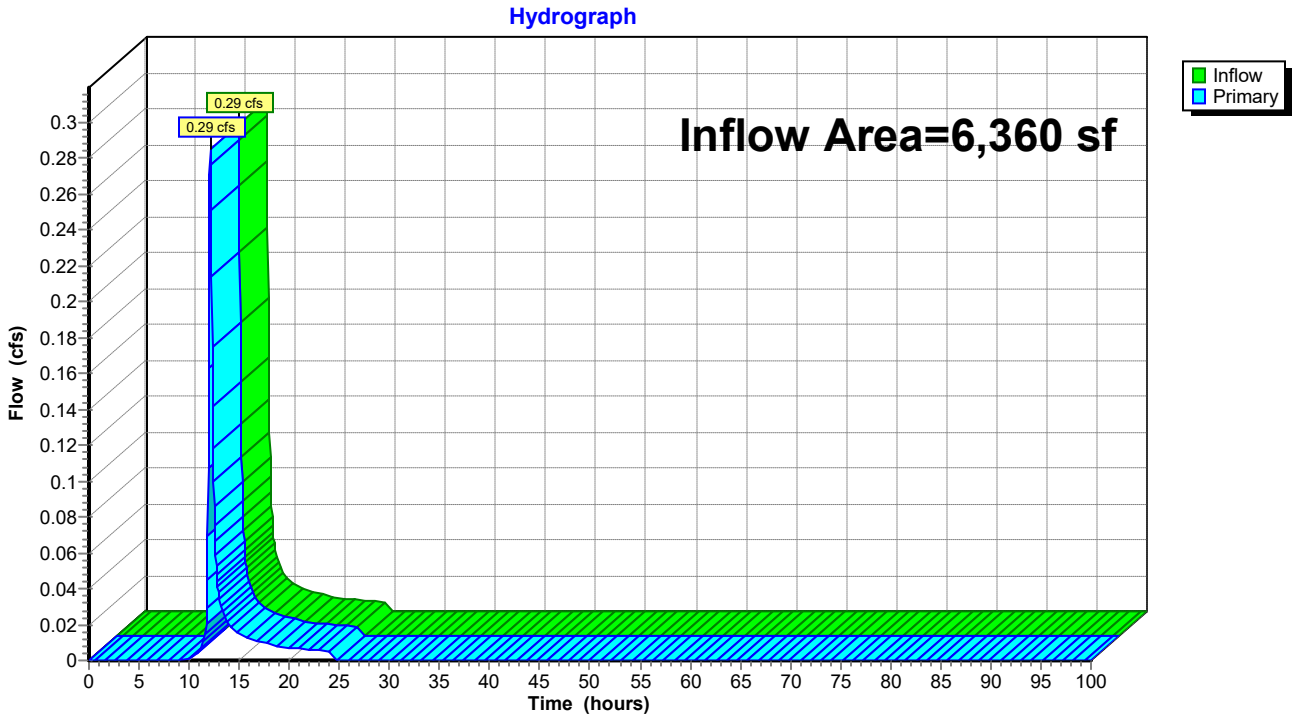


Summary for Link 9L: EX TOTAL

Inflow Area = 6,360 sf, 28.18% Impervious, Inflow Depth = 1.91" for 10-YR event
Inflow = 0.29 cfs @ 12.11 hrs, Volume= 1,013 cf
Primary = 0.29 cfs @ 12.11 hrs, Volume= 1,013 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 9L: EX TOTAL

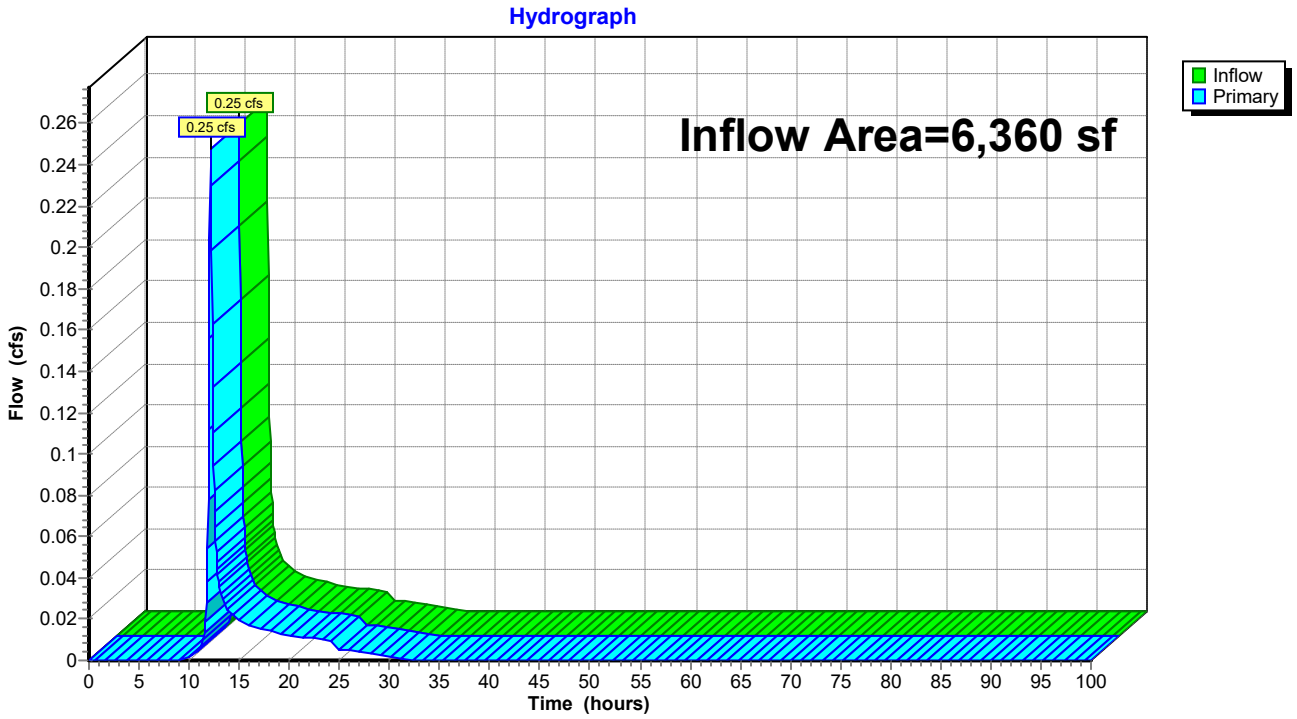


Summary for Link 10L: PR TOTAL

Inflow Area = 6,360 sf, 41.98% Impervious, Inflow Depth = 2.32" for 10-YR event
Inflow = 0.25 cfs @ 12.14 hrs, Volume= 1,230 cf
Primary = 0.25 cfs @ 12.14 hrs, Volume= 1,230 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 10L: PR TOTAL



Time span=0.00-100.00 hrs, dt=0.05 hrs, 2001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-TRENCH Runoff Area=1,875 sf 0.00% Impervious Runoff Depth=1.69"
Tc=8.5 min CN=58 Runoff=0.11 cfs 265 cf

Subcatchment 2S: EX-BYPASS Runoff Area=4,485 sf 39.96% Impervious Runoff Depth=3.10"
Tc=20.6 min CN=74 Runoff=0.35 cfs 1,159 cf

Subcatchment 5S: PR-TRENCH Runoff Area=1,875 sf 52.00% Impervious Runoff Depth=3.59"
Tc=14.2 min CN=79 Runoff=0.20 cfs 561 cf

Subcatchment 6S: PR-BYPASS Runoff Area=4,485 sf 37.79% Impervious Runoff Depth=3.01"
Tc=20.6 min CN=73 Runoff=0.34 cfs 1,123 cf

Pond 7P: PR-TRENCH Peak Elev=283.95' Storage=307 cf Inflow=0.20 cfs 561 cf
Outflow=0.02 cfs 561 cf

Link 9L: EX TOTAL Inflow=0.40 cfs 1,424 cf
Primary=0.40 cfs 1,424 cf

Link 10L: PR TOTAL Inflow=0.34 cfs 1,684 cf
Primary=0.34 cfs 1,684 cf

Total Runoff Area = 12,720 sf Runoff Volume = 3,108 cf Average Runoff Depth = 2.93"
64.92% Pervious = 8,258 sf 35.08% Impervious = 4,462 sf

Summary for Subcatchment 1S: EX-TRENCH

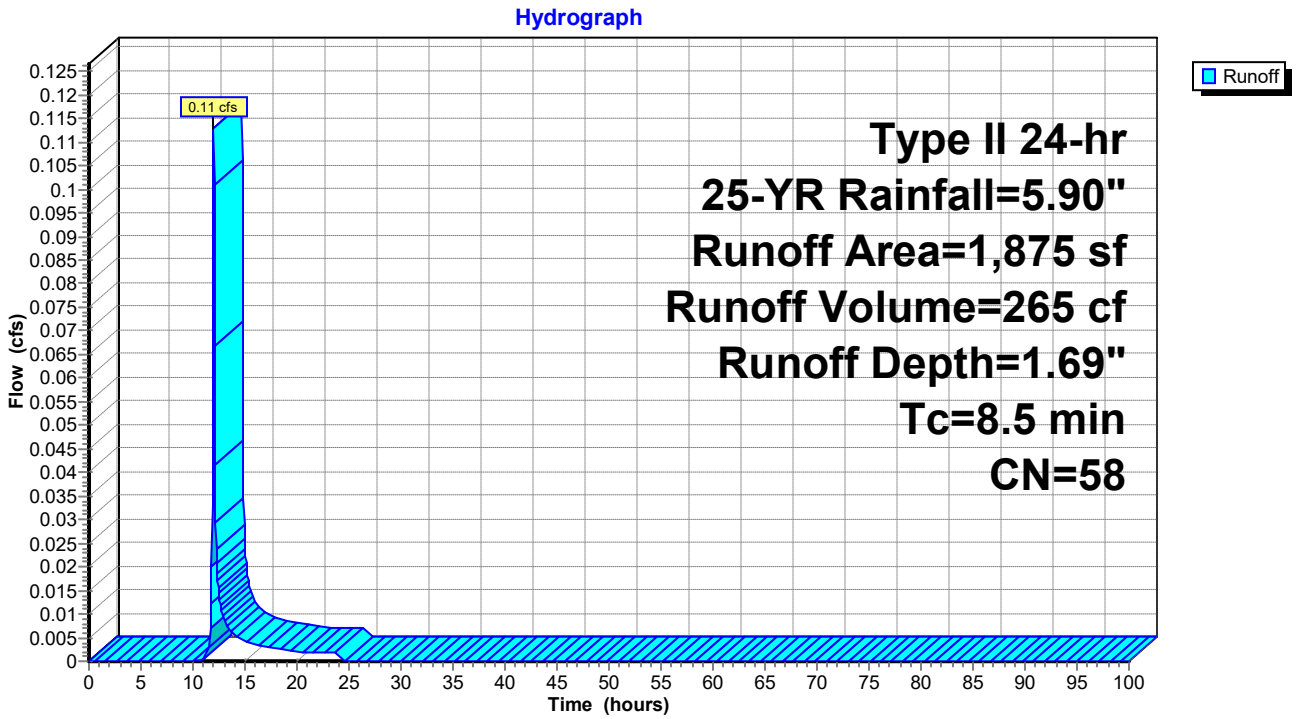
Runoff = 0.11 cfs @ 12.01 hrs, Volume= 265 cf, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-YR Rainfall=5.90"

	Area (sf)	CN	Description
*	1,875	58	MEADOW UrhB
*	0	98	IMP ELECTRICAL PAD/Driveway
	1,875	58	Weighted Average
	1,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment 1S: EX-TRENCH



Summary for Subcatchment 2S: EX-BYPASS

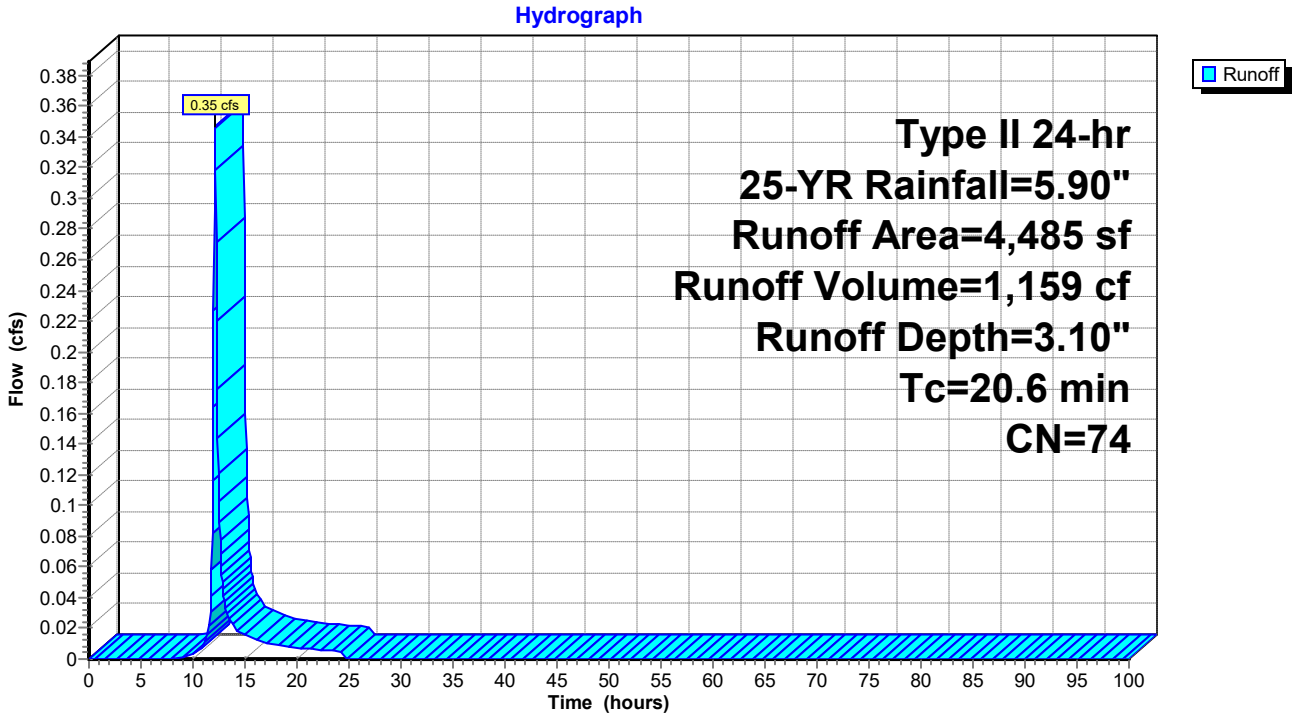
Runoff = 0.35 cfs @ 12.14 hrs, Volume= 1,159 cf, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-YR Rainfall=5.90"

	Area (sf)	CN	Description
*	1,792	98	IMP
*	2,693	58	MEADOW UrhB
	4,485	74	Weighted Average
	2,693		60.04% Pervious Area
	1,792		39.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 2S: EX-BYPASS



Summary for Subcatchment 5S: PR-TRENCH

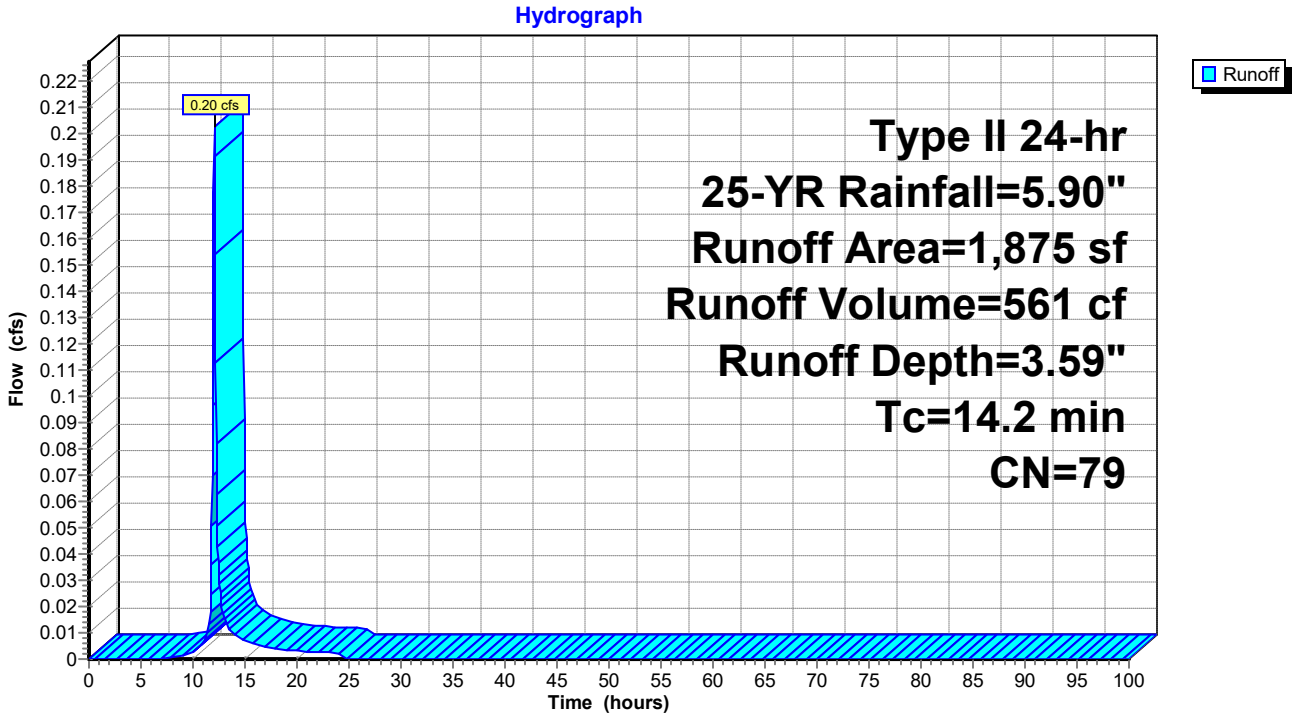
Runoff = 0.20 cfs @ 12.06 hrs, Volume= 561 cf, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-YR Rainfall=5.90"

	Area (sf)	CN	Description
*	900	58	MEADOW UrhB
*	975	98	IMP
	1,875	79	Weighted Average
	900		48.00% Pervious Area
	975		52.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1					**Direct Entry,**
7.1					**Direct Entry,**
14.2	0	Total			

Subcatchment 5S: PR-TRENCH



Summary for Subcatchment 6S: PR-BYPASS

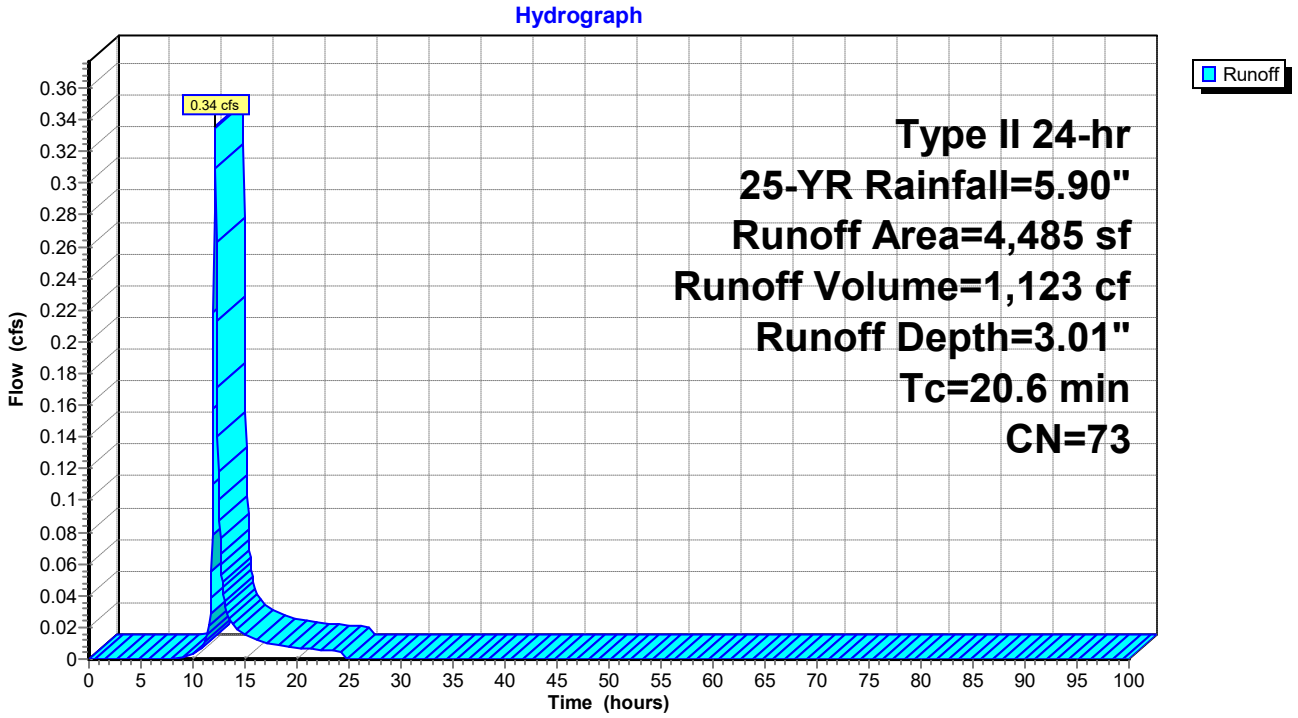
Runoff = 0.34 cfs @ 12.14 hrs, Volume= 1,123 cf, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-YR Rainfall=5.90"

	Area (sf)	CN	Description
*	2,790	58	MEADOW UrhB
*	1,695	98	IMP
	4,485	73	Weighted Average
	2,790		62.21% Pervious Area
	1,695		37.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 6S: PR-BYPASS



Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 3.59" for 25-YR event
Inflow = 0.20 cfs @ 12.06 hrs, Volume= 561 cf
Outflow = 0.02 cfs @ 13.03 hrs, Volume= 561 cf, Atten= 92%, Lag= 58.1 min
Primary = 0.02 cfs @ 13.03 hrs, Volume= 561 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 283.95' @ 13.03 hrs Surf.Area= 240 sf Storage= 307 cf

Plug-Flow detention time= 391.3 min calculated for 561 cf (100% of inflow)
Center-of-Mass det. time= 390.9 min (1,212.7 - 821.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**1.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.01 cfs @ 13.03 hrs HW=283.95' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.78 fps)
- **3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 6.69 fps)

Pond 7P: PR-TRENCH - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

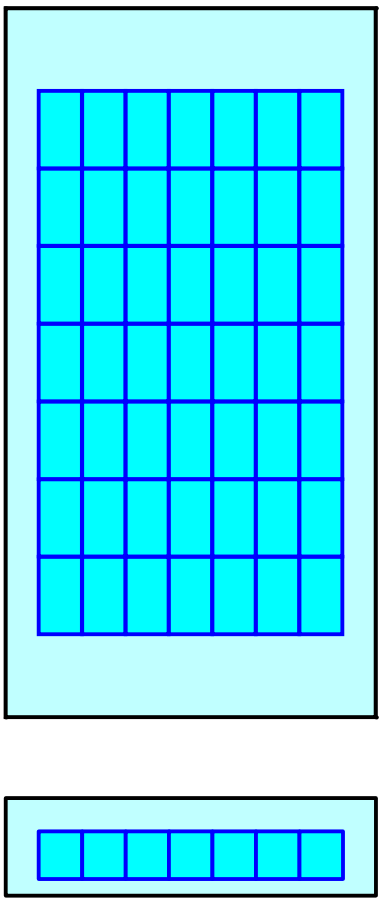
7 Chambers/Row x 2.35' Long = 16.42' Row Length +30.0" End Stone x 2 = 21.42' Base Length
7 Rows x 15.7" Wide + 12.0" Side Stone x 2 = 11.19' Base Width
6.0" Base + 17.3" Chamber Height + 12.0" Cover = 2.94' Field Height

49 Chambers x 4.2 cf = 206.9 cf Chamber Storage
49 Chambers x 4.4 cf = 217.8 cf Displacement

705.3 cf Field - 217.8 cf Chambers = 487.6 cf Stone x 40.0% Voids = 195.0 cf Stone Storage

