WRIGHT-PIERCE
Engineering a Better Environment

11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
207.725.8721 | wright-pierce.com

July 31, 2024

Megan Norwood, Planning Coordinator
City of Auburn
60 Court Street
Auburn, ME 04210

SUBJECT: Response to Peer Review by Woodard & Curran and Planning Review by City of Auburn for Bear Self-Storage & Auto Sales Facility, 828 Center Street, Auburn, ME

Dear Megan,

On behalf of Bear Holdings LLC and Bear, LLC, Wright-Pierce has prepared a response to the peer review comments by Woodard & Curran regarding the Stormwater Management Plan and the City of Auburn's planning comments for Bear Self-Storage and Auto Sales facility located at 828 Center Street.

We offer the following responses, noted in bold, to comments received in the Woodard & Curran stormwater review memo dated July 10, 2024:

1. MaineDEP Chapter 500 Basic Standard - The Applicant has provided an erosion and sedimentation control plan and inspection, maintenance and housekeeping plan. The following comments should be addressed:

   The plans do not appear to show all proposed erosion and sediment control measures. The Applicant should include erosion controls in accordance with Maine DEP Basic Standards. A written report and details have been provided, but locations of all erosion control measures should be shown on the plans in coordination with the details and notes that have been provided.

   Response: Erosion control measures have been added to the grading plan (C-4). Silt fence is proposed downgradient of disturbances. Catch basin inlet protection, stone check dams, erosion control matting, etc. are noted on the plan and further instruction to the contractors is included on sheet C-10, to implement additional measures as site conditions dictate.

2. General Civil Engineering

- We have comments on the submitted HydroCAD model and stormwater design. These relate to the stormwater systems provided to meet both the General and Flooding standards.

  - The proposed Grassed Undrained Soil Filters (GUSF) note different outlet pipe lengths and slopes in comparison to the HydroCAD model. Please confirm the pipe lengths and slopes for each filter and update accordingly. In addition, an emergency spillway is not provided for either filter. The Applicant should confirm there's no risk of overflow to Center Street.

Response: GUSF outlet pipe lengths and elevations have been revised to match the plan. Emergency spillways are not proposed because there is no feasible location to put them. The outlets for the GUSFs are outlet control structures with grates to convey stormwater in larger storm events. The GUSFs were designed to not overtop in the 100-year storm, which we believe is conservative enough to not pose a risk to Center Street. A revised Stormwater Management Plan is attached.

- The Grassed Underdrained Soil Filters should include pretreatment per the Maine DEP Best Management Practice standards for the system. The Applicant has shown a crushed stone strip along the adjacent pavement, and an area of stone at the one piped inlet, which are expected to meet this requirement, but the Applicant should provide verification.

Response: The crushed stone strip is the pretreatment practice for GUSF1 since the only inflow it receives is sheet flow from the pavement to the west. A crushed stone strip also provides pretreatment of sheet flow runoff to GUSF 2. A stone sediment forebay has been added for GUSF 2 for pipe flow to the USF. The crushed stone strip and forebay have been sized to be able to hold the annual estimated sediment load. See the calculations below.

GUSF 1:

Approximately 0.28 acres of paved area will be sanded, which sheet flows to GUSF 2. Assuming 10 storms per year, approximately 16 CF of capacity is needed in the crushed stone strip to hold this annual load. The sediment forebay has been designed to be approximately 123' long, 2' wide, and 1' deep, with a capacity of 98 CF (porosity of 40%).

$$\frac{10\ storms}{year} * \frac{500\ lb}{acre * storm} * 0.27\ acres * \frac{ft^3}{90\ lb} = 16\ ft^3\ sand$$

GUSF 2:

Approximately 0.22 acres of paved area will be sanded, which drains to catch basins ultimately discharging to GUSF 2. Assuming 10 storms per year, approximately 12 CF of capacity is needed in the sediment forebay to hold this annual load. The sediment forebay has been designed to be approximately 100 SF at the bottom with a depth of 12", with a capacity of 40 CF (porosity of 40%).

$$\frac{10\ storms}{year} * \frac{500\ lb}{acre * storm} * 0.22\ acres * \frac{ft^3}{90\ lb} = 12\ ft^3\ sand$$

Approximately 0.27 acres of paved area will be sanded, which sheet flows to GUSF 2. Assuming 10 storms per year, approximately 15 CF of capacity is needed in the crushed stone strip to hold this annual load. The sediment forebay has been designed to be approximately 160' long, 2' wide, and 1' deep, with a capacity of 128 CF (porosity of 40%).

$$\frac{10\ storms}{year} * \frac{500\ lb}{acre * storm} * 0.27\ acres * \frac{ft^3}{90\ lb} = 15\ ft^3\ sand$$

- With our review of the routing of flow through the Subsurface Sand Filter and associated extra storage, it is unclear how exactly to relate what is proposed on the plan to the HydroCAD model. We have a few specific questions, but in general we'd suggest that the Applicant review the proposed design. Additional plan notes, flow arrow, and details may be necessary to clarify the design.

    - There are multiple DMH structures with weirs, and some of these weirs have orifices. Some weirs appear to be represented in the model, but not the orifices. More clarity on what has been modeled should be provided.

Response: Flow arrows and weir orientation have been added to the plans. Elevations have been added to the Subsurface Sand Filter Detail, SC-310 Cross Section Detail, and SC-740 Detail. Additional details regarding the underdrain underneath the Stormtech 310 chambers, which is the sand filter portion of the system, has also been added to the plans. The Stormtech 740 chambers are only for additional storage capacity, not for stormwater treatment. The isolator row and inspection ports have also been added to the plans. Stormwater enters the isolator rows from both ends of the system. The intent is for stormwater to spill over the weirs in DMH-4 and CB-7 when the Stormtech 310 chambers fill up so stormwater can bypass treatment and move to the Stormtech 740 chambers for detention. The Stormtech 740 chambers are larger for additional storage capacity and can be installed lower than the Stormtech 310 chambers because there is not a sand filter and underdrain layer below them. The filter layer is not needed since that portion of the system is only for detention. Orifices are proposed at the bottom of the weir walls in DMH-4 and DMH-5 so the chambers will fully drain after a storm. These orifices have been added to the model. These orifices and weir walls are the outlets to Pond 2P and a discharge multiplier of 4 is set since there are two structures, each with two orifices. Orifices are not needed in DMH-3 and CB-7 weir walls because stormwater will infiltrate through the sand filter media to underdrain to drain the system. We believe what we show now is enough detail to clarify the design.

- The orientation of the weirs in various manhole structures have not been shown. This makes the direction of flow unclear. For example, DMH 3 appears to be serving as both an inlet and an outlet to the sand filter, but more detail should be provided on how this will work with the proposed weir.

Response: Orientation of the weirs are now shown.

- Related to the weir orientation, it appears that a weir will direct flow from the sand filter to the extra storage, but it is unclear how this will occur relative to inverts that have been provided. Two pipes are shown entering either end of the extra storage area, but no inverts or other pipe information is provided to indicate how this connection will work.

Response: See previous comments describing the weirs and their intended function.

- The primary flow out of the sand filter is represented as infiltration that is directed to the piped stormdrain system exiting the site. It appears that this is directed to CB6 but it is unclear how flow will actually occur based on the elevations used in the HydroCAD model.

Response: Stormwater that infiltrates through the sand filter media below the chambers will be conveyed be underdrain below to CB-6. We were previously only showing the one converging underdrain pipe from the system to CB-6 and were relying on the Subsurface Sand Filter detail to show that underdrain should be under each chamber row. We are now showing all underdrain for more clarity. Underdrain has not been modeled in HydroCAD since the infiltration rate of the sand filter media will be the limiting factor, not the underdrain capacity. Underdrain will be at approximately elevation 226.00' below the chambers and pitch down to 225.80', entering CB-6. Elevations have been added to the Subsurface Sand Filter Detail, SC-310 Cross Section Detail, and SC-740 Detail.

- General details have been provided for the two Stormtech chambers but it is recommended that project-specific details be provided to show the actual elevations of elements within the cross section which will include two different sizes of chambers.

Response: Elevations have been added to the Subsurface Sand Filter Detail, SC-310 Cross Section Detail, and SC-740 Detail.

- The design calculations for the existing Wet Pond notes a starting elevation of 229-feet, while the HydroCAD model has a starting elevation of 234-feet. The existing conditions drawing shows a pond bottom varying from 233 to 234-feet. The Applicant should review the storage volumes for consistency in order to confirm adequate capacity of the pond.

Response: The bottom storage elevation of the wet pond was modeled at 234' instead of the actual bottom of the pond at 229' because that is the top of the permanent pool volume. The existing conditions survey did not pick up the bottom of the wet pond due to the standing water. Storage of the permanent pool volume was based on the prior approval when the wet pond was constructed. See attached grading and drainage plan from the previous design approval. Storage above the permanent pool volume was calculated based on the more recent topographic survey. The wet pond was oversized in the past approval in anticipation of future additional impervious area being built in this area. There will still be additional capacity after this proposed project.

- In the HydroCAD model, subcatchments 3S and 4S are routed to GUSF1 and GUSF2, respectively. Whereas 3S appears to be routed to GUSF2 and 4S routed to GUSF1 in the Post Development Stormwater Plan. Please confirm exact routing and update for consistency.

Response: The drainage plans have been revised since the GUSFs were mislabeled. The routing in HydroCAD is correct.

- CB-6 appears to represent Pond 3P within the HydroCAD model. Please confirm that CB-6 is indicative of 3P. Upon confirmation, the Applicant should update the existing outlet pipe size in the model to be

consistent with the existing conditions on the plan that identify a 15" pipe compared to the 18" pipe in the model.

Response: The outlet pipe of Pond 3P (CB-6) has been revised to 15" in the HydroCAD model.

- The Applicant states the project will require special exception approval for the zoning district and a waiver for the traffic analysis requirement. Please provide confirmation of approval and waiver upon receipt.

Response: This waiver has not been granted yet. We will follow up on this.

We offer the following responses, noted in bold, to comments received via email from the City of Auburn Planning Coordinator, dated July 23, 2024:

1. Approval of third-party review (Woodard & Curran) for site law and stormwater law - we sent you the responses from W&C last week.

Response: Responses to Woodard & Curran's review comments are above. We anticipate that they fully address their concerns.

2. Possible additional buffers for storage containers.

Response: The screening for the storage containers consists of vegetative screen along the Turner Street and the southern edge of the storage area and along the stormwater pond a 6-foot-tall screen fence is proposed between the residential properties to the south and the storage facility. In addition, there is a 75 wide naturalized stream setback area that is vegetated with trees and shrubs that are growing up. The proposed building will block the view along the eastern side (Center Street side) of the gravel area. The paved area in front of the proposed building is for auto display, not storage. We believe this screens the storage to the greatest extent practicable.

3. Legal notice for SLODA (City will complete)*

Response: Noted. Please let us know if you need anything additional from us.

4. Legal Opinion on use under powerlines (CMP Easement).

Response: We have included the original easement language with the response. The easement language does not prohibit storage boxes being placed within the easement area. In addition, the Owner has contacted CMP and is awaiting a response about allowable uses within the CMP easement.

5. Screen fencing around dumpster.

Response: Chain link fence with green vinyl slats for screening has been added around the dumpster pad.

6. Lighting plan w/ lumens.

Response: See attached photometric plan and light fixture specifications.

Please let us know if you have any additional comments or questions.

Sincerely,
WRIGHT-PIERCE

Jan Wiegman, PE
Senior Project Manager
jan.wiegman@wright-piercc.com

Attachments:

- Revised Site Plans
- Revised Stormwater Management Plan
- Previous Approval Grading Plan
- Easement Deed
- Photometric Plan and Specifications

cc: Richard Raubeson

Revised Site Plans

LAST SAVED BY: RYAN.BEISAW 7/31/2024 12:20 PM

CITY OF AUBURN PLANNING BOARD

SITE PLAN, APPROVED BY THE CITY OF AUBURN PLANNING BOARD

CHAIRPERSON DATE

N

TURNER STREET

APPROXIMATE LOCATION 70' WIDE CMP EASEMENT

XIVRAY STREET

INSTALL PRIVACY SCREEN ON EXISTING CHAIN LINK FENCE

INSTALL 6' TALL SCREENED FENCE ALONG TOP OF BERM

N/F BEAR LLC 11304/245 TM 300-9 1193 TURNER ST

N/F DAVID W. LANE 10186/259 ~ 9-20-2019 TM 300-10 6 XIVRAY STREET

N/F ANDREA M. & DAVID J. HIGSDON 6313/58 ~ 4-22-2005 TM 301-14 16 XIVRAY STREET

N/F CENTRAL MAINE FEDERAL CREDIT UNION 8330/100 ~ 1-31-2012 TM 301-16 836 CENTER ST

N/F BEAR'S HOLDINGS LLC 9291/232 ~ 1-31-2021 TM 301-19 878 CENTER STREET

N/F BEAR'S HOLDINGS LLC 9291/230 TM 301-17 864 CENTER STREET

N/F BEAR'S HOLDINGS LLC 9291/234 TM 301-17-2 868 CENTER STREET

N/F NORMAN E & MARY W ROSE 5940/295 ~ 6-3-2004 TM 300-5 1215 TURNER ST

N/F KATHY WHITEHOUSE & RONALD K KEKOA 6498/176 ~ 9-16-2005 TM 300-4 1229 TURNER ST

N/F VICTORIA D. SANZONE 7789/89 ~ 9-11-2009 TM 300-3 1233 TURNER ST

N/F BRENDA JIPSON 3316/305 ~ 8-23-1994 TM 300-2 1245 TURNER ST

N/F DAVID E WEBB JOAN N WEBB 1058/73 ~ 7-17-1972 TM 300-1 1257 TURNER ST

SUBURBAN RESIDENTIAL / GENERAL BUSINESS ZONE BOUNDARY

PROPOSED GRAVEL AREA FOR CONTAINER STORAGE

GRAVEL AREA FOR CONTAINER STORAGE

INSTALL GUARDRAIL

12'x12' CONCRETE DUMPSTER PAD ENCLOSURE SEE DETAIL, DWG C-7

INSTALL SLIP FORM CURB

INSTALL CONCRETE TRANSFORMER PAD

TRANSFORMER PAD

PROPOSED BUILDING 9,000 SF.

WALL LIGHT PACK, TYP

RETAINING WALL

CONCRETE WALK

HAND HOLE

INSTALL CURB

SITE LIGHTING, TYP

PAVED AUTO DISPLAY AREA

PAVED AUTO DISPLAY AREA

PAVED DRIVE

STORAGE UNIT

NEW PAVED AREA

SUBSURFACE SAND FILTER 85 STORMTECH SC-310 CHAMBERS (INCLUDES 30 ISOLATOR CHAMBERS)

SUBSURFACE DETENTION 34 STORMTECH SC-740 CHAMBERS

RELOCATED SIGN

BLOCK RETAINING WALL

TM 301-19 878 CENTER STREET

N/F JOHN EMERSON LLC 8126/97 ~ 3-3-2011 TM 313-12 946 CENTER STREET PO BOX 860 AUBURN, ME 04212

N/F BEAR'S HOLDINGS LLC 9291/234 TM 301-18 900 CENTER STREET

APPROXIMATE LOCATION 70' WIDE CMP EASEMENT

PAVED PARKING AREA

CENTER STREET

CB-1 CB-2 CB-3 CB-4 CB-5 CB-6 CB-7 CB-8

DMH-1 DMH-2 DMH-3 DMH-4 DMH-5 DMH-6 DMH-7 DMH-8 DMH-9

SMH OWS OCS-1 OCS-2 GUSF-1 GUSF-2

POLE #76 POLE #43 POLE #23

75' SETBACK

SUBURBAN RESIDENTIAL / GENERAL BUSINESS ZONE BOUNDARY

DIMENSIONAL REQUIREMENTS

ZONE DISTRICT	YARD REQUIREMENTS			MIN. LOT WIDTH / DEPTH	LOT DENSITY	MAX. BUILDING HEIGHT
	REAR	SIDE	FRONT			
GENERAL BUSINESS	35'	5' MIN. 25' MAX.	25'	100' / 100'	30% MAX. COVERAGE BY BLDG	45'
SUBURBAN RESIDENTIAL	25'	5' MIN. 15' MAX.	25'	150' / 125'	2 BLDGS PER ACRE	35'
PROVIDED	230'	175'	117'	>150'	13%	30'

PLAN
SCALE: 1"=40'

0 40 80

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24
2			
3			
4			
5			

PROJECT NO: 21316
DESIGNED: N.EDWARDS
CAD COORD: R.BEISAW
CAD: R.BEISAW
CHECKED: N.EDWARDS
DATE: 06-2024
APPROVED: J.WIEGMAN
DATE: 06-2024
SUBMISSION: FOR PERMITTING

STATE OF MAINE JAN B.S. WIEGMAN No. 5852 REGISTERED PROFESSIONAL ENGINEER 7/31/2024

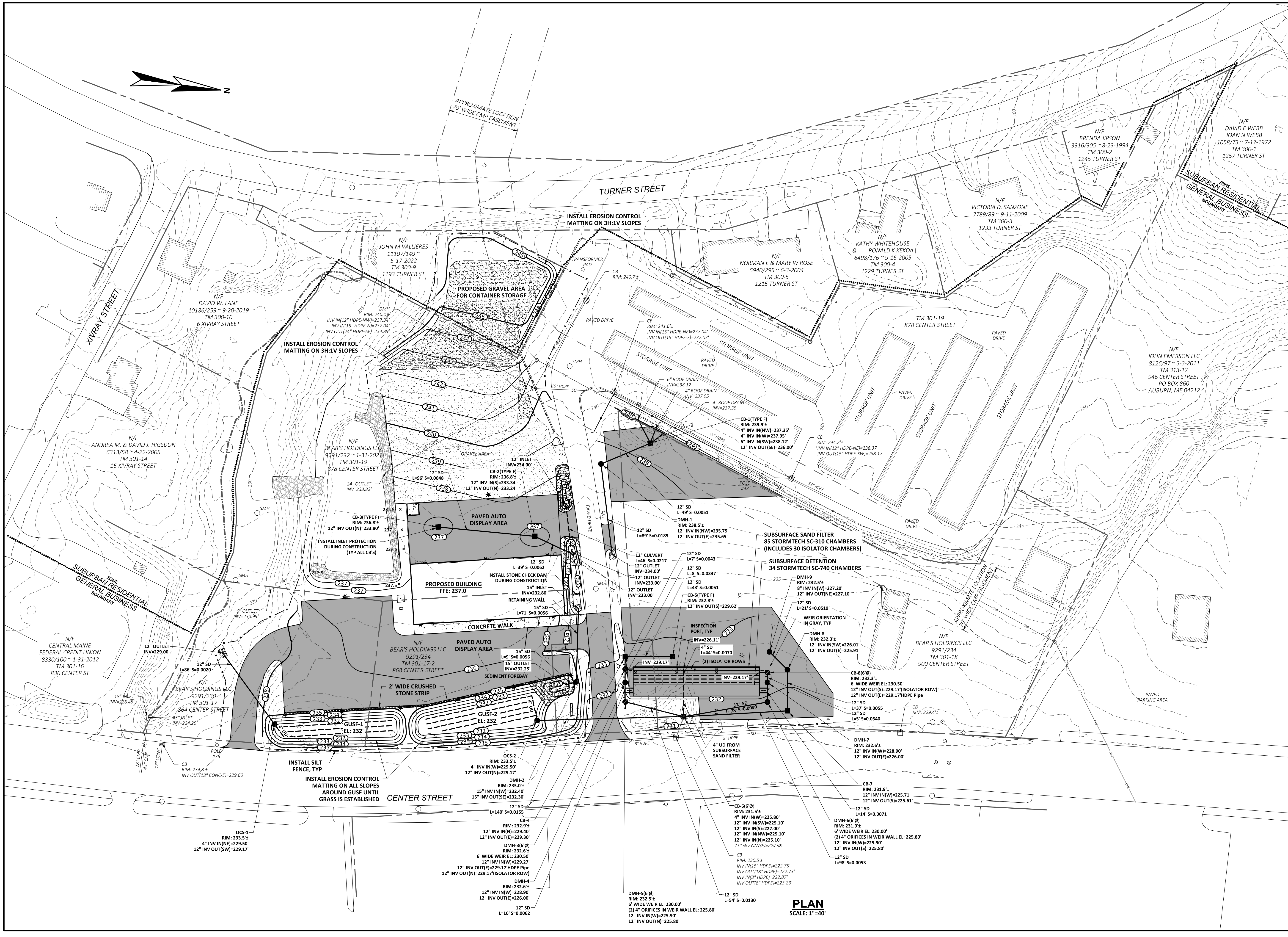
WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

BEARS HOLDING, LLC
BEAR SELF STORAGE FACILITY
SITE IMPROVEMENTS
AUBURN, MAINE

SITE LAYOUT PLAN

DRAWING
C-3

J:\ENG\ME\AUBURN\21316-BEARSELFSTORAGE_DRAWINGS\CIV\21316-C5-LAYOUT.DWG | 21316-C5-Layout | 1:2.5849 | ---- | 7/31/2024 12:22:38 PM | RYAN.BEISAW


TURNER STREET
XIVRAY STREET
CENTER STREET
APPROXIMATE LOCATION 70' WIDE CMP EASEMENT
INSTALL EROSION CONTROL MATTING ON 3H:1V SLOPES
PROPOSED GRAVEL AREA FOR CONTAINER STORAGE
N/F JOHN M VALLIERES 11107/149 ~ 5-17-2022 TM 300-9 1193 TURNER ST
N/F DAVID W. LANE 10186/259 ~ 9-20-2019 TM 300-10 6 XIVRAY STREET
N/F ANDREA M. & DAVID J. HIGSDON 6313/58 ~ 4-22-2005 TM 301-14 16 XIVRAY STREET
N/F BEAR'S HOLDINGS LLC 9291/232 ~ 1-31-2021 TM 301-19 878 CENTER STREET
N/F NORMAN E & MARY W ROSE 5940/295 ~ 6-3-2004 TM 300-5 1215 TURNER ST
N/F KATHY WHITEHOUSE & RONALD K KEKOA 6498/176 ~ 9-16-2005 TM 300-4 1229 TURNER ST
N/F VICTORIA D. SANZONE 7789/89 ~ 9-11-2009 TM 300-3 1233 TURNER ST
N/F BRENDA JIPSON 3316/305 ~ 8-23-1994 TM 300-2 1245 TURNER ST
N/F DAVID E WEBB JOAN N WEBB 1058/73 ~ 7-17-1972 TM 300-1 1257 TURNER ST
N/F JOHN EMERSON LLC 8126/97 ~ 3-3-2011 TM 313-12 946 CENTER STREET PO BOX 860 AUBURN, ME 04212
TM 301-19 878 CENTER STREET
N/F BEAR'S HOLDINGS LLC 9291/234 TM 301-18 900 CENTER STREET
N/F BEAR'S HOLDINGS LLC 9291/234 TM 301-17-2 868 CENTER STREET
N/F BEAR'S HOLDINGS LLC 9291/230 TM 301-17 864 CENTER STREET
N/F CENTRAL MAINE FEDERAL CREDIT UNION 8330/100 ~ 1-31-2012 TM 301-16 836 CENTER ST
SUBURBAN RESIDENTIAL ZONE BOUNDARY GENERAL BUSINESS
STORAGE UNIT
PAVED DRIVE
PAVED AUTO DISPLAY AREA
PROPOSED BUILDING FFE: 237.0'
CONCRETE WALK
RETAINING WALL
INSTALL INLET PROTECTION DURING CONSTRUCTION (TYP ALL CB'S)
INSTALL STONE CHECK DAM DURING CONSTRUCTION
SEDIMENT FOREBAY
2' WIDE CRUSHED STONE STRIP
GUSF-1 EL: 232'
GUSF-2 EL: 232'
INSTALL SILT FENCE, TYP
INSTALL EROSION CONTROL MATTING ON ALL SLOPES AROUND GUSF UNTIL GRASS IS ESTABLISHED
SUBSURFACE SAND FILTER 85 STORMTECH SC-310 CHAMBERS (INCLUDES 30 ISOLATOR CHAMBERS)
SUBSURFACE DETENTION 34 STORMTECH SC-740 CHAMBERS
INSPECTION PORT, TYP
(2) ISOLATOR ROWS
WEIR ORIENTATION IN GRAY, TYP
4" UD FROM SUBSURFACE SAND FILTER
CB-1(TYPE F) RIM: 239.9'± 4" INV IN(NW)=237.35' 4" INV IN(W)=237.95' 6" INV IN(SW)=238.12' 12" INV OUT(SE)=236.00'
CB-2(TYPE F) RIM: 236.8'± 12" INV IN(S)=233.34' 12" INV OUT(N)=233.24'
CB-3(TYPE F) RIM: 236.8'± 12" INV OUT(N)=233.80'
DMH-1 RIM: 238.5'± 12" INV IN(NW)=235.75' 12" INV OUT(E)=235.65'
DMH-9 RIM: 232.5'± 8" INV IN(W)=227.20' 12" INV OUT(NE)=227.10'
DMH-8 RIM: 232.3'± 12" INV IN(SW)=226.01' 12" INV OUT(E)=225.91'
CB-8(6'Ø) RIM: 232.3'± 6' WIDE WEIR EL: 230.50' 12" INV OUT(S)=229.17'(ISOLATOR ROW) 12" INV OUT(E)=229.17'HDPE Pipe
DMH-7 RIM: 232.6'± 12" INV IN(W)=228.90' 12" INV OUT(E)=226.00'
CB-7 RIM: 231.9'± 12" INV IN(W)=225.71' 12" INV OUT(S)=225.61'
DMH-6(6'Ø) RIM: 231.9'± 6' WIDE WEIR EL: 230.00' (2) 4" ORIFICES IN WEIR WALL EL: 225.80' 12" INV IN(W)=225.90' 12" INV OUT(S)=225.80'
CB-6(6'Ø) RIM: 231.5'± 4" INV IN(W)=225.80' 12" INV IN(SW)=225.10' 12" INV IN(S)=227.00' 12" INV IN(NW)=225.10' 12" INV OUT(N)=225.10'
DMH-5(6'Ø) RIM: 232.5'± 6' WIDE WEIR EL: 230.00' (2) 4" ORIFICES IN WEIR WALL EL: 225.80' 12" INV IN(W)=225.90' 12" INV OUT(N)=225.80'
OCS-2 RIM: 233.5'± 4" INV IN(W)=229.50' 12" INV OUT(N)=229.17'
DMH-2 RIM: 235.0'± 15" INV IN(W)=232.40' 15" INV OUT(SE)=232.30'
CB-4 RIM: 232.9'± 12" INV IN(E)=229.40' 12" INV OUT(E)=229.30'
DMH-3(6'Ø) RIM: 232.6'± 6' WIDE WEIR EL: 230.50' 12" INV IN(W)=229.27' 12" INV OUT(E)=229.17'HDPE Pipe 12" INV OUT(N)=229.17'(ISOLATOR ROW)
DMH-4 RIM: 232.6'± 12" INV IN(W)=228.90' 12" INV OUT(E)=226.00'
OCS-1 RIM: 233.5'± 4" INV IN(NE)=229.50' 12" INV OUT(SW)=229.17'
PLAN
SCALE: 1"=40'

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24

PROJECT NO: 21316
DESIGNED: N.EDWARDS
CAD COORD: R.BEISAW
CAD: R.BEISAW
CHECKED: N.EDWARDS
DATE: 06-2024
APPROVED: J.WIEGMAN
DATE: 06-2024
SUBMISSION: FOR PERMITTING

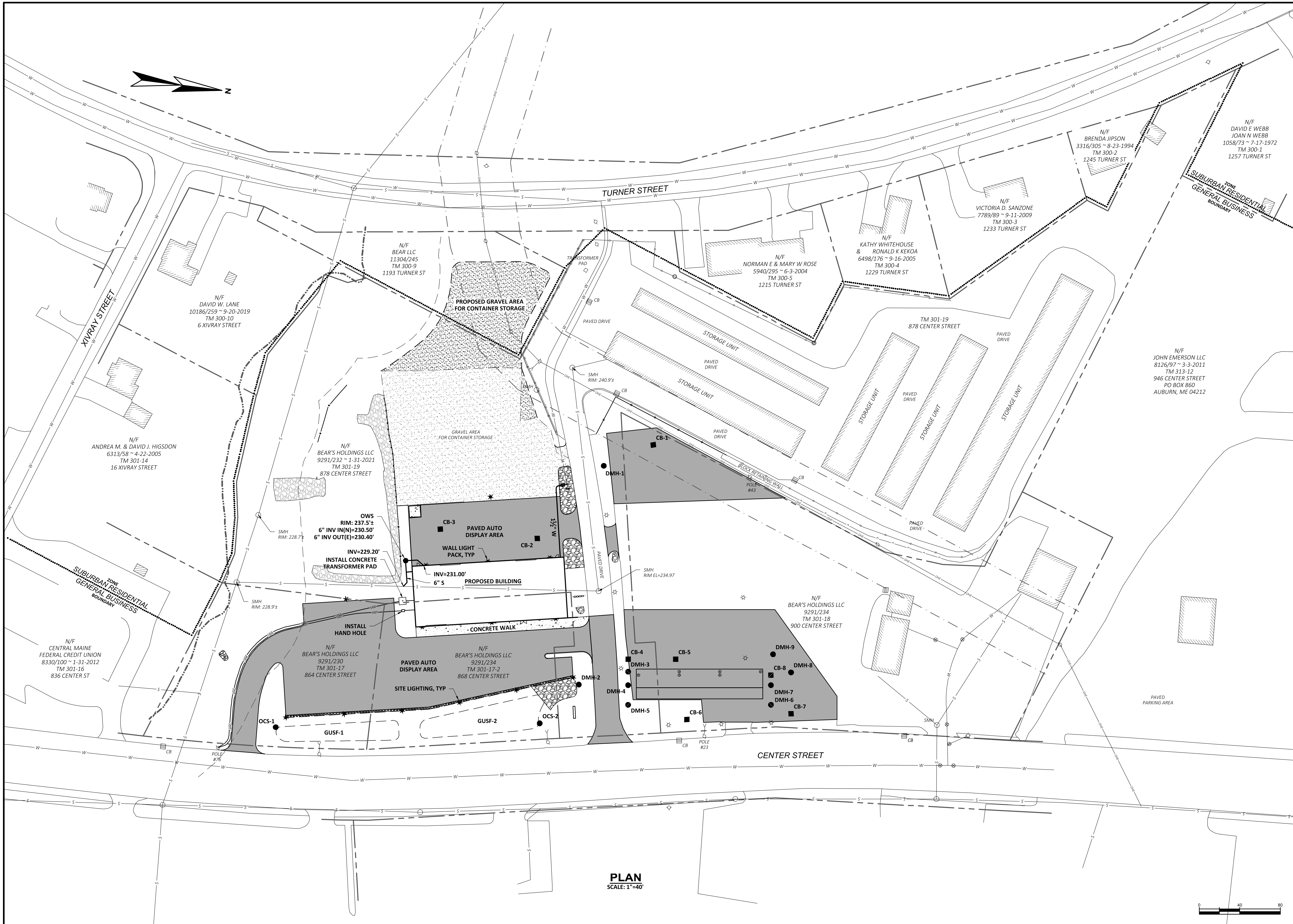
STATE OF MAINE JAN B.S. WIEGMAN No. 5852 PROFESSIONAL ENGINEER 7/31/2024

WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

BEARS HOLDING, LLC
BEAR SELF STORAGE FACILITY
SITE IMPROVEMENTS
AUBURN, MAINE

SITE GRADING AND DRAINAGE PLAN

DRAWING
C-4



N
TURNER STREET
XIVRAY STREET
CENTER STREET
N/F BEAR LLC 11304/245 TM 300-9 1193 TURNER ST
N/F DAVID W. LANE 10186/259 ~ 9-20-2019 TM 300-10 6 XIVRAY STREET
N/F ANDREA M. & DAVID J. HIGSDON 6313/58 ~ 4-22-2005 TM 301-14 16 XIVRAY STREET
N/F BEAR'S HOLDINGS LLC 9291/232 ~ 1-31-2021 TM 301-19 878 CENTER STREET
N/F CENTRAL MAINE FEDERAL CREDIT UNION 8330/100 ~ 1-31-2012 TM 301-16 836 CENTER ST
N/F BEAR'S HOLDINGS LLC 9291/230 TM 301-17 864 CENTER STREET
N/F BEAR'S HOLDINGS LLC 9291/234 TM 301-17-2 868 CENTER STREET
N/F BEAR'S HOLDINGS LLC 9291/234 TM 301-18 900 CENTER STREET
N/F NORMAN E & MARY W ROSE 5940/295 ~ 6-3-2004 TM 300-5 1215 TURNER ST
N/F KATHY WHITEHOUSE & RONALD K KEKOA 6498/176 ~ 9-16-2005 TM 300-4 1229 TURNER ST
N/F VICTORIA D. SANZONE 7789/89 ~ 9-11-2009 TM 300-3 1233 TURNER ST
N/F BRENDA JIPSON 3316/305 ~ 8-23-1994 TM 300-2 1245 TURNER ST
N/F DAVID E WEBB JOAN N WEBB 1058/73 ~ 7-17-1972 TM 300-1 1257 TURNER ST
N/F JOHN EMERSON LLC 8126/97 ~ 3-3-2011 TM 313-12 946 CENTER STREET PO BOX 860 AUBURN, ME 04212
TM 301-19 878 CENTER STREET
ZONE SUBURBAN RESIDENTIAL GENERAL BUSINESS BOUNDARY
ZONE SUBURBAN RESIDENTIAL GENERAL BUSINESS BOUNDARY
PROPOSED GRAVEL AREA FOR CONTAINER STORAGE
GRAVEL AREA FOR CONTAINER STORAGE
TRANSFORMER PAD
PAVED DRIVE
STORAGE UNIT
STORAGE UNIT
STORAGE UNIT
STORAGE UNIT
STORAGE UNIT
BLOCK RETAINING WALL
POLE #43
POLE #76
POLE #23
PAVED PARKING AREA
SMH RIM: 240.9'±
SMH RIM: 228.7'±
SMH RIM: 228.9'±
SMH RIM EL=234.97
SMH
CB
OWS RIM: 237.5'± 6" INV IN(N)=230.50' 6" INV OUT(E)=230.40'
INV=229.20'
INSTALL CONCRETE TRANSFORMER PAD
INV=231.00'
6" S
1½" W
CB-1
CB-2
CB-3
CB-4
CB-5
CB-6
CB-7
CB-8
DMH-1
DMH-2
DMH-3
DMH-4
DMH-5
DMH-6
DMH-7
DMH-8
DMH-9
PAVED AUTO DISPLAY AREA
WALL LIGHT PACK, TYP
PROPOSED BUILDING
CONCRETE WALK
INSTALL HAND HOLE
PAVED AUTO DISPLAY AREA
SITE LIGHTING, TYP
OCS-1
OCS-2
GUSF-1
GUSF-2
PLAN
SCALE: 1"=40'
0
40
80

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24

PROJECT NO: 21316
DESIGNED: N.EDWARDS
CAD COORD: R.BEISAW
CAD: R.BEISAW
CHECKED: N.EDWARDS
DATE: 06-2024
APPROVED: J.WIEGMAN
DATE: 06-2024
SUBMISSION: FOR PERMITTING

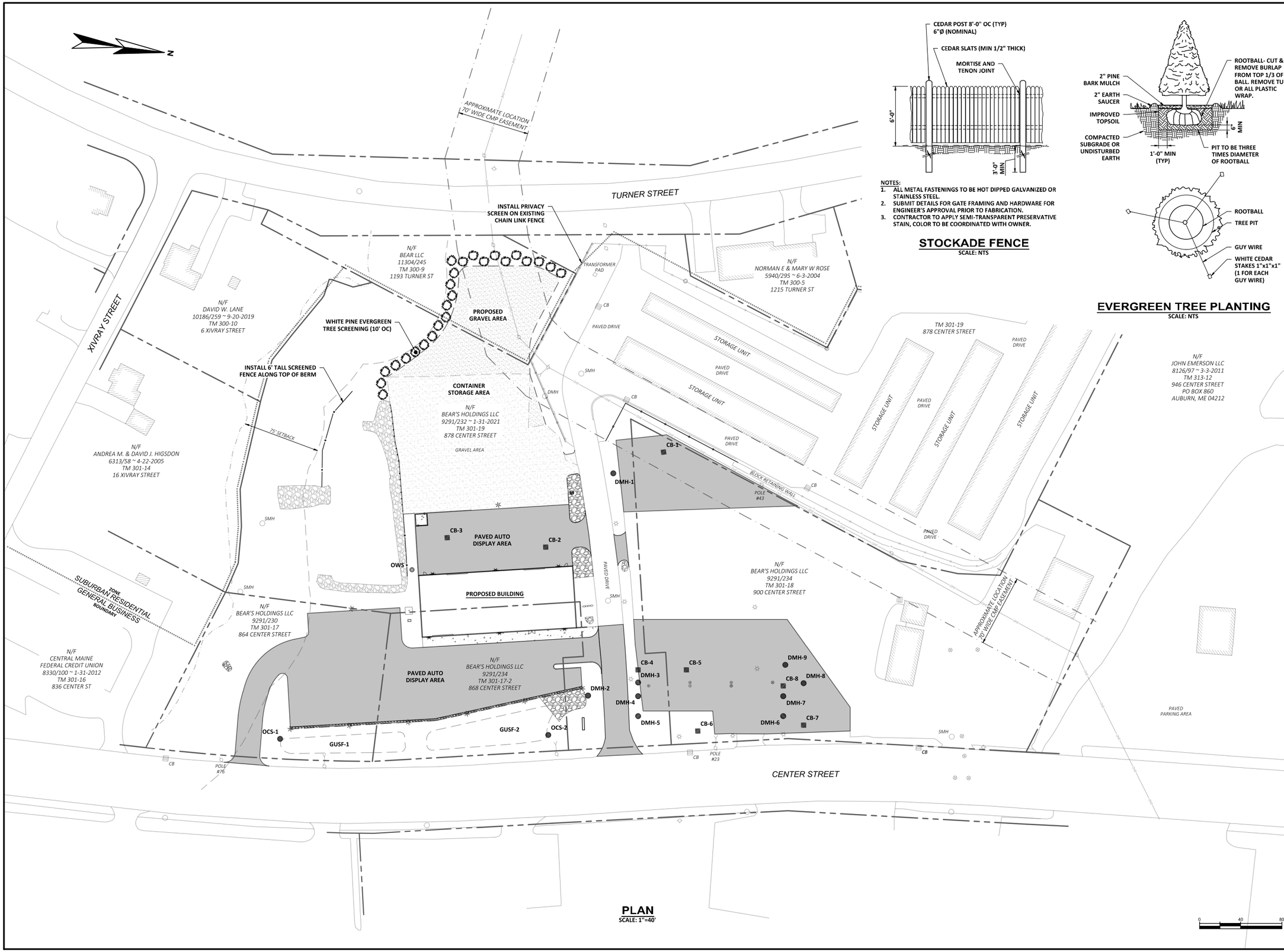
STATE OF MAINE
JAN B.S. WIEGMAN
No. 5852
PROFESSIONAL ENGINEER
7/31/2024

WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

BEARS HOLDING, LLC
BEAR SELF STORAGE FACILITY
SITE IMPROVEMENTS
AUBURN, MAINE

SITE UTILITIES PLAN

DRAWING
C-5



PLAN
SCALE: 1"=40'

0 40 80

NOTES:
1. ALL METAL FASTENINGS TO BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.
2. SUBMIT DETAILS FOR GATE FRAMING AND HARDWARE FOR ENGINEER'S APPROVAL PRIOR TO FABRICATION.
3. CONTRACTOR TO APPLY SEMI-TRANSPARENT PRESERVATIVE STAIN, COLOR TO BE COORDINATED WITH OWNER.

STOCKADE FENCE
SCALE: NTS

EVERGREEN TREE PLANTING
SCALE: NTS

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24
2			
3			
4			
5			

PROJECT NO: 21316
DESIGNED: N.EDWARDS
CAD COORD: R.BEISAW
CAD:
CHECKED: N.EDWARDS
DATE: 06-2024
APPROVED: J.WIEGMAN
DATE: 06-2024
SUBMISSION: FOR PERMITTING

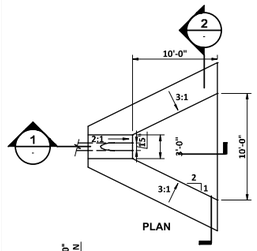
STATE OF MAINE JAN B.S. WIEGMAN No. 5852 REGISTERED PROFESSIONAL ENGINEER 7/31/2024

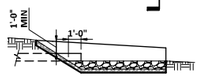
WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

BEARS HOLDING, LLC
BEAR SELF STORAGE FACILITY
SITE IMPROVEMENTS
AUBURN, MAINE

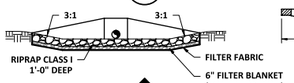
PROPOSED LANDSCAPE PLAN

DRAWING
C-6



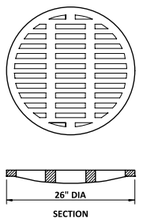


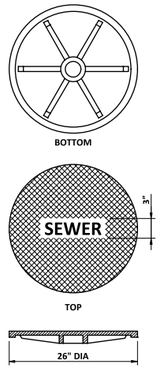
SECTION 1
SCALE: NTS

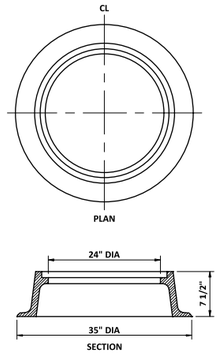


SECTION 2
SCALE: NTS

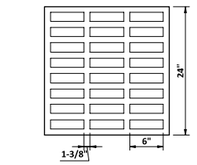
RIPRAP APRON
SCALE: NTS

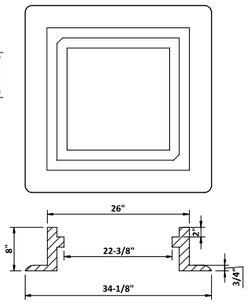




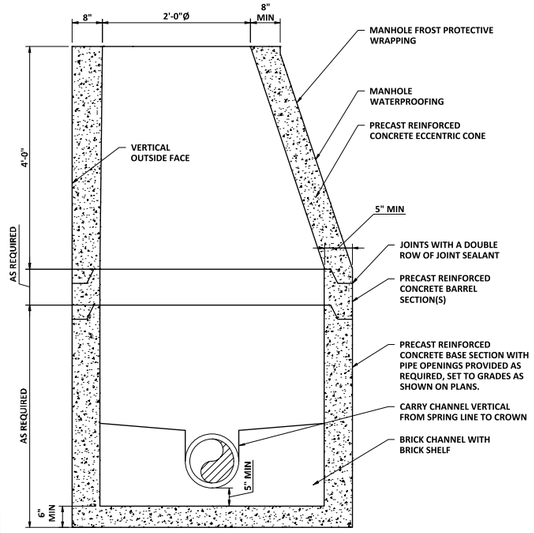


CATCH BASIN & MANHOLE STANDARD COVER AND FRAME
SCALE: NTS



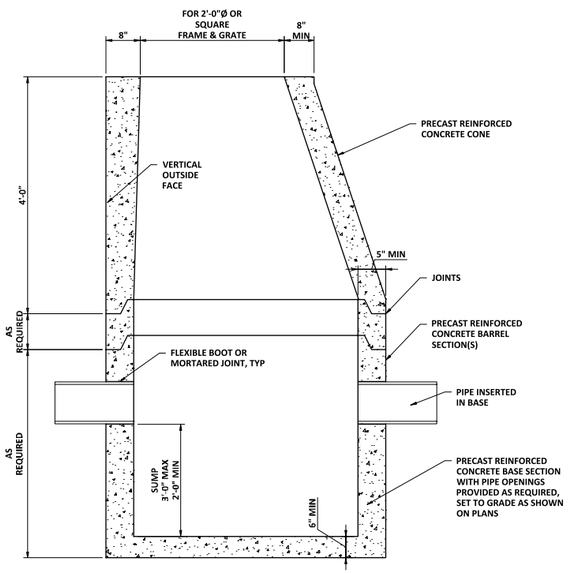


FRAME AND COVER FOR TYPE "A" CATCH BASIN
SCALE: NTS



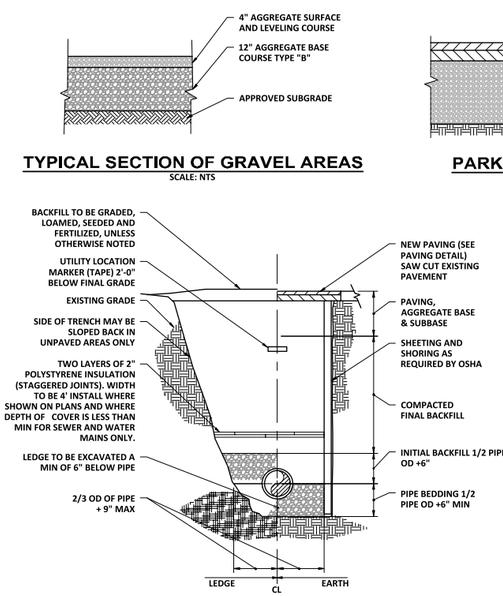
NOTES:
1. MANHOLE CHANNELS REQUIRING A CHANGE IN DIRECTION ARE TO BE BUILT ON A SMOOTH CURVE OF THE LONGEST POSSIBLE RADIUS. IF SIDE PIPES ENTER CHANNEL, SHAPE TO RECEIVE ADDED SIDE FLOW.
2. USE A FLAT SLAB TOP MANHOLE WHEN THE HEIGHT DIFFERENCE BETWEEN THE HIGHEST INVERT AND RIM IS LESS THAN 6'-0" AND WHEN MANHOLE DIAMETER IS GREATER THAN 4'-0".

TYPICAL 4-FT MANHOLE
SCALE: "NTS"

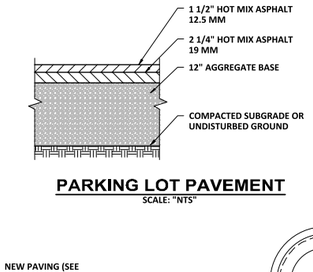


NOTE:
USE FLAT SLAB TOP CATCH BASIN WHERE REQUIRED TO MATCH GRADE

4-FT CATCH BASIN
SCALE: NTS



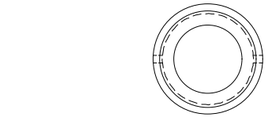
TYPICAL SECTION OF GRAVEL AREAS
SCALE: NTS

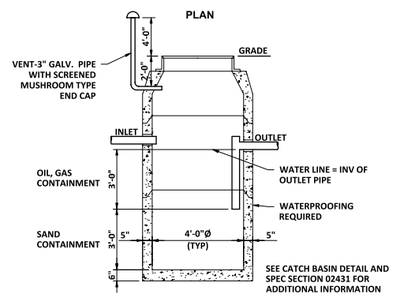


PARKING LOT PAVEMENT
SCALE: "NTS"

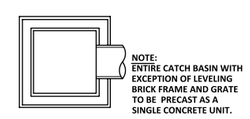
NOTES:
1. ALL EXCAVATION MUST MEET OSHA STANDARDS.
2. INSTALL 3 FOOT LONG IMPERVIOUS MATERIAL DAM IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100' AND WHERE SHOWN ON PLANS TO PREVENT TRENCH GROUNDWATER FROM BEING CHANNELED ALONG BEDDING/INITIAL BACKFILL.
3. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.

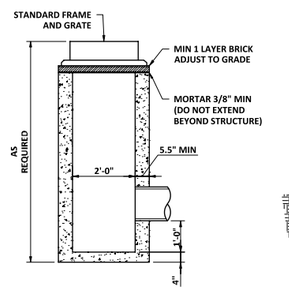
PIPE TRENCH
SCALE: "NTS"





OIL/WATER SEPARATOR
SCALE: NTS





2'x2' CATCH BASIN (TYPE F)
SCALE: NTS

TABLE I
SPECIFICATIONS FOR LOAMY COARSE SAND

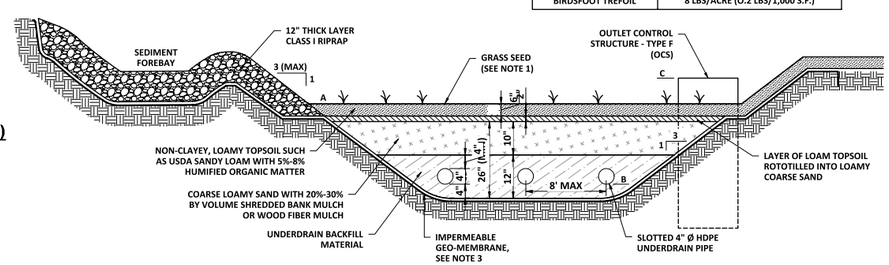
SEIVE #	% PASSING BY WEIGHT
10	85-100
20	70-100
60	15-40
200	8-15
200 CLAY SIZE	2.0

TABLE II
UNDERDRAIN BACKFILL

SEIVE #	% PASSING BY WEIGHT
1"	95-100
0.5"	75-100
4	50-100
20	15-80
50	0-15
200	0-5.0

UNDERDRAIN SOIL FILTER TABLE				
SOIL FILTER REFERENCE	(A) ELEVATION OF SOIL FILTER	(B) UNDERDRAIN INVERT ELEVATION	(C) RIM ELEVATION OUTLET STRUCTURE	MIN SURFACE AREA AT SOIL FILTER ELEVATION (SF)
GUSF-1	232.00	229.80	233.50	2,000
GUSF-2	232.00	229.80	233.50	3,000

TABLE III	
USF-A SEED MIXTURE (WETLAND)	
CREEPING RED FESUCE	20 LBS/ACRE (O.5 LBS/1,000 S.F.)
TALL FESCUE	20 LBS/ACRE (O.5 LBS/1,000 S.F.)
BIRDSFOOT TREFOIL	8 LBS/ACRE (O.2 LBS/1,000 S.F.)



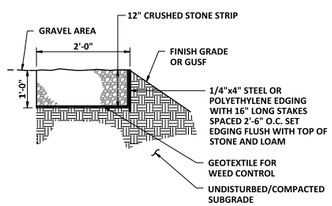
NOTES:
1. GRASS SEED MIXTURE SHALL BE DROUGHT TOLERANT CONSERVATION MIX.
2. PLACE FILTER MEDIA AND LOAM TOPSOIL ONLY AFTER SITE HAS BEEN STABILIZED.
3. IMPERMEABLE GEO-MEMBRANE SHALL BE 4 LDRE, PVC OR HDPE IMPERMEABLE LINER OF AT LEAST 30 MIL. THICKNESS.
4. UNDERDRAIN PIPE SHALL SLOPE AT 0.0050 MIN. (SEE DRAWING C5.0)
5. FLOW RESTRICTION IN THE FORM OF AN ORIFICE SHALL BE PROVIDED AT OUTLET TO OBTAIN 24-48 HOUR RELEASE TIME.
6. WITHIN 30 DAYS OF COMPLETION OF THE UNDERDRAINED FILTER BASIN, THE APPLICANT MUST SUBMIT A LOG OF INSPECTION REPORTS DETAILING THE ITEMS INSPECTED, PHOTOS TAKEN, AND THE DATES OF EACH INSPECTION TO THE BUREAU OF LAND RESOURCES FOR REVIEW.
7. SEDIMENT FOREBAY SHALL HAVE A MINIMUM LENGTH TO WIDTH RATIO OF 2:1.

UNDERDRAIN CONSTRUCTION, TESTING AND SUBMITTAL NOTES:
1. CONSTRUCTION OVERSIGHT: INSPECTION OF THE FILTER BASIN MUST BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. ALL MATERIAL INTENDED FOR THE FILTER BASIN MUST BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THE MATERIAL CONFORMS TO ALL DEP SPECIFICATIONS. AT A MINIMUM, INSPECTIONS WILL OCCUR:
   1.1. AFTER THE PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED (NOT BACKFILLED);
   1.2. AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE SOIL FILTER MEDIA;
   1.3. AFTER THE SOIL FILTER MEDIA HAS BEEN INSTALLED, SEEDED AND MULCHED; AND
   1.4. AFTER ONE YEAR, TO INSPECT VEGETATION AND MAKE CORRECTIONS.
2. TESTING AND SUBMITTALS: THE SOURCE OF EACH COMPONENT OF THE SOIL FILTER MEDIA NEEDS TO BE IDENTIFIED PRIOR TO CONSTRUCTION. ALL RESULTS OF FIELD AND LABORATORY TESTING MUST BE SUBMITTED TO THE DEP FOR APPROVAL.
   2.1. MEDIA SOURCE: SAMPLES OF EACH TYPE OF MATERIAL SHOULD BE BLENDED FOR THE MIXED FILTER MEDIA AND
   2.2. UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM
   2.3. THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIREMENTS WILL BE DETERMINED BY THE TESTING LABORATORY.
   2.4. SIEVE ANALYSIS: A SIEVE ANALYSIS CONFORMING TO ASTM C136 SHOULD BE PERFORMED ON EACH TYPE OF THE SAMPLE MATERIAL.
   2.5. PERMEABILITY TESTING: TESTING THE PERMEABILITY OF THE SOIL FILTER MEDIA MIXTURE IS RECOMMENDED WITH THE MIXTURE AT A MEASURED BULK DRY DENSITY OF 90-92% BASED ON ASTM D698.

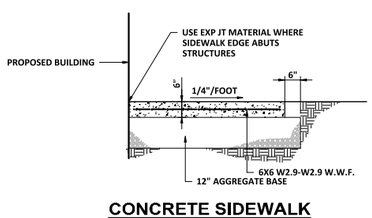
GRASSED UNDERDRAIN SOIL FILTER CONSTRUCTION
SCALE: 'NTS'

NOTES:
1. 6' HIGH CHAIN LINK FENCE WITH GREEN VINYL SLATS.
2. DOUBLE STOCKADE FENCE GATES. GATES TO HAVE BOLT ACTION LATCH.
3. DOOR HARDWARE TO CONFORM TO ADA STANDARDS.

DUMPSTER PAD ENCLOSURE
SCALE: 'NTS'



CRUSHED STONE STRIP
SCALE: "NTS"



CONCRETE SIDEWALK
SCALE: NTS

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24
2			
3			
4			
5			

PROJECT NO.: 21316
DESIGNED: N.EDWARDS
CAD COORD: R.BEISAW
CAD: R.BEISAW
CHECKED: N.EDWARDS
DATE: 06-2024
APPROVED: J.WIEGMAN
DATE: 06-2024
SUBMISSION: FOR PERMITTING

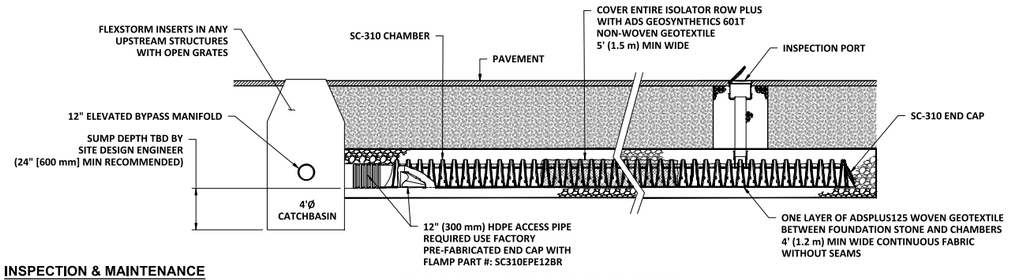
STATE OF MAINE
JAN R.S. WIEGMAN
No. 5852
REGISTERED PROFESSIONAL ENGINEER
7/31/2024

WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

BEARS HOLDING, LLC
BEAR SELF STORAGE FACILITY
SITE IMPROVEMENTS
AUBURN, MAINE

DETAILS I

DRAWING
C-7



SC-310 ISOLATOR ROW PLUS DETAIL
SCALE: 'NTS'

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

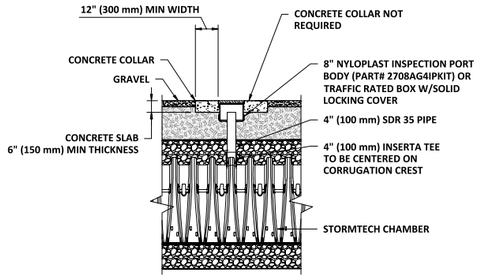
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

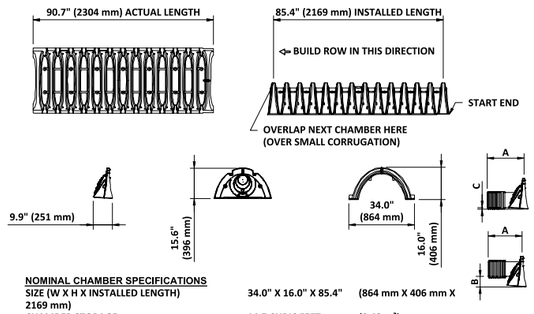
NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4" PVC INSPECTION PORT DETAIL
SCALE: 'NTS'



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4"	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET	(0.42 m³)
WEIGHT	35.0 lbs.	(16.8 kg)

PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE CORED END CAPS END WITH "PC"

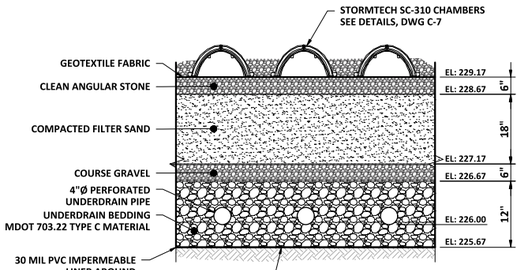
PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

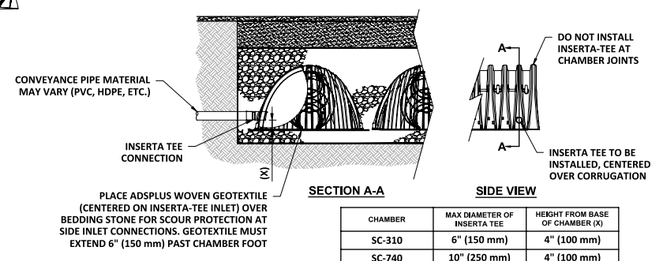
* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

SC-310 TECHNICAL SPECIFICATIONS
SCALE: 'NTS'



SUBSURFACE SAND FILTER
SCALE: NTS



SECTION A-A SIDE VIEW

NOTES:
- PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.
- CONTACT ADS ENGINEERING SERVICES IF INSERTA TEE INLET MUST BE RAISED AS NOT ALL INVERTS ARE POSSIBLE.

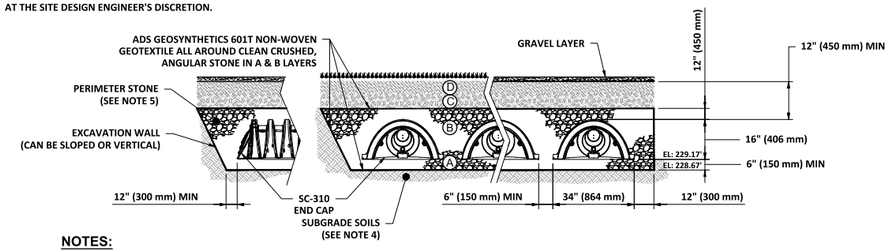
CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
MC-7200	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

INSERTA-TEE SIDE INLET DETAIL
SCALE: 'NTS'

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SC-310 CROSS SECTION DETAIL
SCALE: 'NTS'

SC-310 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-310.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

1. STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.
   STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY. CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24
2			
3			
4			
5			

PROJECT NO: 21316
DESIGNED: J.WIEGMAN
CAD COORD: R.BEISAW
CAD: R.BEISAW
CHECKED: N.EDWARDS
DATE: 06-2024
APPROVED: J.WIEGMAN
DATE: 06-2024
SUBMISSION: FOR PERMITTING

STATE OF MAINE ★ JAN B.S. WIEGMAN No. 5852 REGISTERED PROFESSIONAL ENGINEER ★ 7/31/2024

WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

BEARS HOLDING, LLC
BEAR SELF STORAGE FACILITY
SITE IMPROVEMENTS
AUBURN, MAINE

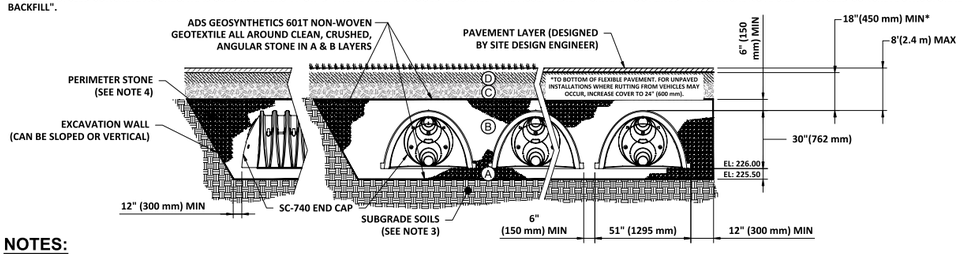
DETAILS II

DRAWING
C-8

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SC-740 CROSS SECTION DETAIL
SCALE: 'NTS'

SC-740 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-740 SYSTEM

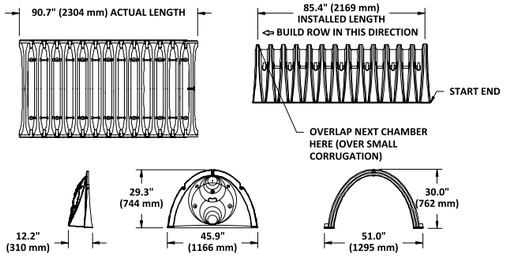
1. STORMTECH SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.
   STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

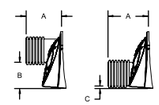
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET	(2.12 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

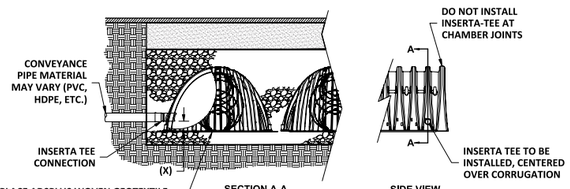
PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740ECE2*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740ECE2 ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740ECE2 THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

SC-740 TECHNICAL SPECIFICATIONS
SCALE: 'NTS'



NOTES:
- PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.
- CONTACT ADS ENGINEERING SERVICES IF INSERTA TEE INLET MUST BE RAISED AS NOT ALL INVERTS ARE POSSIBLE.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
SC-800	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
MC-7200	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

INSERTA-TEE SIDE INLET DETAIL
SCALE: 'NTS'

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24
2			
3			
4			
5			

PROJECT NO: 21316
DESIGNED: N.EDWARDS
CAD COORD: R.BEISAW
CAD: R.BEISAW
CHECKED: N.EDWARDS
DATE: 06-2024
APPROVED: J.WIEGMAN
DATE: 06-2024
SUBMISSION: FOR PERMITTING

STATE OF MAINE
JAN B.S. WIEGMAN
No. 5852
REGISTERED PROFESSIONAL ENGINEER
7/31/2024

WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

BEARS HOLDING, LLC
BEAR SELF STORAGE FACILITY
SITE IMPROVEMENTS
AUBURN, MAINE

DETAILS III

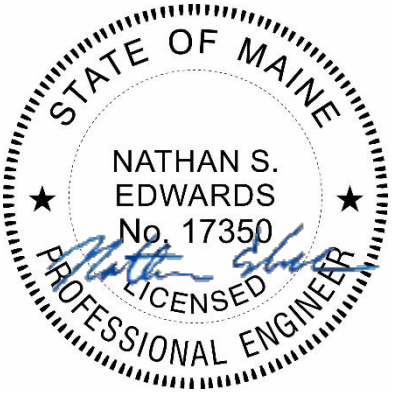
DRAWING
C-9

Revised Stormwater Management Plan

Bear Self-Storage Facility

Stormwater Management Plan

July 2024



7/30/2024

Prepared By:

Wright-Pierce
11 Bowdoin Mill Island, Suite 140
Topsham, ME 04086
207.725.8721 | wright-pierce.com

1.1 Introduction

Bear Holding's is proposing to construct a new 9,000 SF building on the southerly side of the access driveway at the storage facility portion of the site. The project proposes expanded vehicle display areas at the car dealership and around the proposed building. Additional gravel area is proposed at the storage facility for more storage space. Several stormwater best management practices (BMPs) are proposed to treat and attenuate the peak runoff rates of stormwater of the new development proposed in this application. The site is situated between Center Street and Turner Street and consists of several contiguous parcels owned by Bear Holding's and one parcel by Bear, LLC.

