

& ASSOCIATES, Inc. A HAMMONTREE COMPANY

Consulting Engineers and Land Surveyors

443 Athena Drive Delmont, PA 15626

Phone (724) 468-4622 Fax (724) 468-8940 www.morrisknowles.com

MAY 9, 2023 MKA No. 1856.21

TOWNSHIP OF WILKINS 110 PEFFER ROAD TURTLE CREEK, PA 15145

**ATTN: REBECCA VARGO** 

Regarding: LAND DEVELOPMENT - RESUBMITTAL

**MODWASH EXPNSION** 

3474 WILLIAM PENN HIGHWAY, WILKINS TWP, ALLEGHENY COUNTY, PA

Ms. Vargo,

In response to the comments received from the municipality on April 19, 2023, for the proposed Modwash expansion located at 3474 William Penn Highway in Wilkins Township, we wish to offer the following responses in black bold text:

#### **Comments Related to Submission:**

1. Although it appears the calculations match the condition for which the application was submitted, the Stormwater Management Report narrative does not describe the current conditions of the property. The pre-development conditions should reflect the existing car wash.

Response: Per a phone conversation with the township engineer (Robert Arnold), the existing conditions will be considered as the demolished bank, while the post development conditions will be considered as the existing car wash with the proposed expansion.

2. The report states on page 3 that the area total (all nodes) is 51,836 square feet. The property appears to be less than an acre in size. Please confirm the property size and drainage areas.

Response: The total area of 51,836 square feet was the combination of pre-development drainage area and the post development drainage area. This section has been removed from the attached PCSM narrative for clarity purposes.

3. Similarly, the limit of disturbance areas shown on Sheet C701 is shown as 0.41 acres, please confirm.

Response: The proposed limit of disturbance for this site is 0.41 acres.

4. The design storm volumes in the Stormwater Management Report do no match the volumes required to use per SWM Ordinance, listed in Section 374-14L(1).

Response: Please refer to the revised PCSM narrative for the updated stormwater volumes.

5. For existing impervious area, 20% shall be considered meadow in good condition to model calculations.

Response: Per a phone conversation with the township engineer (Rob Arnold), this isn't a requirement for the project.

6. Device 5 on page 23 in the PCSM report is labeled as secondary routing but appears to flow through the 12-inch culvert (device 1). Please confirm whether is should be routed as primary, not secondary.

Response: Please refer to the updated PCSM report. The 12-inch culvert is listed as primary while all other orifices and weirs are listed as device 1.

7. Please review the invert elevations from page 23 in the PCSM report against the details provided in Sheet C300 of the plan set to ensure consistency.

Response: The HydroCAD Outlet Control Structure model has been updated to match the detail on sheet C300.

8. The proposed development in "post" condition does not appear to be factored into the predevelopment drainage areas. Pre and Post areas should match to receive an accurate runoff volume from the site.

Response: Please refer to the update drainage area maps in the PCSM narrative. The "Post" condition includes more area, as the Point of Interest 1 is capturing more runoff onsite than the pre-development site.

9. The required SWM signature block shall be located on the PCSM Plan.

Response: Please refer to sheet C300 for included SWM signature block.

10. The Applicant shall execute a formal updated Operations and Maintenance Agreement for the stormwater management facilities with the Township.

Response: Acknowledged.

11. A minimum 15-foot easement should be provided for all utilities, including but no limited to, the proposed SWM system.

Response: Please refer to sheet C300 for the proposed additional 15' Storm Sewer Easement.

12. The staging area for the E&S controls is located on an adjacent property. Please provide confirmation of an agreement with the neighboring property owner to grant access.

Response: The agreement will be included in the sales agreement document. The sales agreement document is currently being signed.

13. Please review the merging lanes prior to entering the car wash. The lines shown on the pan (sheet C200) appear to show the membership lane running into the curb.

Response: The VIP membership lane merges into the middle pay station lane.

14. Tract boundaries with bearings and distances should be included in the plan set.

Response: Please refer to sheet C100 for the existing tract boundary with bearings.

15. Sufficient data, including bearing and length, to located every street, lot, easement, right-of-way and boundary line upon the ground should be shown.

Response: Please refer to sheet C100 for all existing condition information.

16. The location of all sanitary and storm sewer easements shall be shown on the plan.

Response: Please refer to sheet C100 for the existing sanitary and storm sewer easements.

17. Permanent reference monuments shall be shown on the plan and designated existing or proposed.

Response: Please refer to updated Subdivision Plan, all monuments have been set and are shown on the plan.

18. In the PCSM report, it states that there will be a rock construction entrance, however, there is not one shown on the plan.

Response: No Rock Construction Entrance is anticipated for this project, it has been removed from the PCSM report.

# **Zoning General:**

19. The application should be submitted to and approved by the Allegheny County Planning Department.

Response: Allegheny County Planning Department comments have been addressed.

20. A graphic scale should be included on the subdivision plan.

Response: Please refer to the updated Subdivision Plan with included graphic scale.

21. The entire existing tract boundary with bearings and distances as per the deed should be shown on the plan.

Response: Please refer to the updated Subdivision Plan with included deed/plan bearings and distances.

22. In addition to the area that shows the total acreage, zoning information should be provided on the subdivision plan.

Response: Please refer to the updated Subdivision Plan with included zoning table.

23. Existing contours per Section 350-17.A(12) should be shown at a minimum vertical interval of two (2) feet.

Response: Please refer to sheet C100 for existing site contours.

24. Location of existing utilities, including sewer, water and gas, etc. shall be shown on the plan.

Response: Please refer to sheet C100 for existing utilities.

25. The plan does not clearly shown the intentions on the boundary that is to be changes on the plan. Please provide notes and symbology of what lot line is to be removed, and what line is the proposed new boundary.

Response: Please refer to the updated Subdivision Plan with added notes indicated the proposed lot line changes.

The following are attached for your review:

- Ten (10) copies of the revised Land Development Plans
- Ten (10) copies of the revised Subdivision Plans
- Two (2) copies of the PCSM Narrative
- Two (2) copies of the Retaining Wall Design sheet

If you have any questions, please feel free to contact me.

Sincerely,

MORRIS KNOWLES & .... Consulting Engineers and Land Surveyors MORRIS KNOWLES & ASSOCIATES, INC.

anett Varner

Garrett Varner, EIT Project Engineer

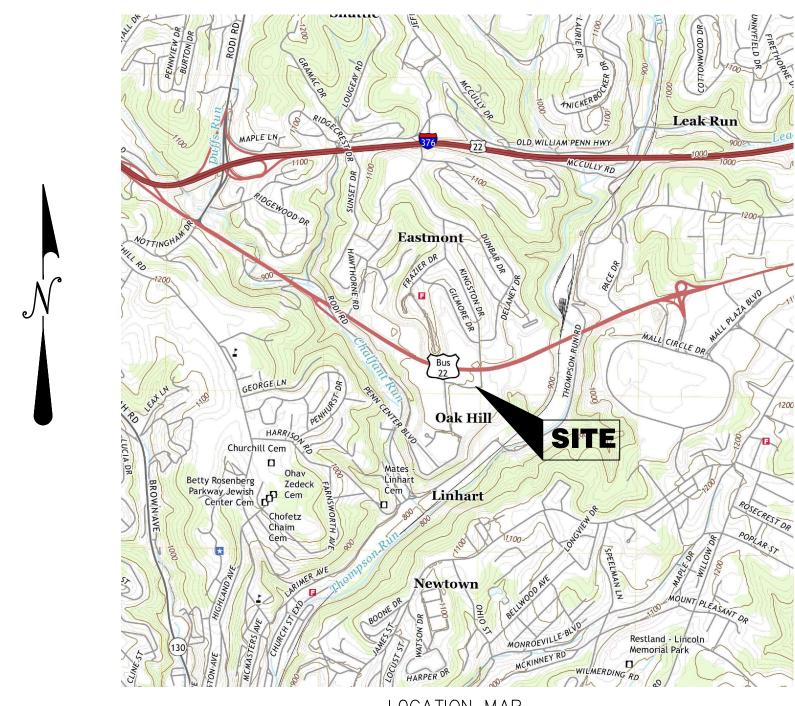
# MODWASH WILKINS TOWNSHIP PRELIMINARY/FINAL LAND DEVELOPMENT PLAN

WILLIAM PENN HIGHWAY(RT. 22), WILKINS TOWNSHIP, ALLEGHENY COUNTY, PA

# **GENERAL NOTES:**

- CONTRACTORS SHALL NOT SCALE THESE DRAWINGS FOR CONSTRUCTION OR BIDDING PURPOSES. IN THE EVENT OF OMISSIONS OF NECESSARY DIMENSIONS OR INFORMATION, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OR ENGINEER. FIGURED AND CALCULATED DIMENSIONS TAKE PRECEDENCE OVER SCALED MEASUREMENTS. DETAILED DRAWINGS AND LARGER SCALE DRAWINGS TAKE PRECEDENCE
- 2. ALL PLAN DETAILS AND WALL SECTIONS ARE CONSIDERED "TYPICAL" INDUSTRY DETAILS UNLESS NOTED OTHERWISE AS SITE SPECIFIC.
- 3. TRAFFIC SHALL BE MAINTAINED ON ALL ADJOINING STREETS AND DRIVES AT ALL TIMES. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH PENNDOT'S REQUIREMENTS.
- 4. CONTRACTOR SHALL VERIFY THE LOCATION AND INVERT ELEVATION OF ALL EXISTING UTILITIES WITH PROPOSED CONNECTIONS PRIOR TO CONSTRUCTION AND GRADING OF THE SITE. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY DESIGN CONFLICTS.
- 5. ALL MATERIALS AND WORKMANSHIP INVOLVED IN THIS SITE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION, INCLUDING SUPPLEMENTS, OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS PUB. FORM 408, UNLESS OTHERWISE NOTED.
- 6. A PENNDOT HIGHWAY OCCUPANCY PERMIT, PURSUANT TO SECTION 420 OF THE ACT OF JUNE 1, 1945 (P.L. 1242 NO. 428), KNOWN AS THE "STATE HIGHWAY LAW" IS REQUIRED FOR DRIVEWAY ACCESS TO ANY STATE ROADWAY.
- 7. A FINAL EROSION AND SEDIMENTATION CONTROL PLAN AND PERMIT PURSUANT TO THE RULES AND REGULATIONS OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (TITLE 25, PART 1, SUBPART C, ARTICLE II, CHAPTER 102 OF THE PENNSYLVANIA CODE) IS REQUIRED BEFORE ANY EARTH MOVING ACTIVITIES ON THE PROPOSED LOTS IS ALLOWED.
- 8. ALL PROPOSED ACCESSIBLE FACILITIES ARE TO BE CONSTRUCTED TO CURRENT ADA REQUIREMENTS AND STANDARDS.
- 9. ALL PROPOSED ON-SITE LIGHTING SHALL BE DIRECTED INWARD AND DOWNWARD AWAY FROM RESIDENTIAL PROPERTIES AND ALL STREET
- 10. LAND DEVELOPMENT PLAN APPROVAL DOES NOT RELIEVE THE OWNER FROM ALL APPLICABLE SIGN REGULATIONS. ALL PROPOSED ON-SITE SIGNAGE SHALL CONFORM TO THE MUNICIPAL ZONING ORDINANCES.
- 11. CONTRACTOR IS RESPONSIBLE FOR VERIFYING QUANTITIES, INCLUDING EARTHWORK. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER AND ENGINEER DURING THE BIDDING PROCESS OF ANY QUANTITY DISCREPANCIES IN THE BID DOCUMENTS. ONCE THE CONSTRUCTION CONTRACT IS ISSUED, THE CONTRACTOR ACKNOWLEDGES THE CONTRACT PRICE COVERS ALL LABOR, MATERIALS AND INCIDENTALS TO SUBSTANTIALLY COMPLETE THE PROJECT ACCORDING TO THE CONSTRUCTION PLANS.

APRIL, 2023



SCALE: 1"=2000' USGS QUADRANGLE MAP

# PREPARED FOR:

# **HUTTON ST 17, LLC**

736 CHERRY STREET CHATTANOOGA, TN 37402 ATTN - DEVIN BAKER PHONE - 423-599-2037

PREPARED BY:



Morris Knowles & Associates, Inc.

Consulting Engineers & Land Surveyors 443 ATHENA DRIVE DELMONT, PA 15626

TELEPHONE: (724) 468-4622 FAX: (724) 468-8940

**UTILITY COMPANIES** 

# **SANITARY**

WILKINS TOWNSHIP 110 Peffer Road Turtle Creek, PA 15145 412-824-6650

PEOPLES NATURAL GAS 1315 Gringo Road Aliquippa, PA 15001 412-244-2626

TELEPHONE / FIBER OPTICS

# <u>WATER</u>

# WILKINS PENN-JOINT WATER AUTHORITY 2200 Robinson Blvd

3828 William Penn Highway Pittsburgh, PA 15221 Monroeville, PA 15146 412-243-5837 412-856-2300

# **ELECTRICITY**

Penn Hills, PA 15235 412-824-0032

Monroeville, PA 15146 Dan Heinz daniel\_heinz@cable.comcast.com

DUQUESNE LIGHT 469 Hershey Road <u>CABLE</u>

COMCAST 2300 Eldo Road

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THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION (PA ACT 287 OF 1974 AMENDED BY ACT 50 OF 2018). PA STATE LAW REQUIRES 3 WORKING DAYS NOTICE

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES.

THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

INDEX OF SHEETS

C000

C100

C200

C300

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C600

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TITLE SHEET

SITE PLAN

GRADING PLAN

LANDSCAPE PLAN

GENERAL DETAILS

EXISTING CONDITIONS/DEMOLITION PLAN

EROSION AND SEDIMENT CONTROL TITLE SHEET

EROSION AND SEDIMENT CONTROL PLAN DETAILS

EROSION AND SEDIMENT CONTROL PLAN

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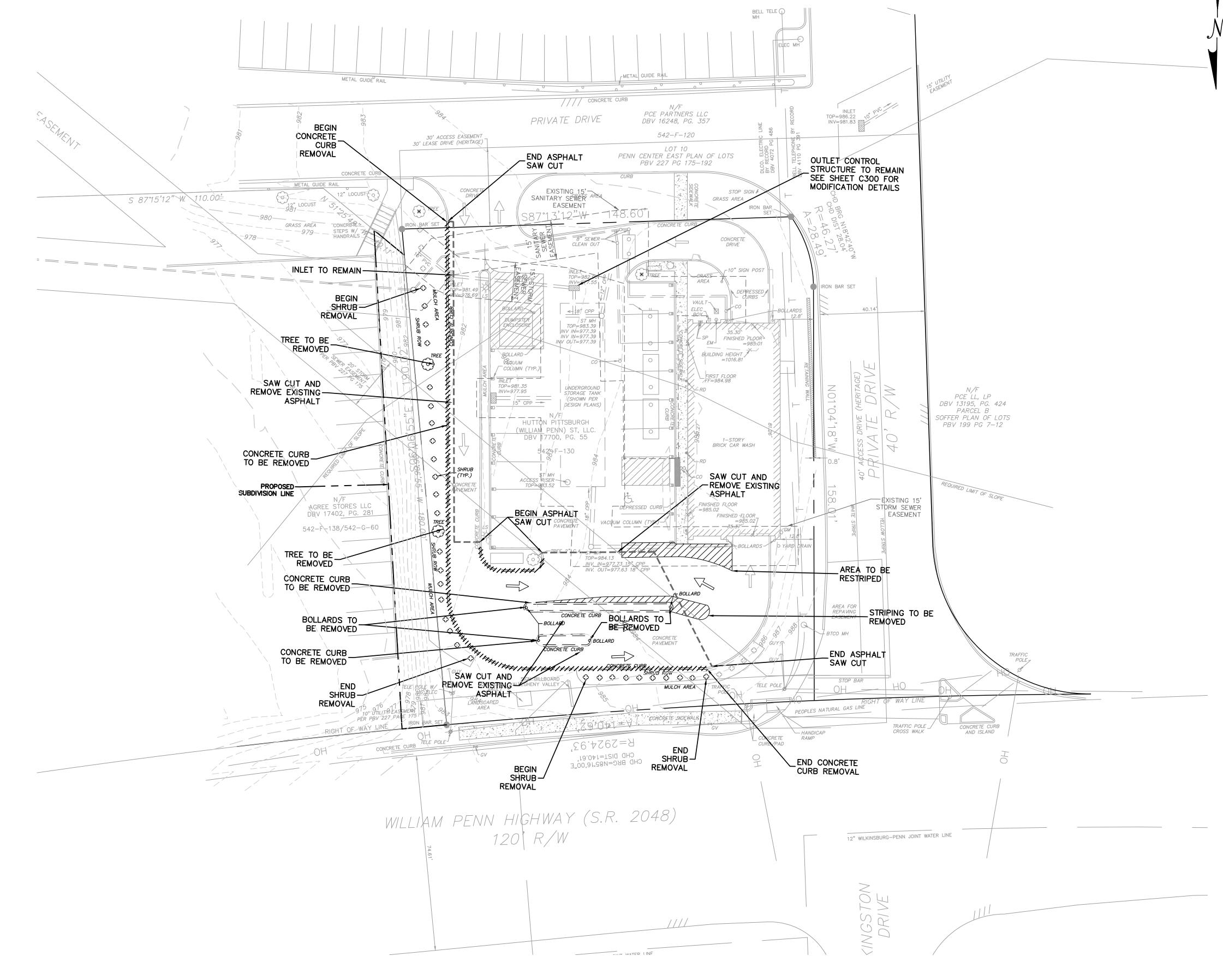
SCALE:

SHEET NO. C000

1. THE SUBJECT PROPERTIES ARE NOT LOCATED WITHIN A 100 YEAR FLOOD PLAIN ACCORDING TO FEMA FLOOD MAP NUMBER 42003C0391H, LAST REVISED SEPTEMBER 26, 2014.

# **DEMOLITION NOTES:**

- 1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION WORK.
- 2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITY CONNECTIONS PRIOR TO CONSTRUCTION/DEMOLITION AT THIS SITE. THE CONTRACTOR SHALL ALSO COORDINATE ALL UTILITY CONNECTIONS WITH LOCAL PROVIDERS.
- 3. ALL EXISTING PAVEMENT, CURB AND SIDEWALK TO BE REMOVED SHALL BE SAW CUT AS SHOWN ON
- 4. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL DRIVES, WALKS, EXISTING PAVEMENT AND CURBING WITHIN THE LIMITS AS SHOWN. ALL DEBRIS IS TO BE HAULED OFF-SITE TO AN APPROVED LANDFILL.
- 5. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE MUNICIPALITY OF WILKINS TOWNSHIP. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF TRAFFIC THROUGH THE CONSTRUCTION PERIOD.



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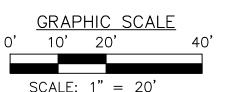
<u>LEGEND</u>

SAN - SANITARY ST - STORM MH - MANHOLE TOP - TOP OF CASTING INV - INVERT / FLOW LINE WV - WATER VALVE GV — GAS VALVE GM — GAS METER EM — ELECTRIC METER STATE ROUTE TELE - TELEPHONE

RCP - REINFORCED CONCRETE PIPE

CPP - CORRUGATED PLASTIC PIPE

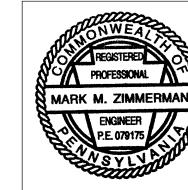
——G—— - GAS LINE ——W—— – WATER LINE ----T --- SUBSURFACE TELEPHONE LINE — E — – SUBSURFACE ELECTRIC LINE ----OH --- OVERHEAD WIRES -- 908 -- - EXISTING CONTOURS - EXISTING INLET
- EXISTING MANHOLE = = = = = EXISTING SEWER —X——X— – FENCE



THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES.

THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

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SHEET NO. C100

W 0/

20 20 85

1"=20'

SCALE:

Morris & Assoc (A Hammol

# SITE NOTE:

- THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS AS SHOWN ON THE PLANS.
- NO WETLANDS EXIST WITHIN THE PROJECT BOUNDARY.
- MINE OPENINGS ARE NOT ANTICIPATED. IF MINE SPOILS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL EITHER REWORK THE MATERIAL PER GEOTECHNICAL ENGINEERS RECOMMENDATIONS OR REMOVE
- THE MATERIAL TO A PERMITTED AREA. 4. NO SIGNIFICANT CULTURAL OR SENSITIVE ENVIRONEMENTAL FEATURES EXIST WITHIN THE PROJECT BOUNDARY. NO
- FURTHER ENVIRONMENTAL STUDIES WILL BE NECESSARY. 5. NO WATER RESOURCES EXIST WITHIN THE PROJECT BOUNDARY.

# ZONING INFORMATION

LOCATION: 3474 WILLIAM PEN	NN HIGHWAY	
ZONE: C-1 COMMERICAL		
USE: CAR WASH		
ITEM	REQUIREMENTS	PROPOSED
MINIMUM FRONT SETBACK	50 FEET	63 FEET
MINIMUM SIDE SETBACK	O FEET	6 FEET
MINIMUM REAR SETBACK	30 FEET	40 FEET
MAXIMUM BUILDING HEIGHT	35 FEET	35 FEET
MAXIMUM COVERAGE	N/A	65 PERCENT

# PARKING INFORMATION

REQUIREMENT DESCRIPTION:

1 FOR EACH 300 SQUARE FEET OF GROSS FLOOR AREA OF THE BUILDING OR LOT AREA DEVOTED TO SUCH USE, WHICHEVER IS GREATER. FOR ESTABLISHMENTS WITH DRIVE-THROUGH LANES, THE LANE SHALL ACCOMMODATE FOUR CARS STACKED WITHIN THE LANE.

ITEM	REQUIREMENTS	PROPOSED
PARKING SPACES:	2,838/300=10	15
LOADING SPACE:	N/A	0

# PAVEMENT LEGEND

STANDARD DUTY CONCRETE 5" PORTLAND CEMENT CONCRETE

4" AGGREGATE BASE

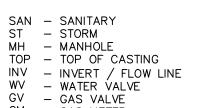


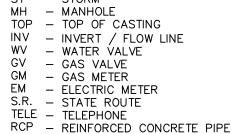
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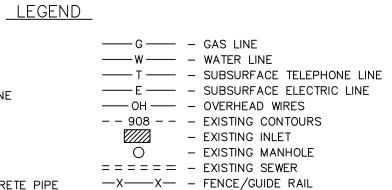
THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION (PA ACT 287 OF 1974 AMENDED BY ACT 121 OF 2008). PA STATE LAW REQUIRES 3 WORKING DAYS NOTICE







CPP - CORRUGATED PLASTIC PIPE



METAL GUIDE RAIL

CONCRETE CURB

GRASS AREA

PAINTED WHITE -

LANE DIVIDER

4" SLOPING-

CURB (TYP.)

PAVEMENT SAW-

120 LF RETAINING WALL MAX HEIGHT OF 4.5'

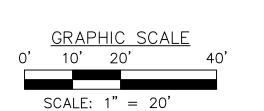
115 LF OF GUIDE RAIL-

CUT LINE

AGREE STORES LLC DBV 17402, PG. 281

542-F-138/542-G-60

30' ACCESS EASEMENT 30' LEASE DRIVE (HERITAGE)



//// CONCRETE CURB

PRIVATE DRIVE

EXISTING 15'-SANITARY SEWER

BOLLARD -VACUUM COLUMN (TYP.) {<del>---</del>

- - N/F HUTTON PITTSBURGH

(WILLIAM PENN) ST, LLC.

CONCRETE VACUUM COLUI PAVEMENT END 6" CURB

VIP MEMBERSHIP LANE

WILLIAM PENN HIGHWAY (S.R. 2048)

120 R/W

R=2924.93°

CHD DI21=1+0.61, CHD BRG=N8576,00"E

EASEMENT

PCE PARTNERS LLC

DBV 16248, PG. 357 542-F-120

PENN CENTER EAST PLAN OF LOTS PBV 227 PG 175-192

BELL TELE MH

STOP SIGN &

GRASS AREA

BUILDING HEIGHT

BRICK CAR WASH

CONCRETE SIDEWALK ...

TOP=986.22 INV=981.83

IRON BAR SET

PCE LL, LP DBV 13195, PG. 424 PARCEL B SOFFER PLAN OF LOTS

PBV 199 PG 7-12

REQUIRED LIMIT OF SLOPE

-EXISTING 15'

EASEMENT

12" WILKINSBURG-PENN JOINT WATER LINE

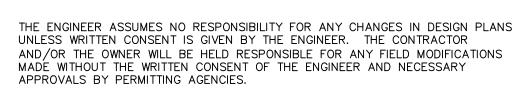
-EDGE OF PROPOSED

CONCRETE PAVEMENT

STOP BAR

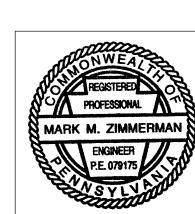
PEOPLES NATURAL GAS LINE

\_ CONCRETE CURB/PAD



THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

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SHEET NO. C200

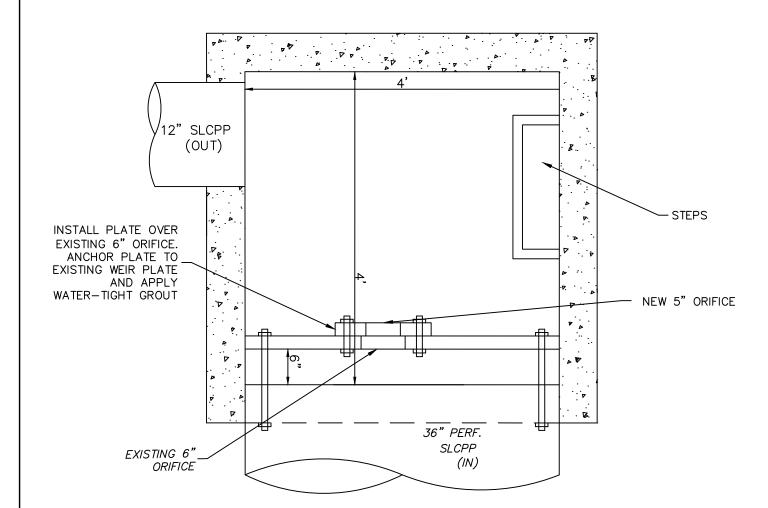
1"=20'

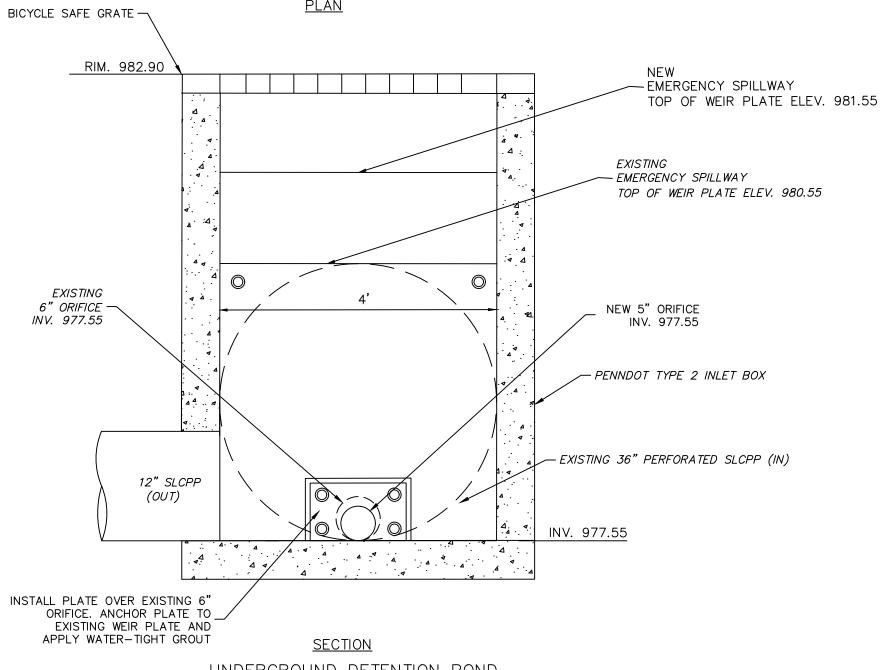
SCALE:

 $\mathbb{Morris}_{\mathbb{A}}^{\mathbf{k}}$ 

# **GRADING NOTES:**

- 1. THE CONTRACTOR SHALL COMPACT ALL FILL MATERIALS OUTSIDE OF PROPOSED BUILDING AREAS, PLACED IN LIFTS, AND COMPACTED TO 90% OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR) OR 95% BY ASTM-D698 (STANDARD PROCTOR). PLACE FILL IN EIGHT-INCH LIFTS AND COMPACT WITH AN IMPACT-TYPE ROLLER (I.E. SHEEPSFOOT ROLLER). PROVIDE FOR INSPECTION OF ALL FILL AS IT IS PLACED FOR PROPER DENSITY BY A GEOTECHNICAL TESTING FIRM.
- 2. THE CONTRACTOR SHALL COMPACT ALL FILL MATERIALS WITHIN PROPOSED BUILDING AREAS, PLACED IN LIFTS, AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR) OR 100% BY ASTM-D698 (STANDARD PROCTOR). PLACE FILL IN EIGHT-INCH LIFTS AND COMPACT WITH AN IMPACT-TYPE ROLLER (I.E. SHEEPSFOOT ROLLER). PROVIDE FOR INSPECTION OF ALL FILL AS IT IS PLACED FOR PROPER DENSITY BY A GEOTECHNICAL TESTING FIRM.
- 3. ALL CUT AND FILL OPERATIONS SHALL FOLLOW THE "PENNSYLVANIA HANDBOOK OF BEST MANAGEMENT PRACTICES" FOR DEVELOPING AREAS.
- 4. THE CONTRACTOR SHALL NOT EXCEED A MAXIMUM GRADE BREAK OF 8% IN THE PROPOSED
- 5. THE CONTRACTOR SHALL CONTROL DUST ON THE SITE IN ACCORDANCE WITH PA DEP REQUIREMENTS.
- 6. IF THE CONTRACTOR DISCOVERS CONTAMINATED SOIL ON THE SITE DURING CONSTRUCTION ACTIVITIES, THEN THE SOILS SHALL BE CLEANED AND DISPOSED OF AT AN APPROVED LANDFILL IN ACCORDANCE WITH PADEP RULES, REGULATIONS AND REQUIREMENTS.
- 7. HANDICAPPED SPACES AND ACCESS ISLES MAXIMUM SLOPE IS 2% IN ALL DIRECTIONS.





UNDERGROUND DETENTION POND OUTLET STRUCTURE NO SCALE

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<u>LEGEND</u> SAN - SANITARY ST - STORM MH - MANHOLE

TOP - TOP OF CASTING INV - INVERT / FLOW LINE WV - WATER VALVE GV — GAS VALVE GAS METER EM — ELECTRIC METER - STATE ROUTE = = = = = = EXISTING SEWER TELE - TELEPHONE —X——X— – FENCE RCP - REINFORCED CONCRETE PIPE CPP - CORRUGATED PLASTIC PIPE

——G—— - GAS LINE ——W—— – WATER LINE T - SUBSURFACE TELEPHONE LINE — E — – SUBSURFACE ELECTRIC LINE -- 908 -- - EXISTING CONTOURS EXISTING INLET – EXISTING MANHOLE

# **MUNICIPAL ENGINEER'S CERTIFICATION**

THE WILKINS TOWNSHIP MUNICIPAL ENGINEER, ON THIS DATE HAS REVIEWED AND HEREBY CERTIFIES THAT THE SWM SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF MUNICIPAL ORDINANCE NO. 1029.

//// CONCRETE CURB

PRIVATE DRIVE

-TC-982.67

BC-982.34

COLUMN (TYP.)

-982.68

BC-982.89

TC-984.01

\_TC-983.47 TC-984.05\_

BC-983.14 BC-983.55

TC-983.49 BC-983.54

BC-983.52

WILLIAM PENN HIGHWAY (S.R. 2048)
120 R/W

BC-983.51

BC-983.16 TC-984.02

BC-983.51 TC-984.13

TC-983/43

BC-983.10

DESIGN PLANS)

TON PITTSBURGH

30' ACCESS EASEMENT 30' LEASE DRIVE (HERITAGE)

CONCRETE CURB

GRASS AREA

TC-982.85\_ BC-982.52

SLCPP PIPE @ 1.00%

BW 981.93-

PROPOSED 15'-

STORM SEWER

EASEMENT

NEW TOLET-

RIM 982.00

INV. (15" OUT) 978.11 TC-982.67

PROPOSED-SUBDIVISION LINE 16°LF 15"

TW 982.64

TW 982.76-

BW 978.40-

BW 978.40

TW 982.90 BW 982.87

TC-983.61 BC-983.28

TW 982.90 BW 979.30

BW 979.39

AGREE STORES LLC

DBV 17402, PG. 281

S 87°15'12" W 110.00

PCE PARTNERS LLC

DBV 16248, PG. 357

542-F-120

PENN CENTER EAST PLAN OF LOTS

PBV 227 PG 175-192

OUTLET STRUCTURE

PER DETAIL THIS SHEET

- DEPRESSED CURB

BC-984.08 TC-984.53

BC-984.03 \_TC-984.39

BC-983.89

BC-983.85

TC-984.94

BC-984.44 TC-984.99

BC-984.49

-TC-984.47

BC-984.14

TC-984.31

BC-983.98

CURB / PAD

VACUUM COLUMN (TYP.)

TC-983.88

TC-984.77

\_TC-983.69 BC-983.36

R=2924.93°

CHD BKG=N8516,00°E

8" WILKINSBURG-PENN JOINT WATER LINE

STOP SIGN A

-10" SIGN POST

IRON BAR\_

GRASS AREA

BUILDING HEIGHT

-EXISTING INLET

BRICK CAR WASH

INV. (15" IN) 977.95

EX. INV. (15" OUT) 977.95

RIM 981.35

INV=986.22 INV=981.83

RON BAR SET

NAME

REGISTRATION NUMBER

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES.

PCE LL, LP

DBV 13195, PG. 424

PARCEL B

SOFFER PLAN OF LOTS

REQUIRED LIMIT OF SLOPE

STORM SEWER

CONTRACTOR TO

12" WILKINSBURG-PENN JOINT WATER LINE

-MATCH EXISTING

**EASEMEN**1

STOP BAR

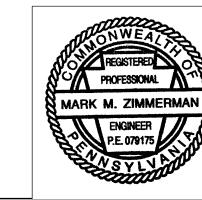
PEOPLES NATURAL GAS LINE

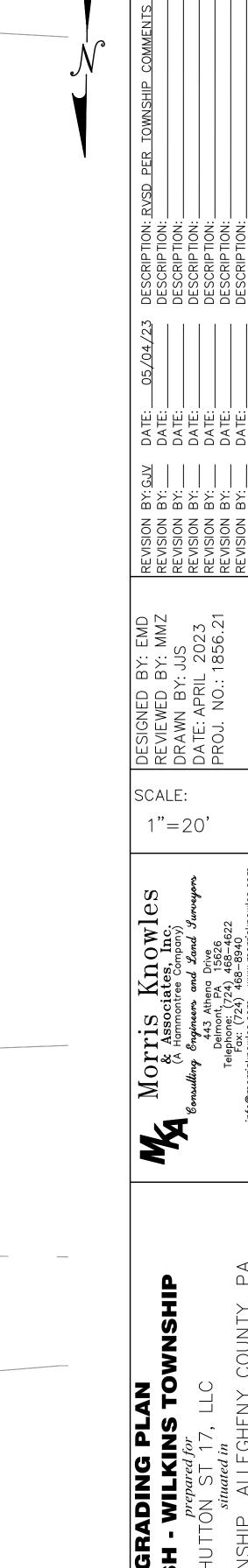
EASEMENT

PBV 199 PG 7-12

THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

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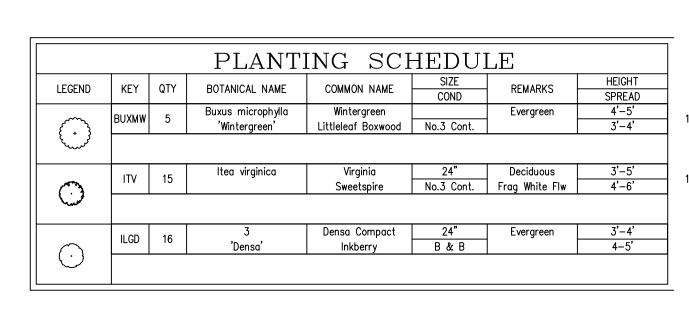




SHEET NO.

# **LANDSCAPING NOTES:**

- 1. ALL PLANTING BEDS SHALL RECEIVE 3" DOUBLE SHREDDED BARK MULCH. 2. ALL PLANTING BEDS SHALL BE BACKFILLED WITH 6" DEPTH CLEAN TOPSOIL FREE OF BUILDING
- DEBRIS, CRUSHED ROCK, MORTAR MIX, ETC.
- 3. REPAIR/RESEED ALL DISTURBED AREAS WITH SPECIFIED SEED MIXTURES.
- 4. SEED ALL 2:1 OR STEEPER SLOPES WITH BIRDSFOOT TREFOIL AND TALL FESCUE MIX. 5. ALL DISTURBED AREAS LESS 2:1 SLOPE SHALL BE SEEDED WITH LAWN SEEDING MIXTURE.
- 6. ALL LAWN AREAS SHALL BE BACKFILLED WITH 6" DEPTH CLEAN TOPSOIL FREE OF BUILDING DEBRIS, CRUSHED ROCK, MORTAR MIX, ETC. 7. ALONG SIDEWALKS, FOUNDATIONS AND CURBINGS, UNDER-RUN FROM CONCRETE FORMS SHALL
- BE BROKEN AWAY AND REMOVED. 8. PRIOR TO CONSTRUCTION, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE IN THE FIELD THE LOCATIONS OF ALL EXISTING UTILITIES. 9. ALL PLANT MATERIALS SHALL BE OF SPECIMEN QUALITY AND COMPLY WITH THE AMERICAN
- STANDARD FOR NURSERY STOCK (MOST CURRENT EDITION), 10. ALL PLANT MATERIAL TO BE RE-USED SHALL BE TAGGED BY OWNER. ALL EXISTING PLANT MATERIAL TO BE RE-USED SHALL BE STORED AS SHOWN ON PLAN PRIOR TO PLANTING DURING
- CONSTRUCTION. 11. TREE TRUNKS AND EXPOSED ROOTS DAMAGED DURING EQUIPMENT OPERATIONS SHALL BE TREATED IN ACCORDANCE WITH ARBORICULTURAL STANDARDS. DAMAGED TREE LIMBS SHALL BE CUT BACK TO THE NEXT LATERAL BRANCH OR PARENT STEM AT THE BRANCH COLLAR.
- 12. ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL ROOT WRAPPING MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED AT TIME OF PLANTING. 13. THE OWNER RESERVES THE RIGHT TO REJECT ANY AND ALL PLANT MATERIAL DEEMED NOT
- ACCEPTABLE. 14. ALL PLANTS AND STAKES SHALL BE SET PLUMB UNLESS OTHERWISE SPECIFIED. 15. REMOVE BURLAP, ROPES, WIRE, AND OTHER NON-BIODEGRADABLE MATERIALS FROM THE ROOT
- BALLS AFTER FINAL POSITIONING. 16. SPADE CUT ALL BED EDGES AND MULCHED RINGS ARE TO BE SPADE CUT TO A DEPTH OF 6",
- CUT AT 90° TO THE FINISHED GRADE AND THEN BACK TOWARD THE PLANT BED AT 45°. 17. TOPSOIL SHALL BE FROM A NATURALLY WELL DRAINED SITE WHERE SOIL OCCURS AT A DEPTH OF AT LEAST 4". TOPSOIL SHOULD HAVE A pH OF 5.5 TO 7 WITH 4 PERCENT ORGANIC MATERIAL MINIMUM AND BE FREE OF STONES 1" DIAMETER OR LARGER, ROOTS, PLANTS, CLAY LUMPS AND OTHER MATERIALS HARMFUL TO PLANT GROWTH.
- 18. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY, IF NECESSARY, DURING THE FIRST GROWING SEASON.
- 19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DEAD PLANT MATERIAL FROM NATURAL CAUSES INSTALLED PURSUANT TO THESE REQUIREMENTS FOR A PERIOD OF ONE (1) YEAR AFTER THE INSTALLATION DATE. IT SHALL BE THE RESPONSIBILITY OF THE OWNER/APPLICANT TO ASSURE THE CONTINUED GROWTH OF ALL REQUIRED LANDSCAPING AND/OR TO REPLACE THE SAME IN THE EVENT OF FROST, VANDALISM, DISEASE, OR OTHER REASONS FOR DISCONTINUED GROWTH OF THE REQUIRED TREES, SHRUBS, AND BRUSHES. IT IS THE OWNER'S RESPONSIBILITY FOR ALL FUTURE MAINTENANCE. NO PERSON SHALL REMOVE ANY LANDSCAPING (i.e. TREES, SHRUBS, OR BRUSHES) AFTER THE SAME HAS BEEN PLANTED UNLESS THE SAME ARE REPLACED WITH AN
- EQUIVALENT TREE, SHRUB, OR BUSH. 20. PERMANENT SEEDING SHALL BE REQUIRED FOR ALL DISTURBED SLOPE AREAS WITHIN FOURTEEN (14) DAYS OF COMPLETION OF GRADING OPERATIONS, WEATHER PERMITTING.
- 21. THE CONTRACTOR SHALL NOT PLANT SHRUBS IN AREAS UNDERLAIN BY SHALLOW DEPTH TO ROCK. 22. AFTER PLANTS ARE ESTABLISHED, ALL PLANT STAKING SHALL BE REMOVED.



METAL GUIDE RAIL

CONCRETE CURB

STEPS W/ HANDRAILS

7 ITV -

AGREE STORES LLC

DBV 17402, PG. 281

542-F-138/542-G-60

8 (TV —

GRASS AREA

SUBDIVISION LINE

-979-

30' ACCESS EASEMEN

30' LEASE DRIVE (HERITAGE)

PCF PARTNERS IIC

DBV 16248, PG. 357

542-F-120

LOT 10

PENN CENTER EAST PLAN OF LOTS

PBV 227 PG 175-192

( X )TREE \_\_\_\_ GRASS

- DEPRESSED CURB

CONCRETE SIDEWALK

VACYUM COLUMN (TYP.)

GRASS AREA

SP FINISHED FLOOR =985.01

BUILDING HEIGHT

BRICK CAR WASH

FINISHED FLOOR

CONCRETE

CURB/PAD

IRON BAR

IRON BAR SET

EASEMENT

BTCO MH

PCE LL, LP DBV 13195, PG. 424 PARCEL B SOFFER PLAN OF LOTS

PBV 199 PG 7-12

REQUIRED LIMIT OF SLOPE

-EXISTING 15'

EASEMENT

RAFFIC POLE \_/

12" WILKINSBURG-PENN JOINT WATER LINE

STORM SEWER

PRIVATE DRIVE

EXISTING 15

VACUUM COLUMN (TYP.) 