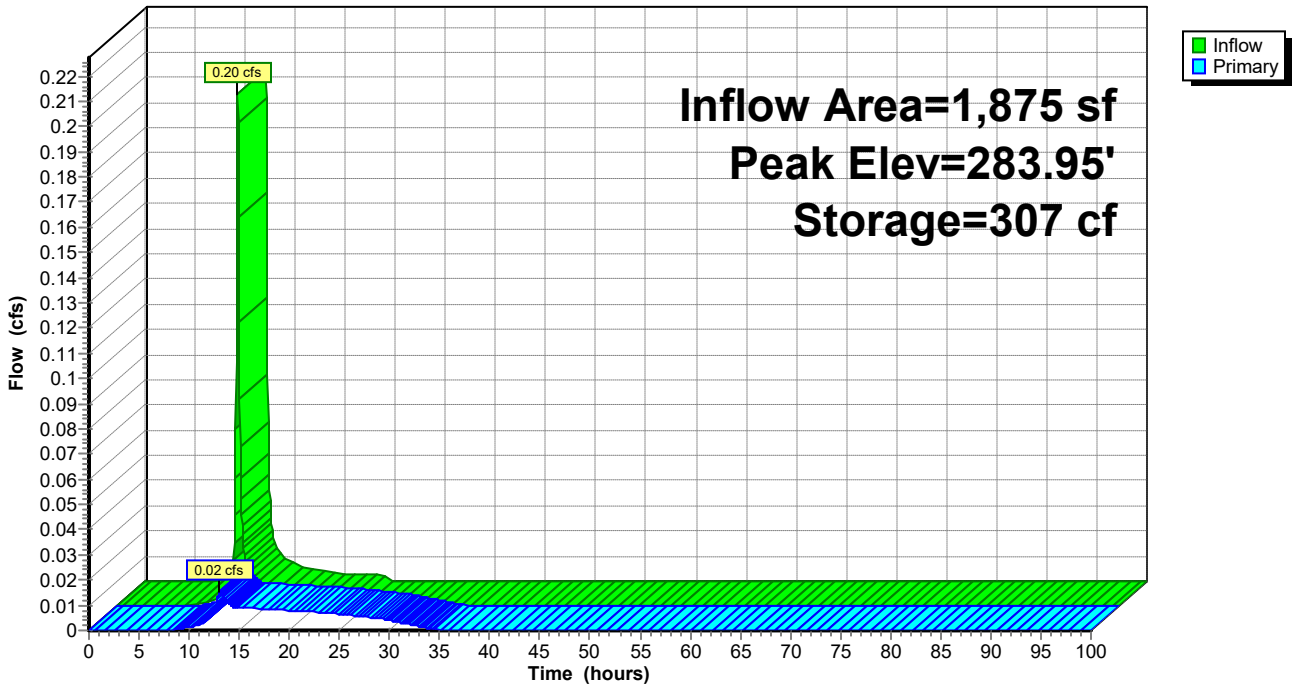
Chamber Storage + Stone Storage = 401.9 cf = 0.009 af
Overall Storage Efficiency = 57.0%
Overall System Size = 21.42' x 11.19' x 2.94'

49 Chambers
26.1 cy Field
18.1 cy Stone



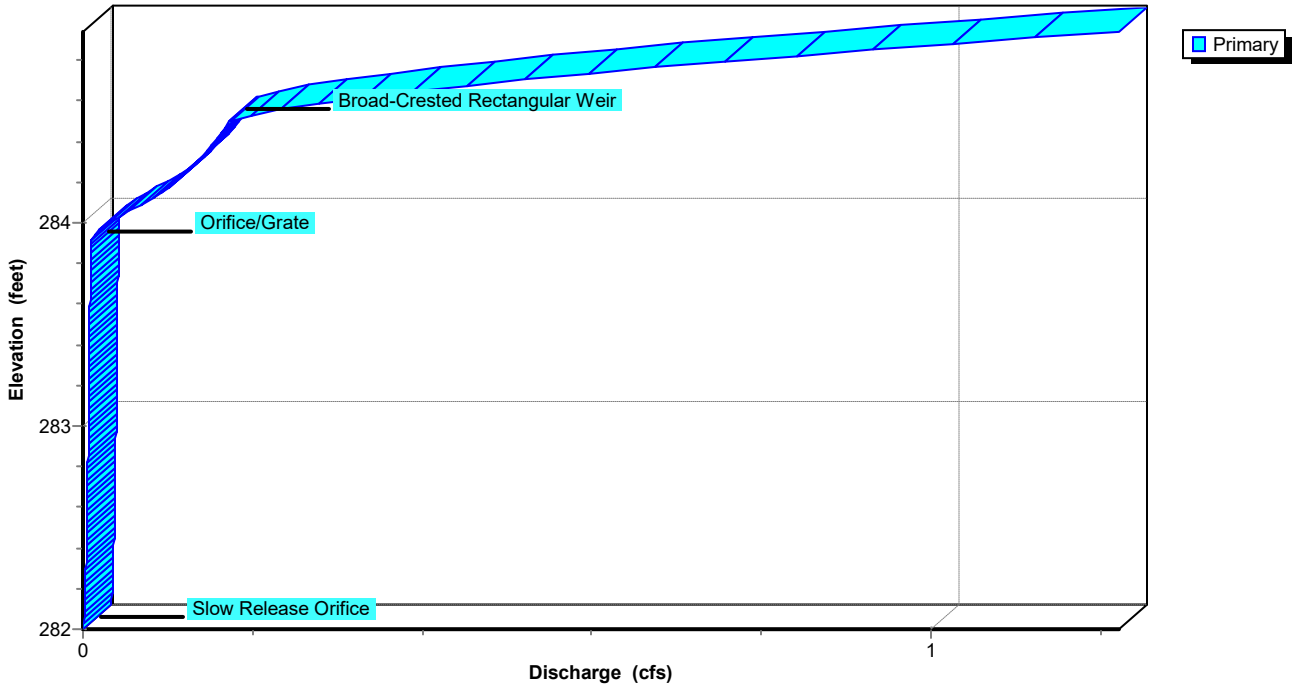
Pond 7P: PR-TRENCH

Hydrograph

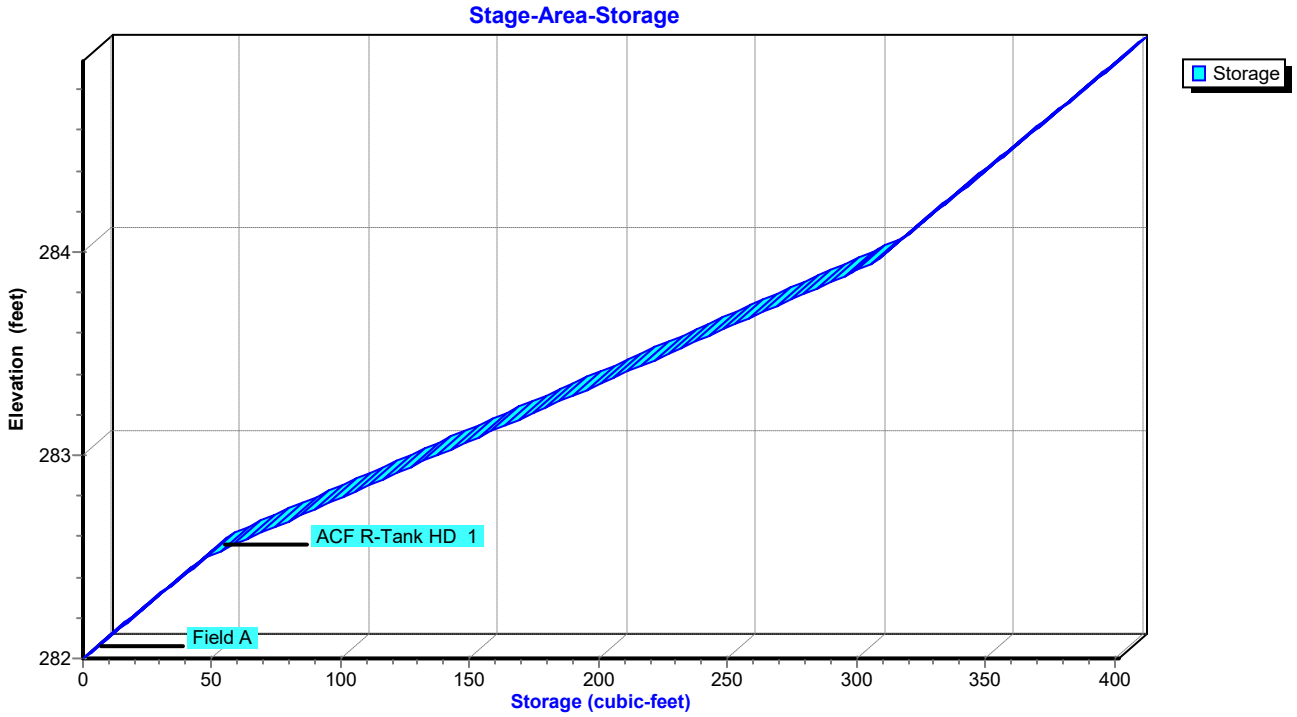


Pond 7P: PR-TRENCH

Stage-Discharge



Pond 7P: PR-TRENCH

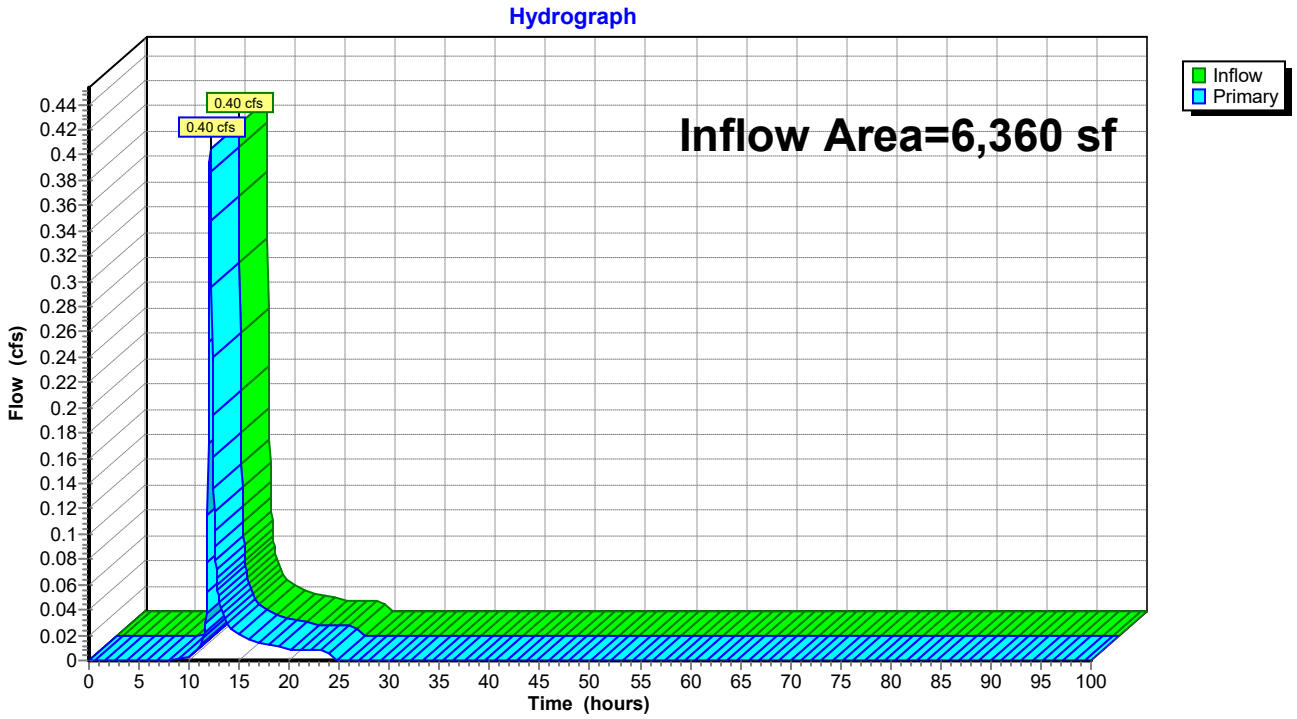


Summary for Link 9L: EX TOTAL

Inflow Area = 6,360 sf, 28.18% Impervious, Inflow Depth = 2.69" for 25-YR event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 1,424 cf
Primary = 0.40 cfs @ 12.09 hrs, Volume= 1,424 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 9L: EX TOTAL

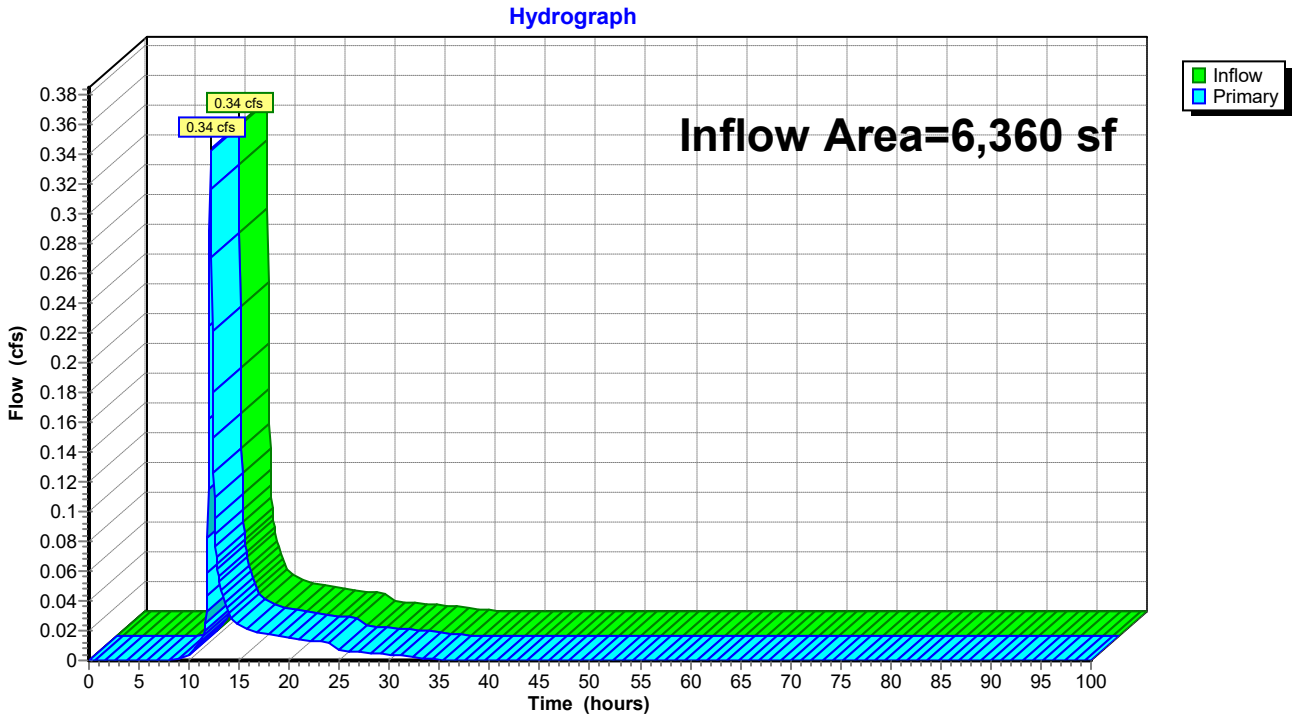


Summary for Link 10L: PR TOTAL

Inflow Area = 6,360 sf, 41.98% Impervious, Inflow Depth = 3.18" for 25-YR event
Inflow = 0.34 cfs @ 12.14 hrs, Volume= 1,684 cf
Primary = 0.34 cfs @ 12.14 hrs, Volume= 1,684 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 10L: PR TOTAL



Time span=0.00-100.00 hrs, dt=0.05 hrs, 2001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-TRENCH Runoff Area=1,875 sf 0.00% Impervious Runoff Depth=2.27"
Tc=8.5 min CN=58 Runoff=0.15 cfs 354 cf

Subcatchment 2S: EX-BYPASS Runoff Area=4,485 sf 39.96% Impervious Runoff Depth=3.86"
Tc=20.6 min CN=74 Runoff=0.43 cfs 1,443 cf

Subcatchment 5S: PR-TRENCH Runoff Area=1,875 sf 52.00% Impervious Runoff Depth=4.39"
Tc=14.2 min CN=79 Runoff=0.25 cfs 686 cf

Subcatchment 6S: PR-BYPASS Runoff Area=4,485 sf 37.79% Impervious Runoff Depth=3.75"
Tc=20.6 min CN=73 Runoff=0.42 cfs 1,403 cf

Pond 7P: PR-TRENCH Peak Elev=284.10' Storage=321 cf Inflow=0.25 cfs 686 cf
Outflow=0.07 cfs 686 cf

Link 9L: EX TOTAL Inflow=0.51 cfs 1,797 cf
Primary=0.51 cfs 1,797 cf

Link 10L: PR TOTAL Inflow=0.43 cfs 2,090 cf
Primary=0.43 cfs 2,090 cf

Total Runoff Area = 12,720 sf Runoff Volume = 3,887 cf Average Runoff Depth = 3.67"
64.92% Pervious = 8,258 sf 35.08% Impervious = 4,462 sf

Summary for Subcatchment 1S: EX-TRENCH

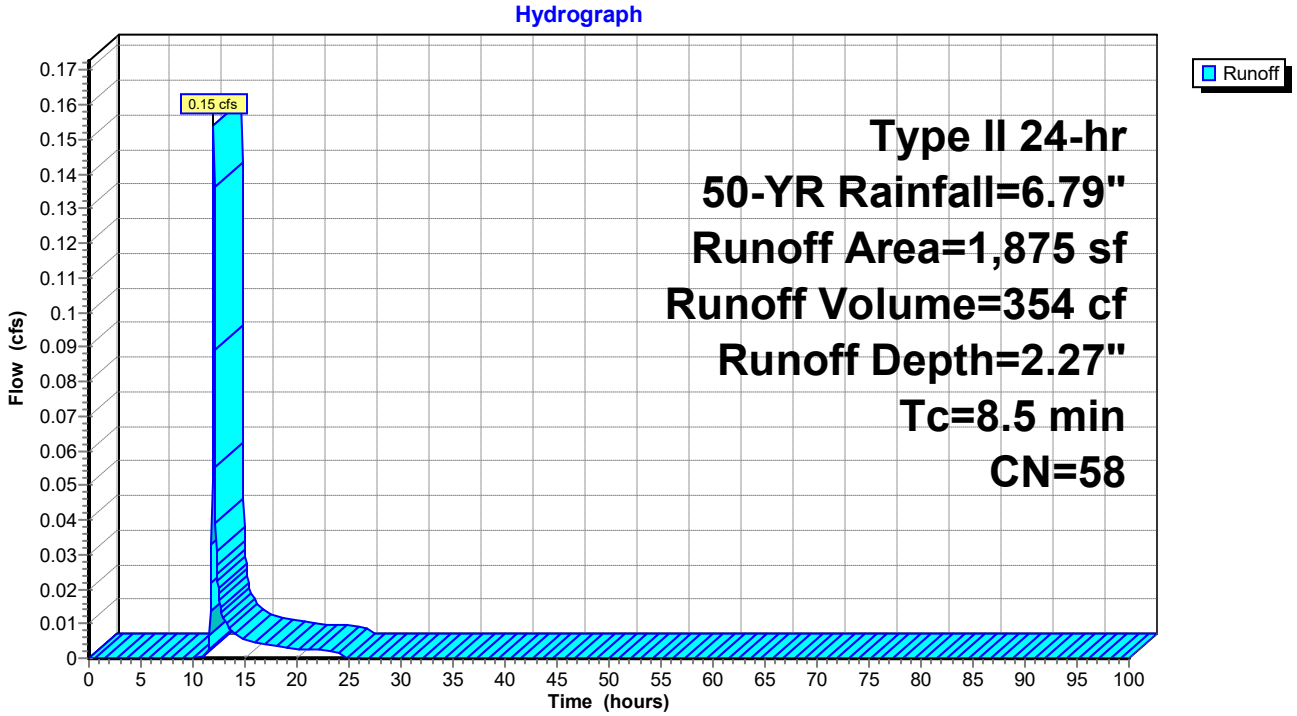
Runoff = 0.15 cfs @ 12.01 hrs, Volume= 354 cf, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-YR Rainfall=6.79"

	Area (sf)	CN	Description
*	1,875	58	MEADOW UrhB
*	0	98	IMP ELECTRICAL PAD/Driveway
	1,875	58	Weighted Average
	1,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment 1S: EX-TRENCH



Summary for Subcatchment 2S: EX-BYPASS

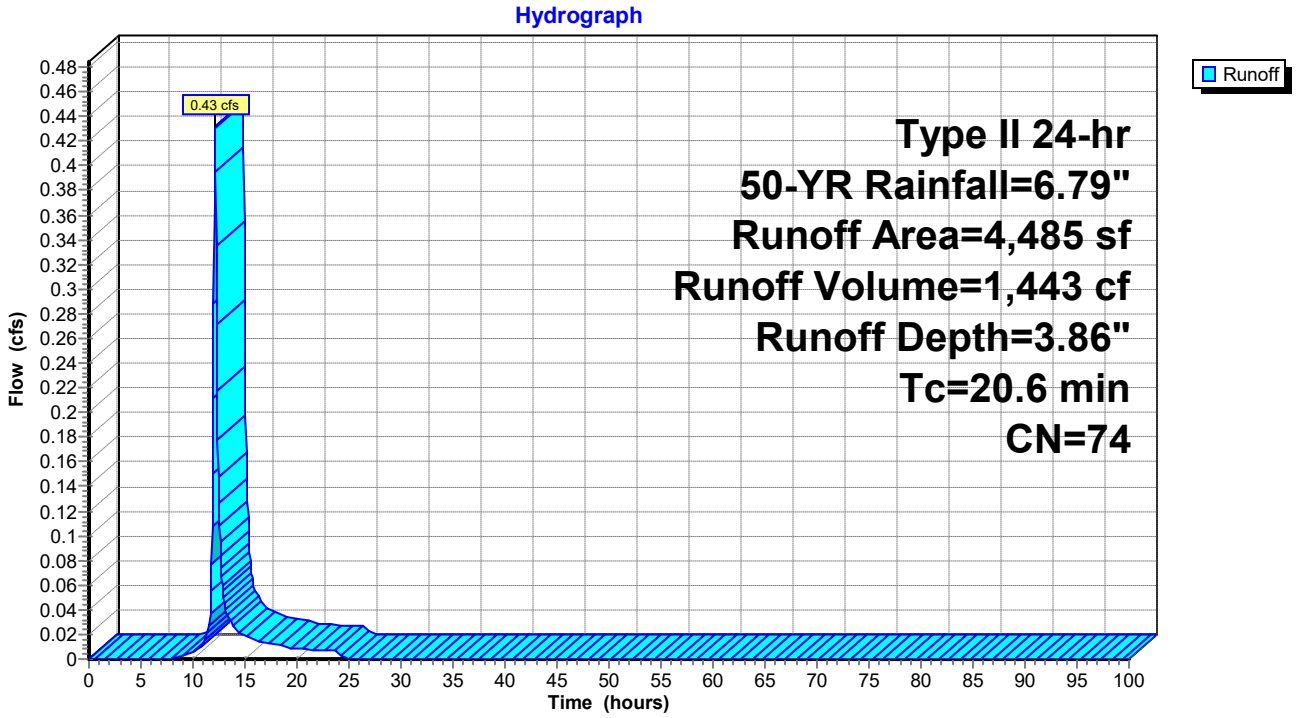
Runoff = 0.43 cfs @ 12.13 hrs, Volume= 1,443 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-YR Rainfall=6.79"

	Area (sf)	CN	Description
*	1,792	98	IMP
*	2,693	58	MEADOW UrhB
	4,485	74	Weighted Average
	2,693		60.04% Pervious Area
	1,792		39.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 2S: EX-BYPASS