1.2 Existing Conditions

The existing site is entirely developed and consists of a self-storage facility with five storage buildings, gravel area for mobile storage boxes, paved access drives, stormwater wet pond, and car dealership with a paved parking lot and three associated buildings. The existing conditions stormwater model was developed based on the impervious area and non-impervious developed area of the site as approved. See Figure 1 in Appendix A for the existing conditions drainage plan. This drainage plan is based on the previously approved site plan.

The majority of the surface runoff from the development, plus some off-site runoff from the residential properties along Turner Street, is directed to a wet pond located on the southerly portion of the site where the collected runoff is treated and conveyed to an unnamed stream that crosses Center Street and is tributary to Bobbin Mill Brook. Bobbin Mill Brook is a tributary of the Androscoggin River. Runoff from the access drive flows into two underdrained soil filters located on the easterly portion of the site where the collected runoff is treated and conveyed to the existing storm drainage system on Center Street.

Soils mapping and characteristics were obtained from the Medium Intensity Soil Survey for Androscoggin County. As indicated on the attached soils map the primary hydrological soils group covering the site is Group C with some areas covered by Group B and Group D. Current rainfall data from the Northeast Regional Climate Center (NRCC) was utilized for the model. Rainfall depths used were 3.01 in, 4.44 in, 5.56 in, and 7.81 in for the 2-, 10-, 25-, and 100-year, 24-hour storms, respectively.

1.3 Proposed Conditions

This application proposes to expand the gravel storage container area on the southern side of the site. Runoff from this area that does not already flow to the wet pond for treatment will flow to two grassed underdrained soil filters (GUSFs) for treatment and peak flow attenuation. Most of the access drive runoff will also be conveyed to these GUSFs.

The majority of the site's runoff will continue to be treated by the existing wet pond; however, the contributing drainage area boundary will change some due to the proposed grading. The wet pond was originally designed with additional capacity in anticipation of a future phase of work, which our analysis and calculations show has capacity for the proposed improvements without alteration.

Runoff from a portion of the southerly side of the site will not be treated. A residential house owned by Bear Holding's has recently been demolished on the southwesterly side of the site. This impervious area has been seeded and was therefore modeled as landscaped grass in the proposed conditions model.

A new 9,000 SF building is proposed on the southerly side of the access driveway, which is surrounded by new pavement to be used as display area for the car dealership. New gravel area is proposed west of the new building and pavement for storage containers. Since the last approval some new pavement has been installed north of the access driveway at the car dealership, which is all proposed to be treated retroactively with the proposed subsurface soil filter. This application also proposes a minor addition of pavement beyond what has already been installed, which will be treated too.

Section 1.5 of this report outlines how the stormwater treatment requirements will be met by the proposed design.

1.4 Regulatory Requirements

The City of Auburn Site Plan Review Ordinance, Section 14 requires that the stormwater runoff from the site shall be managed in accordance with Maine Department of Environmental Protection's (MDEP) regulations outlined in Chapter 500 and 502. The proposed development will disturb more than one acre of land and will create more than one acre of pavement, and as a result the development must comply with MDEP's Basic and General Standards. These standards provide specific design criteria for water quality treatment.

1.5 Water Quality Treatment Summary

The general intent of the proposed design is to treat runoff from as much of the site as practicable, treat at least 95% of the new impervious areas and 80% of the new developed areas (this includes impervious area), and manage peak runoff rates.

An existing wet pond, two proposed GUSFs, and one proposed SSF will be utilized to meet the stormwater treatment requirements described above. Calculations showing conformance with MDEP design standards are in Appendix B. Calculations performed in HydroCAD for each stormwater practice are included in Appendix C.

The only newly developed area that will not be treated is a small portion of paved access drive at the southeasterly side of the site. This area is approximately 3,000 SF and is outlined in Figure 2 in Appendix A as "Non-Treated Area". Therefore approximately 105,000 SF of 108,000 SF of the new newly developed impervious area will be treated, exceeding the 95% treatment requirement. Since the rest of the areas disturbed by the project are already developed, there are no new non-impervious developed areas to treat. The impervious area treatment calculation was performed by tabulating the areas of the site that had a change from pervious land cover in the existing condition to impervious land cover in the proposed condition. Areas that were already impervious but changed to a new type of impervious land cover were also considered new impervious, even though they are already impervious. It is important to note that this is why the increase in impervious area used to calculate the required impervious area to be treated on the site is greater than what the actual addition of impervious area is on the site. Figure 2 in Appendix A shows the areas of the site that were considered new development for this calculation. The small non-treated area is also noted in this figure.

GUSF 1 is proposed southeast of the new building at the storage facility to detain and treat stormwater from the surrounding proposed paved area. GUSF 2 is adjacent to GUSF 1 and receives runoff from the proposed building and surrounding paved area. The treatment volume and soil filter area of both GUSFs were sized based on MDEP requirements and treat all the impervious area that drains to them, which is all new impervious developed area. The non-impervious area that drains to them does not factor into the MDEP sizing because it has been previously developed. The GUSFs were designed to have significant additional storage capacity beyond what is needed for treatment to attenuate peak runoff rates from the site. Section 1.6 of this report further describes how peak runoff rates are reduced from the site.

The SSF is proposed on the westerly side of the site, north of the access driveway at the car dealership to treat runoff from the expanded vehicle display area. All the new impervious developed area here will be treated by the SSF and has been sized accordingly. Additional runoff from existing pavement and landscaped developed area will also flow to the system but was not used for the MDEP treatment volume calculations since they area is existing. The additional runoff was modeled in HydroCAD to ensure the system is properly sized to handle the flow. This stormwater practice consists of two areas. The first area provides the required stormwater treatment. The second area consists of additional stormwater storage for larger storm events for peak flow attenuation, not treatment. Runoff will be collected by catch basins and conveyed to stormwater chambers. Some of the chambers are isolator rows which will pre-treat the stormwater runoff before the stormwater moves to additional chambers. Stormwater will fill the chambers and infiltrate through a sand filter media layer with underdrains below. When this treatment portion of the system is at capacity, stormwater will bypass to the additional storage chambers. Section 1.6 of this report further describes how peak runoff rates are reduced from the site.

The existing wet pond treats stormwater runoff from the existing storage buildings, surrounding paved and landscaped areas on the northwesterly side of the site and the proposed gravel areas around the pond on the southwesterly side of the site. Some off-site drainage from the residential neighborhood to the west also drains to the pond. Calculations were performed to determine that the existing wet pond has the capacity to treat all of the stormwater runoff that drains to it based on current MDEP requirements to treat all the area draining to it (MDEP requirements for wet ponds have become more stringent since the last approval). Additionally, the grading of the pond was modified in some areas since the last site plan approval, so the storage volume was revised in the HydroCAD model to reflect this.

1.6 Peak Runoff Rate Analysis

A peak runoff rate analysis was performed in HydroCAD, which compared the existing and proposed conditions of the site. As required by the City's Ordinance, the 2-, 10-, and 25-year, 24-hour storms were modeled. As described in Sections 1.2 and 1.3 describing the existing and proposed conditions, the existing conditions were considered those as approved in the last site plan application. The proposed conditions were modeled as shown in this current site plan application. The peak runoff rates are summarized below in Table 1 and the full HydroCAD output report is in Appendix C.

TABLE 1: PEAK RUNOFF RATES

24-Hour Storm Event Recurrence Interval	Study Point 1		Study Point 2	
	Existing (cfs)	Proposed (cfs)	Existing (cfs)	Proposed (cfs)
2-Year	1.3	1.4	6.5	4.2
10-Year	3.5	3.3	12.3	10.3
25-Year	11.2	10.4	17.2	12.8

Two study points were identified where stormwater runoff leaves the site for comparison of the peak runoff rates in the existing and proposed conditions. Study Point 1 is the downstream extent of the stream on the property, immediately before it crosses Center Street via culvert. Study Point 2 is the site's stormwater discharge to the existing closed drainage system on Center Street.

As shown in Table 1, the peak runoff rate to Study Point 1 is reduced during the 2-, 10-, and 25-year, 24-hour storms. This point receives stormwater discharge from the existing wet pond and overland runoff from southerly side of the site along the stream. The wet pond provides significant storage of stormwater mitigating peak runoff rates.

Peak runoff rates at Study Point 2 are also reduced during the 2-, 10-, and 25-year, 24-hour storms. This is because a large GUSF and SSF collect, treat, and attenuate the stormwater runoff from the site.

1.7 Conclusion

By incorporating various stormwater treatment practices, runoff from the proposed development will meet the MDEP Basic and General Standards.

Appendix A
Figures

PLAN
SCALE: 1"=40'

DRAWING 1	**BEARS HOLDING, LLC** **BEAR SELF STORAGE FACILITY** **SITE IMPROVEMENTS** **AUBURN, MAINE** **PRE-DEVELOPMENT STORMWATER PLAN**	**WRIGHT-PIERCE** 207.725.8721 | www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086	STATE OF MAINE JAN B.S. WIEGMAN No. 5852 REGISTERED PROFESSIONAL ENGINEER 7/31/2024	PROJECT NO: 21316 DESIGNED: J.WIEGMAN CAD COORD: R.BEISAW CAD: R.BEISAW CHECKED: N.EDWARDS DATE: 06-2024 APPROVED: J.WIEGMAN DATE: 06-2024 SUBMISSION: FOR PERMITTING

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24
2			
3			
4			
5			

LEGEND:

- WATERSHED BOUNDARY
- STUDY POINT (SP1)
- WATERSHED (1S)
- POND (GU SF1)
- NEW DEVELOPED AREA
- NON-TREATED AREA

N

TURNER STREET

XIVRAY STREET

CENTER STREET

N/F
DAVID W. LANE
10186/259 ~ 9-20-2019
TM 300-10
6 XIVRAY STREET

N/F
ANDREA M. & DAVID J. HIGSDON
6313/58 ~ 4-22-2005
TM 301-14
16 XIVRAY STREET

N/F
CENTRAL MAINE
FEDERAL CREDIT UNION
8330/100 ~ 1-31-2012
TM 301-16
836 CENTER ST

N/F
BEAR LLC
11304/245
TM 300-9
1193 TURNER ST

N/F
NORMAN E & MARY W ROSE
5940/295 ~ 6-3-2004
TM 300-5
1215 TURNER ST

N/F
KATHY WHITEHOUSE
& RONALD K KEKOA
6498/176 ~ 9-16-2005
TM 300-4
1229 TURNER ST

N/F
VICTORIA D. SANZONE
7789/89 ~ 9-11-2009
TM 300-3
1233 TURNER ST

N/F
BRENDA JIPSON
3316/305 ~ 8-23-1994
TM 300-2
1245 TURNER ST

N/F
DAVID E WEBB
JOAN N WEBB
1058/73 ~ 7-17-1972
TM 300-1
1257 TURNER ST

N/F
JOHN EMERSON LLC
8126/97 ~ 3-3-2011
TM 313-12
946 CENTER STREET
PO BOX 860
AUBURN, ME 04212

N/F
BEAR'S HOLDINGS LLC
9291/232 ~ 1-31-2021
TM 301-19
878 CENTER STREET

N/F
BEAR'S HOLDINGS LLC
9291/230
TM 301-17
864 CENTER STREET

N/F
BEAR'S HOLDINGS LLC
9291/234
TM 301-17-2
868 CENTER STREET

N/F
BEAR'S HOLDINGS LLC
9291/234
TM 301-18
900 CENTER STREET

1S, 1P, 2S, 3S, 4S, 5S, 6S, 7S, 8S

PAVED AREA

PAVED DRIVE

STORAGE UNIT

PAVED PARKING AREA

GU SF1

GU SF2

SSF1

SP1

SP2

PLAN
SCALE: 1"=40'

0 40 80

NO	REVISIONS	APP'D	DATE
1	RESPONSE TO COMMENTS	J.WIE	8/24
2			
3			
4			
5			

PROJECT NO: 21316
DESIGNED: J.WIEGMAN
CAD COORD: R.BEISAW
CAD:
CHECKED: N.EDWARDS
DATE: 06-2024
APPROVED: J.WIEGMAN
DATE: 06-2024
SUBMISSION: FOR PERMITTING

STATE OF MAINE
JAN B.S. WIEGMAN
No. 5852
REGISTERED PROFESSIONAL ENGINEER
7/31/2024

WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

BEARS HOLDING, LLC
BEAR SELF STORAGE FACILITY
SITE IMPROVEMENTS
AUBURN, MAINE

POST DEVELOPMENT STORMWATER PLAN

DRAWING
2

Appendix B
Stormwater Practice Design Calculations

Project Name:	**Bear Self Storage**
Date:	**6/5/2024**

=Inputs

GRASSED UNDERDRAIN SOIL FILTER 1

DRAINAGE AREA CHARACTERISTICS

Land Cover Type	Area	Units
Impervious	10530	SF
Non-Impervious Developed	0	SF
Total Drainage Area	10530	SF

GRASSED UNDERDRAIN SOIL FILTER VOLUME REQUIREMENTS

Land Cover Type	Area (SF)	Multiplier	Volume (CF)
Impervious Area	10530	1.0	878
Developed Area	0	0.4	-
		Volume Required	**878**

GRASSED UNDERDRAIN SOIL FILTER SURFACE AREA REQUIREMENTS

Land Cover Type	Area (SF)	Multiplier	Area (SF)
Impervious Area	10530	0.05	527
Developed Area	0	0.02	-
		Area Required	**527**

GRASSED UNDERDRAIN SOIL FILTER DESIGN

Design Parameter	Quantity	Units	Req. Met?
Bottom Surface Area (3000 max)	2000	SF	OK
Ponding Depth	1.5	FT	N/A
Porosity	1.00	-	N/A
Storage Volume	4013	CF	OK

Stage-Area-Storage for Pond GUSF1: Soil Filt

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
232.00	2,000	0
232.10	2,090	204
232.20	2,180	418
232.30	2,270	641
232.40	2,360	872
232.50	2,450	1,113
232.60	2,540	1,362
232.70	2,630	1,620
232.80	2,720	1,888
232.90	2,810	2,165
233.00	2,900	2,450
233.10	2,990	2,744
233.20	3,080	3,048
233.30	3,170	3,361
233.40	3,260	3,682
233.50	3,350	4,013
233.60	3,440	4,352
233.70	3,530	4,700
233.80	3,620	5,058
233.90	3,710	5,425
234.00	3,800	5,800
234.10	3,910	6,185
234.20	4,020	6,582
234.30	4,130	6,990
234.40	4,240	7,408
234.50	4,350	7,838

GRASSED UNDERDRAIN SOIL FILTER 2			
DRAINAGE AREA CHARACTERISTICS			
Land Cover Type	**Area**	**Units**	
Impervious	54877	SF	
Non-Impervious Developed	0	SF	
Total Drainage Area	54877	SF	
GRASSED UNDERDRAIN SOIL FILTER VOLUME REQUIREMENTS			
Land Cover Type	**Area (SF)**	**Multiplier**	**Volume (CF)**
Impervious Area	54877	1.0	4,573
Developed Area	0	0.4	-
		Volume Required	**4,573**
GRASSED UNDERDRAIN SOIL FILTER SURFACE AREA REQUIREMENTS			
Land Cover Type	**Area (SF)**	**Multiplier**	**Area (SF)**
Impervious Area	54877	0.05	2,744
Developed Area	0	0.02	-
		Area Required	**2,744**
GRASSED UNDERDRAIN SOIL FILTER DESIGN			
Design Parameter	**Quantity**	**Units**	**Req. Met?**
Bottom Surface Area (3000 max)	3000	SF	OK
Ponding Depth	1.5	FT	N/A
Porosity	1.00	-	N/A
Storage Volume	5587	CF	OK

Stage-Area-Storage for Pond GUSF2: Soil Filt

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
232.00	3,000	0
232.10	3,097	305
232.20	3,195	619
232.30	3,293	944
232.40	3,390	1,278
232.50	3,488	1,622
232.60	3,585	1,975
232.70	3,682	2,339
232.80	3,780	2,712
232.90	3,878	3,095
233.00	3,975	3,488
233.10	4,064	3,889
233.20	4,154	4,300
233.30	4,244	4,720
233.40	4,333	5,149
233.50	4,423	5,587
233.60	4,512	6,034
233.70	4,601	6,489
233.80	4,691	6,954
233.90	4,781	7,427
234.00	4,870	7,910
234.10	5,033	8,405
234.20	5,196	8,917
234.30	5,359	9,444
234.40	5,522	9,988
234.50	5,685	10,549
234.60	5,848	11,125
234.70	6,011	11,718
234.80	6,174	12,328
234.90	6,337	12,953
235.00	**6.500**	**13.595**

Project Name:	**Bear Self Storage**
Date:	**6/5/2024**

=Inputs

SUBSURFACE SAND FILTER 1

DRAINAGE AREA CHARACTERISTICS

Land Cover Type	Area	Units
Impervious	27618	SF
Non-Impervious Developed	0	SF
Total Drainage Area	27618	SF

SUBSURFACE FILTER VOLUME REQUIREMENTS

Land Cover Type	Area (SF)	Multiplier	Volume (CF)
Impervious Area	27618	1.0	2,302
Developed Area	0	0.4	-
		Volume Required	**2,302**

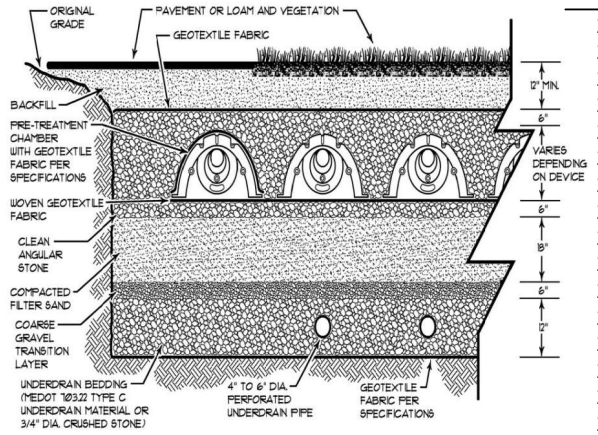
SUBSURFACE SAND FILTER SURFACE AREA REQUIREMENTS

Land Cover Type	Area (SF)	Multiplier	Area (SF)
Impervious Area	27618	0.05	1,381
Developed Area	0	0.02	-
		Area Required	**1,381**

SUBSURFACE SAND FILTER DESIGN

See storage table on right. WQV elevation is 230.5 (top of chamber) and the storage volume is 2,404 CF, which meets theminimum requirement of 2,302 CF.

Figure from Maine DEP Stormwater Manual Volume III



Stage-Area-Storage for Pond SSF1: Sand Filt

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
228.67	**2,257**	0
228.72	2,257	45
228.77	2,257	90
228.82	2,257	135
228.87	2,257	181
228.92	2,257	226
228.97	2,257	271
229.02	2,257	316
229.07	2,257	361
229.12	2,257	406
229.17	2,257	451
229.22	2,257	540
229.27	2,257	629
229.32	2,257	717
229.37	2,257	804
229.42	2,257	891
229.47	2,257	977
229.52	2,257	1,062
229.57	2,257	1,146
229.62	2,257	1,229
229.67	2,257	1,311
229.72	2,257	1,392
229.77	2,257	1,471
229.82	2,257	1,550
229.87	2,257	1,627
229.92	2,257	1,703
229.97	2,257	1,777
230.02	2,257	1,849
230.07	2,257	1,919
230.12	2,257	1,987
230.17	2,257	2,053
230.22	2,257	2,115
230.27	2,257	2,174
230.32	2,257	2,228
230.37	2,257	2,279
230.42	2,257	2,329
230.47	2,257	2,376
230.52	2,257	2,422
230.57	2,257	2,467

Project Name:	**Bear Self Storage**
Date:	**6/5/2024**

=Inputs

WET POND 1

DRAINAGE AREA CHARACTERISTICS

Land Cover Type	Area	Units
Impervious	102121	SF
Non-Impervious Developed	68786	SF
Total Drainage Area	170907	SF

WET POND TREATMENT VOLUME REQUIREMENTS

Permanent Pool Volume

Land Cover Type	Area (SF)	Multiplier	Volume (CF)
Impervious Area	102121	2.0	17,020
Developed Area	68786	0.8	4,586
		Volume Required	**21,606**

Channel Protection Volume

Land Cover Type	Area (SF)	Multiplier	Volume (CF)
Impervious Area	1000	1.0	83
Developed Area	102121	0.4	3,404
		Volume Required	**3,487**

WET POND TREATMENT SURFACE AREA REQUIREMENTS

Land Cover Type	Area (SF)	Multiplier	Area (SF)
Impervious Area	102121	0.05	5,106
Developed Area	68786	0.02	1,376
		Area Required	**6,482**

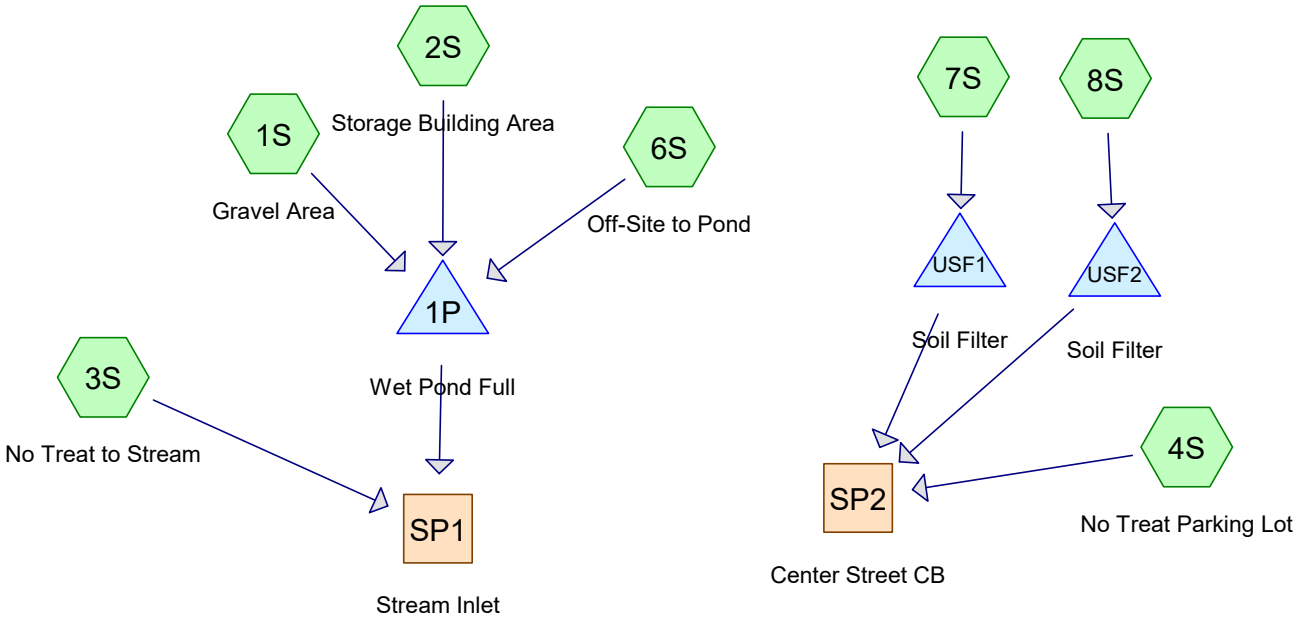
WET POND DESIGN

Design Parameter	Quantity	Units	Req. Met?
Bottom Surface Area	8500	SF	OK
Permanent Pool Volume (PPV)	28157	CF	OK
Channel Protection Volume (CPV)	36205	CF	OK

Wet Pond Storage Volume

Elevation (FT)	Area (SF)	Depth (Ft)	Volume (CF)	Notes
229	-	-	-	Bottom of pond.
234	8533	5	28157	Permanent pool elevation.
235	9585	1	37216	
236	10550	1	47284	
237	11575	1	58346	
237.5	12488	0.5	64362	Top of pond.

Appendix C
HydroCAD Output Reports



Subcat Reach Pond Link

Routing Diagram for Bear Self Storage Existing
Prepared by Wright-Pierce, Printed 6/5/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.572	61	>75% Grass cover, Good, HSG B (2S, 6S)
5.558	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 4S, 6S, 7S, 8S)
0.073	96	Gravel (1S, 3S, 4S)
3.757	98	Impervious (1S, 2S, 3S, 4S, 6S, 7S, 8S)
9.961	**82**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Gravel Area Runoff Area=44,036 sf 9.97% Impervious Runoff Depth=1.08"
Tc=5.0 min CN=77 Runoff=1.27 cfs 0.091 af

Subcatchment 2S: Storage Building Area Runoff Area=106,131 sf 74.22% Impervious Runoff Depth=1.99"
Tc=5.0 min CN=90 Runoff=5.90 cfs 0.405 af

Subcatchment 3S: No Treat to Stream Runoff Area=70,347 sf 5.45% Impervious Runoff Depth=1.02"
Flow Length=715' Tc=14.4 min CN=76 Runoff=1.25 cfs 0.138 af

Subcatchment 4S: No Treat Parking Lot Runoff Area=159,446 sf 38.56% Impervious Runoff Depth=1.45"
Tc=5.0 min CN=83 Runoff=6.46 cfs 0.444 af

Subcatchment 6S: Off-Site to Pond Runoff Area=33,300 sf 16.56% Impervious Runoff Depth=0.91"
Tc=5.0 min CN=74 Runoff=0.78 cfs 0.058 af

Subcatchment 7S: Runoff Area=9,734 sf 65.78% Impervious Runoff Depth=1.99"
Tc=5.0 min CN=90 Runoff=0.54 cfs 0.037 af

Subcatchment 8S: Runoff Area=10,901 sf 29.97% Impervious Runoff Depth=1.32"
Tc=5.0 min CN=81 Runoff=0.40 cfs 0.028 af

Reach SP1: Stream Inlet Inflow=1.25 cfs 0.252 af
Outflow=1.25 cfs 0.252 af

Reach SP2: Center Street CB Inflow=6.46 cfs 0.481 af
Outflow=6.46 cfs 0.481 af

Pond 1P: Wet Pond Full Peak Elev=236.04' Storage=19,573 cf Inflow=7.95 cfs 0.554 af
Outflow=0.22 cfs 0.115 af

Pond USF1: Soil Filter Peak Elev=232.56' Storage=647 cf Inflow=0.54 cfs 0.037 af
Outflow=0.24 cfs 0.023 af

Pond USF2: Soil Filter Peak Elev=232.52' Storage=613 cf Inflow=0.40 cfs 0.028 af
Outflow=0.04 cfs 0.014 af

Total Runoff Area = 9.961 ac Runoff Volume = 1.200 af Average Runoff Depth = 1.45"
62.28% Pervious = 6.204 ac 37.72% Impervious = 3.757 ac

Summary for Subcatchment 1S: Gravel Area

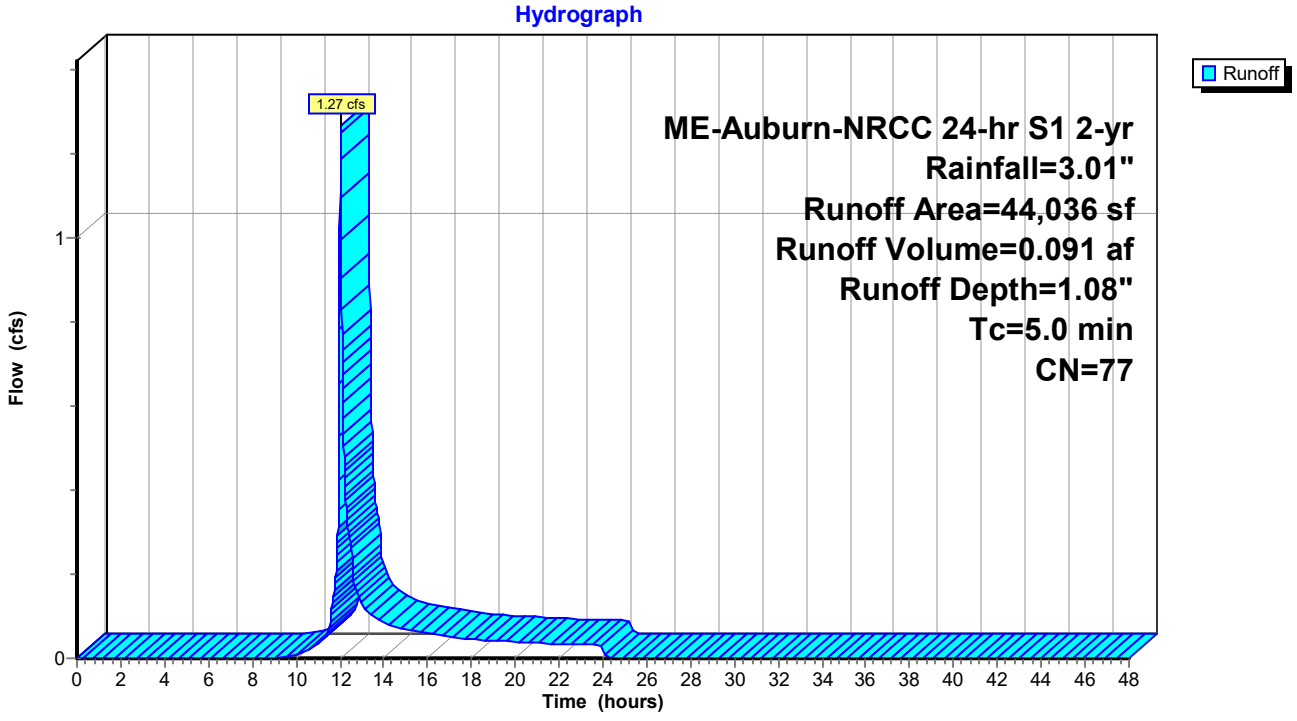
Runoff = 1.27 cfs @ 12.03 hrs, Volume= 0.091 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	4,390	98	Impervious
	38,852	74	>75% Grass cover, Good, HSG C
*	794	96	Gravel
	44,036	77	Weighted Average
	39,646		90.03% Pervious Area
	4,390		9.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Gravel Area