HUTTON PITTSBURGH

(WILLIAM PENN) ST, LLC. DBV 17700, PG. 55

R=2924.93°

CHD DIZI=140.61, CHD BKC=N82,16,00,E

VIP MEMBERSHIP LAN

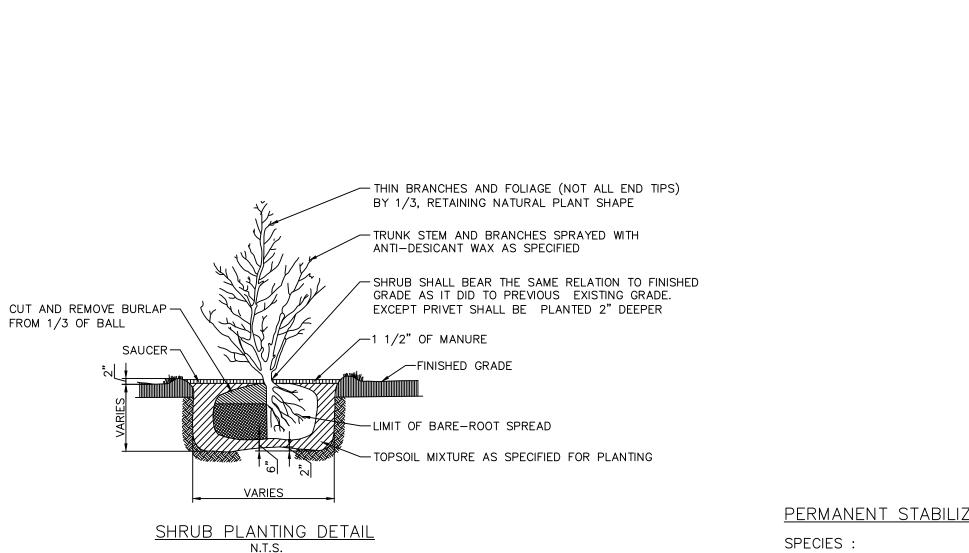
5 BUXMW-

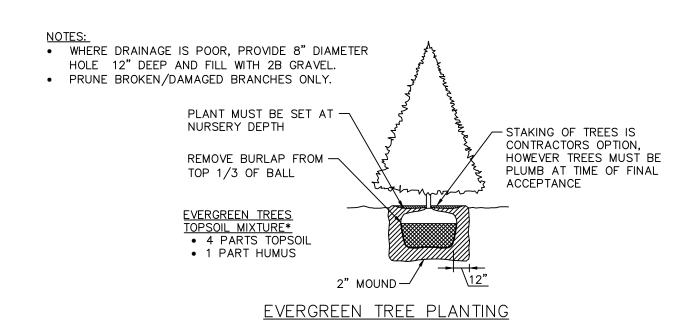
WILLIAM PENN HIGHWAY (S.R. 2048)

SANITARY SEWER AREX

EASEMENT

\_\_\_





CALL BEFORE YOU DIG IN PENNSYLVANIA Know what's below 1-800-242-1776

DESIGN SN: 20181990650

THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION (PA ACT 287 OF 1974 AMENDED BY ACT 50 OF 2018). PA STATE LAW REQUIRES 3 WORKING DAYS NOTICE

Call before you dig

# PERMANENT STABILIZATION

• POA PRATENSIS (KENTUCKY BLUEGRASS) 90% PURE LIVE SEED APPLICATION RATE 50LBS/AC

• FESTUCA RUBRA VAR. 'PENNLAWN" (PENNLAWN RED FESCUE) 98% PURE LIVE SEED, APPLICATION RATE 30LBS/AC

• LOLIUM PERENNE (PERENNIAL RYEGRASS) 98% PURE LIVE SEED, APPLICATION RATE 20LBS/AC FERTILIZER: COMMERCIAL FERTILIZER, 10-20-20, 1,000 LBS./ACRE LIMING: 4,000 LBS./ACRE MULCH: WHEAT OR OAT STRAW WELL CURED TO LESS THAN 20% MOISTURE BY WEIGHT, 5,800 POUNDS PER ACRE

SEEDING DATES: SPRING - MARCH TO MAY 30 FALL - SEPTEMBER 1 TO OCTOBER 15

# PERMANENT-STEEP SLOPE

SPECIES: BIRDSFOOT TREFOIL AND TALL FESCUE MIX % PURE LIVE SEED: 99% APPLICATION RATE: 10 AND 50 LBS/ACRE. RESPECTIVELY FERTILIZER TYPE: COMMERCIAL FERTILIZER 5-10-10 FERTILIZER APPL. RATE: (PER TESTING) 30 LBS/ACRE LIMING RATE: 1 TONS/ACRE MULCH TYPE: HAY & STRAW MULCHING RATE: 3 TONS/ACRE ANCHORING MATERIAL: NONASPHALTIC MATERIAL ANCHORING METHOD: SPRAY RATE OF ANCHORING MATERIAL APPL.: 1000 GAL/SQ.YD. SEEDING DATES: APRIL-SEPT.

# LEGEND

MH -TOP -

CPP - CORRUGATED PLASTIC PIPE

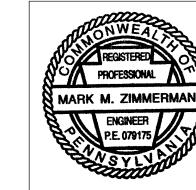
_	SANITARY	—— G ——	_	GAS LINE
	STORM	——w—	_	WATER LINE
	MANHOLE TOP OF CASTING	T	_	SUBSURFACE TELEPHONE LINE
	INVERT / FLOW LINE	——E—	_	SUBSURFACE ELECTRIC LINE
	WATER VALVE	—— ОН ——	_	OVERHEAD WIRES
_	GAS VALVE	908	_	EXISTING CONTOURS
	GAS METER		_	EXISTING INLET
	ELECTRIC METER	0	_	EXISTING MANHOLE
	STATE ROUTE TELEPHONE	======	_	EXISTING SEWER
	REINFORCED CONCRETE PIPE	_xx-	_	FENCE

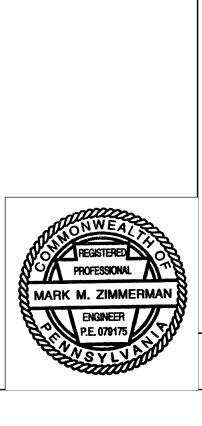
## 'SPECIMEN GRADE' TREE FIELD SELECTED AND TAGGED BY THE OWNER OR ARCHITECT - WIRE TREES WITH 2 STRANDS OF NO. 10 WHERE DRAINAGE IS POOR, PROVIDE 8" DIAMETER GALVANIZED WIRE TWISTED HOLE 12" DEEP AND FILL WITH 2B GRAVEL. • PRUNE BROKEN/DAMAGED BRANCHES ONLY. STAKING OF TREES IS CONTRACTORS OPTION, (3) 2" x 2" HARDWOOD HOWEVER TREES MUST BE PLUMB AT TIME OF STAKES SET OUTSIDE OF FINAL ACCEPTANCE. - PROTECT TRUNK WITH 2 PLY RUBBER HOSE MOUND 2" SOIL (ALL AROUND) -3 (REQ'D) REMOVE BURLAP FROM -TOP 1/3 OF BALL - PLANT MUST BE SET AT NURSERY DEPTH -GRAPHIC SCALE DECIDUOUS TREES TOPSOIL MIXTURE\* • 4 PARTS TOPSOIL • 1 PART DECOMPOSED MUSHROOM MANURE SCALE: 1" = 20'

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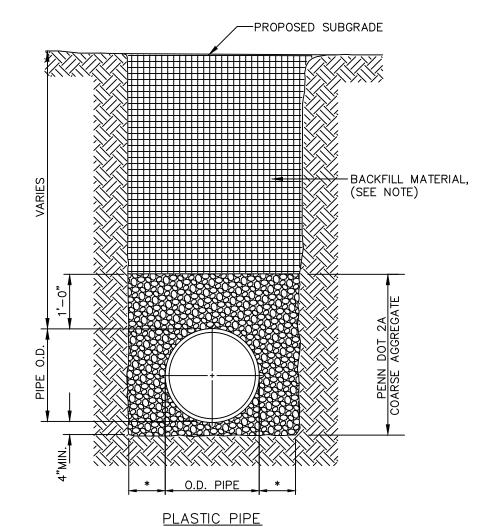
%;; 20 %; 186 

SCALE: 1"=20'

**O K** ⊗

SHEET NO.

TYPE "M" INLET N.T.S.

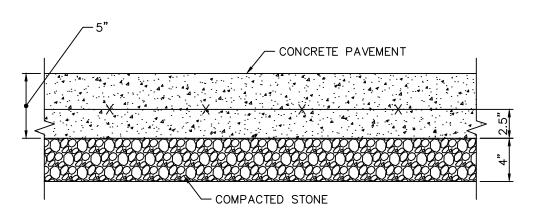


O.D. — OUTSIDE PIPE DIAMETER \* 12" IN PENNDOT R.O.W. 8" MIN. IN ALL OTHER CONDITIONS

# STORM SEWER STANDARD TRENCHING

ALL STREET, SIDEWALK AND PARKING AREA CROSSINGS SHALL BE BACKFILLED TO SUBGRADE WITH AASHTO #57 AGGREGATE, GRAVEL OR STONE FOR SEWERS AND 2A LIMESTONE FOR ALL OTHER UTILITIES.

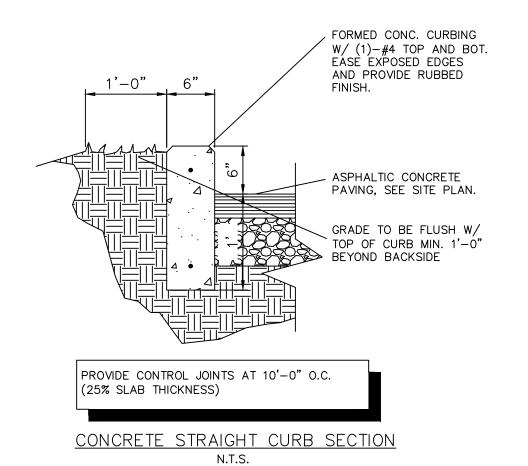
IN ALL OTHER TRENCH AREAS; BACKFILL FROM THE SPRINGLINE TO (1) ONE FOOT ABOVE THE TOP OF PIPE, TO BE SELECTED MATERIAL (SELECTED MATERIAL IS FINELY DIVIDED MATERIAL FREE OF DEBRIS, ORGANIC MATERIAL AND STONES.), TAMPED IN (4) FOUR INCH LAYERS; THEN THE REMAINING BACKFILL FROM THE TRENCH MAY BE PLACED. IF UNSUITABLE BACKFILL IS DETERMINED TO BE PRESENT BY THE OWNER REPRESENTATIVE, IMPORTED BACKFILL WILL BE REQUIRED.



## NOTES:

- 1. CONCRETE SHALL BE PENNDOT CLASS A CONCRETE.
- 2. REINFORCEMENT SHALL BE WWF6X6.
- 3. COMPACTED STONE SHALL BE 2A STONE.
- 4. IF SUBGRADE MATERIALS ARE UNSUITABLE, CONTRACTOR SHALL EXCAVATE TO SUITABLE MATERIAL, FILL AND COMPACT TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- 5. CONTRACTOR SHALL INSTALL AND COMPACT SUBBASE ACCORDING TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- 6. CONTRACTOR SHALL COMPACT THE SUBGRADE TO AT LEAST 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557. THE SUBGRADE SHALL BE IN A STABLE, NON-YIELDING CONDITION AT THE TIME OF PAVING.

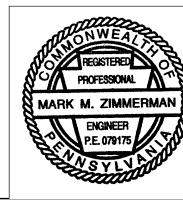
STANDARD DUTY CONCRETE PAVEMENT N.T.S.



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DE, DR, DA

SCALE:

Morris & Ass (A Hamr

N.T.S.

SHEET NO. C600

SCALE: 1"=2000' USGS QUADRANGLE MAP BRADDOCK, PA

TITLE

C700 EROSION AND SEDIMENTATION CONTROL TITLE EROSION & SEDIMENTATION CONTROL PLAN C701 C702 EROSION & SEDIMENTATION CONTROL DETAILS

HUTTON ST 17, LLC 736 CHERRY STREET CHATTANOOGA, TN 37402 PHONE NO.: 423-599-2037 REP .: DEVIN BAKER

# CHAPTER 93 RECEIVING WATER COURSE:

1. THE RECEIVING WATER COURSE IS THOMPSON RUN WHICH IS DESIGNATED AS A WARM WATER FISHES (WWF), BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, CHAPTER 93.

# <u>UNDERGROUND DETENTION CONSTRUCTION SEQUENCES:</u>

UNDERGROUND DETENTION POND CONSTRUCTION SEQUENCE: STAGE 1: INSTALLATION OF UNDERGROUND DETENTION FACILITIES WHEN SITE IS STABILIZED WITH UNIFORM 70% PERENNIAL VEGETATIVE COVER OVER PROJECT AREA. INSTALL STORMWATER MANAGEMENT FACILITIES.

STAGE 2: INSTALL UNDERGROUND DETENTION FACILITY #1 PER DETAIL AND SPECIFICATIONS. CONTRACTOR SHALL PREVENT COMPACTION WITHIN INFILTRATION AREA TO THE GREATEST EXTENT POSSIBLE. IN THE EVENT OF COMPACTION, WITHIN THE INFILTRATION ZONE, THE CONTRACTOR SHALL SCARIFY THE SOIL TO PROMOTE INFILTRATION.

- INSTALL NON-WOVEN GEOTEXTILE ALONG BOTTOM OF INFILTRATION AREA.
- INSTALL OUTLET STRUCTURE AND WEIR PLATES ACCORDING TO THE PLAN SHEET C801. INSTALL AND CONNECT PERFORATED HDPE PIPES TO OUTLET STRUCTURES. BACKFILL WITH

2B STONE PER SPECIFICATIONS ON C801.

- CONNECT STORMSEWER PIPING TO THE UNDERGROUND DETENTION FACILITY \*\*THE CRITICAL STAGE IN WHICH LICENSED PROFESSIONAL OR DESIGNEE MUST BE ON-SITE IS PRIOR TO THE STONE BEDDING IS LAID, INSTALLATION OF PERFORATED HDPE PIPES AND OUTLET STRUCTURE, AND BACKILLING OF PERFORATED HDPE PIPES\*\*
- LANDSCAPE RESTORATION SEQUENCE: PERMANENT SEEDING SHALL BE ERNST SEED MIX ERNMX-181 NATIVE STEEP SLOPE MIX
- B. DISTURBED AREA TO BE RE-PLANTED WITH VEGETATION AS SHOWN ON PLAN.

# MODWASH - WILKINS TOWNSHIP

EROSION AND SEDIMENTATION CONTROL PLAN WILKINS TOWNSHIP, ALLEGHENY COUNTY, PA APRIL 2023

# CONSTRUCTION SEQUENCE:

THE ENTIRE SITE CANNOT BE CLEARED AND GRUBBED AT ONE TIME. ONLY AREAS FOR WHICH THE SPECIFIED EROSION AND SEDIMENTATION CONTROL HAS BEEN INSTALLED CAN BE CLEARED

STAGE 1: INSTALL INLET PROTECTION ON STORM SEWER INLETS A. CLEAN INLETS TO ENSURE PROPER STORMWATER FLOW THROUGH INLETS. INSTALL INLET PROTECTION.

STAGE 2: INSTALL 12" COMPOST FILTER SOCK A. INSTALL 24" COMPOST FILTER SOCK PER PLAN ON C701.

STAGE 3: CLEAR SITE

CLEAR SITE, CUT TRUNKS INTO TIMBER OR FIREWOOD AND CHIP BRANCHES ETC. LIMIT ADVANCED CLEARING AND GRUBBING AS MUCH AS POSSIBLE TO REDUCE THE AMOUNT OF AREA DISTURBED AT ANY ONE TIME. RECYCLING OF MATERIALS SHALL BE DONE WHERE

THE ENTIRE SITE CANNOT BE CLEARED AND GRUBBED AT ONE TIME. ONLY AREAS FOR WHICH THE SPECIFIED EROSION AND SEDIMENTATION CONTROL HAS BEEN INSTALLED CAN BE CLEARED AND GRUBBED OR DISTURBED.

STAGE 4: FXCAVATION

- A. UPON COMPLETION OF THE INLET PROTECTION, COMPOST FILTER SOCK, AND INSTALLATION OF ALL PERIMETER CONTROLS, THE CONTRACTOR SHALL BEGIN EARTHMOVING ACTIVITIES. EXCAVATE SITE TO DESIGN GRADE. APPLY TEMPORARY STABILIZATION TO EMBANKMENTS AND FINISH GRADE AREAS IN CUT OR FILL PLACE EROSION CONTROL BLANKET AS NOTED ON PLANS AFTER MATERIAL IS PLACED AND
- PROPERLY COMPACTED. ALL WATER PUMPED FROM WORK AREAS SHALL BE TREATED FOR SEDIMENT REMOVAL
- PRIOR TO DISCHARGING TO A SURFACE WATER. AS SOON AS DISTURBED AREA REACHES FINAL GRADE, AREAS MUST BE STABILIZED. NO MORE THAN 15,000 SQUARE FEET OF DISTURBED AREA SHALL REACH FINAL GRADE
- BEFORE INITIATING SEED AND MULCHING OPERATIONS. G. FILL SLOPES SHALL BE STABILIZED IN 15 FOOT VERTICAL INCREMENTS.

STAGE 5: INSTALL PROPOSED STORM SEWER SYSTEM A. INSTALL STORM SEWER SYSTEM FROM LOWEST TO HIGHEST ELEVATION AND ADHERE TO

UTILITY TRENCH GUIDELINES. B. INSTALL INLET PROTECTION ON ALL INLETS UNTIL THE ENTIRE SITE HAS BEEN STABILIZED.

STAGE 6: INSTALL PAVEMENT A. INSTALL CONCRETE WASHOUT AS INDICATED ON PLAN SHEET C701.

B. INSTALL PAVEMENT AT DRIVEWAYS AND PARKING LOT. STAGE 7: INSTALL LANDSCAPING

A. INSTALL LANDSCAPING PLANTS AND PROVISIONS.

STAGE 8: SEED AND MULCH A. SEED/MULCH ALL DISTURBED AREAS WITH SPECIFIED SEEDING MIXTURE. ALL E & S CONTROL FACILITIES SHALL BE MAINTAINED AND KEPT FUNCTIONAL UNTIL SITE STABILIZATION IS COMPLETE.

STAGE 9: SITE STABILIZATION

A. WHEN SITE IS STABILIZED WITH UNIFORM 70% PERENNIAL VEGETATIVE COVER OVER PROJECT AREA, REMOVE EROSION AND SEDIMENTATION CONTROLS.

# EROSION AND SEDIMENTATION CONTROL PLAN NOTES:

- 1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE
- CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION. 2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER. THE PCSM PLAN PREPARER. THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN. AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE
- PRECONSTRUCTION MEETING AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES
- 4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION. 5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO
- REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL. . 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. VEHICLES AND EQUIPMENT MAY ENTER DIRECTLY ONTO KINGSTON DRIVE & WILLIAM PENN
- 15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER FACH RUNGEF EVENT AND ON A WEEKLY BASIS ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- 16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION. INSPECTIONS SHALL BE LOGGED ON THE MOST CURRENT DEP FORM 3150-FM-BWEW0083 AND KEPT ON SITE AT ALL TIMES.
- 17. SFDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED OF IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
- 18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS 19. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM 2 INCHES OF
- 20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- 21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES
- 22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- 23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS 24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
- 25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATIONS FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD. 26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE
- SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN. 27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF A PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATEING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION

VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE

- SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS. 28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE
- 29. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- 30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL

OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.

CONVERSION OF THE E&S BMPS. 31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED. TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID

REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON. 32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT

STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION. 33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE. CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES PROVIDES FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL

- PENALTIES FOR FACH VIOLATION. 34. CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS
- 35. ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES. 36. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATEL'
- BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS 37. CHANNELS HAVING RIPRAP, RENO MATTRESS, OR GABION LININGS MUST BE SUFFICIENTLY
- OVER-EXCAVATED SO THAT THE DESIGN DIMENSIONS WILL BE PROVIDED AFTER PLACEMENT OF THE PROTECTIVE LINING 38. SEDIMENT BASINS AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER. AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE BASIN-TRAP OUTLET
- STRUCTURES AND/OR POLLUTE THE SURFACE WATERS. 39. SEDIMENT BASINS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES. 40. ANY DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITTEE IN A PERMANENT MANNER SATISFACTORY TO THE MUNICIPALITY, LOCAL CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
- 41. UPON REQUEST, THE APPLICANT OR HIS CONTRACTOR SHALL PROVIDE AN AS-BUILT (RECORD DRAWING) FOR ANY SEDIMENT BASIN OR TRAP TO THE MUNICIPAL INSPECTOR, OCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- 42. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
- 43. FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. 44. NO WETLANDS EXIST WITHIN THE PROJECT BOUNDARY
- 45. MINE OPENINGS ARE NOT ANTICIPATED. IF MINE SPOILS ARE ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL EITHER REWORK THE MATERIAL PER GEOTECHNICAL ENGINEERS RECOMMENDATIONS OR REMOVE THE MATERIAL TO A
- PERMITTED AREA. 46. NO SIGNIFICANT CULTURAL OR SENSITIVE ENVIRONEMENTAL FEATURES EXIST WITHIN THE PROJECT BOUNDARY. NO FURTHER ENVIRONMENTAL STUDIES WILL BE
- 47. NO WATER RESOURCES EXIST WITHIN THE PROJECT BOUNDARY

EROSION AND SEDIMENT CONTROL FACILITIES MAINTENANCE SCHEDULE

1. ALL EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED UNTIL A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.

- 1. THE ROCK CONSTRUCTION ENTRANCES ARE TO BE INSPECTED AT THE END OF EACH WORKING DAY AND REPAIRED IMMEDIATELY. 2. THE THICKNESS OF THE ROCK CONSTRUCTION ENTRANCE SHALL BE CONSTANTLY
- 3. A ROCK STOCKPILE IS TO BE READILY AVAILABLE ON THE SITE AT ALL TIMES FOR IMMEDIATE REPAIR.

# COMPOST FILTER SOCK

- 1. THE COMPOST FILTER SOCK CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER
- FACH STORM (RUNOFF) EVENT AND REPAIRED IMMEDIATELY. 2. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN DEPOSITS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK
- 3. SILT DEPOSITS SHALL BE TAKEN TO THE TOPSOIL STOCKPILE AREA. THE SILT SHALL THEN BE SPREAD OVER STOCKPILE, SEEDED AND MULCHED. 4. ALL UNDERCUTTING OR EROSION OF THE COMPOST FILTER SOCK TOE ANCHOR SHALL
  - BE REPAIRED IMMEDIATELY. 5. ANY COMPOST FILTER SOCK SECTION WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

- 1. THE CONTRACTOR SHALL INSPECT VEGETATED AREAS WEEKLY AND AFTER EACH STORM (RUNOFF) EVENT.
- 2. THE CONTRACTOR SHALL INSPECT THE SITE FOR RILLS OR GULLIES ON CUT OR FILL SLOPES. THE CONTRACTOR SHALL FILL RILLS AND GULLIES, REGRADE DISTURBED AREAS TO PROVIDE A UNIFORM SLOPE, THEN RESEED/MULCH AND REPAIR/REPLACE MATS TO ORIGINAL SPECIFICATIONS.
- 3. THE REPAIRS SHALL BE MADE WITHIN 2 DAYS OF DISCOVERING PROBLEM. PUMPED WATER FILTERING DEVICE
- 1. THE CONTRACTOR SHALL INSPECT FILTER BAGS DAILY AND AFTER EACH STORM (RUNOFF) EVENT TO ENSURE THEY ARE WORKING PROPERLY.
- 2. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.
- 3. ALL SEDIMENT REMOVED FROM THE FILTER BAGS SHALL BE TAKEN TO THE TOPSOIL STOCKPILE, SPREAD, SEEDED AND MULCHED.

# COMPOST SOCK WASHOUT FACILITY

- A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.
- 2. ALL CONCRETE WASHOUT FACILITIES SHALL BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED. ACCUMULATED MATERIALS SHOULD BE REMOVED WHEN THEY REACH 75%
- PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT

# **GENERAL NOTES:**

- 1. THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO
- ACT 287 OF 1974 AMENDED BY ACT 121 OF 2008). TRAFFIC SHALL BE MAINTAINED ON ALL ADJOINING STREETS AND DRIVES AT ALL TIMES.
- CONTRACTOR SHALL USE ASPHALT WEDGE CURBS, UNLESS NOTED, OUTSIDE OF THE PUBLIC
- CONTRACTOR SHALL VERIFY THE LOCATION AND INVERT ELEVATION OF ALL EXISTING UTILITIES

- FROM THE SITE. THE CONTRACTOR SHALL PROOF ROLL THE SITE TO THE SATISFACTION OF THE GEOTECHNICAL
- THE CONTRACTOR SHALL REPLACE ALL CURB SECTIONS, SIDEWALKS, AND PAVEMENT, WHICH HAS BEEN CUT AND DISTURBED WITHIN THE RIGHT-OF-WAY WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION'S STANDARD MATERIALS.
- THE CONTRACTOR SHALL ADJUST TO GRADE ALL WATER AND GAS VALVES. THE CONTRACTOR SHALL COMPACT ALL FILL MATERIALS OUTSIDE OF PROPOSED BUILDING AREAS, PLACED IN LIFTS, AND COMPACTED TO 90% OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR) OR 95% BY ASTM-D698 (STANDARD PROCTOR). PLACE FILL IN EIGHT-INCH LIFTS AND COMPACT WITH AN IMPACT-TYPE ROLLER (I.E. SHEEPSFOOT
- THE CONTRACTOR SHALL COMPACT ALL FILL MATERIALS WITHIN PROPOSED BUILDING AREAS. PLACED IN LIFTS, AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR) OR 100% BY ASTM-D698 (STANDARD PROCTOR). PLACE FILL IN EIGHT-INCH LIFTS AND COMPACT WITH AN IMPACT-TYPE ROLLER (I.E. SHEEPSFOOT ROLLER). PROVIDE FOR INSPECTION OF ALL FILL AS IT IS PLACED FOR PROPER DENSITY BY A
- ALL CUT AND FILL OPERATIONS SHALL FOLLOW THE "PENNSYLVANIA HANDBOOK OF BEST
- THE CONTRACTOR SHALL USE PENNDOT'S LATEST REFERENCES OF PUBLICATION 408/2000 AND ROADWAY CONSTRUCTION STANDARDS.

# (TEMPORARY AND PERMANENT)

1. TILL SOIL TO DEPTH OF 2". REMOVE ALL OBJECTS 2" OR LARGER.

- MAY BE BLENDED DURING TILLING
- 3. SOW REQUIRED SEED MIXTURE UNIFORMLY ON THE PREPARED AREA BY HYDRAULIC
- AFTER SEEDING ROLL TOPSOILED AREAS THAT ARE TO BE MOWED. USE A ROLLER WEIGHING NOT MORE THAN 65 LBS./FT. WIDTH.
- FOR PERMANENT SITE STABILIZATION APPLY SLOW RELEASE NITROGEN FERTILIZER TO THE SURFACE OF SEEDED AREAS. 6. PLACE MULCH IMMEDIATELY AFTER SEEDING OR WITHIN 48 HOURS AFTER SEEDING IS COMPLETED. PLACE HAY & STRAW UNIFORMLY, IN A CONTINUOUS BLANKET AT THE
- USED TO APPLY MULCH. MACHINES WHICH CUT MULCH INTO SHORT PIECES WILL NOT BE PERMITTED. DIRECTED. CONTROL PROHIBITED AND NOXIOUS WEED GROWTH BY HERBICIDE
- SLOPE, REAPPLY SOIL SUPPLEMENTS, THEN RESEED, AS SPECIFIED FOR THE 9. A SITE WILL BE CONSIDERED TO BE PERMANENTLY STABILIZED WHEN ALL OPERATIONAL, TEMPORARY CONTROL MEASURES AND FACILITIES REMOVED, AND
- THE STANDARD FOR THIS VEGETATIVE COVER WILL BE A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS THE DISTURBED AREA. 10. THE CONTRACTOR SHALL MAINTAIN THE SITE PER THE PROVISIONS OF THIS PLAN

UNTIL PERMANENT STABILIZATION IS ESTABLISHED.

MORE THAN TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION (PA

TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH PENNDOT'S REQUIREMENTS.

WITH PROPOSED CONNECTIONS PRIOR TO CONSTRUCTION AND GRADING OF THE SITE. THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS AS SHOWN ON THE PLANS.

1. THE CONTRACTOR SHALL REMOVE ALL EXISTING ASPHALT PAVEMENT AND CONCRETE SLABS

ENGINEER AND REMOVE ANY SOFT MATERIAL PRIOR TO THE IMPORTING OF ANY FILL MATERIAL.

ROLLER). PROVIDE FOR INSPECTION OF ALL FILL AS IT IS PLACED FOR PROPER DENSITY BY A GEOTECHNICAL TESTING FIRM.

- GEOTECHNICAL TESTING FIRM.
- MANAGEMENT PRACTICES FOR DEVELOPING AREAS."
- SITE STABILIZATION INSTALLATION AND MAINTENANCE
- 2. BLEND COMMERCIAL FERTILIZER INTO THE SOIL TO A DEPTH OF 2". FERTILIZER
- SEEDING EQUIPMENT, HAND SEEDING, OR ANY OTHER APPROPRIATE METHOD.
- MINIMUM RATE SPECIFIED ABOVE. AN ACCEPTABLE MECHANICAL BLOWER MAY BI
- 8. MAINTENANCE SATISFACTORILY MAINTAIN GRASS AREAS WITHIN GRADING LIMITS, UNTIL THE ENTIRE PROJECT HAS BEEN COMPLETED. MOW, AS INDICATED AND WHEN SPRAYING OR CUTTING. AFTER THE SEEDING AND SOIL SUPPLEMENT WORK ON A SLOPE HAS BEEN SATISFACTORILY COMPLETED, IF A SLOPE FAILURE OCCURS, ONE WHICH REQUIRES REDRESSING, EXCAVATION, OR ESTABLISHMENT OF A NEW
- PERMANENT CONTROL MEASURES AND FACILITIES HAVE BEEN COMPLETED AND ARE UNIFORM 70% PERENNIAL VEGETATION COVER IS ESTABLISHED TO THE POINT WHERE THE SURFACE SOIL IS CAPABLE OF RESISTING EROSION DURING RUNOFF EVENTS.

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES. THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY

OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO A STANDARD STANDA ALL EXISTING UTILITIES. © 2023 MORRIS KNOWLES & ASSOCIATES, INC. (A HAMMONTREE COMPANY) — THESE DRAWINGS SHALL NOT BE USED BY ANY PERSON, FIRM OR CORPORATION WITHOUT SPECIFIC WRITTEN PERMISSION FROM MORRIS KNOWLES & ASSOCIATES, INC. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR MANIPULATED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT PERMISSION AND CONSENT OF MORRIS KNOWLES &

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IS GIVEN BY ENGINEER. CONTRACTOR AND/OR OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT WRITTEN CONSENT OF ENGINEER. ALL UTILITIES SHOWN ON PLANS ARE IN APPROXIMATE LOCATIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO GAIN EXACT LOCATIONS AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION.

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT <u>LEGEND:</u>

(s) SEEDING & MULCHING

INLET PROTECTION

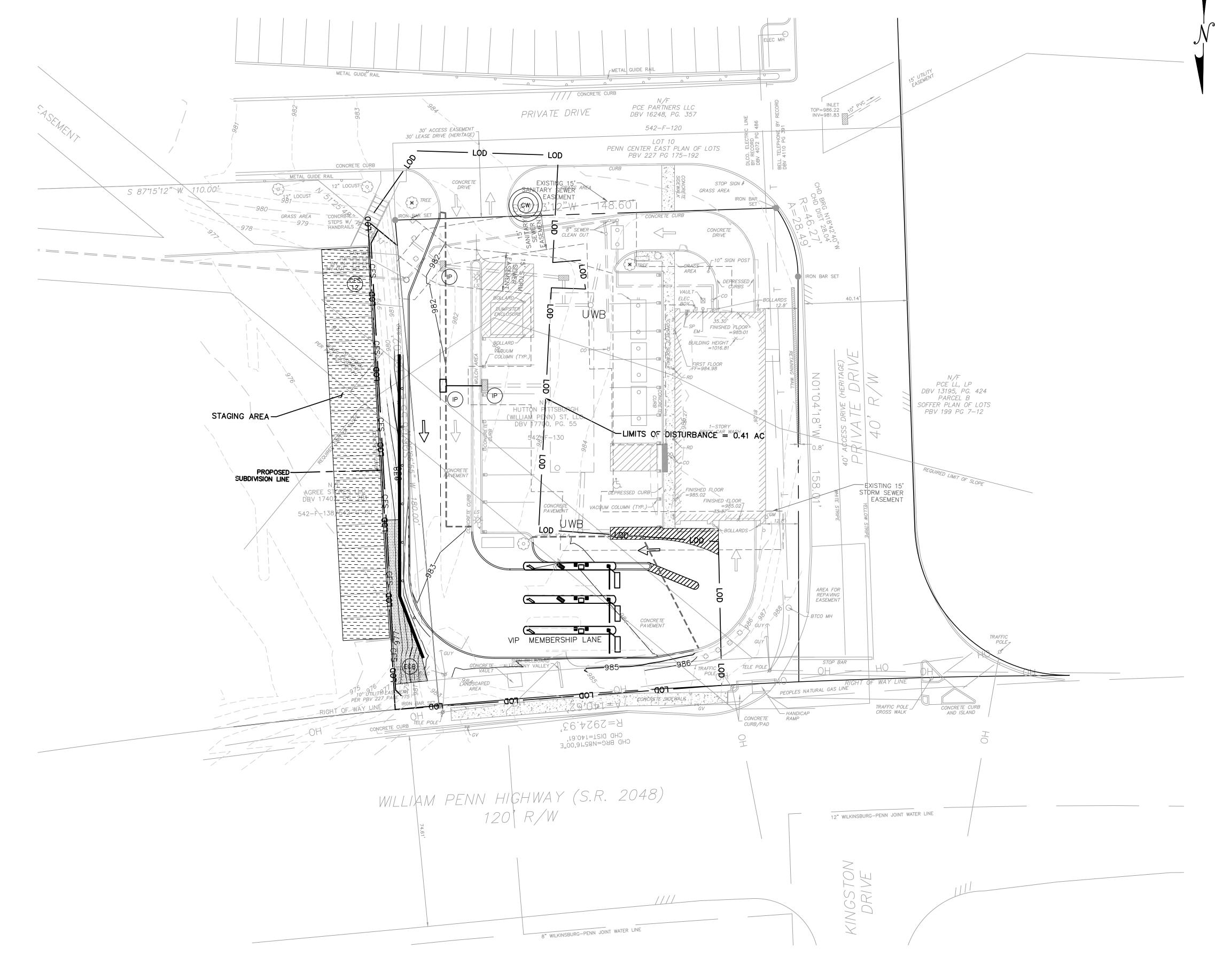
12" COMPOST FILTER SOCK

ROCK CONSTRUCTION ENTRANCE

COMPOST FILTER SOCK CONCRETE WASHOUT

ECB EROSION CONTROL BLANKET

SOIL MAP UNIT LEGEND					
MAP UNIT SYMBOL	MAP UNIT NAME				
UWB	URBAN LAND-WHARTON COMPLEX, GENTLY SLOPING				



CALL BEFORE YOU DIG IN PENNSYLVANIA 1-800-242-1776 DESIGN SN: 20181990650

THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION Know what's below (PA ACT 287 OF 1974 AMENDED BY ACT 50 OF 2018). PA STATE LAW REQUIRES 3 WORKING DAYS NOTICE

Call before you dig

<u>LEGEND</u>

- ELECTRIC METER

RCP - REINFORCED CONCRETE PIPE

CPP - CORRUGATED PLASTIC PIPE

· TELEPHONE

S.R. – STATE ROUTE TELE – TELEPHONE

SAN - SANITARY ST - STORM —— G—— — GAS LINE -----W ---- - WATER LINE

— EXISTING MANHOLE

= = = = = EXISTING SEWER

—X——X— – FENCE

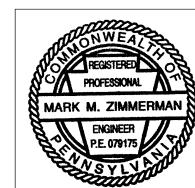
MH - MANHOLE TOP - TOP OF CASTING ----T --- SUBSURFACE TELEPHONE LINE —— E — — SUBSURFACE ELECTRIC LINE INV - INVERT / FLOW LINE WV - WATER VALVE -- 908 -- - EXISTING CONTOURS GV - GAS VALVE GAS METER EXISTING INLET

GRAPHIC SCALE SCALE: 1" = 20'

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES.

THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

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DESIGNED REVIEWED DRAWN BY DATE: APRII PROJ. NO.:

SCALE:

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1"=20'

NOTES:

Sock fabric shall meet standards of Table 4.1. Compost shall meet the standards of Table 4.2.

Compost filter sock shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment (Figure 4.1). Maximum slope length above any sock shall not exceed that shown on Figure 4.2. Stakes may be installed immediately downslope of the sock if so specified by the manufacturer.

Traffic shall not be permitted to cross filter socks.

Accumulated sediment shall be removed when it reaches half the aboveground height of the sock and disposed in the manner described elsewhere in the plan.

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 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.

> STANDARD CONSTRUCTION DETAIL #4-1 COMPOST FILTER SOCK

# TABLE 4.1 COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

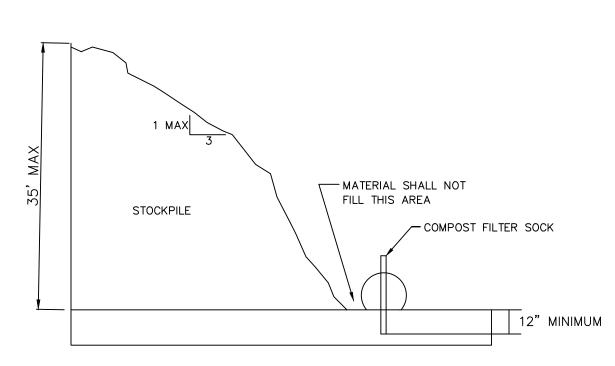
MATERIAL TYPE	3 MIL HDPE	5 MIL HDPE	5 MIL HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)
MATERIAL CHARACTERISTICS	PHOTO- DEGRADABLE	PHOTO- DEGRADABLE	BIO- DEGRADABLE	PHOTO- DEGRADABLE	PHOTO- DEGRADABLE
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
MESH OPENING	3" 8	3" 8	3" 8	3" 8	1" 8
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202 PSI
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR	23% AT 1000 HR		100% AT 1000 HR	100% AT 1000 HR
MINIMAL FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS
	1	TWO DLY	CVCTEMC	1	1

TWO-PLY SYSTEMS INNER CONTAINMENT NETTING ONTINUOUSLY WOUND SION-WELDED JUNCTURES <u>'X ¾" MAX. APERTURE SIZE</u> OUTER FILTRATION MESH COOMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) र्हें MAX. APERTURE SIZE

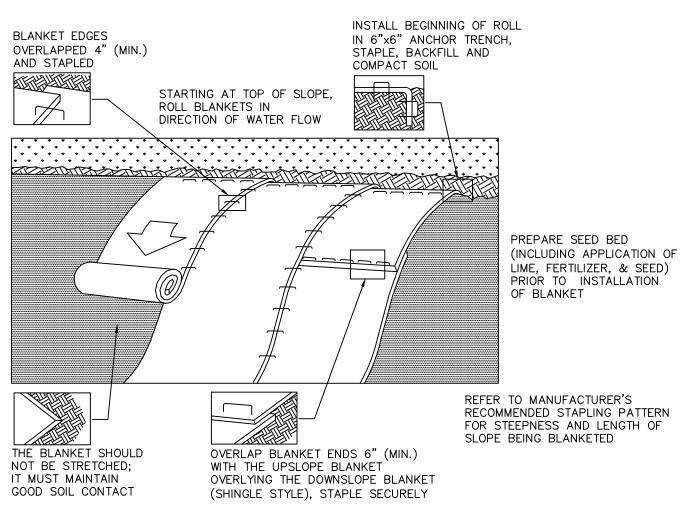
SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS. FILTREXX & JMD

# TABLE 4.2 **COMPOST STANDARDS**

ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT BASIS)	
ORGANIC PORTION	FIBROUS AND ELONGATED	
рН	5.5 - 8.5	
MOISTURE CONTENT	30% - 60%	
PARTICLE SIZE	30% - 50% PASS THROUGH ₹ SIEVE	
SOLUBLE SALT CONCENTRATION	5.0 dS/m (MMHOS/CM) MAXIMUM	



SOIL STOCKPILE DETAIL N.T.S.



Seed and soil amendments shall be applied according to the rates in the plan drawings prior to installing the blanket.

Provide anchor trench at toe of slope in similar fashion as at top of slope.

Slope surface shall be free of rocks, clods, sticks, and grass.

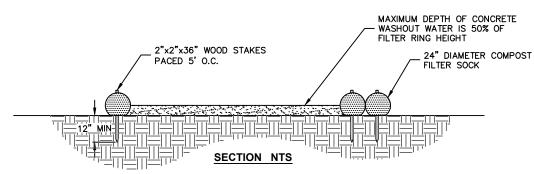
Blanket shall have good continuous contact with underlying soil throughout entire length. Lay blanket loosely and stake or staple to maintain direct contact with soil. Do not stretch blanket.

The blanket shall be stapled in accordance with the manufacturer's recommendations.

Blanketed areas shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 70% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 4 calendar days.

STANDARD CONSTRUCTION DETAIL #11-1 EROSION CONTROL BLANKET INSTALLATION

### **FIGURE 3.18** TYPICAL COMPOST SOCK WASHOUT INSTALLATION



NOTES:

1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE 2. 18" DIAMETER FILTER SOCK MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT 2"x2"x36" WOOD STAKES WASHOUT WATER INTO 4" DIAMETER COMPOST SIDE OF FILTER RIN

A SUITABLE IMPERIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS. ADAPTED FROM FILTREXX

A. LIMIT ADVANCE CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE

LENGTH OF PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE DAY. B. WORK CREWS AND EQUIPMENT FOR TRENCHING, PLACEMENT OF PIPE, PLUG CONSTRUCTION AND BACKFILLING WILL BE SELF CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.

C. LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY. D. TRENCH PLUGS WILL BE SPACED IN ACCORDANCE WITH THE TABLE BELOW:

TRENCH SLOPE %	LENGTH (FEET)	PLUG MATERIAL
0 - 5		NONE
5 - 15	500	EARTH FILLED SACKS
15 - 25	300	EARTH FILLED SACKS
25 – 35	200	EARTH FILLED SACKS
35 - 100	100	EARTH FILLED SACKS
OVER 100	50	CEMENT FILLED BAGS (WETTED)

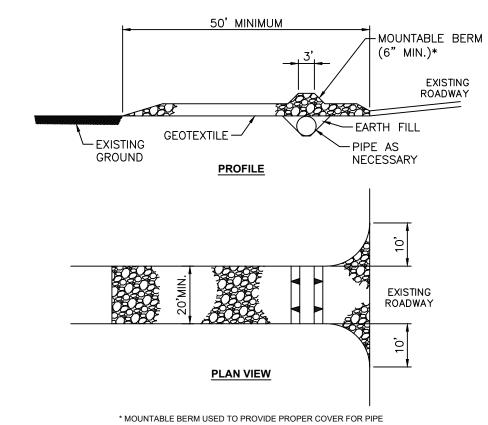
E. WATER WHICH ACCUMULATES IN AN OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING ACCORDING TO LOCAL CONSERVATION DISTRICT REGULATIONS PRIOR TO PIPE PLACEMENT OR BACKFILLING.

F. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND APPROPRIATE TEMPORARY EROSION AND SEDIMENT POLLUTION CONTROL MEASURES/FACILITIES WILL BE INSTALLED. SEEDING AND MULCHING OF A DISTURBED AREAS WILL BE DONE AT THE END OF EACH WEEK.

DAILY BACKFILLING OF THE TRENCH MAY BE DELAYED FOR SIX DAYS.

IF DAILY BACKFILLING IS DELAYED, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS FOR UTILITIES THAT REQUIRE TESTING BEFORE THE TRENCH IS BACKFILLED, ALL OF THE ABOVE ITEMS APPROPRIATE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES/FACILITIES WILL BE INSTALLED AND THE AREAS SEEDED AND MULCHED WITHIN THE NEXT TWO DAYS.

## UTILITY TRENCH EXCAVATING GUIDELINES



NOTES:

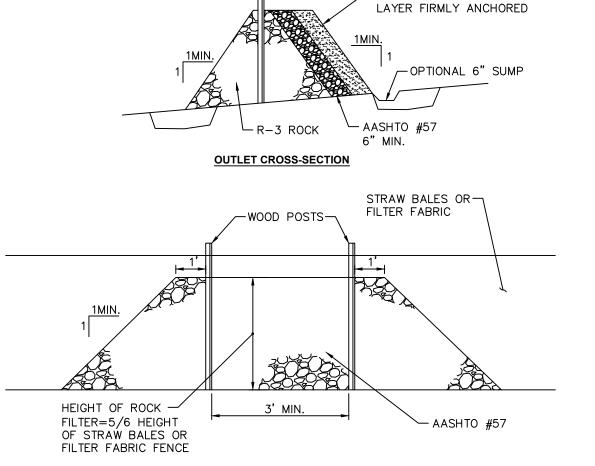
Remove topsoil prior to installation of rock construction entrance. Extend rock over full width of entrance.

Runoff shall be diverted from roadway to a suitable sediment removal bmp prior to entering rock construction entrance.

Mountable berm shall be installed wherever optional culvert pipe is used and proper pip cover as specified manufacturer is not otherwise provided. Pipe shall be sized appropriately for size of ditch being crossed.

MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site immediately. If excessive amounts of sediment are being deposited on roadway, extent length of rock construction entrance by 50 foot increments until condition is alleviated or install wash rack. Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts, or other drainage courses is

### STANDARD CONSTRUCTION DETAIL #3-1 ROCK CONSTRUCTION ENTRANCE N.T.S.



- OPTIONAL 6" COMPOST

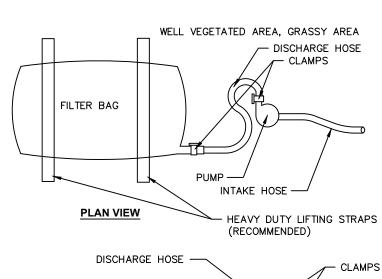
**UP-SLOPE FACE** 

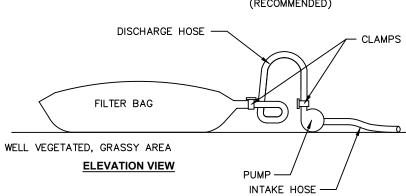
NOTES:

A rock filter outlet shall be installed where failure of a silt fence or straw bale barrier has occurred due to concentrated flow. Anchored compost layer shall be used on upslope face in HQ and EV watersheds.

Sediment shall be removed when accumulations reach 1/3 the height of the outlet.

STANDARD CONSTRUCTION DETAIL #4-6 ROCK FILTER OUTLET





Low volume filter bags shall be made from non-woven geotextile material sewn with high strength, double

tched "J" type seams. They gs shall be made from wove			<u> </u>
Property	Test Method	Minimum Standard	]
Avg. wide width strenght	ASTM D-4884	60 lb/in	
Grab tensile	ASTM D-4632	250 lb	
Puncture	ASTM D-4833	110 lb	
Mullen burst	ASTM D-3786	350 psi	
UV resistance	ASTM D-4355	70%	
AOS % retained	ASTM D-4751	80 sieve	

A suitable means of accessing the bag with machinery required for disposal purposes shall be provided. Filter bags shall be replaced when they become 1/2 full of sediment. Spare bags shall be kept available for replacement of those that have failed or are filled. Bags shall be placed on straps to facilitate removal unless bags come with lifting straps already attached.

Bags shall be located in well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile underlayment and flow path shall be provided. Bags may be placed on filter stone to increase discharge capacity. Bags shall not be placed on slopes greater than 5%. For slopes exceeding 5%, clean rock or other non-erodible and non-polluting material may be placed under the bag to reduce slope steepness.

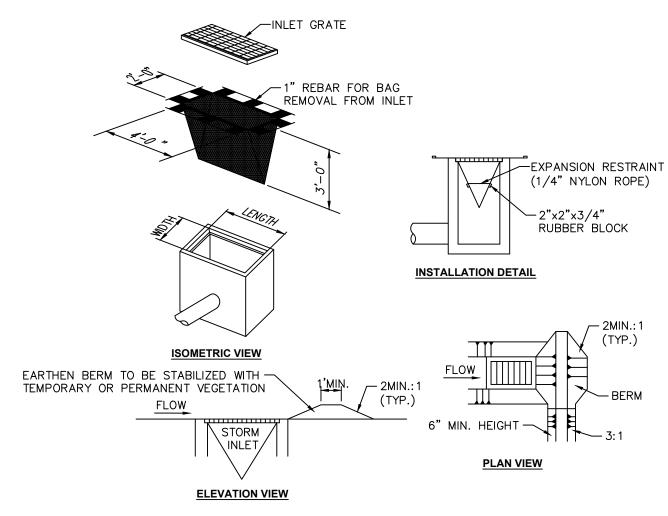
No downslope sediment barrier is required for most installations. Compost berm or compost filter sock shall be installed below bags located in HQ or EV watersheds, within 50 feet of any receiving surface water or where grassy area is not available.

The pump discharge hose shall be inserted into the bags in the manner specified by the manufacturer and securely clamped. A piece of PVC pipe is recommended for this purpose.

The pumping rate shall be no greater than 750 gpm or 1/2 the maximum specified by the manufacturer, whichever is less. Pump intakes shall be floating and screened.

Filter bags shall be inspected daily. If any problem is detected, pumping shall cease immediately and not resume until the problem is corrected.

STANDARD CONSTRUCTION DETAIL #3-16 PUMPED WATER FILTER BAG N.T.S.



# NOTES:

Maximum drainage area = 1/2 acre.

Inlet protection shall not be required for inlet tributary to sediment basin or trap. Berms shall be required for all installations

Rolled earthen berm shall be maintained until roadway is stoned. Road subbase berm shall be maintained until roadway is paved. Earthen berm in channel shall be maintained until permanent stabilization is completed or remain permanently.

At a minimum, the fabric shall have a minimum grab tensile strength of 120 lbs, a minimum burst strength of 200 psi, and a minimum trapezoidal tear strength of 50 lbs. Filter bags shall be capable of trapping all particles not passing a No. 40 Sieve.

Inlet filter bags shall be inspected on a weekly basis and after each runoff event. Bags shall be emptied and rinsed or replaced when half full or when flow capacity has been reduced so as to cause flooding or bypassing of the inlet. Damaged or clogged bags shall be replaced. A supply shall be maintained on site for replacement of bags. All needed repairs shall be initiated immediately after the inspection. Dispose of accumulated sediment as well as all used bags according to the plan notes.

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

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

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES.

THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

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SHEET NO. C702

2

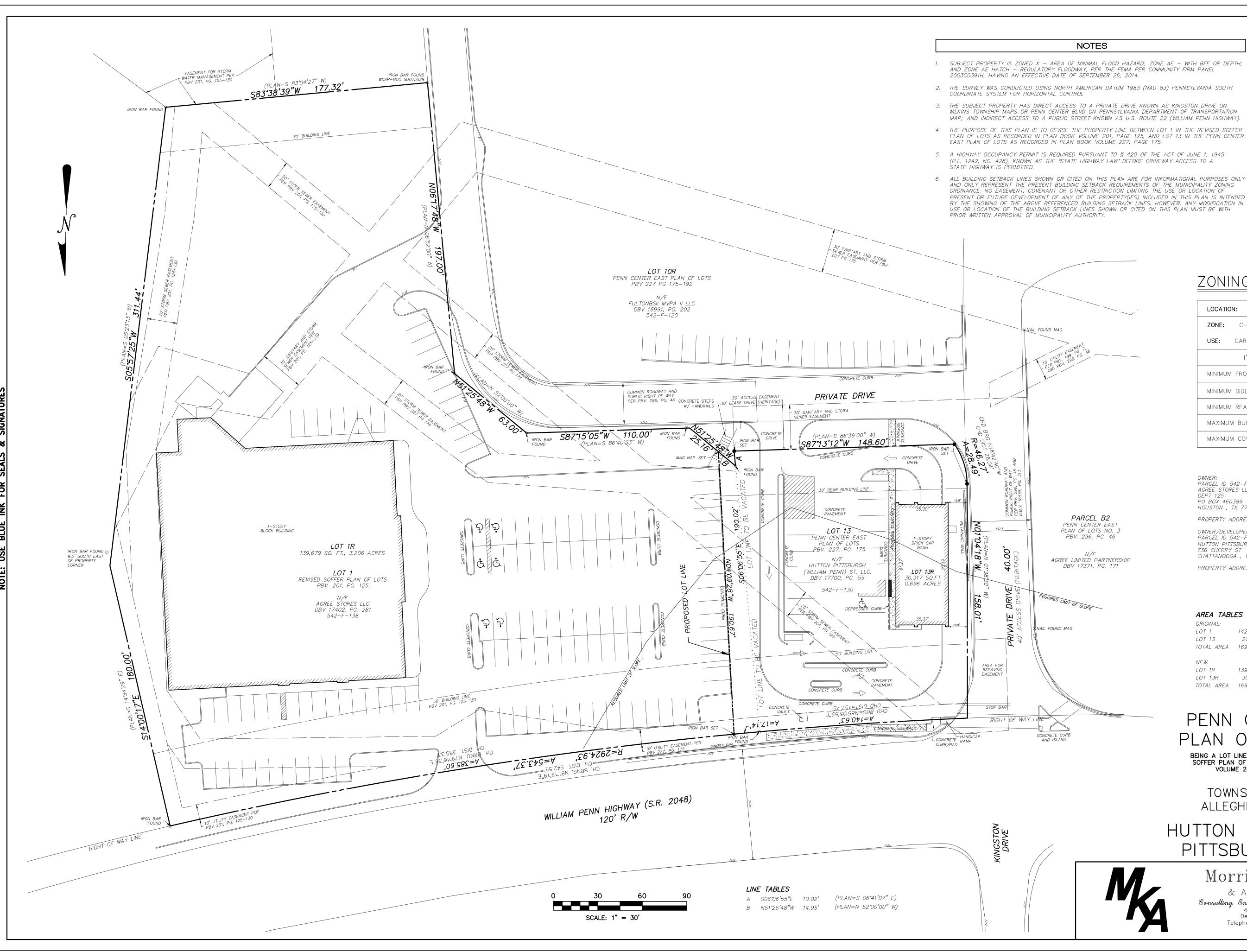
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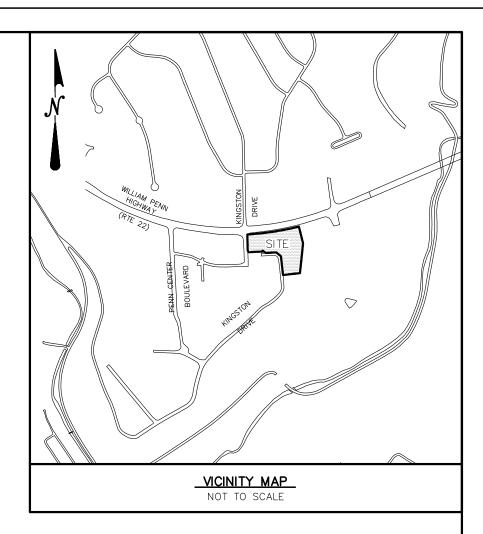
 $\Omega$ 

**%**≤ **OK** 

N.T.S.



- 1. SUBJECT PROPERTY IS ZONED X AREA OF MINIMAL FLOOD HAZARD; ZONE AE WITH BFE OR DEPTH; AND ZONE AE HATCH REGULATORY FLOODWAY, PER THE FEMA PER COMMUNITY FIRM PANEL
- 2. THE SURVEY WAS CONDUCTED USING NORTH AMERICAN DATUM 1983 (NAD 83) PENNSYLVANIA SOUTH
- 3. THE SUBJECT PROPERTY HAS DIRECT ACCESS TO A PRIVATE DRIVE KNOWN AS KINGSTON DRIVE ON WILKINS TOWNSHIP MAPS OR PENN CENTER BLVD ON PENNSYLVANIA DEPARTMENT OF TRANSPORTATION MAP; AND INDIRECT ACCESS TO A PUBLIC STREET KNOWN AS U.S. ROUTE 22 (WILLIAM PENN HIGHWAY).
- 4. THE PURPOSE OF THIS PLAN IS TO REVISE THE PROPERTY LINE BETWEEN LOT 1 IN THE REVISED SOFFER PLAN OF LOTS AS RECORDED IN PLAN BOOK VOLUME 201, PAGE 125, AND LOT 13 IN THE PENN CENTER
- 5. A HIGHWAY OCCUPANCY PERMIT IS REQUIRED PURSUANT TO \$ 420 OF THE ACT OF JUNE 1, 1945 (P.L. 1242, NO. 428), KNOWN AS THE "STATE HIGHWAY LAW" BEFORE DRIVEWAY ACCESS TO A
- AND ONLY REPRESENT THE PRESENT BUILDING SETBACK REQUIREMENTS OF THE MUNICIPALITY ZONING ORDINANCE. NO EASEMENT, COVENANT OR OTHER RESTRICTION LIMITING THE USE OR LOCATION OF PRESENT OR FUTURE DEVELOPMENT OF ANY OF THE PROPERTY(IES) INCLUDED IN THIS PLAN IS INTENDED BY THE SHOWING OF THE ABOVE REFERENCED BUILDING SETBACK LINES. HOWEVER, ANY MODIFICATION IN USE OR LOCATION OF THE BUILDING SETBACK LINES SHOWN OR CITED ON THIS PLAN MUST BE WITH



# ZONING INFORMATION

LOCATION: 3474 WILLIAM PE	NN HIGHWAY
ZONE: C-1 COMMERICAL	
USE: CAR WASH	
ITEM	REQUIREMENTS
MINIMUM FRONT SETBACK	50 FEET
MINIMUM SIDE SETBACK	O FEET
MINIMUM REAR SETBACK	30 FEET
MAXIMUM BUILDING HEIGHT	35 FEET
MAXIMUM COVERAGE	N/A

PARCEL ID 542-F-00138

AGREE STORES LLC DEPT 125

PO BOX 460389 HOUSTON , TX 77056-8389

PROPERTY ADDRESS: 3480 WILLIAM PENN HWY PITTSBURGH, PA 15235

OWNER/DEVELOPER: PARCÉL ID 542-F-00130

HUTTON PITTSBURGH (WILLIAM PENN) ST LLC 736 CHERRY ST

CHATTANOOGA , TN 37402-1909

TOTAL AREA 169,996 SQ. FT.

PROPERTY ADDRESS: 3474 WILLIAM PENN HWY PITTSBURGH, PA 15235

3.902 ACRES

## AREA TABLES ORIGINAL:

	LOT 1	142,269	SQ.	FT.	3.266	ACRES
	LOT 13	27,727	SQ.	FT.	0.636	ACRES
	TOTAL AREA	169,996	SQ.	FT.	3.902	ACRES
,	NEW:					
	LOT 1R	139,679	SQ.	FT.	3.206	ACRES
	LOT 13R	30.317	SQ.	FT.	0.696	ACRES

# PENN CENTER EAST PLAN OF LOTS NO. 4

BEING A LOT LINE REVISION OF LOT 1 IN THE REVISED SOFFER PLAN OF LOTS AS RECORDED IN PLAN BOOK VOLUME 201, PAGE 125 THROUGH 130. SITUATE IN

TOWNSHIP OF WILKINS, ALLEGHENY COUNTY, PA

HUTTON (WILLIAM PENN) PITTSBURGH ST, LLC.

# Morris Knowles

& Associates, Inc. Consulting Engineers — Land Jurveyors

443 Athena Drive
Delmont, PA 15626
Telephone: (724) 468-4622

CHECKED BY: T.A.L. DRAWN BY: C.L.C. SU-4995-0005 DATE: 03/31/23 DWG. NO.: D-26762 SCALE: 1" = 30'

SHEET 1 OF 2

NOTARY

SURVEYOR

OWNER'S	ADOPTION
OWNER	ADOITION
THE LAND SHOWN ON THE PENN CENTER EAST PLAN OF LOTS NO.	COMPANY FORMED IN THE COMMONWEALTH OF PENNSYLVANIA, OWNER OF 4, HEREBY ADOPTS THIS PLAN AS ITS PLAN OF LOTS AND IRREVOCABLY DICATION ON THE PLAN TO THE TOWNSHIP OF WILKINS. THIS ADOPTION AND SUCCESSORS AND ASSIGNS.
IN WITNESS OF WHICH, TO THIS WE SET OUR HAND AND SEAL THIS	DAY OF, 20
ATTEST:	HUTTON PITTSBURGH (WILLIAM PENN) ST, LLC.
NOTARY PUBLIC	PRINTED NAME OF SIGNATORY
	PRINTED TITLE OF SIGNATORY
NC	TARY
STATE OF PENNSYLVANIA )	
COUNTY OF ALLEGHENY ) SS  BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC IN AND FOR THE CO PERSONALLY APPEARED, THE, ST, LLC., WHO ACKNOWLEDGED THE FOREGOING ADOPTION AND DEDI	OF HUTTON PITTSBURGH (WILLIAM PENN)
WITNESS MY HAND AND NOTARIAL SEAL THIS DAY OF _	
MY COMMISSION EXPIRES ON DAY OF	, 20
	NOTARY PUBLIC
CERTIFICATION OF	TITLE W/ MORTGAGE

	O THE PROPERTY CONTAINED IN THE PENN CENTER EAST PLAN OF LOTS NO. 4, IS IN THE NAME ST, LLC AND IS RECORDED IN DEED BOOK VOLUME 17700, PAGE 55.	OF
WITNESS		
	, MORTGAGEE OF THE PROPERTY CONTAINED IN THE PENN CENTER EAST PLA OF SAID PLAN AND TO THE DEDICATIONS AND ALL OTHER MATTERS APPEARING ON THE PLAN.	N OF LOT
	NAME, TITLE, AND MORTGAGEE	

DEPARTMENT OF REAL ESTATE	
STATE OF PENNSYLVANIA ) COUNTY OF ALLEGHENY ) SS	
RECORDED IN THE OFFICE OF THE DEPARTMENT OF REAL ESTATE OF THE COUNTY OF ALLEGHENY, COMMONWEALTH OF PENNSYLVANIA PLAN BOOK VOLUME PAGE(S)	i, /N
GIVEN UNDER MY HAND AND SEAL THIS DAY OF, 20, 20	
DEPARTMENT OF REAL ESTATE	

ENGINEER

TOWNSHIP OF WILKINS TOWNSHIP OF WILKINS TOWNSHIP OF WILKINS

BOARD OF COMMISSIONERS PLANNING COMMISSION ECONOMIC DEVELOPMENT

	ADOPTION
OWNERS	ADOFTION
PENN CENTER EAST PLAN OF LOTS NO. 4, HEREBY ADOPTS THIS PLAN	COMMONWEALTH OF PENNSYLVANIA, OWNER OF THE LAND SHOWN ON THE AN AS ITS PLAN OF LOTS AND IRREVOCABLY DEDICATED ALL STREETS AND TOWNSHIP OF WILKINS. THIS ADOPTION AND DEDICATION SHALL BE BINDING
IN WITNESS OF WHICH, TO THIS WE SET OUR HAND AND SEAL THIS	DAY OF, 20
ATTEST:	AGREE STORES LLC
NOTARY PUBLIC	PRINTED NAME OF SIGNATORY
	PRINTED TITLE OF SIGNATORY

	NO	TARY	
STATE OF PENNSYLVANIA ) COUNTY OF ALLEGHENY )	SS		
BEFORE ME, THE UNDERSIGNED NOTARY PERSONALLY APPEAREDACKNOWLEDGED THE FOREGOING ADOPTI	, THE	, OF	
WITNESS MY HAND AND NOTARIAL SEAL	THIS DAY OF	,	. 20
MY COMMISSION EXPIRES ON	DAY OF	, 20	
		NOTARY PUBLIC	

# CERTIFICATION OF TITLE W/ MORTGAGE I HEREBY CERTIFY THAT THE TITLE TO THE PROPERTY CONTAINED IN THE PENN CENTER EAST PLAN OF LOTS NO. 4, IS IN THE NAME OF AGREE STORES LLC,. AND IS RECORDED IN DEED BOOK VOLUME 17402, PAGE 281. MORTGAGEE OF THE PROPERTY CONTAINED IN THE PENN CENTER EAST PLAN OF LOTS NO. 4 CONSENTS TO THE RECORDING OF SAID PLAN AND TO THE DEDICATIONS AND ALL OTHER MATTERS APPEARING ON THE PLAN. WITNESS NAME, TITLE, AND MORTGAGEE

SURVEYORS	CERTIFICATE
	OMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY, TO THE BEST OF M TLY REPRESENTS THE LOTS, LANDS, STREETS AND HIGHWAYS AS SURVEYED
DATE	TROY A. LEIGHTY, P.L.S. SU-075579

REAL ESTATE

# TOWNSHIP ENGINEER

, A	REGISTERED PROFESSIONAL	ENGINEER FOR THE TOWNSHIP	OF WILKINS DO HEREBY CERTIFY THAT THIS
SUBDIVISION PLAN MEETS ALL THE ENGII	NEERING REQUIREMENTS OF	THE TOWNSHIP SUBDIVISION AND	ZONING ORDINANCE, EXCEPT AS
DEPARTURES HAVE BEEN AUTHORIZED B	Y THE APPROVAL AUTHORIT	Υ.	

REGISTRATION NUMBER

# BOARD OF COMMISSIONERS APPROVAL

THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF WILKINS GIVES NOTICE THAT, IN APPROVING THIS PLAN FOR RECORDING, THE TOWNSHIP OF WILKINS ASSUMES NO OBLIGATIONS TO ACCEPT THE DEDICATION OF ANY STREETS, LAND, OR PUBLIC FACILITIES AND HAS NO OBLIGATION TO IMPROVE OR MAINTAIN SUCH STREETS, LAND OR FACILITIES.

SECRETARY OR MANAGER	PRESIDENT	
THE TOWNSHIP OF WILKINS AGREES NOT TO ISSUE BUILDING APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF TI		
DATE	AUTHORIZED MUNICIPAL OFFICIAL	
REVIEWED BY THE PLANNING COMMISSION OF THE TOWNSHIP	P OF WILKINS, THIS DAY OF	, 20.
SECRETARY	CHAIRPERSON	
APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOV	WNSHIP OF WILKINS, BY RESOLUTION, THIS DAY	OF

SECRETARY

# DEP. OF ECONOMIC DEVELOPMENT

PRESIDENT

REVIEWED 20	BY	THE .	ALLEGHENY	COUNTY	DEPARTMENT	OF	ECONOMIC	DEVELO.	PMENT (	ON THI	//S	 . DAY	OF_	 	 ,	
								 DIRI	 FCTOR			 		 		

PENN CENTER EAST PLAN OF LOTS NO. 4

BEING A LOT LINE REVISION OF LOT 1 IN THE REVISED SOFFER PLAN OF LOTS AS RECORDED IN PLAN BOOK VOLUME 201, PAGE 125 THROUGH 130. SITUATE IN

TOWNSHIP OF WILKINS, ALLEGHENY COUNTY, PA

HUTTON (WILLIAM PENN)
PITTSBURGH ST, LLC.



Morris Knowles & Associates, Inc.

Consulting Engineers — Land Surveyors 443 Athena Drive Delmont, PA 15626 Telephone: (724) 468—4622

DRAWN BY: C.L.C. SU-4995-0005 DATE: 03/31/23 DWG. NO.: D-26762 SCALE: 1" = 30'

CHECKED BY: T.A.L.

SHEET 2 OF 2

# POST CONSTRUCTION STORMWATER MANAGEMENT REPORT

(MKA FILE NO.: 1856.21)

For:

#### ModWash - Wilkins Township

3474 William Penn Highway Wilkins Township Allegheny County

> April 2023 May 2023



## **Prepared By:**

Morris Knowles & Associates, Inc.

Consulting Engineers and Land Surveyors 443 Athena Dr. Delmont, PA 15626

Phone: (724) 468-4622 Fax: (724) 468-8940

Ma Morris Knowles & Associates, Inc.

#### **ENGINEERS CERTIFICATION**

I, Mark M. Zimmerman, P.E., do hereby certify to the best of my knowledge, information, and belief that the information contained in the accompanying plans, specifications, and report for the Zips Car Wash Moon Township Development on Carnot Road, Moon Township, PA has been prepared in accordance with accepted engineering practice and are true and correct.

Mark M. Zimmerman, P.E., CPESC, CPSWQ Morris Knowles and Associates

# **Table of Contents**

Stormwater Management Narrative	Section 1
Pre- vs. Post Development Calculations	Section 2
Soils Map and Location Map	Section 3
Drainage Maps	Section 4

Stormwater Management Narrative Section 1 Ma Morris Knowles & Associates, Inc.

#### Overview

The project site is located at 3474 William Penn Highway, Wilkins Township, Allegheny County, PA. Runoff from the site flows overland in a south east direction to an inlet in the back of the property near the Private Drive. The storm system drains to Thompson Run which has a PA Code Chapter 93 Designation of Warm Water Fishes (WWF). The proposed improvements and stormwater system will limit the post development flows to less than the pre-development flows. No riparian buffers or riparian forest buffers exist within or near the project area. Thompson Run is currently impaired by abandoned mine drainage caused by pH and metals. There are no anticipated or known geologic formations that could cause pollution. However, compost filter sock and utility trenching guidelines will be followed to minimize any impacts. If unsuitable soil conditions are encountered during construction, the contractor shall contact the local conservation district and engineer prior to removal of material from the site. The site will be redeveloped into a car wash with associated parking and infrastructure. Proposed access to the car wash will be on the south side of the site off of the Private Drive.

#### **Site Characteristics**

- A. The site in the past was a commercial development
- B. The site is presently a commercial development
- C. The proposed project will contain an automatic car wash with vacuum parking areas.

#### **Stormwater Drainage Maps**

Stormwater Drainage Maps are enclosed within the appropriate section for which they represent. These can be found in Section 4 of this report.

#### **Pre & Post Development Conditions:**

The existing site conditions include a developed property with a circular bank building and associated parking areas. The site is covered in gently sloping Urban Land-Wharton Complex (UWB). Runoff from the site sheet flows to an inlet in the south east corner of the parking lot. The proposed site will discharge stormwater runoff into the same point of interest with a decrease in total site discharge. Existing and proposed calculations for the disturbed areas have been conducted and included in Section 2 of this report and summarized in the table below. The stormwater management BMP was designed to maintain and protect the physical, biological, and chemical qualities of the receiving stream.

The disturbed areas of the proposed conditions will discharge to a new underground storm pipe system that discharges to the existing inlet in the south east corner of the site. Per Wilkins Township's ordinances, post-development peak flow rates for the 1-, 2-, 5-,

10-, 25-, 100-year 24-hour storm events must be 50% less than the pre-development peak flow rates. The following table lists the peak flow rates for each storm event:

**Pre-Post Calculations** 

	Pre- Developed Flow (cfs)	eveloped Developed Flow (cfs)		Undetained Area (cfs)	Total Post- Developed Flow (cfs)
1 Year	1.66	0.83	0.70	0.17	0.82
2 Year	2.11	1.05	0.80	0.22	0.95
5 Year	2.91	1.46	0.96	0.30	1.17
10 Year	3.10	1.55	1.00	0.31	1.22
25 Year	3.72	1.86	1.11	0.38	1.37
100 Year	4.96	2.48	2.06	0.50	2.30

#### **Underground Detention Facility**

Stormwater piping within a rock trench will serve the site to limit post development flows to the existing point source discharge. The stormwater facility will consist of 36" perforated SLCPP pipe and an outlet structure. The outlet structure will utilize a weir plate with an orifice hole to restrict post-development flows. The post-development drainage area includes buildings, parking and grassy areas. The stormwater facility will outlet into a proposed storm sewer pipe that will then discharge to the existing point source. The facility was sized to meet stormwater rate requirements. Please refer to Section 2 of this report for further information.

#### Methodology

The enclosed stormwater routing calculations for the pre-post development runoff calculations were computed using Hydraflow Hydrographs Extension for AutoCAD Civil 3D 2016 version 10.5 by Autodesk, Inc. IDF curves were created using the NOAA Atlas 14 Version 3 Data found in Appendix A of the PennDOT Stormwater Manual Publication 584. The site was designed in accordance with Wilkins Township Stormwater Management Ordinance.

#### **Estimated Time of Construction**

Start Date: June 2023 End Date: September 2023

#### **Maintenance Program**

During construction, all compost filter sock and erosion and sedimentation control facilities will be inspected, as needed, to insure all systems are functioning properly. Compost filter sock will be replaced, as needed. The contractor will be responsible for replacement and repair.

Inspection of the Stormwater Management System will include:

Inspection shall be done of the entire stormwater management facility by the owner after every storm event exceeding one inch of rainfall and at least once every three months. This inspection will include:

- 1. Inspection of inlet boxes and storm sewers for accumulations of debris and/or sediment.
- 2. Maintenance of the facilities shall include vegetation cutting and/or removal along with routine maintenance as determined by the Engineer.
- 3. The Owner shall contact the Engineer if any signs of failure have been found during the monthly inspection.
- 4. A record of the inspections should be kept by the Owner for review by the Municipality.

## Plan Preparer Record of Training and Experience in Post Construction Stormwater Management Methods and Techniques

Name of Plan Preparer: Mark M. Zimmerman P.E., CPESC, CPSWQ

Formal Education:

Name of College or Technical Institute: <u>Pennsylvania State University</u> Curriculum or Program: <u>Structural Design and Construction Engineering Tech.</u>

Dates of Attendance: From: 8/1998 To: 8/2002

Degree Received: <u>Bachelor of Science</u>

Other Training:

Name of Training: Certified Professional in Erosion Certified Professional in

Sedimentation Control (CPESC) Stormwater Water Quality

(CPSWQ)

Presented By: <u>EnviroCert International</u> <u>EnviroCert International</u>

Date: December 2012 January 2016

Employment History:

Current Employer: Morris Knowles & Associates, Inc.

Telephone: <u>724-468-4622</u>

Former Emplyer: <u>EADs Group</u> Telephone: <u>412-541-1580</u>

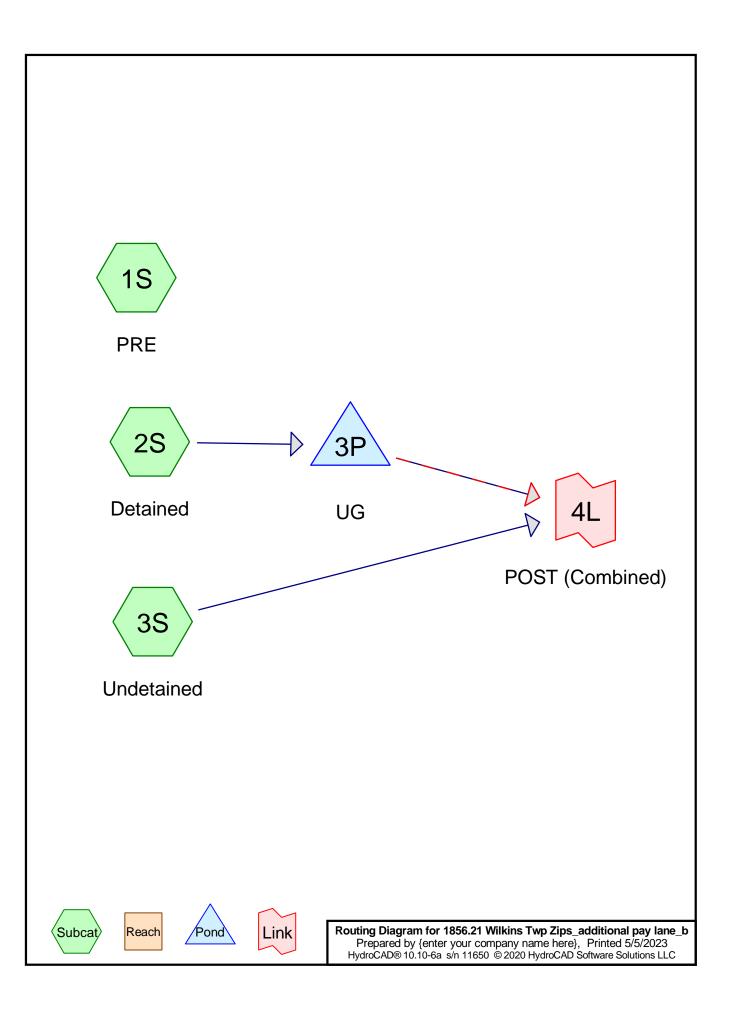
Recent PCSM Plans Prepared:

Name of Project: Fletcher Sales Nevilleside PRD Pep Boys County: Westmoreland Westmoreland Allegheny Municipality: North Huntingdon Collier Delmont E&S #8363 Permit Number: PAI056513005 PAG02-00-02-12-016 Westmoreland CD Westmoreland CD Allegheny CD Approving Agency:

Stormwater Management Pre- vs. Post Development Calculations

Section 2

My Morris Knowles & Associates, Inc.



## 1856.21 Wilkins Twp Zips\_additional pay lane\_b

Type II 24-hr 1-Year Rainfall=2.00" Printed 5/5/2023

Prepared by {enter your company name here} HydroCAD® 10.10-6a s/n 11650 © 2020 HydroCAD Software Solutions LLC

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Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 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: PRE Runoff Area=0.600 ac 93.33% Impervious Runoff Depth>1.58"

Tc=5.0 min CN=97 Runoff=1.656 cfs 3,432 cf

Subcatchment 2S: Detained Runoff Area=0.580 ac 82.76% Impervious Runoff Depth>1.39"

Tc=5.0 min CN=95 Runoff=1.484 cfs 2,927 cf

Subcatchment 3S: Undetained Runoff Area=0.060 ac 100.00% Impervious Runoff Depth>1.68"

Tc=5.0 min CN=98 Runoff=0.171 cfs 365 cf

Pond 3P: UG Peak Elev=978.88' Storage=703 cf Inflow=1.484 cfs 2,927 cf

Outflow=0.696 cfs 2,893 cf

Link 4L: POST (Combined) Inflow=0.817 cfs 3,258 cf

Primary=0.817 cfs 3,258 cf

Total Runoff Area = 54,014 sf Runoff Volume = 6,724 cf Average Runoff Depth = 1.49" 11.29% Pervious = 6,098 sf 88.71% Impervious = 47,916 sf

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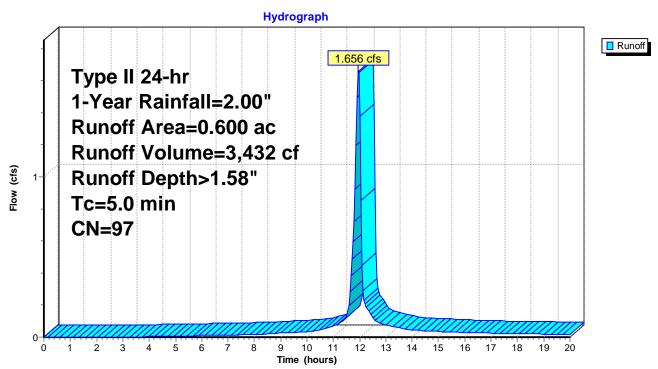
# **Summary for Subcatchment 1S: PRE**

Runoff = 1.656 cfs @ 11.95 hrs, Volume= 3,432 cf, Depth> 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 1-Year Rainfall=2.00"

Area	(ac)	CN	Desc	Description							
0	.560	98	Pave	ed parking,	HSG D						
0	.040	78	Mead	dow, non-g	razed, HSG	G D					
0	.600	97	Weig	hted Avera	age						
0	.040		6.67	% Pervious	Area						
0	.560		93.33	3% Imperv	ious Area						
Tc	- 3		Slope	Velocity	Capacity	Description					
(min)	(fee	∋t)	(ft/ft)	(ft/sec)	(cfs)						
5.0						Direct Entry,					

#### **Subcatchment 1S: PRE**



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# Hydrograph for Subcatchment 1S: PRE

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Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00 0.20	0.00	0.00	0.000 0.000	10.80 11.00	0.44 0.47	0.21 0.23	0.058 0.067
0.20	0.00	0.00	0.000	11.00	0.47	0.23	0.067
0.40	0.01	0.00	0.000	11.40	0.54	0.26	0.064
0.80	0.01	0.00	0.000	11.40	0.54	0.29	0.103
1.00	0.02	0.00	0.000	11.80	0.86	0.58	<b>0.199</b> <b>0.724</b>
1.20	0.02	0.00	0.000	12.00	1.33	1.02	1.381
1.40	0.03	0.00	0.000	12.00	1.40	1.02	0.206
1.60	0.03	0.00	0.000	12.40	1.45	1.14	0.149
1.80	0.03	0.00	0.000	12.40	1.49	1.17	0.102
2.00	0.04	0.00	0.000	12.80	1.52	1.20	0.102
2.20	0.04	0.00	0.000	13.00	1.54	1.23	0.076
2.40	0.05	0.00	0.000	13.20	1.57	1.25	0.068
2.60	0.06	0.00	0.000	13.40	1.59	1.27	0.061
2.80	0.06	0.00	0.000	13.60	1.61	1.29	0.055
3.00	0.07	0.00	0.001	13.80	1.62	1.30	0.050
3.20	0.07	0.00	0.001	14.00	1.64	1.32	0.045
3.40	0.08	0.00	0.002	14.20	1.65	1.33	0.043
3.60	0.08	0.00	0.002	14.40	1.67	1.35	0.041
3.80	0.09	0.00	0.003	14.60	1.68	1.36	0.039
4.00	0.10	0.00	0.003	14.80	1.69	1.37	0.038
4.20	0.10	0.00	0.004	15.00	1.71	1.38	0.036
4.40	0.11	0.01	0.004	15.20	1.72	1.40	0.034
4.60	0.11	0.01	0.005	15.40	1.73	1.41	0.033
4.80	0.12	0.01	0.005	15.60	1.74	1.42	0.031
5.00	0.13	0.01	0.006	15.80	1.75	1.43	0.029
5.20	0.13	0.01	0.006	16.00	1.76	1.44	0.028
5.40	0.14	0.02	0.007	16.20	1.77	1.45	0.027
5.60	0.15	0.02	0.008	16.40	1.78	1.45	0.026
5.80	0.15	0.02	0.008	16.60	1.79	1.46	0.026
6.00	0.16	0.02	0.009	16.80	1.80	1.47	0.025
6.20	0.17	0.03	0.010	17.00	1.80	1.48	0.024
6.40	0.17	0.03	0.010	17.20	1.81	1.49	0.024
6.60	0.18	0.03	0.011	17.40	1.82	1.49	0.023
6.80	0.19	0.04	0.012	17.60	1.83	1.50	0.023
7.00	0.20	0.04	0.012	17.80	1.83	1.51	0.022
7.20	0.21	0.05	0.013	18.00	1.84	1.52	0.022
7.40	0.21	0.05	0.014	18.20	1.85	1.52	0.021
7.60	0.22	0.06	0.014	18.40	1.86	1.53	0.020
7.80	0.23	0.06	0.015	18.60	1.86	1.54	0.020
8.00	0.24	0.07	0.016	18.80	1.87	1.54	0.019
8.20	0.25	0.07	0.017	19.00	1.88	1.55	0.019
8.40	0.26	0.08	0.019	19.20	1.88	1.56	0.018
8.60	0.27	0.08	0.021	19.40	1.89	1.56	0.017
8.80	0.28	0.09	0.023	19.60	1.89	1.57	0.017
9.00	0.29	0.10	0.025	19.80	1.90	1.57	0.016
9.20	0.31	0.11	0.026	20.00	1.90	1.58	0.016
9.40	0.32	0.12	0.027				
9.60	0.33	0.13	0.028				
9.80	0.35	0.14	0.031				
10.00	0.36	0.15	0.035				
10.20 10.40	0.38 0.40	0.16 0.17	0.039 0.044				
10.40	0.40	0.17	0.044				
10.00	0.42	0.19	0.050				

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### Summary for Subcatchment 2S: Detained

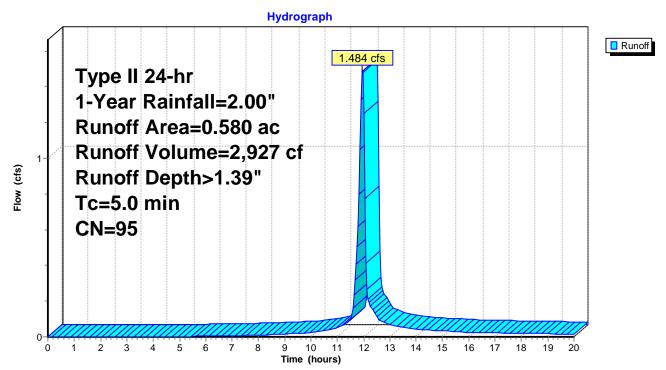
Runoff = 1.484 cfs @ 11.96 hrs, Volume= 2,927 cf, Depth> 1.39"

Routed to Pond 3P: UG

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 1-Year Rainfall=2.00"

Area	(ac)	CN	Desc	ription		
0	.100	78	Mead	dow, non-g	razed, HSG	GD
0	.480	98	Pave	ed parking,	HSG D	
0	.580	95	Weig	hted Avera	age	
0	.100		17.24	4% Pervioυ	ıs Area	
0	.480		82.76	6% Imperv	ious Area	
Tc (min)	Leng		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	•
5.0						Direct Entry,