Summary for Subcatchment 5S: PR-TRENCH

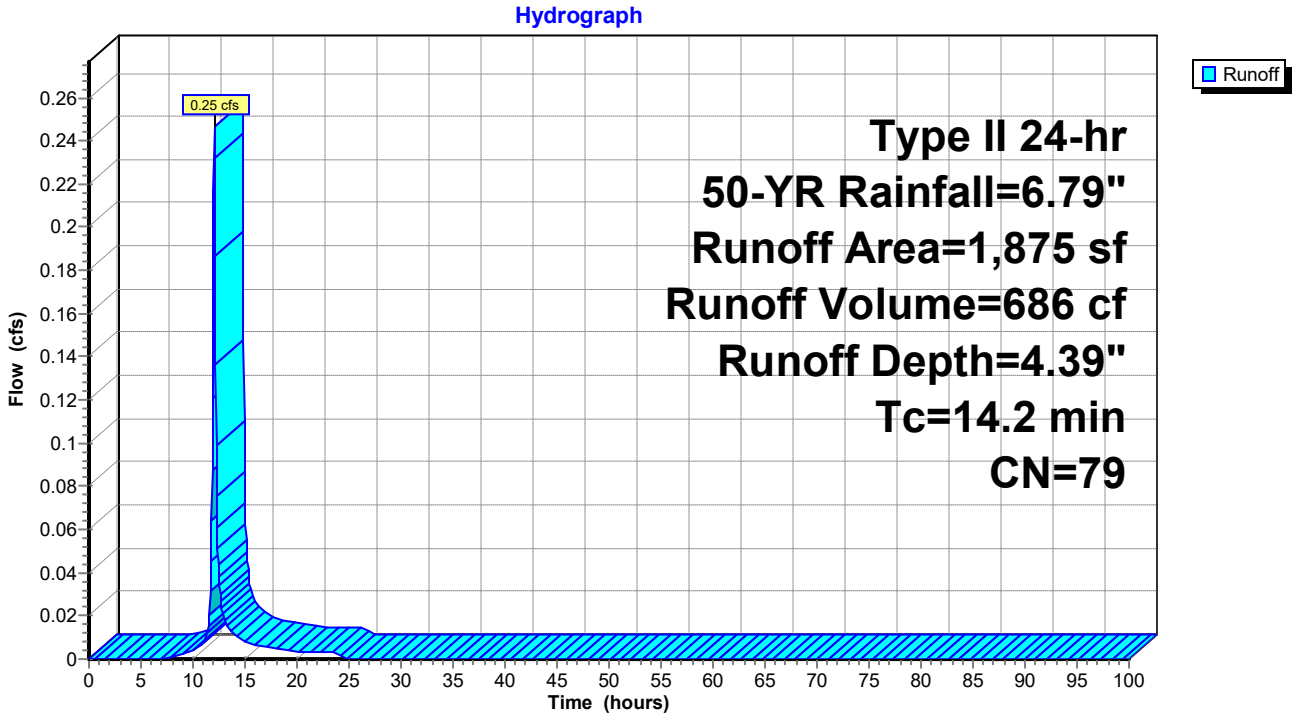
Runoff = 0.25 cfs @ 12.06 hrs, Volume= 686 cf, Depth= 4.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-YR Rainfall=6.79"

	Area (sf)	CN	Description
*	900	58	MEADOW UrhB
*	975	98	IMP
	1,875	79	Weighted Average
	900		48.00% Pervious Area
	975		52.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1					**Direct Entry,**
7.1					**Direct Entry,**
14.2	0	Total			

Subcatchment 5S: PR-TRENCH



Summary for Subcatchment 6S: PR-BYPASS

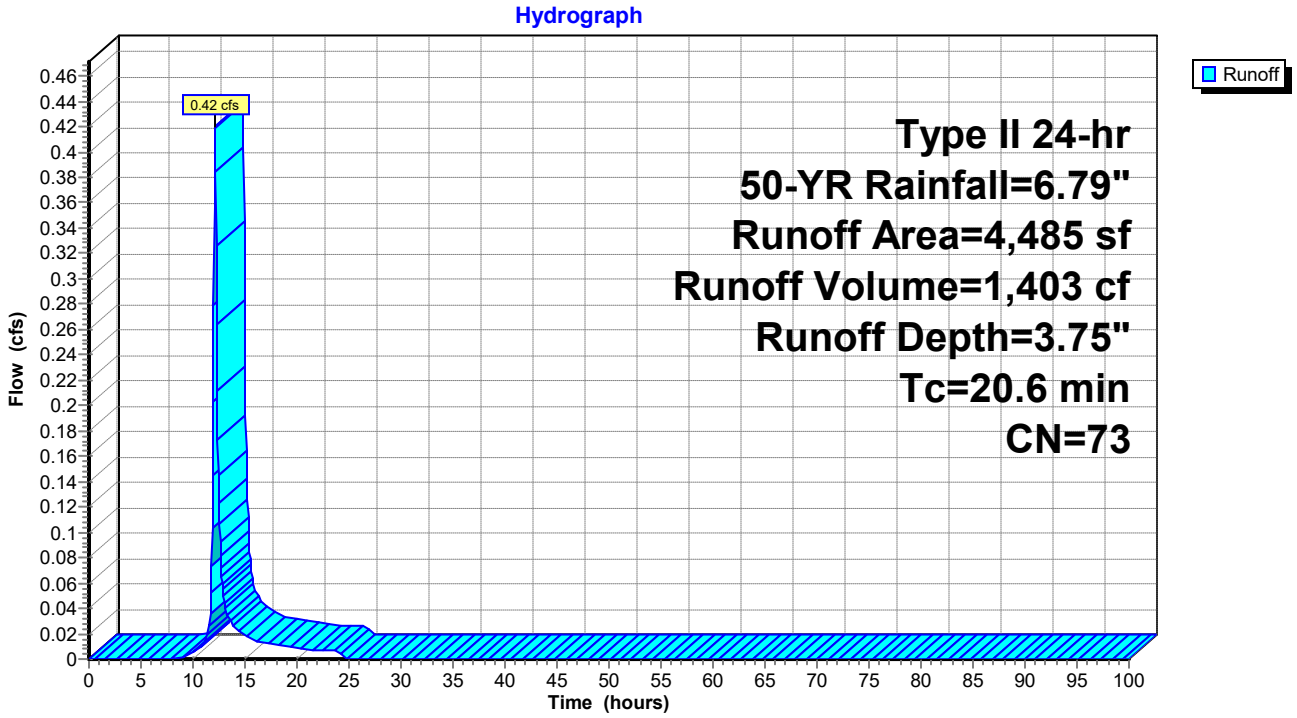
Runoff = 0.42 cfs @ 12.14 hrs, Volume= 1,403 cf, Depth= 3.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-YR Rainfall=6.79"

	Area (sf)	CN	Description
*	2,790	58	MEADOW UrhB
*	1,695	98	IMP
	4,485	73	Weighted Average
	2,790		62.21% Pervious Area
	1,695		37.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 6S: PR-BYPASS



Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 4.39" for 50-YR event
Inflow = 0.25 cfs @ 12.06 hrs, Volume= 686 cf
Outflow = 0.07 cfs @ 12.32 hrs, Volume= 686 cf, Atten= 71%, Lag= 15.9 min
Primary = 0.07 cfs @ 12.32 hrs, Volume= 686 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 284.10' @ 12.32 hrs Surf.Area= 240 sf Storage= 321 cf

Plug-Flow detention time= 345.9 min calculated for 686 cf (100% of inflow)
Center-of-Mass det. time= 346.2 min (1,162.4 - 816.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**1.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.07 cfs @ 12.32 hrs HW=284.09' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.49 fps)
- **3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 6.93 fps)

Pond 7P: PR-TRENCH - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

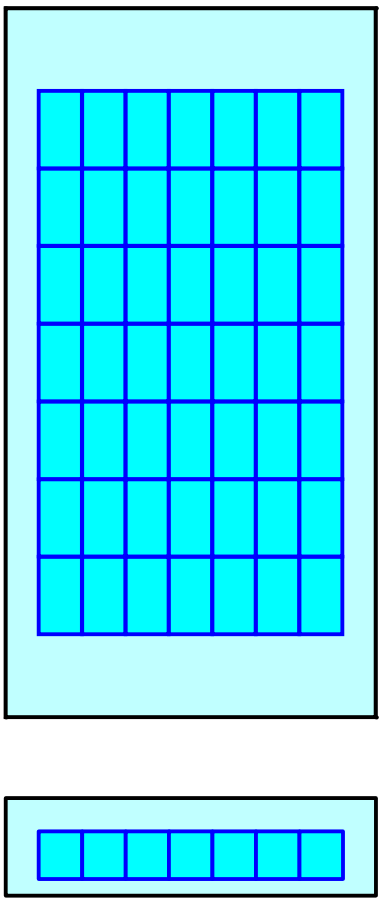
7 Chambers/Row x 2.35' Long = 16.42' Row Length +30.0" End Stone x 2 = 21.42' Base Length
7 Rows x 15.7" Wide + 12.0" Side Stone x 2 = 11.19' Base Width
6.0" Base + 17.3" Chamber Height + 12.0" Cover = 2.94' Field Height

49 Chambers x 4.2 cf = 206.9 cf Chamber Storage
49 Chambers x 4.4 cf = 217.8 cf Displacement

705.3 cf Field - 217.8 cf Chambers = 487.6 cf Stone x 40.0% Voids = 195.0 cf Stone Storage

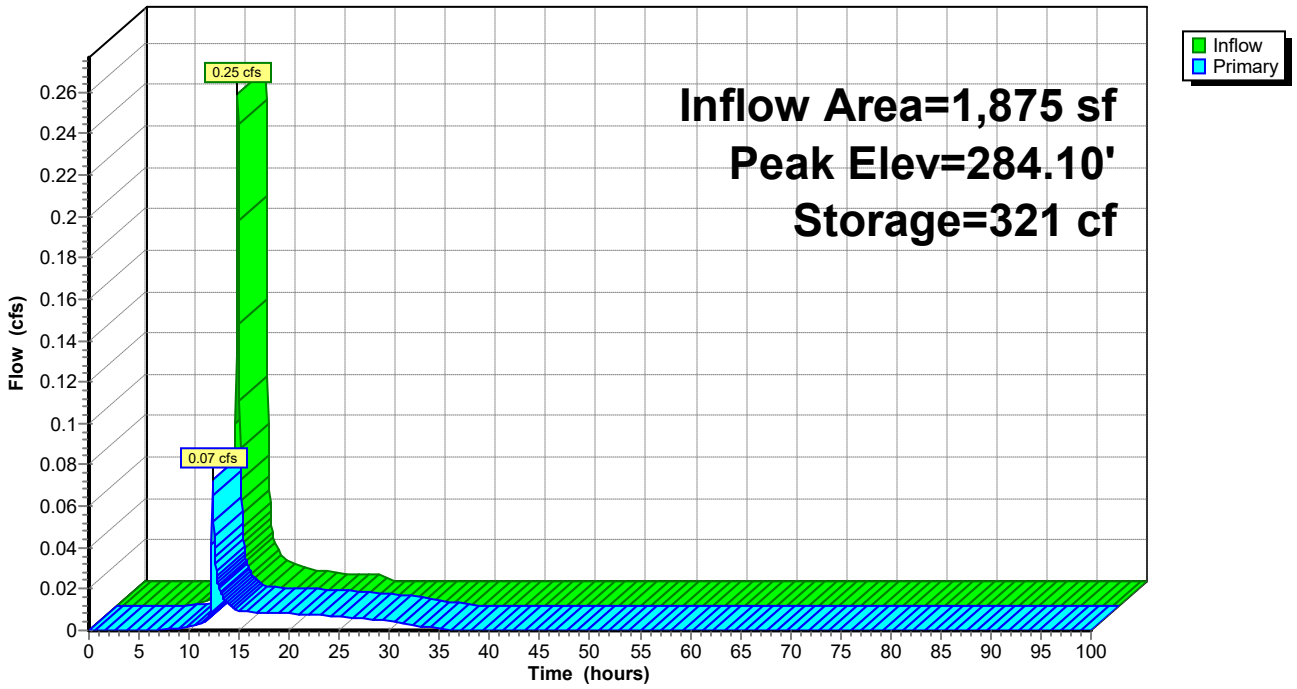
Chamber Storage + Stone Storage = 401.9 cf = 0.009 af
Overall Storage Efficiency = 57.0%
Overall System Size = 21.42' x 11.19' x 2.94'

49 Chambers
26.1 cy Field
18.1 cy Stone



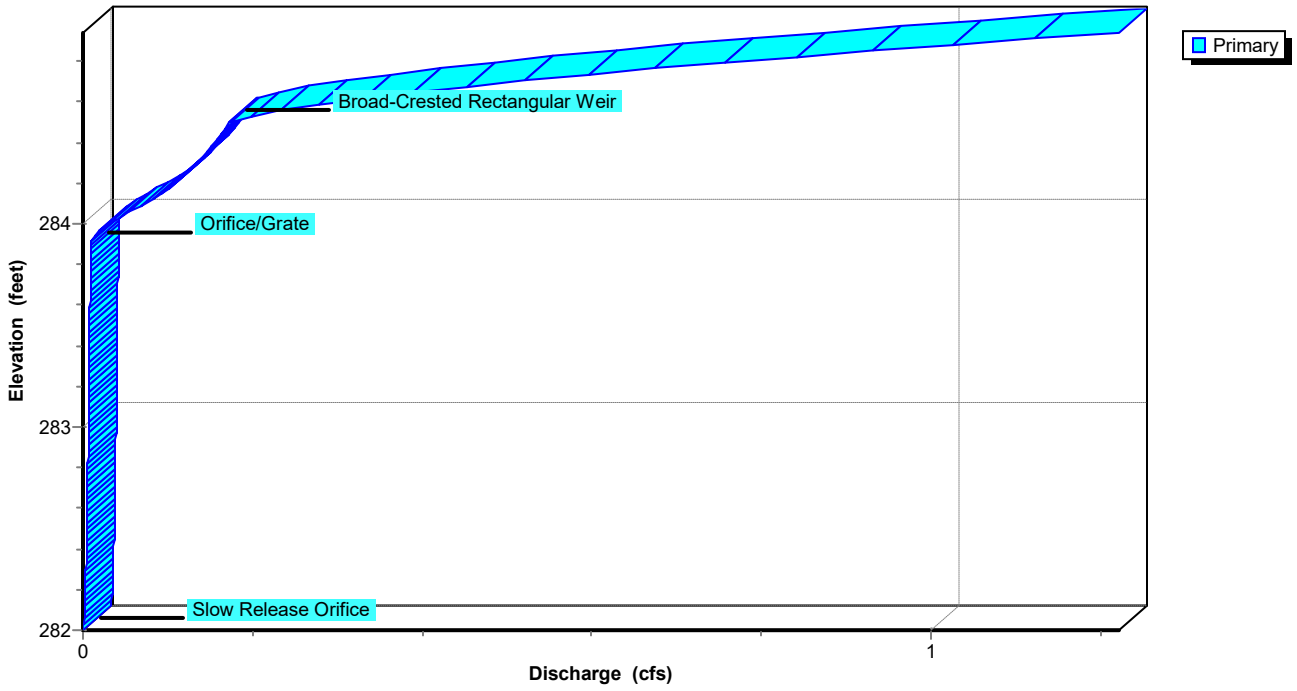
Pond 7P: PR-TRENCH

Hydrograph

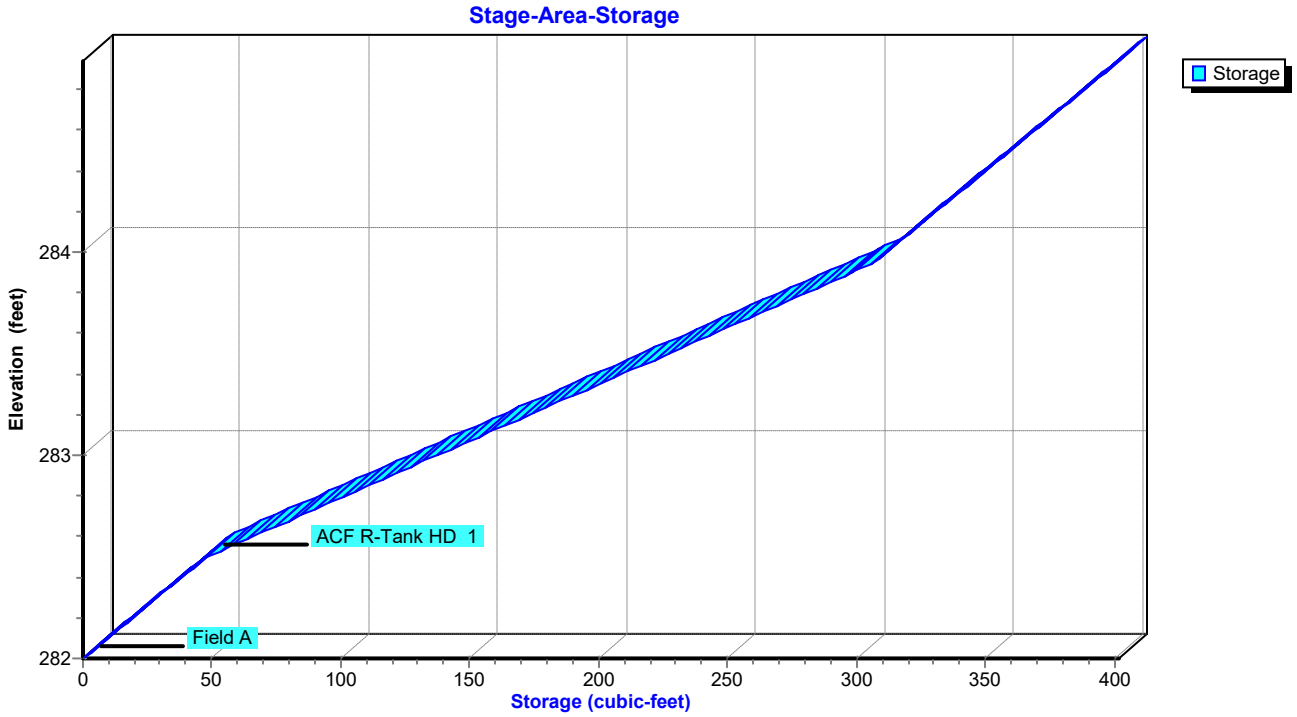


Pond 7P: PR-TRENCH

Stage-Discharge



Pond 7P: PR-TRENCH

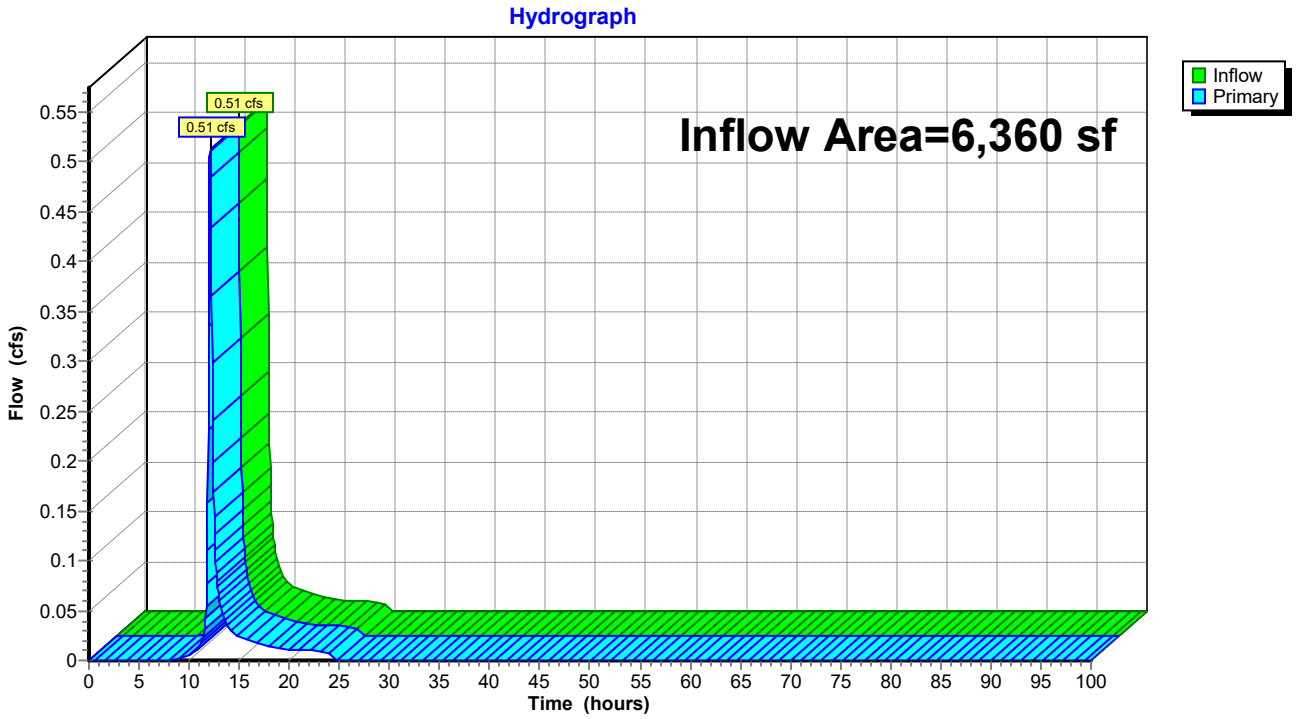


Summary for Link 9L: EX TOTAL

Inflow Area = 6,360 sf, 28.18% Impervious, Inflow Depth = 3.39" for 50-YR event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 1,797 cf
Primary = 0.51 cfs @ 12.09 hrs, Volume= 1,797 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 9L: EX TOTAL

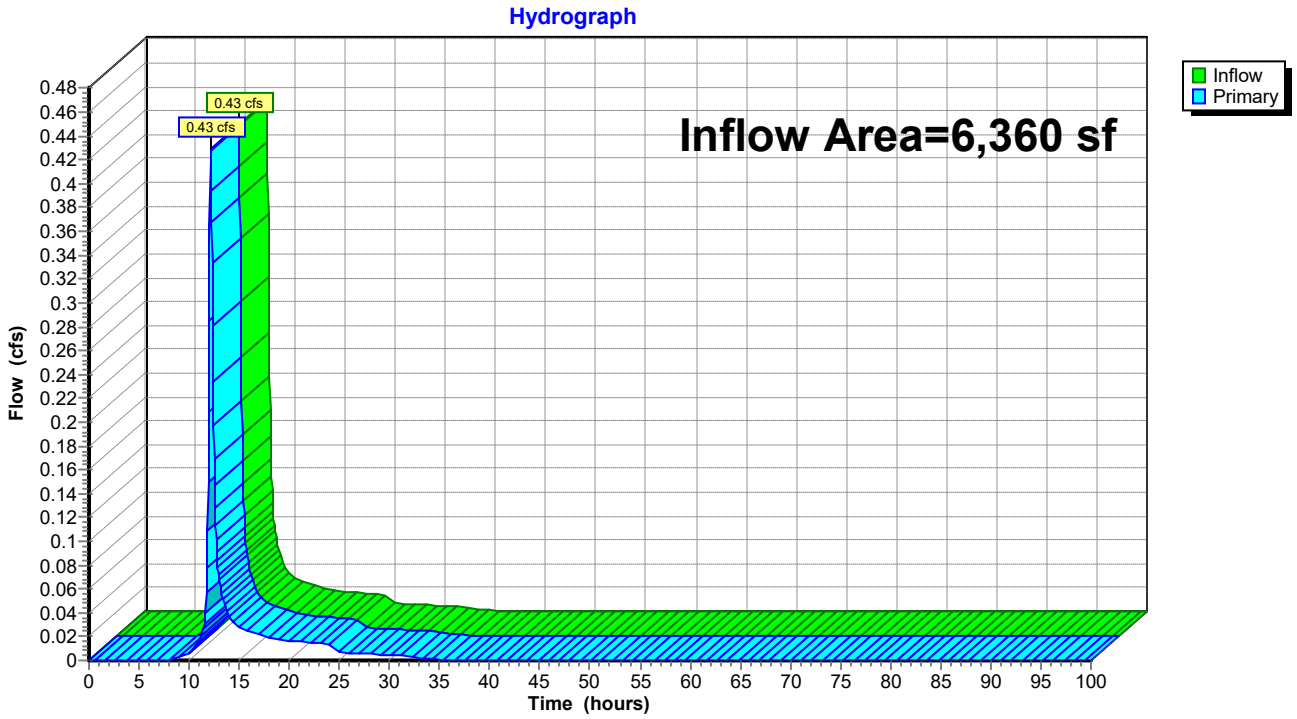


Summary for Link 10L: PR TOTAL

Inflow Area = 6,360 sf, 41.98% Impervious, Inflow Depth = 3.94" for 50-YR event
Inflow = 0.43 cfs @ 12.14 hrs, Volume= 2,090 cf
Primary = 0.43 cfs @ 12.14 hrs, Volume= 2,090 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 10L: PR TOTAL