Summary for Subcatchment 2S: Storage Building Area

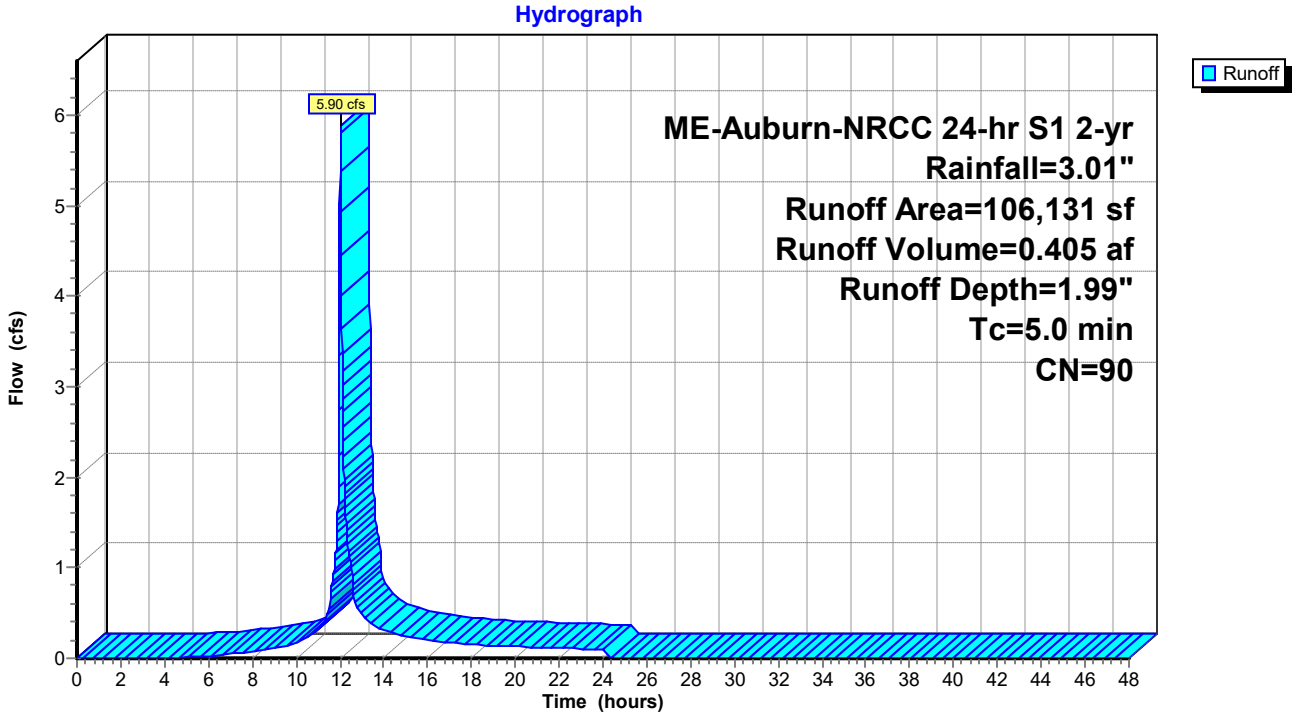
Runoff = 5.90 cfs @ 12.03 hrs, Volume= 0.405 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	78,774	98	Impervious
	13,470	74	>75% Grass cover, Good, HSG C
	13,887	61	>75% Grass cover, Good, HSG B
	106,131	90	Weighted Average
	27,357		25.78% Pervious Area
	78,774		74.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Storage Building Area



Summary for Subcatchment 3S: No Treat to Stream

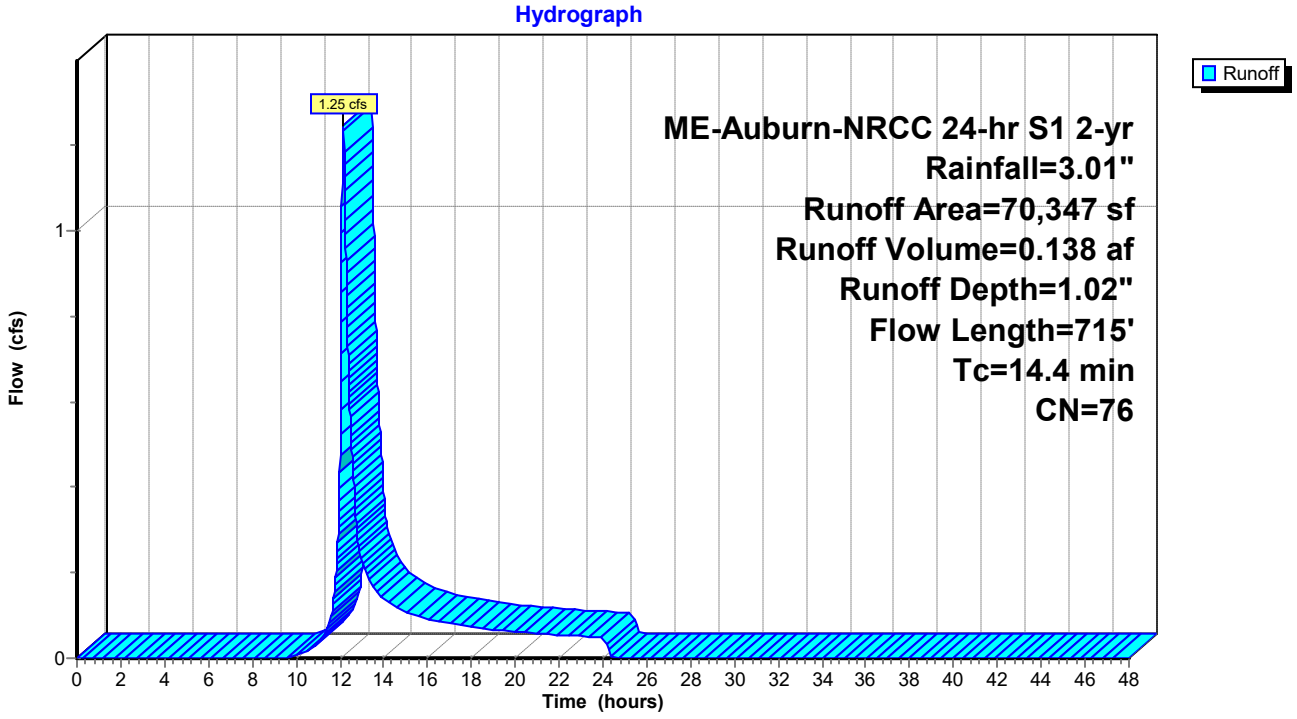
Runoff = 1.25 cfs @ 12.16 hrs, Volume= 0.138 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	1,643	96	Gravel
*	3,832	98	Impervious
	64,872	74	>75% Grass cover, Good, HSG C
	70,347	76	Weighted Average
	66,515		94.55% Pervious Area
	3,832		5.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	70	0.0700	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	100	0.1200	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	545	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
14.4	715	Total			

Subcatchment 3S: No Treat to Stream



Summary for Subcatchment 4S: No Treat Parking Lot

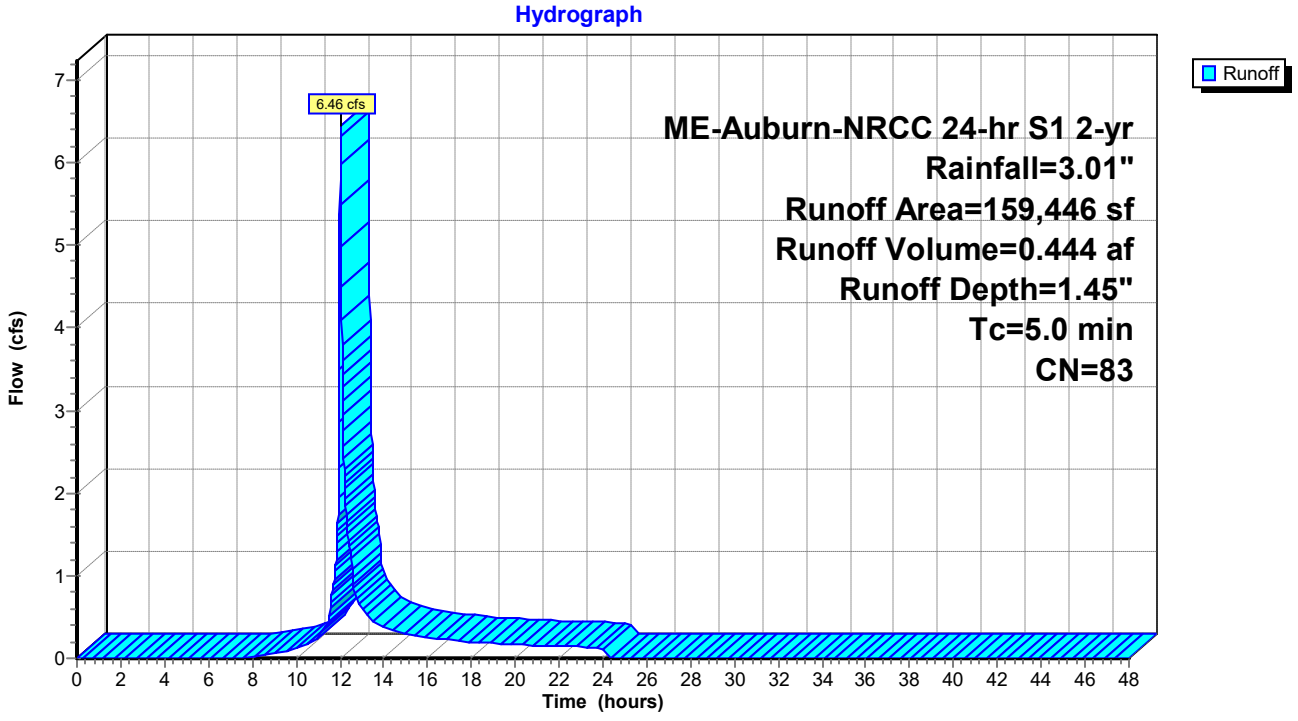
Runoff = 6.46 cfs @ 12.03 hrs, Volume= 0.444 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	61,478	98	Impervious
*	761	96	Gravel
	97,207	74	>75% Grass cover, Good, HSG C
	159,446	83	Weighted Average
	97,968		61.44% Pervious Area
	61,478		38.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: No Treat Parking Lot



Summary for Subcatchment 6S: Off-Site to Pond

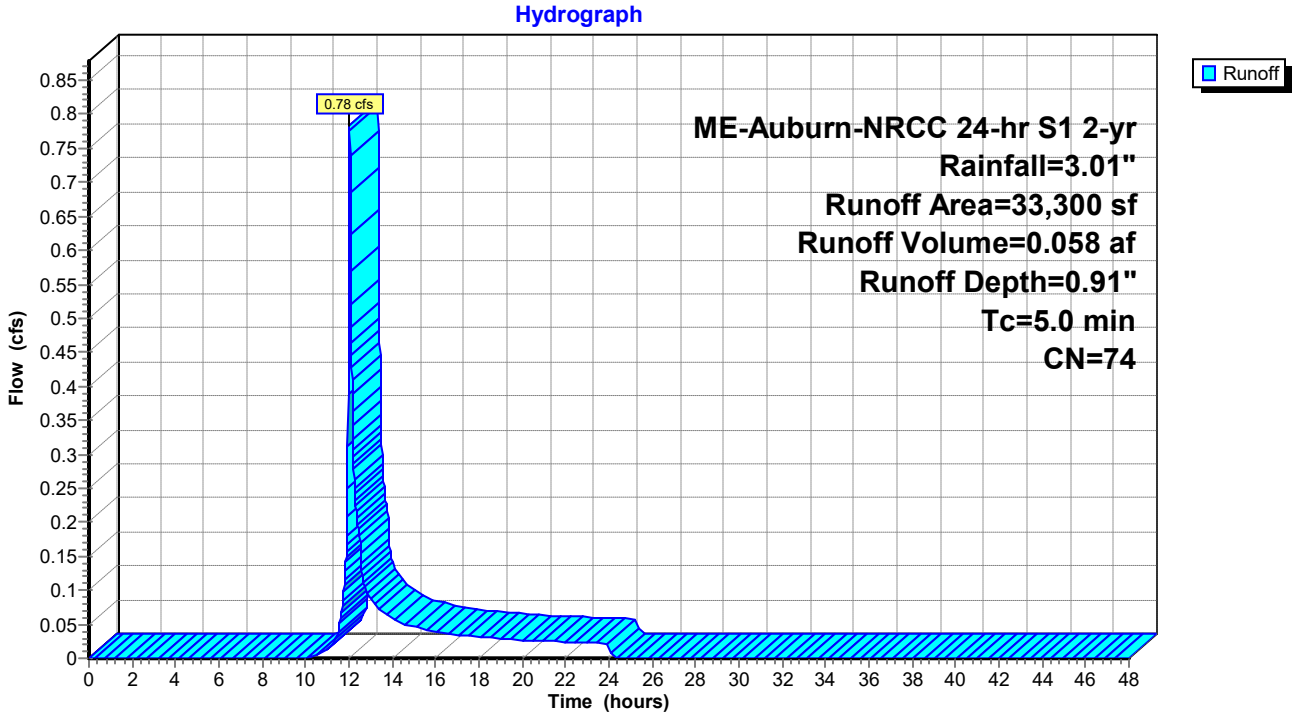
Runoff = 0.78 cfs @ 12.03 hrs, Volume= 0.058 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	5,516	98	Impervious
	16,738	74	>75% Grass cover, Good, HSG C
	11,046	61	>75% Grass cover, Good, HSG B
	33,300	74	Weighted Average
	27,784		83.44% Pervious Area
	5,516		16.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: Off-Site to Pond



Summary for Subcatchment 7S:

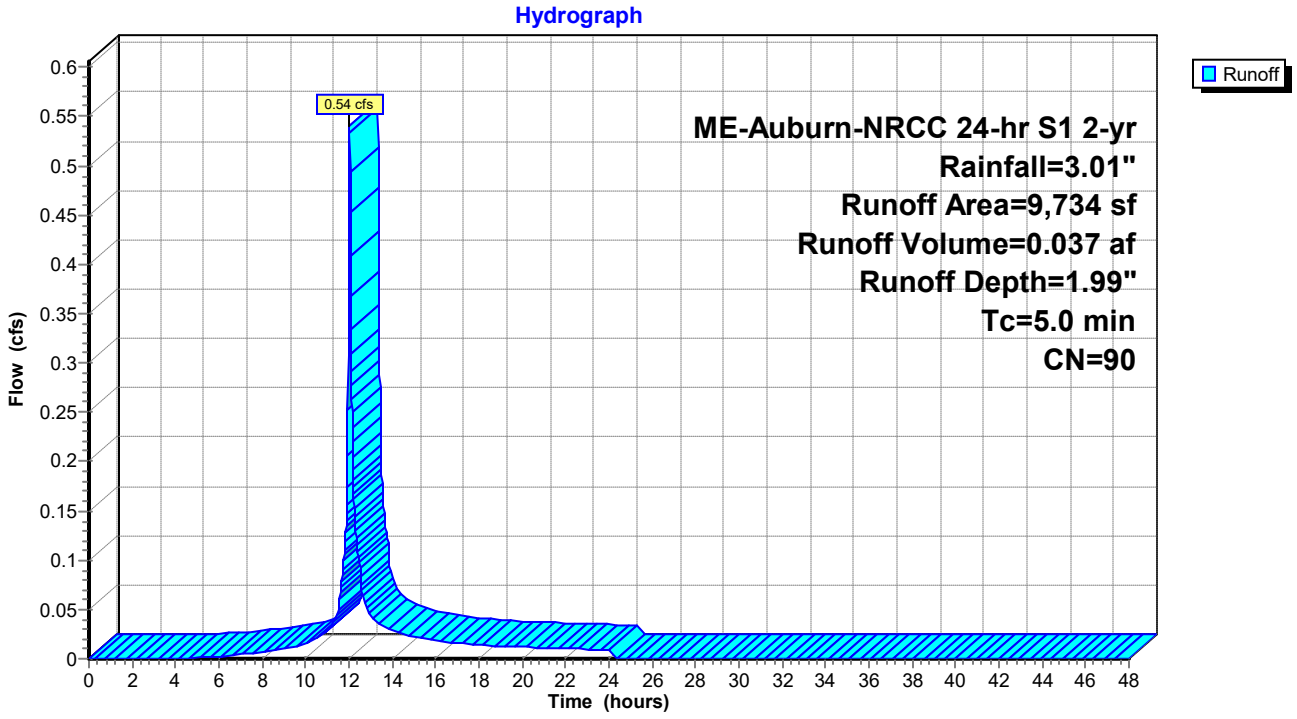
Runoff = 0.54 cfs @ 12.03 hrs, Volume= 0.037 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	6,403	98	Impervious
	3,331	74	>75% Grass cover, Good, HSG C
	9,734	90	Weighted Average
	3,331		34.22% Pervious Area
	6,403		65.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S:



Summary for Subcatchment 8S:

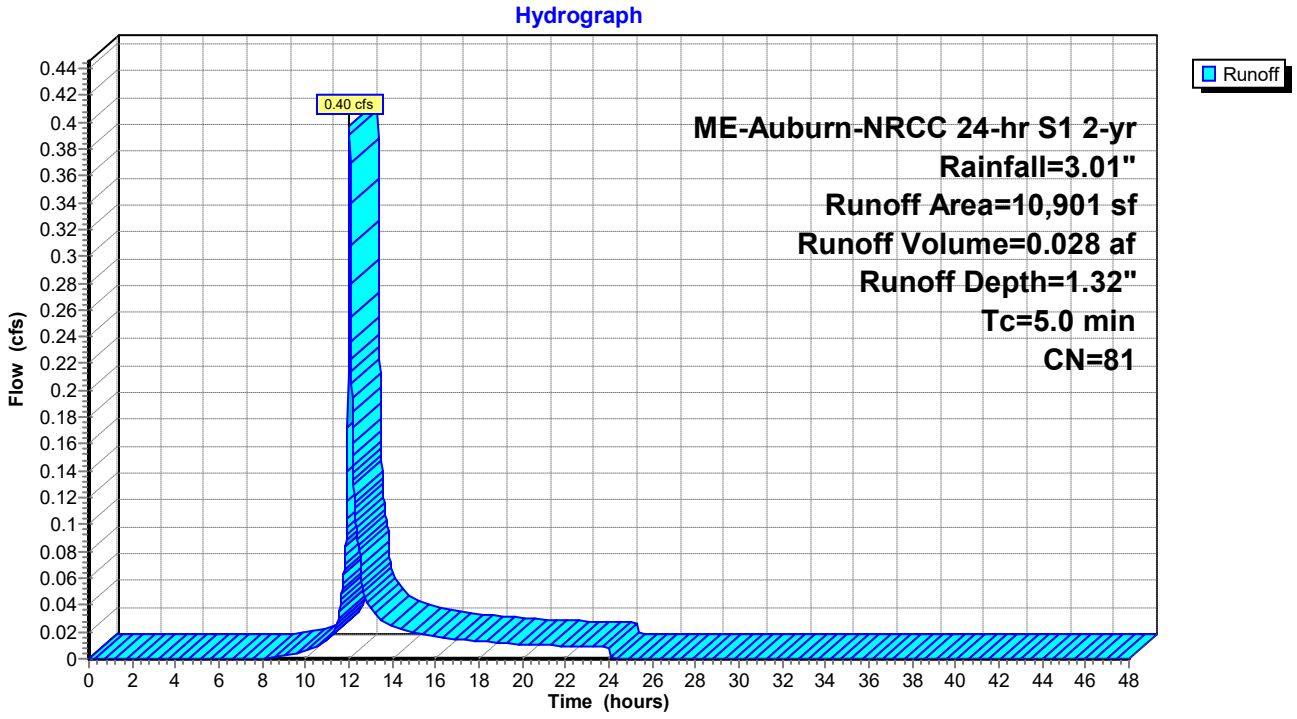
Runoff = 0.40 cfs @ 12.03 hrs, Volume= 0.028 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	3,267	98	Impervious
	7,634	74	>75% Grass cover, Good, HSG C
	10,901	81	Weighted Average
	7,634		70.03% Pervious Area
	3,267		29.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S:

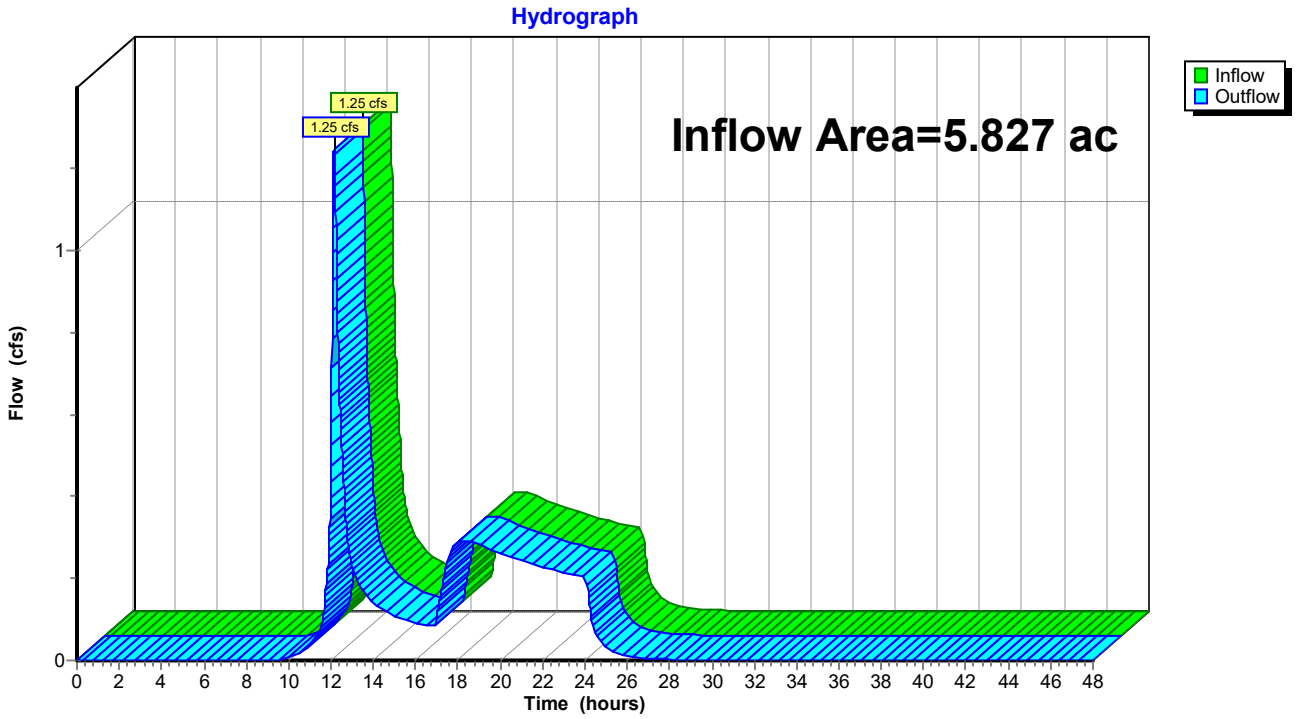


Summary for Reach SP1: Stream Inlet

Inflow Area = 5.827 ac, 36.45% Impervious, Inflow Depth = 0.52" for 2-yr event
Inflow = 1.25 cfs @ 12.16 hrs, Volume= 0.252 af
Outflow = 1.25 cfs @ 12.16 hrs, Volume= 0.252 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP1: Stream Inlet

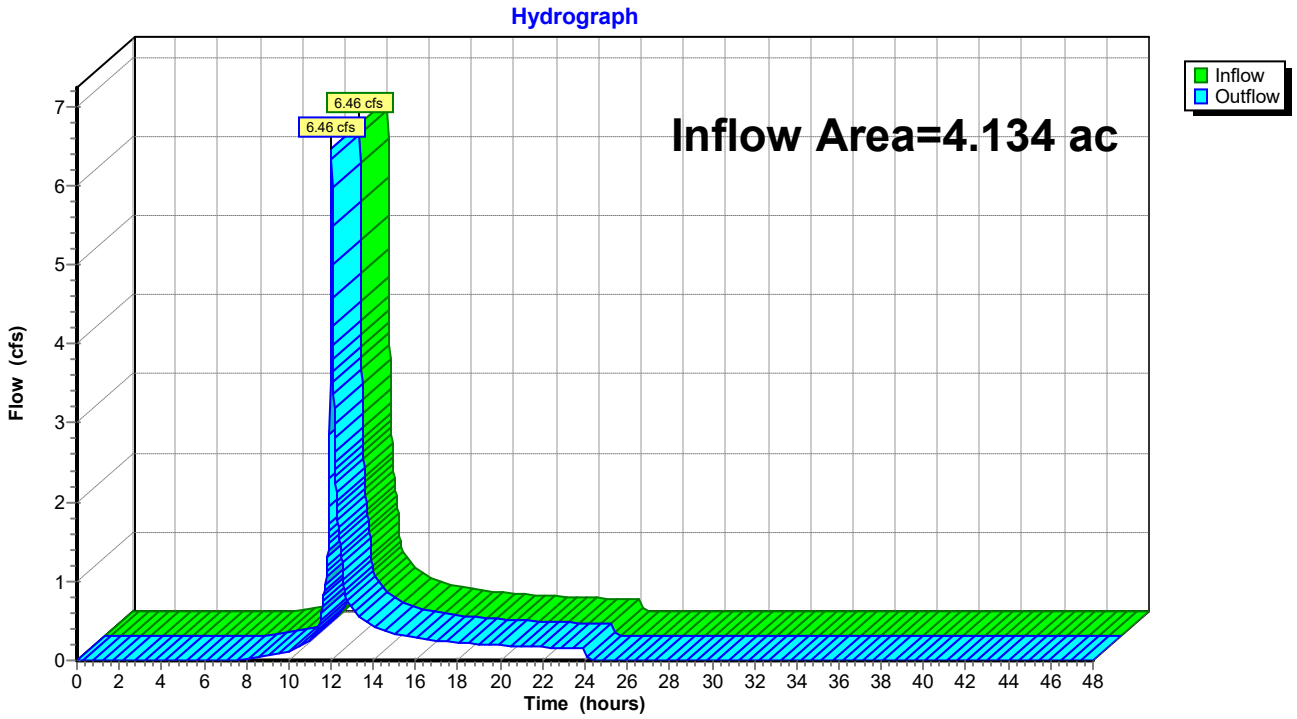


Summary for Reach SP2: Center Street CB

Inflow Area = 4.134 ac, 39.51% Impervious, Inflow Depth = 1.40" for 2-yr event
Inflow = 6.46 cfs @ 12.03 hrs, Volume= 0.481 af
Outflow = 6.46 cfs @ 12.03 hrs, Volume= 0.481 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP2: Center Street CB



Summary for Pond 1P: Wet Pond Full

Inflow Area = 4.212 ac, 48.34% Impervious, Inflow Depth = 1.58" for 2-yr event
Inflow = 7.95 cfs @ 12.03 hrs, Volume= 0.554 af
Outflow = 0.22 cfs @ 18.38 hrs, Volume= 0.115 af, Atten= 97%, Lag= 380.9 min
Primary = 0.22 cfs @ 18.38 hrs, Volume= 0.115 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 236.04' @ 18.38 hrs Surf.Area= 10,593 sf Storage= 19,573 cf

Plug-Flow detention time= 610.5 min calculated for 0.115 af (21% of inflow)
Center-of-Mass det. time= 402.0 min (1,247.8 - 845.7)

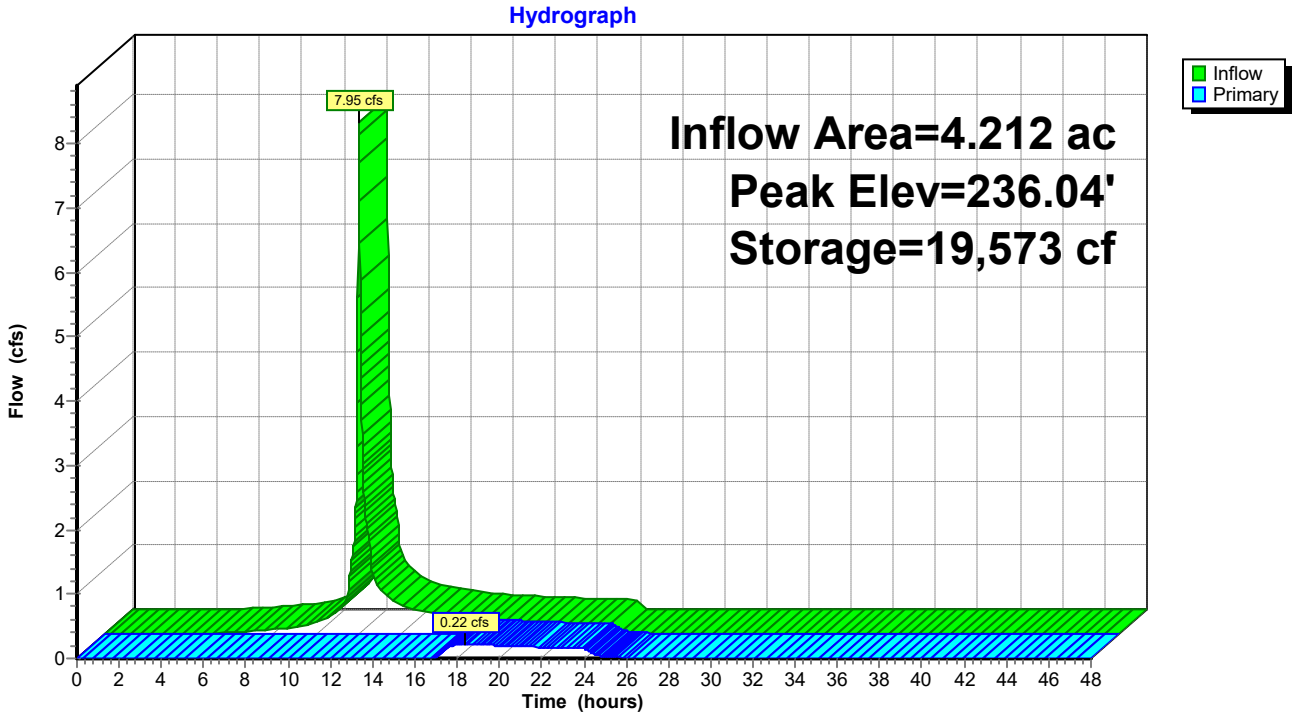
Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	42,677 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	8,533	0	0
235.00	9,585	9,059	9,059
236.00	10,550	10,068	19,127
237.00	11,575	11,063	30,189
238.00	13,400	12,488	42,677