### **Subcatchment 2S: Detained**



# Hydrograph for Subcatchment 2S: Detained

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.44	0.13	0.044
0.20	0.00	0.00	0.000	11.00	0.47	0.15	0.052
0.40	0.01	0.00	0.000	11.20	0.50	0.17	0.065
0.60	0.01	0.00	0.000	11.40	0.54	0.20	0.083
0.80	0.02	0.00	0.000	11.60	0.61	0.25	0.161
1.00	0.02	0.00	0.000	11.80	0.86	0.45	0.617
1.20	0.03	0.00	0.000	12.00	1.33	0.85	1.248
1.40	0.03	0.00	0.000	12.20	1.40	0.92	0.189
1.60	0.03	0.00	0.000	12.40	1.45	0.97	0.137
1.80	0.04	0.00	0.000	12.60	1.49	1.00	0.094
2.00	0.04	0.00	0.000	12.80	1.52	1.03	0.082
2.20	0.05	0.00	0.000	13.00	1.54	1.05	0.071
2.40	0.05	0.00	0.000	13.20	1.57	1.08	0.063
2.60	0.06	0.00	0.000	13.40	1.59	1.09	0.057
2.80	0.06	0.00	0.000	13.60	1.61	1.11	0.051
3.00 3.20	0.07 0.07	0.00	0.000 0.000	13.80 14.00	1.62 1.64	1.13 1.14	0.046 0.042
3.40	0.07	0.00	0.000	14.00	1.65	1.14	0.042
3.60	0.08	0.00	0.000	14.40	1.67	1.17	0.040
3.80	0.08	0.00	0.000	14.40	1.68	1.17	0.036
4.00	0.09	0.00	0.000	14.80	1.69	1.19	0.037
4.20	0.10	0.00	0.000	15.00	1.71	1.21	0.034
4.40	0.11	0.00	0.000	15.20	1.72	1.22	0.032
4.60	0.11	0.00	0.000	15.40	1.73	1.23	0.030
4.80	0.12	0.00	0.001	15.60	1.74	1.24	0.029
5.00	0.13	0.00	0.001	15.80	1.75	1.25	0.027
5.20	0.13	0.00	0.002	16.00	1.76	1.26	0.026
5.40	0.14	0.00	0.002	16.20	1.77	1.26	0.025
5.60	0.15	0.00	0.003	16.40	1.78	1.27	0.024
5.80	0.15	0.00	0.003	16.60	1.79	1.28	0.024
6.00	0.16	0.01	0.004	16.80	1.80	1.29	0.023
6.20	0.17	0.01	0.004	17.00	1.80	1.30	0.023
6.40	0.17	0.01	0.005	17.20	1.81	1.30	0.022
6.60	0.18	0.01	0.005	17.40	1.82	1.31	0.022
6.80	0.19	0.01	0.006	17.60	1.83	1.32	0.021
7.00	0.20	0.01	0.006	17.80	1.83	1.33	0.021
7.20	0.21	0.02	0.007	18.00	1.84	1.33	0.020
7.40	0.21	0.02	0.007	18.20	1.85	1.34	0.020
7.60 7.80	0.22 0.23	0.02 0.02	0.008 0.009	18.40 18.60	1.86	1.35 1.35	0.019 0.018
8.00	0.23	0.02	0.009	18.80	1.86 1.87	1.36	0.018
8.20	0.24	0.03	0.009	19.00	1.88	1.36	0.017
8.40	0.26	0.03	0.010	19.20	1.88	1.37	0.017
8.60	0.27	0.04	0.012	19.40	1.89	1.38	0.016
8.80	0.28	0.04	0.015	19.60	1.89	1.38	0.016
9.00	0.29	0.05	0.016	19.80	1.90	1.39	0.015
9.20	0.31	0.06	0.018	20.00	1.90	1.39	0.015
9.40	0.32	0.06	0.018				
9.60	0.33	0.07	0.019				
9.80	0.35	0.08	0.022				
10.00	0.36	0.08	0.025				
10.20	0.38	0.09	0.028				
10.40	0.40	0.10	0.032				
10.60	0.42	0.12	0.037				

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# Summary for Subcatchment 3S: Undetained

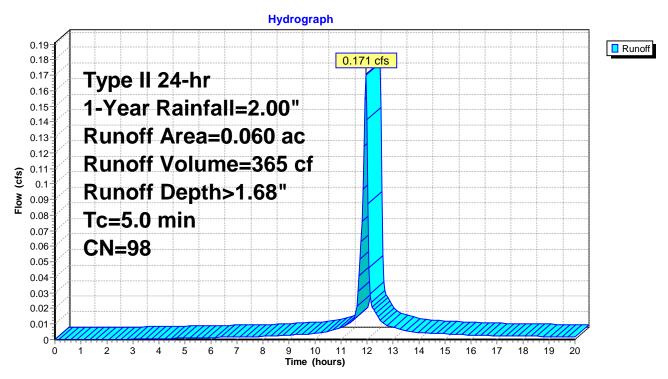
Runoff = 0.171 cfs @ 11.95 hrs, Volume= 365 cf, Depth> 1.68"

Routed to Link 4L: POST (Combined)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 1-Year Rainfall=2.00"

Area	(ac)	CN	Desc	ription		
0	.060	98	Pave	d parking,	HSG D	
0	.060		100.0	00% Imper	vious Area	
Tc (min)	Lengt (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0						Direct Entry,

#### **Subcatchment 3S: Undetained**



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## Hydrograph for Subcatchment 3S: Undetained

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.44	0.27	0.007
0.20	0.00	0.00	0.000	11.00	0.47	0.29	0.007
0.40	0.01	0.00	0.000	11.20	0.50	0.32	0.009
0.60	0.01	0.00	0.000	11.40	0.54	0.36	0.011
0.80	0.02	0.00	0.000	11.60	0.61	0.42	0.021
1.00	0.02	0.00	0.000	11.80	0.86	0.66	0.076
1.20	0.03	0.00	0.000	12.00	1.33	1.11	0.142
1.40	0.03	0.00	0.000	12.20	1.40	1.18	0.021
1.60	0.03	0.00	0.000	12.40	1.45	1.23	0.015
1.80	0.04	0.00	0.000	12.60 12.80	1.49 1.52	1.27 1.30	0.010
2.00 2.20	0.04 0.05	0.00	0.000 0.000	13.00	1.54	1.30	0.009 0.008
2.40	0.05	0.00	0.000	13.20	1.54	1.35	0.008
2.60	0.06	0.00	0.000	13.40	1.59	1.37	0.006
2.80	0.06	0.00	0.000	13.60	1.61	1.39	0.006
3.00	0.07	0.00	0.000	13.80	1.62	1.40	0.005
3.20	0.07	0.00	0.000	14.00	1.64	1.42	0.005
3.40	0.08	0.01	0.000	14.20	1.65	1.43	0.004
3.60	0.08	0.01	0.001	14.40	1.67	1.45	0.004
3.80	0.09	0.01	0.001	14.60	1.68	1.46	0.004
4.00	0.10	0.01	0.001	14.80	1.69	1.47	0.004
4.20	0.10	0.01	0.001	15.00	1.71	1.48	0.004
4.40	0.11	0.02	0.001	15.20	1.72	1.50	0.003
4.60	0.11	0.02	0.001	15.40	1.73	1.51	0.003
4.80	0.12	0.02	0.001	15.60	1.74	1.52	0.003
5.00	0.13	0.03	0.001	15.80	1.75	1.53	0.003
5.20 5.40	0.13 0.14	0.03 0.03	0.001 0.001	16.00 16.20	1.76 1.77	1.54 1.55	0.003 0.003
5.60	0.14	0.03	0.001	16.20	1.77	1.55	0.003
5.80	0.15	0.04	0.001	16.60	1.79	1.56	0.003
6.00	0.16	0.04	0.001	16.80	1.80	1.57	0.003
6.20	0.17	0.05	0.001	17.00	1.80	1.58	0.002
6.40	0.17	0.05	0.001	17.20	1.81	1.59	0.002
6.60	0.18	0.06	0.001	17.40	1.82	1.60	0.002
6.80	0.19	0.06	0.002	17.60	1.83	1.60	0.002
7.00	0.20	0.07	0.002	17.80	1.83	1.61	0.002
7.20	0.21	0.07	0.002	18.00	1.84	1.62	0.002
7.40	0.21	0.08	0.002	18.20	1.85	1.62	0.002
7.60	0.22	0.09	0.002	18.40	1.86	1.63	0.002
7.80	0.23	0.09	0.002	18.60	1.86	1.64	0.002
8.00	0.24	0.10	0.002	18.80	1.87	1.64	0.002
8.20	0.25	0.11	0.002	19.00	1.88	1.65	0.002
8.40	0.26	0.11	0.002	19.20	1.88	1.66	0.002
8.60	0.27	0.12	0.003	19.40	1.89	1.66	0.002
8.80	0.28	0.13	0.003	19.60	1.89	1.67	0.002
9.00 9.20	0.29 0.31	0.14 0.15	0.003 0.003	19.80 20.00	1.90	1.67	0.002 0.002
9.20	0.31	0.15	0.003	20.00	1.90	1.68	0.002
9.60	0.32	0.10	0.003				
9.80	0.35	0.17	0.003				
10.00	0.36	0.20	0.004				
10.20	0.38	0.21	0.004				
10.40	0.40	0.23	0.005				
10.60	0.42	0.25	0.006				

#### 1856.21 Wilkins Twp Zips\_additional pay lane\_b

Type II 24-hr 1-Year Rainfall=2.00" Printed 5/5/2023

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#### **Summary for Pond 3P: UG**

Inflow Area = 25,265 sf, 82.76% Impervious, Inflow Depth > 1.39" for 1-Year event

Inflow 1.484 cfs @ 11.96 hrs. Volume= 2.927 cf

0.696 cfs @ 12.05 hrs, Volume= Outflow 2,893 cf, Atten= 53%, Lag= 5.7 min

0.696 cfs @ 12.05 hrs, Volume= 2,893 cf Primary =

Routed to Link 4L : POST (Combined)

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Peak Elev= 978.88' @ 12.05 hrs Surf.Area= 1,190 sf Storage= 703 cf

Plug-Flow detention time= 18.9 min calculated for 2,893 cf (99% of inflow)

Center-of-Mass det. time= 13.9 min (771.3 - 757.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	977.55'	1,405 cf	17.00'W x 70.00'L x 4.50'H Field A
			5,355 cf Overall - 1,843 cf Embedded = 3,512 cf x 40.0% Voids
#2A	978.05'	1,477 cf	<b>ADS N-12 36"</b> x 9 Inside #1
			Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf
			Outside= $42.0$ "W x $42.0$ "H => $8.86$ sf x $20.00$ 'L = $177.2$ cf
			9 Chambers in 3 Rows
			14.00' Header x 7.10 sf x 2 = 198.8 cf Inside
			T

2,882 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices			
#1	Primary	977.55'	12.0" Round Culvert			
			L= 45.0' CPP, projecting, no headwall, Ke= 0.900			
			Inlet / Outlet Invert= 977.55' / 976.65' S= 0.0200 '/' Cc= 0.900			
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf			
#2	Device 1	977.55'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads			
#3	Device 1	981.05'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads			
#4	Device 1	981.95'	2.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)			
#5	Device 1	982.90'	<b>2.0" x 4.0" Horiz. Orifice/Grate</b> C= 0.600			
			Limited to weir flow at low heads			

Primary OutFlow Max=0.694 cfs @ 12.05 hrs HW=978.87' (Free Discharge) 1=Culvert (Passes 0.694 cfs of 2.712 cfs potential flow)

**2=Orifice/Grate** (Orifice Controls 0.694 cfs @ 5.09 fps)

-3=Orifice/Grate (Controls 0.000 cfs)

-4=Sharp-Crested Rectangular Weir (Controls 0.000 cfs)

-5=Orifice/Grate (Controls 0.000 cfs)

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#### Pond 3P: UG - Chamber Wizard Field A

#### Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

3 Chambers/Row x 20.00' Long +3.50' Header x 2 = 67.00' Row Length +18.0" End Stone x 2 = 70.00' Base Length

3 Rows x 42.0" Wide + 21.0" Spacing x 2 + 18.0" Side Stone x 2 = 17.00' Base Width 6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

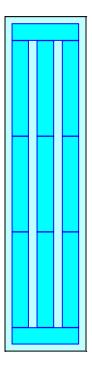
9 Chambers x 142.0 cf + 14.00' Header x 7.10 sf x 2 = 1,476.8 cf Chamber Storage

9 Chambers x 177.2 cf + 14.00' Header x 8.86 sf x 2 = 1,843.1 cf Displacement

5,355.0 cf Field - 1,843.1 cf Chambers = 3,511.9 cf Stone x 40.0% Voids = 1,404.8 cf Stone Storage

Chamber Storage + Stone Storage = 2,881.6 cf = 0.066 af Overall Storage Efficiency = 53.8% Overall System Size = 70.00' x 17.00' x 4.50'

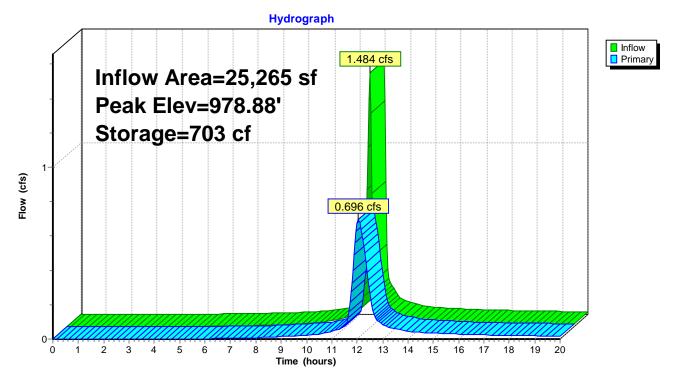
9 Chambers 198.3 cy Field 130.1 cy Stone





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Pond 3P: UG



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## Hydrograph for Pond 3P: UG

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.000	0	977.55	0.000
0.40	0.000	0	977.55	0.000
0.80	0.000	0	977.55	0.000
1.20 1.60	0.000 0.000	0	977.55 977.55	0.000 0.000
2.00	0.000	0	977.55	0.000
2.40	0.000	Ő	977.55	0.000
2.80	0.000	0	977.55	0.000
3.20	0.000	0	977.55	0.000
3.60	0.000	0	977.55	0.000
4.00	0.000	0	977.55	0.000
4.40	0.000	0	977.55	0.000
4.80	0.001	0	977.55	0.000
5.20 5.60	0.002 0.003	2 4	977.55 977.56	0.001 0.001
6.00	0.003	6	977.56	0.001
6.40	0.004	9	977.57	0.002
6.80	0.006	11	977.57	0.004
7.20	0.007	15	977.58	0.005
7.60	0.008	18	977.59	0.006
8.00	0.009	21	977.59	0.007
8.40	0.012	26	977.60	0.008
8.80	0.015	30	977.61	0.012
9.20	0.018	34	977.62	0.015
9.60 10.00	0.019 0.025	36 40	977.63 977.63	0.018 0.021
10.40	0.023	46	977.65	0.027
10.80	0.044	56	977.67	0.037
11.20	0.065	67	977.69	0.053
11.60	0.161	94	977.75	0.097
12.00	1.248	654	978.82	0.675
12.40	0.137	264	978.11	0.390
12.80	0.082	101	977.76	0.110
13.20 13.60	0.063	79 70	977.72	0.071
14.00	0.051 0.042	62	977.70 977.68	0.057 0.047
14.40	0.038	58	977.67	0.040
14.80	0.035	55	977.67	0.037
15.20	0.032	53	977.66	0.034
15.60	0.029	51	977.66	0.031
16.00	0.026	48	977.65	0.028
16.40	0.024	45	977.65	0.026
16.80	0.023	44	977.64	0.024
17.20 17.60	0.022 0.021	42 41	977.64 977.64	0.023 0.022
18.00	0.021	40	977.63	0.022
18.40	0.019	39	977.63	0.020
18.80	0.018	37	977.63	0.019
19.20	0.017	36	977.63	0.018
19.60	0.016	35	977.62	0.017
20.00	0.015	34	977.62	0.015

Type II 24-hr 1-Year Rainfall=2.00" Printed 5/5/2023

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## **Summary for Link 4L: POST (Combined)**

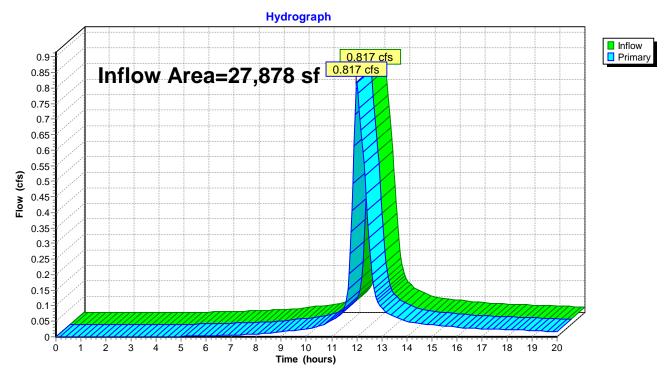
Inflow Area = 27,878 sf, 84.38% Impervious, Inflow Depth > 1.40" for 1-Year event

Inflow = 0.817 cfs @ 11.99 hrs, Volume= 3,258 cf

Primary = 0.817 cfs @ 11.99 hrs, Volume= 3,258 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

## Link 4L: POST (Combined)



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# Hydrograph for Link 4L: POST (Combined)

Time	Inflow	Elevation	Primary	Time	Inflow	Elevation	Primary
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)	(cfs)
0.00	0.000	0.00	0.000	10.80	0.044	0.00	0.044
0.20	0.000	0.00	0.000	11.00	0.052	0.00	0.052
0.40	0.000	0.00	0.000	11.20	0.063	0.00	0.063
0.60	0.000	0.00	0.000	11.40	0.079	0.00	0.079
0.80	0.000	0.00	0.000	11.60	0.118	0.00	0.118
1.00	0.000	0.00	0.000	11.80	0.405	0.00	0.405
1.20	0.000	0.00	0.000	12.00	0.817	0.00	0.817
1.40	0.000	0.00	0.000	12.20	0.630	0.00	0.630
1.60	0.000	0.00	0.000	12.40	0.405	0.00	0.405
1.80	0.000	0.00	0.000	12.60	0.201	0.00	0.201
2.00	0.000	0.00	0.000	12.80	0.119	0.00	0.119
2.20	0.000	0.00	0.000	13.00	0.092	0.00	0.092
2.40	0.000	0.00	0.000	13.20	0.078	0.00	0.078
2.60	0.000	0.00	0.000	13.40	0.069	0.00	0.069
2.80	0.000	0.00	0.000	13.60	0.063	0.00	0.063
3.00	0.000	0.00	0.000	13.80	0.056	0.00	0.056
3.20	0.000	0.00	0.000	14.00	0.050	0.00	0.050
3.40	0.000	0.00	0.000	14.00	0.031	0.00	0.031
3.60	0.000	0.00	0.000	14.20	0.047	0.00	0.047
	0.001	0.00	0.001	14.40	0.044	0.00	0.044
3.80	0.001	0.00				0.00	
4.00			0.001	14.80	0.040		0.040
4.20	0.001	0.00	0.001	15.00	0.039	0.00	0.039
4.40	0.001	0.00	0.001	15.20	0.037	0.00	0.037
4.60	0.001	0.00	0.001	15.40	0.035	0.00	0.035
4.80	0.001	0.00	0.001	15.60	0.034	0.00	0.034
5.00	0.001	0.00	0.001	15.80	0.032	0.00	0.032
5.20	0.002	0.00	0.002	16.00	0.031	0.00	0.031
5.40	0.002	0.00	0.002	16.20	0.029	0.00	0.029
5.60	0.002	0.00	0.002	16.40	0.028	0.00	0.028
5.80	0.003	0.00	0.003	16.60	0.028	0.00	0.028
6.00	0.003	0.00	0.003	16.80	0.027	0.00	0.027
6.20	0.004	0.00	0.004	17.00	0.026	0.00	0.026
6.40	0.004	0.00	0.004	17.20	0.026	0.00	0.026
6.60	0.005	0.00	0.005	17.40	0.025	0.00	0.025
6.80	0.005	0.00	0.005	17.60	0.024	0.00	0.024
7.00	0.006	0.00	0.006	17.80	0.024	0.00	0.024
7.20	0.006	0.00	0.006	18.00	0.023	0.00	0.023
7.40	0.007	0.00	0.007	18.20	0.023	0.00	0.023
7.60	0.007	0.00	0.007	18.40	0.022	0.00	0.022
7.80	0.008	0.00	0.008	18.60	0.021	0.00	0.021
8.00	0.009	0.00	0.009	18.80	0.021	0.00	0.021
8.20	0.009	0.00	0.009	19.00	0.020	0.00	0.020
8.40	0.010	0.00	0.010	19.20	0.020	0.00	0.020
8.60	0.013	0.00	0.013	19.40	0.019	0.00	0.019
8.80	0.015	0.00	0.015	19.60	0.018	0.00	0.018
9.00	0.017	0.00	0.017	19.80	0.018	0.00	0.018
9.20	0.019	0.00	0.019	20.00	0.017	0.00	0.017
9.40	0.020	0.00	0.020				
9.60	0.021	0.00	0.021				
9.80	0.023	0.00	0.023				
10.00	0.025	0.00	0.025				
10.20	0.028	0.00	0.028				
10.40	0.032	0.00	0.032				
10.60	0.036	0.00	0.036				
				-			

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Type II 24-hr 2-Year Rainfall=2.50" Printed 5/5/2023

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Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 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: PRE Runoff Area=0.600 ac 93.33% Impervious Runoff Depth>2.04"

Tc=5.0 min CN=97 Runoff=2.108 cfs 4,451 cf

Subcatchment 2S: Detained Runoff Area=0.580 ac 82.76% Impervious Runoff Depth>1.85"

Tc=5.0 min CN=95 Runoff=1.929 cfs 3,886 cf

Subcatchment 3S: Undetained Runoff Area=0.060 ac 100.00% Impervious Runoff Depth>2.15"

Tc=5.0 min CN=98 Runoff=0.215 cfs 468 cf

Pond 3P: UG Peak Elev=979.25' Storage=985 cf Inflow=1.929 cfs 3,886 cf

Outflow=0.801 cfs 3,847 cf

Link 4L: POST (Combined) Inflow=0.952 cfs 4,315 cf

Primary=0.952 cfs 4,315 cf

Total Runoff Area = 54,014 sf Runoff Volume = 8,804 cf Average Runoff Depth = 1.96" 11.29% Pervious = 6,098 sf 88.71% Impervious = 47,916 sf

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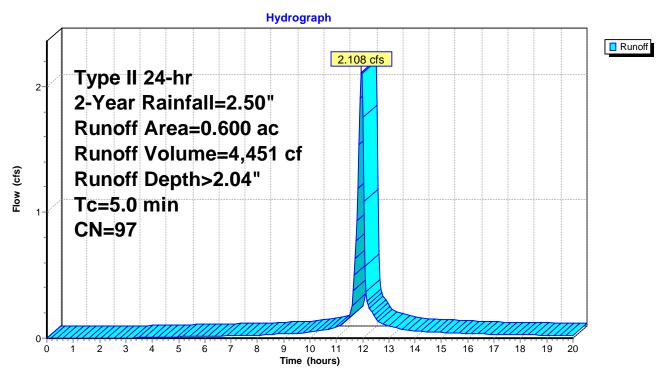
## **Summary for Subcatchment 1S: PRE**

Runoff = 2.108 cfs @ 11.95 hrs, Volume= 4,451 cf, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 2-Year Rainfall=2.50"

Area	(ac)	CN	Desc	Description							
0	.560	98	Pave	Paved parking, HSG D							
0	.040	78	Mead	Meadow, non-grazed, HSG D							
0	.600	00 97 Weighted Average									
0	0.040 6.67% Pervious Area										
0	0.560 93.33% Impervious Area				ious Area						
Tc	Leng		Slope	Velocity	Capacity	•					
<u>(min)</u>	(fee	et)	(ft/ft)	(ft/sec)	(cfs)						
5.0						Direct Entry,					

#### **Subcatchment 1S: PRE**



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# Hydrograph for Subcatchment 1S: PRE

Time	Drooin	Гуссов	Dunoff	l Time	Drooin	Гуссов	Dunoff
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.000	10.80	0.55	0.30	0.078
0.20	0.00	0.00	0.000	11.00	0.59	0.33	0.078
0.40	0.01	0.00	0.000	11.20	0.63	0.37	0.110
0.40	0.01	0.00	0.000	11.40	0.68	0.37	0.118
0.80	0.02	0.00	0.000	11.60	0.00	0.49	0.150
1.00	0.02	0.00	0.000	11.80	1.08	0.43	0.233
1.20	0.03	0.00	0.000	12.00	1.66	1.34	1.754
1.40	0.04	0.00	0.000	12.20	1.75	1.42	0.261
1.60	0.04	0.00	0.000	12.40	1.81	1.49	0.188
1.80	0.05	0.00	0.000	12.60	1.86	1.53	0.129
2.00	0.05	0.00	0.000	12.80	1.90	1.57	0.112
2.20	0.06	0.00	0.000	13.00	1.93	1.60	0.096
2.40	0.07	0.00	0.000	13.20	1.96	1.63	0.085
2.60	0.07	0.00	0.001	13.40	1.99	1.66	0.077
2.80	0.08	0.00	0.002	13.60	2.01	1.68	0.069
3.00	0.09	0.00	0.002	13.80	2.03	1.70	0.063
3.20	0.09	0.00	0.003	14.00	2.05	1.72	0.057
3.40	0.10	0.00	0.004	14.20	2.07	1.74	0.054
3.60	0.11	0.01	0.005	14.40	2.09	1.76	0.052
3.80	0.11	0.01	0.005	14.60	2.10	1.77	0.050
4.00	0.12	0.01	0.006	14.80	2.12	1.79	0.047
4.20	0.13	0.01	0.007	15.00	2.13	1.80	0.045
4.40	0.13	0.01	0.007	15.20	2.15	1.82	0.043
4.60	0.14	0.02	0.008	15.40	2.16	1.83	0.041
4.80	0.15	0.02	0.009	15.60	2.18	1.84	0.039
5.00	0.16	0.02	0.010	15.80	2.19	1.86	0.037
5.20 5.40	0.17 0.17	0.03 0.03	0.011	16.00 16.20	2.20 2.21	1.87 1.88	0.035 0.034
5.60	0.17	0.03	0.011 0.012	16.40	2.22	1.89	0.034
5.80	0.18	0.03	0.012	16.60	2.23	1.90	0.033
6.00	0.19	0.04	0.013	16.80	2.24	1.91	0.032
6.20	0.21	0.05	0.015	17.00	2.25	1.92	0.032
6.40	0.22	0.05	0.016	17.20	2.26	1.93	0.030
6.60	0.23	0.06	0.016	17.40	2.27	1.94	0.029
6.80	0.24	0.06	0.017	17.60	2.28	1.95	0.029
7.00	0.25	0.07	0.018	17.80	2.29	1.96	0.028
7.20	0.26	0.08	0.019	18.00	2.30	1.97	0.027
7.40	0.27	0.08	0.020	18.20	2.31	1.98	0.026
7.60	0.28	0.09	0.021	18.40	2.32	1.99	0.026
7.80	0.29	0.10	0.021	18.60	2.33	1.99	0.025
8.00	0.30	0.10	0.022	18.80	2.34	2.00	0.024
8.20	0.31	0.11	0.024	19.00	2.34	2.01	0.023
8.40	0.32	0.12	0.027	19.20	2.35	2.02	0.023
8.60	0.34	0.13	0.029	19.40	2.36	2.02	0.022
8.80	0.35	0.14	0.032	19.60	2.37	2.03	0.021
9.00	0.37	0.15	0.035	19.80	2.37	2.04	0.020
9.20	0.38	0.16	0.037	20.00	2.38	2.05	0.020
9.40	0.40	0.18	0.037				
9.60 9.80	0.42 0.43	0.19 0.20	0.038 0.042				
10.00	0.45	0.20	0.042				
10.20	0.43	0.24	0.053				
10.40	0.50	0.25	0.059				
10.60	0.52	0.28	0.067				
. 3.00	5.5-	3.23	0.00.				

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#### **Summary for Subcatchment 2S: Detained**

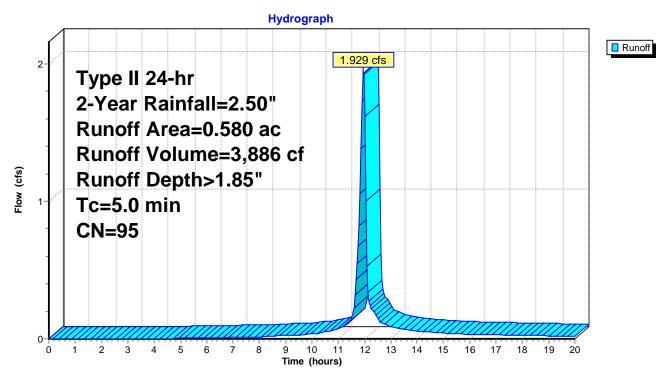
Runoff = 1.929 cfs @ 11.96 hrs, Volume= 3,886 cf, Depth> 1.85"

Routed to Pond 3P: UG

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 2-Year Rainfall=2.50"

Area	(ac)	CN	Desc	ription						
0.	100	78	Mead	Meadow, non-grazed, HSG D						
0.	480	98	Pave	Paved parking, HSG D						
0.	580	95	Weig	hted Avera	age					
0.100 17.24% Pervious Area										
0.	480		82.76	6% Imperv	ious Area					
Тс	Length	h S	Slope	Velocity	Capacity	Description				
(min)	(feet	:)	(ft/ft)	(ft/sec)	(cfs)	•				
5.0						Direct Entry				

#### **Subcatchment 2S: Detained**



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## Hydrograph for Subcatchment 2S: Detained

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.55	0.21	0.062
0.20	0.01	0.00	0.000	11.00	0.59	0.23	0.073
0.40	0.01	0.00	0.000	11.20	0.63	0.26	0.091
0.60	0.02	0.00	0.000	11.40	0.68	0.30	0.115
0.80	0.02	0.00	0.000	11.60	0.77	0.37	0.220
1.00	0.03	0.00	0.000	11.80	1.08	0.63	0.822
1.20	0.03	0.00	0.000	12.00	1.66	1.16	1.616
1.40	0.04	0.00	0.000	12.20	1.75	1.24	0.243
1.60	0.04	0.00	0.000	12.40	1.81	1.31	0.176
1.80	0.05	0.00	0.000	12.60	1.86	1.35	0.121
2.00	0.05	0.00	0.000	12.80	1.90	1.38	0.105
2.20	0.06	0.00	0.000	13.00	1.93	1.42	0.090
2.40	0.07	0.00	0.000	13.20	1.96	1.44	0.080
2.60	0.07	0.00	0.000	13.40	1.99	1.47	0.072
2.80	0.08	0.00	0.000	13.60	2.01	1.49	0.065
3.00	0.09	0.00	0.000	13.80	2.03	1.51	0.059
3.20	0.09	0.00	0.000	14.00	2.05	1.53	0.054
3.40	0.10	0.00	0.000	14.20	2.07	1.55	0.050
3.60	0.11	0.00	0.000	14.40	2.09	1.56	0.049
3.80	0.11	0.00	0.000	14.60	2.10	1.58	0.047
4.00	0.12	0.00	0.001	14.80	2.12	1.60	0.045
4.20	0.13	0.00	0.001	15.00	2.13	1.61	0.043
4.40	0.13	0.00	0.002	15.20	2.15	1.62	0.041
4.60	0.14	0.00	0.003	15.40	2.16	1.64	0.039
4.80	0.15	0.00	0.003	15.60	2.18	1.65	0.037
5.00	0.16	0.00	0.004	15.80	2.19	1.66	0.035
5.20	0.17	0.01	0.004	16.00	2.20	1.67	0.033
5.40	0.17	0.01	0.005	16.20	2.21	1.69	0.032
5.60	0.18	0.01	0.006	16.40	2.22 2.23	1.70	0.031
5.80 6.00	0.19 0.20	0.01 0.01	0.006 0.007	16.60 16.80	2.23	1.71 1.72	0.030 0.030
6.20	0.20	0.01	0.007	17.00	2.25	1.72	0.030
6.40	0.21	0.02	0.008	17.00	2.26	1.73	0.029
6.60	0.22	0.02	0.009	17.40	2.27	1.74	0.028
6.80	0.23	0.02	0.009	17.40	2.28	1.75	0.028
7.00	0.24	0.03	0.010	17.80	2.29	1.76	0.027
7.20	0.26	0.03	0.011	18.00	2.30	1.77	0.026
7.40	0.27	0.04	0.012	18.20	2.31	1.78	0.025
7.60	0.28	0.04	0.012	18.40	2.32	1.79	0.024
7.80	0.29	0.05	0.014	18.60	2.33	1.80	0.024
8.00	0.30	0.05	0.015	18.80	2.34	1.81	0.023
8.20	0.31	0.06	0.016	19.00	2.34	1.81	0.022
8.40	0.32	0.06	0.018	19.20	2.35	1.82	0.021
8.60	0.34	0.07	0.020	19.40	2.36	1.83	0.021
8.80	0.35	0.08	0.023	19.60	2.37	1.83	0.020
9.00	0.37	0.09	0.025	19.80	2.37	1.84	0.019
9.20	0.38	0.10	0.026	20.00	2.38	1.85	0.019
9.40	0.40	0.11	0.027				
9.60	0.42	0.12	0.028				
9.80	0.43	0.13	0.032				
10.00	0.45	0.14	0.036				
10.20	0.47	0.15	0.041				
10.40	0.50	0.17	0.046				
10.60	0.52	0.19	0.053				

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### Summary for Subcatchment 3S: Undetained

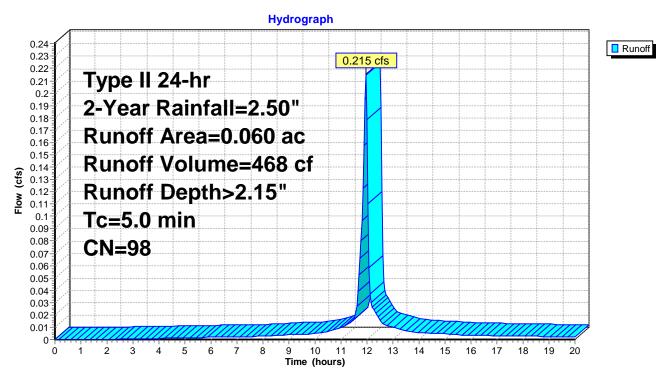
Runoff = 0.215 cfs @ 11.95 hrs, Volume= 468 cf, Depth> 2.15"

Routed to Link 4L : POST (Combined)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 2-Year Rainfall=2.50"

Area	(ac)	CN	Desc	ription		
0	.060	98	Pave	d parking,	HSG D	
0	0.060 100.00% Impervious Area					
Tc (min)	Lengt (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0						Direct Entry,

#### **Subcatchment 3S: Undetained**



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## Hydrograph for Subcatchment 3S: Undetained

<del></del> -	ъ.	_	5 " 1	<del></del> -	ъ.	_	<b>5</b> "
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches) 0.55	(inches) 0.37	(cfs)
0.00 0.20	0.00 0.01	0.00	0.000 0.000	10.80 11.00	0.59	0.37	0.008 0.010
0.20	0.01	0.00	0.000	11.00	0.59	0.40	0.010
0.40	0.01	0.00	0.000	11.40		0.44	0.012
0.80	0.02	0.00	0.000	11.40	0.68 0.77	0.46	0.013
1.00	0.02	0.00	0.000	11.80	1.08	0.87	0.027 <b>0.097</b>
1.20	0.03	0.00	0.000	12.00	1.66	1.44	0.097 0.178
1.40	0.03	0.00	0.000	12.20	1.75	1.52	0.026
1.60	0.04	0.00	0.000	12.40	1.81	1.59	0.019
1.80	0.05	0.00	0.000	12.60	1.86	1.63	0.013
2.00	0.05	0.00	0.000	12.80	1.90	1.67	0.011
2.20	0.06	0.00	0.000	13.00	1.93	1.70	0.010
2.40	0.07	0.00	0.000	13.20	1.96	1.73	0.009
2.60	0.07	0.00	0.000	13.40	1.99	1.76	0.008
2.80	0.08	0.01	0.001	13.60	2.01	1.78	0.007
3.00	0.09	0.01	0.001	13.80	2.03	1.80	0.006
3.20	0.09	0.01	0.001	14.00	2.05	1.82	0.006
3.40	0.10	0.01	0.001	14.20	2.07	1.84	0.005
3.60	0.11	0.02	0.001	14.40	2.09	1.86	0.005
3.80	0.11	0.02	0.001	14.60	2.10	1.88	0.005
4.00	0.12	0.02	0.001	14.80	2.12	1.89	0.005
4.20	0.13	0.03	0.001	15.00	2.13	1.91	0.005
4.40	0.13	0.03	0.001	15.20	2.15	1.92	0.004
4.60	0.14	0.03	0.001	15.40	2.16	1.94	0.004
4.80	0.15	0.04	0.001	15.60	2.18	1.95	0.004
5.00	0.16	0.04	0.001	15.80	2.19	1.96	0.004
5.20	0.17	0.05	0.001	16.00	2.20	1.97	0.004
5.40	0.17	0.05	0.002	16.20	2.21	1.98	0.003
5.60	0.18	0.06	0.002	16.40	2.22	2.00	0.003
5.80	0.19	0.06	0.002	16.60	2.23	2.01	0.003
6.00	0.20	0.07	0.002	16.80	2.24	2.02	0.003
6.20	0.21	0.08	0.002	17.00	2.25	2.03	0.003
6.40	0.22	0.08	0.002	17.20	2.26	2.04	0.003
6.60	0.23	0.09	0.002	17.40	2.27	2.05	0.003
6.80 7.00	0.24 0.25	0.10 0.10	0.002	17.60 17.80	2.28 2.29	2.06 2.07	0.003 0.003
7.00	0.25	0.10	0.002 0.002	18.00	2.29	2.07	0.003
7.20	0.20	0.11	0.002	18.20	2.31	2.07	0.003
7.40	0.27	0.12	0.002	18.40	2.32	2.09	0.003
7.80	0.29	0.13	0.002	18.60	2.33	2.10	0.003
8.00	0.30	0.15	0.003	18.80	2.34	2.11	0.002
8.20	0.31	0.15	0.003	19.00	2.34	2.12	0.002
8.40	0.32	0.16	0.003	19.20	2.35	2.12	0.002
8.60	0.34	0.18	0.003	19.40	2.36	2.13	0.002
8.80	0.35	0.19	0.004	19.60	2.37	2.14	0.002
9.00	0.37	0.20	0.004	19.80	2.37	2.14	0.002
9.20	0.38	0.21	0.004	20.00	2.38	2.15	0.002
9.40	0.40	0.23	0.004				
9.60	0.42	0.24	0.004				
9.80	0.43	0.26	0.005				
10.00	0.45	0.28	0.005				
10.20	0.47	0.29	0.006				
10.40	0.50	0.32	0.007				
10.60	0.52	0.34	0.007				
			•				

Type II 24-hr 2-Year Rainfall=2.50" Printed 5/5/2023

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#### **Summary for Pond 3P: UG**

Inflow Area = 25,265 sf, 82.76% Impervious, Inflow Depth > 1.85" for 2-Year event

Inflow 1.929 cfs @ 11.96 hrs. Volume= 3.886 cf

0.801 cfs @ 12.06 hrs, Volume= Outflow 3,847 cf, Atten= 58%, Lag= 6.1 min

0.801 cfs @ 12.06 hrs, Volume= 3,847 cf Primary =

Routed to Link 4L : POST (Combined)

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Peak Elev= 979.25' @ 12.06 hrs Surf.Area= 1,190 sf Storage= 985 cf

Plug-Flow detention time= 18.9 min calculated for 3,847 cf (99% of inflow)

Center-of-Mass det. time= 14.6 min (765.2 - 750.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	977.55'	1,405 cf	17.00'W x 70.00'L x 4.50'H Field A
			5,355 cf Overall - 1,843 cf Embedded = 3,512 cf x 40.0% Voids
#2A	978.05'	1,477 cf	<b>ADS N-12 36"</b> x 9 Inside #1
			Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf
			Outside= $42.0$ "W x $42.0$ "H => $8.86$ sf x $20.00$ 'L = $177.2$ cf
			9 Chambers in 3 Rows
			14.00' Header x 7.10 sf x 2 = 198.8 cf Inside
			T ( ) A ( )   1   0 (

2.882 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	977.55'	12.0" Round Culvert
			L= 45.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 977.55' / 976.65' S= 0.0200 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	977.55'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	981.05'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	981.95'	2.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#5	Device 1	982.90'	<b>2.0" x 4.0" Horiz. Orifice/Grate</b> C= 0.600
			Limited to weir flow at low heads

**Primary OutFlow** Max=0.798 cfs @ 12.06 hrs HW=979.23' (Free Discharge) **1=Culvert** (Passes 0.798 cfs of 3.249 cfs potential flow)

**2=Orifice/Grate** (Orifice Controls 0.798 cfs @ 5.85 fps)

-3=Orifice/Grate (Controls 0.000 cfs)

-4=Sharp-Crested Rectangular Weir (Controls 0.000 cfs)

-5=Orifice/Grate (Controls 0.000 cfs)

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#### Pond 3P: UG - Chamber Wizard Field A

#### Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

3 Chambers/Row x 20.00' Long +3.50' Header x 2 = 67.00' Row Length +18.0" End Stone x 2 = 70.00' Base Length

3 Rows x 42.0" Wide + 21.0" Spacing x 2 + 18.0" Side Stone x 2 = 17.00' Base Width 6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

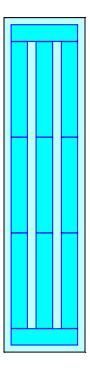
9 Chambers x 142.0 cf + 14.00' Header x 7.10 sf x 2 = 1,476.8 cf Chamber Storage

9 Chambers x 177.2 cf + 14.00' Header x 8.86 sf x 2 = 1,843.1 cf Displacement

5,355.0 cf Field - 1,843.1 cf Chambers = 3,511.9 cf Stone x 40.0% Voids = 1,404.8 cf Stone Storage

Chamber Storage + Stone Storage = 2,881.6 cf = 0.066 af Overall Storage Efficiency = 53.8% Overall System Size = 70.00' x 17.00' x 4.50'