Time span=0.00-100.00 hrs, dt=0.05 hrs, 2001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-TRENCH Runoff Area=1,875 sf 0.00% Impervious Runoff Depth=2.93"
Tc=8.5 min CN=58 Runoff=0.20 cfs 457 cf

Subcatchment 2S: EX-BYPASS Runoff Area=4,485 sf 39.96% Impervious Runoff Depth=4.69"
Tc=20.6 min CN=74 Runoff=0.53 cfs 1,754 cf

Subcatchment 5S: PR-TRENCH Runoff Area=1,875 sf 52.00% Impervious Runoff Depth=5.27"
Tc=14.2 min CN=79 Runoff=0.29 cfs 823 cf

Subcatchment 6S: PR-BYPASS Runoff Area=4,485 sf 37.79% Impervious Runoff Depth=4.58"
Tc=20.6 min CN=73 Runoff=0.51 cfs 1,712 cf

Pond 7P: PR-TRENCH Peak Elev=284.31' Storage=341 cf Inflow=0.29 cfs 823 cf
Outflow=0.14 cfs 823 cf

Link 9L: EX TOTAL Inflow=0.63 cfs 2,211 cf
Primary=0.63 cfs 2,211 cf

Link 10L: PR TOTAL Inflow=0.61 cfs 2,535 cf
Primary=0.61 cfs 2,535 cf

Total Runoff Area = 12,720 sf Runoff Volume = 4,746 cf Average Runoff Depth = 4.48"
64.92% Pervious = 8,258 sf 35.08% Impervious = 4,462 sf

Summary for Subcatchment 1S: EX-TRENCH

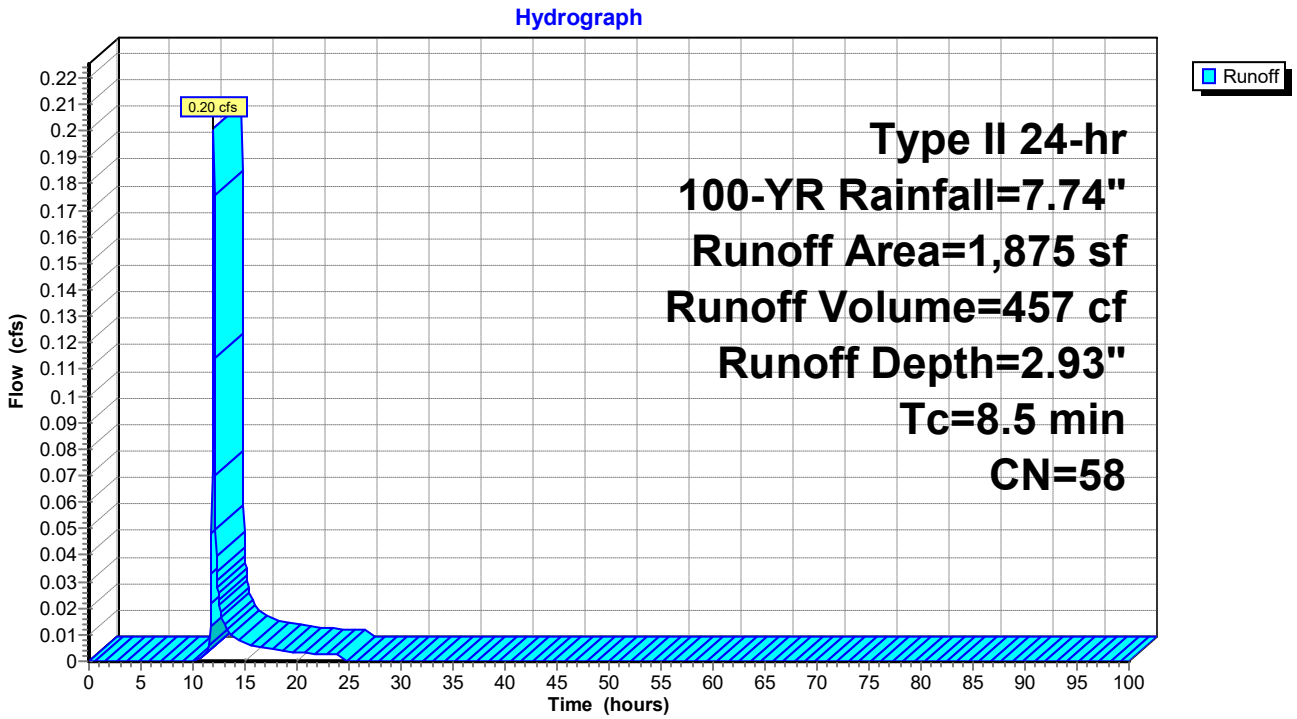
Runoff = 0.20 cfs @ 12.00 hrs, Volume= 457 cf, Depth= 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.74"

	Area (sf)	CN	Description
*	1,875	58	MEADOW UrhB
*	0	98	IMP ELECTRICAL PAD/Driveway
	1,875	58	Weighted Average
	1,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment 1S: EX-TRENCH



Summary for Subcatchment 2S: EX-BYPASS

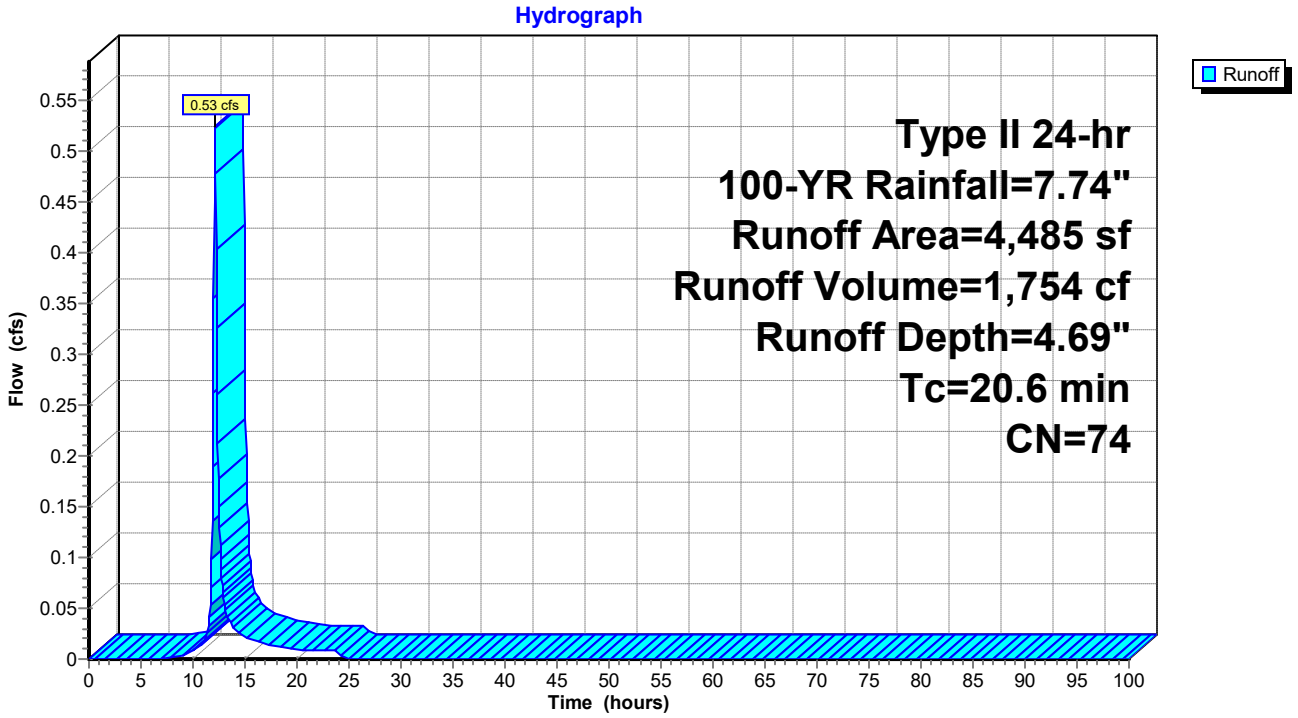
Runoff = 0.53 cfs @ 12.13 hrs, Volume= 1,754 cf, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.74"

	Area (sf)	CN	Description
*	1,792	98	IMP
*	2,693	58	MEADOW UrhB
	4,485	74	Weighted Average
	2,693		60.04% Pervious Area
	1,792		39.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 2S: EX-BYPASS



Summary for Subcatchment 5S: PR-TRENCH

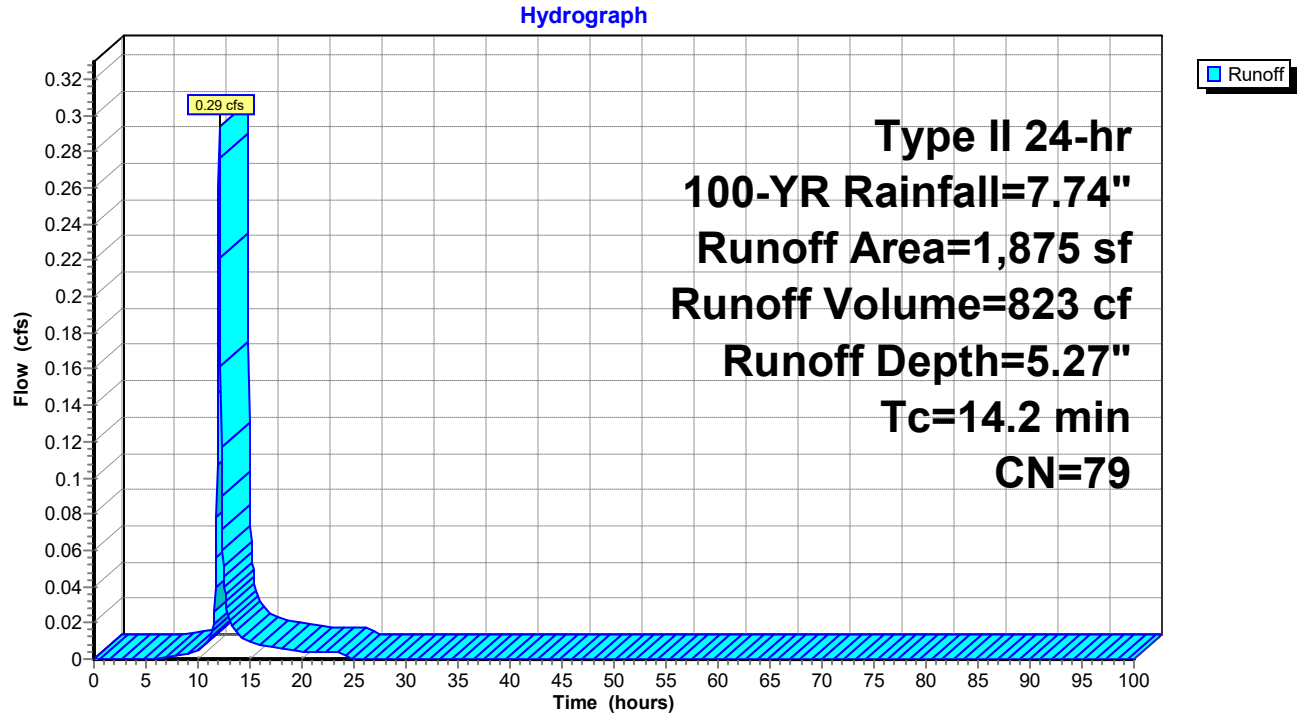
Runoff = 0.29 cfs @ 12.06 hrs, Volume= 823 cf, Depth= 5.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.74"

	Area (sf)	CN	Description
*	900	58	MEADOW UrhB
*	975	98	IMP
	1,875	79	Weighted Average
	900		48.00% Pervious Area
	975		52.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1					**Direct Entry,**
7.1					**Direct Entry,**
14.2	0	Total			

Subcatchment 5S: PR-TRENCH



Summary for Subcatchment 6S: PR-BYPASS

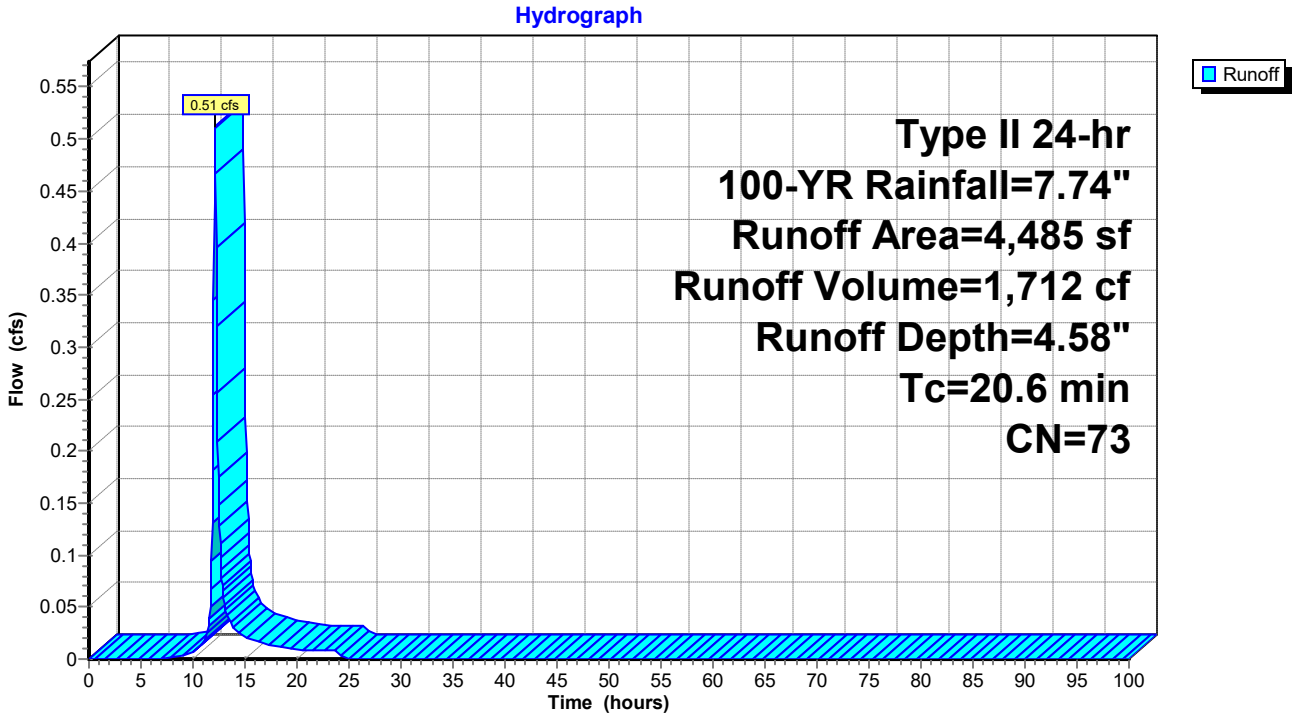
Runoff = 0.51 cfs @ 12.13 hrs, Volume= 1,712 cf, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.74"

	Area (sf)	CN	Description
*	2,790	58	MEADOW UrhB
*	1,695	98	IMP
	4,485	73	Weighted Average
	2,790		62.21% Pervious Area
	1,695		37.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 6S: PR-BYPASS



Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 5.27" for 100-YR event
Inflow = 0.29 cfs @ 12.06 hrs, Volume= 823 cf
Outflow = 0.14 cfs @ 12.23 hrs, Volume= 823 cf, Atten= 54%, Lag= 10.5 min
Primary = 0.14 cfs @ 12.23 hrs, Volume= 823 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 284.31' @ 12.23 hrs Surf.Area= 240 sf Storage= 341 cf

Plug-Flow detention time= 310.0 min calculated for 823 cf (100% of inflow)
Center-of-Mass det. time= 309.6 min (1,120.6 - 811.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**1.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.13 cfs @ 12.23 hrs HW=284.30' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.53 fps)
└**3=Slow Release Orifice** (Orifice Controls 0.01 cfs @ 7.27 fps)

Pond 7P: PR-TRENCH - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

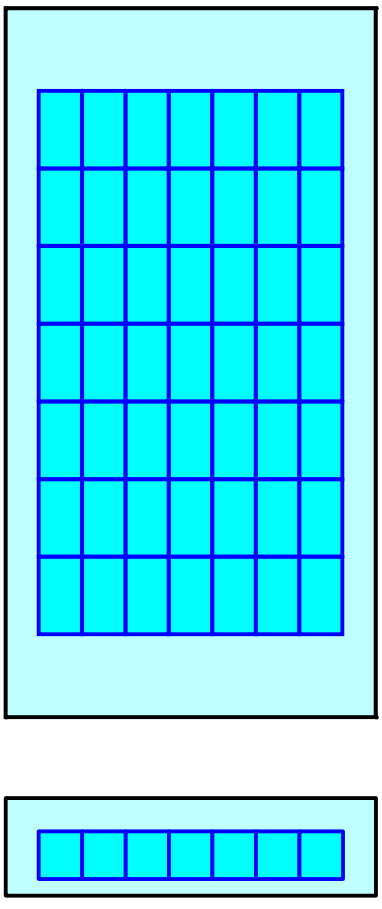
7 Chambers/Row x 2.35' Long = 16.42' Row Length +30.0" End Stone x 2 = 21.42' Base Length
7 Rows x 15.7" Wide + 12.0" Side Stone x 2 = 11.19' Base Width
6.0" Base + 17.3" Chamber Height + 12.0" Cover = 2.94' Field Height

49 Chambers x 4.2 cf = 206.9 cf Chamber Storage
49 Chambers x 4.4 cf = 217.8 cf Displacement

705.3 cf Field - 217.8 cf Chambers = 487.6 cf Stone x 40.0% Voids = 195.0 cf Stone Storage

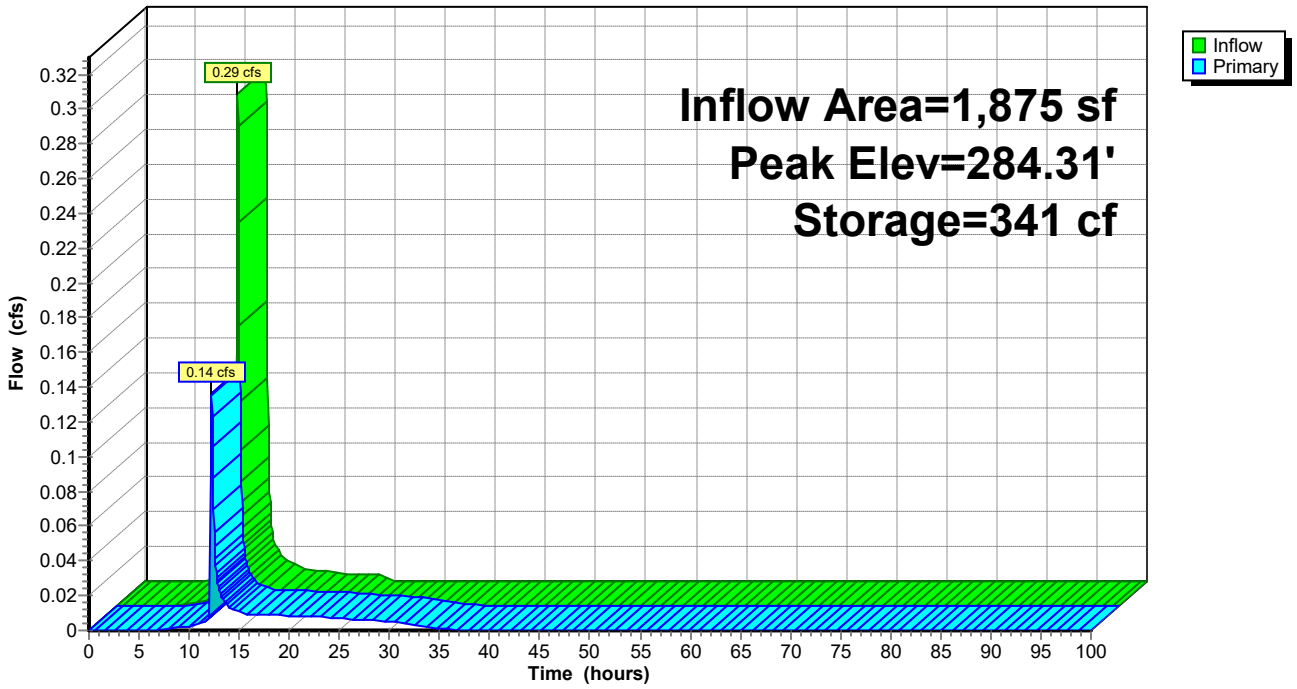
Chamber Storage + Stone Storage = 401.9 cf = 0.009 af
Overall Storage Efficiency = 57.0%
Overall System Size = 21.42' x 11.19' x 2.94'