Device	Routing	Invert	Outlet Devices
#1	Primary	236.00'	**10.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=0.22 cfs @ 18.38 hrs HW=236.04' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.22 cfs @ 0.53 fps)

Pond 1P: Wet Pond Full



Summary for Pond USF1: Soil Filter

Inflow Area = 0.223 ac, 65.78% Impervious, Inflow Depth = 1.99" for 2-yr event
Inflow = 0.54 cfs @ 12.03 hrs, Volume= 0.037 af
Outflow = 0.24 cfs @ 12.15 hrs, Volume= 0.023 af, Atten= 56%, Lag= 7.3 min
Primary = 0.24 cfs @ 12.15 hrs, Volume= 0.023 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 232.56' @ 12.15 hrs Surf.Area= 767 sf Storage= 647 cf

Plug-Flow detention time= 237.6 min calculated for 0.023 af (63% of inflow)
Center-of-Mass det. time= 105.6 min (933.2 - 827.6)

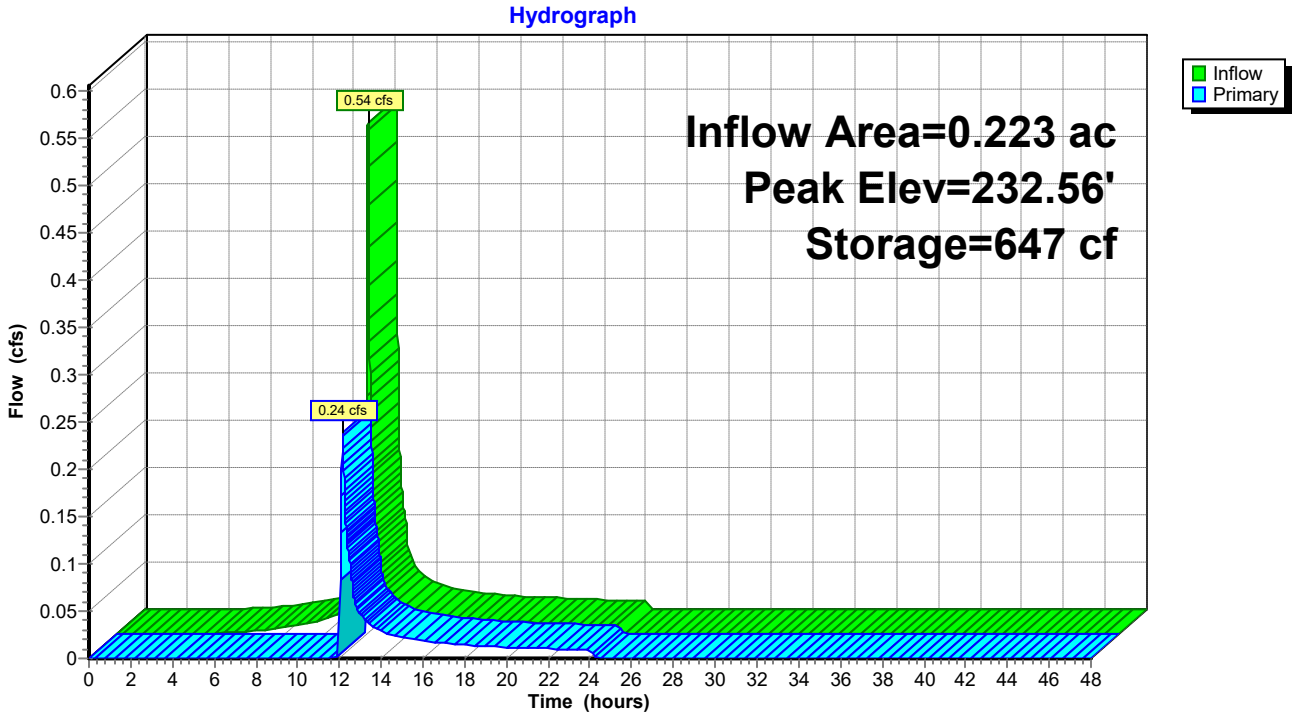
Volume	Invert	Avail.Storage	Storage Description
#1	231.50'	1,518 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.50	454	0	0
232.50	745	600	600
233.50	1,092	919	1,518

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.24 cfs @ 12.15 hrs HW=232.56' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.24 cfs @ 0.63 fps)

Pond USF1: Soil Filter



Summary for Pond USF2: Soil Filter

Inflow Area = 0.250 ac, 29.97% Impervious, Inflow Depth = 1.32" for 2-yr event
Inflow = 0.40 cfs @ 12.03 hrs, Volume= 0.028 af
Outflow = 0.04 cfs @ 13.13 hrs, Volume= 0.014 af, Atten= 91%, Lag= 65.9 min
Primary = 0.04 cfs @ 13.13 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 232.52' @ 13.13 hrs Surf.Area= 751 sf Storage= 613 cf

Plug-Flow detention time= 322.1 min calculated for 0.014 af (50% of inflow)
Center-of-Mass det. time= 165.2 min (1,037.6 - 872.4)

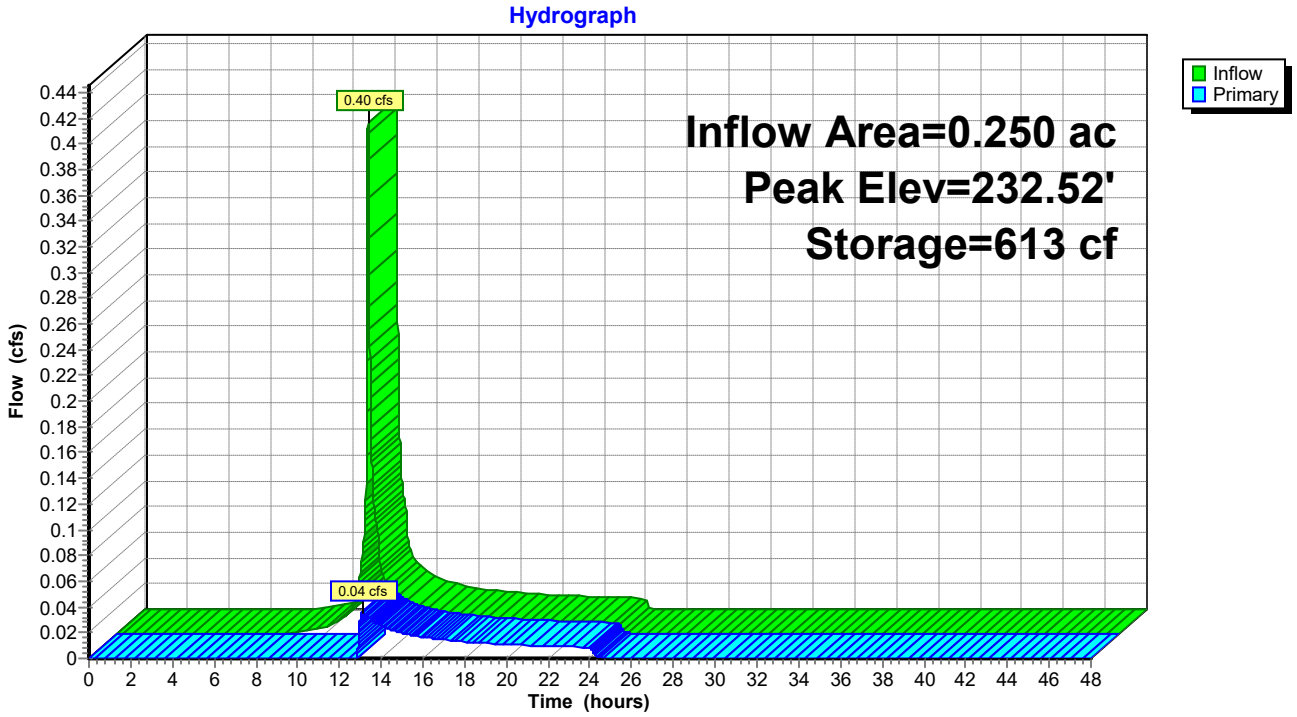
Volume	Invert	Avail.Storage	Storage Description
#1	231.50'	1,518 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.50	454	0	0
232.50	745	600	600
233.50	1,092	919	1,518

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.04 cfs @ 13.13 hrs HW=232.52' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.33 fps)

Pond USF2: Soil Filter



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Gravel Area Runoff Area=44,036 sf 9.97% Impervious Runoff Depth=2.16"
Tc=5.0 min CN=77 Runoff=2.52 cfs 0.182 af

Subcatchment 2S: Storage Building Area Runoff Area=106,131 sf 74.22% Impervious Runoff Depth=3.34"
Tc=5.0 min CN=90 Runoff=9.21 cfs 0.678 af

Subcatchment 3S: No Treat to Stream Runoff Area=70,347 sf 5.45% Impervious Runoff Depth=2.08"
Flow Length=715' Tc=14.4 min CN=76 Runoff=2.60 cfs 0.280 af

Subcatchment 4S: No Treat Parking Lot Runoff Area=159,446 sf 38.56% Impervious Runoff Depth=2.67"
Tc=5.0 min CN=83 Runoff=11.33 cfs 0.815 af

Subcatchment 6S: Off-Site to Pond Runoff Area=33,300 sf 16.56% Impervious Runoff Depth=1.93"
Tc=5.0 min CN=74 Runoff=1.68 cfs 0.123 af

Subcatchment 7S: Runoff Area=9,734 sf 65.78% Impervious Runoff Depth=3.34"
Tc=5.0 min CN=90 Runoff=0.84 cfs 0.062 af

Subcatchment 8S: Runoff Area=10,901 sf 29.97% Impervious Runoff Depth=2.50"
Tc=5.0 min CN=81 Runoff=0.72 cfs 0.052 af

Reach SP1: Stream Inlet Inflow=3.51 cfs 0.824 af
Outflow=3.51 cfs 0.824 af

Reach SP2: Center Street CB Inflow=12.32 cfs 0.902 af
Outflow=12.32 cfs 0.902 af

Pond 1P: Wet Pond Full Peak Elev=236.21' Storage=21,353 cf Inflow=13.40 cfs 0.983 af
Outflow=2.46 cfs 0.544 af

Pond USF1: Soil Filter Peak Elev=232.64' Storage=707 cf Inflow=0.84 cfs 0.062 af
Outflow=0.78 cfs 0.048 af

Pond USF2: Soil Filter Peak Elev=232.61' Storage=682 cf Inflow=0.72 cfs 0.052 af
Outflow=0.53 cfs 0.038 af

Total Runoff Area = 9.961 ac Runoff Volume = 2.192 af Average Runoff Depth = 2.64"
62.28% Pervious = 6.204 ac 37.72% Impervious = 3.757 ac

Summary for Subcatchment 1S: Gravel Area

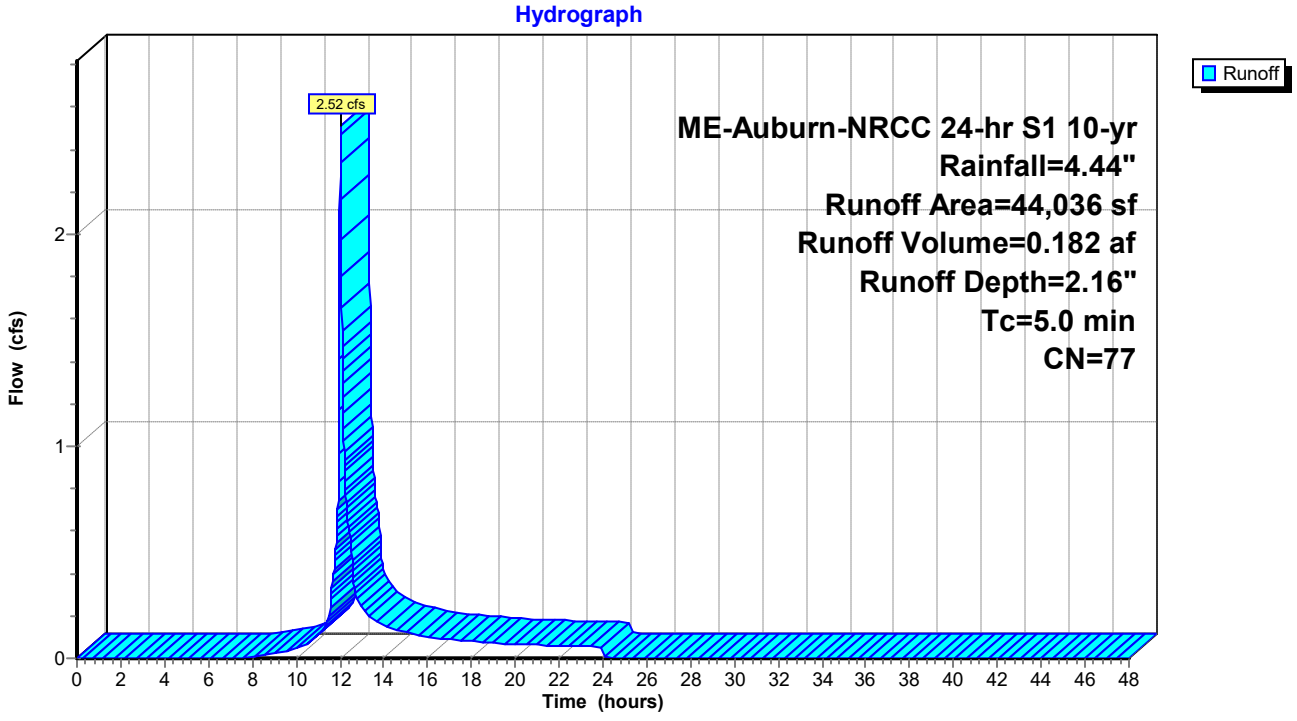
Runoff = 2.52 cfs @ 12.03 hrs, Volume= 0.182 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	4,390	98	Impervious
	38,852	74	>75% Grass cover, Good, HSG C
*	794	96	Gravel
	44,036	77	Weighted Average
	39,646		90.03% Pervious Area
	4,390		9.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Gravel Area



Summary for Subcatchment 2S: Storage Building Area

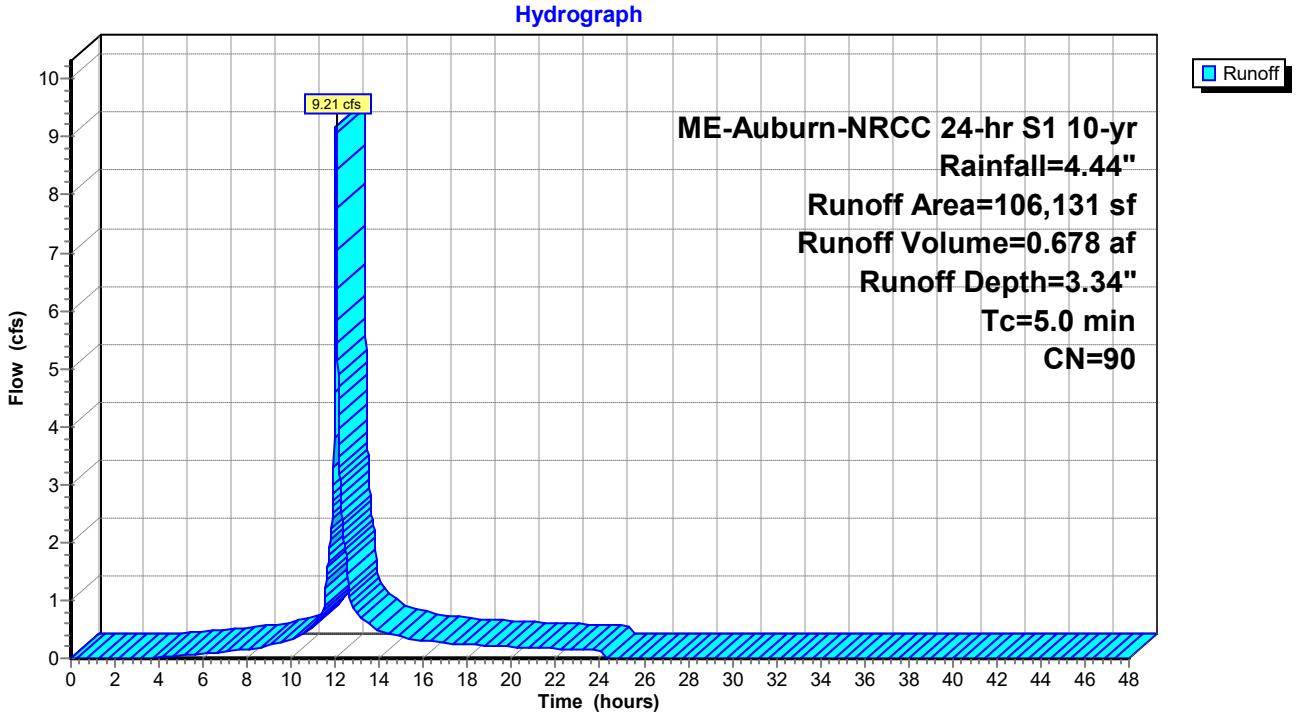
Runoff = 9.21 cfs @ 12.03 hrs, Volume= 0.678 af, Depth= 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	78,774	98	Impervious
	13,470	74	>75% Grass cover, Good, HSG C
	13,887	61	>75% Grass cover, Good, HSG B
	106,131	90	Weighted Average
	27,357		25.78% Pervious Area
	78,774		74.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Storage Building Area



Summary for Subcatchment 3S: No Treat to Stream

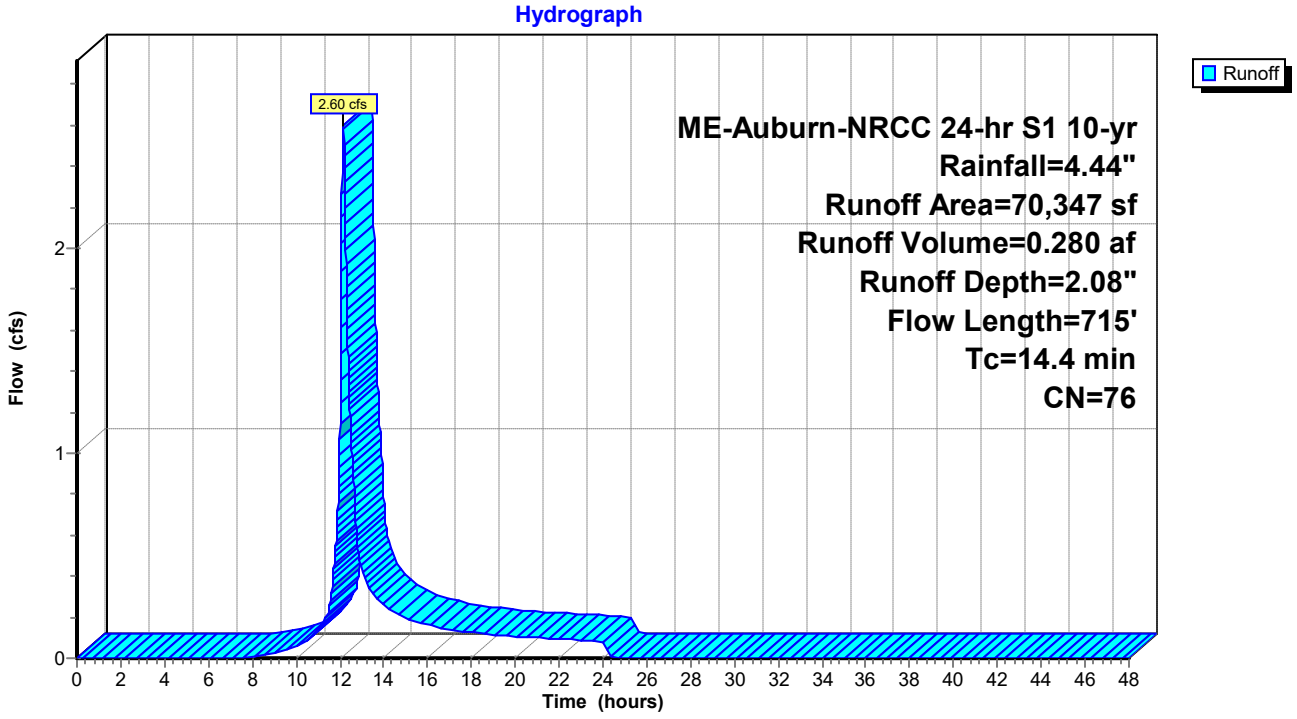
Runoff = 2.60 cfs @ 12.15 hrs, Volume= 0.280 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	1,643	96	Gravel
*	3,832	98	Impervious
	64,872	74	>75% Grass cover, Good, HSG C
	70,347	76	Weighted Average
	66,515		94.55% Pervious Area
	3,832		5.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	70	0.0700	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	100	0.1200	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	545	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
14.4	715	Total			

Subcatchment 3S: No Treat to Stream



Summary for Subcatchment 4S: No Treat Parking Lot

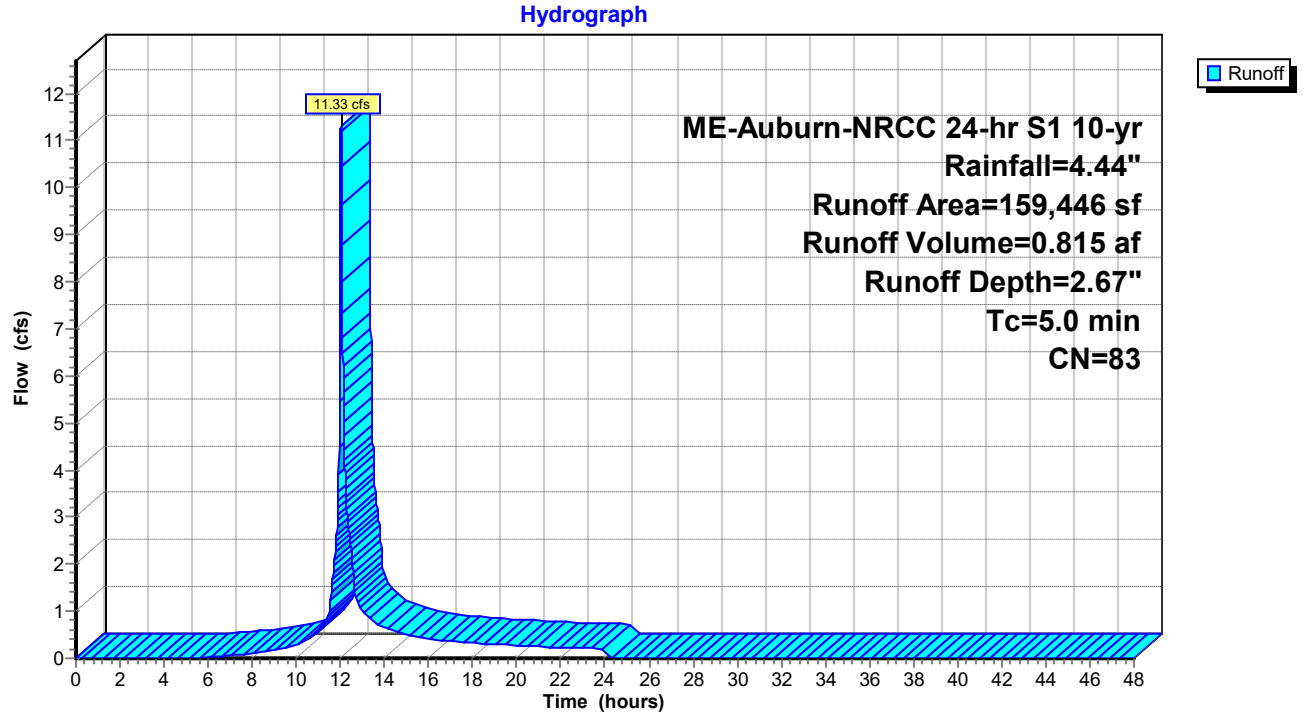
Runoff = 11.33 cfs @ 12.03 hrs, Volume= 0.815 af, Depth= 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	61,478	98	Impervious
*	761	96	Gravel
	97,207	74	>75% Grass cover, Good, HSG C
	159,446	83	Weighted Average
	97,968		61.44% Pervious Area
	61,478		38.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: No Treat Parking Lot



Summary for Subcatchment 6S: Off-Site to Pond

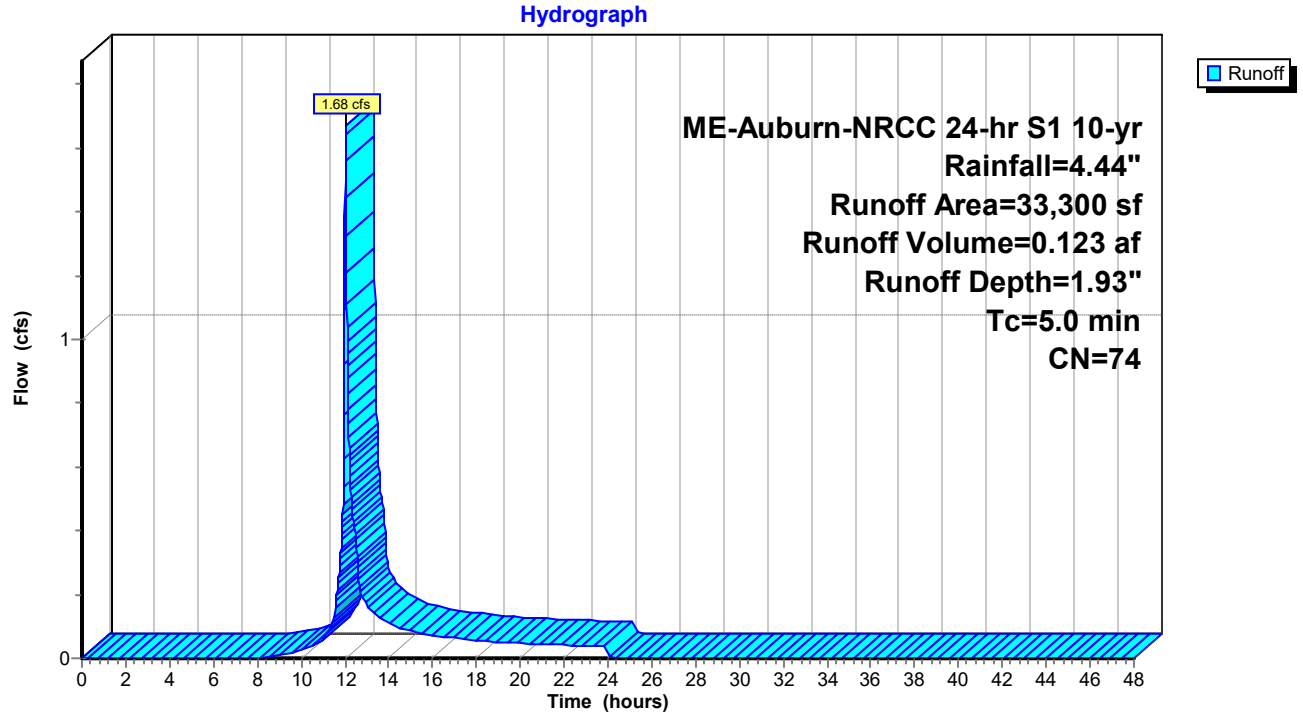
Runoff = 1.68 cfs @ 12.03 hrs, Volume= 0.123 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	5,516	98	Impervious
	16,738	74	>75% Grass cover, Good, HSG C
	11,046	61	>75% Grass cover, Good, HSG B
	33,300	74	Weighted Average
	27,784		83.44% Pervious Area
	5,516		16.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: Off-Site to Pond



Summary for Subcatchment 7S:

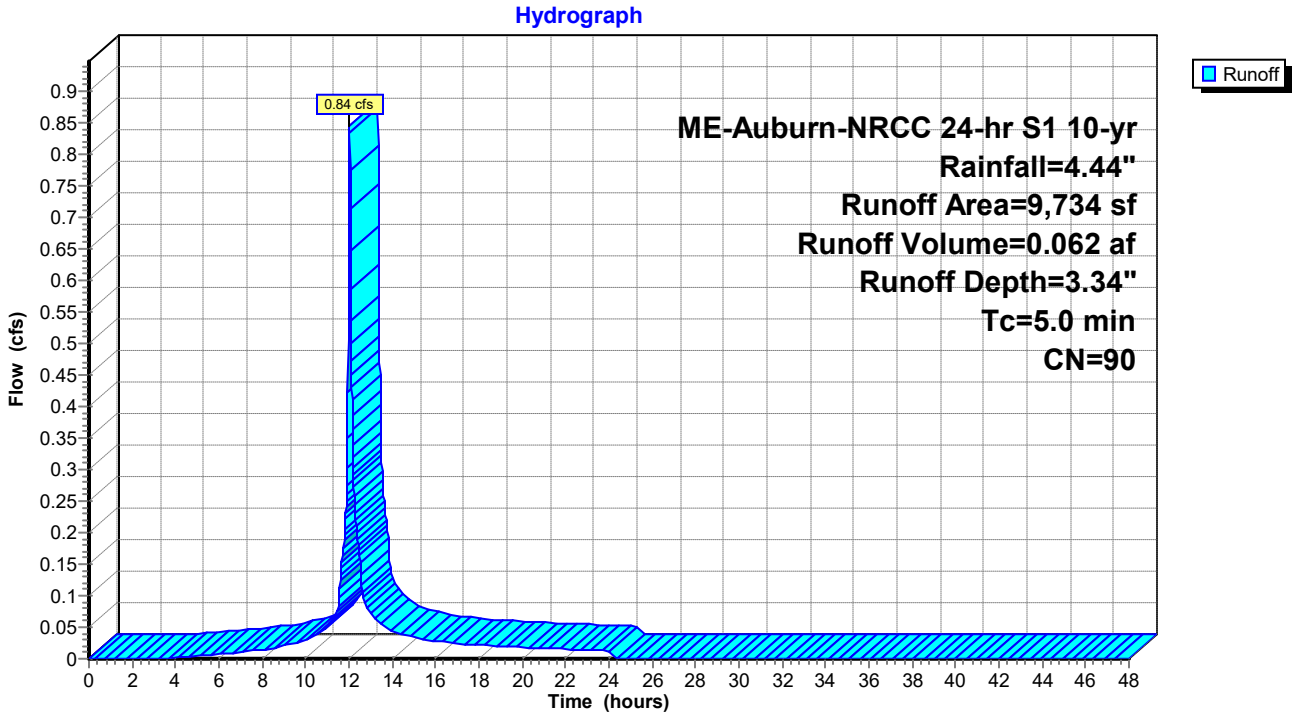
Runoff = 0.84 cfs @ 12.03 hrs, Volume= 0.062 af, Depth= 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	6,403	98	Impervious
	3,331	74	>75% Grass cover, Good, HSG C
	9,734	90	Weighted Average
	3,331		34.22% Pervious Area
	6,403		65.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S:



Summary for Subcatchment 8S:

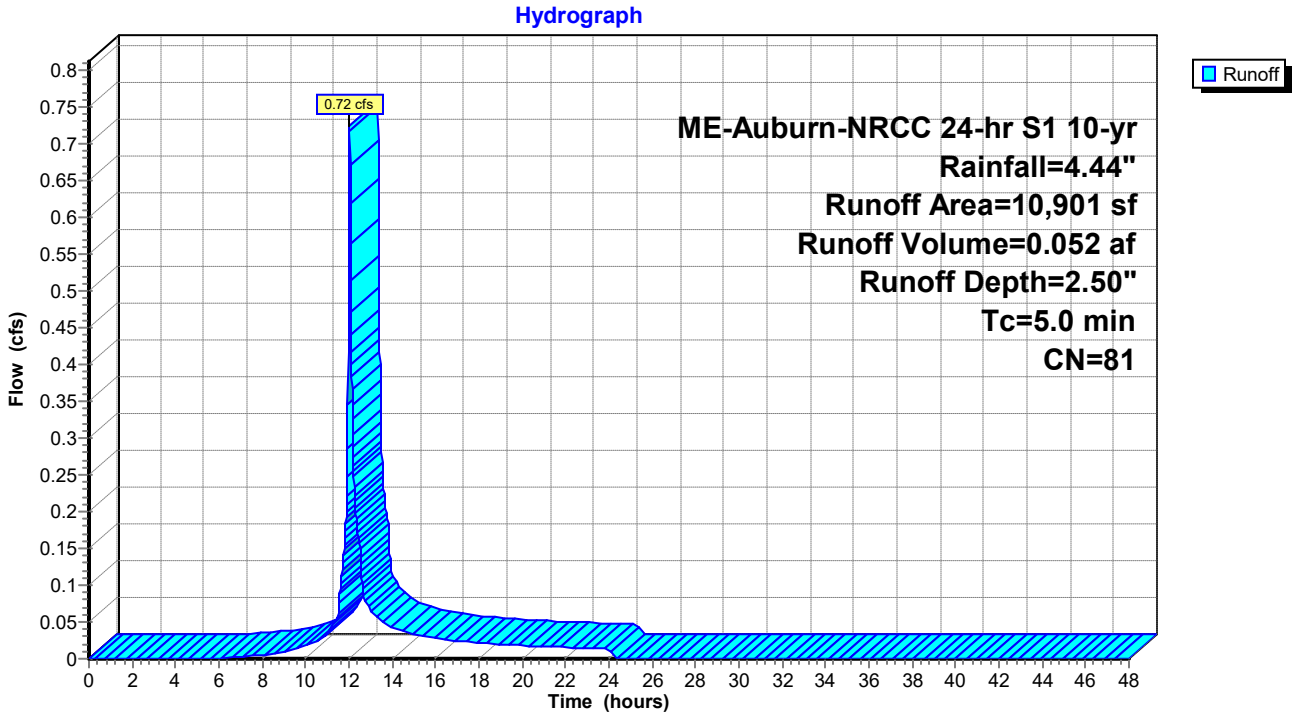
Runoff = 0.72 cfs @ 12.03 hrs, Volume= 0.052 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	3,267	98	Impervious
	7,634	74	>75% Grass cover, Good, HSG C
	10,901	81	Weighted Average
	7,634		70.03% Pervious Area
	3,267		29.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S:

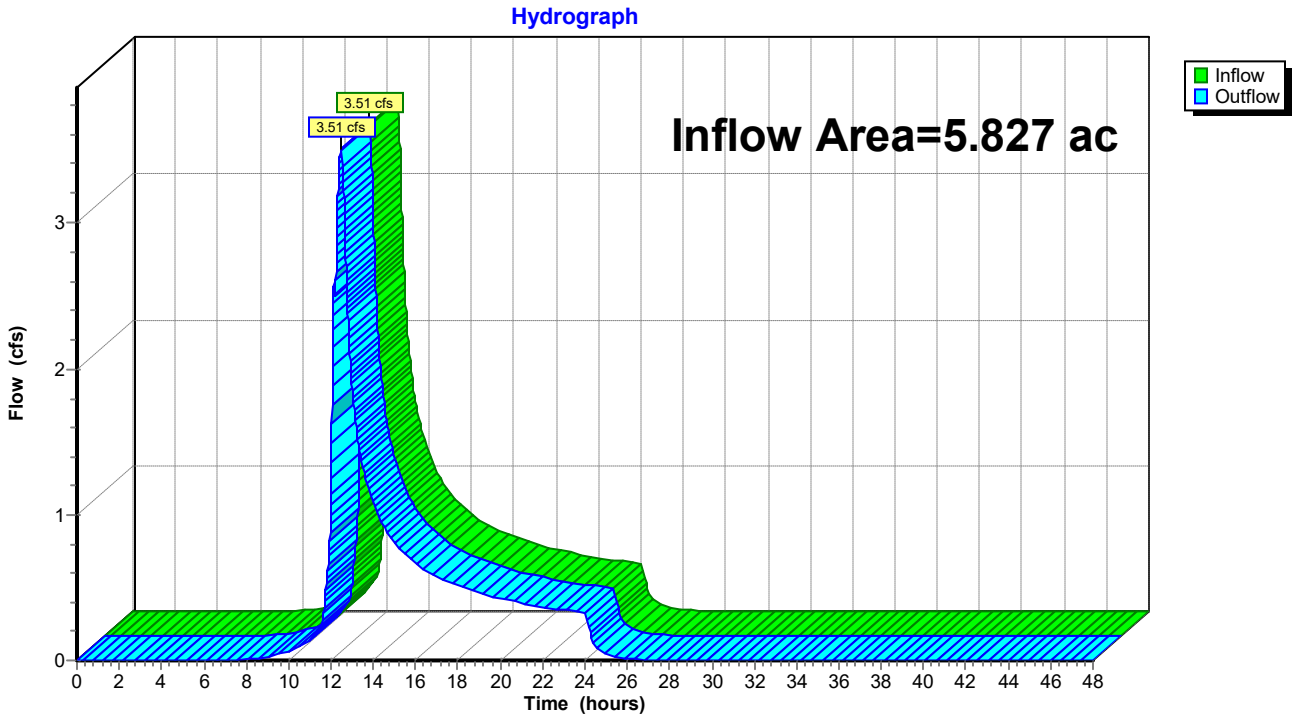


Summary for Reach SP1: Stream Inlet

Inflow Area = 5.827 ac, 36.45% Impervious, Inflow Depth = 1.70" for 10-yr event
Inflow = 3.51 cfs @ 12.49 hrs, Volume= 0.824 af
Outflow = 3.51 cfs @ 12.49 hrs, Volume= 0.824 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP1: Stream Inlet

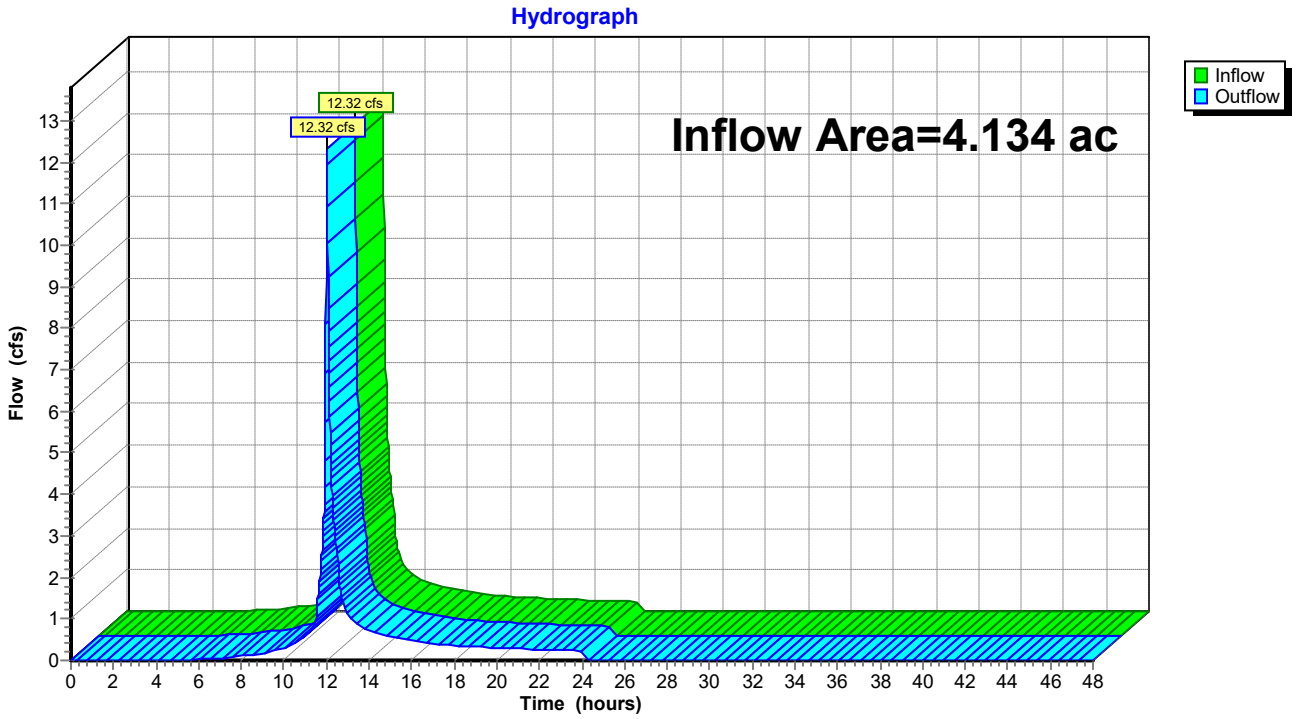


Summary for Reach SP2: Center Street CB

Inflow Area = 4.134 ac, 39.51% Impervious, Inflow Depth = 2.62" for 10-yr event
Inflow = 12.32 cfs @ 12.03 hrs, Volume= 0.902 af
Outflow = 12.32 cfs @ 12.03 hrs, Volume= 0.902 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP2: Center Street CB



Summary for Pond 1P: Wet Pond Full

Inflow Area = 4.212 ac, 48.34% Impervious, Inflow Depth = 2.80" for 10-yr event
Inflow = 13.40 cfs @ 12.03 hrs, Volume= 0.983 af
Outflow = 2.46 cfs @ 12.55 hrs, Volume= 0.544 af, Atten= 82%, Lag= 31.1 min
Primary = 2.46 cfs @ 12.55 hrs, Volume= 0.544 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 236.21' @ 12.55 hrs Surf.Area= 10,764 sf Storage= 21,353 cf

Plug-Flow detention time= 295.6 min calculated for 0.543 af (55% of inflow)
Center-of-Mass det. time= 152.1 min (977.5 - 825.5)

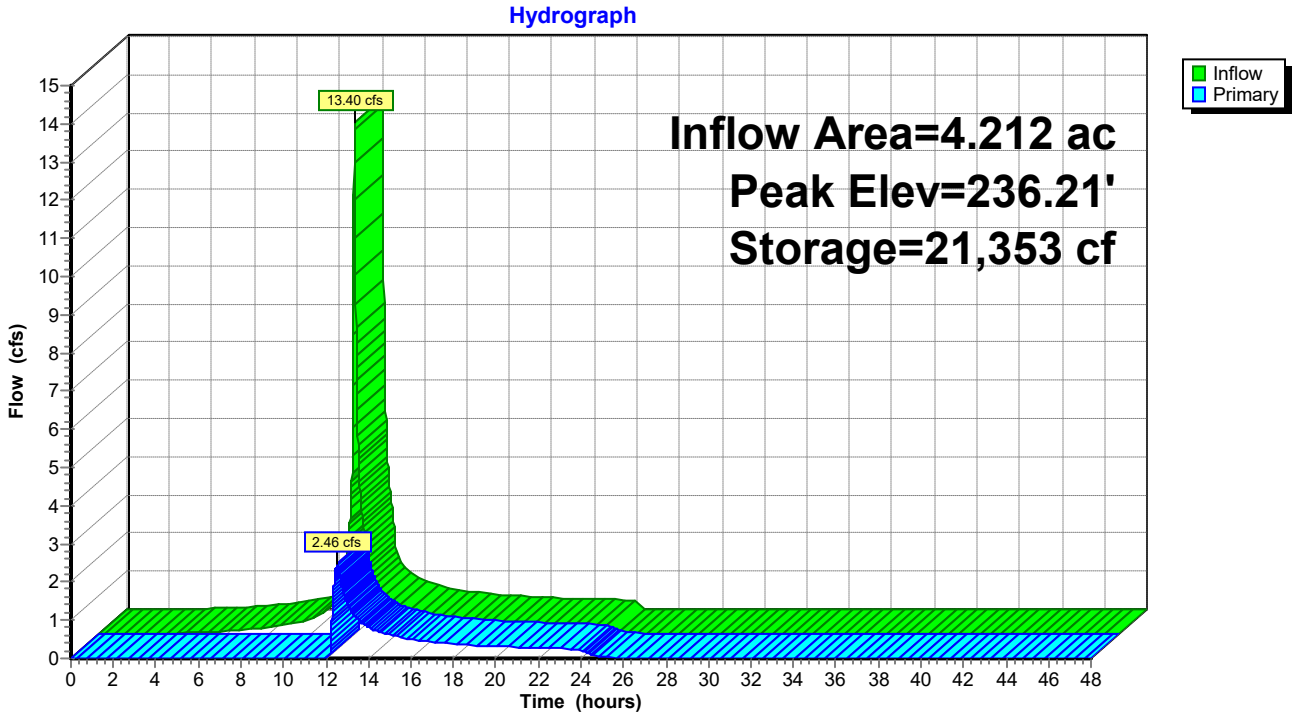
Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	42,677 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	8,533	0	0
235.00	9,585	9,059	9,059
236.00	10,550	10,068	19,127
237.00	11,575	11,063	30,189
238.00	13,400	12,488	42,677

Device	Routing	Invert	Outlet Devices
#1	Primary	236.00'	**10.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=2.46 cfs @ 12.55 hrs HW=236.21' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.46 cfs @ 1.18 fps)

Pond 1P: Wet Pond Full



Summary for Pond USF1: Soil Filter

Inflow Area = 0.223 ac, 65.78% Impervious, Inflow Depth = 3.34" for 10-yr event
Inflow = 0.84 cfs @ 12.03 hrs, Volume= 0.062 af
Outflow = 0.78 cfs @ 12.05 hrs, Volume= 0.048 af, Atten= 7%, Lag= 1.3 min
Primary = 0.78 cfs @ 12.05 hrs, Volume= 0.048 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 232.64' @ 12.05 hrs Surf.Area= 794 sf Storage= 707 cf

Plug-Flow detention time= 167.3 min calculated for 0.048 af (78% of inflow)
Center-of-Mass det. time= 69.1 min (876.5 - 807.5)

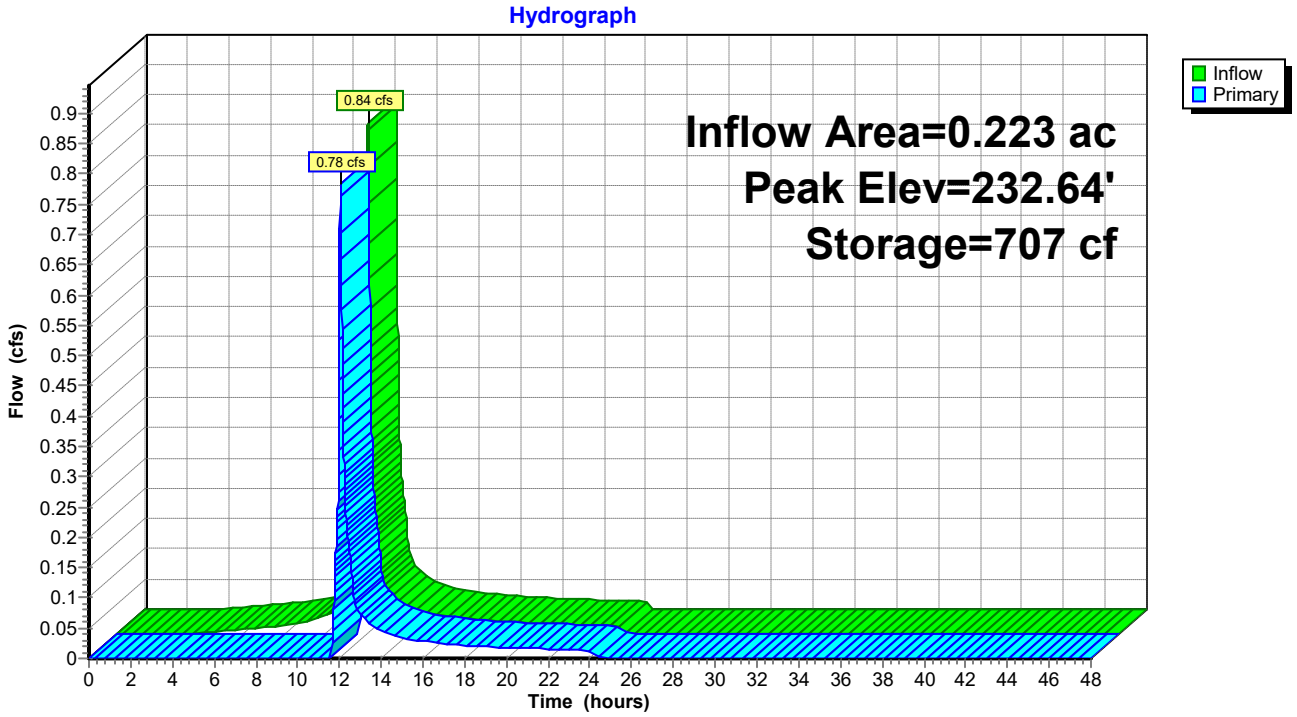
Volume	Invert	Avail.Storage	Storage Description
#1	231.50'	1,518 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.50	454	0	0
232.50	745	600	600
233.50	1,092	919	1,518

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.78 cfs @ 12.05 hrs HW=232.64' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.78 cfs @ 0.93 fps)

Pond USF1: Soil Filter



Summary for Pond USF2: Soil Filter

Inflow Area = 0.250 ac, 29.97% Impervious, Inflow Depth = 2.50" for 10-yr event
Inflow = 0.72 cfs @ 12.03 hrs, Volume= 0.052 af
Outflow = 0.53 cfs @ 12.08 hrs, Volume= 0.038 af, Atten= 27%, Lag= 3.0 min
Primary = 0.53 cfs @ 12.08 hrs, Volume= 0.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 232.61' @ 12.08 hrs Surf.Area= 782 sf Storage= 682 cf

Plug-Flow detention time= 180.0 min calculated for 0.038 af (74% of inflow)
Center-of-Mass det. time= 70.0 min (916.5 - 846.5)

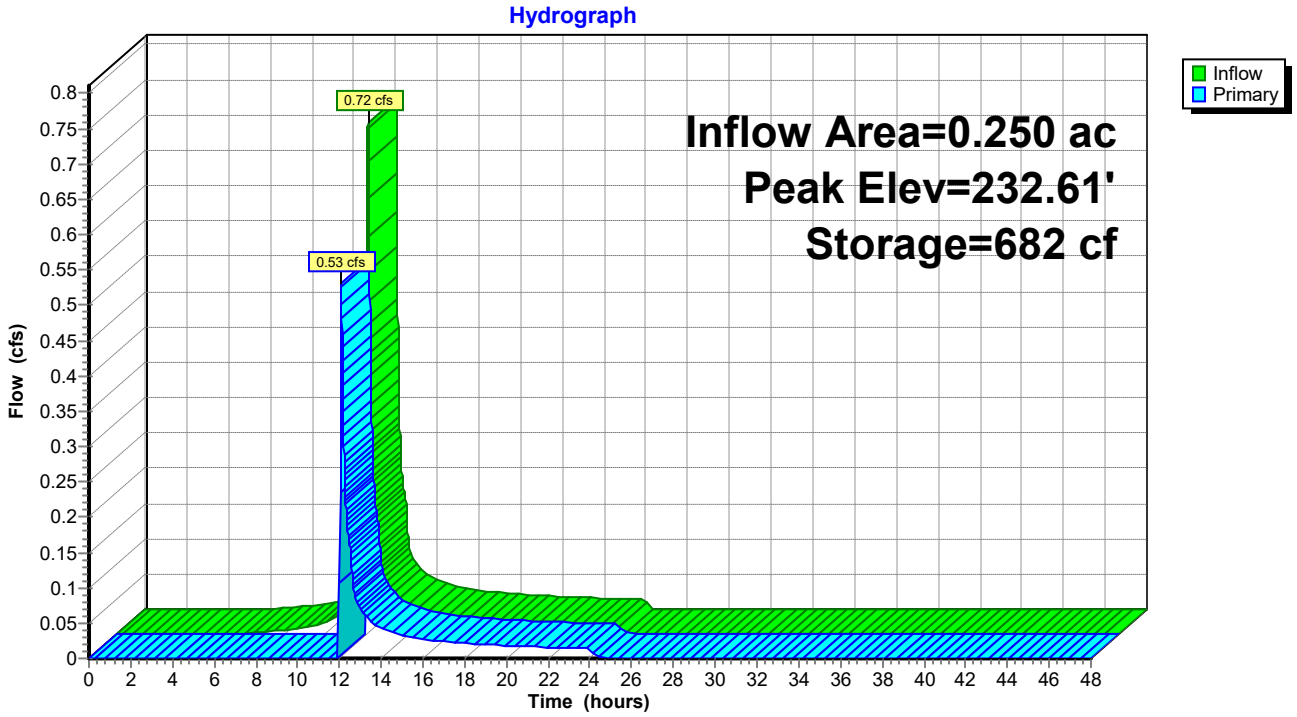
Volume	Invert	Avail.Storage	Storage Description
#1	231.50'	1,518 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.50	454	0	0
232.50	745	600	600
233.50	1,092	919	1,518

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.53 cfs @ 12.08 hrs HW=232.61' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 0.82 fps)

Pond USF2: Soil Filter



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Gravel Area Runoff Area=44,036 sf 9.97% Impervious Runoff Depth=3.10"
Tc=5.0 min CN=77 Runoff=3.58 cfs 0.261 af

Subcatchment 2S: Storage Building Area Runoff Area=106,131 sf 74.22% Impervious Runoff Depth=4.42"
Tc=5.0 min CN=90 Runoff=11.87 cfs 0.897 af

Subcatchment 3S: No Treat to Stream Runoff Area=70,347 sf 5.45% Impervious Runoff Depth=3.00"
Flow Length=715' Tc=14.4 min CN=76 Runoff=3.78 cfs 0.404 af

Subcatchment 4S: No Treat Parking Lot Runoff Area=159,446 sf 38.56% Impervious Runoff Depth=3.68"
Tc=5.0 min CN=83 Runoff=15.35 cfs 1.124 af

Subcatchment 6S: Off-Site to Pond Runoff Area=33,300 sf 16.56% Impervious Runoff Depth=2.82"
Tc=5.0 min CN=74 Runoff=2.46 cfs 0.180 af

Subcatchment 7S: Runoff Area=9,734 sf 65.78% Impervious Runoff Depth=4.42"
Tc=5.0 min CN=90 Runoff=1.09 cfs 0.082 af

Subcatchment 8S: Runoff Area=10,901 sf 29.97% Impervious Runoff Depth=3.49"
Tc=5.0 min CN=81 Runoff=1.00 cfs 0.073 af

Reach SP1: Stream Inlet Inflow=11.20 cfs 1.303 af
Outflow=11.20 cfs 1.303 af

Reach SP2: Center Street CB Inflow=17.21 cfs 1.251 af
Outflow=17.21 cfs 1.251 af

Pond 1P: Wet Pond Full Peak Elev=236.43' Storage=23,770 cf Inflow=17.91 cfs 1.338 af
Outflow=7.45 cfs 0.898 af

Pond USF1: Soil Filter Peak Elev=232.67' Storage=729 cf Inflow=1.09 cfs 0.082 af
Outflow=1.02 cfs 0.069 af

Pond USF2: Soil Filter Peak Elev=232.66' Storage=721 cf Inflow=1.00 cfs 0.073 af
Outflow=0.93 cfs 0.059 af

Total Runoff Area = 9.961 ac Runoff Volume = 3.021 af Average Runoff Depth = 3.64"
62.28% Pervious = 6.204 ac 37.72% Impervious = 3.757 ac

Summary for Subcatchment 1S: Gravel Area

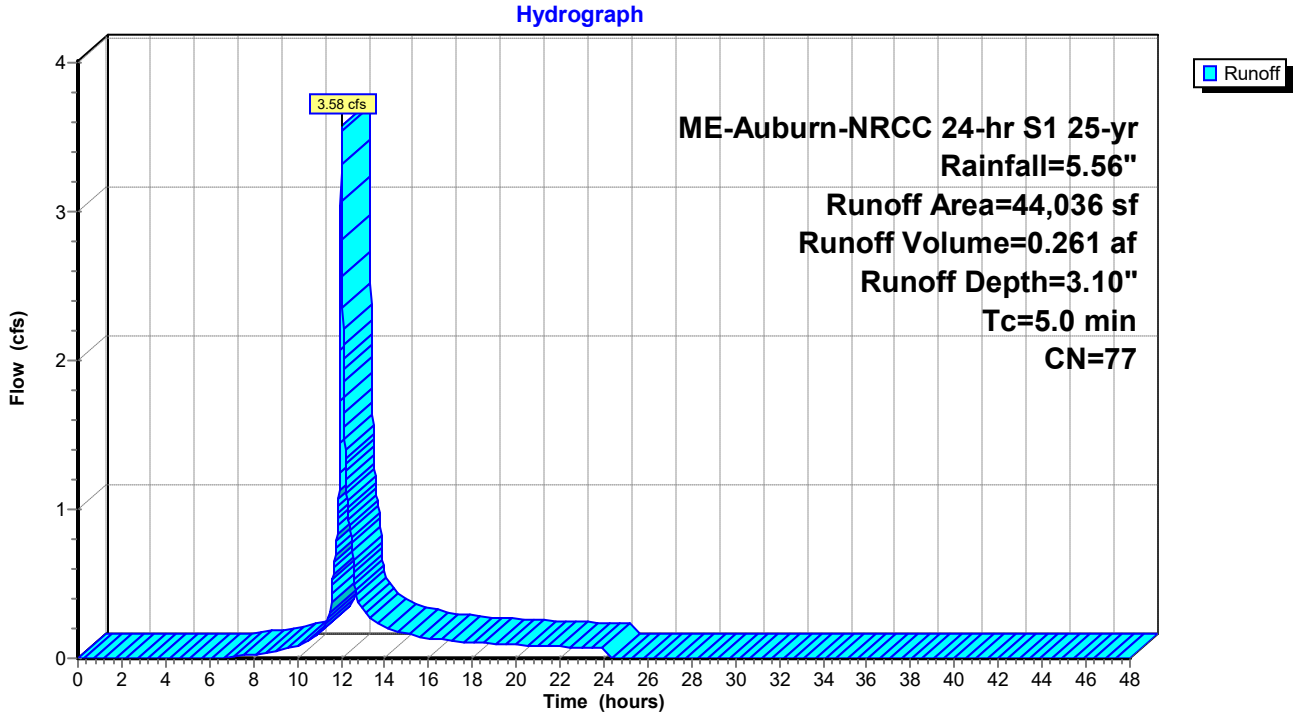
Runoff = 3.58 cfs @ 12.03 hrs, Volume= 0.261 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	4,390	98	Impervious
	38,852	74	>75% Grass cover, Good, HSG C
*	794	96	Gravel
	44,036	77	Weighted Average
	39,646		90.03% Pervious Area
	4,390		9.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Gravel Area



Summary for Subcatchment 2S: Storage Building Area

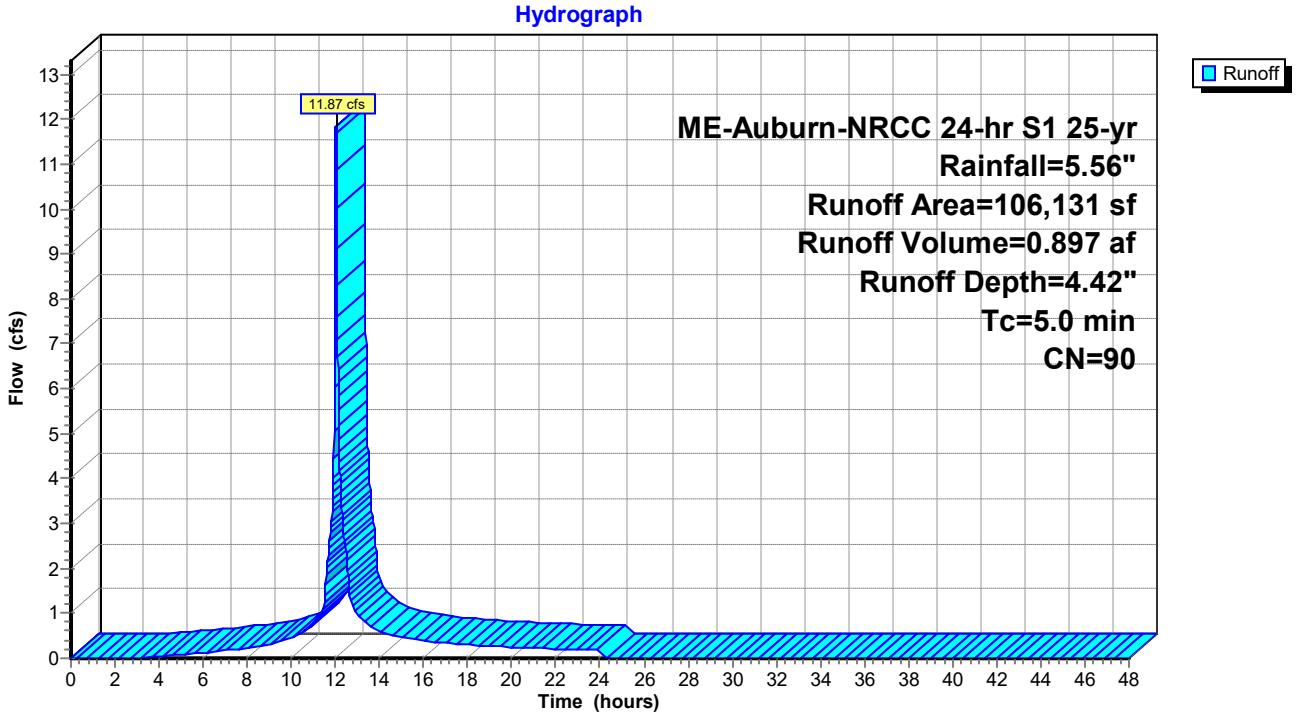
Runoff = 11.87 cfs @ 12.03 hrs, Volume= 0.897 af, Depth= 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	78,774	98	Impervious
	13,470	74	>75% Grass cover, Good, HSG C
	13,887	61	>75% Grass cover, Good, HSG B
	106,131	90	Weighted Average
	27,357		25.78% Pervious Area
	78,774		74.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Storage Building Area