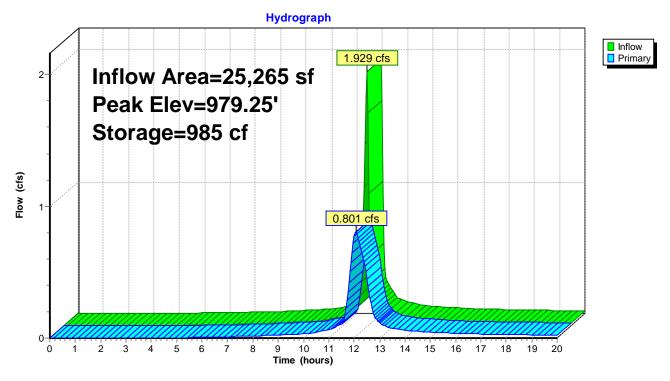
9 Chambers 198.3 cy Field 130.1 cy Stone





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Pond 3P: UG



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# Hydrograph for Pond 3P: UG

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.000	0	977.55	0.000
0.40	0.000	0	977.55	0.000
0.80	0.000	0	977.55	0.000
1.20	0.000	0	977.55	0.000
1.60	0.000	0	977.55	0.000
2.00	0.000	0	977.55	0.000
2.40	0.000	0	977.55	0.000
2.80	0.000	0	977.55	0.000
3.20	0.000	0	977.55	0.000
3.60	0.000	0	977.55	0.000
4.00	0.001	1	977.55	0.000
4.40	0.002	2	977.55	0.001
4.80	0.003	4	977.56	0.001
5.20	0.004	7	977.57	0.002
5.60	0.006	10	977.57	0.003
6.00	0.007	14	977.58	0.004
6.40	0.009	18	977.59	0.006
6.80	0.010	22	977.60	0.007
7.20	0.012	27	977.61	0.009
7.60	0.013	29	977.61	0.012
8.00	0.015	31	977.62	0.013
8.40	0.018	34	977.62	0.016
8.80	0.023	38	977.63	0.019
9.20	0.026	43	977.64	0.024
9.60	0.028	46	977.65	0.026
10.00	0.036	51	977.66	0.031
10.40	0.046	58	977.67	0.041
10.80	0.062	68	977.69	0.054
11.20	0.091	82	977.72	0.077
11.60	0.220	114	977.79	0.136
12.00	1.616	902	979.14	0.772
12.40	0.176	462	978.54	0.579
12.80	0.105	131	977.83	0.171
13.20	0.080	91	977.74	0.092
13.60	0.065	79	977.72	0.032
14.00	0.054	71	977.70	0.059
14.40	0.049	66	977.69	0.053
14.80	0.045	62	977.68	0.031
15.20	0.043	60	977.68	0.047
15.60	0.037	57	977.67	0.043
16.00	0.037	54	977.66	0.035
16.40	0.033	52	977.66	0.033
16.80	0.031	51	977.66	0.032
17.20	0.030	49	977.65	0.029
17.20	0.028	48	977.65	0.029
18.00	0.027	46	977.65	0.028
18.40	0.026	45	977.64	0.027
18.80	0.024	43	977.64	0.023
19.20	0.023	43	977.64	0.024
19.20	0.021	40	977.63	0.022
20.00	0.020	38	977.63	0.021
20.00	0.013	30	311.03	0.020

Type II 24-hr 2-Year Rainfall=2.50" Printed 5/5/2023

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## **Summary for Link 4L: POST (Combined)**

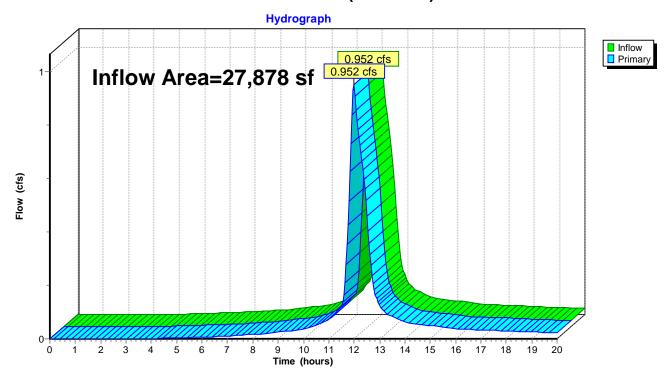
Inflow Area = 27,878 sf, 84.38% Impervious, Inflow Depth > 1.86" for 2-Year event

Inflow = 0.952 cfs @ 11.99 hrs, Volume= 4,315 cf

Primary = 0.952 cfs @ 11.99 hrs, Volume= 4,315 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

### Link 4L: POST (Combined)



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# Hydrograph for Link 4L: POST (Combined)

Time	Inflow	Elevation	Primary	Time	Inflow	Elevation	Drimon
Time (hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)	Primary (cfs)
0.00	0.000	0.00	0.000	10.80	0.062	0.00	0.062
0.00	0.000	0.00	0.000	11.00	0.002	0.00	0.073
0.40	0.000	0.00	0.000	11.20	0.073	0.00	0.088
0.60	0.000	0.00	0.000	11.40	0.112	0.00	0.112
0.80	0.000	0.00	0.000	11.60	0.112	0.00	0.163
1.00	0.000	0.00	0.000	11.80	0.105	0.00	0.515
1.20	0.000	0.00	0.000	12.00	0.951	0.00	0.951
1.40	0.000	0.00	0.000	12.20	0.756	0.00	0.756
1.60	0.000	0.00	0.000	12.40	0.598	0.00	0.598
1.80	0.000	0.00	0.000	12.60	0.357	0.00	0.357
2.00	0.000	0.00	0.000	12.80	0.182	0.00	0.182
2.20	0.000	0.00	0.000	13.00	0.123	0.00	0.123
2.40	0.000	0.00	0.000	13.20	0.100	0.00	0.100
2.60	0.000	0.00	0.000	13.40	0.088	0.00	0.088
2.80	0.001	0.00	0.001	13.60	0.078	0.00	0.078
3.00	0.001	0.00	0.001	13.80	0.071	0.00	0.071
3.20	0.001	0.00	0.001	14.00	0.065	0.00	0.065
3.40	0.001	0.00	0.001	14.20	0.060	0.00	0.060
3.60	0.001	0.00	0.001	14.40	0.056	0.00	0.056
3.80	0.001	0.00	0.001	14.60	0.054	0.00	0.054
4.00	0.001	0.00	0.001	14.80	0.052	0.00	0.052
4.20	0.001	0.00	0.001	15.00	0.049	0.00	0.049
4.40	0.002	0.00	0.002	15.20	0.047	0.00	0.047
4.60	0.002	0.00	0.002	15.40	0.045	0.00	0.045
4.80	0.003	0.00	0.003	15.60	0.043	0.00	0.043
5.00	0.003	0.00	0.003	15.80	0.041	0.00	0.041
5.20	0.004	0.00	0.004	16.00	0.039	0.00	0.039
5.40	0.004	0.00	0.004	16.20	0.037	0.00	0.037
5.60	0.005	0.00	0.005	16.40	0.035	0.00	0.035
5.80	0.006	0.00	0.006	16.60	0.035	0.00	0.035
6.00	0.006	0.00	0.006	16.80	0.034	0.00	0.034
6.20	0.007	0.00	0.007	17.00	0.033	0.00	0.033
6.40	0.008	0.00	0.008	17.20	0.032	0.00	0.032
6.60	0.008	0.00	0.008	17.40	0.032	0.00	0.032 0.031
6.80 7.00	0.009 0.010	0.00 0.00	0.009 0.010	17.60 17.80	0.031 0.030	0.00 0.00	0.031
7.00 7.20	0.010	0.00	0.010	18.00	0.030	0.00	0.030
7.20 7.40	0.011	0.00	0.011	18.20	0.029	0.00	0.029
7.40	0.013	0.00	0.013	18.40	0.029	0.00	0.029
7.80	0.014	0.00	0.015	18.60	0.020	0.00	0.027
8.00	0.016	0.00	0.016	18.80	0.026	0.00	0.026
8.20	0.017	0.00	0.017	19.00	0.026	0.00	0.026
8.40	0.019	0.00	0.019	19.20	0.025	0.00	0.025
8.60	0.021	0.00	0.021	19.40	0.024	0.00	0.024
8.80	0.023	0.00	0.023	19.60	0.023	0.00	0.023
9.00	0.026	0.00	0.026	19.80	0.022	0.00	0.022
9.20	0.028	0.00	0.028	20.00	0.022	0.00	0.022
9.40	0.029	0.00	0.029				
9.60	0.031	0.00	0.031				
9.80	0.033	0.00	0.033				
10.00	0.036	0.00	0.036				
10.20	0.042	0.00	0.042				
10.40	0.047	0.00	0.047				
10.60	0.054	0.00	0.054				

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Type II 24-hr 5-Year Rainfall=3.40" Printed 5/5/2023

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Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 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: PRE Runoff Area=0.600 ac 93.33% Impervious Runoff Depth>2.89"

Tc=5.0 min CN=97 Runoff=2.914 cfs 6,296 cf

Subcatchment 2S: Detained Runoff Area=0.580 ac 82.76% Impervious Runoff Depth>2.68"

Tc=5.0 min CN=95 Runoff=2.722 cfs 5,639 cf

Subcatchment 3S: Undetained Runoff Area=0.060 ac 100.00% Impervious Runoff Depth>3.00"

Tc=5.0 min CN=98 Runoff=0.295 cfs 654 cf

Pond 3P: UG Peak Elev=979.91' Storage=1,530 cf Inflow=2.722 cfs 5,639 cf

Outflow=0.962 cfs 5,592 cf

Link 4L: POST (Combined) Inflow=1.169 cfs 6,246 cf

Primary=1.169 cfs 6,246 cf

Total Runoff Area = 54,014 sf Runoff Volume = 12,589 cf Average Runoff Depth = 2.80" 11.29% Pervious = 6,098 sf 88.71% Impervious = 47,916 sf

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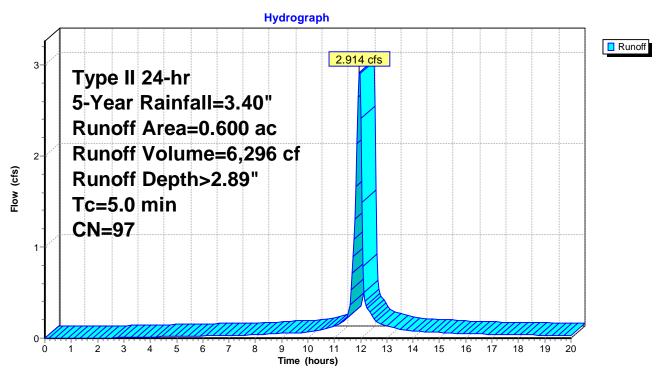
## **Summary for Subcatchment 1S: PRE**

Runoff = 2.914 cfs @ 11.95 hrs, Volume= 6,296 cf, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 5-Year Rainfall=3.40"

Area	(ac)	CN	Desc	Description							
0	.560	98	Pave	Paved parking, HSG D							
0	.040	78	Mead	Meadow, non-grazed, HSG D							
0	.600	00 97 Weighted Average									
0	0.040 6.67% Pervious Area										
0	0.560 93.33% Impervious Area				ious Area						
Tc	Leng		Slope	Velocity	Capacity	•					
<u>(min)</u>	(fee	et)	(ft/ft)	(ft/sec)	(cfs)						
5.0						Direct Entry,					

#### **Subcatchment 1S: PRE**



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## Hydrograph for Subcatchment 1S: PRE

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.75	0.48	0.113
0.20	0.01	0.00	0.000	11.00	0.80	0.52	0.129
0.40	0.01	0.00	0.000	11.20	0.85	0.57	0.158
0.60	0.02	0.00	0.000	11.40	0.92	0.63	0.196
0.80	0.03	0.00	0.000	11.60	1.04	0.75	0.368
1.00	0.04	0.00	0.000	11.80	1.46	1.15	1.306
1.20	0.04	0.00	0.000	12.00	2.25	1.92	2.419
1.40	0.05	0.00	0.000	12.20	2.38	2.04	0.359
1.60	0.06	0.00	0.000	12.40	2.47	2.13	0.259
1.80	0.07	0.00	0.000	12.60	2.53	2.19	0.177
2.00	0.07	0.00	0.001	12.80	2.58	2.24	0.153
2.20	0.08	0.00	0.003	13.00	2.62	2.29	0.132
2.40	0.09	0.00	0.004	13.20	2.66	2.33	0.117
2.60	0.10	0.00	0.005	13.40	2.70	2.36	0.106
2.80 3.00	0.11 0.12	0.01 0.01	0.006 0.007	13.60 13.80	2.73 2.76	2.39 2.42	0.095 0.087
3.20	0.12	0.01	0.007	14.00	2.79	2.42	0.067
3.40	0.13	0.01	0.008	14.00	2.79	2.43	0.078
3.40	0.14	0.01	0.010	14.40	2.84	2.50	0.074
3.80	0.14	0.02	0.010	14.60	2.86	2.52	0.068
4.00	0.16	0.02	0.012	14.80	2.88	2.54	0.065
4.20	0.17	0.03	0.012	15.00	2.90	2.56	0.062
4.40	0.18	0.03	0.014	15.20	2.92	2.58	0.059
4.60	0.19	0.04	0.015	15.40	2.94	2.60	0.057
4.80	0.20	0.04	0.017	15.60	2.96	2.62	0.054
5.00	0.21	0.05	0.018	15.80	2.98	2.63	0.051
5.20	0.23	0.06	0.019	16.00	2.99	2.65	0.048
5.40	0.24	0.06	0.020	16.20	3.01	2.67	0.046
5.60	0.25	0.07	0.021	16.40	3.02	2.68	0.045
5.80	0.26	0.08	0.022	16.60	3.04	2.70	0.044
6.00	0.27	0.09	0.023	16.80	3.05	2.71	0.043
6.20	0.28	0.09	0.025	17.00	3.07	2.72	0.042
6.40	0.30	0.10	0.026	17.20	3.08	2.74	0.041
6.60	0.31	0.11	0.027	17.40	3.09	2.75	0.040
6.80 7.00	0.32 0.34	0.12	0.028	17.60	3.11	2.76	0.039
7.00	0.34	0.13 0.14	0.029 0.030	17.80 18.00	3.12 3.13	2.78 2.79	0.038 0.037
7.40	0.36	0.14	0.030	18.20	3.14	2.79	0.037
7.40	0.38	0.16	0.033	18.40	3.16	2.81	0.035
7.80	0.39	0.17	0.034	18.60	3.17	2.82	0.034
8.00	0.41	0.18	0.035	18.80	3.18	2.83	0.033
8.20	0.42	0.20	0.037	19.00	3.19	2.85	0.032
8.40	0.44	0.21	0.041	19.20	3.20	2.86	0.031
8.60	0.46	0.22	0.045	19.40	3.21	2.87	0.030
8.80	0.48	0.24	0.049	19.60	3.22	2.87	0.029
9.00	0.50	0.26	0.053	19.80	3.23	2.88	0.028
9.20	0.52	0.27	0.055	20.00	3.24	2.89	0.027
9.40	0.54	0.29	0.056				
9.60	0.57	0.31	0.057				
9.80	0.59	0.33	0.063				
10.00	0.62	0.36	0.069				
10.20	0.64	0.38	0.077				
10.40 10.60	0.68	0.41 0.44	0.087				
10.00	0.71	0.44	0.097				

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### Summary for Subcatchment 2S: Detained

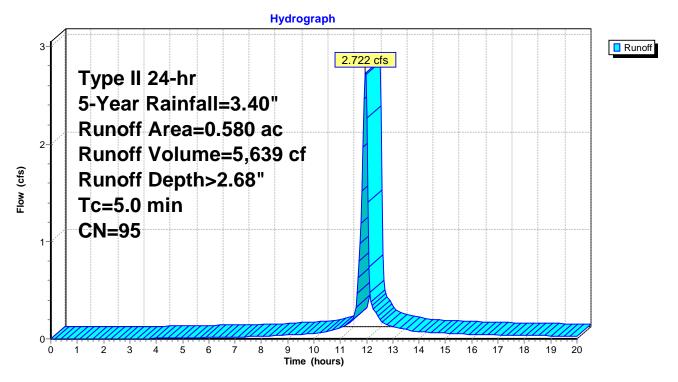
Runoff = 2.722 cfs @ 11.95 hrs, Volume= 5,639 cf, Depth> 2.68"

Routed to Pond 3P: UG

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 5-Year Rainfall=3.40"

	Area	(ac)	CN	Desc	ription					
	0.	0.100 78 Meadow, non-grazed, HSG D								
	0.	480	98	Pave	ed parking,	HSG D				
	0.	580	95	Weig	hted Avera	age				
	0.	100		17.2	4% Pervioυ	ıs Area				
	0.	480		82.76	6% Imperv	ious Area				
	Tc	Lengt	h !	Slope	Velocity	Capacity	Description			
	(min)	(fee		(ft/ft)	(ft/sec)	(cfs)	2000 pilon			
-	5.0	`	<i></i>	, ,		, ,	Direct Entry.			

#### **Subcatchment 2S: Detained**



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# Hydrograph for Subcatchment 2S: Detained

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.75	0.36	0.096
0.20	0.01	0.00	0.000	11.00	0.80	0.39	0.111
0.40	0.01	0.00	0.000	11.20	0.85	0.44	0.137
0.60	0.02	0.00	0.000	11.40	0.92	0.50	0.172
0.80	0.03	0.00	0.000	11.60	1.04	0.60	0.326
1.00	0.04	0.00	0.000	11.80	1.46	0.98	1.189
1.20	0.04	0.00	0.000	12.00	2.25	1.73	2.270
1.40	0.05 0.06	0.00	0.000	12.20	2.38	1.84	0.339
1.60 1.80	0.06	0.00	0.000 0.000	12.40 12.60	2.47 2.53	1.93 1.99	0.245 0.168
2.00	0.07	0.00	0.000	12.80	2.58	2.04	0.166
2.20	0.07	0.00	0.000	13.00	2.62	2.04	0.145
2.40	0.09	0.00	0.000	13.20	2.66	2.12	0.123
2.60	0.10	0.00	0.000	13.40	2.70	2.16	0.100
2.80	0.11	0.00	0.000	13.60	2.73	2.19	0.090
3.00	0.12	0.00	0.001	13.80	2.76	2.22	0.082
3.20	0.13	0.00	0.002	14.00	2.79	2.24	0.075
3.40	0.14	0.00	0.002	14.20	2.81	2.27	0.070
3.60	0.14	0.00	0.003	14.40	2.84	2.29	0.067
3.80	0.15	0.00	0.004	14.60	2.86	2.31	0.065
4.00	0.16	0.01	0.005	14.80	2.88	2.33	0.062
4.20	0.17	0.01	0.006	15.00	2.90	2.35	0.059
4.40	0.18	0.01	0.007	15.20	2.92	2.37	0.057
4.60	0.19	0.01	0.008	15.40	2.94	2.39	0.054
4.80	0.20	0.02	0.009	15.60	2.96	2.41	0.051
5.00	0.21	0.02	0.010	15.80	2.98	2.43	0.048
5.20	0.23	0.02	0.011	16.00	2.99	2.44	0.046
5.40	0.24	0.03	0.012	16.20	3.01	2.46	0.044
5.60	0.25	0.03	0.013	16.40	3.02	2.47	0.043
5.80	0.26	0.04	0.014	16.60	3.04	2.49	0.042
6.00	0.27	0.04	0.015	16.80	3.05	2.50	0.041
6.20	0.28	0.05	0.016	17.00	3.07	2.51	0.040
6.40	0.30	0.05	0.017	17.20	3.08	2.53	0.039
6.60	0.31	0.06	0.018	17.40	3.09	2.54	0.038
6.80	0.32	0.06	0.019	17.60	3.11	2.55	0.037
7.00	0.34	0.07	0.020	17.80	3.12	2.57	0.036
7.20 7.40	0.35 0.36	80.0	0.021	18.00 18.20	3.13 3.14	2.58	0.035
7.40	0.38	0.09 0.09	0.022 0.023	18.40	3.14	2.59 2.60	0.034 0.033
7.80	0.39	0.09	0.025	18.60	3.10	2.61	0.033
8.00	0.39	0.10	0.025	18.80	3.17	2.62	0.032
8.20	0.41	0.11	0.028	19.00	3.19	2.63	0.032
8.40	0.42	0.12	0.020	19.20	3.20	2.64	0.030
8.60	0.46	0.13	0.034	19.40	3.21	2.65	0.029
8.80	0.48	0.16	0.038	19.60	3.22	2.66	0.028
9.00	0.50	0.17	0.041	19.80	3.23	2.67	0.027
9.20	0.52	0.18	0.043	20.00	3.24	2.68	0.026
9.40	0.54	0.20	0.044		··		
9.60	0.57	0.21	0.046				
9.80	0.59	0.23	0.051				
10.00	0.62	0.25	0.057				
10.20	0.64	0.27	0.064				
10.40	0.68	0.30	0.073				
10.60	0.71	0.32	0.082				

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# Summary for Subcatchment 3S: Undetained

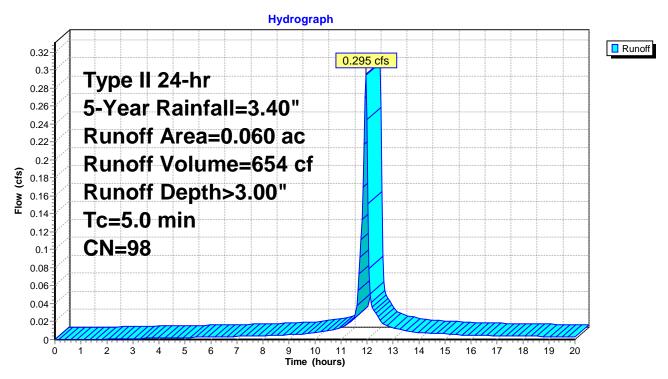
Runoff = 0.295 cfs @ 11.95 hrs, Volume= 654 cf, Depth> 3.00"

Routed to Link 4L: POST (Combined)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 5-Year Rainfall=3.40"

Ar	ea (a	ac) Cl	N Des	cription		
	0.0	60 9	8 Pav	ed parking,	HSG D	
	0.0	60	100.	.00% Imper	vious Area	
(mi		Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5	5.0					Direct Entry,

#### **Subcatchment 3S: Undetained**



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### Hydrograph for Subcatchment 3S: Undetained

т:	D	<b>-</b>	D #	<b>T</b> :	D	<b>-</b>	D #
Time	Precip.	Excess	Runoff (cfs)	Time	Precip.	Excess	Runoff
(hours) 0.00	(inches) 0.00	(inches) 0.00	0.000	(hours) 10.80	(inches) 0.75	(inches) 0.55	(cfs) 0.012
0.00	0.00	0.00	0.000	11.00	0.75	0.60	0.012
0.20	0.01	0.00	0.000	11.20	0.85	0.65	0.014
0.40	0.01	0.00	0.000	11.40	0.03	0.03	0.020
0.80	0.02	0.00	0.000	11.60	1.04	0.72	0.020
1.00	0.03	0.00	0.000	11.80	1.46	1.25	<b>0.038</b>
1.20	0.04	0.00	0.000	12.00	2.25	2.03	0.244
1.40	0.05	0.00	0.000	12.20	2.38	2.15	0.036
1.60	0.06	0.00	0.000	12.40	2.47	2.24	0.026
1.80	0.07	0.00	0.000	12.60	2.53	2.30	0.018
2.00	0.07	0.00	0.001	12.80	2.58	2.35	0.015
2.20	0.08	0.01	0.001	13.00	2.62	2.39	0.013
2.40	0.09	0.01	0.001	13.20	2.66	2.43	0.012
2.60	0.10	0.01	0.001	13.40	2.70	2.47	0.011
2.80	0.11	0.02	0.001	13.60	2.73	2.50	0.010
3.00	0.12	0.02	0.001	13.80	2.76	2.53	0.009
3.20	0.13	0.03	0.001	14.00	2.79	2.56	0.008
3.40	0.14	0.03	0.001	14.20	2.81	2.58	0.007
3.60	0.14	0.03	0.002	14.40	2.84	2.61	0.007
3.80	0.15	0.04	0.002	14.60	2.86	2.63	0.007
4.00	0.16	0.05	0.002	14.80	2.88	2.65	0.007
4.20	0.17	0.05	0.002	15.00	2.90	2.67	0.006
4.40	0.18	0.06	0.002	15.20	2.92	2.69	0.006
4.60	0.19	0.06	0.002	15.40	2.94	2.71	0.006
4.80	0.20	0.07	0.002	15.60	2.96	2.73	0.005
5.00	0.21	0.08	0.002	15.80	2.98	2.74	0.005
5.20 5.40	0.23 0.24	0.09 0.10	0.002 0.003	16.00 16.20	2.99 3.01	2.76 2.78	0.005 0.005
5.60	0.24	0.10	0.003	16.20	3.02	2.76	0.005
5.80	0.25	0.10	0.003	16.40	3.04	2.79	0.003
6.00	0.20	0.11	0.003	16.80	3.05	2.82	0.004
6.20	0.28	0.12	0.003	17.00	3.07	2.83	0.004
6.40	0.30	0.14	0.003	17.20	3.08	2.85	0.004
6.60	0.31	0.15	0.003	17.40	3.09	2.86	0.004
6.80	0.32	0.16	0.003	17.60	3.11	2.87	0.004
7.00	0.34	0.18	0.003	17.80	3.12	2.89	0.004
7.20	0.35	0.19	0.003	18.00	3.13	2.90	0.004
7.40	0.36	0.20	0.004	18.20	3.14	2.91	0.004
7.60	0.38	0.21	0.004	18.40	3.16	2.92	0.004
7.80	0.39	0.22	0.004	18.60	3.17	2.93	0.003
8.00	0.41	0.24	0.004	18.80	3.18	2.95	0.003
8.20	0.42	0.25	0.004	19.00	3.19	2.96	0.003
8.40	0.44	0.26	0.005	19.20	3.20	2.97	0.003
8.60	0.46	0.28	0.005	19.40	3.21	2.98	0.003
8.80	0.48	0.30	0.005	19.60	3.22	2.99	0.003
9.00	0.50	0.32	0.006	19.80	3.23	3.00	0.003
9.20	0.52	0.34	0.006	20.00	3.24	3.00	0.003
9.40	0.54	0.36	0.006				
9.60	0.57	0.38	0.006				
9.80	0.59	0.40	0.007				
10.00 10.20	0.62 0.64	0.42 0.45	0.007 0.008				
10.20	0.64	0.45	0.008				
10.40	0.00	0.46	0.009				
10.00	0.7 1	0.51	0.010				

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Type II 24-hr 5-Year Rainfall=3.40" Printed 5/5/2023

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#### **Summary for Pond 3P: UG**

Inflow Area = 25,265 sf, 82.76% Impervious, Inflow Depth > 2.68" for 5-Year event

Inflow 2.722 cfs @ 11.95 hrs. Volume= 5.639 cf

0.962 cfs @ 12.07 hrs, Volume= Outflow 5,592 cf, Atten= 65%, Lag= 6.9 min

0.962 cfs @ 12.07 hrs, Volume= Primary = 5,592 cf

Routed to Link 4L : POST (Combined)

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Peak Elev= 979.91' @ 12.07 hrs Surf.Area= 1,190 sf Storage= 1,530 cf

Plug-Flow detention time= 19.7 min calculated for 5,592 cf (99% of inflow)

Center-of-Mass det. time= 16.0 min (757.7 - 741.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	977.55'	1,405 cf	17.00'W x 70.00'L x 4.50'H Field A
			5,355 cf Overall - 1,843 cf Embedded = 3,512 cf x 40.0% Voids
#2A	978.05'	1,477 cf	<b>ADS N-12 36"</b> x 9 Inside #1
			Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf
			Outside= $42.0$ "W x $42.0$ "H => $8.86$ sf x $20.00$ 'L = $177.2$ cf
			9 Chambers in 3 Rows
			14.00' Header x 7.10 sf x 2 = 198.8 cf Inside
			<b>—</b>

2.882 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	977.55'	12.0" Round Culvert
			L= 45.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 977.55' / 976.65' S= 0.0200 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	977.55'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	981.05'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	981.95'	2.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#5	Device 1	982.90'	<b>2.0" x 4.0" Horiz. Orifice/Grate</b> C= 0.600
			Limited to weir flow at low heads

**Primary OutFlow** Max=0.961 cfs @ 12.07 hrs HW=979.90' (Free Discharge) **1=Culvert** (Passes 0.961 cfs of 4.060 cfs potential flow)

**2=Orifice/Grate** (Orifice Controls 0.961 cfs @ 7.05 fps)

-3=Orifice/Grate (Controls 0.000 cfs)

-4=Sharp-Crested Rectangular Weir (Controls 0.000 cfs)

**-5=Orifice/Grate** (Controls 0.000 cfs)

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#### Pond 3P: UG - Chamber Wizard Field A

#### Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

3 Chambers/Row x 20.00' Long +3.50' Header x 2 = 67.00' Row Length +18.0" End Stone x 2 = 70.00' Base Length

3 Rows x 42.0" Wide + 21.0" Spacing x 2 + 18.0" Side Stone x 2 = 17.00' Base Width 6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

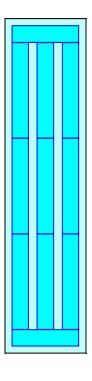
9 Chambers x 142.0 cf + 14.00' Header x 7.10 sf x 2 = 1,476.8 cf Chamber Storage

9 Chambers x 177.2 cf + 14.00' Header x 8.86 sf x 2 = 1,843.1 cf Displacement

5,355.0 cf Field - 1,843.1 cf Chambers = 3,511.9 cf Stone x 40.0% Voids = 1,404.8 cf Stone Storage

Chamber Storage + Stone Storage = 2,881.6 cf = 0.066 af Overall Storage Efficiency = 53.8% Overall System Size = 70.00' x 17.00' x 4.50'

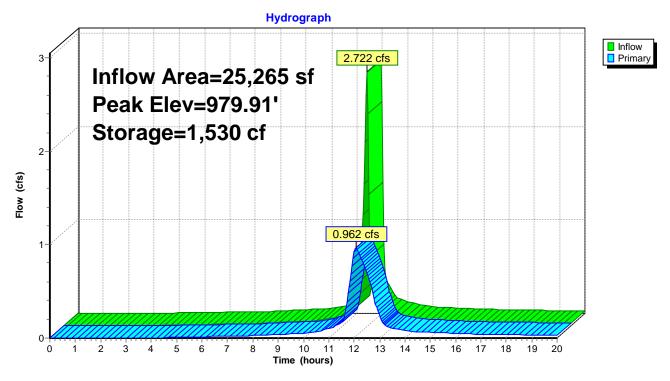
9 Chambers 198.3 cy Field 130.1 cy Stone





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Pond 3P: UG



# Hydrograph for Pond 3P: UG

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.000	0	977.55	0.000
0.40	0.000	0	977.55	0.000
0.80	0.000	0	977.55	0.000
1.20 1.60	0.000 0.000	0	977.55 977.55	0.000 0.000
2.00	0.000	0	977.55	0.000
2.40	0.000	0	977.55	0.000
2.80	0.000	Ö	977.55	0.000
3.20	0.002	1	977.55	0.000
3.60	0.003	4	977.56	0.001
4.00	0.005	7	977.56	0.002
4.40	0.007	11	977.57	0.004
4.80	0.009	16	977.58	0.005
5.20	0.011	21	977.59	0.007
5.60	0.013	27	977.61	0.009
6.00	0.015	31	977.61	0.013
6.40 6.80	0.017 0.019	33 36	977.62 977.63	0.015 0.017
7.20	0.019	38	977.63	0.017
7.60	0.021	41	977.64	0.020
8.00	0.026	43	977.64	0.024
8.40	0.031	47	977.65	0.027
8.80	0.038	53	977.66	0.034
9.20	0.043	58	977.67	0.041
9.60	0.046	61	977.68	0.044
10.00	0.057	66	977.69	0.052
10.40	0.073	75	977.71	0.065
10.80	0.096	88	977.73	0.086
11.20	0.137	106	977.77	0.119
11.60 12.00	0.326 2.270	148 <b>1,382</b>	977.86 <b>979.73</b>	0.207 <b>0.922</b>
12.40	0.245	925	979.17	0.322
12.80	0.145	286	978.17	0.419
13.20	0.111	116	977.79	0.140
13.60	0.090	95	977.75	0.099
14.00	0.075	85	977.73	0.081
14.40	0.067	79	977.72	0.070
14.80	0.062	75	977.71	0.064
15.20	0.057	71	977.70	0.059
15.60	0.051	68	977.69	0.054
16.00 16.40	0.046 0.043	64 61	977.68 977.68	0.048 0.044
16.40	0.043	59	977.67	0.044
17.20	0.039	58	977.67	0.042
17.60	0.037	56	977.67	0.038
18.00	0.035	55	977.67	0.036
18.40	0.033	54	977.66	0.034
18.80	0.032	52	977.66	0.032
19.20	0.030	51	977.66	0.031
19.60	0.028	49	977.65	0.029
20.00	0.026	47	977.65	0.027

Type II 24-hr 5-Year Rainfall=3.40" Printed 5/5/2023

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# **Summary for Link 4L: POST (Combined)**

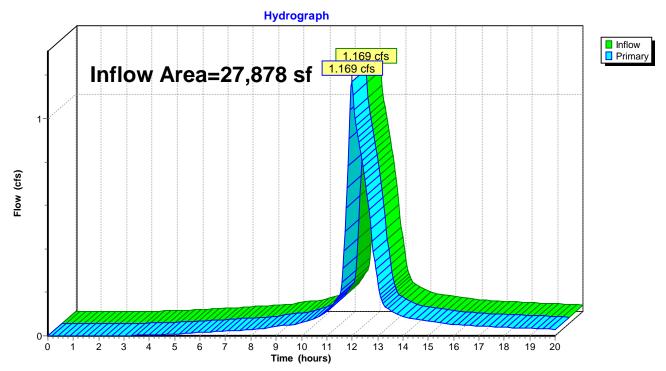
Inflow Area = 27,878 sf, 84.38% Impervious, Inflow Depth > 2.69" for 5-Year event

Inflow = 1.169 cfs @ 11.99 hrs, Volume= 6,246 cf

Primary = 1.169 cfs @ 11.99 hrs, Volume= 6,246 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

# Link 4L: POST (Combined)



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## Hydrograph for Link 4L: POST (Combined)

Time	Inflow	Elevation	Primary	Time	Inflow	Elevation	Primary
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)	(cfs)
0.00	0.000	0.00	0.000	10.80	0.098	0.00	0.098
0.20	0.000	0.00	0.000	11.00	0.113	0.00	0.113
0.40	0.000	0.00	0.000	11.20	0.135	0.00	0.135
0.60	0.000	0.00	0.000	11.40	0.170	0.00	0.170
0.80	0.000	0.00	0.000	11.60	0.245	0.00	0.245
1.00	0.000	0.00	0.000	11.80	0.680	0.00	0.680
1.20	0.000	0.00	0.000	12.00	1.166	0.00	1.166
1.40	0.000	0.00	0.000	12.20	0.942	0.00	0.942
1.60	0.000	0.00	0.000	12.40	0.806	0.00	0.806
1.80	0.000	0.00	0.000	12.60	0.650	0.00	0.650
2.00	0.001	0.00	0.001	12.80	0.434	0.00	0.434
2.20	0.001	0.00	0.001	13.00	0.238	0.00	0.238
2.40	0.001	0.00	0.001	13.20	0.152	0.00	0.152
2.60	0.001	0.00	0.001	13.40	0.123	0.00	0.123
2.80	0.001	0.00	0.001	13.60	0.109	0.00	0.109
3.00	0.001	0.00	0.001	13.80	0.098	0.00	0.098
3.20	0.002	0.00	0.002	14.00	0.089	0.00	0.089
3.40	0.002	0.00	0.002	14.20	0.081	0.00	0.081
3.60	0.003	0.00	0.003	14.40	0.077	0.00	0.077
3.80	0.003	0.00	0.003	14.60	0.074	0.00	0.074
4.00	0.004	0.00	0.004	14.80	0.071	0.00	0.071
4.20	0.005	0.00	0.005	15.00	0.068	0.00	0.068
4.40	0.006	0.00	0.006	15.20	0.065	0.00	0.065
4.60	0.006	0.00	0.006	15.40	0.062	0.00	0.062
4.80	0.007	0.00	0.007	15.60	0.059	0.00	0.059
5.00	0.008	0.00	0.008	15.80	0.056	0.00	0.056
5.20	0.009	0.00	0.009	16.00	0.053	0.00	0.053
5.40	0.010	0.00	0.010	16.20	0.051	0.00	0.051
5.60	0.012	0.00	0.012	16.40	0.049	0.00	0.049
5.80	0.014	0.00	0.014	16.60	0.048	0.00	0.048
6.00	0.015	0.00	0.015	16.80	0.047	0.00	0.047
6.20	0.017	0.00	0.017	17.00	0.045	0.00	0.045
6.40	0.018	0.00	0.018	17.20	0.044	0.00	0.044
6.60	0.019	0.00	0.019	17.40	0.043	0.00	0.043
6.80	0.021	0.00	0.021	17.60	0.042	0.00	0.042
7.00	0.022	0.00	0.022	17.80	0.042	0.00	0.041
7.20	0.023	0.00	0.023	18.00	0.040	0.00	0.040
7.40	0.024	0.00	0.024	18.20	0.039	0.00	0.039
7.60	0.025	0.00	0.025	18.40	0.038	0.00	0.038
7.80	0.023	0.00	0.023	18.60	0.037	0.00	0.037
8.00	0.028	0.00	0.028	18.80	0.036	0.00	0.036
8.20	0.020	0.00	0.029	19.00	0.035	0.00	0.035
8.40	0.023	0.00	0.032	19.20	0.034	0.00	0.034
8.60	0.035	0.00	0.035	19.40	0.033	0.00	0.033
8.80	0.039	0.00	0.039	19.60	0.033	0.00	0.033
9.00	0.039	0.00	0.039	19.80	0.032	0.00	0.032
9.20	0.044	0.00	0.047	20.00	0.031	0.00	0.031
9.40	0.047	0.00	0.047	20.00	0.030	0.00	0.030
9.40	0.049	0.00	0.049				
9.80	0.050	0.00	0.050				
10.00	0.054	0.00	0.054				
10.00	0.059	0.00	0.059				
10.20	0.000	0.00	0.000				
10.40	0.074	0.00	0.074				
10.60	0.064	0.00	0.004	l			

Prepared by {enter your company name here}

Type II 24-hr 10-Year Rainfall=3.61" Printed 5/5/2023

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Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 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: PRE Runoff Area=0.600 ac 93.33% Impervious Runoff Depth>3.09"

Tc=5.0 min CN=97 Runoff=3.101 cfs 6,728 cf

Subcatchment 2S: Detained Runoff Area=0.580 ac 82.76% Impervious Runoff Depth>2.87"

Tc=5.0 min CN=95 Runoff=2.906 cfs 6,052 cf

Subcatchment 3S: Undetained Runoff Area=0.060 ac 100.00% Impervious Runoff Depth>3.20"

Tc=5.0 min CN=98 Runoff=0.313 cfs 697 cf

Pond 3P: UG Peak Elev=980.07' Storage=1,663 cf Inflow=2.906 cfs 6,052 cf

Outflow=0.998 cfs 6,003 cf

Link 4L: POST (Combined) Inflow=1.217 cfs 6,700 cf

Primary=1.217 cfs 6,700 cf

Total Runoff Area = 54,014 sf Runoff Volume = 13,476 cf Average Runoff Depth = 2.99" 11.29% Pervious = 6,098 sf 88.71% Impervious = 47,916 sf Prepared by {enter your company name here}

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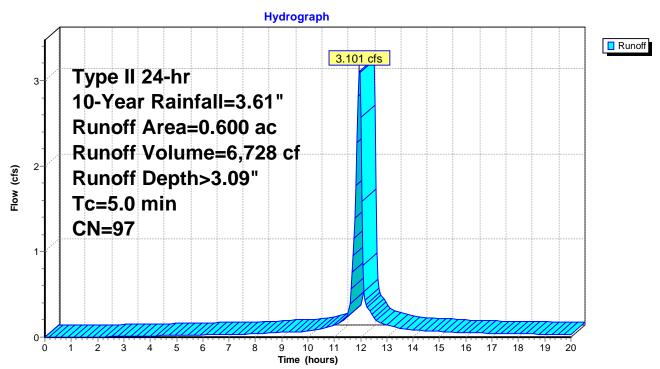
## **Summary for Subcatchment 1S: PRE**

Runoff = 3.101 cfs @ 11.95 hrs, Volume= 6,728 cf, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 10-Year Rainfall=3.61"

Are	a (ac)	CN	Desc	ription						
	0.560	98	Paved parking, HSG D							
	0.040	•								
	0.600	97	Weig	hted Avera	age					
	0.040		6.67	% Pervious	Area					
	0.560		93.33	3% Imperv	ious Area					
To (min		_	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
5.0	)		·	·		Direct Entry,				

#### **Subcatchment 1S: PRE**



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# Hydrograph for Subcatchment 1S: PRE

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.80	0.52	0.121
0.20	0.01	0.00	0.000	11.00	0.85	0.56	0.138
0.40	0.01	0.00	0.000	11.20	0.91	0.62	0.169
0.60	0.02	0.00	0.000	11.40	0.98	0.69	0.210
0.80	0.03	0.00	0.000	11.60	1.11	0.81	0.393
1.00	0.04	0.00	0.000	11.80	1.56	1.24	1.392
1.20	0.05	0.00	0.000	12.00	2.39	2.06	2.574
1.40	0.05	0.00	0.000	12.20	2.52	2.19	0.382
1.60	0.06	0.00	0.000	12.40	2.62	2.28	0.275
1.80 2.00	0.07 0.08	0.00	0.001 0.002	12.60 12.80	2.68 2.74	2.35 2.40	0.188 0.163
2.20	0.08	0.00	0.002	13.00	2.74	2.45	0.163
2.40	0.09	0.00	0.004	13.20	2.73	2.49	0.124
2.60	0.10	0.01	0.006	13.40	2.87	2.53	0.112
2.80	0.12	0.01	0.007	13.60	2.90	2.56	0.101
3.00	0.12	0.01	0.008	13.80	2.93	2.59	0.092
3.20	0.13	0.01	0.009	14.00	2.96	2.62	0.083
3.40	0.14	0.02	0.011	14.20	2.99	2.64	0.078
3.60	0.15	0.02	0.012	14.40	3.01	2.67	0.075
3.80	0.16	0.03	0.013	14.60	3.04	2.69	0.072
4.00	0.17	0.03	0.014	14.80	3.06	2.72	0.069
4.20	0.18	0.03	0.015	15.00	3.08	2.74	0.066
4.40	0.19	0.04	0.016	15.20	3.10	2.76	0.063
4.60	0.20	0.05	0.017	15.40	3.12	2.78	0.060
4.80	0.22	0.05	0.018	15.60	3.14	2.80	0.057
5.00 5.20	0.23 0.24	0.06 0.06	0.020 0.021	15.80 16.00	3.16 3.18	2.82 2.83	0.054 0.051
5.40	0.24	0.08	0.021	16.20	3.19	2.85	0.031
5.60	0.26	0.07	0.022	16.40	3.19	2.87	0.049
5.80	0.28	0.09	0.025	16.60	3.22	2.88	0.047
6.00	0.29	0.10	0.026	16.80	3.24	2.90	0.046
6.20	0.30	0.10	0.027	17.00	3.26	2.91	0.045
6.40	0.32	0.11	0.028	17.20	3.27	2.93	0.044
6.60	0.33	0.12	0.029	17.40	3.28	2.94	0.043
6.80	0.34	0.13	0.031	17.60	3.30	2.95	0.042
7.00	0.36	0.14	0.032	17.80	3.31	2.97	0.041
7.20	0.37	0.16	0.033	18.00	3.32	2.98	0.039
7.40	0.39	0.17	0.034	18.20	3.34	2.99	0.038
7.60	0.40	0.18	0.035	18.40	3.35	3.01	0.037
7.80	0.42	0.19	0.037	18.60	3.36	3.02	0.036
8.00	0.43	0.20	0.038	18.80	3.37	3.03	0.035
8.20	0.45	0.22	0.041	19.00	3.39	3.04	0.034
8.40	0.47	0.23	0.045	19.20	3.40	3.05	0.033
8.60	0.49	0.25	0.049	19.40	3.41	3.06	0.032
8.80	0.51	0.26	0.053	19.60	3.42	3.07	0.031
9.00	0.53	0.28	0.057	19.80	3.43	3.08	0.030
9.20 9.40	0.55 0.58	0.30 0.32	0.059 0.060	20.00	3.44	3.09	0.029
9.40	0.60	0.32	0.061				
9.80	0.63	0.34	0.068				
10.00	0.65	0.30	0.074				
10.20	0.68	0.42	0.083				
10.40	0.72	0.45	0.093				
10.60	0.76	0.48	0.104				

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### **Summary for Subcatchment 2S: Detained**

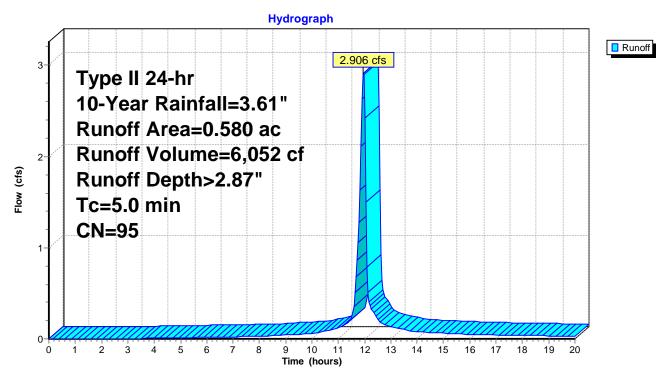
Runoff = 2.906 cfs @ 11.95 hrs, Volume= 6,052 cf, Depth> 2.87"

Routed to Pond 3P: UG

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 10-Year Rainfall=3.61"

	Area	(ac)	CN	Desc	ription					
	0.	0.100 78 Meadow, non-grazed, HSG D								
	0.	480	98	Pave	ed parking,	HSG D				
	0.	580	95	Weig	hted Avera	age				
	0.	100		17.2	4% Pervioυ	ıs Area				
	0.	480		82.76	6% Imperv	ious Area				
	Tc	Lengt	h !	Slope	Velocity	Capacity	Description			
	(min)	(fee		(ft/ft)	(ft/sec)	(cfs)	2000 pilon			
-	5.0	`	<i></i>	, ,		, ,	Direct Entry.			