49 Chambers
26.1 cy Field
18.1 cy Stone



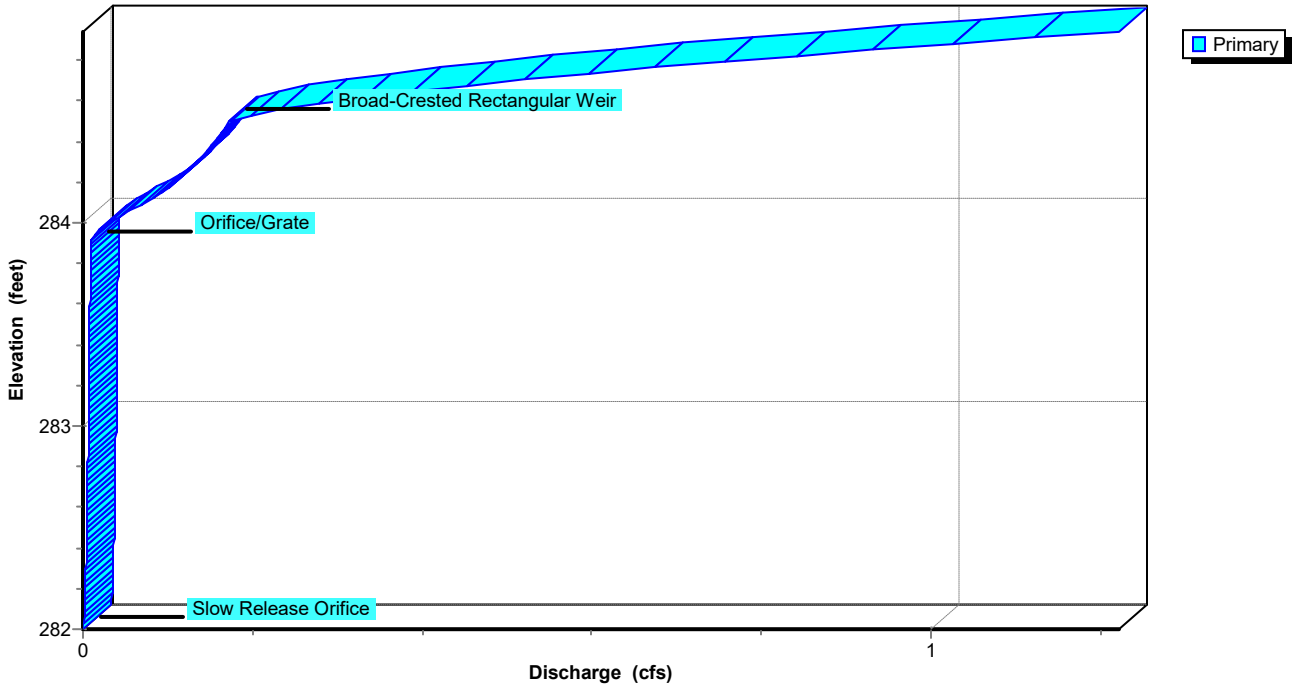
Pond 7P: PR-TRENCH

Hydrograph

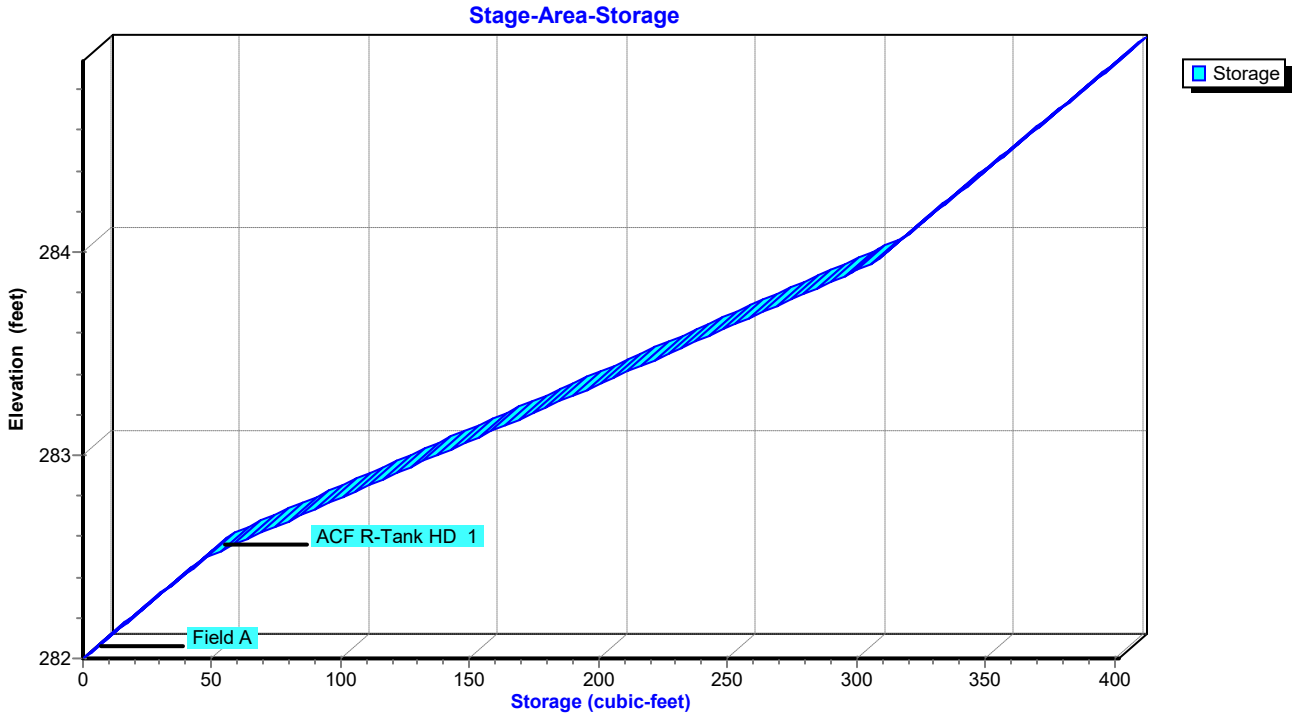


Pond 7P: PR-TRENCH

Stage-Discharge



Pond 7P: PR-TRENCH

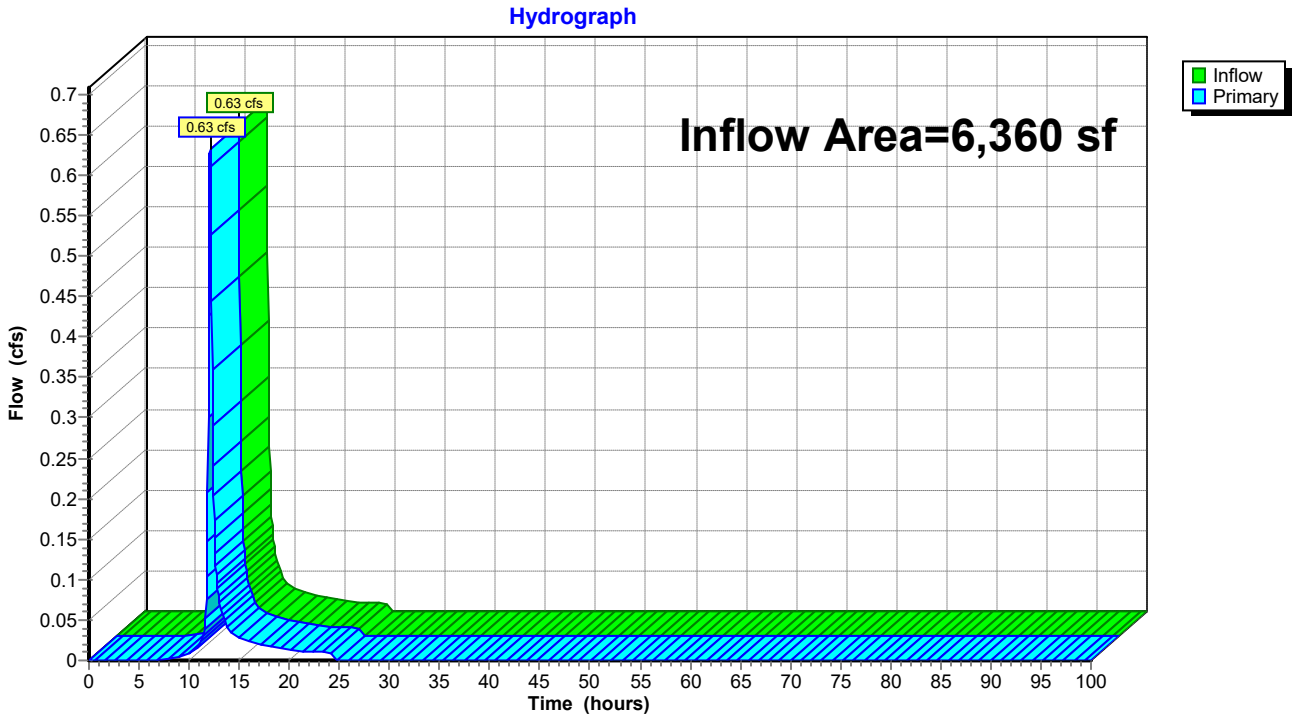


Summary for Link 9L: EX TOTAL

Inflow Area = 6,360 sf, 28.18% Impervious, Inflow Depth = 4.17" for 100-YR event
Inflow = 0.63 cfs @ 12.08 hrs, Volume= 2,211 cf
Primary = 0.63 cfs @ 12.08 hrs, Volume= 2,211 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 9L: EX TOTAL

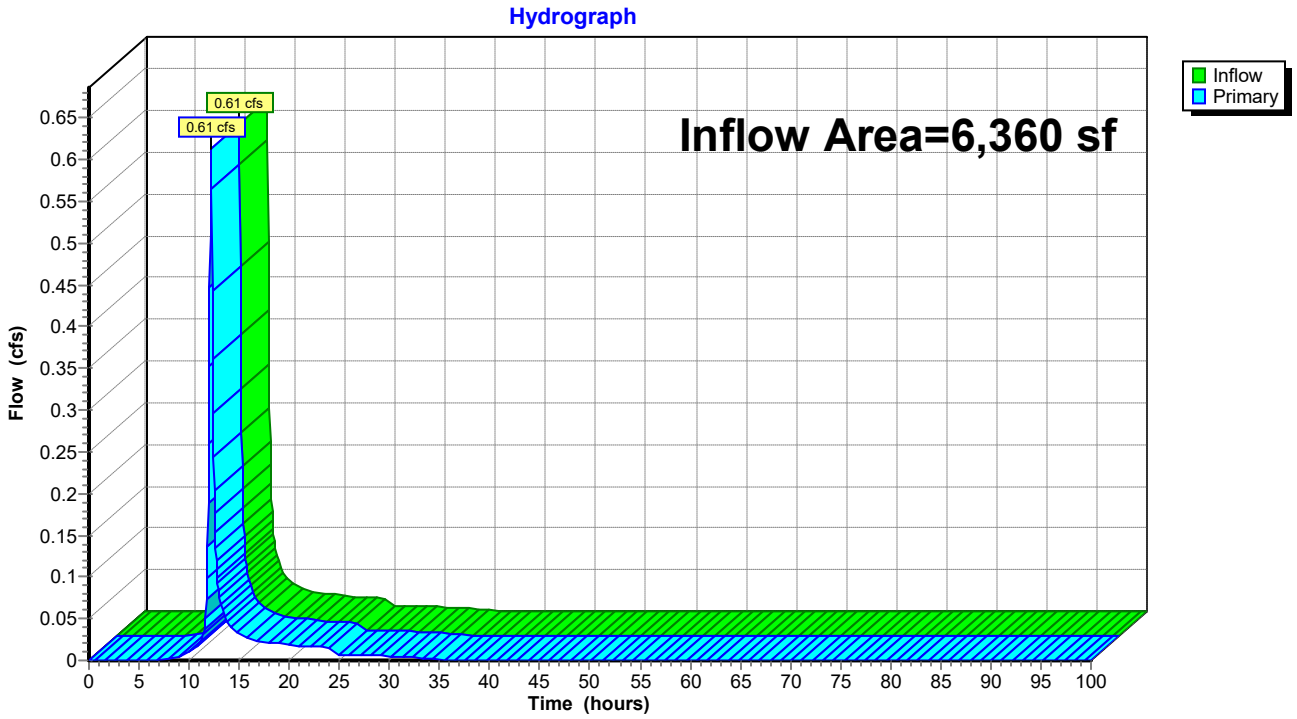


Summary for Link 10L: PR TOTAL

Inflow Area = 6,360 sf, 41.98% Impervious, Inflow Depth = 4.78" for 100-YR event
Inflow = 0.61 cfs @ 12.17 hrs, Volume= 2,535 cf
Primary = 0.61 cfs @ 12.17 hrs, Volume= 2,535 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 10L: PR TOTAL



Time span=0.00-100.00 hrs, dt=0.05 hrs, 2001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EX-TRENCH Runoff Area=1,875 sf 0.00% Impervious Runoff Depth=0.00"
Tc=8.5 min CN=58 Runoff=0.00 cfs 0 cf

Subcatchment 2S: EX-BYPASS Runoff Area=4,485 sf 39.96% Impervious Runoff Depth=0.06"
Tc=20.6 min CN=74 Runoff=0.01 cfs 23 cf

Subcatchment 5S: PR-TRENCH Runoff Area=1,875 sf 52.00% Impervious Runoff Depth=0.13"
Tc=14.2 min CN=79 Runoff=0.01 cfs 21 cf

Subcatchment 6S: PR-BYPASS Runoff Area=4,485 sf 37.79% Impervious Runoff Depth=0.05"
Tc=20.6 min CN=73 Runoff=0.01 cfs 19 cf

Pond 7P: PR-TRENCH Peak Elev=282.15' Storage=14 cf Inflow=0.01 cfs 21 cf
Outflow=0.00 cfs 21 cf

Link 9L: EX TOTAL Inflow=0.01 cfs 23 cf
Primary=0.01 cfs 23 cf

Link 10L: PR TOTAL Inflow=0.01 cfs 40 cf
Primary=0.01 cfs 40 cf

Total Runoff Area = 12,720 sf Runoff Volume = 63 cf Average Runoff Depth = 0.06"
64.92% Pervious = 8,258 sf 35.08% Impervious = 4,462 sf

Summary for Subcatchment 1S: EX-TRENCH

[45] Hint: Runoff=Zero

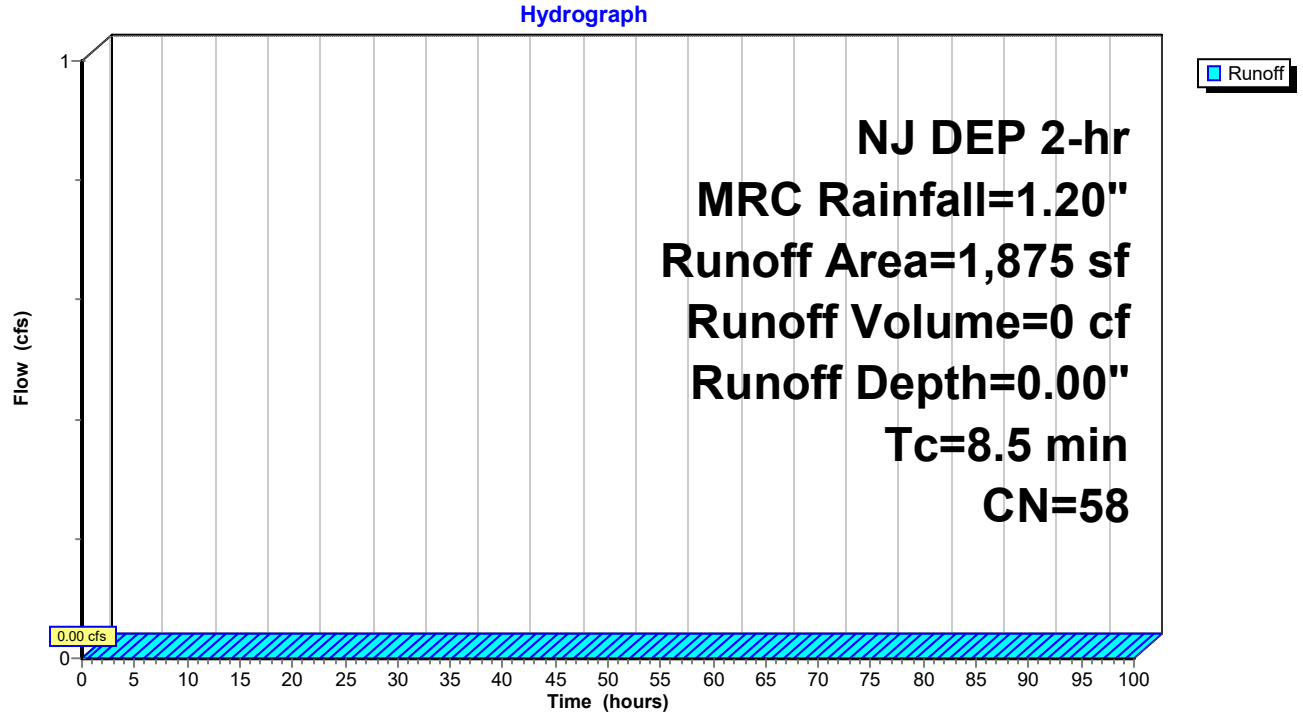
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	1,875	58	MEADOW UrhB
*	0	98	IMP ELECTRICAL PAD/Driveway
	1,875	58	Weighted Average
	1,875		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment 1S: EX-TRENCH



Summary for Subcatchment 2S: EX-BYPASS

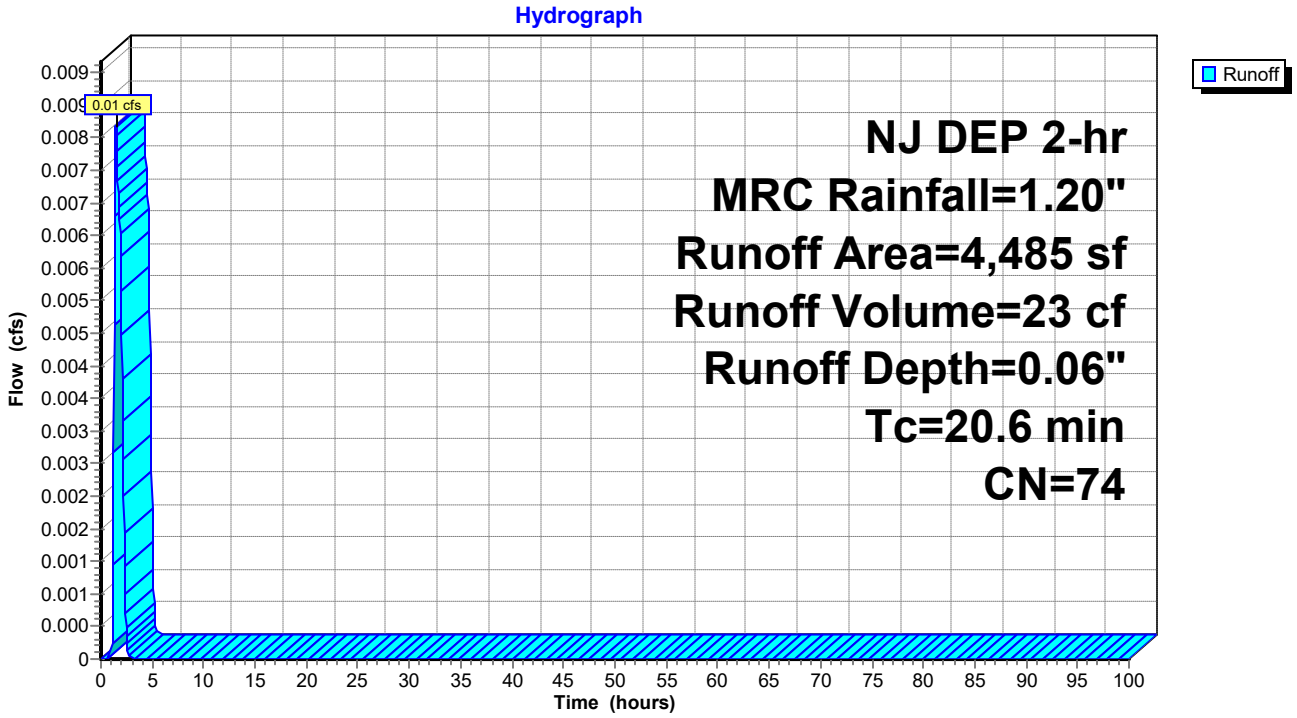
Runoff = 0.01 cfs @ 1.46 hrs, Volume= 23 cf, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	1,792	98	IMP
*	2,693	58	MEADOW UrhB
	4,485	74	Weighted Average
	2,693		60.04% Pervious Area
	1,792		39.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 2S: EX-BYPASS



Summary for Subcatchment 5S: PR-TRENCH

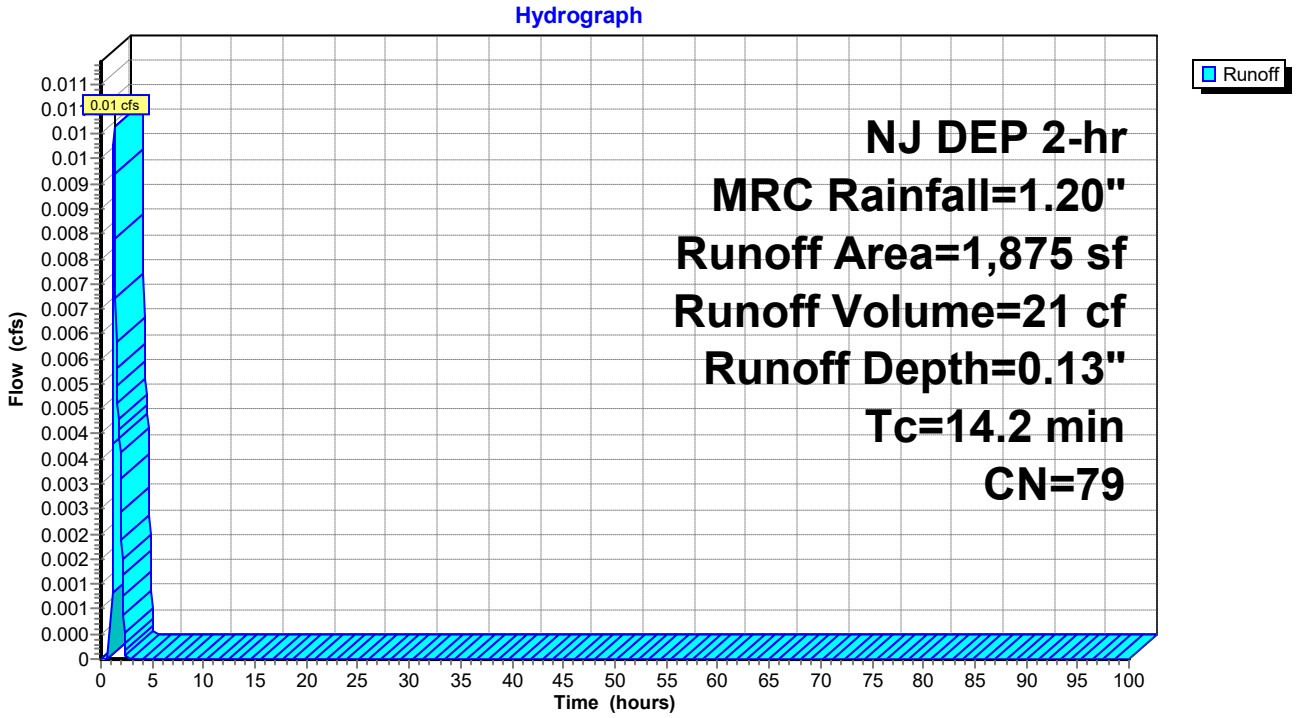
Runoff = 0.01 cfs @ 1.29 hrs, Volume= 21 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	900	58	MEADOW UrhB
*	975	98	IMP
	1,875	79	Weighted Average
	900		48.00% Pervious Area
	975		52.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1					**Direct Entry,**
7.1					**Direct Entry,**
14.2	0	Total			

Subcatchment 5S: PR-TRENCH



Summary for Subcatchment 6S: PR-BYPASS

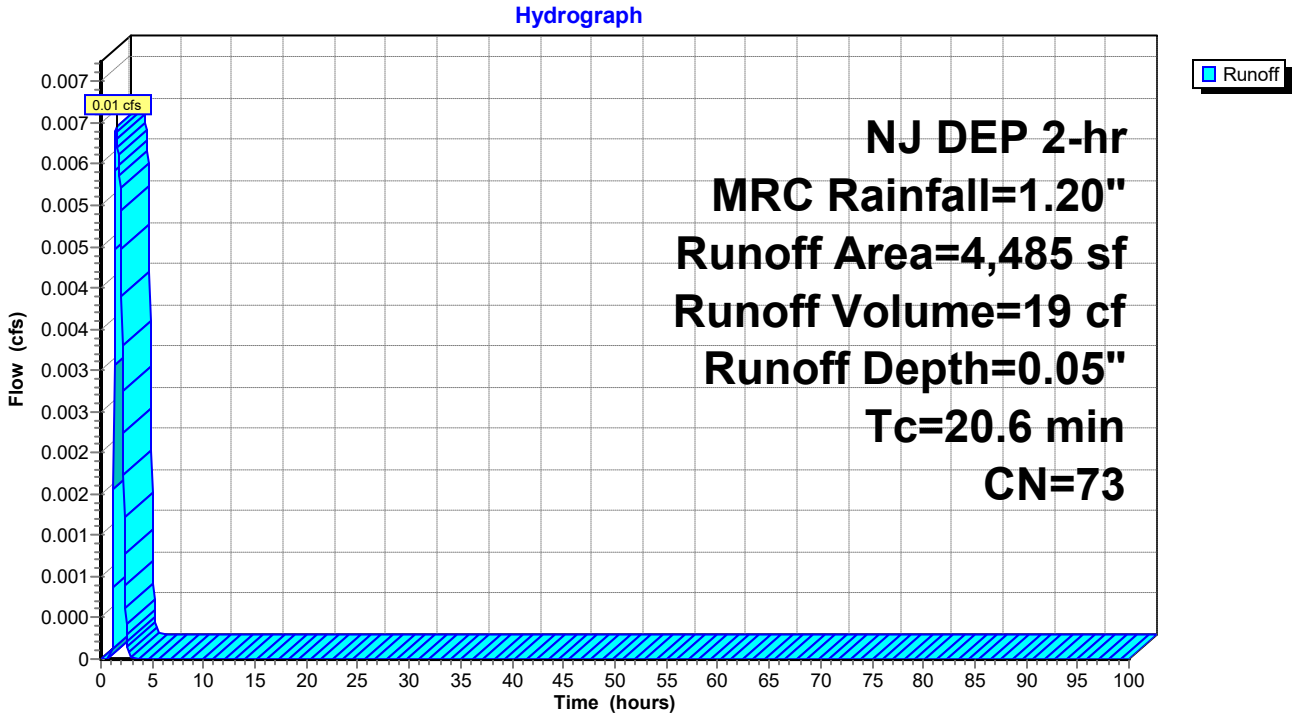
Runoff = 0.01 cfs @ 1.50 hrs, Volume= 19 cf, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	2,790	58	MEADOW UrhB
*	1,695	98	IMP
	4,485	73	Weighted Average
	2,790		62.21% Pervious Area
	1,695		37.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**
10.3					**Direct Entry,**
20.6	0	Total			