Summary for Subcatchment 3S: No Treat to Stream

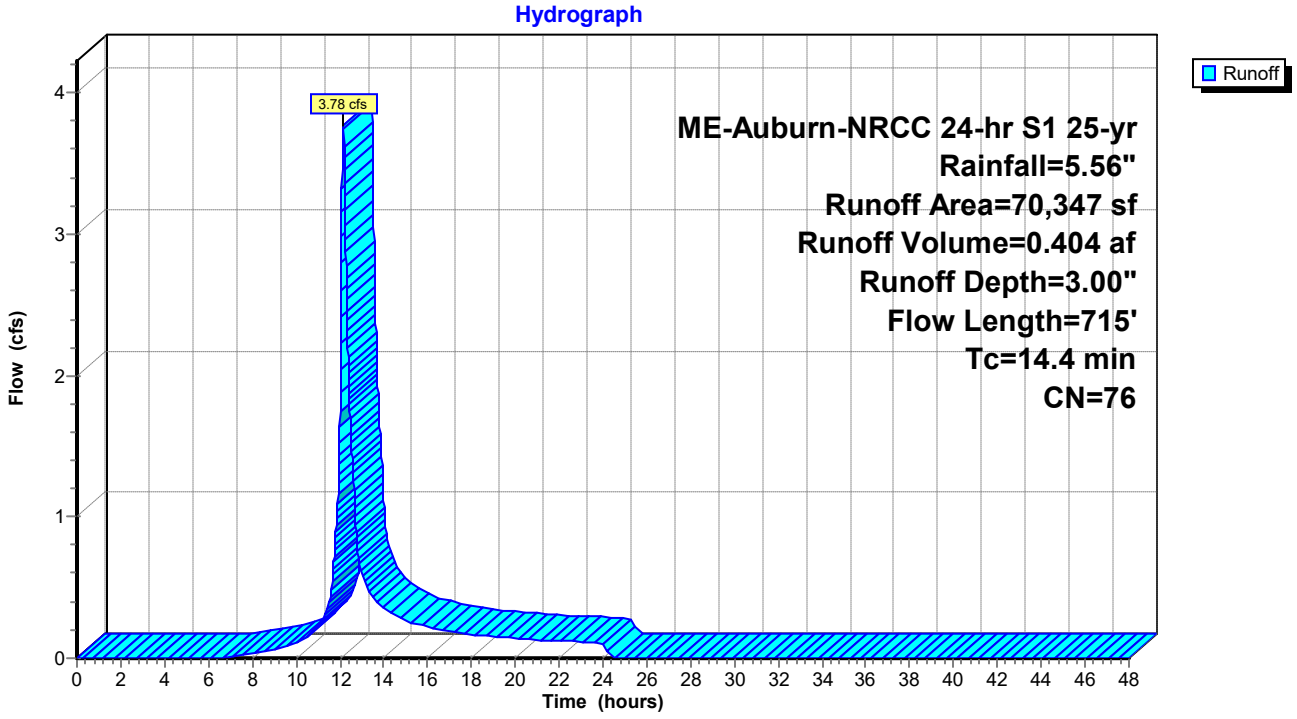
Runoff = 3.78 cfs @ 12.15 hrs, Volume= 0.404 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	1,643	96	Gravel
*	3,832	98	Impervious
	64,872	74	>75% Grass cover, Good, HSG C
	70,347	76	Weighted Average
	66,515		94.55% Pervious Area
	3,832		5.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	70	0.0700	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	100	0.1200	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	545	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
14.4	715	Total			

Subcatchment 3S: No Treat to Stream



Summary for Subcatchment 4S: No Treat Parking Lot

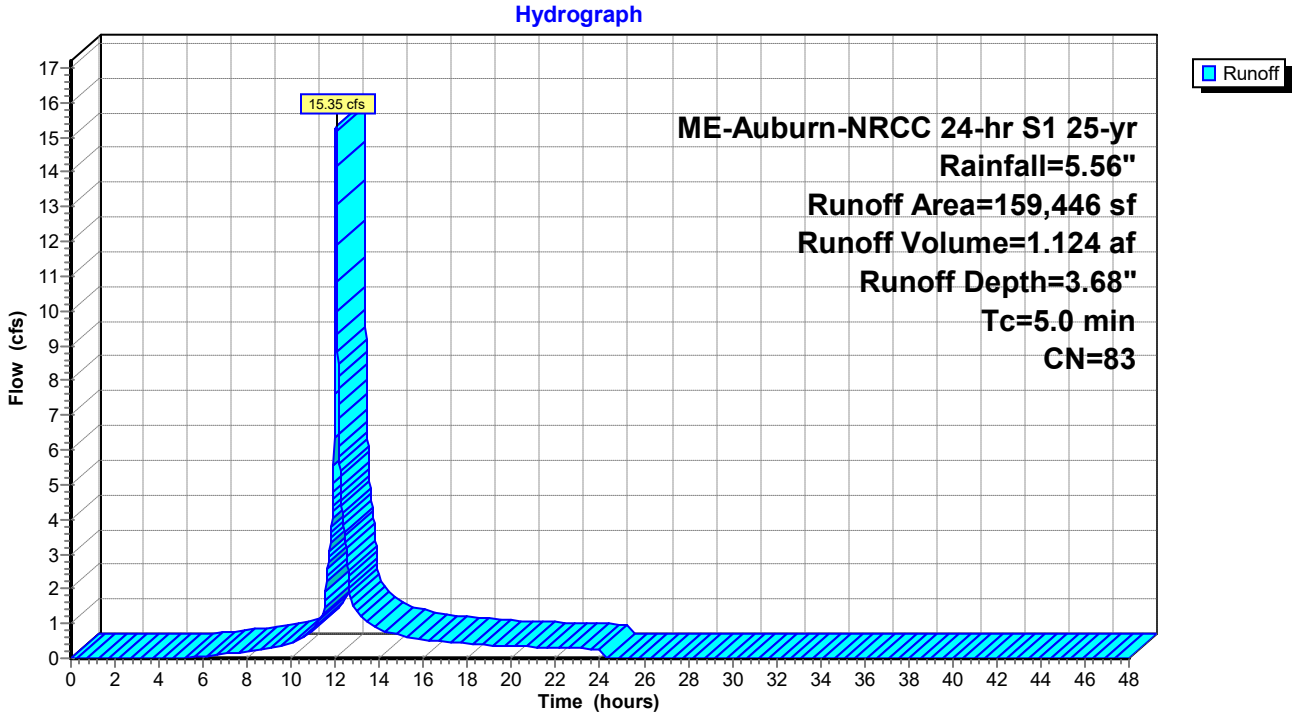
Runoff = 15.35 cfs @ 12.03 hrs, Volume= 1.124 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	61,478	98	Impervious
*	761	96	Gravel
	97,207	74	>75% Grass cover, Good, HSG C
	159,446	83	Weighted Average
	97,968		61.44% Pervious Area
	61,478		38.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: No Treat Parking Lot



Summary for Subcatchment 6S: Off-Site to Pond

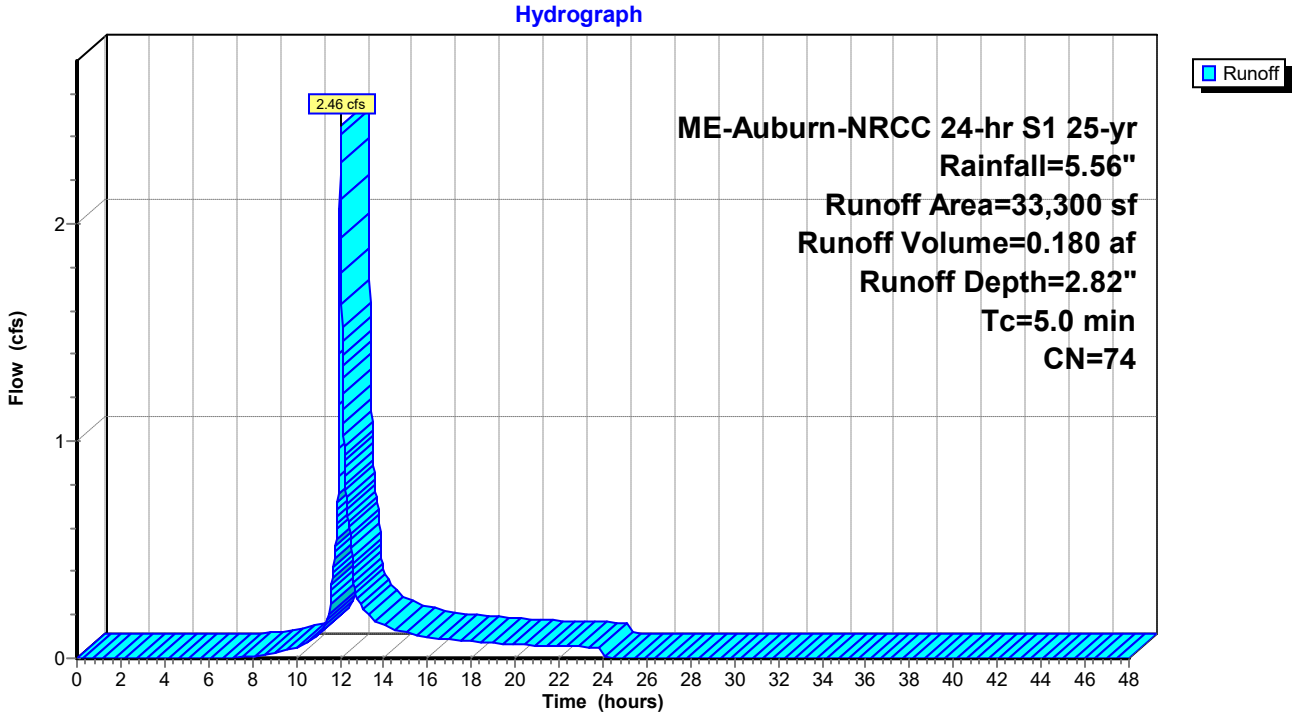
Runoff = 2.46 cfs @ 12.03 hrs, Volume= 0.180 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	5,516	98	Impervious
	16,738	74	>75% Grass cover, Good, HSG C
	11,046	61	>75% Grass cover, Good, HSG B
	33,300	74	Weighted Average
	27,784		83.44% Pervious Area
	5,516		16.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: Off-Site to Pond



Summary for Subcatchment 7S:

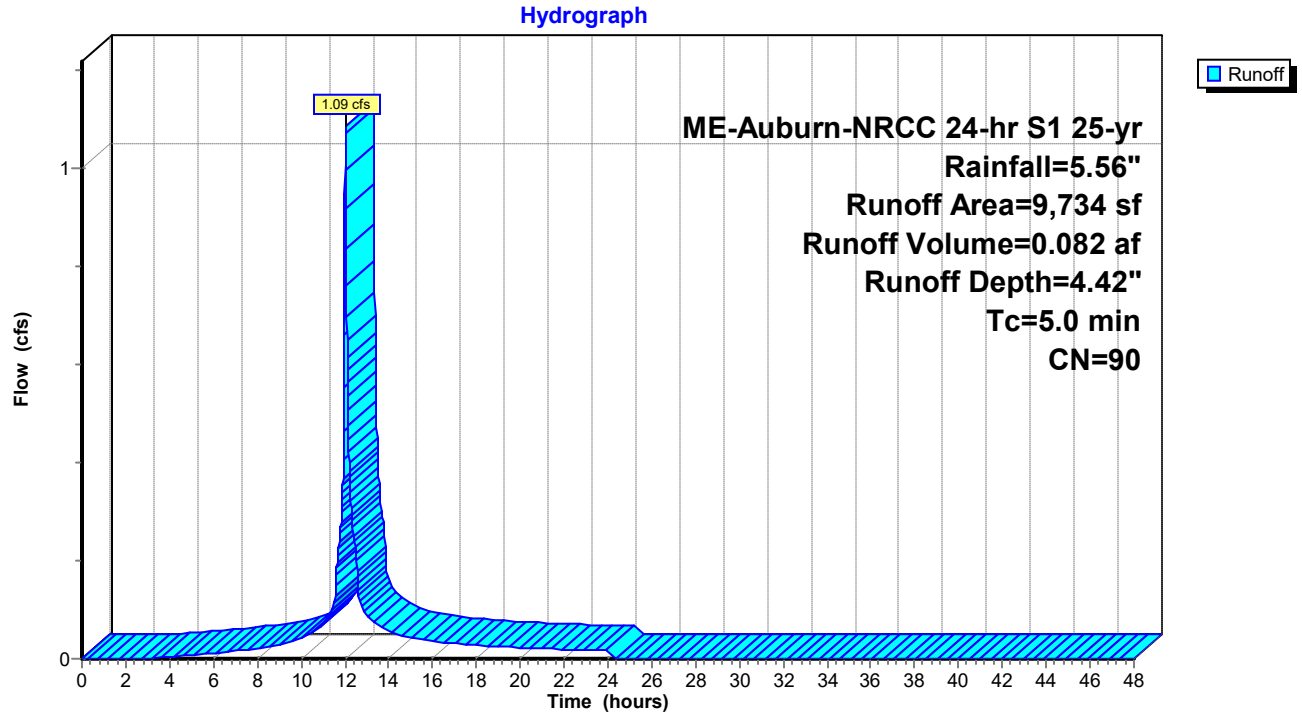
Runoff = 1.09 cfs @ 12.03 hrs, Volume= 0.082 af, Depth= 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	6,403	98	Impervious
	3,331	74	>75% Grass cover, Good, HSG C
	9,734	90	Weighted Average
	3,331		34.22% Pervious Area
	6,403		65.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S:



Summary for Subcatchment 8S:

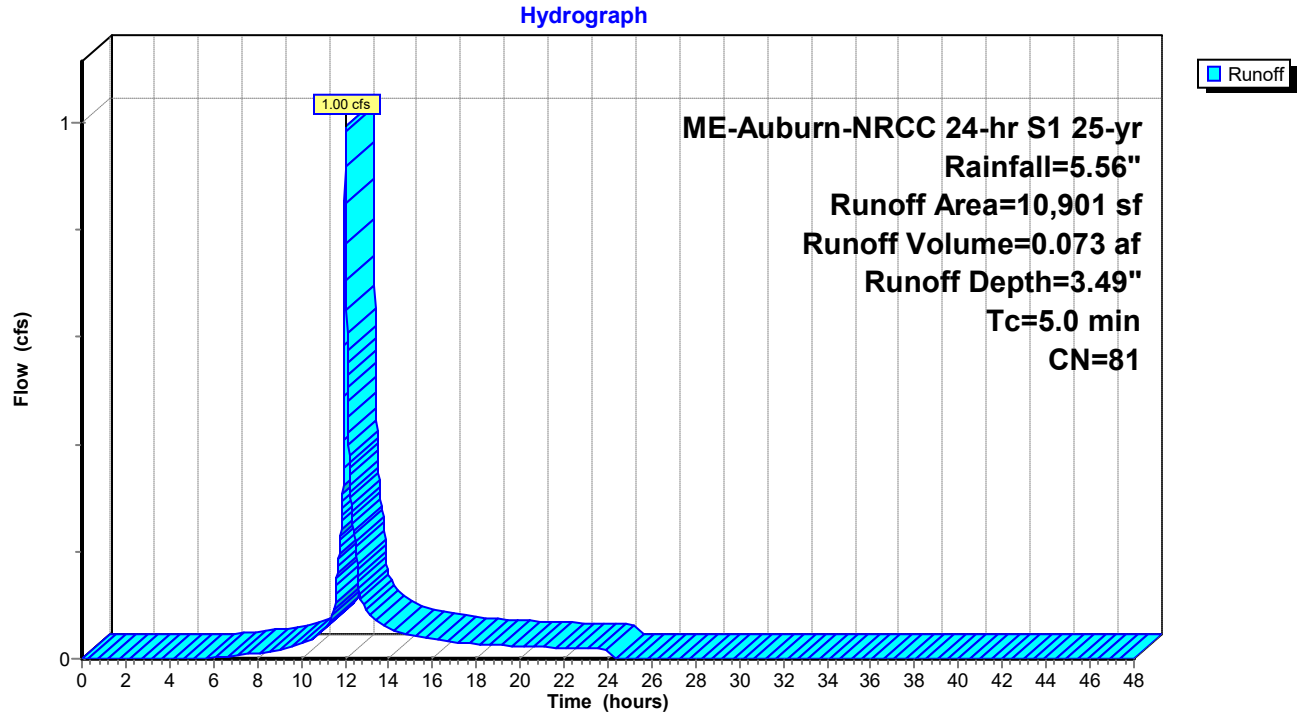
Runoff = 1.00 cfs @ 12.03 hrs, Volume= 0.073 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	3,267	98	Impervious
	7,634	74	>75% Grass cover, Good, HSG C
	10,901	81	Weighted Average
	7,634		70.03% Pervious Area
	3,267		29.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S:

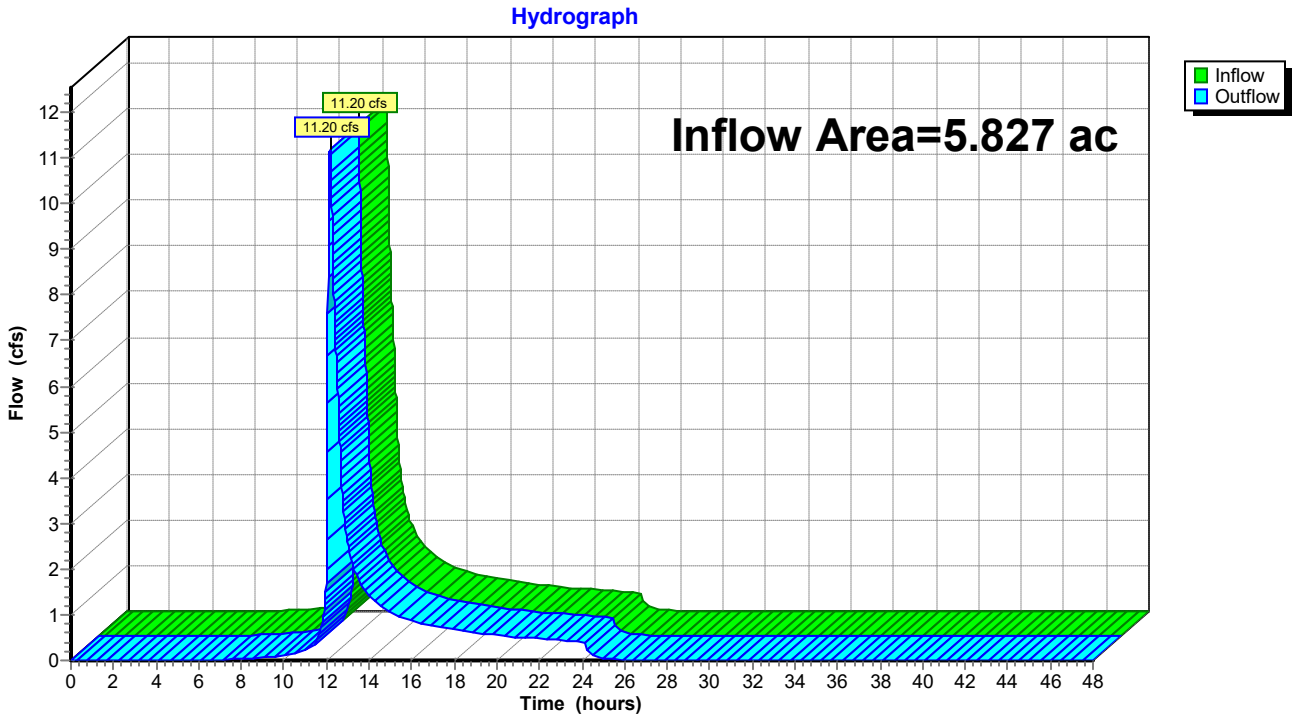


Summary for Reach SP1: Stream Inlet

Inflow Area = 5.827 ac, 36.45% Impervious, Inflow Depth = 2.68" for 25-yr event
Inflow = 11.20 cfs @ 12.17 hrs, Volume= 1.303 af
Outflow = 11.20 cfs @ 12.17 hrs, Volume= 1.303 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP1: Stream Inlet

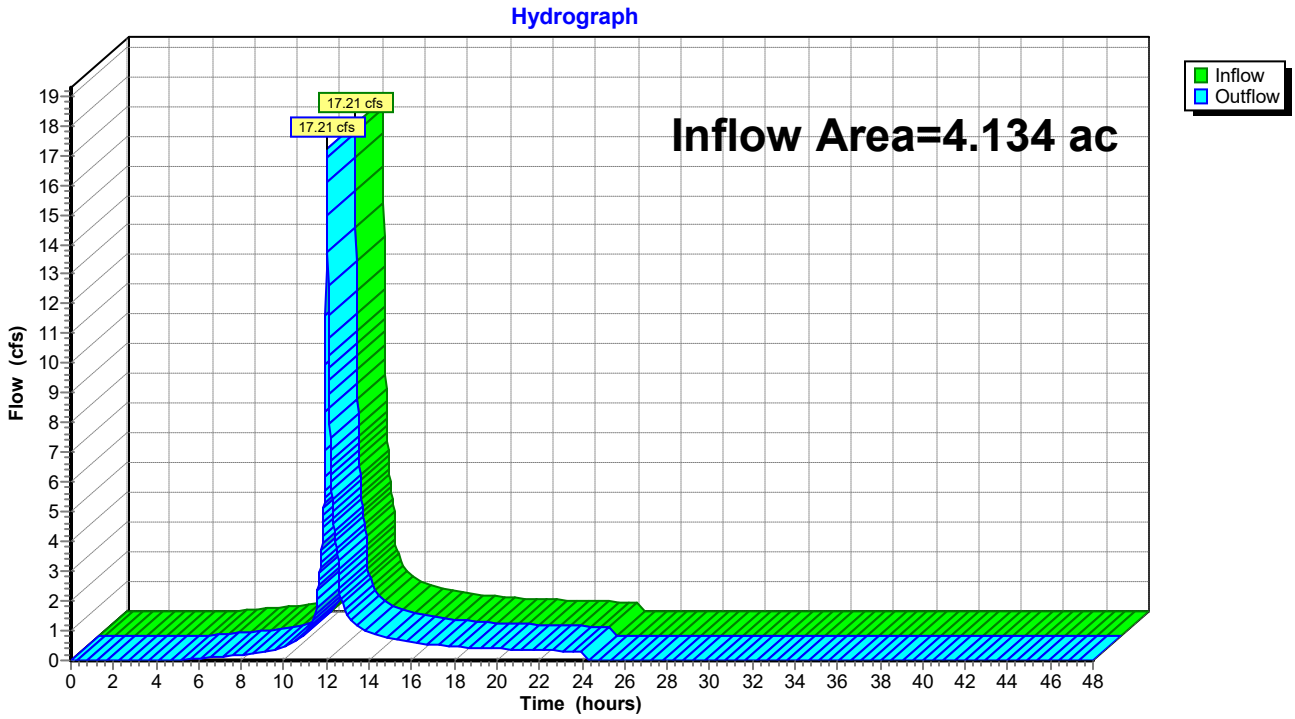


Summary for Reach SP2: Center Street CB

Inflow Area = 4.134 ac, 39.51% Impervious, Inflow Depth = 3.63" for 25-yr event
Inflow = 17.21 cfs @ 12.03 hrs, Volume= 1.251 af
Outflow = 17.21 cfs @ 12.03 hrs, Volume= 1.251 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP2: Center Street CB



Summary for Pond 1P: Wet Pond Full

Inflow Area = 4.212 ac, 48.34% Impervious, Inflow Depth = 3.81" for 25-yr event
Inflow = 17.91 cfs @ 12.03 hrs, Volume= 1.338 af
Outflow = 7.45 cfs @ 12.17 hrs, Volume= 0.898 af, Atten= 58%, Lag= 8.7 min
Primary = 7.45 cfs @ 12.17 hrs, Volume= 0.898 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 236.43' @ 12.17 hrs Surf.Area= 10,992 sf Storage= 23,770 cf

Plug-Flow detention time= 231.4 min calculated for 0.898 af (67% of inflow)
Center-of-Mass det. time= 108.2 min (922.9 - 814.7)

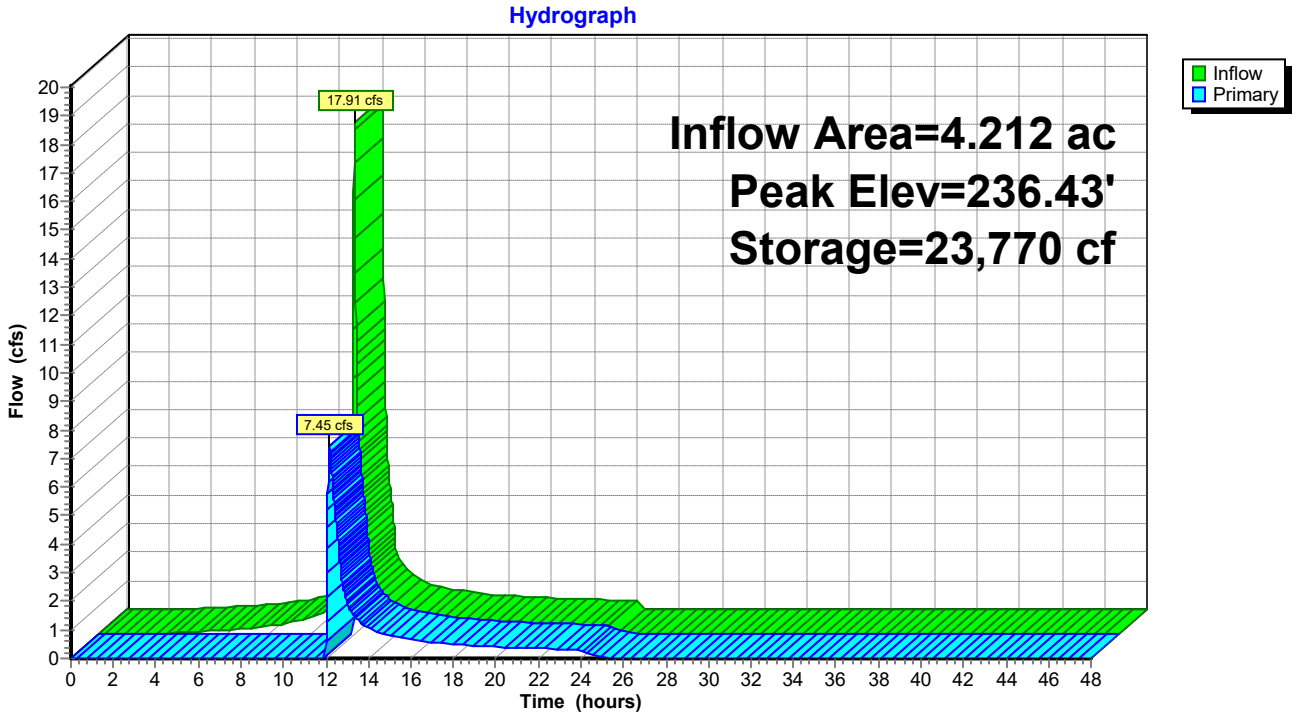
Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	42,677 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	8,533	0	0
235.00	9,585	9,059	9,059
236.00	10,550	10,068	19,127
237.00	11,575	11,063	30,189
238.00	13,400	12,488	42,677

Device	Routing	Invert	Outlet Devices
#1	Primary	236.00'	**10.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=7.45 cfs @ 12.17 hrs HW=236.43' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 7.45 cfs @ 1.73 fps)

Pond 1P: Wet Pond Full



Summary for Pond USF1: Soil Filter

Inflow Area = 0.223 ac, 65.78% Impervious, Inflow Depth = 4.42" for 25-yr event
Inflow = 1.09 cfs @ 12.03 hrs, Volume= 0.082 af
Outflow = 1.02 cfs @ 12.05 hrs, Volume= 0.069 af, Atten= 6%, Lag= 1.2 min
Primary = 1.02 cfs @ 12.05 hrs, Volume= 0.069 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 232.67' @ 12.05 hrs Surf.Area= 803 sf Storage= 729 cf

Plug-Flow detention time= 140.8 min calculated for 0.068 af (83% of inflow)
Center-of-Mass det. time= 59.7 min (856.7 - 797.1)

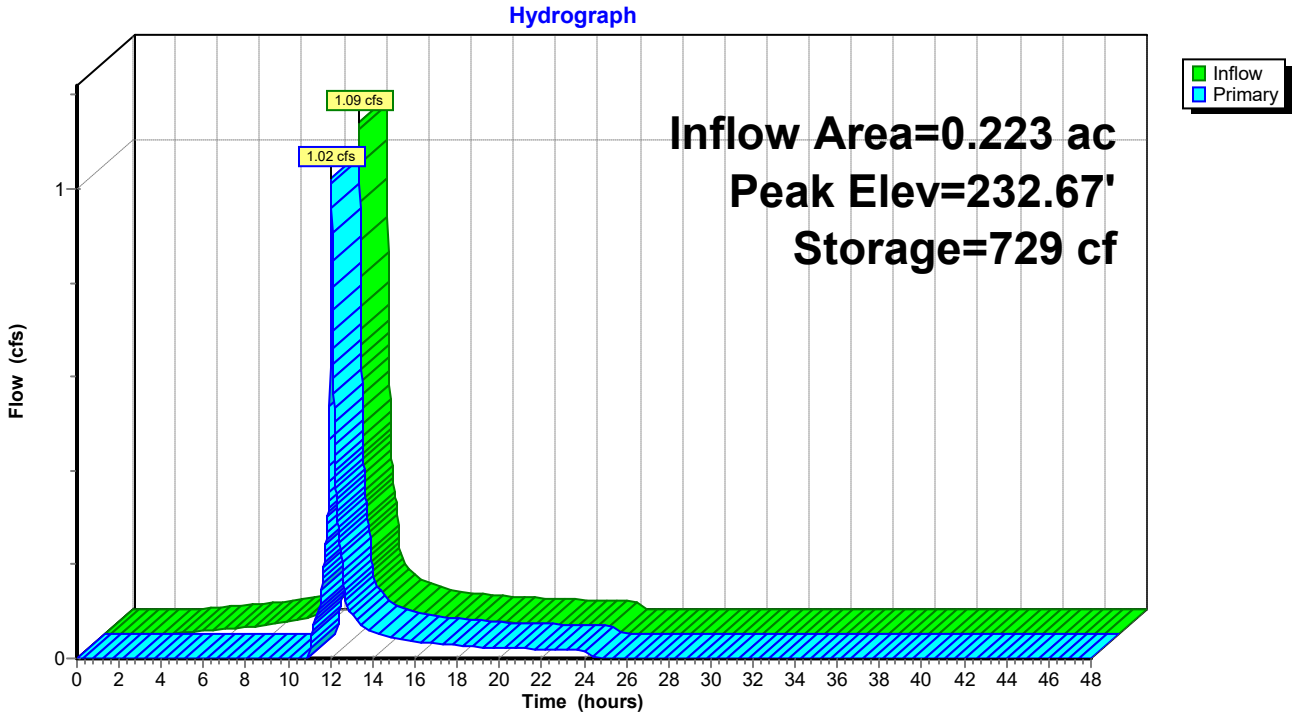
Volume	Invert	Avail.Storage	Storage Description
#1	231.50'	1,518 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.50	454	0	0
232.50	745	600	600
233.50	1,092	919	1,518

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.02 cfs @ 12.05 hrs HW=232.67' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.02 cfs @ 1.02 fps)

Pond USF1: Soil Filter



Summary for Pond USF2: Soil Filter

Inflow Area = 0.250 ac, 29.97% Impervious, Inflow Depth = 3.49" for 25-yr event
Inflow = 1.00 cfs @ 12.03 hrs, Volume= 0.073 af
Outflow = 0.93 cfs @ 12.05 hrs, Volume= 0.059 af, Atten= 7%, Lag= 1.3 min
Primary = 0.93 cfs @ 12.05 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 232.66' @ 12.05 hrs Surf.Area= 799 sf Storage= 721 cf