#### **Subcatchment 2S: Detained**



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## Hydrograph for Subcatchment 2S: Detained

<del></del> -	<u>.</u>	_	D "	<del></del> -	<b>.</b> .	_	Б "
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.80	0.39	0.104
0.20	0.01	0.00	0.000	11.00	0.85	0.43	0.120
0.40	0.01	0.00	0.000	11.20	0.91	0.48	0.148
0.60	0.02	0.00	0.000	11.40	0.98	0.55	0.185
0.80	0.03	0.00	0.000	11.60	1.11	0.66	0.351
1.00	0.04	0.00	0.000	11.80 12.00	1.56	1.06	1.274
1.20	0.05	0.00	0.000		2.39 2.52	1.86	<b>2.422</b>
1.40	0.05	0.00	0.000	12.20		1.98	0.362
1.60	0.06	0.00	0.000	12.40 12.60	2.62	2.08	0.261
1.80 2.00	0.07	0.00	0.000 0.000	12.80	2.68 2.74	2.14 2.20	0.179
2.20	0.08	0.00		13.00	2.74	2.24	0.155
2.40	0.09 0.10	0.00 0.00	0.000 0.000	13.20	2.79	2.24	0.134
2.40	0.10	0.00		13.40	2.87	2.20	0.118 0.107
2.80			0.000				
	0.12	0.00 0.00	0.001 0.002	13.60 13.80	2.90 2.93	2.35	0.096 0.088
3.00 3.20	0.12 0.13	0.00	0.002	14.00	2.96	2.38 2.41	0.079
3.40	0.13	0.00	0.002	14.00	2.99	2.41	0.079
3.40	0.14	0.00	0.003	14.40	3.01	2.44	0.074
3.80	0.15	0.00	0.004	14.40	3.04	2.48	0.072
4.00	0.10	0.01	0.005	14.80	3.04	2.40	0.069
4.20	0.17	0.01	0.007	15.00	3.08	2.53	0.063
4.40	0.10	0.01	0.007	15.20	3.10	2.55	0.060
4.60	0.19	0.01	0.008	15.40	3.12	2.57	0.057
4.80	0.20	0.02	0.010	15.60	3.14	2.59	0.054
5.00	0.22	0.02	0.010	15.80	3.14	2.61	0.052
5.20	0.23	0.02	0.012	16.00	3.18	2.62	0.049
5.40	0.25	0.03	0.012	16.20	3.19	2.64	0.049
5.60	0.26	0.03	0.014	16.40	3.21	2.65	0.046
5.80	0.28	0.04	0.014	16.60	3.22	2.67	0.045
6.00	0.29	0.05	0.017	16.80	3.24	2.68	0.044
6.20	0.30	0.05	0.018	17.00	3.26	2.70	0.043
6.40	0.32	0.06	0.019	17.20	3.27	2.71	0.042
6.60	0.33	0.07	0.020	17.40	3.28	2.73	0.041
6.80	0.34	0.07	0.021	17.60	3.30	2.74	0.040
7.00	0.36	0.08	0.022	17.80	3.31	2.75	0.039
7.20	0.37	0.09	0.024	18.00	3.32	2.77	0.038
7.40	0.39	0.10	0.025	18.20	3.34	2.78	0.037
7.60	0.40	0.11	0.026	18.40	3.35	2.79	0.036
7.80	0.42	0.12	0.027	18.60	3.36	2.80	0.035
8.00	0.43	0.13	0.028	18.80	3.37	2.82	0.034
8.20	0.45	0.14	0.031	19.00	3.39	2.83	0.032
8.40	0.47	0.15	0.034	19.20	3.40	2.84	0.031
8.60	0.49	0.16	0.038	19.40	3.41	2.85	0.030
8.80	0.51	0.17	0.042	19.60	3.42	2.86	0.029
9.00	0.53	0.19	0.045	19.80	3.43	2.87	0.028
9.20	0.55	0.21	0.047	20.00	3.44	2.88	0.027
9.40	0.58	0.22	0.048				
9.60	0.60	0.24	0.050				
9.80	0.63	0.26	0.056				
10.00	0.65	0.28	0.062				
10.20	0.68	0.30	0.070				
10.40	0.72	0.33	0.079				
10.60	0.76	0.36	0.089				

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# Summary for Subcatchment 3S: Undetained

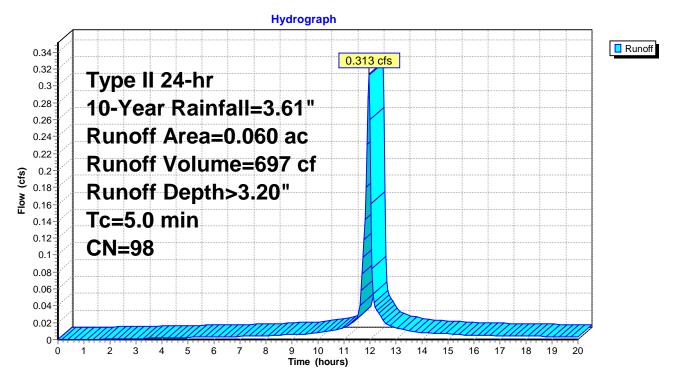
Runoff = 0.313 cfs @ 11.95 hrs, Volume= 697 cf, Depth> 3.20"

Routed to Link 4L: POST (Combined)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 10-Year Rainfall=3.61"

_	Area	(ac)	CN	Desc	cription		
	0.	060	98	Pave	ed parking,	HSG D	
	0.	060		100.0	00% Imper	vious Area	
_	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	5.0						Direct Entry,

#### **Subcatchment 3S: Undetained**



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## Hydrograph for Subcatchment 3S: Undetained

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.80	0.60	0.013
0.20	0.01	0.00	0.000	11.00	0.85	0.64	0.014
0.40	0.01	0.00	0.000	11.20	0.91	0.70	0.018
0.60	0.02	0.00	0.000	11.40	0.98	0.77	0.022
0.80	0.03	0.00	0.000	11.60	1.11	0.90	0.040
1.00	0.04	0.00	0.000	11.80	1.56	1.33	0.142
1.20	0.05	0.00	0.000	12.00	2.39	2.16	0.260
1.40	0.05	0.00	0.000	12.20	2.52	2.29	0.038
1.60	0.06	0.00	0.000	12.40	2.62	2.39	0.028
1.80	0.07	0.00	0.001	12.60	2.68	2.45	0.019
2.00	0.08	0.01	0.001	12.80	2.74	2.51	0.016
2.20	0.09	0.01	0.001	13.00	2.79	2.56	0.014
2.40	0.10	0.01	0.001	13.20	2.83	2.60	0.013
2.60	0.11	0.02	0.001	13.40	2.87	2.64	0.011
2.80	0.12	0.02	0.001	13.60	2.90	2.67	0.010 0.009
3.00 3.20	0.12 0.13	0.02 0.03	0.001	13.80	2.93 2.96	2.70 2.73	0.009
3.40		0.03	0.001	14.00	2.99	2.75	0.008
3.40	0.14 0.15	0.03	0.002 0.002	14.20 14.40	3.01	2.78	0.008
3.80	0.15	0.04	0.002	14.40	3.04	2.76	0.008
4.00	0.10	0.05	0.002	14.80	3.04	2.83	0.007
4.20	0.17	0.06	0.002	15.00	3.08	2.85	0.007
4.40	0.10	0.07	0.002	15.20	3.10	2.87	0.006
4.60	0.10	0.07	0.002	15.40	3.12	2.89	0.006
4.80	0.22	0.08	0.002	15.60	3.14	2.91	0.006
5.00	0.23	0.09	0.002	15.80	3.16	2.93	0.005
5.20	0.24	0.10	0.003	16.00	3.18	2.94	0.005
5.40	0.25	0.11	0.003	16.20	3.19	2.96	0.005
5.60	0.26	0.12	0.003	16.40	3.21	2.98	0.005
5.80	0.28	0.13	0.003	16.60	3.22	2.99	0.005
6.00	0.29	0.14	0.003	16.80	3.24	3.01	0.005
6.20	0.30	0.15	0.003	17.00	3.26	3.02	0.005
6.40	0.32	0.16	0.003	17.20	3.27	3.04	0.004
6.60	0.33	0.17	0.003	17.40	3.28	3.05	0.004
6.80	0.34	0.18	0.004	17.60	3.30	3.07	0.004
7.00	0.36	0.19	0.004	17.80	3.31	3.08	0.004
7.20	0.37	0.20	0.004	18.00	3.32	3.09	0.004
7.40	0.39	0.22	0.004	18.20	3.34	3.10	0.004
7.60	0.40	0.23	0.004	18.40	3.35	3.12	0.004
7.80	0.42	0.24	0.004	18.60	3.36	3.13	0.004
8.00	0.43	0.26	0.004	18.80	3.37	3.14	0.004
8.20	0.45	0.27	0.004	19.00	3.39	3.15	0.003
8.40 8.60	0.47	0.29 0.31	0.005	19.20	3.40	3.16	0.003
8.80	0.49 0.51	0.31	0.005 0.006	19.40 19.60	3.41 3.42	3.17 3.18	0.003 0.003
9.00	0.53	0.35	0.006	19.80	3.42	3.19	0.003
9.20	0.55	0.37	0.006	20.00	3.44	3.20	0.003
9.40	0.58	0.39	0.006	20.00	J. <del>T1</del>	3.20	0.003
9.60	0.60	0.41	0.007				
9.80	0.63	0.43	0.007				
10.00	0.65	0.46	0.008				
10.20	0.68	0.49	0.009				
10.40	0.72	0.52	0.010				
10.60	0.76	0.56	0.011				
			Į.				

Type II 24-hr 10-Year Rainfall=3.61"

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#### **Summary for Pond 3P: UG**

Inflow Area = 25,265 sf, 82.76% Impervious, Inflow Depth > 2.87" for 10-Year event

Inflow 2.906 cfs @ 11.95 hrs. Volume= 6.052 cf

0.998 cfs @ 12.07 hrs, Volume= Outflow 6,003 cf, Atten= 66%, Lag= 7.1 min

0.998 cfs @ 12.07 hrs, Volume= Primary = 6.003 cf

Routed to Link 4L : POST (Combined)

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Peak Elev= 980.07' @ 12.07 hrs Surf.Area= 1,190 sf Storage= 1,663 cf

Plug-Flow detention time= 19.9 min calculated for 6,003 cf (99% of inflow)

Center-of-Mass det. time= 16.3 min (756.4 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	977.55'	1,405 cf	17.00'W x 70.00'L x 4.50'H Field A
			5,355 cf Overall - 1,843 cf Embedded = 3,512 cf x 40.0% Voids
#2A	978.05'	1,477 cf	<b>ADS N-12 36"</b> x 9 Inside #1
			Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf
			Outside= $42.0$ "W x $42.0$ "H => $8.86$ sf x $20.00$ 'L = $177.2$ cf
			9 Chambers in 3 Rows
			14.00' Header x 7.10 sf x 2 = 198.8 cf Inside
			T ( ) A ( )   1   0 (

2.882 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	977.55'	12.0" Round Culvert
			L= 45.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 977.55' / 976.65' S= 0.0200 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	977.55'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	981.05'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	981.95'	2.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#5	Device 1	982.90'	<b>2.0" x 4.0" Horiz. Orifice/Grate</b> C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=0.996 cfs @ 12.07 hrs HW=980.06' (Free Discharge) 1=Culvert (Passes 0.996 cfs of 4.234 cfs potential flow)

**2=Orifice/Grate** (Orifice Controls 0.996 cfs @ 7.31 fps)

-3=Orifice/Grate (Controls 0.000 cfs)

-4=Sharp-Crested Rectangular Weir (Controls 0.000 cfs)

**-5=Orifice/Grate** (Controls 0.000 cfs)

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### Pond 3P: UG - Chamber Wizard Field A

## Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

3 Chambers/Row x 20.00' Long +3.50' Header x 2 = 67.00' Row Length +18.0" End Stone x 2 = 70.00' Base Length

3 Rows x 42.0" Wide + 21.0" Spacing x 2 + 18.0" Side Stone x 2 = 17.00' Base Width 6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

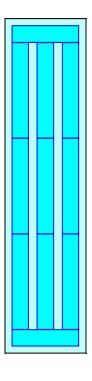
9 Chambers x 142.0 cf + 14.00' Header x 7.10 sf x 2 = 1,476.8 cf Chamber Storage

9 Chambers x 177.2 cf + 14.00' Header x 8.86 sf x 2 = 1,843.1 cf Displacement

5,355.0 cf Field - 1,843.1 cf Chambers = 3,511.9 cf Stone x 40.0% Voids = 1,404.8 cf Stone Storage

Chamber Storage + Stone Storage = 2,881.6 cf = 0.066 af Overall Storage Efficiency = 53.8% Overall System Size = 70.00' x 17.00' x 4.50'

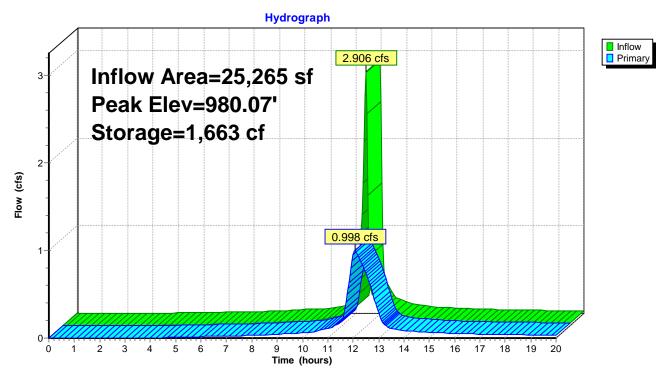
9 Chambers 198.3 cy Field 130.1 cy Stone





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Pond 3P: UG



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# Hydrograph for Pond 3P: UG

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.000	0	977.55	0.000
0.40	0.000	0	977.55	0.000
0.80	0.000	0	977.55	0.000
1.20	0.000	0	977.55	0.000
1.60 2.00	0.000 0.000	0 0	977.55 977.55	0.000 0.000
2.40	0.000	0	977.55	0.000
2.80	0.001	0	977.55	0.000
3.20	0.002	2	977.55	0.001
3.60	0.004	5	977.56	0.002
4.00	0.006	9	977.57	0.003
4.40	0.008	14	977.58	0.004
4.80	0.010	19	977.59	0.006
5.20	0.012	25	977.60	0.008
5.60	0.014	30	977.61	0.012
6.00 6.40	0.017 0.019	33 36	977.62 977.62	0.015 0.017
6.80	0.019	38	977.62	0.017
7.20	0.021	41	977.64	0.019
7.60	0.024	43	977.64	0.024
8.00	0.028	46	977.65	0.027
8.40	0.034	50	977.66	0.030
8.80	0.042	56	977.67	0.038
9.20	0.047	61	977.68	0.045
9.60	0.050	64	977.68	0.048
10.00	0.062	69	977.70	0.056
10.40	0.079	79 02	977.72	0.071
10.80 11.20	0.104 0.148	92 111	977.74 977.78	0.093 0.129
11.60	0.351	155	977.88	0.123
12.00	2.422	1,499	979.87	0.954
12.40	0.261	1,043	979.32	0.820
12.80	0.155	350	978.34	0.500
13.20	0.118	125	977.81	0.157
13.60	0.096	99	977.76	0.106
14.00	0.079	88	977.73	0.086
14.40	0.072	81	977.72	0.074
14.80	0.066	78 74	977.71	0.068
15.20 15.60	0.060 0.054	74 70	977.71 977.70	0.063 0.057
16.00	0.049	66	977.69	0.052
16.40	0.046	63	977.68	0.047
16.80	0.044	61	977.68	0.045
17.20	0.042	60	977.68	0.043
17.60	0.040	58	977.67	0.041
18.00	0.038	57	977.67	0.039
18.40	0.036	55	977.67	0.037
18.80	0.034	54 52	977.66	0.035
19.20 19.60	0.031 0.029	52 51	977.66 977.66	0.033 0.031
20.00	0.029	49	977.65	0.031
_0.00	0.027	.0	0.7.00	0.020

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## **Summary for Link 4L: POST (Combined)**

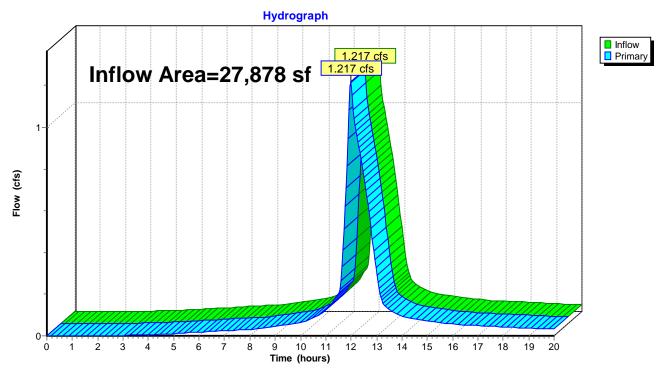
Inflow Area = 27,878 sf, 84.38% Impervious, Inflow Depth > 2.88" for 10-Year event

Inflow = 1.217 cfs @ 11.99 hrs, Volume= 6,700 cf

Primary = 1.217 cfs @ 11.99 hrs, Volume= 6,700 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

# Link 4L: POST (Combined)



# Hydrograph for Link 4L: POST (Combined)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.000	0.00	0.000	10.80	0.106	0.00	0.106
0.20	0.000	0.00	0.000	11.00	0.122	0.00	0.122
0.40	0.000	0.00	0.000	11.20	0.146	0.00	0.146
0.60	0.000	0.00	0.000	11.40	0.143	0.00	0.143
0.80	0.000	0.00	0.000	11.60	0.163	0.00	0.163
1.00	0.000	0.00	0.000	11.80	0.203	0.00	0.203
1.20	0.000	0.00	0.000	12.00	1.214	0.00	
							1.214
1.40	0.000	0.00	0.000	12.20	0.981	0.00	0.981
1.60	0.000	0.00	0.000	12.40	0.848	0.00	0.848
1.80	0.001	0.00	0.001	12.60	0.696	0.00	0.696
2.00	0.001	0.00	0.001	12.80	0.516	0.00	0.516
2.20	0.001	0.00	0.001	13.00	0.290	0.00	0.290
2.40	0.001	0.00	0.001	13.20	0.170	0.00	0.170
2.60	0.001	0.00	0.001	13.40	0.133	0.00	0.133
2.80	0.001	0.00	0.001	13.60	0.116	0.00	0.116
3.00	0.002	0.00	0.002	13.80	0.104	0.00	0.104
3.20	0.002	0.00	0.002	14.00	0.094	0.00	0.094
3.40	0.003	0.00	0.003	14.20	0.087	0.00	0.087
3.60	0.003	0.00	0.003	14.40	0.082	0.00	0.082
3.80	0.004	0.00	0.004	14.60	0.078	0.00	0.078
4.00	0.005	0.00	0.005	14.80	0.075	0.00	0.075
4.20	0.006	0.00	0.006	15.00	0.072	0.00	0.072
4.40	0.007	0.00	0.007	15.20	0.069	0.00	0.069
4.60	0.008	0.00	0.008	15.40	0.066	0.00	0.066
4.80	0.009	0.00	0.009	15.60	0.063	0.00	0.063
5.00	0.010	0.00	0.010	15.80	0.060	0.00	0.060
5.20	0.011	0.00	0.011	16.00	0.057	0.00	0.057
5.40	0.013	0.00	0.013	16.20	0.054	0.00	0.054
5.60	0.015	0.00	0.015	16.40	0.052	0.00	0.052
5.80	0.016	0.00	0.016	16.60	0.051	0.00	0.051
6.00	0.018	0.00	0.018	16.80	0.050	0.00	0.050
6.20	0.019	0.00	0.019	17.00	0.048	0.00	0.048
6.40	0.020	0.00	0.020	17.20	0.047	0.00	0.047
6.60	0.022	0.00	0.022	17.40	0.046	0.00	0.046
6.80	0.023	0.00	0.023	17.60	0.045	0.00	0.045
7.00	0.024	0.00	0.024	17.80	0.044	0.00	0.044
7.20	0.026	0.00	0.026	18.00	0.043	0.00	0.043
7.40	0.027	0.00	0.027	18.20	0.042	0.00	0.042
7.60	0.028	0.00	0.028	18.40	0.040	0.00	0.040
7.80	0.029	0.00	0.029	18.60	0.039	0.00	0.039
8.00	0.031	0.00	0.031	18.80	0.038	0.00	0.038
8.20	0.032	0.00	0.032	19.00	0.037	0.00	0.037
8.40	0.035	0.00	0.035	19.20	0.036	0.00	0.036
8.60	0.039	0.00	0.039	19.40	0.035	0.00	0.035
8.80	0.044	0.00	0.044	19.60	0.034	0.00	0.034
9.00	0.048	0.00	0.048	19.80	0.033	0.00	0.033
9.20	0.051	0.00	0.051	20.00	0.032	0.00	0.032
9.40	0.053	0.00	0.053				
9.60	0.055	0.00	0.055				
9.80	0.059	0.00	0.059				
10.00	0.064	0.00	0.064				
10.20	0.071	0.00	0.071				
10.40	0.081	0.00	0.081				
10.60	0.092	0.00	0.092				

## 1856.21 Wilkins Twp Zips\_additional pay lane\_b

Type II 24-hr 25-Year Rainfall=4.31" Printed 5/5/2023

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Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 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: PRE Runoff Area=0.600 ac 93.33% Impervious Runoff Depth>3.75"

Tc=5.0 min CN=97 Runoff=3.723 cfs 8,169 cf

Subcatchment 2S: Detained Runoff Area=0.580 ac 82.76% Impervious Runoff Depth>3.53"

Tc=5.0 min CN=95 Runoff=3.516 cfs 7,431 cf

Subcatchment 3S: Undetained Runoff Area=0.060 ac 100.00% Impervious Runoff Depth>3.86"

Tc=5.0 min CN=98 Runoff=0.375 cfs 842 cf

Peak Elev=980.64' Storage=2,118 cf Inflow=3.516 cfs 7,431 cf

Outflow=1.114 cfs 7,378 cf

Link 4L: POST (Combined) Inflow=1.372 cfs 8,220 cf

Primary=1.372 cfs 8,220 cf

Total Runoff Area = 54,014 sf Runoff Volume = 16,442 cf Average Runoff Depth = 3.65" 11.29% Pervious = 6,098 sf 88.71% Impervious = 47,916 sf

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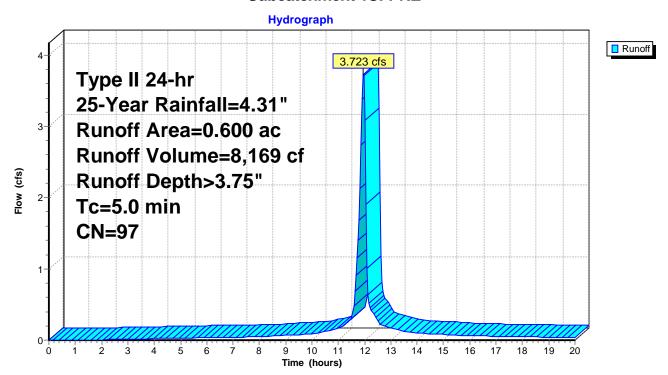
## **Summary for Subcatchment 1S: PRE**

Runoff = 3.723 cfs @ 11.95 hrs, Volume= 8,169 cf, Depth> 3.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 25-Year Rainfall=4.31"

Area	(ac)	CN	Desc	ription		
0	.560	98	Pave	ed parking,	HSG D	
0	.040	78	Mead	dow, non-g	razed, HSG	G D
0	.600	97	Weig	hted Avera	age	
0	.040		6.679	% Pervious	Area	
0	0.560 93.33% Impervious Area					
Tc	Leng		Slope	Velocity	Capacity	•
<u>(min)</u>	(fee	et)	(ft/ft)	(ft/sec)	(cfs)	
5.0						Direct Entry,

#### Subcatchment 1S: PRE



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# Hydrograph for Subcatchment 1S: PRE

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.95	0.66	0.148
0.20	0.01	0.00	0.000	11.00	1.01	0.72	0.168
0.40	0.02	0.00	0.000	11.20	1.08	0.78	0.206
0.60	0.03	0.00	0.000	11.40	1.17	0.87	0.255
0.80	0.04	0.00	0.000	11.60	1.32	1.01	0.476
1.00	0.05	0.00	0.000	11.80	1.86	1.53	1.679
1.20	0.05	0.00	0.000	12.00	2.86	2.52	3.088
1.40	0.06	0.00	0.000	12.20	3.01	2.67	0.457
1.60	0.07	0.00	0.002	12.40	3.13	2.78	0.329
1.80	0.08	0.00	0.003	12.60	3.20	2.86	0.225
2.00	0.09	0.00	0.005	12.80	3.27	2.93	0.195
2.20	0.11	0.01	0.007	13.00	3.33	2.98	0.168
2.40	0.12	0.01	0.008	13.20	3.38	3.03	0.149
2.60	0.13	0.01	0.010	13.40	3.42	3.08	0.135
2.80 3.00	0.14 0.15	0.01 0.02	0.011 0.013	13.60 13.80	3.46 3.50	3.12 3.15	0.121 0.110
3.20			0.013	14.00		3.19	0.110
3.40	0.16 0.17	0.02 0.03	0.014	14.00	3.53 3.57	3.19	0.100
3.40	0.17	0.03	0.015	14.40	3.60	3.25	0.094
3.80	0.18	0.03	0.017	14.40	3.62	3.28	0.090
4.00	0.19	0.04	0.018	14.80	3.65	3.20	0.083
4.20	0.21	0.05	0.020	15.00	3.68	3.33	0.079
4.40	0.22	0.06	0.022	15.20	3.70	3.36	0.076
4.60	0.23	0.07	0.022	15.40	3.73	3.38	0.070
4.80	0.26	0.07	0.025	15.60	3.75	3.40	0.068
5.00	0.27	0.08	0.026	15.80	3.77	3.43	0.065
5.20	0.29	0.09	0.028	16.00	3.79	3.45	0.061
5.40	0.30	0.10	0.029	16.20	3.81	3.46	0.059
5.60	0.31	0.11	0.031	16.40	3.83	3.48	0.058
5.80	0.33	0.12	0.032	16.60	3.85	3.50	0.056
6.00	0.34	0.14	0.034	16.80	3.87	3.52	0.055
6.20	0.36	0.15	0.035	17.00	3.89	3.54	0.054
6.40	0.38	0.16	0.036	17.20	3.90	3.56	0.052
6.60	0.39	0.17	0.038	17.40	3.92	3.57	0.051
6.80	0.41	0.18	0.039	17.60	3.94	3.59	0.050
7.00	0.43	0.20	0.041	17.80	3.95	3.61	0.048
7.20	0.44	0.21	0.042	18.00	3.97	3.62	0.047
7.40	0.46	0.23	0.043	18.20	3.98	3.64	0.046
7.60	0.48	0.24	0.045	18.40	4.00	3.65	0.045
7.80	0.50	0.26	0.046	18.60	4.01	3.67	0.043
8.00	0.52	0.27	0.047	18.80	4.03	3.68	0.042
8.20	0.54	0.29	0.051	19.00	4.04	3.69	0.041
8.40	0.56	0.31	0.056	19.20	4.05	3.71	0.039
8.60	0.58	0.33	0.061	19.40	4.07	3.72	0.038
8.80	0.61	0.35	0.066	19.60	4.08	3.73	0.037
9.00	0.63	0.37	0.071	19.80	4.09	3.74	0.036
9.20	0.66	0.40	0.074	20.00	4.10	3.75	0.034
9.40	0.69	0.42	0.074				
9.60	0.72	0.44	0.076				
9.80	0.75	0.47 0.50	0.084				
10.00 10.20	0.78		0.092 0.102				
10.20	0.82 0.86	0.54 0.57	0.102				
10.40	0.90	0.57	0.114				
10.00	0.90	0.61	0.120				

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## **Summary for Subcatchment 2S: Detained**

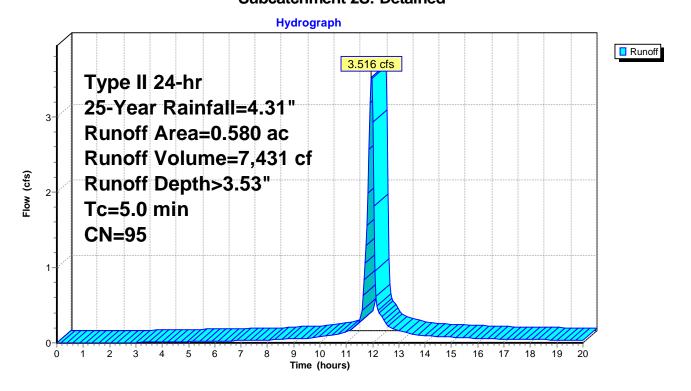
Runoff = 3.516 cfs @ 11.95 hrs, Volume= 7,431 cf, Depth> 3.53"

Routed to Pond 3P: UG

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 25-Year Rainfall=4.31"

Area	(ac)	CN	Desc	ription				
0.	100	78	Mead	dow, non-g	razed, HSG	B D		
0.	480	98	Pave	ed parking,	HSG D			
0.	580	95	Weig	hted Avera	age			
0.	100		17.24	1% Pervioυ	ıs Area			
0.480 82.76% Impervious Area								
Тс	Lengt	th (	Slope	Velocity	Capacity	Description		
(min)	(fee		(ft/ft)	(ft/sec)	(cfs)	Description		
(111111)	(Tee	;t <i>)</i>	(11/11)	(TVSEC)	(015)			
5.0						Direct Entry		

## **Subcatchment 2S: Detained**



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## Hydrograph for Subcatchment 2S: Detained

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	0.95	0.52	0.130
0.20	0.01	0.00	0.000	11.00	1.01	0.57	0.150
0.40	0.02	0.00	0.000	11.20	1.08	0.64	0.184
0.60	0.03	0.00	0.000	11.40	1.17	0.71	0.230
0.80	0.04	0.00	0.000	11.60	1.32	0.85	0.433
1.00	0.05	0.00	0.000	11.80	1.86	1.35	1.557
1.20	0.05	0.00	0.000	12.00	2.86	2.31	2.925
1.40	0.06	0.00	0.000	12.20	3.01	2.46	0.436
1.60	0.07	0.00	0.000	12.40	3.13	2.57	0.314
1.80	0.08	0.00	0.000	12.60	3.20	2.65	0.215
2.00	0.09	0.00	0.000	12.80	3.27	2.71	0.186
2.20	0.11	0.00	0.000	13.00	3.33	2.77	0.161
2.40	0.12	0.00	0.001	13.20	3.38	2.82	0.142
2.60	0.13	0.00	0.002	13.40	3.42	2.86	0.129
2.80 3.00	0.14 0.15	0.00	0.003 0.004	13.60 13.80	3.46 3.50	2.90 2.94	0.115 0.105
3.20		0.00	0.004	14.00		2.94	0.105
3.40	0.16 0.17	0.01	0.006	14.00	3.53 3.57	3.00	0.095
3.40	0.17	0.01	0.007	14.20	3.60	3.03	0.090
3.80	0.18	0.01	0.008	14.40	3.62	3.06	0.083
4.00	0.19	0.01	0.010	14.80	3.65	3.09	0.033
4.20	0.21	0.02	0.011	15.00	3.68	3.11	0.076
4.40	0.22	0.02	0.013	15.20	3.70	3.14	0.070
4.60	0.23	0.02	0.013	15.40	3.73	3.16	0.069
4.80	0.26	0.03	0.015	15.60	3.75	3.19	0.065
5.00	0.27	0.04	0.017	15.80	3.77	3.21	0.062
5.20	0.29	0.05	0.018	16.00	3.79	3.23	0.058
5.40	0.30	0.05	0.019	16.20	3.81	3.25	0.056
5.60	0.31	0.06	0.021	16.40	3.83	3.27	0.055
5.80	0.33	0.07	0.022	16.60	3.85	3.28	0.054
6.00	0.34	0.07	0.023	16.80	3.87	3.30	0.053
6.20	0.36	0.08	0.025	17.00	3.89	3.32	0.051
6.40	0.38	0.09	0.026	17.20	3.90	3.34	0.050
6.60	0.39	0.10	0.028	17.40	3.92	3.35	0.049
6.80	0.41	0.11	0.029	17.60	3.94	3.37	0.048
7.00	0.43	0.12	0.030	17.80	3.95	3.39	0.046
7.20	0.44	0.13	0.032	18.00	3.97	3.40	0.045
7.40	0.46	0.14	0.033	18.20	3.98	3.42	0.044
7.60	0.48	0.16	0.035	18.40	4.00	3.43	0.043
7.80	0.50	0.17	0.036	18.60	4.01	3.44	0.041
8.00	0.52	0.18	0.037	18.80	4.03	3.46	0.040
8.20	0.54	0.19	0.041	19.00	4.04	3.47	0.039
8.40	0.56	0.21	0.045	19.20	4.05	3.49	0.038
8.60	0.58	0.23	0.049	19.40	4.07	3.50	0.037
8.80	0.61	0.24	0.054	19.60	4.08	3.51	0.035
9.00	0.63	0.26	0.059	19.80	4.09	3.52	0.034
9.20	0.66	0.29	0.061	20.00	4.10	3.53	0.033
9.40	0.69	0.31	0.062				
9.60	0.72	0.33	0.064				
9.80	0.75	0.35	0.071				
10.00 10.20	0.78	0.38 0.41	0.079				
10.20	0.82 0.86	0.41	0.088 0.099				
10.40	0.90	0.44	0.112				
10.00	0.90	0.40	0.112				

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## Summary for Subcatchment 3S: Undetained

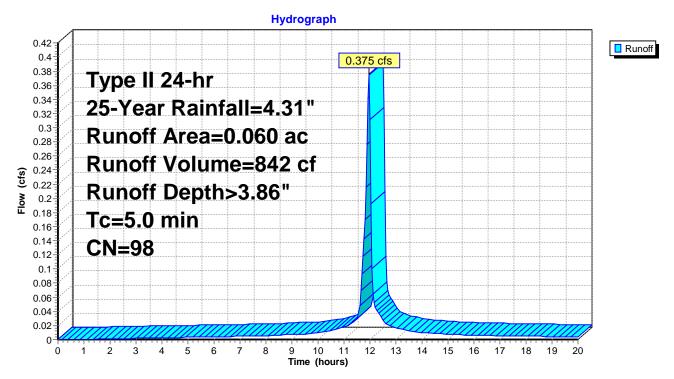
Runoff = 0.375 cfs @ 11.95 hrs, Volume= 842 cf, Depth> 3.86"

Routed to Link 4L: POST (Combined)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 25-Year Rainfall=4.31"

_	Area	(ac)	CN	Desc	cription		
	0.	060	98	Pave	ed parking,	HSG D	
	0.	060		100.0	00% Imper	vious Area	
	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	5.0						Direct Entry,

### **Subcatchment 3S: Undetained**



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# Hydrograph for Subcatchment 3S: Undetained

<del></del> -	ъ.	_	<b>5</b> "	<del></del> -	ъ.	_	Б "
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours) 0.00	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00 0.01	0.00	0.000 0.000	10.80 11.00	0.95 1.01	0.75 0.80	0.015 0.017
0.20	0.01	0.00	0.000	11.20	1.01	0.87	0.017
0.40	0.02	0.00	0.000	11.40	1.06	0.87	0.021
0.80	0.03	0.00	0.000	11.40	1.17	1.11	0.026
1.00	0.04	0.00	0.000	11.80	1.86	1.63	<b>0.049 0.170</b>
1.20	0.05	0.00	0.000	12.00	2.86	2.63	0.170
1.40	0.06	0.00	0.001	12.20	3.01	2.78	0.046
1.60	0.07	0.00	0.001	12.40	3.13	2.89	0.033
1.80	0.08	0.01	0.001	12.60	3.20	2.97	0.023
2.00	0.09	0.01	0.001	12.80	3.27	3.04	0.020
2.20	0.11	0.02	0.001	13.00	3.33	3.09	0.017
2.40	0.12	0.02	0.001	13.20	3.38	3.14	0.015
2.60	0.13	0.03	0.002	13.40	3.42	3.19	0.014
2.80	0.14	0.03	0.002	13.60	3.46	3.23	0.012
3.00	0.15	0.04	0.002	13.80	3.50	3.27	0.011
3.20	0.16	0.04	0.002	14.00	3.53	3.30	0.010
3.40	0.17	0.05	0.002	14.20	3.57	3.33	0.009
3.60	0.18	0.06	0.002	14.40	3.60	3.36	0.009
3.80	0.19	0.07	0.002	14.60	3.62	3.39	0.009
4.00	0.21	0.07	0.002	14.80	3.65	3.42	0.008
4.20	0.22	0.08	0.003	15.00	3.68	3.44	0.008
4.40	0.23	0.09	0.003	15.20	3.70	3.47	0.008
4.60	0.24	0.10	0.003	15.40	3.73	3.49	0.007
4.80	0.26	0.11	0.003	15.60	3.75	3.52	0.007
5.00	0.27	0.12	0.003	15.80	3.77	3.54	0.006
5.20	0.29	0.13	0.003	16.00	3.79	3.56	0.006
5.40	0.30	0.14	0.003	16.20	3.81	3.58	0.006
5.60	0.31	0.16	0.004	16.40	3.83	3.60	0.006
5.80 6.00	0.33 0.34	0.17 0.18	0.004 0.004	16.60 16.80	3.85 3.87	3.62 3.63	0.006 0.006
6.20	0.34	0.10	0.004	17.00	3.89	3.65	0.005
6.40	0.38	0.20	0.004	17.00	3.90	3.67	0.005
6.60	0.39	0.22	0.004	17.40	3.92	3.69	0.005
6.80	0.41	0.24	0.004	17.60	3.94	3.70	0.005
7.00	0.43	0.25	0.005	17.80	3.95	3.72	0.005
7.20	0.44	0.27	0.005	18.00	3.97	3.73	0.005
7.40	0.46	0.28	0.005	18.20	3.98	3.75	0.005
7.60	0.48	0.30	0.005	18.40	4.00	3.76	0.004
7.80	0.50	0.32	0.005	18.60	4.01	3.78	0.004
8.00	0.52	0.33	0.005	18.80	4.03	3.79	0.004
8.20	0.54	0.35	0.006	19.00	4.04	3.81	0.004
8.40	0.56	0.37	0.006	19.20	4.05	3.82	0.004
8.60	0.58	0.39	0.007	19.40	4.07	3.83	0.004
8.80	0.61	0.42	0.007	19.60	4.08	3.84	0.004
9.00	0.63	0.44	0.008	19.80	4.09	3.86	0.004
9.20	0.66	0.47	0.008	20.00	4.10	3.87	0.003
9.40	0.69	0.49	0.008				
9.60	0.72	0.52	0.008				
9.80	0.75	0.55	0.009				
10.00	0.78	0.58	0.010				
10.20	0.82	0.61	0.011				
10.40 10.60	0.86	0.65	0.012				
10.00	0.90	0.70	0.013				

## 1856.21 Wilkins Twp Zips\_additional pay lane\_b

Type II 24-hr 25-Year Rainfall=4.31"

Prepared by {enter your company name here}

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## **Summary for Pond 3P: UG**

Inflow Area = 25,265 sf, 82.76% Impervious, Inflow Depth > 3.53" for 25-Year event

Inflow 3.516 cfs @ 11.95 hrs. Volume= 7.431 cf

1.114 cfs @ 12.08 hrs, Volume= 7,378 cf, Atten= 68%, Lag= 7.4 min Outflow

1.114 cfs @ 12.08 hrs, Volume= Primary = 7,378 cf

Routed to Link 4L : POST (Combined)

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Peak Elev= 980.64' @ 12.08 hrs Surf.Area= 1,190 sf Storage= 2,118 cf