Subcatchment 6S: PR-BYPASS



Summary for Pond 7P: PR-TRENCH

Inflow Area = 1,875 sf, 52.00% Impervious, Inflow Depth = 0.13" for MRC event
Inflow = 0.01 cfs @ 1.29 hrs, Volume= 21 cf
Outflow = 0.00 cfs @ 2.01 hrs, Volume= 21 cf, Atten= 78%, Lag= 43.2 min
Primary = 0.00 cfs @ 2.01 hrs, Volume= 21 cf

Routing by Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs
Peak Elev= 282.15' @ 2.01 hrs Surf.Area= 240 sf Storage= 14 cf

Plug-Flow detention time= 86.4 min calculated for 21 cf (100% of inflow)
Center-of-Mass det. time= 86.7 min (178.3 - 91.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	282.00'	195 cf	**11.19'W x 21.42'L x 2.94'H Field A** 705 cf Overall - 218 cf Embedded = 488 cf x 40.0% Voids
#2A	282.50'	207 cf	**ACF R-Tank HD 1** x 49 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 49 Chambers in 7 Rows
		402 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**1.0' long Broad-Crested Rectangular Weir** Head (feet) 1.00 Coef. (English) 3.33
#2	Primary	283.90'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	282.00'	**0.5" Vert. Slow Release Orifice** C= 0.600

Primary OutFlow Max=0.00 cfs @ 2.01 hrs HW=282.15' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Slow Release Orifice** (Orifice Controls 0.00 cfs @ 1.71 fps)

Pond 7P: PR-TRENCH - Chamber Wizard Field A

Chamber Model = ACF R-Tank HD 1 (ACF Environmental R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

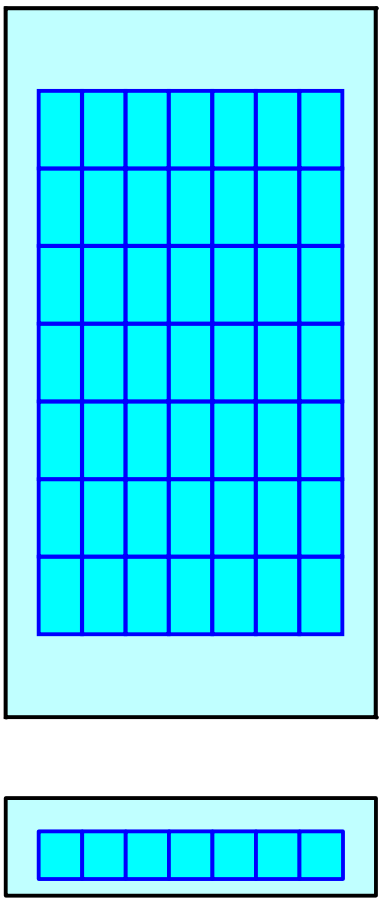
7 Chambers/Row x 2.35' Long = 16.42' Row Length +30.0" End Stone x 2 = 21.42' Base Length
7 Rows x 15.7" Wide + 12.0" Side Stone x 2 = 11.19' Base Width
6.0" Base + 17.3" Chamber Height + 12.0" Cover = 2.94' Field Height

49 Chambers x 4.2 cf = 206.9 cf Chamber Storage
49 Chambers x 4.4 cf = 217.8 cf Displacement

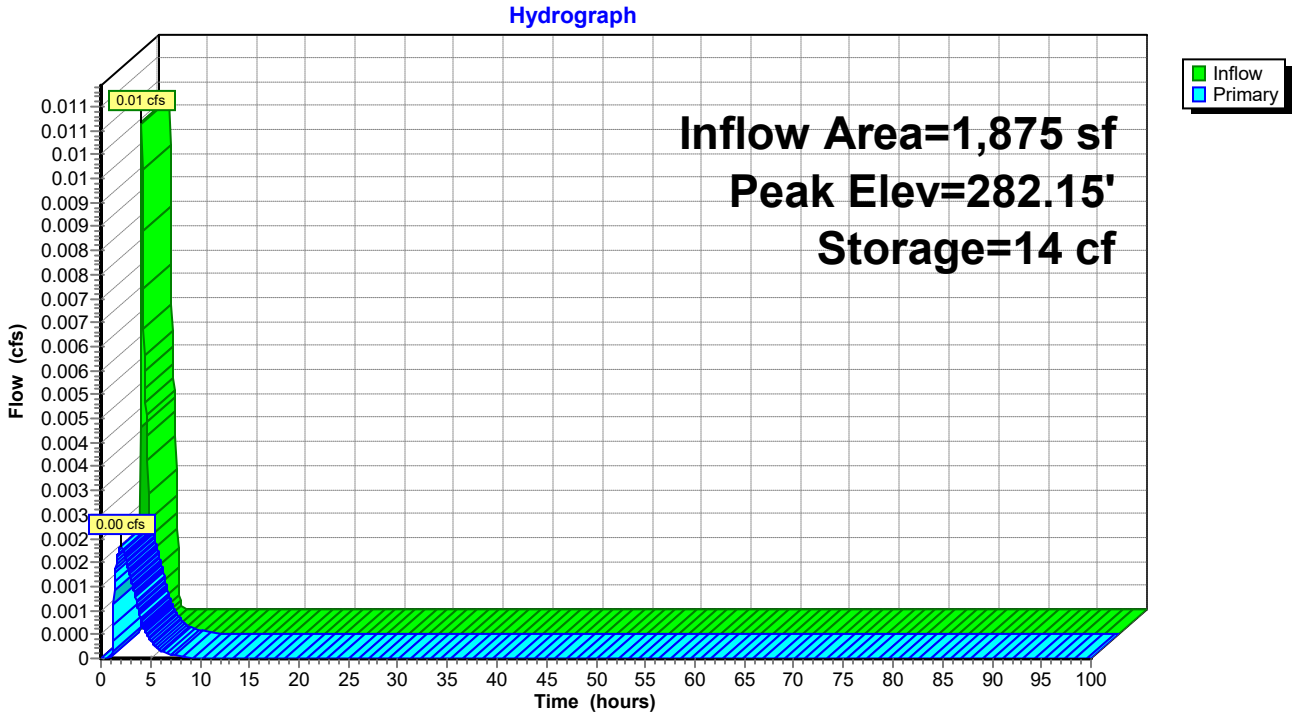
705.3 cf Field - 217.8 cf Chambers = 487.6 cf Stone x 40.0% Voids = 195.0 cf Stone Storage

Chamber Storage + Stone Storage = 401.9 cf = 0.009 af
Overall Storage Efficiency = 57.0%
Overall System Size = 21.42' x 11.19' x 2.94'

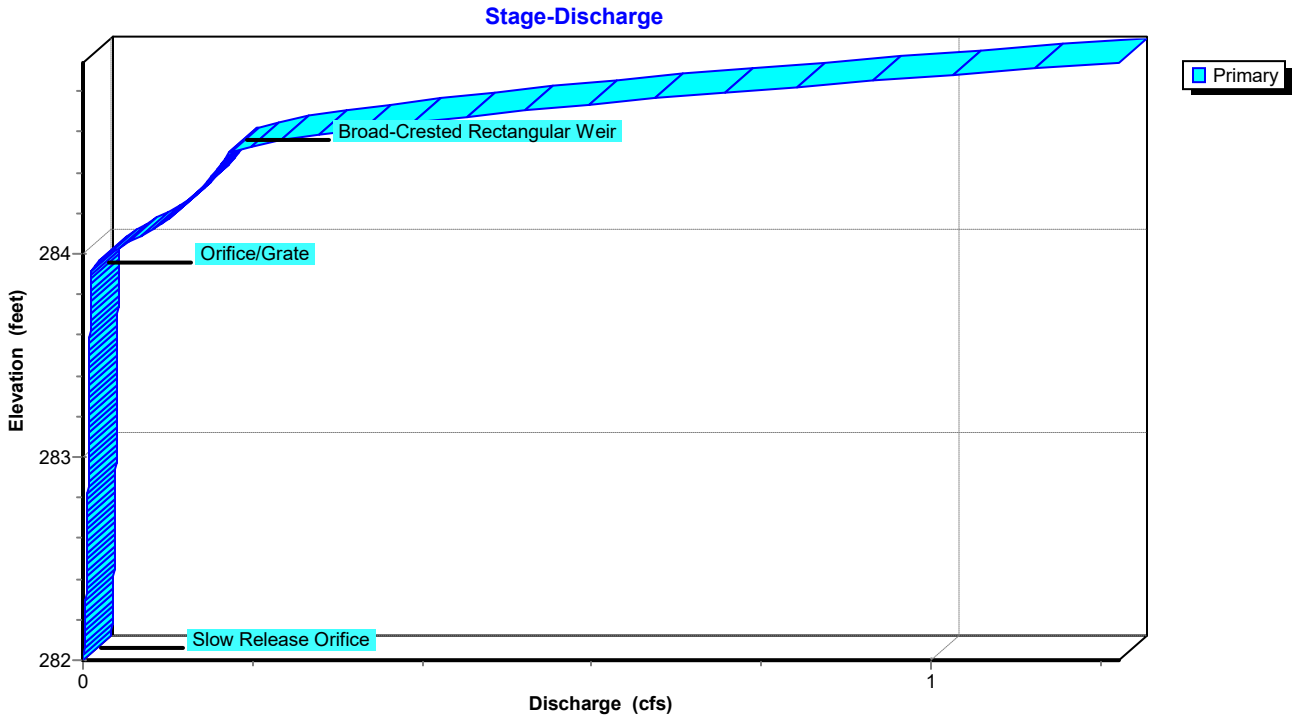
49 Chambers
26.1 cy Field
18.1 cy Stone



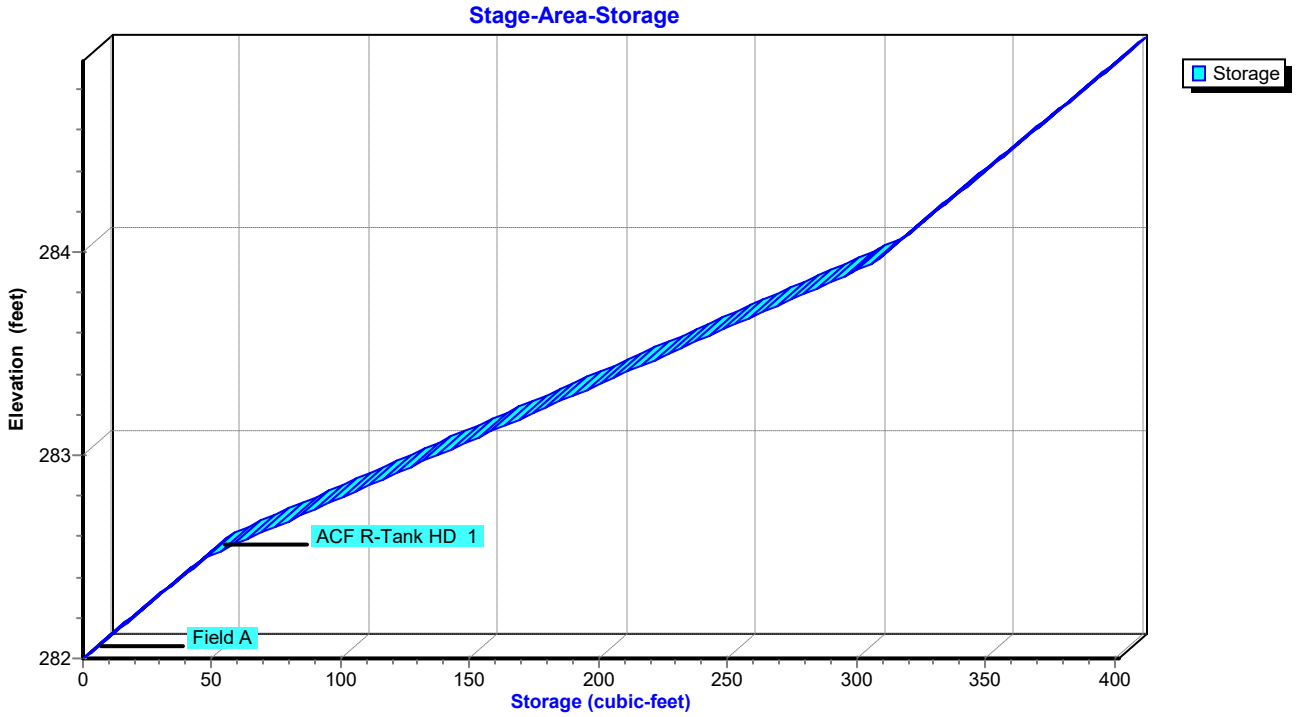
Pond 7P: PR-TRENCH



Pond 7P: PR-TRENCH



Pond 7P: PR-TRENCH

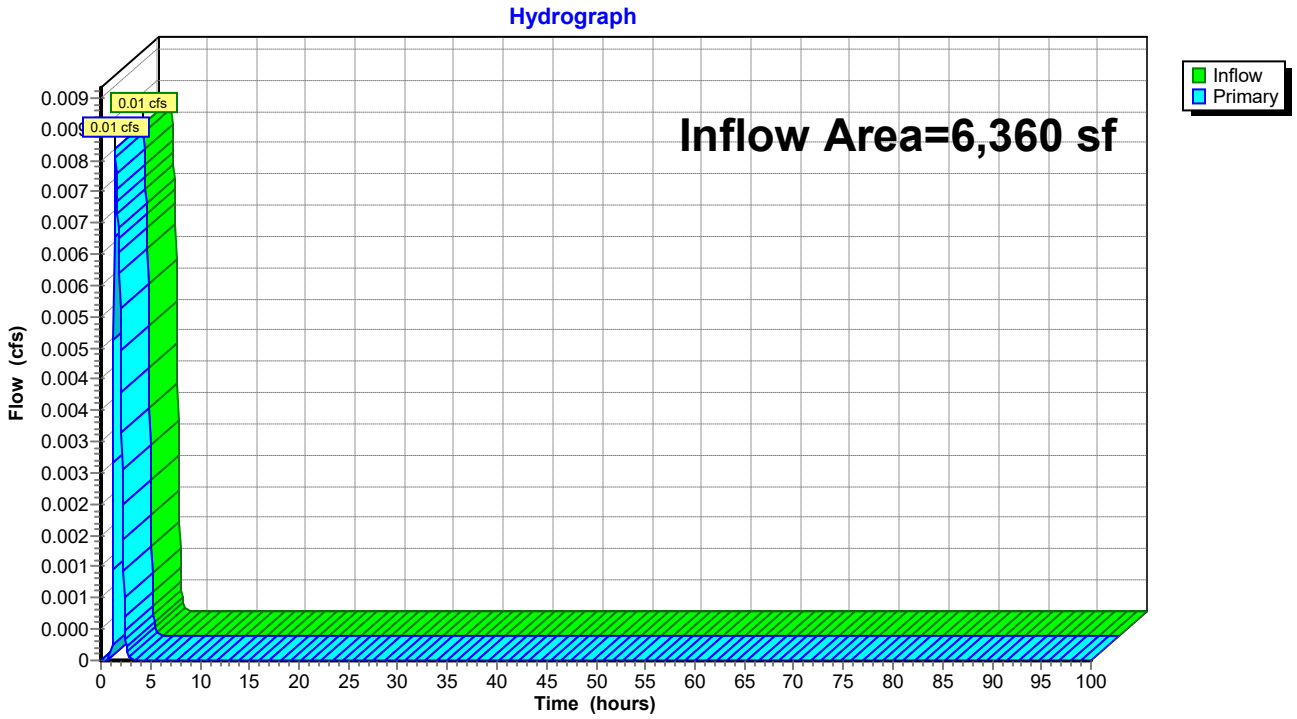


Summary for Link 9L: EX TOTAL

Inflow Area = 6,360 sf, 28.18% Impervious, Inflow Depth = 0.04" for MRC event
Inflow = 0.01 cfs @ 1.46 hrs, Volume= 23 cf
Primary = 0.01 cfs @ 1.46 hrs, Volume= 23 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 9L: EX TOTAL

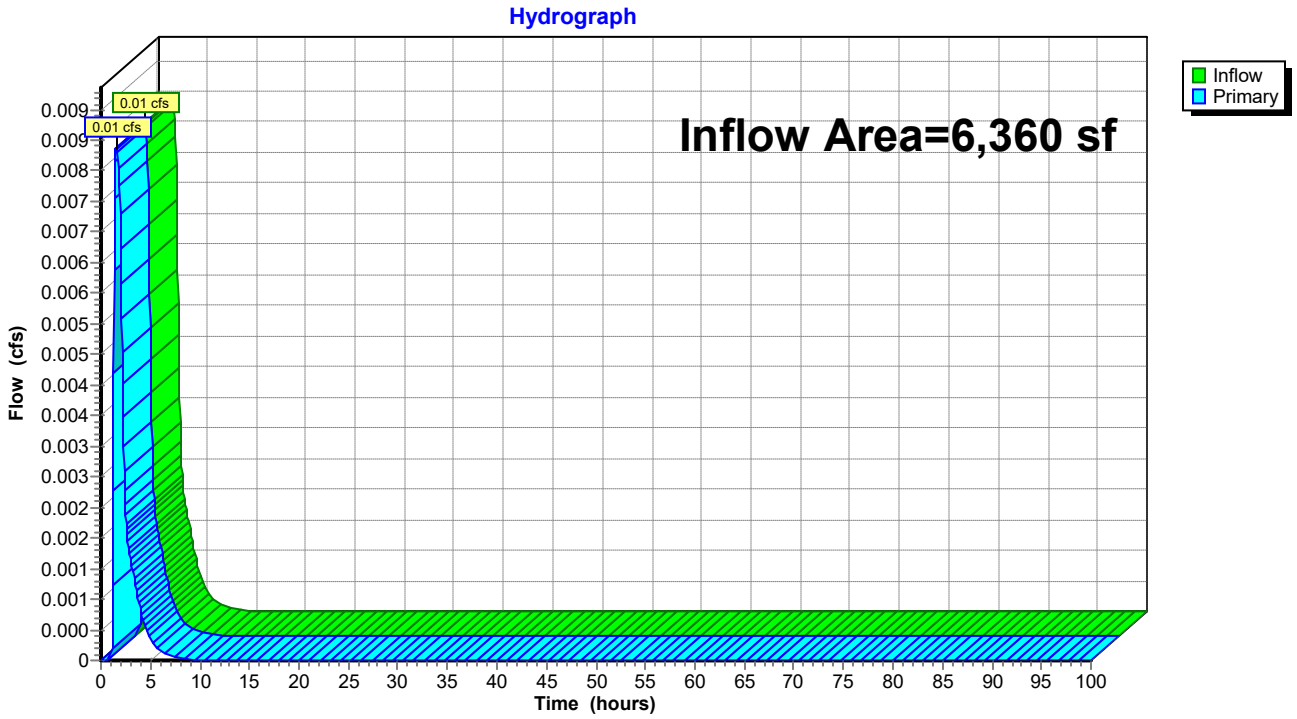


Summary for Link 10L: PR TOTAL

Inflow Area = 6,360 sf, 41.98% Impervious, Inflow Depth = 0.08" for MRC event
Inflow = 0.01 cfs @ 1.55 hrs, Volume= 40 cf
Primary = 0.01 cfs @ 1.55 hrs, Volume= 40 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.05 hrs

Link 10L: PR TOTAL



I. PCSM Drawings (Attached)

J. Offsite Stormwater Discharge Plan (Attached)

SEWAGE FACILITIES PLANNING MODULE
APPLICATION MAILER



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

For more information, visit DEP's website at
www.depweb.state.pa.us, keyword: Act 537.

INSTRUCTIONS FOR COMPLETING SEWAGE FACILITIES PLANNING MODULE APPLICATION MAILER

(remove before sending mailer to the approving agency (the Department of Environmental Protection (DEP) or delegated local agency))

Please read the following instructions carefully before completing the application mailer. This information will be used to determine if sewage facilities planning is necessary for your project, and, if it is, which forms are appropriate.

Act 537 Sewage Facilities' planning is the duty of local municipalities. The responsibility of meeting the sewage disposal needs of the municipality rests with the municipality. Each municipality is required to have an Act 537 Official Sewage Facilities Plan to adequately address these needs. Adoption by resolution of a planning module is the vehicle for legally amending the municipality's Official Plan. It is imperative that the municipality receives all of the information required in order to make informed decisions.

Upon completion, submit this Mailer / Application form to the approving agency (DEP or delegated local agency). Additionally, provide a copy of the completed form to the County Health Department having jurisdiction over the area in which the proposed project is located.

Unless your project qualifies for one of the planning exemptions provided in Act 537, a package of sewage facilities planning forms appropriate for the project will be sent to the return address indicated on the mailer, or instructions for obtaining the appropriate forms from DEP's website (www.depweb.state.pa.us) will be issued. Each form includes detailed instructions that explain the use of the form and how to complete it. The package of completed forms and its supporting documentation is called a **sewage facilities planning module**, or "planning module." Once the planning module is complete, it must be submitted to the municipality in which the project is located for review and, if acceptable, adoption.

After adoption by the municipality, complete planning modules are submitted to either DEP or, if appropriate, to the delegated agency for review and final action. Some municipalities (or groups of municipalities working together) have requested and received DEP approval to review and take final action on planning modules. These are known as **delegated agencies**. To find out if your project is located in an area served by a delegated agency, contact the municipality or DEP's regional office serving your area.

Please note that both DEP and delegated agencies are required by law to charge fees for the review of planning modules. The fees DEP must charge are set by law in Act 537, while delegated agencies may set fees which can be the same or different from those in Act 537. For more information on review fees for your particular project, see the planning module documents or contact the approving agency (DEP or delegated agency) serving the area of your project.

NOTE: DEP will provide all planning module forms, however, if your project is a **minor subdivision** (defined as a subdivision of 10 lots or less, intended for single family residential homes served by individual onlot sewage disposal systems) you may also contact the municipality in which your project is located for a "Component 1" minor subdivision planning module form.

1. Print the name of the proposed development and name, address, telephone number and email address of the person who is proposing the project. If planning module components are to be sent to a different person or address, include this information on the front of the mailer in the return address block.

2. a. Enter the county in which the project is located.

   b. Enter the municipality in which the project is located.

   c. Enter the road or address (if available) or street coordinates (example - west side of T-235, 1 mile south of intersection of Rt 15 and T-235).

   d. Enter the appropriate tax parcel identification number (if available) of the parcel proposed for subdivision.

   e. Enter the name of the U.S. Geological Survey (USGS) 7.5-minute quadrangle map which contains the project area, and the location of the project area on that map in inches up and over from the lower right corner of the map to the approximate center of the project. (Example - Centerville West quad, 7 inches up and 2.5 inches over from lower right corner of map.) Alternatively, include an original or a copy of the USGS quad map with the project area outlined on it.

   f. If the proposed project is located within a special protection watershed, (i.e., watersheds with a stream classification of High Quality or Exceptional Value), check "yes." If not located in special protection watershed, check "no."

3. Check the box that best describes the intended use of the proposed land development project. **Residential** refers to single-family lots. **Multi-residential** includes apartments, condos, etc. **Commercial** includes retail centers, office parks, industrial development, etc. **Institutional** refers to schools, hospitals and the like. **Brownfield** Site

Redevelopment refers to projects proposing to recycle land. Some developments will involve more than one type of use, or will not fit comfortably into any of the classifications given. If this is the case, choose more than one category or explain under **Other**.

4. a. Enter the number of single family residential lots or Equivalent Dwelling Units (EDUs) proposed. An EDU is defined as that part of a multi-family dwelling or nonresidential project with flows equal to 400 gallons per day (gpd) (the assumed flow, for planning purposes, of a single family residential lot). To determine the number of EDUs, divide the proposed sewage flow of the project by 400 gpd.

   b. Enter the total number of lots created from this parcel of land since May 15, 1972, including the lots being proposed at this time. (Onlot disposal proposals only.)

   c. Enter the total project acreage and the acreage of any remaining land (land not proposed for development but under the same ownership and adjacent to the project area).

5. Enter the proposed total sewage flow from the project in gpd. See Title 25 of the Pennsylvania Code, Chapter 73, Section 73.17, (www.pacode.com), or DEP's *Domestic Wastewater Facilities Manual*, DEP ID: 362-0300-001 available on DEP's website at www.depweb.state.pa.us, keyword: wastewater.