Plug-Flow detention time= 20.8 min calculated for 7,378 cf (99% of inflow)

Center-of-Mass det. time= 17.6 min (752.9 - 735.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	977.55'	1,405 cf	17.00'W x 70.00'L x 4.50'H Field A
			5,355 cf Overall - 1,843 cf Embedded = 3,512 cf x 40.0% Voids
#2A	978.05'	1,477 cf	<b>ADS N-12 36"</b> x 9 Inside #1
			Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf
			Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf
			9 Chambers in 3 Rows
			14.00' Header x 7.10 sf x 2 = 198.8 cf Inside

2,882 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices						
#1	Primary	977.55'	12.0" Round Culvert						
			L= 45.0' CPP, projecting, no headwall, Ke= 0.900						
			Inlet / Outlet Invert= 977.55' / 976.65' S= 0.0200 '/' Cc= 0.900						
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf						
#2	Device 1	977.55'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads						
#3	Device 1	981.05'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads						
#4	Device 1	981.95'	2.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)						
#5	Device 1	982.90'	<b>2.0" x 4.0" Horiz. Orifice/Grate</b> C= 0.600						
			Limited to weir flow at low heads						

Primary OutFlow Max=1.113 cfs @ 12.08 hrs HW=980.63' (Free Discharge) 1=Culvert (Passes 1.113 cfs of 4.798 cfs potential flow)

**2=Orifice/Grate** (Orifice Controls 1.113 cfs @ 8.16 fps)

-3=Orifice/Grate (Controls 0.000 cfs)

-4=Sharp-Crested Rectangular Weir (Controls 0.000 cfs)

**-5=Orifice/Grate** (Controls 0.000 cfs)

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## Pond 3P: UG - Chamber Wizard Field A

### Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

3 Chambers/Row x 20.00' Long +3.50' Header x 2 = 67.00' Row Length +18.0" End Stone x 2 = 70.00' Base Length

3 Rows x 42.0" Wide + 21.0" Spacing x 2 + 18.0" Side Stone x 2 = 17.00' Base Width 6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

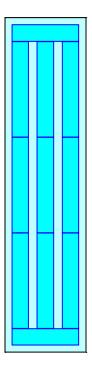
9 Chambers x 142.0 cf + 14.00' Header x 7.10 sf x 2 = 1,476.8 cf Chamber Storage

9 Chambers x 177.2 cf + 14.00' Header x 8.86 sf x 2 = 1,843.1 cf Displacement

5,355.0 cf Field - 1,843.1 cf Chambers = 3,511.9 cf Stone x 40.0% Voids = 1,404.8 cf Stone Storage

Chamber Storage + Stone Storage = 2,881.6 cf = 0.066 af Overall Storage Efficiency = 53.8% Overall System Size = 70.00' x 17.00' x 4.50'

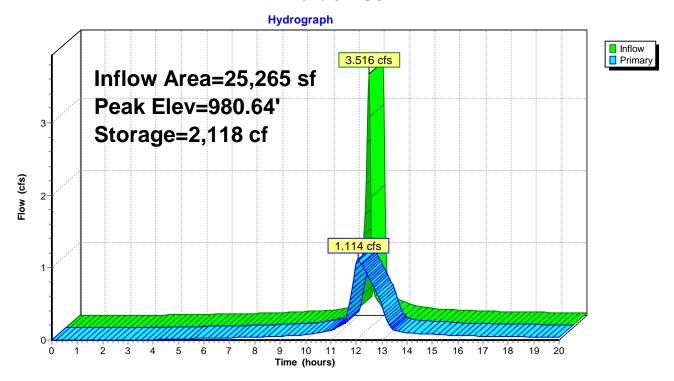
9 Chambers 198.3 cy Field 130.1 cy Stone





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Pond 3P: UG



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# Hydrograph for Pond 3P: UG

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.000	0	977.55	0.000
0.40	0.000	0	977.55	0.000
0.80 1.20	0.000 0.000	0	977.55 977.55	0.000 0.000
1.60	0.000	0	977.55	0.000
2.00	0.000	Ö	977.55	0.000
2.40	0.001	0	977.55	0.000
2.80	0.003	2	977.56	0.001
3.20 3.60	0.006 0.008	7 12	977.56 977.58	0.002 0.004
4.00	0.008	18	977.59	0.004
4.40	0.013	25	977.60	0.008
4.80	0.015	30	977.61	0.012
5.20	0.018	34	977.62	0.016
5.60 6.00	0.021 0.023	37 40	977.63 977.63	0.018 0.021
6.40	0.026	43	977.64	0.021
6.80	0.029	46	977.65	0.027
7.20	0.032	50	977.65	0.030
7.60	0.035	53	977.66	0.033
8.00 8.40	0.037 0.045	55 58	977.66 977.67	0.036 0.041
8.80	0.054	64	977.69	0.050
9.20	0.061	71	977.70	0.058
9.60	0.064	73	977.70	0.062
10.00	0.079	80	977.72	0.073
10.40 10.80	0.099 0.130	91 105	977.74 977.77	0.091 0.118
11.20	0.184	127	977.82	0.161
11.60	0.433	180	977.93	0.272
12.00	2.925	1,893	980.35	1.057
12.40	0.314	1,451	979.81	0.941
12.80 13.20	0.186 0.142	621 179	978.77 977.93	0.661 0.270
13.60	0.115	111	977.78	0.130
14.00	0.095	97	977.75	0.103
14.40	0.086	90	977.74	0.089
14.80 15.20	0.079 0.072	85 81	977.73 977.72	0.082 0.075
15.20	0.072	78	977.72	0.068
16.00	0.058	73	977.70	0.062
16.40	0.055	70	977.70	0.057
16.80	0.053	68	977.69	0.054
17.20 17.60	0.050 0.048	66 64	977.69 977.68	0.051 0.049
18.00	0.045	62	977.68	0.046
18.40	0.043	60	977.68	0.044
18.80	0.040	59	977.67	0.041
19.20 19.60	0.038 0.035	57 55	977.67 977.67	0.039 0.037
20.00	0.033	53	977.66	0.037
				0.00

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# **Summary for Link 4L: POST (Combined)**

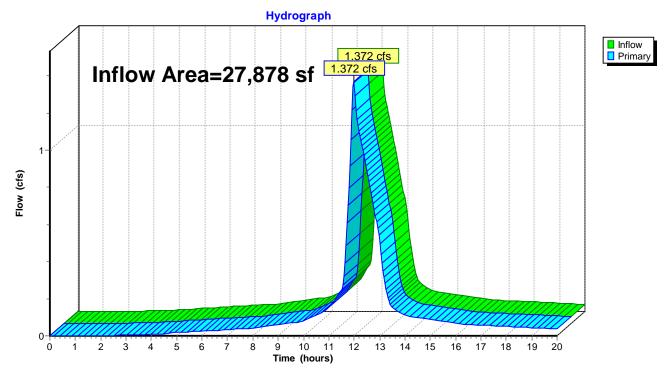
Inflow Area = 27,878 sf, 84.38% Impervious, Inflow Depth > 3.54" for 25-Year event

Inflow = 1.372 cfs @ 11.99 hrs, Volume= 8,220 cf

Primary = 1.372 cfs @ 11.99 hrs, Volume= 8,220 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

# Link 4L: POST (Combined)



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# Hydrograph for Link 4L: POST (Combined)

Time	Inflow	Elevation	Primary	Time	Inflow	Elevation	Primary
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)	(cfs)
0.00	0.000	0.00	0.000	10.80	0.133	0.00	0.133
0.20	0.000	0.00	0.000	11.00	0.154	0.00	0.154
0.40	0.000	0.00	0.000	11.20	0.183	0.00	0.183
0.60	0.000	0.00	0.000	11.40	0.228	0.00	0.228
0.80	0.000	0.00	0.000	11.60	0.321	0.00	0.321
1.00	0.000	0.00	0.000	11.80	0.799	0.00	0.799
1.20	0.000	0.00	0.000	12.00	1.368	0.00	1.368
1.40	0.001	0.00	0.001	12.20	1.106	0.00	1.106
1.60	0.001	0.00	0.001	12.40	0.974	0.00	0.974
1.80	0.001	0.00	0.001	12.60	0.831	0.00	0.831
2.00	0.001	0.00	0.001	12.80	0.680	0.00	0.680
2.20	0.001	0.00	0.001	13.00	0.497	0.00	0.497
2.40	0.001	0.00	0.001	13.20	0.285	0.00	0.285
2.60	0.002	0.00	0.002	13.40	0.177	0.00	0.177
2.80	0.003	0.00	0.003	13.60	0.142	0.00	0.142
3.00	0.003	0.00	0.003	13.80	0.125	0.00	0.125
3.20	0.004	0.00	0.004	14.00	0.113	0.00	0.113
3.40	0.005	0.00	0.005	14.20	0.104	0.00	0.104
3.60	0.006	0.00	0.006	14.40	0.098	0.00	0.098
3.80	0.007	0.00	0.007	14.60	0.094	0.00	0.094
4.00	0.008	0.00	0.008	14.80	0.090	0.00	0.090
4.20	0.009	0.00	0.009	15.00	0.086	0.00	0.086
4.40	0.011	0.00	0.011	15.20	0.083	0.00	0.083
4.60	0.013	0.00	0.013	15.40	0.079	0.00	0.079
4.80	0.015	0.00	0.015	15.60	0.075	0.00	0.075
5.00	0.017	0.00	0.017	15.80	0.071	0.00	0.071
5.20	0.019	0.00	0.019	16.00	0.068	0.00	0.068
5.40	0.020	0.00	0.020	16.20	0.065	0.00	0.065
5.60	0.022	0.00	0.022	16.40	0.063	0.00	0.063
5.80	0.024	0.00	0.024	16.60	0.061	0.00	0.061
6.00	0.025	0.00	0.025	16.80	0.059	0.00	0.059
6.20	0.027	0.00	0.027	17.00	0.058	0.00	0.058
6.40	0.028	0.00	0.028	17.20	0.057	0.00	0.057
6.60	0.030	0.00	0.030	17.40	0.055	0.00	0.055
6.80	0.031	0.00	0.031	17.60	0.054	0.00	0.054
7.00	0.033	0.00	0.033	17.80	0.053	0.00	0.053
7.20	0.034	0.00	0.034	18.00	0.051	0.00	0.051
7.40	0.036	0.00	0.036	18.20	0.050	0.00	0.050
7.60	0.038	0.00	0.038	18.40	0.048	0.00	0.048
7.80	0.040	0.00	0.040	18.60	0.047	0.00	0.047
8.00	0.041	0.00	0.041	18.80	0.046	0.00	0.046
8.20	0.043	0.00	0.043	19.00	0.044	0.00	0.044
8.40	0.047	0.00	0.047	19.20	0.043	0.00	0.043
8.60	0.052	0.00	0.052	19.40	0.042	0.00	0.042
8.80	0.057	0.00	0.057	19.60	0.040	0.00	0.040
9.00	0.062	0.00	0.062	19.80	0.039	0.00	0.039
9.20	0.066	0.00	0.066	20.00	0.037	0.00	0.037
9.40	0.068	0.00	0.068				
9.60	0.070	0.00	0.070				
9.80	0.075	0.00	0.075				
10.00	0.082	0.00	0.082				
10.20	0.092	0.00	0.092				
10.40	0.103	0.00	0.103				
10.60	0.116	0.00	0.116				

## 1856.21 Wilkins Twp Zips\_additional pay lane\_b

Type II 24-hr 100-Year Rainfall=5.71" Printed 5/5/2023

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Time span=0.00-20.00 hrs, dt=0.04 hrs, 501 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: PRE Runoff Area=0.600 ac 93.33% Impervious Runoff Depth>5.08"

Tc=5.0 min CN=97 Runoff=4.962 cfs 11,058 cf

Subcatchment 2S: Detained Runoff Area=0.580 ac 82.76% Impervious Runoff Depth>4.85"

Tc=5.0 min CN=95 Runoff=4.728 cfs 10,206 cf

Subcatchment 3S: Undetained Runoff Area=0.060 ac 100.00% Impervious Runoff Depth>5.19"

Tc=5.0 min CN=98 Runoff=0.499 cfs 1,131 cf

Pond 3P: UG Peak Elev=982.05' Storage=2,882 cf Inflow=4.728 cfs 10,206 cf

Outflow=2.057 cfs 10,144 cf

Link 4L: POST (Combined) Inflow=2.295 cfs 11,276 cf

Primary=2.295 cfs 11,276 cf

Total Runoff Area = 54,014 sf Runoff Volume = 22,395 cf Average Runoff Depth = 4.98" 11.29% Pervious = 6,098 sf 88.71% Impervious = 47,916 sf

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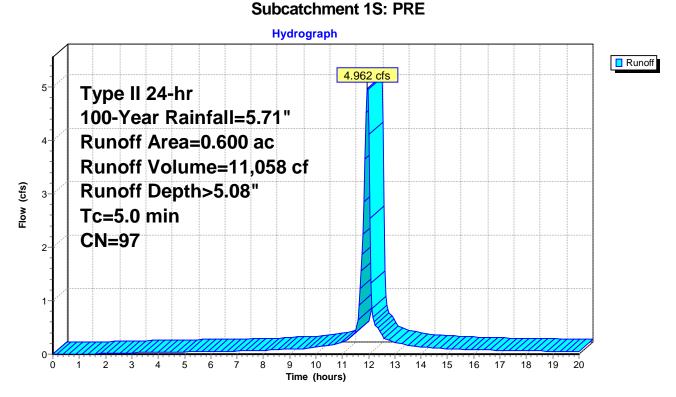
## **Summary for Subcatchment 1S: PRE**

Runoff = 4.962 cfs @ 11.95 hrs, Volume= 11,058 cf, Depth> 5.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 100-Year Rainfall=5.71"

Area	(ac)	CN	Desc	cription			
0	.560	98	Pave	ed parking,	HSG D		
0	.040	78	Mea	dow, non-g	razed, HSG	G D	
0	.600	97	Weig	ghted Avera	age		
0	.040		$6.67^{\circ}$	% Pervious	Area		
0	.560		93.3	3% Imperv	ious Area		
Tc (min)	Leng (fee	•	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	•	
	(166	<del>5</del> ()	(11/11)	(10360)	(013)		
5.0						Direct Entry,	

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## Hydrograph for Subcatchment 1S: PRE

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	1.26	0.96	0.201
0.20	0.01	0.00	0.000	11.00	1.34	1.03	0.229
0.40	0.02	0.00	0.000	11.20	1.44	1.12	0.279
0.60	0.04	0.00	0.000	11.40	1.55	1.23	0.345
0.80	0.05	0.00	0.000	11.60	1.75	1.43	0.642
1.00	0.06	0.00	0.000	11.80	2.46	2.12	2.249
1.20	0.07	0.00	0.001	12.00	3.79	3.44	4.112
1.40	0.09	0.00	0.004	12.20	3.99	3.64	0.608
1.60	0.10	0.00	0.007	12.40	4.14	3.79	0.438
1.80 2.00	0.11 0.13	0.01 0.01	0.010 0.012	12.60 12.80	4.25 4.33	3.90 3.98	0.300 0.259
2.20	0.13	0.01	0.012	13.00	4.33	4.06	0.239
2.40	0.14	0.02	0.017	13.20	4.47	4.12	0.198
2.60	0.17	0.03	0.019	13.40	4.53	4.18	0.179
2.80	0.18	0.03	0.021	13.60	4.59	4.24	0.160
3.00	0.20	0.04	0.022	13.80	4.64	4.29	0.146
3.20	0.21	0.05	0.024	14.00	4.68	4.33	0.133
3.40	0.23	0.06	0.026	14.20	4.72	4.37	0.124
3.60	0.24	0.07	0.028	14.40	4.76	4.41	0.120
3.80	0.26	0.08	0.029	14.60	4.80	4.45	0.115
4.00	0.27	0.09	0.031	14.80	4.84	4.49	0.110
4.20	0.29	0.10	0.033	15.00	4.87	4.52	0.105
4.40	0.31	0.11	0.034	15.20	4.91	4.55	0.100
4.60	0.32	0.12	0.036	15.40	4.94	4.59	0.095
4.80	0.34	0.13	0.038	15.60	4.97	4.62	0.091
5.00	0.36	0.15	0.040 0.042	15.80 16.00	5.00	4.64 4.67	0.086
5.20 5.40	0.38 0.40	0.16 0.17	0.042	16.00	5.02 5.05	4.67	0.081 0.078
5.60	0.40	0.17	0.044	16.40	5.08	4.70	0.076
5.80	0.44	0.13	0.048	16.60	5.10	4.75	0.075
6.00	0.46	0.22	0.049	16.80	5.13	4.77	0.073
6.20	0.48	0.24	0.051	17.00	5.15	4.80	0.071
6.40	0.50	0.26	0.053	17.20	5.17	4.82	0.070
6.60	0.52	0.27	0.055	17.40	5.19	4.84	0.068
6.80	0.54	0.29	0.057	17.60	5.22	4.86	0.066
7.00	0.57	0.31	0.058	17.80	5.24	4.88	0.064
7.20	0.59	0.33	0.060	18.00	5.26	4.91	0.063
7.40	0.61	0.35	0.062	18.20	5.28	4.93	0.061
7.60	0.64	0.37	0.064	18.40	5.30	4.94	0.059
7.80	0.66	0.39	0.065	18.60	5.32	4.96	0.057
8.00 8.20	0.69 0.71	0.42 0.44	0.067 0.072	18.80 19.00	5.34 5.35	4.98 5.00	0.056 0.054
8.40	0.71	0.44	0.072	19.00	5.37	5.02	0.054
8.60	0.74	0.49	0.085	19.40	5.39	5.02	0.052
8.80	0.80	0.52	0.092	19.60	5.41	5.05	0.049
9.00	0.84	0.56	0.099	19.80	5.42	5.07	0.047
9.20	0.88	0.59	0.102	20.00	5.44	5.08	0.045
9.40	0.91	0.62	0.102		-		
9.60	0.95	0.66	0.105				
9.80	0.99	0.70	0.115				
10.00	1.03	0.74	0.126				
10.20	1.08	0.78	0.140				
10.40	1.14	0.83	0.156				
10.60	1.20	0.89	0.175				

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## **Summary for Subcatchment 2S: Detained**

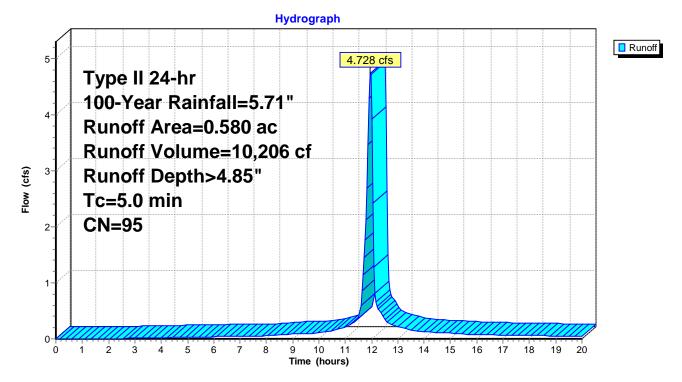
Runoff = 4.728 cfs @ 11.95 hrs, Volume= 10,206 cf, Depth> 4.85"

Routed to Pond 3P: UG

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Type II 24-hr 100-Year Rainfall=5.71"

	Area	(ac)	CN	Desc	ription			
	0.	100	78	Mead	dow, non-g	razed, HSG	D	
_	0.	480	98	Pave	ed parking,	HSG D		
	0.	580	95	Weig	hted Avera	age		
	0.	100		17.24	1% Pervioυ	ıs Area		
	0.	480		82.76	6% Imperv	ious Area		
	Тс	Leng	th S	Slope	Velocity	Capacity	Description	
_	(min)	(fee	et)	(ft/ft)	(ft/sec)	(cfs)		
	5.0						Direct Entry.	

#### **Subcatchment 2S: Detained**



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# Hydrograph for Subcatchment 2S: Detained

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.000	10.80	1.26	0.80	0.183
0.20	0.01	0.00	0.000	11.00	1.34	0.87	0.209
0.40	0.02	0.00	0.000	11.20	1.44	0.95	0.256
0.60	0.04	0.00	0.000	11.40	1.55	1.06	0.318
0.80	0.05	0.00	0.000	11.60	1.75	1.25	0.596
1.00	0.06	0.00	0.000	11.80	2.46	1.92	2.118
1.20	0.07	0.00	0.000	12.00	3.79	3.22	3.925
1.40	0.09	0.00	0.000	12.20	3.99	3.42	0.583
1.60 1.80	0.10 0.11	0.00	0.000 0.000	12.40 12.60	4.14 4.25	3.57 3.67	0.420 0.287
2.00	0.11	0.00	0.002	12.80	4.23	3.76	0.249
2.20	0.13	0.00	0.002	13.00	4.41	3.83	0.249
2.40	0.14	0.00	0.004	13.20	4.47	3.90	0.190
2.60	0.13	0.00	0.008	13.40	4.53	3.96	0.172
2.80	0.17	0.01	0.010	13.60	4.59	4.01	0.172
3.00	0.20	0.01	0.011	13.80	4.64	4.06	0.141
3.20	0.21	0.02	0.013	14.00	4.68	4.10	0.127
3.40	0.23	0.02	0.015	14.20	4.72	4.15	0.119
3.60	0.24	0.03	0.016	14.40	4.76	4.19	0.115
3.80	0.26	0.03	0.018	14.60	4.80	4.22	0.110
4.00	0.27	0.04	0.019	14.80	4.84	4.26	0.106
4.20	0.29	0.05	0.021	15.00	4.87	4.29	0.101
4.40	0.31	0.06	0.023	15.20	4.91	4.33	0.096
4.60	0.32	0.06	0.025	15.40	4.94	4.36	0.092
4.80	0.34	0.07	0.027	15.60	4.97	4.39	0.087
5.00	0.36	0.08	0.028	15.80	5.00	4.42	0.083
5.20	0.38	0.09	0.030	16.00	5.02	4.44	0.078
5.40	0.40	0.10	0.032	16.20	5.05	4.47	0.075
5.60	0.42	0.12	0.034	16.40	5.08	4.50	0.073
5.80	0.44	0.13	0.036	16.60	5.10	4.52	0.072
6.00	0.46	0.14	0.038	16.80	5.13	4.54	0.070
6.20	0.48	0.15	0.040	17.00 17.20	5.15	4.57	0.068
6.40 6.60	0.50 0.52	0.17 0.18	0.042 0.043	17.20	5.17 5.19	4.59 4.61	0.067 0.065
6.80	0.52	0.18	0.045	17.40	5.19	4.63	0.064
7.00	0.57	0.20	0.043	17.80	5.24	4.66	0.062
7.20	0.59	0.23	0.049	18.00	5.26	4.68	0.060
7.40	0.61	0.25	0.051	18.20	5.28	4.70	0.059
7.60	0.64	0.27	0.053	18.40	5.30	4.72	0.057
7.80	0.66	0.28	0.054	18.60	5.32	4.73	0.055
8.00	0.69	0.30	0.056	18.80	5.34	4.75	0.054
8.20	0.71	0.32	0.061	19.00	5.35	4.77	0.052
8.40	0.74	0.35	0.067	19.20	5.37	4.79	0.050
8.60	0.77	0.37	0.073	19.40	5.39	4.80	0.049
8.80	0.80	0.40	0.079	19.60	5.41	4.82	0.047
9.00	0.84	0.43	0.086	19.80	5.42	4.84	0.045
9.20	0.88	0.46	0.089	20.00	5.44	4.85	0.044
9.40	0.91	0.49	0.090				
9.60	0.95	0.52	0.092				
9.80	0.99	0.55	0.102				
10.00	1.03	0.59	0.112				
10.20 10.40	1.08 1.14	0.63 0.68	0.125 0.141				
10.40	1.14	0.66	0.141				
10.00	1.20	0.74	0.156				

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## Summary for Subcatchment 3S: Undetained

Runoff = 0.499 cfs @ 11.95 hrs, Volume = 1,131 cf, Depth > 5.19"

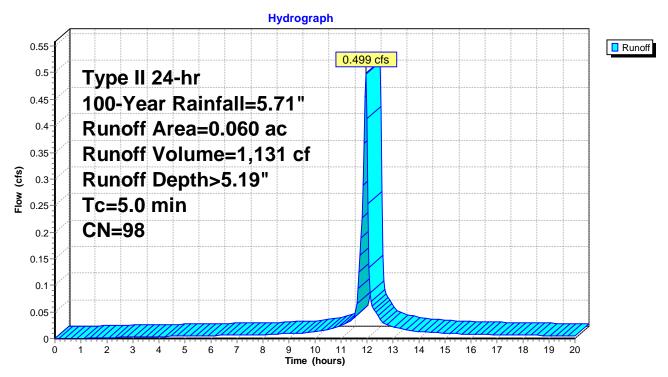
Routed to Link 4L: POST (Combined)

Type II 24-hr 100-Year Rainfall=5.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

Area	(ac)	CN	Desc	cription		
0.	060	98	Pave	ed parking,	HSG D	
0.	060		100.0	00% Imper	vious Area	
 Tc (min)	Lengt (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
 5.0						Direct Entry,

## **Subcatchment 3S: Undetained**



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## Hydrograph for Subcatchment 3S: Undetained

Cours   (inches)   (	Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
0.00								
0.20								
0.60	0.20	0.01	0.00	0.000	11.00	1.34	1.12	0.023
0.80								
1.00								
1.20         0.07         0.00         0.001         12.00         3.79         3.55         0.413           1.40         0.09         0.01         0.001         12.20         3.99         3.75         0.061           1.80         0.11         0.02         0.002         12.40         4.14         3.91         0.044           1.80         0.11         0.02         0.002         12.60         4.25         4.01         0.030           2.00         0.13         0.02         0.002         13.00         4.41         4.17         0.022           2.20         0.14         0.03         0.002         13.20         4.47         4.24         0.020           2.60         0.17         0.05         0.003         13.40         4.53         4.30         0.018           2.80         0.18         0.06         0.003         13.60         4.59         4.35         0.016           3.00         0.20         0.07         0.003         13.40         4.64         4.40         0.015           3.20         0.21         0.08         0.003         14.00         4.68         4.45         0.013           3.60         0.24 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>1.53</td><td></td></td<>							1.53	
1.40         0.09         0.01         0.001         12.20         3.99         3.75         0.061           1.60         0.10         0.01         0.001         12.40         4.14         3.91         0.044           1.80         0.11         0.02         0.002         12.60         4.25         4.01         0.030           2.00         0.13         0.02         0.002         12.80         4.33         4.10         0.026           2.20         0.14         0.03         0.002         13.00         4.41         4.17         0.022           2.60         0.17         0.05         0.003         13.40         4.53         4.30         0.018           2.80         0.18         0.06         0.003         13.60         4.59         4.35         0.018           2.80         0.18         0.06         0.003         13.60         4.59         4.35         0.018           3.00         0.21         0.08         0.003         14.00         4.68         4.45         0.013           3.40         0.23         0.09         0.003         14.20         4.72         4.49         0.012           3.60         0.24 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
1.60         0.10         0.01         0.001         12.40         4.14         3.91         0.044           1.80         0.11         0.02         0.002         12.60         4.25         4.01         0.030           2.00         0.13         0.02         0.002         12.80         4.33         4.10         0.022           2.20         0.14         0.03         0.002         13.00         4.41         4.17         0.022           2.40         0.15         0.04         0.002         13.20         4.47         4.24         0.020           2.80         0.18         0.06         0.003         13.60         4.59         4.35         0.018           3.00         0.20         0.07         0.003         13.80         4.64         4.40         0.015           3.20         0.21         0.08         0.003         14.20         4.72         4.49         0.012           3.60         0.24         0.10         0.003         14.40         4.76         4.53         0.012           3.80         0.26         0.11         0.004         14.80         4.84         4.60         0.011           4.00         0.27 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
1.80         0.111         0.022         0.0022         12.60         4.25         4.01         0.030           2.00         0.13         0.02         0.002         12.80         4.33         4.10         0.026           2.20         0.14         0.03         0.002         13.00         4.41         4.17         0.022           2.40         0.15         0.04         0.002         13.20         4.47         4.24         0.020           2.60         0.17         0.05         0.003         13.40         4.53         4.30         0.018           3.00         0.20         0.07         0.003         13.60         4.59         4.35         0.016           3.20         0.21         0.08         0.003         14.00         4.68         4.45         0.013           3.40         0.23         0.09         0.003         14.00         4.68         4.45         0.013           3.60         0.24         0.10         0.003         14.40         4.76         4.53         0.012           3.80         0.26         0.11         0.004         14.60         4.80         4.57         0.011           4.20         0.29								
2.00         0.13         0.02         0.002         12.80         4.33         4.10         0.026           2.20         0.14         0.03         0.002         13.00         4.41         4.17         0.022           2.40         0.15         0.04         0.002         13.20         4.47         4.24         0.020           2.60         0.17         0.05         0.003         13.40         4.53         4.30         0.018           2.80         0.18         0.06         0.003         13.60         4.59         4.35         0.016           3.00         0.20         0.07         0.003         13.80         4.64         4.40         0.013           3.40         0.23         0.09         0.003         14.20         4.72         4.49         0.012           3.60         0.24         0.10         0.003         14.40         4.76         4.53         0.012           3.80         0.26         0.11         0.004         14.80         4.84         4.60         0.011           4.00         0.27         0.12         0.004         14.80         4.84         4.60         0.011           4.20         0.29 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
2.20         0.14         0.03         0.002         13.00         4.41         4.17         0.022           2.40         0.15         0.04         0.002         13.20         4.47         4.24         0.020           2.80         0.18         0.06         0.003         13.60         4.59         4.35         0.016           3.00         0.20         0.07         0.003         13.80         4.64         4.40         0.013           3.40         0.23         0.09         0.003         14.00         4.72         4.49         0.012           3.60         0.24         0.10         0.003         14.40         4.76         4.53         0.012           3.80         0.26         0.11         0.004         14.80         4.80         4.57         0.011           4.00         0.27         0.12         0.004         14.80         4.84         4.60         0.011           4.20         0.29         0.14         0.004         15.00         4.87         4.64         0.011           4.40         0.31         0.15         0.004         15.20         4.91         4.67         0.010           4.80         0.34 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
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2.60 0.17 0.05 0.003 13.40 4.53 4.30 0.018 2.80 0.18 0.06 0.003 13.60 4.59 4.35 0.016 3.00 0.20 0.07 0.003 13.80 4.64 4.40 0.015 3.20 0.21 0.08 0.003 14.00 4.68 4.45 0.013 3.40 0.23 0.09 0.003 14.20 4.72 4.49 0.012 3.60 0.24 0.10 0.003 14.40 4.76 4.53 0.011 4.00 0.27 0.12 0.004 14.60 4.80 4.57 0.011 4.00 0.27 0.12 0.004 14.80 4.84 4.60 0.011 4.40 0.31 0.15 0.004 15.00 4.87 4.64 0.011 4.40 0.31 0.15 0.004 15.00 4.91 4.67 0.010 4.80 0.34 0.18 0.004 15.60 4.97 4.73 0.009 5.00 0.36 0.19 0.005 15.80 5.00 4.76 0.009 5.20 0.38 0.21 0.005 16.60 5.05 4.81 0.008 5.60 0.42 0.24 0.005 16.60 5.10 4.86 0.007 6.00 0.46 0.28 0.005 16.80 5.13 4.89 0.007 6.00 0.46 0.28 0.005 16.80 5.13 4.89 0.007 6.00 0.48 0.30 0.006 17.20 5.15 4.91 0.007 6.80 0.52 0.34 0.06 17.20 5.17 4.94 0.007 6.80 0.52 0.34 0.06 17.20 5.15 4.91 0.007 6.80 0.55 0.32 0.006 17.20 5.15 4.91 0.007 6.80 0.55 0.32 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.24 5.00 0.006 8.20 0.44 0.44 0.007 18.80 5.24 5.00 0.006 8.20 0.71 0.51 0.008 19.00 5.35 5.12 4.99 0.007 7.80 0.66 0.47 0.007 18.80 5.24 5.00 0.006 8.20 0.71 0.51 0.008 19.00 5.35 5.12 0.005 8.40 0.74 0.54 0.008 19.00 5.35 5.12 0.005 8.40 0.74 0.54 0.008 19.00 5.35 5.12 0.005 8.40 0.74 0.54 0.008 19.00 5.35 5.12 0.005 8.40 0.59 0.49 0.007 18.80 5.32 5.08 0.006 8.20 0.71 0.51 0.008 19.00 5.35 5.12 0.005 8.40 0.74 0.54 0.008 19.20 5.35 5.12 0.005 8.40 0.74 0.54 0.008 19.20 5.35 5.12 0.005 8.40 0.77 0.57 0.009 19.40 5.39 5.15 0.005 8.40 0.74 0.54 0.008 19.20 5.35 5.12 0.005 8.40 0.74 0.54 0.008 19.20 5.35 5.13 0.005 8.40 0.74 0.54 0.001 19.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005								
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3.00 0.20 0.07 0.003 13.80 4.64 4.40 0.015 3.20 0.21 0.08 0.003 14.00 4.68 4.45 0.013 3.40 0.23 0.09 0.003 14.20 4.72 4.49 0.012 3.60 0.24 0.10 0.003 14.40 4.76 4.53 0.012 3.80 0.26 0.11 0.004 14.60 4.80 4.57 0.011 4.00 0.27 0.12 0.004 14.80 4.84 4.60 0.011 4.20 0.29 0.14 0.004 15.00 4.87 4.64 0.011 4.40 0.31 0.15 0.004 15.20 4.91 4.67 0.010 4.60 0.32 0.16 0.004 15.40 4.94 4.70 0.010 4.80 0.34 0.18 0.004 15.60 4.97 4.73 0.009 5.20 0.38 0.21 0.005 15.80 5.00 4.76 0.009 5.20 0.38 0.21 0.005 16.00 5.02 4.79 0.008 5.40 0.40 0.23 0.005 16.20 5.05 4.81 0.008 5.60 0.42 0.24 0.005 16.60 5.10 4.86 0.007 6.00 0.46 0.28 0.005 16.60 5.10 4.86 0.007 6.00 0.46 0.28 0.005 16.80 5.13 4.89 0.007 6.20 0.48 0.30 0.006 17.00 5.15 4.91 0.007 6.40 0.50 0.32 0.006 17.20 5.17 4.94 0.007 6.40 0.50 0.32 0.006 17.20 5.17 4.94 0.007 6.80 0.54 0.36 0.006 17.40 5.19 4.96 0.007 6.80 0.54 0.36 0.006 17.40 5.19 4.96 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.24 5.00 0.006 7.40 0.61 0.42 0.007 18.80 5.22 4.98 0.007 7.80 0.69 0.49 0.006 17.80 5.22 4.98 0.007 7.80 0.69 0.49 0.007 18.80 5.32 5.08 0.006 8.20 0.71 0.51 0.008 19.20 5.35 5.12 0.006 8.20 0.71 0.51 0.008 19.20 5.35 5.12 0.005 8.80 0.80 0.60 0.47 0.007 18.80 5.32 5.08 0.006 8.20 0.71 0.51 0.008 19.20 5.37 5.13 0.005 8.80 0.80 0.60 0.010 19.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005								
3.20 0.21 0.08 0.003 14.00 4.68 4.45 0.013 3.40 0.23 0.09 0.003 14.20 4.72 4.49 0.012 3.60 0.24 0.10 0.003 14.40 4.76 4.53 0.012 3.80 0.26 0.11 0.004 14.60 4.80 4.57 0.011 4.00 0.27 0.12 0.004 14.80 4.84 4.60 0.011 4.20 0.29 0.14 0.004 15.00 4.87 4.64 0.011 4.40 0.31 0.15 0.004 15.20 4.91 4.67 0.010 4.60 0.32 0.16 0.004 15.40 4.94 4.70 0.010 4.80 0.34 0.18 0.004 15.60 4.97 4.73 0.009 5.00 0.36 0.19 0.005 15.80 5.00 4.76 0.009 5.20 0.38 0.21 0.005 16.00 5.02 4.79 0.008 5.40 0.40 0.23 0.005 16.20 5.05 4.81 0.008 5.60 0.42 0.24 0.005 16.60 5.02 4.80 0.008 5.80 0.44 0.26 0.005 16.60 5.10 4.86 0.007 6.00 0.46 0.28 0.005 16.80 5.10 4.86 0.007 6.20 0.48 0.30 0.006 17.00 5.15 4.91 0.007 6.40 0.50 0.32 0.006 17.20 5.17 4.94 0.007 6.40 0.50 0.32 0.006 17.20 5.17 4.94 0.007 6.80 0.54 0.36 0.006 17.80 5.22 4.98 0.007 6.80 0.54 0.36 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.40 0.61 0.42 0.007 18.20 5.24 5.00 0.006 7.20 0.59 0.40 0.006 18.00 5.26 5.02 0.006 7.40 0.61 0.42 0.007 18.80 5.24 5.00 0.006 7.60 0.64 0.44 0.007 18.80 5.24 5.00 0.006 7.60 0.64 0.44 0.007 18.80 5.22 4.98 0.007 7.80 0.66 0.47 0.007 18.80 5.24 5.00 0.006 8.20 0.71 0.51 0.008 19.00 5.35 5.12 0.005 8.80 0.80 0.60 0.010 19.80 5.35 5.12 0.005 8.80 0.80 0.60 0.010 19.80 5.35 5.12 0.005 8.80 0.80 0.60 0.010 19.80 5.35 5.12 0.005 8.80 0.80 0.60 0.010 19.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005								
3.40         0.23         0.09         0.003         14.20         4.72         4.49         0.012           3.60         0.24         0.10         0.003         14.40         4.76         4.53         0.012           3.80         0.26         0.11         0.004         14.60         4.80         4.57         0.011           4.00         0.27         0.12         0.004         14.80         4.84         4.60         0.011           4.20         0.29         0.14         0.004         15.00         4.87         4.64         0.011           4.40         0.31         0.15         0.004         15.20         4.91         4.67         0.010           4.60         0.32         0.16         0.004         15.60         4.97         4.73         0.009           5.00         0.36         0.19         0.005         15.80         5.00         4.76         0.009           5.20         0.38         0.21         0.005         16.00         5.02         4.79         0.008           5.40         0.40         0.23         0.005         16.20         5.05         4.81         0.008           5.60         0.42 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
3.60 0.24 0.10 0.003 14.40 4.76 4.53 0.012 3.80 0.26 0.11 0.004 14.60 4.80 4.57 0.011 4.00 0.27 0.12 0.004 14.80 4.87 4.64 0.011 4.20 0.29 0.14 0.004 15.00 4.87 4.64 0.011 4.40 0.31 0.15 0.004 15.20 4.91 4.67 0.010 4.60 0.32 0.16 0.004 15.40 4.94 4.70 0.010 4.80 0.34 0.18 0.004 15.80 5.00 4.76 0.009 5.20 0.38 0.21 0.005 16.00 5.02 4.79 0.008 5.40 0.40 0.23 0.005 16.20 5.05 4.81 0.008 5.60 0.42 0.24 0.005 16.60 5.02 4.79 0.008 5.80 0.44 0.26 0.005 16.80 5.13 4.89 0.007 6.00 0.46 0.28 0.005 16.80 5.13 4.89 0.007 6.20 0.48 0.30 0.006 17.00 5.15 4.91 0.007 6.40 0.50 0.32 0.006 17.20 5.17 4.94 0.007 6.80 0.52 0.34 0.006 17.60 5.22 4.98 0.007 6.80 0.54 0.34 0.006 17.60 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.00 0.57 0.38 0.006 17.80 5.22 4.98 0.007 7.80 0.66 0.47 0.007 18.40 5.32 5.08 0.006 7.80 0.66 0.47 0.007 18.40 5.32 5.08 0.006 7.80 0.66 0.47 0.007 18.40 5.32 5.08 0.006 8.20 0.71 0.51 0.008 19.20 5.25 5.00 0.006 7.80 0.66 0.47 0.007 18.40 5.32 5.08 0.006 8.20 0.71 0.51 0.008 19.20 5.37 5.13 0.005 8.40 0.74 0.54 0.008 19.20 5.37 5.13 0.005 8.80 0.80 0.60 0.010 19.40 5.39 5.15 0.005 8.80 0.80 0.60 0.010 19.40 5.39 5.15 0.005 8.80 0.80 0.60 0.010 19.40 5.39 5.15 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005 9.20 0.88 0.67 0.011 9.80 5.42 5.18 0.005								
3.80         0.26         0.11         0.004         14.60         4.80         4.57         0.011           4.00         0.27         0.12         0.004         14.80         4.84         4.60         0.011           4.20         0.29         0.14         0.004         15.00         4.87         4.64         0.011           4.40         0.31         0.15         0.004         15.20         4.91         4.67         0.010           4.60         0.32         0.16         0.004         15.40         4.94         4.70         0.010           4.80         0.34         0.18         0.004         15.60         4.97         4.73         0.009           5.00         0.36         0.19         0.005         15.80         5.00         4.76         0.009           5.20         0.38         0.21         0.005         16.60         5.02         4.79         0.008           5.40         0.40         0.23         0.005         16.60         5.02         4.79         0.008           5.80         0.44         0.26         0.005         16.60         5.10         4.86         0.007           6.00         0.52 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
4.00         0.27         0.12         0.004         14.80         4.84         4.60         0.011           4.20         0.29         0.14         0.004         15.00         4.87         4.64         0.011           4.40         0.31         0.15         0.004         15.20         4.91         4.67         0.010           4.60         0.32         0.16         0.004         15.40         4.94         4.70         0.010           4.80         0.34         0.18         0.004         15.60         4.97         4.73         0.009           5.00         0.36         0.19         0.005         15.80         5.00         4.76         0.009           5.20         0.38         0.21         0.005         16.00         5.02         4.79         0.008           5.40         0.40         0.23         0.005         16.60         5.05         4.81         0.008           5.80         0.44         0.26         0.005         16.60         5.10         4.86         0.007           6.00         0.46         0.28         0.005         16.80         5.13         4.89         0.007           6.20         0.48 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
4.20         0.29         0.14         0.004         15.00         4.87         4.64         0.011           4.40         0.31         0.15         0.004         15.20         4.91         4.67         0.010           4.60         0.32         0.16         0.004         15.40         4.94         4.70         0.010           4.80         0.34         0.18         0.004         15.60         4.97         4.73         0.009           5.00         0.36         0.19         0.005         15.80         5.00         4.76         0.009           5.20         0.38         0.21         0.005         16.00         5.02         4.79         0.008           5.40         0.40         0.23         0.005         16.20         5.05         4.81         0.008           5.60         0.42         0.24         0.005         16.60         5.10         4.86         0.007           6.00         0.46         0.28         0.005         16.80         5.13         4.89         0.007           6.20         0.48         0.30         0.006         17.20         5.17         4.94         0.007           6.40         0.52 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
4.40         0.31         0.15         0.004         15.20         4.91         4.67         0.010           4.60         0.32         0.16         0.004         15.40         4.94         4.70         0.010           4.80         0.34         0.18         0.004         15.60         4.97         4.73         0.009           5.00         0.36         0.19         0.005         15.80         5.00         4.76         0.009           5.20         0.38         0.21         0.005         16.00         5.02         4.79         0.008           5.40         0.40         0.23         0.005         16.20         5.05         4.81         0.008           5.60         0.42         0.24         0.005         16.40         5.08         4.84         0.008           5.80         0.44         0.26         0.005         16.60         5.10         4.86         0.007           6.00         0.48         0.30         0.006         17.00         5.15         4.91         0.007           6.40         0.50         0.32         0.006         17.40         5.19         4.96         0.007           6.80         0.54 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
4.60       0.32       0.16       0.004       15.40       4.94       4.70       0.010         4.80       0.34       0.18       0.004       15.60       4.97       4.73       0.009         5.00       0.36       0.19       0.005       15.80       5.00       4.76       0.009         5.20       0.38       0.21       0.005       16.00       5.02       4.79       0.008         5.40       0.40       0.23       0.005       16.20       5.05       4.81       0.008         5.60       0.42       0.24       0.005       16.60       5.10       4.86       0.008         5.80       0.44       0.26       0.005       16.60       5.10       4.86       0.007         6.00       0.46       0.28       0.005       16.80       5.13       4.89       0.007         6.20       0.48       0.30       0.006       17.00       5.15       4.91       0.007         6.40       0.50       0.32       0.006       17.40       5.19       4.96       0.007         6.80       0.54       0.36       0.006       17.60       5.22       4.98       0.007         7.00								
4.80       0.34       0.18       0.004       15.60       4.97       4.73       0.009         5.00       0.36       0.19       0.005       15.80       5.00       4.76       0.009         5.20       0.38       0.21       0.005       16.00       5.02       4.79       0.008         5.40       0.40       0.23       0.005       16.20       5.05       4.81       0.008         5.60       0.42       0.24       0.005       16.40       5.08       4.84       0.008         5.80       0.44       0.26       0.005       16.60       5.10       4.86       0.007         6.00       0.46       0.28       0.005       16.80       5.13       4.89       0.007         6.20       0.48       0.30       0.006       17.00       5.15       4.91       0.007         6.40       0.50       0.32       0.006       17.20       5.17       4.94       0.007         6.80       0.54       0.36       0.006       17.60       5.22       4.98       0.007         7.00       0.57       0.38       0.006       17.80       5.26       5.02       0.006         7.40								
5.00         0.36         0.19         0.005         15.80         5.00         4.76         0.009           5.20         0.38         0.21         0.005         16.00         5.02         4.79         0.008           5.40         0.40         0.23         0.005         16.20         5.05         4.81         0.008           5.60         0.42         0.005         16.40         5.08         4.84         0.008           5.80         0.44         0.26         0.005         16.60         5.10         4.86         0.007           6.00         0.46         0.28         0.005         16.60         5.13         4.89         0.007           6.20         0.48         0.30         0.006         17.00         5.15         4.91         0.007           6.40         0.50         0.32         0.006         17.40         5.19         4.96         0.007           6.60         0.52         0.34         0.006         17.60         5.22         4.98         0.007           6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
5.40         0.40         0.23         0.005         16.20         5.05         4.81         0.008           5.60         0.42         0.24         0.005         16.40         5.08         4.84         0.008           5.80         0.44         0.26         0.005         16.60         5.10         4.86         0.007           6.00         0.46         0.28         0.005         16.80         5.13         4.89         0.007           6.20         0.48         0.30         0.006         17.00         5.15         4.91         0.007           6.40         0.50         0.32         0.006         17.20         5.17         4.94         0.007           6.60         0.52         0.34         0.006         17.40         5.19         4.96         0.007           6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.80         0.66 <td< td=""><td></td><td></td><td></td><td>0.005</td><td></td><td></td><td></td><td></td></td<>				0.005				
5.60         0.42         0.24         0.005         16.40         5.08         4.84         0.008           5.80         0.44         0.26         0.005         16.60         5.10         4.86         0.007           6.00         0.46         0.28         0.005         16.80         5.13         4.89         0.007           6.20         0.48         0.30         0.006         17.00         5.15         4.91         0.007           6.40         0.50         0.32         0.006         17.20         5.17         4.94         0.007           6.60         0.52         0.34         0.006         17.40         5.19         4.96         0.007           6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.40         5.30         5.06         0.006           7.80         0.66 <td< td=""><td>5.20</td><td>0.38</td><td>0.21</td><td>0.005</td><td>16.00</td><td>5.02</td><td>4.79</td><td>0.008</td></td<>	5.20	0.38	0.21	0.005	16.00	5.02	4.79	0.008
5.80         0.44         0.26         0.005         16.60         5.10         4.86         0.007           6.00         0.46         0.28         0.005         16.80         5.13         4.89         0.007           6.20         0.48         0.30         0.006         17.00         5.15         4.91         0.007           6.40         0.50         0.32         0.006         17.20         5.17         4.94         0.007           6.60         0.52         0.34         0.006         17.40         5.19         4.96         0.007           6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.80         5.32         5.08         0.006           8.00         0.69 <td< td=""><td></td><td></td><td></td><td>0.005</td><td></td><td></td><td></td><td>0.008</td></td<>				0.005				0.008
6.00         0.46         0.28         0.005         16.80         5.13         4.89         0.007           6.20         0.48         0.30         0.006         17.00         5.15         4.91         0.007           6.40         0.50         0.32         0.006         17.20         5.17         4.94         0.007           6.60         0.52         0.34         0.006         17.40         5.19         4.96         0.007           6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.80         0.66         0.47         0.007         18.60         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.005           8.40         0.71 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
6.20         0.48         0.30         0.006         17.00         5.15         4.91         0.007           6.40         0.50         0.32         0.006         17.20         5.17         4.94         0.007           6.60         0.52         0.34         0.006         17.40         5.19         4.96         0.007           6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.60         0.64         0.44         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.80         5.34         5.10         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.005           8.40         0.74 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
6.40         0.50         0.32         0.006         17.20         5.17         4.94         0.007           6.60         0.52         0.34         0.006         17.40         5.19         4.96         0.007           6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.60         0.64         0.44         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.80         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.006           8.20         0.71         0.51         0.008         19.00         5.35         5.12         0.005           8.40         0.74 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
6.60         0.52         0.34         0.006         17.40         5.19         4.96         0.007           6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.60         0.64         0.44         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.60         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.006           8.20         0.71         0.51         0.008         19.00         5.35         5.12         0.005           8.40         0.74         0.54         0.008         19.20         5.37         5.13         0.005           8.80         0.80 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
6.80         0.54         0.36         0.006         17.60         5.22         4.98         0.007           7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.60         0.64         0.44         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.60         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.006           8.20         0.71         0.51         0.008         19.00         5.35         5.12         0.005           8.40         0.74         0.54         0.008         19.20         5.37         5.13         0.005           8.80         0.80         0.60         0.010         19.60         5.41         5.17         0.005           9.20         0.88 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
7.00         0.57         0.38         0.006         17.80         5.24         5.00         0.006           7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.60         0.64         0.44         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.60         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.006           8.20         0.71         0.51         0.008         19.00         5.35         5.12         0.005           8.40         0.74         0.54         0.008         19.20         5.37         5.13         0.005           8.60         0.77         0.57         0.009         19.40         5.39         5.15         0.005           8.80         0.80         0.60         0.010         19.80         5.42         5.18         0.005           9.40         0.91 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
7.20         0.59         0.40         0.006         18.00         5.26         5.02         0.006           7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.60         0.64         0.44         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.60         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.006           8.20         0.71         0.51         0.008         19.00         5.35         5.12         0.005           8.40         0.74         0.54         0.008         19.20         5.37         5.13         0.005           8.60         0.77         0.57         0.009         19.40         5.39         5.15         0.005           8.80         0.80         0.60         0.010         19.60         5.41         5.17         0.005           9.20         0.88         0.67         0.011         20.00         5.44         5.20         0.005           9.40         0.91 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
7.40         0.61         0.42         0.007         18.20         5.28         5.04         0.006           7.60         0.64         0.44         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.60         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.006           8.20         0.71         0.51         0.008         19.00         5.35         5.12         0.005           8.40         0.74         0.54         0.008         19.20         5.37         5.13         0.005           8.60         0.77         0.57         0.009         19.40         5.39         5.15         0.005           8.80         0.80         0.60         0.010         19.60         5.41         5.17         0.005           9.00         0.84         0.64         0.010         19.80         5.42         5.18         0.005           9.40         0.91         0.71         0.011         20.00         5.44         5.20         0.005           10.00         1.03 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>								
7.60         0.64         0.44         0.007         18.40         5.30         5.06         0.006           7.80         0.66         0.47         0.007         18.60         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.006           8.20         0.71         0.51         0.008         19.00         5.35         5.12         0.005           8.40         0.74         0.54         0.008         19.20         5.37         5.13         0.005           8.60         0.77         0.57         0.009         19.40         5.39         5.15         0.005           8.80         0.80         0.60         0.010         19.60         5.41         5.17         0.005           9.00         0.84         0.64         0.010         19.80         5.42         5.18         0.005           9.20         0.88         0.67         0.011         20.00         5.44         5.20         0.005           9.40         0.91         0.71         0.011         20.00         5.44         5.20         0.005           10.00         1.03 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>								
7.80         0.66         0.47         0.007         18.60         5.32         5.08         0.006           8.00         0.69         0.49         0.007         18.80         5.34         5.10         0.006           8.20         0.71         0.51         0.008         19.00         5.35         5.12         0.005           8.40         0.74         0.54         0.008         19.20         5.37         5.13         0.005           8.60         0.77         0.57         0.009         19.40         5.39         5.15         0.005           8.80         0.80         0.60         0.010         19.60         5.41         5.17         0.005           9.00         0.84         0.64         0.010         19.80         5.42         5.18         0.005           9.20         0.88         0.67         0.011         20.00         5.44         5.20         0.005           9.40         0.91         0.71         0.011         20.00         5.44         5.20         0.005           10.00         1.03         0.82         0.013         0.012         0.014         0.014         0.014         0.014         0.016         0.016								
8.00       0.69       0.49       0.007       18.80       5.34       5.10       0.006         8.20       0.71       0.51       0.008       19.00       5.35       5.12       0.005         8.40       0.74       0.54       0.008       19.20       5.37       5.13       0.005         8.60       0.77       0.57       0.009       19.40       5.39       5.15       0.005         8.80       0.80       0.60       0.010       19.60       5.41       5.17       0.005         9.00       0.84       0.64       0.010       19.80       5.42       5.18       0.005         9.20       0.88       0.67       0.011       20.00       5.44       5.20       0.005         9.40       0.91       0.71       0.011       20.00       5.44       5.20       0.005         9.80       0.99       0.78       0.012       0.013       0.012       0.014       0.014       0.014       0.014       0.014       0.014       0.014       0.016       0.016       0.016       0.016       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005								
8.20       0.71       0.51       0.008       19.00       5.35       5.12       0.005         8.40       0.74       0.54       0.008       19.20       5.37       5.13       0.005         8.60       0.77       0.57       0.009       19.40       5.39       5.15       0.005         8.80       0.80       0.60       0.010       19.60       5.41       5.17       0.005         9.00       0.84       0.64       0.010       19.80       5.42       5.18       0.005         9.20       0.88       0.67       0.011       20.00       5.44       5.20       0.005         9.40       0.91       0.71       0.011       20.00       5.44       5.20       0.005         9.80       0.99       0.78       0.012       0.013       0.012       0.013       0.014       0.014       0.014       0.014       0.014       0.014       0.016       0.016       0.016       0.016       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005       0.005 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
8.40       0.74       0.54       0.008       19.20       5.37       5.13       0.005         8.60       0.77       0.57       0.009       19.40       5.39       5.15       0.005         8.80       0.80       0.60       0.010       19.60       5.41       5.17       0.005         9.00       0.84       0.64       0.010       19.80       5.42       5.18       0.005         9.20       0.88       0.67       0.011       20.00       5.44       5.20       0.005         9.40       0.91       0.71       0.011       20.00       5.44       5.20       0.005         9.40       0.95       0.74       0.011       0.								
8.60     0.77     0.57     0.009     19.40     5.39     5.15     0.005       8.80     0.80     0.60     0.010     19.60     5.41     5.17     0.005       9.00     0.84     0.64     0.010     19.80     5.42     5.18     0.005       9.20     0.88     0.67     0.011     20.00     5.44     5.20     0.005       9.40     0.91     0.71     0.011       9.60     0.95     0.74     0.011       9.80     0.99     0.78     0.012       10.00     1.03     0.82     0.013       10.20     1.08     0.87     0.014       10.40     1.14     0.92     0.016								
8.80     0.80     0.60     0.010     19.60     5.41     5.17     0.005       9.00     0.84     0.64     0.010     19.80     5.42     5.18     0.005       9.20     0.88     0.67     0.011     20.00     5.44     5.20     0.005       9.40     0.91     0.71     0.011       9.60     0.95     0.74     0.011       9.80     0.99     0.78     0.012       10.00     1.03     0.82     0.013       10.20     1.08     0.87     0.014       10.40     1.14     0.92     0.016								
9.00     0.84     0.64     0.010     19.80     5.42     5.18     0.005       9.20     0.88     0.67     0.011     20.00     5.44     5.20     0.005       9.40     0.91     0.71     0.011       9.60     0.95     0.74     0.011       9.80     0.99     0.78     0.012       10.00     1.03     0.82     0.013       10.20     1.08     0.87     0.014       10.40     1.14     0.92     0.016								
9.20     0.88     0.67     0.011     20.00     5.44     5.20     0.005       9.40     0.91     0.71     0.011       9.60     0.95     0.74     0.011       9.80     0.99     0.78     0.012       10.00     1.03     0.82     0.013       10.20     1.08     0.87     0.014       10.40     1.14     0.92     0.016								
9.40     0.91     0.71     0.011       9.60     0.95     0.74     0.011       9.80     0.99     0.78     0.012       10.00     1.03     0.82     0.013       10.20     1.08     0.87     0.014       10.40     1.14     0.92     0.016								
9.60 0.95 0.74 0.011 9.80 0.99 0.78 0.012 10.00 1.03 0.82 0.013 10.20 1.08 0.87 0.014 10.40 1.14 0.92 0.016						• • • • • • • • • • • • • • • • • • • •	00	
9.80 0.99 0.78 0.012 10.00 1.03 0.82 0.013 10.20 1.08 0.87 0.014 10.40 1.14 0.92 0.016								
10.00     1.03     0.82     0.013       10.20     1.08     0.87     0.014       10.40     1.14     0.92     0.016								
10.40 1.14 0.92 0.016								
				0.014				
10.60 1.20 0.98 0.018								
	10.60	1.20	0.98	0.018				

## 1856.21 Wilkins Twp Zips\_additional pay lane\_b

Type II 24-hr 100-Year Rainfall=5.71"

Prepared by {enter your company name here}

Printed 5/5/2023

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## **Summary for Pond 3P: UG**

Inflow Area = 25,265 sf, 82.76% Impervious, Inflow Depth > 4.85" for 100-Year event

Inflow 4.728 cfs @ 11.95 hrs. Volume= 10.206 cf

2.057 cfs @ 12.05 hrs, Volume= 10,144 cf, Atten= 56%, Lag= 5.8 min Outflow

2.057 cfs @ 12.05 hrs, Volume= Primary 10,144 cf

Routed to Link 4L : POST (Combined)

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs Peak Elev= 982.05' @ 12.06 hrs Surf.Area= 1,190 sf Storage= 2,882 cf

Plug-Flow detention time= 21.0 min calculated for 10,124 cf (99% of inflow)

Center-of-Mass det. time= 18.3 min (746.6 - 728.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	977.55'	1,405 cf	17.00'W x 70.00'L x 4.50'H Field A
			5,355 cf Overall - 1,843 cf Embedded = 3,512 cf x 40.0% Voids
#2A	978.05'	1,477 cf	<b>ADS N-12 36"</b> x 9 Inside #1
			Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf
			Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf
			9 Chambers in 3 Rows
			14.00' Header x 7.10 sf x 2 = 198.8 cf Inside

2,882 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	977.55'	12.0" Round Culvert
			L= 45.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 977.55' / 976.65' S= 0.0200 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	977.55'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	981.05'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	981.95'	2.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#5	Device 1	982.90'	<b>2.0" x 4.0" Horiz. Orifice/Grate</b> C= 0.600
			Limited to weir flow at low heads

**Primary OutFlow** Max=2.001 cfs @ 12.05 hrs HW=982.00' (Free Discharge) **1=Culvert** (Passes 2.001 cfs of 5.937 cfs potential flow)

**2=Orifice/Grate** (Orifice Controls 1.353 cfs @ 9.92 fps)

-3=Orifice/Grate (Orifice Controls 0.567 cfs @ 4.16 fps)

**-4=Sharp-Crested Rectangular Weir** (Weir Controls 0.081 cfs @ 0.76 fps)

**-5=Orifice/Grate** (Controls 0.000 cfs)

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## Pond 3P: UG - Chamber Wizard Field A

## Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.2 cf

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

3 Chambers/Row x 20.00' Long +3.50' Header x 2 = 67.00' Row Length +18.0" End Stone x 2 = 70.00' Base Length

3 Rows x 42.0" Wide + 21.0" Spacing x 2 + 18.0" Side Stone x 2 = 17.00' Base Width 6.0" Stone Base + 42.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

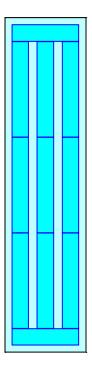
9 Chambers x 142.0 cf + 14.00' Header x 7.10 sf x 2 = 1,476.8 cf Chamber Storage

9 Chambers x 177.2 cf + 14.00' Header x 8.86 sf x 2 = 1,843.1 cf Displacement

5,355.0 cf Field - 1,843.1 cf Chambers = 3,511.9 cf Stone x 40.0% Voids = 1,404.8 cf Stone Storage

Chamber Storage + Stone Storage = 2,881.6 cf = 0.066 af Overall Storage Efficiency = 53.8% Overall System Size = 70.00' x 17.00' x 4.50'

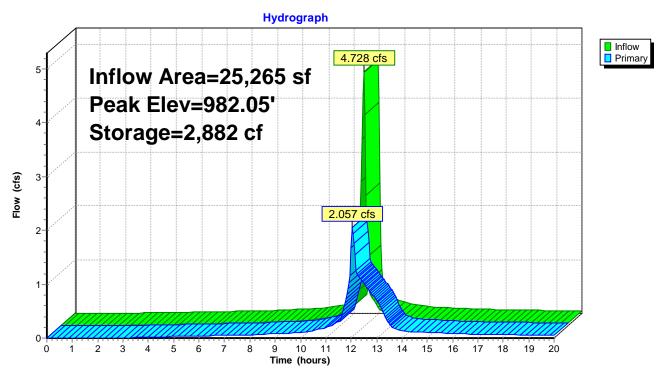
9 Chambers 198.3 cy Field 130.1 cy Stone





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Pond 3P: UG



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# Hydrograph for Pond 3P: UG

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.000	0	977.55	0.000
0.40	0.000	0	977.55	0.000
0.80	0.000	0	977.55	0.000
1.20	0.000	0	977.55	0.000
1.60	0.000	0	977.55	0.000
2.00	0.002	1	977.55	0.000
2.40	0.006	5	977.56	0.002
2.80	0.010	13	977.58	0.004
3.20	0.013	21	977.59	0.007
3.60	0.016	30	977.61	0.012 0.016
4.00	0.019	35 39	977.62	
4.40 4.80	0.023 0.027	43	977.63 977.64	0.020 0.024
5.20	0.027	43 47	977.65	0.024
5.60	0.034	51	977.66	0.027
6.00	0.034	55	977.66	0.036
6.40	0.042	57	977.67	0.040
6.80	0.045	60	977.68	0.043
7.20	0.049	63	977.68	0.047
7.60	0.053	65	977.69	0.051
8.00	0.056	68	977.69	0.054
8.40	0.067	73	977.70	0.061
8.80	0.079	81	977.72	0.074
9.20	0.089	88	977.73	0.086
9.60	0.092	90	977.74	0.090
10.00	0.112	98	977.76	0.105
10.40	0.141	111	977.78	0.130
10.80	0.183	129	977.82	0.167
11.20	0.256	157	977.88	0.226
11.60	0.596	238	978.05	0.354
12.00	3.925	2,676	981.62	1.684
12.40	0.420	2,013	980.50	1.087
12.80	0.249	1,072	979.35	0.829
13.20	0.190	393	978.42	0.534
13.60	0.154	147	977.86	0.204
14.00	0.127	115	977.79	0.138
14.40	0.115	106	977.77	0.119
14.80	0.106	101	977.76	0.109
15.20	0.096	96	977.75	0.100
15.60 16.00	0.087 0.078	90 85	977.74 977.73	0.091 0.082
16.40	0.078	81	977.73	0.062
16.40	0.073	79	977.72	0.073
17.20	0.067	79 78	977.72	0.068
17.20	0.064	76 76	977.71	0.065
18.00	0.060	73	977.70	0.062
18.40	0.057	73	977.70	0.059
18.80	0.054	69	977.69	0.055
19.20	0.050	66	977.69	0.052
19.60	0.047	64	977.68	0.049
20.00	0.044	61	977.68	0.045

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## **Summary for Link 4L: POST (Combined)**

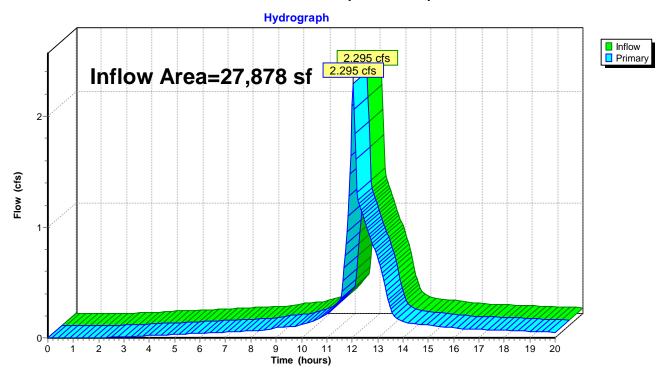
Inflow Area = 27,878 sf, 84.38% Impervious, Inflow Depth > 4.85" for 100-Year event

Inflow = 2.295 cfs @ 12.04 hrs, Volume= 11,276 cf

Primary = 2.295 cfs @ 12.04 hrs, Volume= 11,276 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.04 hrs

## Link 4L: POST (Combined)

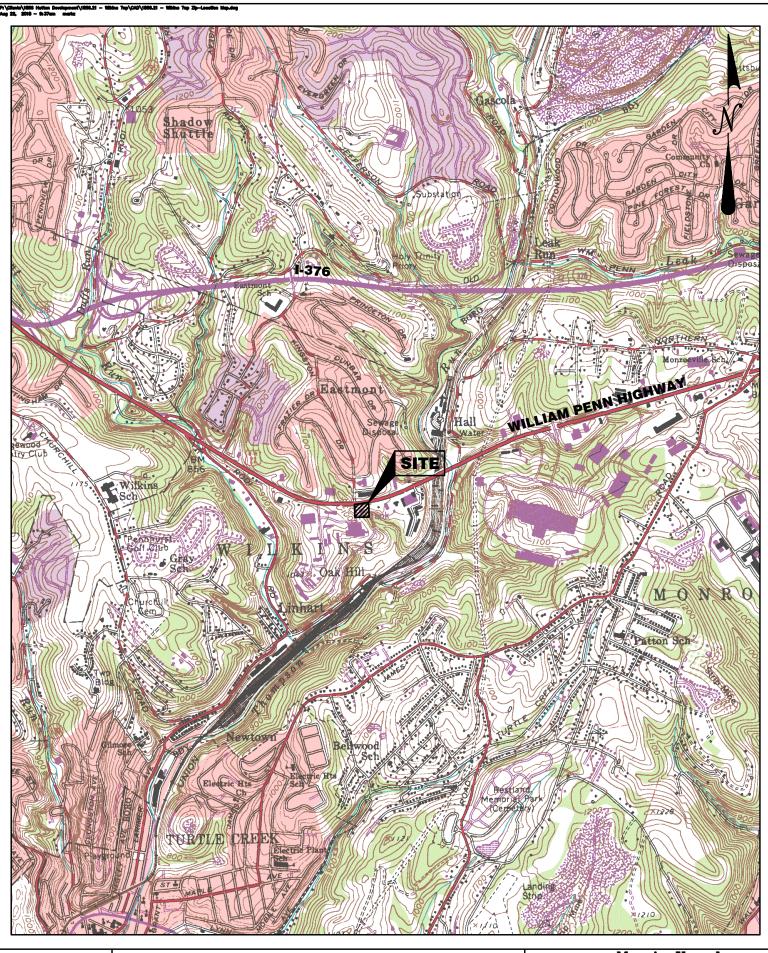


# Hydrograph for Link 4L: POST (Combined)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.000	0.00	0.000	10.80	0.188	0.00	0.188
0.20	0.000	0.00	0.000	11.00	0.216	0.00	0.216
0.40	0.000	0.00	0.000	11.20	0.254	0.00	0.254
0.60	0.000	0.00	0.000	11.40	0.234	0.00	0.234
0.80	0.000	0.00	0.000	11.60	0.419	0.00	0.419
1.00	0.000	0.00	0.000	11.80	0.419	0.00	0.419
1.20	0.000	0.00	0.000	12.00	2.097	0.00	2.097
1.40	0.001	0.00	0.001	12.00	1.316	0.00	1.316
1.60	0.001	0.00	0.001	12.40	1.131	0.00	1.131
1.80	0.001	0.00		12.40	0.991	0.00	0.991
2.00		0.00	0.002	12.80		0.00	
	0.002		0.002		0.855		0.855
2.20	0.003	0.00	0.003	13.00	0.714	0.00	0.714
2.40	0.004	0.00	0.004	13.20	0.554	0.00	0.554
2.60	0.005	0.00	0.005	13.40	0.344	0.00	0.344
2.80	0.007	0.00	0.007	13.60	0.221	0.00	0.221
3.00	0.008	0.00	0.008	13.80	0.173	0.00	0.173
3.20	0.010	0.00	0.010	14.00	0.152	0.00	0.152
3.40	0.012	0.00	0.012	14.20	0.138	0.00	0.138
3.60	0.015	0.00	0.015	14.40	0.131	0.00	0.131
3.80	0.018	0.00	0.018	14.60	0.125	0.00	0.125
4.00	0.020	0.00	0.020	14.80	0.120	0.00	0.120
4.20	0.022	0.00	0.022	15.00	0.115	0.00	0.115
4.40	0.024	0.00	0.024	15.20	0.110	0.00	0.110
4.60	0.026	0.00	0.026	15.40	0.105	0.00	0.105
4.80	0.028	0.00	0.028	15.60	0.100	0.00	0.100
5.00	0.030	0.00	0.030	15.80	0.095	0.00	0.095
5.20	0.032	0.00	0.032	16.00	0.090	0.00	0.090
5.40	0.034	0.00	0.034	16.20	0.085	0.00	0.085
5.60	0.036	0.00	0.036	16.40	0.083	0.00	0.083
5.80	0.039	0.00	0.039	16.60	0.081	0.00	0.081
6.00	0.041	0.00	0.041	16.80	0.079	0.00	0.079
6.20	0.043	0.00	0.043	17.00	0.077	0.00	0.077
6.40	0.045	0.00	0.045	17.20	0.075	0.00	0.075
6.60	0.047	0.00	0.047	17.40	0.073	0.00	0.073
6.80	0.049	0.00	0.049	17.60	0.072	0.00	0.072
7.00	0.052	0.00	0.052	17.80	0.070	0.00	0.070
7.20	0.054	0.00	0.054	18.00	0.068	0.00	0.068
7.40	0.056	0.00	0.056	18.20	0.066	0.00	0.066
7.60	0.057	0.00	0.057	18.40	0.065	0.00	0.065
7.80	0.059	0.00	0.059	18.60	0.063	0.00	0.063
8.00	0.061	0.00	0.061	18.80	0.061	0.00	0.061
8.20	0.064	0.00	0.064	19.00	0.059	0.00	0.059
8.40	0.070	0.00	0.070	19.20	0.057	0.00	0.057
8.60	0.076	0.00	0.076	19.40	0.055	0.00	0.055
8.80	0.084	0.00	0.084	19.60	0.054	0.00	0.054
9.00	0.091	0.00	0.091	19.80	0.052	0.00	0.052
9.20	0.097	0.00	0.097	20.00	0.050	0.00	0.050
9.40	0.099	0.00	0.099				
9.60	0.101	0.00	0.101				
9.80	0.108	0.00	0.108				
10.00	0.118	0.00	0.118				
10.20	0.130	0.00	0.130				
10.40	0.147	0.00	0.147				
10.60	0.164	0.00	0.164				

Soil and Location Maps

Section 3



DESIGNED BY: MMZ
REVIEWED BY: MMZ
DRAWN BY: MMZ
DATE: AUGUST 2018
SCALE: 1"=2000'
PROJ. NO.: 1856.21

USGS LOCATION MAP (BRADDOCK, PA)

ZIPS CAR WASH

prepared for

HUTTON ST 17, LLC

situated

WILKINS TOWNSHIP, ALLEGHENY COUNTY, PA



Morris Knowles
& Associates, Inc.
(A Hemmontres Company)

Sensuling Senjaners and Yand Yuroupers
443 Athena Drive
Delmont, PA 15628
Telephone: (724) 468-4622
Fox: (724) 468-6840



#### MAP LEGEND

#### Area of Interest (AOI)

Area of Interest (AOI)

#### Soils

Soil Map Unit Polygons



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

Saline Spot
Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

#### LEGEND

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

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 1:15.800.

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.

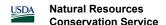
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Allegheny County, Pennsylvania Survey Area Data: Version 12, Oct 27, 2017

Soil map units are labeled (as space allows) for map scales 1:50.000 or larger.

Date(s) aerial images were photographed: Jul 5, 2014—Aug 28, 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.

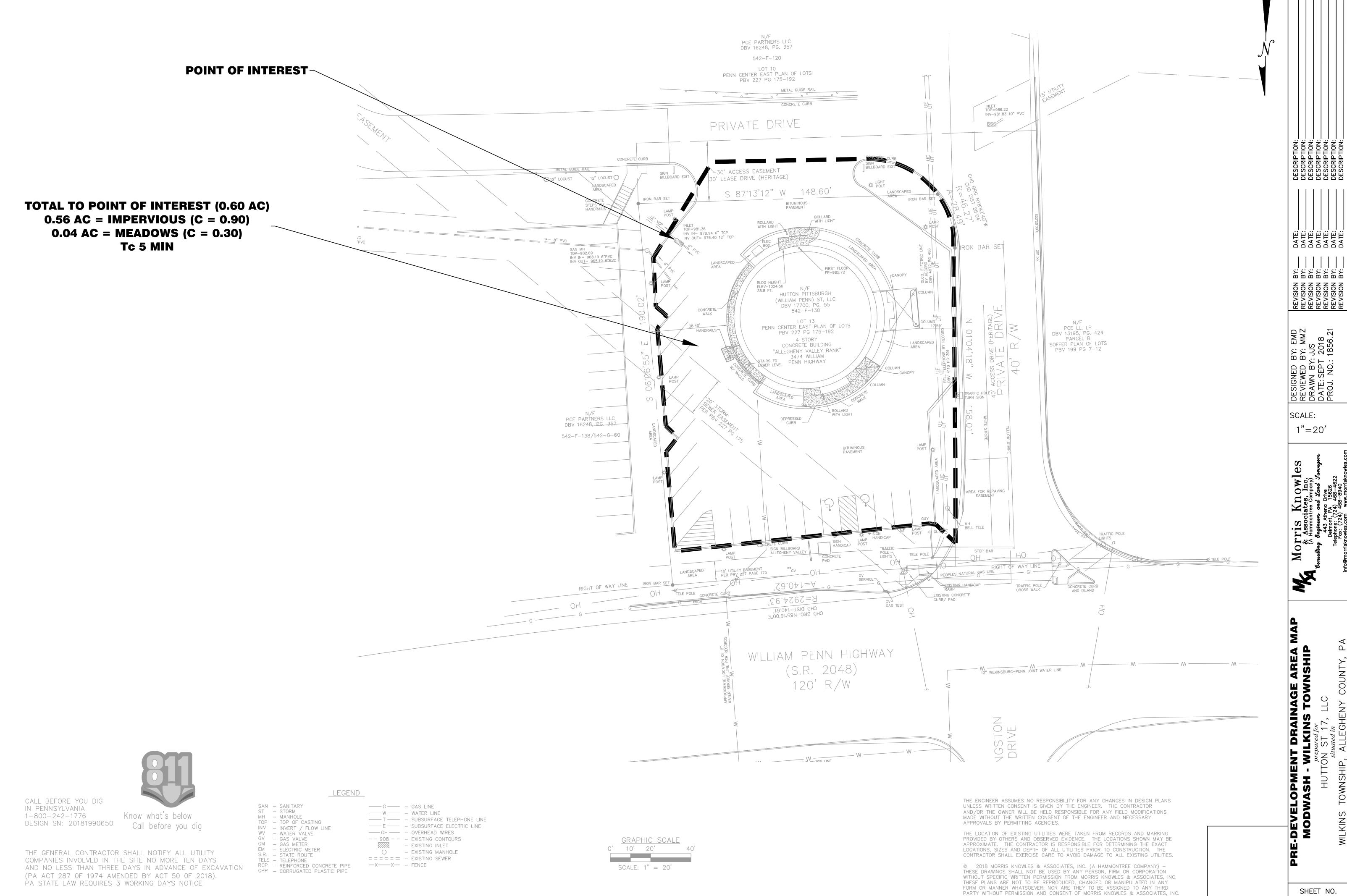


# **Map Unit Legend**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UWB	Urban land-Wharton complex, gently sloping	0.9	100.0%
Totals for Area of Interest		0.9	100.0%

Drainage Maps

Section 4



SHEET NO.  $\mathsf{E}\mathsf{-}\mathsf{D}\mathsf{A}$ 

**POINT OF INTEREST** N/F PCE PARTNERS LLC DBV 16248, PG. 357 PRIVATE DRIVE 542-F-120 30' ACCESS EASEMENT 30' LEASE DRIVE (HERITAGE) LOT 10
PENN CENTER EAST PLAN OF LOTS
PBV 227 PG 175-102 UNDETAINED AREA (0.12 AC) 0.06 AC = IMPERVIOUS (C = 0.90)0.00 AC = MEADOWS (C = 0.30)S 87°15'12" W Tc 5 MIN **DETAINED AREA (0.45 AC)** 0.48 AC = IMPERVIOUS (C = 0.90)0.10 AC = MEADOWS (C = 0.30)Tc 5 MIN N/F PCE LL, LP DBV 13195, PG. 424 PARCEL B SOFFER PLAN OF LOTS PBV 199 PG 7—12 N/F AGREE STORES LLC DBV 17402, PG. 281 542-F-138/542-G-60 SUBDIVISION LINE STOP BAR PEOPLES NATURAL GAS LINE \_ CONCRETE CURB/PAD R=2924.93° CHD DIST=140.61' CHD BRG=N85'16'00"E WILLIAM PENN HIGHWAY (S.R. 2048)

120 R/W 12" WILKINSBURG-PENN JOINT WATER LINE 8" WILKINSBURG-PENN JOINT WATER LINE <u>LEGEND</u> THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS SAN - SANITARY UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR ST - STORM AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS ----W---- - WATER LINE Know what's below MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY T - SUBSURFACE TELEPHONE LINE

CALL BEFORE YOU DIG IN PENNSYLVANIA 1-800-242-1776 DESIGN SN: 20181990650

Call before you dig

THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION (PA ACT 287 OF 1974 AMENDED BY ACT 50 OF 2018). PA STATE LAW REQUIRES 3 WORKING DAYS NOTICE

MH - MANHOLE TOP - TOP OF CASTING INV - INVERT / FLOW LINE WV - WATER VALVE GV — GAS VALVE GM - GAS METER EM - ELECTRIC METER S.R. - STATE ROUTE

RCP — REINFORCED CONCRETE PIPE CPP — CORRUGATED PLASTIC PIPE

TELE - TELEPHONE

----E --- - SUBSURFACE ELECTRIC LINE ----OH --- - OVERHEAD WIRES -- 908 -- - EXISTING CONTOURS - EXISTING INLET O - EXISTING MANHOLE = = = = = = EXISTING SEWER

—X——X— - FENCE

GRAPHIC SCALE 0' 10' 20' 40' SCALE: 1" = 20'

APPROVALS BY PERMITTING AGENCIES.

THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

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SHEET NO.

DATE: DATE: DATE: DATE: DATE: DATE:

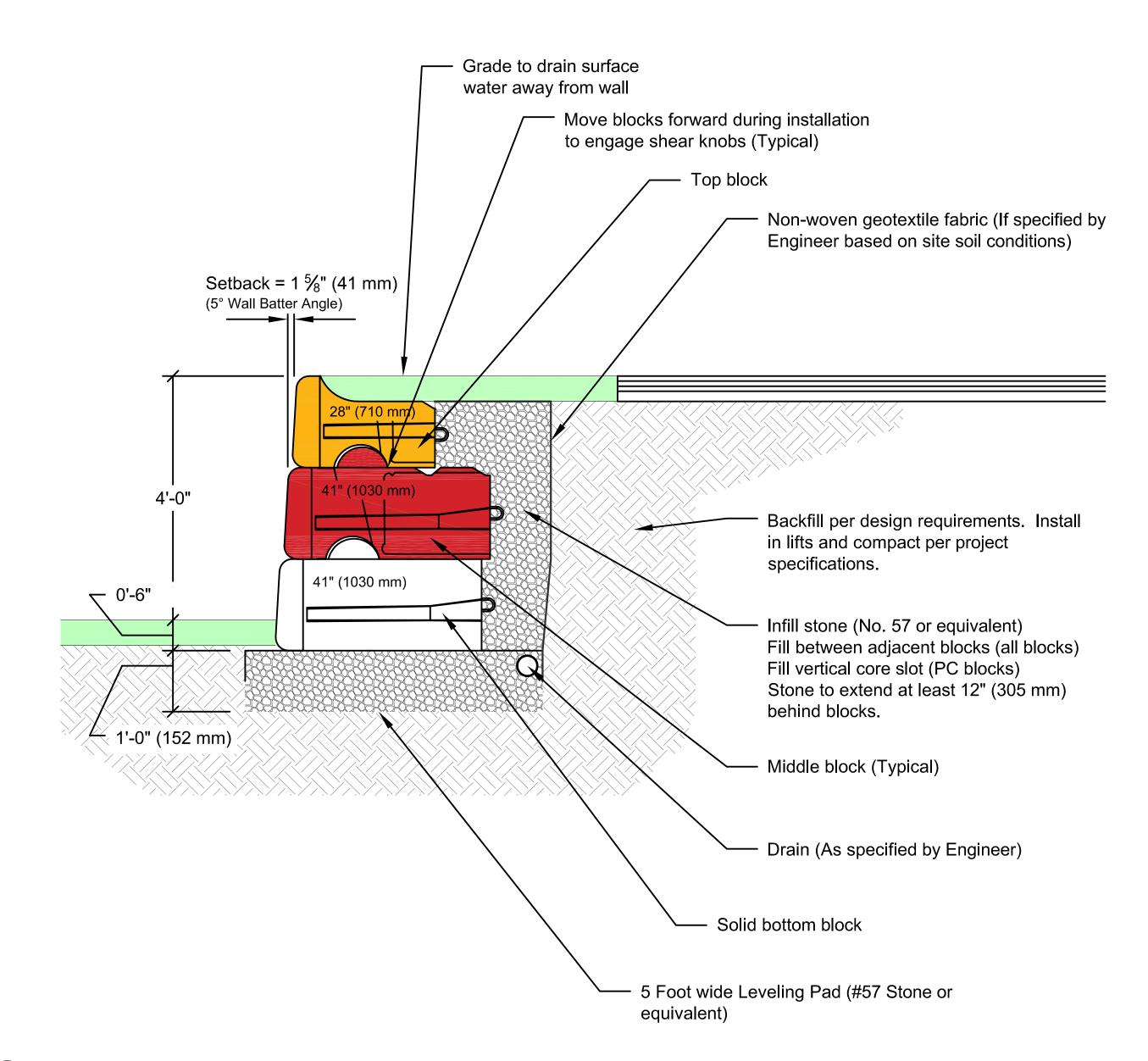
SCALE:

1"=20'

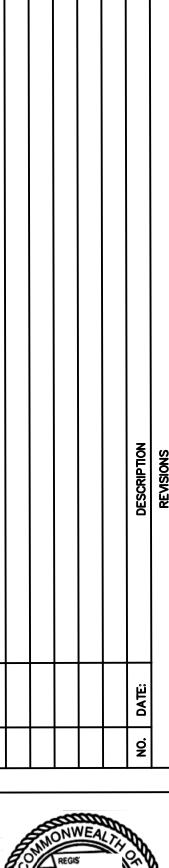
P-DA

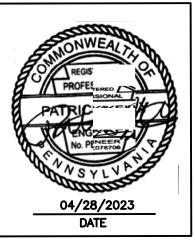
# NOTES:

- 1. RETAINING WALL BLOCKS SHALL BE FABRICATED BY REDI-ROCK OR APPROVED EQUIVALENT.
- 2. REFER TO REDI—ROCK (OR EQUIVALENT) INSTALLATION GUIDE FOR INSTALLATION AND DRAINAGE GUIDANCE AND REQUIREMENTS.
- 3. ENSURE DRAIN LINE IS INSTALLED BEHIND THE BLOCKS AT THE LOWEST ELEVATION WHERE THE PIPE CAN SAFELY OUTLET TO DAYLIGHT. DRAIN SHALL BE FULL LENGTH OF WALL. IF NEEDED, NOTCH FACE OF BLOCKS AT 50'-0" O.C. (MAX) FOR DRAIN OUTLETS ALONG WALL LENGTH AND DRAIN SAFELY IN FRONT OF WALL (MIN. 2 PER SIDE OF WALL). OTHERWISE, SLOPE DRAIN 1% MIN. TO RIGHT OF WAY (SEE CIVIL DRAWINGS FOR DETAILS).
- 4. COLOR AND FINISH OF WALL SHALL BE SPECIFIED BY THE OWNER.
- 5. SOIL SHALL BE BACKFILLED USING A MODIFIED PROCTOR TEST IN ACCORDANCE WITH ASTM D1557.











STRUCTURAL DETAILS – 1

STRUCTURAL DETAILS – 1

ECT NAME:

ModWash CAR WASH
3474 WILLIAM PENN HIGHWAY PITTSBURGH, PA 15235

T:

HUTTON COMPANY, LLC
736 CHERRY STREET, CHATTANOOGA, TN 37402

PROJECT NO.:

PROJ. MGR
LW

DATE:

04/28/23

PK

SCALE:

CHKD. BY:

TMC

DRAWING NO:

SC-1.0