6. Choose the category (a, b, c or d) that describes the method of sewage disposal planned to serve the project and enter the information requested. Since this information could have an effect on the planning requirements for your project, be as accurate as possible. If more than one method of sewage disposal is planned, or if an interim method is planned, indicate it here.

   a. Sewerage System

      If an existing system is being extended to serve the proposed project, or if lots are to connect directly to an existing sewage collection system, check all boxes that describe the project. Write in the names of the existing collection systems that will be used, the interceptor sewer which will be used for conveyance and the treatment facility where the sewage flows will be treated. Include the National Pollutant Elimination Discharge System (NPDES) permit number for the treatment facility, where applicable.

   b. Construction of Sewage Treatment Facility (with stream discharge or with spray irrigation as final disposal option)

      Check the box corresponding to the chosen final disposal option (stream discharge or spray irrigation field). This category does **NOT** include individual residence spray irrigation systems (IRSIS) which are considered onlot sewage disposal systems ((c), below). For stream discharges, name the receiving waterbody. If the proposed facility is intended to replace an existing, malfunctioning onlot system, check the box marked "repair."

   c. Onlot Sewage Disposal Systems (individual, community, or large-volume)

      Check the box corresponding to the type of onlot sewage disposal systems proposed to serve the project. An **individual onlot sewage disposal system** is a system of piping, tanks or other facilities used for collecting, treating and disposing of sewage into a subsurface absorption area. This category also includes IRSIS. A **community onlot system** is a facility either publicly or privately owned which will collect and dispose of sewage from two or more lots or EDUs into a subsurface absorption area. A **large-volume onlot system** is an individual or community onlot system which is designed to treat flows in excess of 10,000 gpd.

      The approving agency must be notified at least 10 days in advance of all soil testing activities (including those related to planning exemption requests - see 7(b)(5)(v)), so that its staff have the option of observing the tests.

   d. Retaining Tanks (holding tanks or privies)

      If retaining tanks are proposed as the method of sewage disposal, enter the number of holding tanks or privies which are proposed to serve the project.

7. Check this box if you desire to obtain your sewage facilities planning module forms from DEP's website. You will be provided with appropriate instructions, website addresses and DEP coding information in a letter rather than a package of paper forms.

8. Requests for Planning Exemption under the Sewage Facilities Act

You may request to be exempt from Act 537 planning requirements. Effective December 15, 1995, certain classes of subdivisions are no longer subject to the planning requirements of the Sewage Facilities Act. Completing Section 8 will help you and the approving agency determine if your project fits into one of these categories.

a. Protection of rare, endangered or threatened species.

DEP's technical guidance document "Policy for Pennsylvania Natural Diversity Inventory (PNDI) Coordination During Permit Review and Evaluation," (400-0200-001) requires DEP to ensure that requests for authorizations, are coordinated with the Department of Conservation and Natural Resources' (DCNR) Pennsylvania Natural Diversity Inventory (PNDI).

Conducting a search of the PNDI database and providing a copy of a "PNDI Project Environmental Review Receipt" for the proposed project and, if potential impacts are identified by the search, clearance or recommendation letters from the jurisdictional agency responsible for the particular species identified by a search, satisfies this requirement.

To avoid project delay, self-explanatory, self-conducted "PNDI Project Planning Environmental Review" searches are initiated at www.naturalheritage.state.pa.us. This interactive, online search will ask questions about the proposed project and provide the appropriate receipt, instructions or additional information regarding coordination with jurisdictional agencies.

As an alternative to the self-conducted search, project sponsors may request DEP staff to conduct the search by providing a completed "PNDI Project Planning & Environmental Review Form" (PNDI Form). The form is available at www.naturalheritage.state.pa.us. Individuals making this request should be aware that, due to the nature of the search software, DEP staff may need to contact them for additional information to successfully complete the search and that exclusive of any other items, their sewage planning exemption request is considered incomplete by DEP, until the appropriate receipt, clearance or recommendation letters are received.

For more information, see the "Policy for Pennsylvania Natural Diversity Inventory (PNDI) Coordination During Permit Review and Evaluation," (400-0200-001), available online in the eLibrary at DEP's website address www.depweb.state.pa.us.

b. Attach a plot plan for the proposed project. The plan must depict anticipated lots to be created, either estimated sewer line runs (public sewer proposals), or site suitability test locations and Site Investigation and Percolation Test Reports (onlot proposals).

c. Projects proposing use of onlot sewage disposal systems

(1) Information Required from the Municipality

The municipality in which the project is located (identified in Item 2.b. of the mailer) should determine if the municipality's Official Sewage Facilities Plan shows that the area planned for the project is to be served by onlot sewage disposal systems. If it is, the municipality should indicate this by having an authorized municipal official sign and date the form in the space provided. The official's name and title should be printed on the line below.

(2) Information Required from the Municipal Sewage Enforcement Officer (SEO)

The municipality's SEO must conduct personally, observe or otherwise confirm in a manner approved by DEP, site testing on each proposed lot in the subdivision (including any remaining land) to determine that separate sites are available for both a permitted primary onlot sewage disposal system and a replacement system (to be used if the original system fails in the future). If the SEO finds that each lot has been tested properly and fulfills these criteria, the SEO must indicate this by signing and dating the form in the space provided. His/her name and certification number should be printed on the line below.

(3) Information Required from the Applicant

The person proposing the subdivision, or his/her authorized agent, must determine if each lot in the subdivision (including the remaining land, if any) is at least one (1) acre in size. If they are, the applicant or his/her agent must indicate this by signing and dating the form in the space provided.

(4) Determinations Made by the Approving Agency

When the above listed information is received, the approving agency will determine the following:

(a) If the geology of the project area is conducive to nitrate-nitrogen contamination of groundwater (determined from the topographic map location information); or

(b) If elevated levels of nitrate-nitrogen are known to exist within one-quarter (1/4) mile of the proposed development (determined from agency groundwater sampling records in existence at the time of the application); or

(c) If the area proposed for development is within an identified High Quality (HQ) or Exceptional Value (EV) watershed (determined from the topographic map location).

Following this investigation, the approving agency will render a decision on the exemption request within 10 working days of receiving the request for exemption. Both the applicant and municipality will be notified of the decision. If the request cannot be granted, the person named in the return address block will receive the proper planning module component forms (or instructions to obtain them from the DEP website) along with the notification of the decision, including the reason(s) that the request cannot be granted.

d. Projects proposing use of public sewerage facilities (i.e., ownership by municipality or authority)

(1) Information Required from the Municipality

The municipality in which the proposed project is located (identified in Item 2.b. of the mailer) will determine the following from written documentation requested and obtained by the applicant from the facility permittee. ***This documentation MUST also be sent to the approving agency (DEP or delegated local agency) for evaluation.***

(a) Certification from the permittees of the collection, conveyance and treatment facilities proposed for use that capacity is available in these facilities to receive and treat the sewage flows from the proposed project; and

(b) That these added flows will not cause an overload or 5-year projected overload in the facilities.

If the facilities proposed for use are owned and operated by an authority, or authorities, then attach a letter from each to the mailer.

If this written certification has been submitted by the applicant, an authorized municipal official should sign and date the form and print his/her name and title and the municipality name in the spaces provided.

NOTE: Since planning is a municipal responsibility, sewer authorities involved should make required information available but should **NOT** sign the mailer as the authorized municipal official.

(2) Determinations Made by the Approving Agency

When the above listed information is received by the approving agency, the approving agency will determine the following (from DEP records):

(a) That the existing collection, conveyance and treatment facilities are in compliance;

(b) That the existing facilities have no existing or 5-year projected overload;

(c) That the municipality has a currently approved Official Sewage Facilities Plan which is being implemented; and

(d) That the project does not propose service by facilities needing a new or modified permit from DEP under the Clean Streams Law.

Following this investigation, the approving agency will render a decision on the exemption request within 10 working days of receiving the request for exemption. Both the applicant and the municipality will be notified of the decision. If the request cannot be granted, the person named in the return address block will receive the proper planning module component forms (or instructions to obtain them from DEP's website) along with the notification of the decision, including the reason that the request cannot be granted.

If unsure of which local DEP office to contact, the following DEP regional offices will assist you in determining the appropriate local DEP office that serves your specific municipality.

If you need more information or assistance, please contact your local DEP office.

DEP REGIONAL OFFICES

Northwest Region
230 Chestnut St.
Meadville, PA 16335-3481
Main Telephone: 814-332-6945
24-Hour Emergency: 800-373-3398

Counties: *Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, and Warren*

North-central Region
208 W. Third St., Suite 101
Williamsport, PA 17701-6448
Main Telephone: 570-327-3636
24-Hour Emergency: 570-327-3636

Counties: *Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, and Union*

Northeast Region
2 Public Square
Wilkes-Barre, PA 18701-1915
Main Telephone: 570-826-2511
24-Hour Emergency:570-826-2511

Counties: *Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, and Wyoming*

Southwest Region
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Main Telephone: 412-442-4000
24-Hour Emergency: 412-442-4000

Counties: *Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, and Westmoreland*

South-central Region
909 Elmerton Ave.
Harrisburg, PA 17110-8200
Main Telephone: 717-705-4700
24-Hour Emergency: 866-825-0208

Counties: *Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, and York*

Southeast Region
2 E. Main St.
Norristown, PA 19401-4915
Main Telephone: 484-250-5900
24-Hour Emergency: 484-250-5900

Counties: *Bucks, Chester, Delaware, Montgomery, and Philadelphia*

1. **Development Information**

Name of Development North Hills Well Station
Developer Name Aqua Pennsylvania, Inc.
Address 762 Lancaster Avenue
Bryn Mawr, PA 19010
Telephone # (610) 645-4297
Email BTKelly@aquaamerica.com

2. **Location of Development**

a. County Montgomery
b. Municipality Township of Abington
c. Address or Coordinates 315 Chelsea Avenue, Glenside, PA 19038
d. Tax Parcel # 30-00-08140-00-2
e. USGS Quad Name Germantown
inches up - _____ over - _____
from bottom right corner of map.
f. Located in a High Quality/Exceptional Value watershed?
☐ Yes ☒ No

3. **Type of Development Proposed** (check appropriate box)

☐ Residential ☐ Multi-Residential
Describe _____

☒ Commercial ☐ Institutional
Describe Installation of a new treatment process requiring a building addition on to the existing well station.

☐ Brownfield Site Redevelopment
☐ Other (specify) _____

4. **Size**

a. # of lots 1 # of EDUs 2
b. # of lots since 5/15/72 _____
c. Development Acreage _____
d. Remaining Acreage _____

5. **Sewage Flows** 374 gpd continous, 80 gpd intermittent for cartridge filter changeout (approximately 2/month) gpd

6. **Proposed Sewage Disposal Method** (check applicable boxes)

a. ☒ Sewerage System
☒ Existing (connection only) ☐ New (extension)
☐ Public ☐ Private
☐ Pump Station(s)/Force Main ☐ Gravity
Name of existing system being extended
Abington Township sanitary sewers
Interceptor Name _____
Treatment Facility Name Abington Township WWTP
NPDES Permit # _____

b. ☐ Construction of Treatment Facility
☐ With Stream Discharge
☐ With Land Application (not including IRSIS)
☐ Other
☐ Repair?
Name of waterbody where point of discharge is proposed (if stream discharge)

c. ☐ Onlot Sewage Disposal Systems
(check appropriate box)
☐ Individual onlot system(s) (including IRSIS)
☐ Community onlot system
☐ Large-Volume onlot system
d. ☐ Retaining tanks
Number of Holding Tanks _____
Number of Privies _____

7. ☐ **Request Sewage Facilities Planning Module forms in electronic format**

8. **Request for Planning Exemption**

a. Protection of rare, endangered or threatened species
Check one:
☒ The "PNDI Project Environmental Review Receipt" is attached.
or
☐ A completed "PNDI Project Planning & Environmental Review Form," (PNDI Form) is attached. I request DEP staff to complete the required PNDI search for my project. I realize that my planning exemption will be considered incomplete and that the DEP processing of my planning exemption request will be delayed, until a "PNDI Project Environmental Review Receipt" and all supporting documentation from jurisdictional agencies (when necessary) is/are received by DEP.

Applicant or Consultant Initials _____

b. ☒ Plot Plan Attached ☐ Site Reports Attached

c. Onlot Disposal Systems

(1) I certify that the Official Plan shows this area as an onlot service area.

_____ / _____
(Signature of Municipal Official) Date

_____ / _____
Name (Print) Title

_____
Municipality (must be same as in 2.b.)

Telephone # _____

(2) I certify that each lot in this subdivision has been tested and is suitable for both a primary and replacement sewage disposal system.

_____ / _____
Signature of SEO) Date

_____ / _____
Name (Print) Certification #

Telephone # _____

(3) I certify that each lot in this subdivision is at least 1 acre in size

_____ / _____
(Signature of Project Applicant/Agent) Date

d. Public Sewerage Service (i.e., ownership by municipality or authority)

Based upon written documentation, I certify that the facilities proposed for use have capacity and that no overload exists or is projected within 5 years. (Attach documents.)

_____ / _____
(Signature of Municipal Official) Date

Richard J. Manfredi /Township Manager
Name (Print) Title

Township of Abington
Municipality (must be same as in 2.b.)

Telephone # 267-536-1000

Return Correspondence/Forms to:

_____

_____

_____

_____

DEPARTMENT OF ENVIRONMENTAL PROTECTION

_____

_____

_____

DEP USE
Components Sent
Onlot Disposal ☐
Collection and Treatment ☐
Planning Agency Review ☐
Exempt from Planning ☐
Code _____
Date _____

"Fold Here"

1. PROJECT INFORMATION

Project Name: **Aqua PA North Hills Well Station Improvement Project**
Date of Review: **6/16/2020 06:25:27 PM**
Project Category: **Development, Other**
Project Area: **0.23 acres**
County(s): **Montgomery**
Township/Municipality(s): **ABINGTON**
ZIP Code: **19038**
Quadrangle Name(s): **GERMANTOWN**
Watersheds HUC 8: **Schuylkill**
Watersheds HUC 12: **Lower Wissahickon Creek**
Decimal Degrees: **40.116851, -75.168038**
Degrees Minutes Seconds: **40° 7' 0.6639" N, 75° 10' 4.9358" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

Aqua PA North Hills Well Station Improvement Project



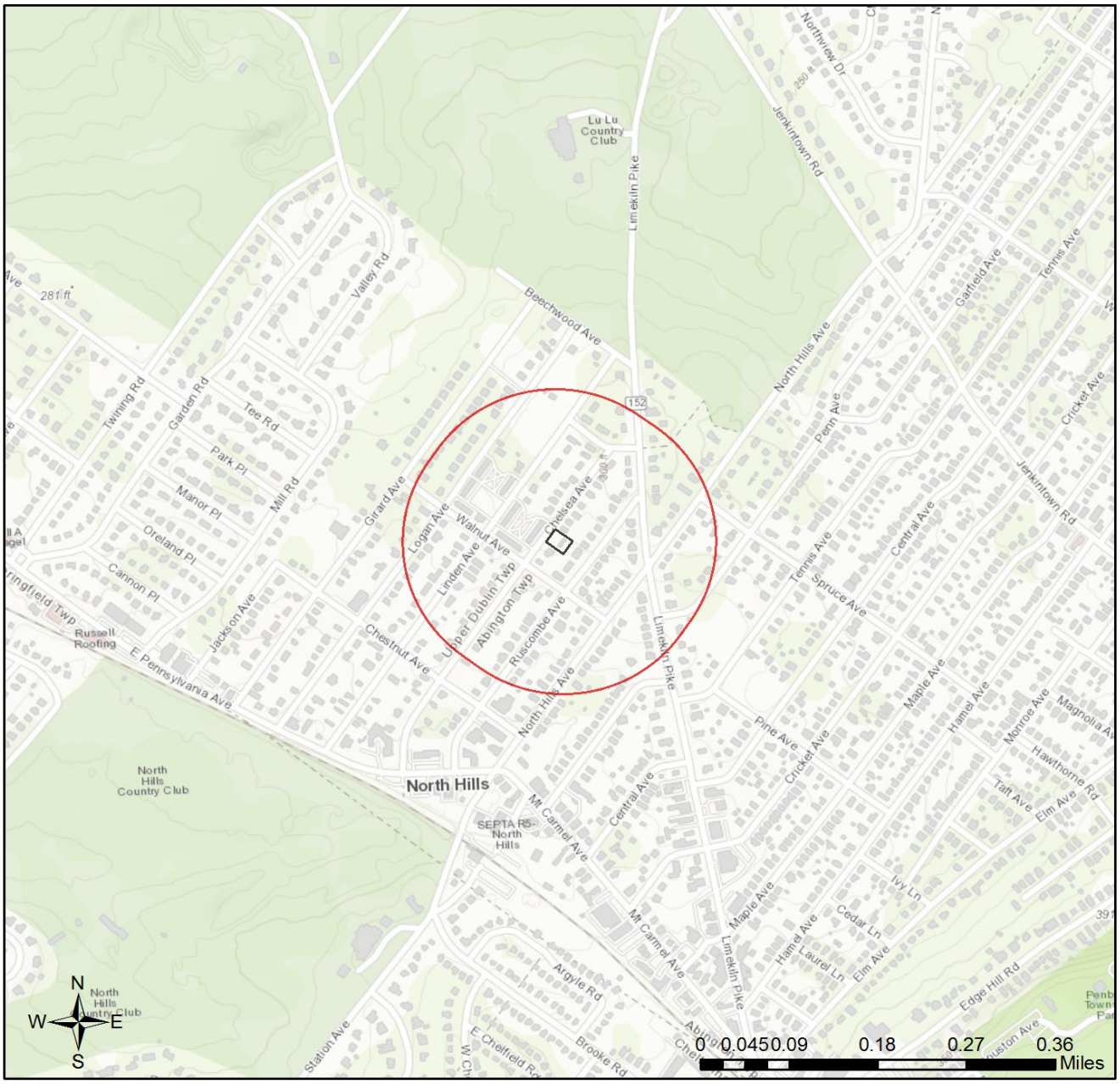
Project Boundary

Buffered Project Boundary



Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China

Aqua PA North Hills Well Station Improvement Project



Project Boundary

Buffered Project Boundary



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

RESPONSE TO QUESTION(S) ASKED

Q1: The proposed project is in the range of the Indiana bat. Describe how the project will affect bat habitat (forests, woodlots and trees) and indicate what measures will be taken in consideration of this. Round acreages up to the nearest acre (e.g., 0.2 acres = 1 acre).
Your answer is: No forests, woodlots or trees will be affected by the project.

Q2: Is tree removal, tree cutting or forest clearing of 40 acres or more necessary to implement all aspects of this project?
Your answer is: No

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission
RESPONSE:
No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources
RESPONSE:
No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission
RESPONSE:
No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service
RESPONSE:
No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name:_____
Company/Business Name:_____
Address:_____
City, State, Zip:_____
Phone:(_____)_____Fax:(_____)_____
Email:_____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ _____
applicant/project proponent signature date

13520 ABINGTON TOWNSHIP CHECK PAYMENT NBR: **993386** DATE: **12/17/20**

INVOICE	DATE	DESCRIPTION	GROSS AMOUNT	WITHHOLDING	DISCOUNT	NET AMOUNT
NORTH HILL LD PERMIT	12/11/20		1,000.00	0.00	0.00	1,000.00
		TOTAL:	**$1,000.00**	**$0.00**	**$0.00**	**$1,000.00**

AQUA PENNSYLVANIA INC.
762 Lancaster Avenue Bryn Mawr, PA 19010

THIS DOCUMENT HAS A VOID PANTOGRAPH, MICROPRINTING, A COIN REACTIVE ARTIFICIAL WATERMARK AND THERMOCHROMATIC INK.

AQUA PENNSYLVANIA INC.

762 Lancaster Avenue Bryn Mawr, PA 19010

PNC BANK, N.A.
NEW JERSEY

993386
CHECK NO.

DATE
12/17/20

AMOUNT
**********$1,000.00

Check Not Valid After 180 days

PAY
One Thousand and 00/100 Dollars

TO THE ORDER OF
ABINGTON TOWNSHIP
1176 OLD YORK RD
ABINGTON PA 19001-0000

⑈000993386⑈ ⑆031202770⑆ 8026224535⑈

See Reverse Side For Easy Opening Instructions

AQUA PENNSYLVANIA INC.

762 Lancaster Avenue Bryn Mawr, PA 19010

ABINGTON TOWNSHIP
1176 OLD YORK RD
ABINGTON PA 19001-0000

U.S. Pat # 6,095,407
ReorderVersaCoat Style Z611B2-E
WO-6493351 • 11Z-VG

13520 ABINGTON TOWNSHIP CHECK PAYMENT NBR: 993388 DATE: 12/17/20

INVOICE	DATE	DESCRIPTION	GROSS AMOUNT	WITHHOLDING	DISCOUNT	NET AMOUNT
NORTH HILL WS PERMIT	12/13/20		10,000.00	0.00	0.00	10,000.00
		TOTAL:	**$10,000.00**	**$0.00**	**$0.00**	**$10,000.00**

AQUA PENNSYLVANIA INC.
762 Lancaster Avenue Bryn Mawr, PA 19010

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AQUA PENNSYLVANIA INC.

762 Lancaster Avenue Bryn Mawr, PA 19010

PNC BANK, N.A.
NEW JERSEY

993388
CHECK NO.

DATE
12/17/20

AMOUNT
*********$10,000.00

Check Not Valid After 180 days

PAY
Ten Thousand and 00/100 Dollars

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⑈000993388⑈ ⑆031202770⑆ 8026224535⑈

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1176 OLD YORK RD
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U.S. Pat.# 6,095,407
ReorderVersaSeal Style Z511B2-E
WO-6493351 • 11Z-VG

PLANNING COMMISSION MEETING

AGENDA ITEM

February 23, 2021

DATE

AGENDA ITEM NUMBER

Administration

DEPARTMENT

FISCAL IMPACT
Cost > $10,000
Yes ☐ No ☑

PUBLIC BID REQUIRED
Cost > $20,100
Yes ☐ No ☑

AGENDA ITEM:

PREIT Petition - Zoning Text Amendment

EXECUTIVE SUMMARY:

Consider a motion to approve the submitted petition to amend the Township's Zoning Ordinance by PREIT

PREVIOUS BOARD ACTIONS:

12-10-2020 - Committee of the Whole made a motion to move the Agenda item to the Board of Commissioners Regular Meeting on January 14, 2021, to approve the next step of the process in sending this matter to the Township Planning Commission.

RECOMMENDED BOARD ACTIONS:

Consider a petition to amend Zoning Ordinance by PREIT as referred by the Board of Commissioners.

ORDINANCE NO. _____

ABINGTON TOWNSHIP

MONTGOMERY COUNTY, PENNSYLVANIA

AN ORDINANCE OF ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA, AMENDING THE ABINGTON TOWNSHIP ZONING ORDINANCE OF 2017, AS AMENDED, TO AMEND SECTION 2103.H AND THE COMPREHENSIVE USE MATRIX IN THE APPENDIX TO INCLUDE A TRANSIT-ORIENTED APARTMENT/CONDOMINIUM BUILDING AS USE [H-12], PERMITTED UPON CONDITIONAL USE APPROVAL.

BE IT ORDAINED AND ENACTED, by the Board of Commissioners of Abington Township, Montgomery County, as follows:

SECTION 1. Zoning Text Amendment. Section 2103.H of the Abington Township Zoning Ordinance of 2017, as heretofore amended, is hereby amended to add the following new use:

> **Use H-12: Transit Oriented Apartment/Condominium Building.** A Transit Oriented Apartment/Condominium Building [Use H-12] is a multifamily residential Apartment/Condominium Building or Buildings, each containing at least three, separate Dwelling Units, arranged in a variety of combinations, including side by side, over and under, or back and forth with another dwelling unit. A Transit Oriented Apartment/Condominium Building or Buildings shall be a permitted use within BC-Business Center District: Willow Grove Park, subject to the Developer/Applicant obtaining conditional use approval for such use in accordance with Section 1806 of the Zoning Ordinance.

SECTION 2. Zoning Text Amendment. The Abington Township Zoning Ordinance of 2017, as heretofore amended, is hereby amended to add the following new Section:

> SECTION 1112.
>
> A. **Master Plan.** All properties proposed for development as a Transit Oriented Apartment/Condominium Building [Use H-12] shall be developed in accordance with a master plan that has been approved by the municipal governing body as part of the conditional use approval process.
>
> 1. Master plans shall meet the following requirements:
>
> a. A master plan shall be prepared when any property, existing at the time of adoption of this ordinance, is initially proposed for subdivision or land development. Subdivided properties that are intended to be developed at a later date shall be subject to this initial master plan.
>
> b. Master plans shall meet the conditional use plan requirements in Section 1806 of the Abington Township Zoning Ordinance.

c. Master plans shall demonstrate that land use mix requirements of Figure 11.9 Dimensional Requirements have been met.

d. Master plans shall illustrate a pedestrian network that connects all buildings, parking areas, open space areas, and transit stops on-site, with public streets.

e. The municipal governing body may require, as a condition of the conditional use approval, changes in the master plan in order to meet the legislative intent and other standards of the Business Center District.

2. Development of property may be done in phases; however, any proposed subdivision or land development of a property or portion of a property must be consistent with the master plan. If a proposed subdivision or land development is not consistent with the master plan, the master plan as a whole may be revised, provided the following requirements are met:

a. The master plan complies with all BC Business Center District requirements, including the mix requirements of Figure 11.9 Dimensional Requirements

b. All owners of land within the original Master Plan development area, whose property is affected by the revised master plan, approve the revisions to the master plan that affects their properties. In the event that other property owners are unwilling to participate in the master plan process, the master plan may apply only to the applicant's property.

B. **Intent**. The purpose and intent of this Section is to encourage development and redevelopment of land within 2,500 linear feet of SEPTA's Regional Line Train Stations, to create a pedestrian-friendly environment and encourage walking, bicycling and transit use, and provide an alternative to traditional development by emphasizing mixed use, pedestrian-oriented development; promote a mix of retail and office uses, while allowing community service and higher-density residential uses within walking distance to retail, commercial, office and personal services; promote increased public transit ridership as an alternative to total reliance on the automobile for a variety of trip purposes; provide a range of housing options; create a neighborhood identity that promotes pedestrian activity, human interactions, safety and livability; and encourage development of underused tracts and parcels.

C. **Governing Regulations**. If elected by a Developer/Applicant, and subject to obtaining conditional use approval in accordance with Section 1806 of the Ordinance, an [H-12] Apartment/Condominium Use shall be subject to the regulations, requirements and standards set forth in this Section, and shall be subject to the regulations, requirements and standards of the BC Business Center District and other applicable regulations, requirements and standards set forth in the Ordinance, provided, however, to the extent that a regulation, requirement or standard of the Ordinance is inconsistent with the regulations, requirements and standards set forth in this Section, the regulations, requirements and standards set forth in this Section shall govern and control.

D. **Construction Standards**. All construction shall be governed by the standards contained in the most recent edition of the International Building Code and National Fire Protection standards, as adopted by the state of Pennsylvania. Wood frame construction shall be permitted, provided that it meets all International Building Code and National Fire Protection standards.

E. **Existing Legal Nonconformities**. All existing legal nonconformities on a site proposed for development shall be permitted to remain and shall not be required to be brought into conformity with current ordinance requirements, provided that no new nonconformities are created and the extent of any existing legal nonconformity shall not be increased unless the applicant obtains relief from the Zoning Hearing Board.

F. **Use Regulations: Use H-12:**

1. Qualifying Lot. An [H-12]: Transit-Oriented Apartment/Condominium Building shall be located within 2,500 linear feet of one or more of SEPTA's Regional Line Train Stations

2. Mixed Use. Retail, commercial office, and other uses permitted in the BC District Apartment/Condominium Building may be located on the first floor, penthouse or rooftop area of a Transit-Oriented Apartment/Condominium Building. If provided on the first floor, the first floor ceiling height must be a minimum of eleven (11) feet.

3. Accessory Uses. Accessory uses for Use [H-12]: Transit-Oriented Apartment/Condominium Building shall include those accessory uses permitted for Use H-1: Apartment/Condominium Building. Accessory uses:

a. Shall be located on the ground floor, penthouse or rooftop area.

b. There shall be no entrance to any accessory use located within a building except from inside the apartment/ condominium building.

c. Other than permitted signs, there shall be no display of merchandise or other manifestation of commercial use visible from the street.

F. **Dimensional Requirements.**

AREA AND BULK REGULATIONS:	
Minimum Mix Requirement	Minimum 20% Retail, Minimum 10% Apartment/Condominium
Maximum Floor Area Ratio (	0.80; 1.0 with bonus
Minimum Floor Area Per Dwelling Unit	Not Applicable
Minimum Lot Size	Not Applicable
Minimum Lot Width	Not Applicable
Minimum Lot Depth	Not Applicable

Maximum Impervious Coverage	75%
Minimum Green Area	15%
Minimum Public Open Space	3 acres
BUILD-TO-LINE (BTL) REQUIREMENTS (RESIDENTIAL USES):	
BTL for Public Streets	Minimum: 20 feet Maximum: 75 feet
BTL for Main Access Drives/Private Streets	Minimum: 15 feet Maximum: 40 feet
BTL for Secondary Access Drives	Minimum: 0 feet Maximum 30 feet
SETBACK REGULATIONS:	
Minimum parking lot setback from public street	15 feet from the edge of the legal right-of-way
Minimum building setback from parking	15 feet
BUILDING REGULATIONS:	
Maximum Building Height	85 feet, plus the height of rooftop architectural enhancements and mechanical systems that do not exceed 20% of the footprint of the Building
Maximum Building Height for Buildings or portions of buildings within 100 feet of an R-1, R-2, R-3 or R-4 residential zoning district	35 feet, plus the height of rooftop architectural enhancements and mechanical systems that do not exceed 20% of the footprint of the Building
Maximum Building Height for Buildings or portions of buildings within 300 feet of an R-1, R-2, R-3 or R-4 residential zoning district	55 feet, plus the height of rooftop architectural enhancements and mechanical systems that do not exceed 20% of the footprint of the Building

G. **Public Open Space.** Transit Oriented Apartment/Condominium Buildings shall contain one or more common use areas that will serve as a focal point for the development and provide walkways, seating, and landscaping. Green areas, courtyards, and plazas are encouraged.

H. **Design Standards.**

1. Access Drives. Access Drives and their dimensions shall be designed to provide capacity for on-site traffic. Where new infrastructure meets existing improvements, the proposed improvements may be sized to facilitate the connection to that existing infrastructure.

2. Parking Garages. Cars in parking garages or structures when visible from the public right-of-way shall be screened from the right-of-way (rather than the street) using features such as grills, lattice, mock windows, louvers, or false facades. Sub-Section 1104.C.4 shall not apply to any garage ancillary to Transit Oriented Apartment/Condominium Buildings.

3. Corner Buildings. Sub-Section 1104.C.5.a shall not apply to any Transit Oriented Apartment/Condominium Buildings.

4. Roofs. Paragraph 11.04.C.8.b shall not apply to any Transit Oriented Apartment/Condominium Buildings.

I. **Bonuses.**

Bonus	Bonus Points	Bonus Points or Conditions Required to Qualify
Shared Parking	1	Make parking (min. 8 spaces per acre) available to other BC Business Center District properties through shared parking and easement agreements
Residential Uses Wrapping Parking Garage	1	Residential uses shall be located along at least 25% of garage perimeter.
Greening of parking lot to conform with zoning	4	Retrofitting one-half acre of existing parking lot to add planting islands, planting strips or other stormwater best management practices required by zoning's landscaping chapter.
Enhanced pedestrian	1	300 L.F. of off-site sidewalk and/or crosswalk

connections to Regional Rail Stations, or contribution to escrow account for same		improvements (replacing existing sidewalk with sidewalk and verge conforming to existing zoning) on Moreland Road or Easton Road leading to Willow Grove or Crestmont Regional Rail stations, or to Fitzwatertown Road bus route.
Electric vehicle charging stations	1	Charging stations for three vehicles
Provision of green wall on parking garage	1	For use of native vine species to create green wall facing perimeter street, or if not visible from perimeter street, from a public right-of-way.
Reduced of impervious area	1	For each 1,000 s.f. reduction of impervious area

J. **Parking Access and Traffic Control.**

1. Access Drives. The dimensions of Access Drives will be determined based upon the volume of traffic, required number of lanes and turning movements required. The final width of such access drives shall be approved by the Township Engineer.

2. Employee Parking. Employee parking spaces for Use [H-12]: Transit-Oriented Apartment/Condominium Building shall be coordinated with the principal use of the building, but such parking spaces shall not be required to be signed or striped differently from other on-site parking spaces.

3. Off-Street Loading Requirements. Loading berths shall not be required for Transit-Oriented Apartment/Condominium Buildings if loading and unloading will only be performed by trucks other than tractor trailers.

SECTION 3. Zoning Text Amendment. Section 2304 of the Abington Township Zoning Ordinance of 2017, as heretofore amended, is hereby amended as follows:

A. **Section 2304.C.33. Use C-34: Shopping Mall or Shopping Center Regional:** Section 2304.C.33 is amended as follows:

1. By changing "1 parking space for every 220 square feet of gross leasable floor area" to "1 parking space for every 300 square feet of gross leasable floor area".

2. By adding the following at the end thereof:

If and to the extent that any parking spaces are intended to be available for any Use in addition to Use C-34, the parking requirements for Use C-34 shall govern and control.

B. **Section 2304.H. Residential Uses:** Section 2304.H is amended by adding the following new paragraph:

12. Use [H-12]: Transit Oriented Apartment/Condominium Building: The parking requirements for Use H-2 shall apply. Perpendicular parking stalls in the Transit Oriented Shopping Village (TOSV) Overlay District shall be a minimum of 9 feet by 18 feet; angled parking stalls shall be a minimum of 9 feet by 20 feet; parallel parking stalls shall be a minimum of 8 feet by 22 feet.

SECTION 4. Zoning Text Amendment. The Comprehensive Use Matrix in the Appendix is amended to include a Transit Oriented Apartment/Condominium Building as Use [H-12], as a conditional permitted use within the Willow Grove Park area of the BC-Business District.

SECTION 5. Repealer. All ordinances or parts of ordinances inconsistent herewith or in conflict with any of the specific terms enacted hereby, to the extent of said inconsistencies or conflicts, are hereby specifically repealed.

SECTION 6. Effective Date. This Ordinance shall become effective five (5) days from enactment.

ORDAINED AND ENACTED by the Board of Commissioners of Abington Township on this day of , 2020.

Attest:

ABINGTON TOWNSHIP

BOARD OF COMMISSIONERS

_____

, Secretary

_____

, President

BEFORE THE BOARD OF COMMISSIONERS OF ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

PETITION FOR ZONING AMENDMENT

WG Park, L.P. and WG Park-Anchor B Limited Partnership (hereinafter collectively referred to as **"PREIT"**), by its attorneys, Kaplin Stewart Meloff Reiter & Stein, P.C., hereby submits this Petition for Amendment of the Abington Township Zoning Ordinance (**"Zoning Ordinance"**), and in support thereof avers as follows:

1. PREIT is the legal owner of the property upon which the Willow Grove Park Mall is located (**"Mall Property"**).

2. Pursuant to the current Zoning Ordinance, the Mall Property is located in the BC-Business Center District, Willow Grove Park subdistrict.

3. PREIT seeks to construct a 365 unit apartment building on the eastern side of the Mall Property (**"Proposed Development"**) in accordance with the Concept Plan attached hereto as Exhibit "A".

4. Under the existing Zoning Ordinance, the Proposed Development is not a permitted use in the BC-Business Center District, Willow Grove Park subdistrict.

5. In order to construct the Proposed Development, PREIT seeks an amendment to Section 2103.H and the comprehensive use matrix in the appendix of the Zoning Ordinance to include a transit-oriented apartment/condominium building as use [h-12], permitted upon conditional use approval in the BC-Business Center District, Willow Grove Park subdistrict. A true and correct copy of a proposed Zoning Amendment (**"Proposed Zoning Amendment"**) is attached hereto as Exhibit "B".

6. The Proposed Zoning Amendment was prepared jointly by PREIT and the Township's planning consultant, Michael Narcowich of the Montgomery County Planning

Commission.

Justification for Proposed Zoning Amendment

7. PREIT seeks to construct the Proposed Development to preserve and enhance the future of the Willow Grove Park Mall through the creation of a multi-use destination.

8. Over the course of the past decade, in response to a multitude of changes that have occurred in the retail shopping environment, PREIT has reinvented its mall properties through the introduction of a variety of uses including entertainment venues, extensive dining programs, off-price and value purveyors, fitness centers and others.

9. The ongoing turbulent economic and retail environment has accelerated plans to deliver a mix of uses incorporating living space into the retail environment.

10. The addition of an apartment community to the Mall Property will preserve and enhance tax revenue and jobs, ensure the vitality of this historic focal point within the community and drive traffic within the various businesses by expanding the customer base.

11. Based upon the foregoing, Landowner respectfully requests that the Board of Supervisors adopt the Proposed Zoning Amendment attached hereto and made part hereof as Exhibit "B".

KAPLIN STEWART MELOFF REITER & STEIN, P.C.

By _____

MARC B. KAPLIN, ESQUIRE
Attorneys for PREIT

EXHIBIT "A"



BARTONPARTNERS
urban design + architecture + interiors

WILLOW GROVE PARK MALL REDEVELOPMENT

WILLOW GROVE, PA

JULY 2020

100 0 50 100
SCALE IN FEET

LANGAN
1818 Market Street, Suite 3300
Philadelphia PA 19103
Phone: 215.845.8900 Fax: 215.845.8901

EXHIBIT "B"

ORDINANCE NO. _____

ABINGTON TOWNSHIP

MONTGOMERY COUNTY, PENNSYLVANIA

AN ORDINANCE OF ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA, AMENDING THE ABINGTON TOWNSHIP ZONING ORDINANCE OF 2017, AS AMENDED, TO AMEND SECTION 2103.H AND THE COMPREHENSIVE USE MATRIX IN THE APPENDIX TO INCLUDE A TRANSIT-ORIENTED APARTMENT/CONDOMINIUM BUILDING AS USE [H-12], PERMITTED UPON CONDITIONAL USE APPROVAL.

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SECTION 2. Zoning Text Amendment. The Abington Township Zoning Ordinance of 2017, as heretofore amended, is hereby amended to add the following new Section:

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> a. A master plan shall be prepared when any property, existing at the time of adoption of this ordinance, is initially proposed for subdivision or land development. Subdivided properties that are intended to be developed at a later date shall be subject to this initial master plan.
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c. Master plans shall demonstrate that land use mix requirements of Figure 11.9 Dimensional Requirements have been met.

d. Master plans shall illustrate a pedestrian network that connects all buildings, parking areas, open space areas, and transit stops on-site, with public streets.

e. The municipal governing body may require, as a condition of the conditional use approval, changes in the master plan in order to meet the legislative intent and other standards of the Business Center District.

2. Development of property may be done in phases; however, any proposed subdivision or land development of a property or portion of a property must be consistent with the master plan. If a proposed subdivision or land development is not consistent with the master plan, the master plan as a whole may be revised, provided the following requirements are met:

a. The master plan complies with all BC Business Center District requirements, including the mix requirements of Figure 11.9 Dimensional Requirements

b. All owners of land within the original Master Plan development area, whose property is affected by the revised master plan, approve the revisions to the master plan that affects their properties. In the event that other property owners are unwilling to participate in the master plan process, the master plan may apply only to the applicant's property.

B. **Intent**. The purpose and intent of this Section is to encourage development and redevelopment of land within 2,500 linear feet of SEPTA's Regional Line Train Stations, to create a pedestrian-friendly environment and encourage walking, bicycling and transit use, and provide an alternative to traditional development by emphasizing mixed use, pedestrian-oriented development; promote a mix of retail and office uses, while allowing community service and higher-density residential uses within walking distance to retail, commercial, office and personal services; promote increased public transit ridership as an alternative to total reliance on the automobile for a variety of trip purposes; provide a range of housing options; create a neighborhood identity that promotes pedestrian activity, human interactions, safety and livability; and encourage development of underused tracts and parcels.

C. **Governing Regulations**. If elected by a Developer/Applicant, and subject to obtaining conditional use approval in accordance with Section 1806 of the Ordinance, an [H-12] Apartment/Condominium Use shall be subject to the regulations, requirements and standards set forth in this Section, and shall be subject to the regulations, requirements and standards of the BC Business Center District and other applicable regulations, requirements and standards set forth in the Ordinance, provided, however, to the extent that a regulation, requirement or standard of the Ordinance is inconsistent with the regulations, requirements and standards set forth in this Section, the regulations, requirements and standards set forth in this Section shall govern and control.

D. **Construction Standards**. All construction shall be governed by the standards contained in the most recent edition of the International Building Code and National Fire Protection standards, as adopted by the state of Pennsylvania. Wood frame construction shall be permitted, provided that it meets all International Building Code and National Fire Protection standards.

E. **Existing Legal Nonconformities**. All existing legal nonconformities on a site proposed for development shall be permitted to remain and shall not be required to be brought into conformity with current ordinance requirements, provided that no new nonconformities are created and the extent of any existing legal nonconformity shall not be increased unless the applicant obtains relief from the Zoning Hearing Board.

F. **Use Regulations: Use H-12:**

1. Qualifying Lot. An [H-12]: Transit-Oriented Apartment/Condominium Building shall be located within 2,500 linear feet of one or more of SEPTA's Regional Line Train Stations

2. Mixed Use. Retail, commercial office, and other uses permitted in the BC District Apartment/Condominium Building may be located on the first floor, penthouse or rooftop area of a Transit-Oriented Apartment/Condominium Building. If provided on the first floor, the first floor ceiling height must be a minimum of eleven (11) feet.

3. Accessory Uses. Accessory uses for Use [H-12]: Transit-Oriented Apartment/Condominium Building shall include those accessory uses permitted for Use H-1: Apartment/Condominium Building. Accessory uses:

a. Shall be located on the ground floor, penthouse or rooftop area.

b. There shall be no entrance to any accessory use located within a building except from inside the apartment/ condominium building.

c. Other than permitted signs, there shall be no display of merchandise or other manifestation of commercial use visible from the street.

F. **Dimensional Requirements**.

AREA AND BULK REGULATIONS:	
Minimum Mix Requirement	Minimum 20% Retail, Minimum 10% Apartment/Condominium
Maximum Floor Area Ratio (	0.80; 1.0 with bonus
Minimum Floor Area Per Dwelling Unit	Not Applicable
Minimum Lot Size	Not Applicable
Minimum Lot Width	Not Applicable
Minimum Lot Depth	Not Applicable

Maximum Impervious Coverage	75%
Minimum Green Area	15%
Minimum Public Open Space	3 acres
BUILD-TO-LINE (BTL) REQUIREMENTS (RESIDENTIAL USES):	
BTL for Public Streets	Minimum: 20 feet Maximum: 75 feet
BTL for Main Access Drives/Private Streets	Minimum: 15 feet Maximum: 40 feet
BTL for Secondary Access Drives	Minimum: 0 feet Maximum 30 feet
SETBACK REGULATIONS:	
Minimum parking lot setback from public street	15 feet from the edge of the legal right-of-way
Minimum building setback from parking	15 feet
BUILDING REGULATIONS:	
Maximum Building Height	85 feet, plus the height of rooftop architectural enhancements and mechanical systems that do not exceed 20% of the footprint of the Building
Maximum Building Height for Buildings or portions of buildings within 100 feet of an R-1, R-2, R-3 or R-4 residential zoning district	35 feet, plus the height of rooftop architectural enhancements and mechanical systems that do not exceed 20% of the footprint of the Building
Maximum Building Height for Buildings or portions of buildings within 300 feet of an R-1, R-2, R-3 or R-4 residential zoning district	55 feet, plus the height of rooftop architectural enhancements and mechanical systems that do not exceed 20% of the footprint of the Building

G. **Public Open Space**. Transit Oriented Apartment/Condominium Buildings shall contain one or more common use areas that will serve as a focal point for the development and provide walkways, seating, and landscaping. Green areas, courtyards, and plazas are encouraged.

H. **Design Standards**.

1. Access Drives. Access Drives and their dimensions shall be designed to provide capacity for on-site traffic. Where new infrastructure meets existing improvements, the proposed improvements may be sized to facilitate the connection to that existing infrastructure.

2. Parking Garages. Cars in parking garages or structures when visible from the public right-of-way shall be screened from the right-of-way (rather than the street) using features such as grills, lattice, mock windows, louvers, or false facades. Sub-Section 1104.C.4 shall not apply to any garage ancillary to Transit Oriented Apartment/Condominium Buildings.

3. Corner Buildings. Sub-Section 1104.C.5.a shall not apply to any Transit Oriented Apartment/Condominium Buildings.

4. Roofs. Paragraph 11.04.C.8.b shall not apply to any Transit Oriented Apartment/Condominium Buildings.

I. Bonuses.

Bonus	Bonus Points	Bonus Points or Conditions Required to Qualify
Shared Parking	1	Make parking (min. 8 spaces per acre) available to other BC Business Center District properties through shared parking and easement agreements
Residential Uses Wrapping Parking Garage	1	Residential uses shall be located along at least 25% of garage perimeter.
Greening of parking lot to conform with zoning	4	Retrofitting one-half acre of existing parking lot to add planting islands, planting strips or other stormwater best management practices required by zoning's landscaping chapter.
Enhanced pedestrian	1	300 L.F. of off-site sidewalk and/or crosswalk

connections to Regional Rail Stations, or contribution to escrow account for same		improvements (replacing existing sidewalk with sidewalk and verge conforming to existing zoning) on Moreland Road or Easton Road leading to Willow Grove or Crestmont Regional Rail stations, or to Fitzwatertown Road bus route.
Electric vehicle charging stations	1	Charging stations for three vehicles
Provision of green wall on parking garage	1	For use of native vine species to create green wall facing perimeter street, or if not visible from perimeter street, from a public right-of-way.
Reduced of impervious area	1	For each 1,000 s.f. reduction of impervious area

J. **Parking Access and Traffic Control.**

1. Access Drives. The dimensions of Access Drives will be determined based upon the volume of traffic, required number of lanes and turning movements required. The final width of such access drives shall be approved by the Township Engineer.

2. Employee Parking. Employee parking spaces for Use [H-12]: Transit-Oriented Apartment/Condominium Building shall be coordinated with the principal use of the building, but such parking spaces shall not be required to be signed or striped differently from other on-site parking spaces.

3. Off-Street Loading Requirements. Loading berths shall not be required for Transit-Oriented Apartment/Condominium Buildings if loading and unloading will only be performed by trucks other than tractor trailers.

SECTION 3. Zoning Text Amendment. Section 2304 of the Abington Township Zoning Ordinance of 2017, as heretofore amended, is hereby amended as follows:

A. **Section 2304.C.33. Use C-34: Shopping Mall or Shopping Center Regional**: Section 2304.C.33 is amended as follows:

1. By changing "1 parking space for every 220 square feet of gross leasable floor area" to "1 parking space for every 300 square feet of gross leasable floor area".

2. By adding the following at the end thereof:

If and to the extent that any parking spaces are intended to be available for any Use in addition to Use C-34, the parking requirements for Use C-34 shall govern and control.

B. **Section 2304.H. Residential Uses:** Section 2304.H is amended by adding the following new paragraph:

12. Use [H-12]: Transit Oriented Apartment/Condominium Building: The parking requirements for Use H-2 shall apply. Perpendicular parking stalls in the Transit Oriented Shopping Village (TOSV) Overlay District shall be a minimum of 9 feet by 18 feet; angled parking stalls shall be a minimum of 9 feet by 20 feet; parallel parking stalls shall be a minimum of 8 feet by 22 feet.

SECTION 4. Zoning Text Amendment. The Comprehensive Use Matrix in the Appendix is amended to include a Transit Oriented Apartment/Condominium Building as Use [H-12], as a conditional permitted use within the Willow Grove Park area of the BC-Business District.

SECTION 5. Repealer. All ordinances or parts of ordinances inconsistent herewith or in conflict with any of the specific terms enacted hereby, to the extent of said inconsistencies or conflicts, are hereby specifically repealed.

SECTION 6. Effective Date. This Ordinance shall become effective five (5) days from enactment.

ORDAINED AND ENACTED by the Board of Commissioners of Abington Township on this day of , 2020.

Attest:

ABINGTON TOWNSHIP

BOARD OF COMMISSIONERS

_____

, Secretary

_____

, President