Plug-Flow detention time= 141.0 min calculated for 0.059 af (81% of inflow)
Center-of-Mass det. time= 53.4 min (886.4 - 833.1)

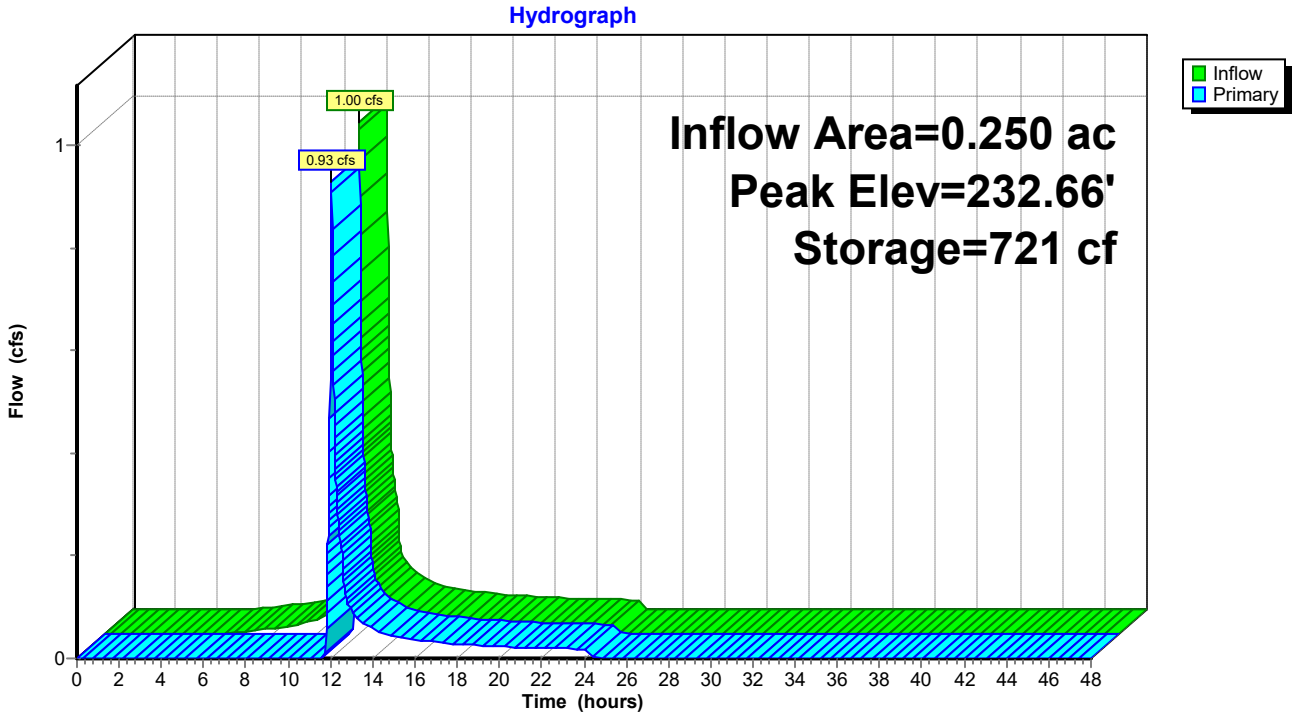
Volume	Invert	Avail.Storage	Storage Description
#1	231.50'	1,518 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

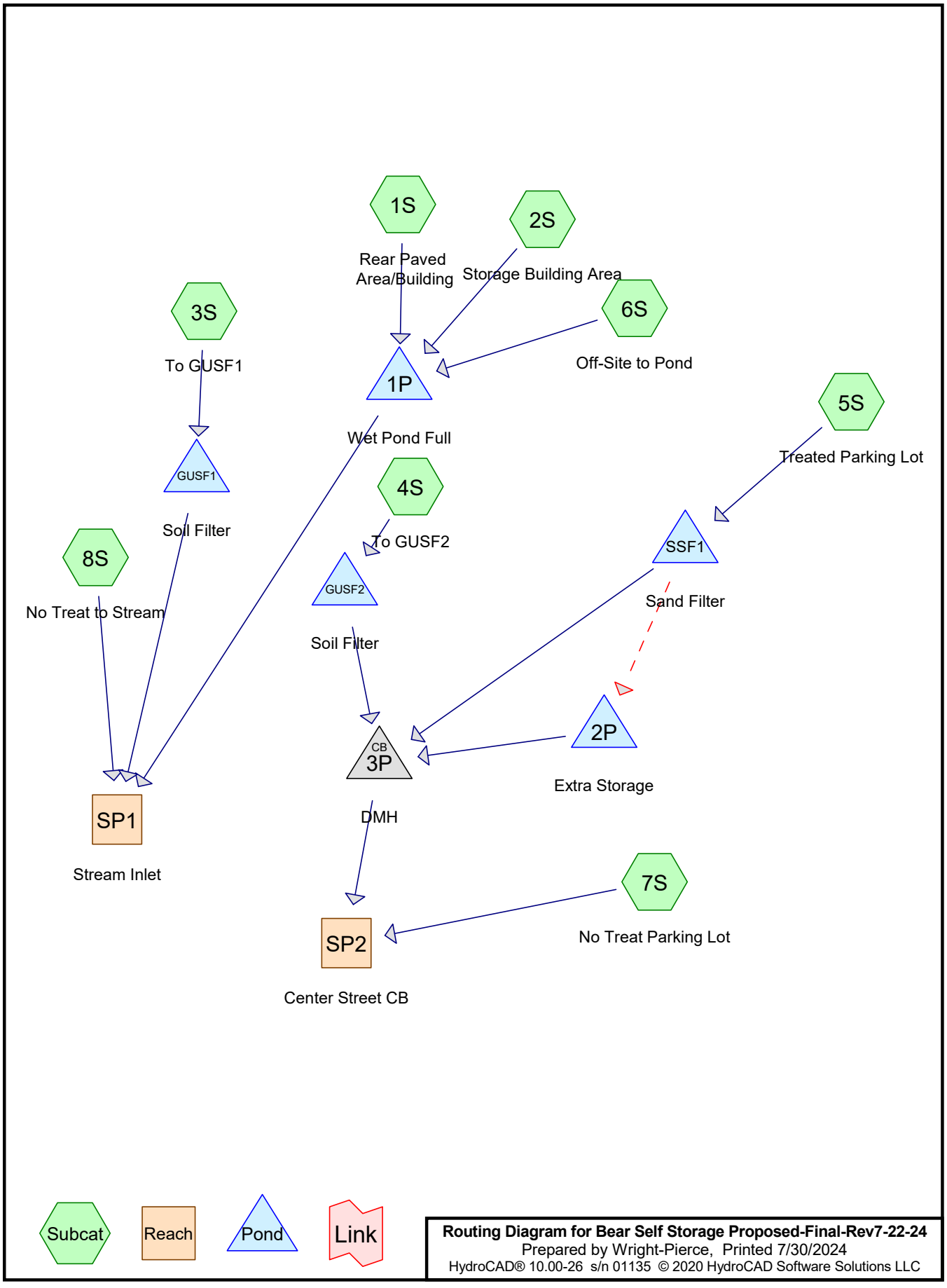
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.50	454	0	0
232.50	745	600	600
233.50	1,092	919	1,518

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.93 cfs @ 12.05 hrs HW=232.66' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.93 cfs @ 0.99 fps)

Pond USF2: Soil Filter





Routing Diagram for Bear Self Storage Proposed-Final-Rev7-22-24
Prepared by Wright-Pierce, Printed 7/30/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.572	61	>75% Grass cover, Good, HSG B (2S, 6S)
3.358	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S)
0.426	96	Gravel (1S, 7S)
5.256	98	Impervious (2S, 4S, 5S, 6S, 7S)
0.350	98	Paved parking, HSG C (3S, 8S)
9.961	**88**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Rear Paved Runoff Area=31,476 sf 0.00% Impervious Runoff Depth=1.67"
Tc=5.0 min CN=86 Runoff=1.47 cfs 0.101 af

Subcatchment 2S: Storage Building Area Runoff Area=106,131 sf 74.22% Impervious Runoff Depth=1.99"
Tc=5.0 min CN=90 Runoff=5.90 cfs 0.405 af

Subcatchment 3S: To GUSF1 Runoff Area=18,025 sf 58.42% Impervious Runoff Depth=1.83"
Tc=5.0 min CN=88 Runoff=0.92 cfs 0.063 af

Subcatchment 4S: To GUSF2 Runoff Area=69,088 sf 79.43% Impervious Runoff Depth=2.26"
Tc=5.0 min CN=93 Runoff=4.28 cfs 0.299 af

Subcatchment 5S: Treated Parking Lot Runoff Area=62,654 sf 79.82% Impervious Runoff Depth=2.26"
Tc=5.0 min CN=93 Runoff=3.88 cfs 0.271 af

Subcatchment 6S: Off-Site to Pond Runoff Area=33,300 sf 16.56% Impervious Runoff Depth=0.91"
Tc=5.0 min CN=74 Runoff=0.78 cfs 0.058 af

Subcatchment 7S: No Treat Parking Lot Runoff Area=54,784 sf 72.59% Impervious Runoff Depth=2.17"
Tc=5.0 min CN=92 Runoff=3.28 cfs 0.227 af

Subcatchment 8S: No Treat to Stream Runoff Area=58,456 sf 8.05% Impervious Runoff Depth=1.02"
Flow Length=610' Tc=7.7 min CN=76 Runoff=1.36 cfs 0.114 af

Reach SP1: Stream Inlet Inflow=1.36 cfs 0.239 af
Outflow=1.36 cfs 0.239 af

Reach SP2: Center Street CB Inflow=4.20 cfs 0.665 af
Outflow=4.20 cfs 0.665 af

Pond 1P: Wet Pond Full Peak Elev=236.04' Storage=19,586 cf Inflow=8.15 cfs 0.564 af
Outflow=0.23 cfs 0.125 af

Pond 2P: Extra Storage Peak Elev=226.50' Storage=811 cf Inflow=3.14 cfs 0.077 af
Outflow=1.10 cfs 0.072 af

Pond 3P: DMH Peak Elev=225.84' Inflow=2.86 cfs 0.437 af
15.0" Round Culvert n=0.013 L=15.0' S=0.1487 '/' Outflow=2.86 cfs 0.437 af

Pond GUSF1: Soil Filter Peak Elev=233.10' Storage=2,744 cf Inflow=0.92 cfs 0.063 af
Outflow=0.00 cfs 0.000 af

Pond GUSF2: Soil Filter Peak Elev=233.57' Storage=5,883 cf Inflow=4.28 cfs 0.299 af
Outflow=1.68 cfs 0.171 af

Pond SSF1: Sand Filter Peak Elev=230.69' Storage=2,571 cf Inflow=3.88 cfs 0.271 af
Primary=0.11 cfs 0.194 af Secondary=3.14 cfs 0.077 af Outflow=3.25 cfs 0.271 af

Total Runoff Area = 9.961 ac Runoff Volume = 1.539 af Average Runoff Depth = 1.85"
43.73% Pervious = 4.356 ac 56.27% Impervious = 5.606 ac

Summary for Subcatchment 1S: Rear Paved Area/Building

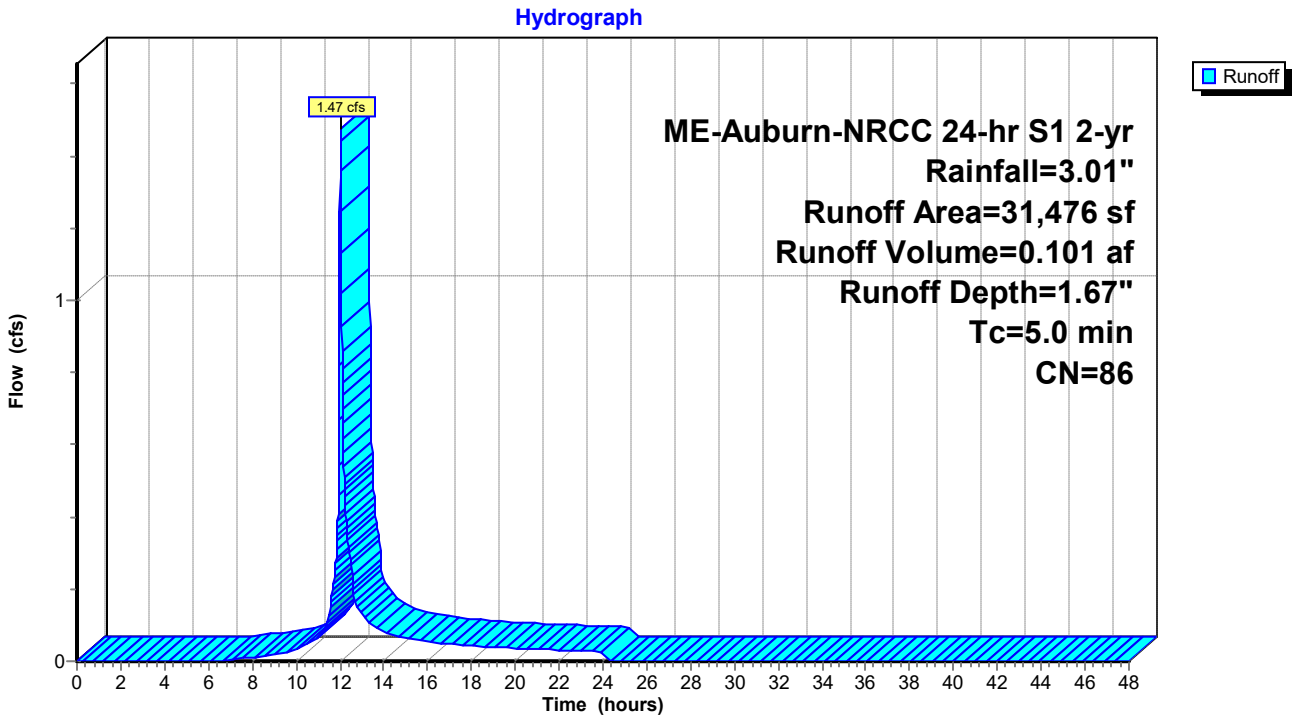
Runoff = 1.47 cfs @ 12.03 hrs, Volume= 0.101 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
	13,645	74	>75% Grass cover, Good, HSG C
*	17,831	96	Gravel
	31,476	86	Weighted Average
	31,476		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Rear Paved Area/Building



Summary for Subcatchment 2S: Storage Building Area

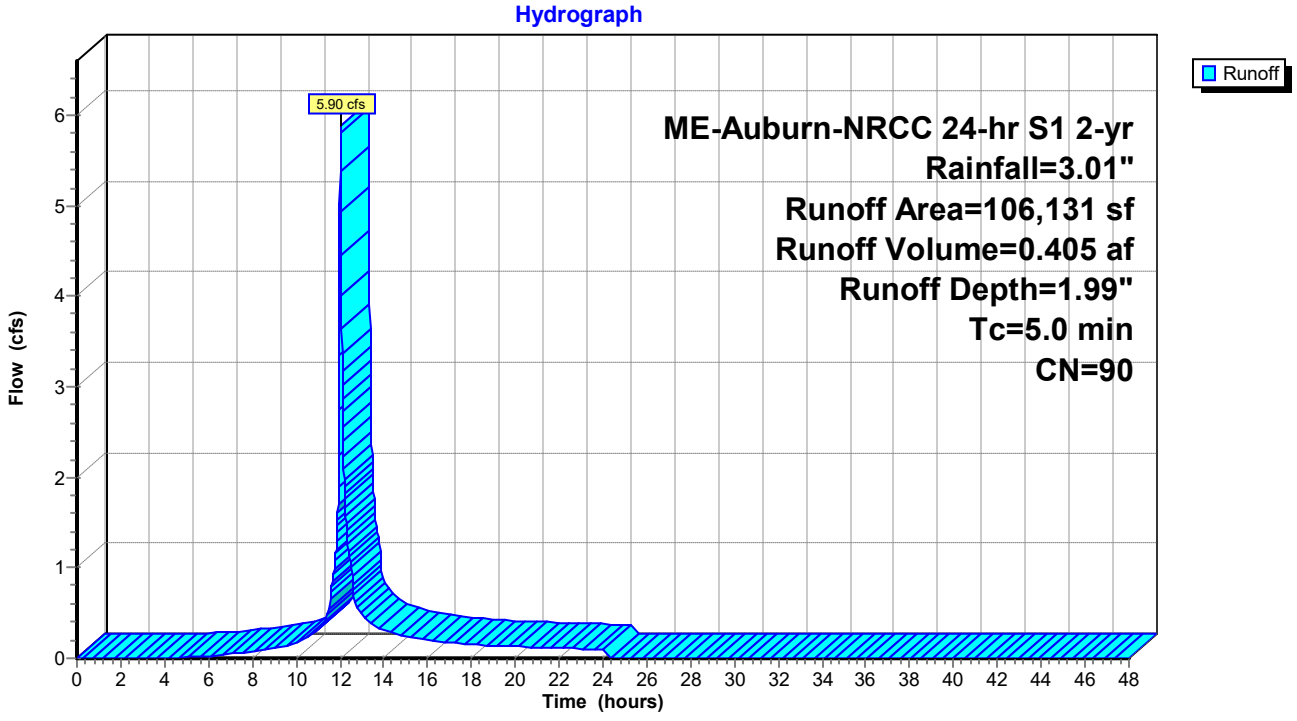
Runoff = 5.90 cfs @ 12.03 hrs, Volume= 0.405 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	78,774	98	Impervious
	13,470	74	>75% Grass cover, Good, HSG C
	13,887	61	>75% Grass cover, Good, HSG B
	106,131	90	Weighted Average
	27,357		25.78% Pervious Area
	78,774		74.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Storage Building Area



Summary for Subcatchment 3S: To GUSF1

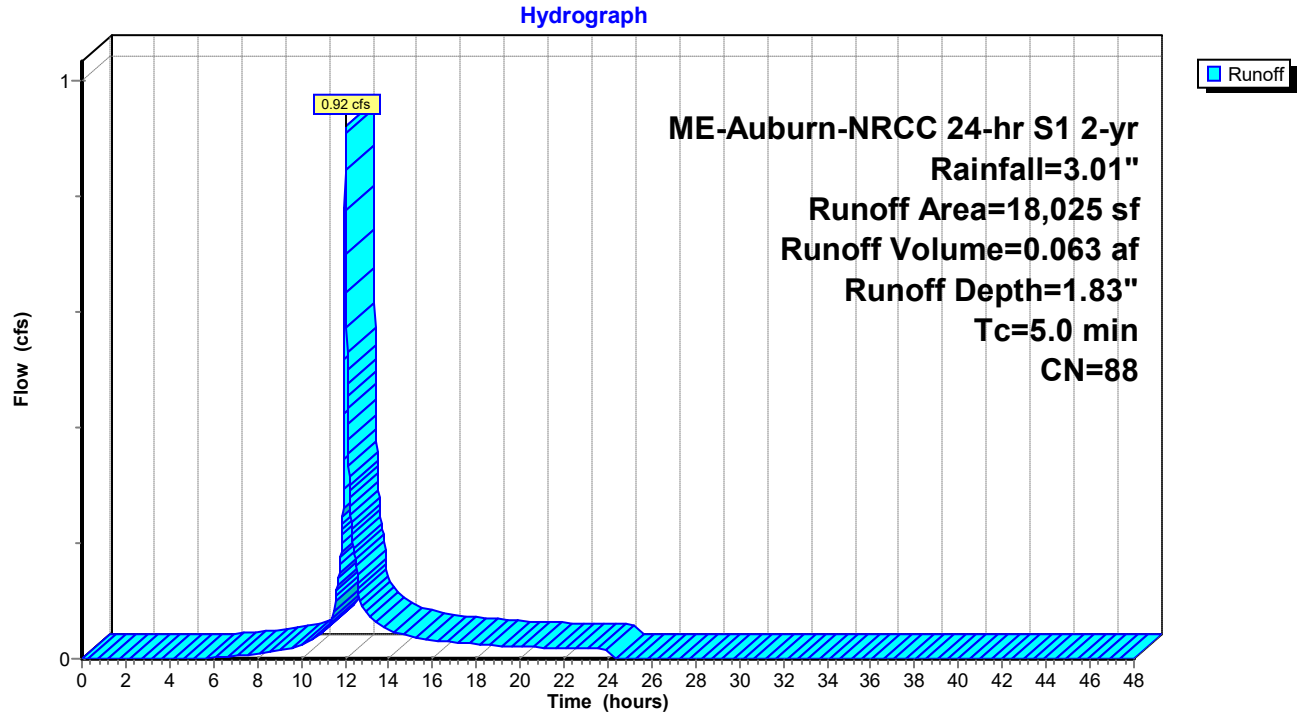
Runoff = 0.92 cfs @ 12.03 hrs, Volume= 0.063 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

Area (sf)	CN	Description
10,530	98	Paved parking, HSG C
7,495	74	>75% Grass cover, Good, HSG C
18,025	88	Weighted Average
7,495		41.58% Pervious Area
10,530		58.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: To GUSF1



Summary for Subcatchment 4S: To GUSF2

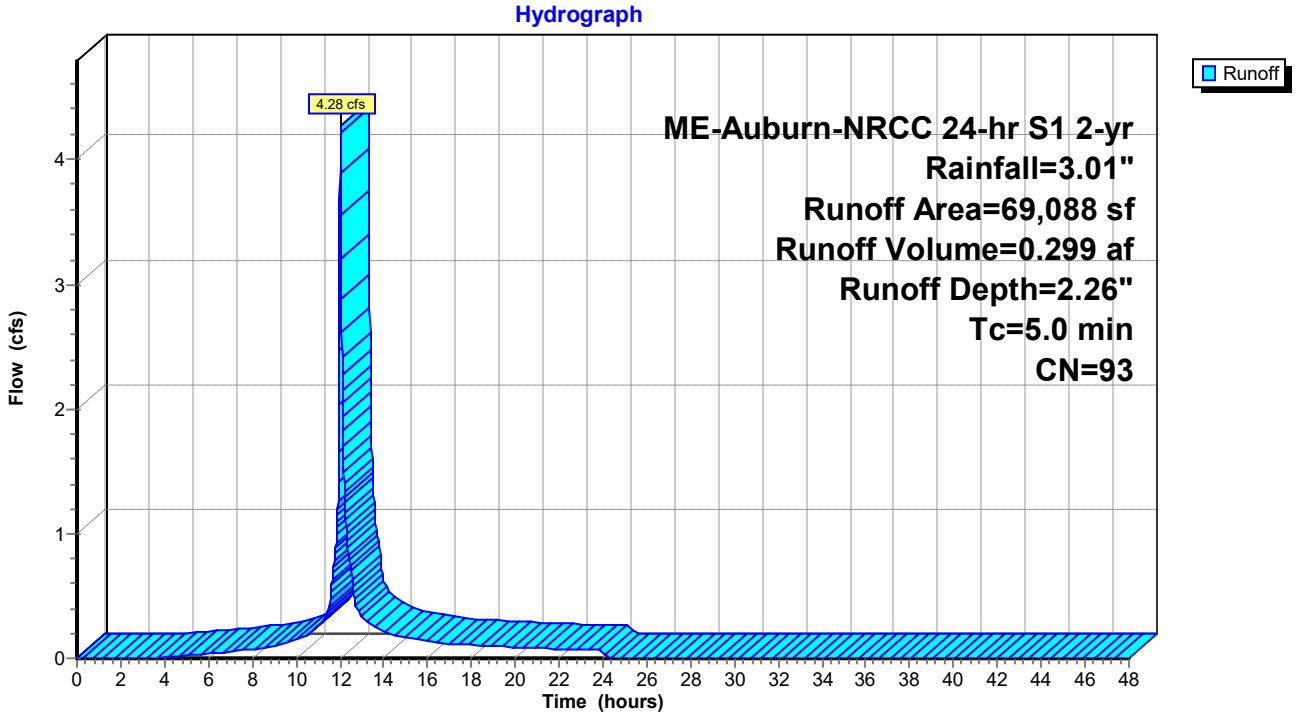
Runoff = 4.28 cfs @ 12.03 hrs, Volume= 0.299 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	53,245	98	Impervious
	14,211	74	>75% Grass cover, Good, HSG C
*	1,632	98	Impervious
	69,088	93	Weighted Average
	14,211		20.57% Pervious Area
	54,877		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: To GUSF2



Summary for Subcatchment 5S: Treated Parking Lot

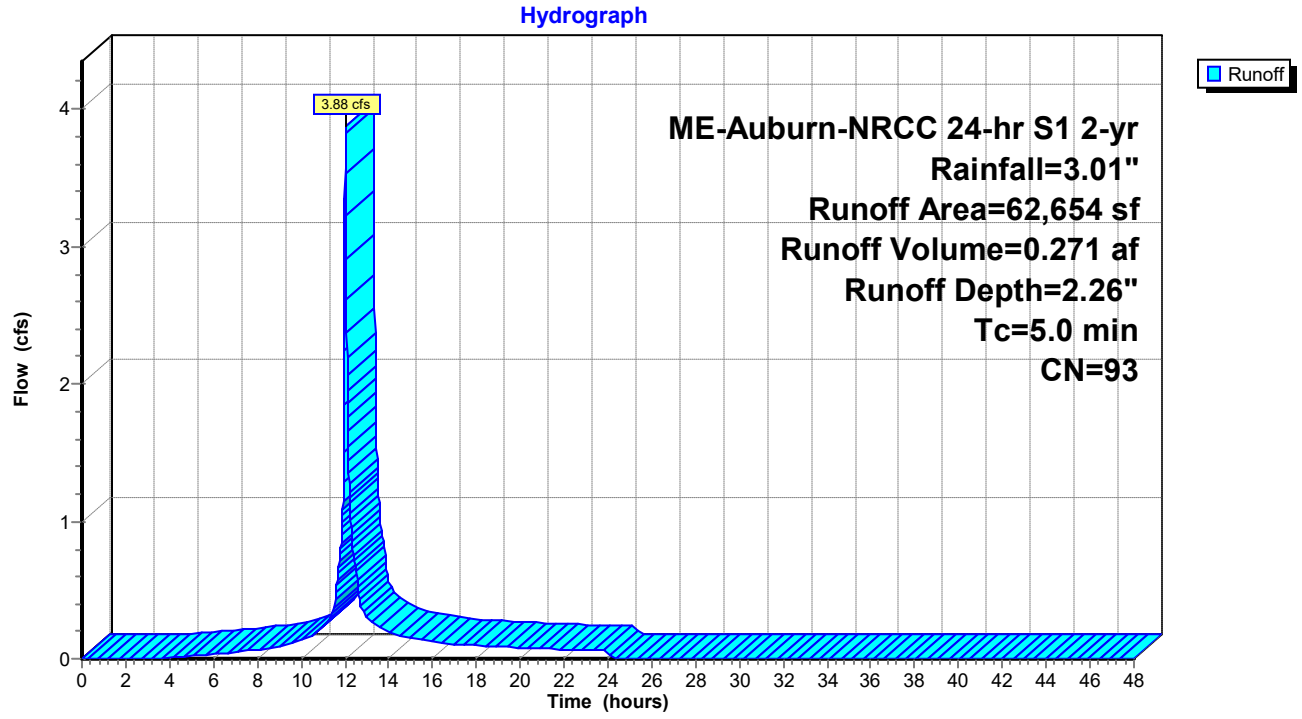
Runoff = 3.88 cfs @ 12.03 hrs, Volume= 0.271 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
	12,643	74	>75% Grass cover, Good, HSG C
*	50,011	98	Impervious
	62,654	93	Weighted Average
	12,643		20.18% Pervious Area
	50,011		79.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: Treated Parking Lot



Summary for Subcatchment 6S: Off-Site to Pond

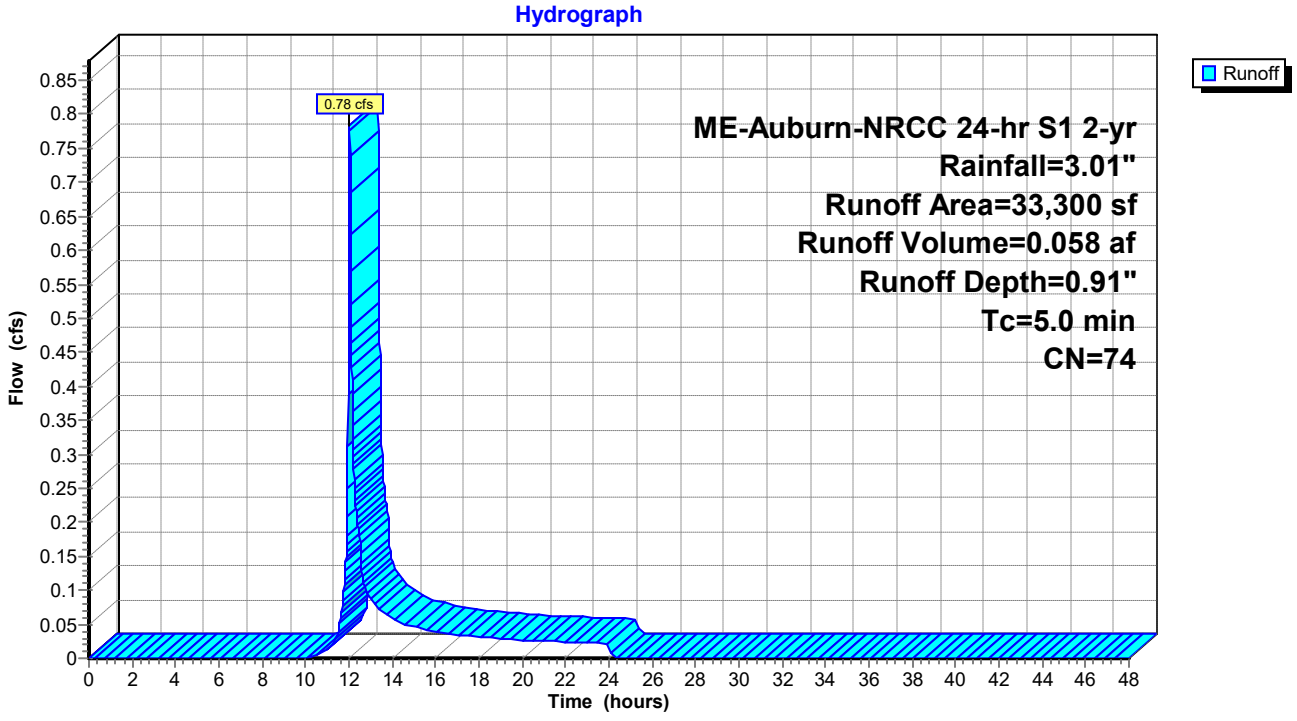
Runoff = 0.78 cfs @ 12.03 hrs, Volume= 0.058 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	5,516	98	Impervious
	11,046	61	>75% Grass cover, Good, HSG B
	16,738	74	>75% Grass cover, Good, HSG C
	33,300	74	Weighted Average
	27,784		83.44% Pervious Area
	5,516		16.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: Off-Site to Pond



Summary for Subcatchment 7S: No Treat Parking Lot

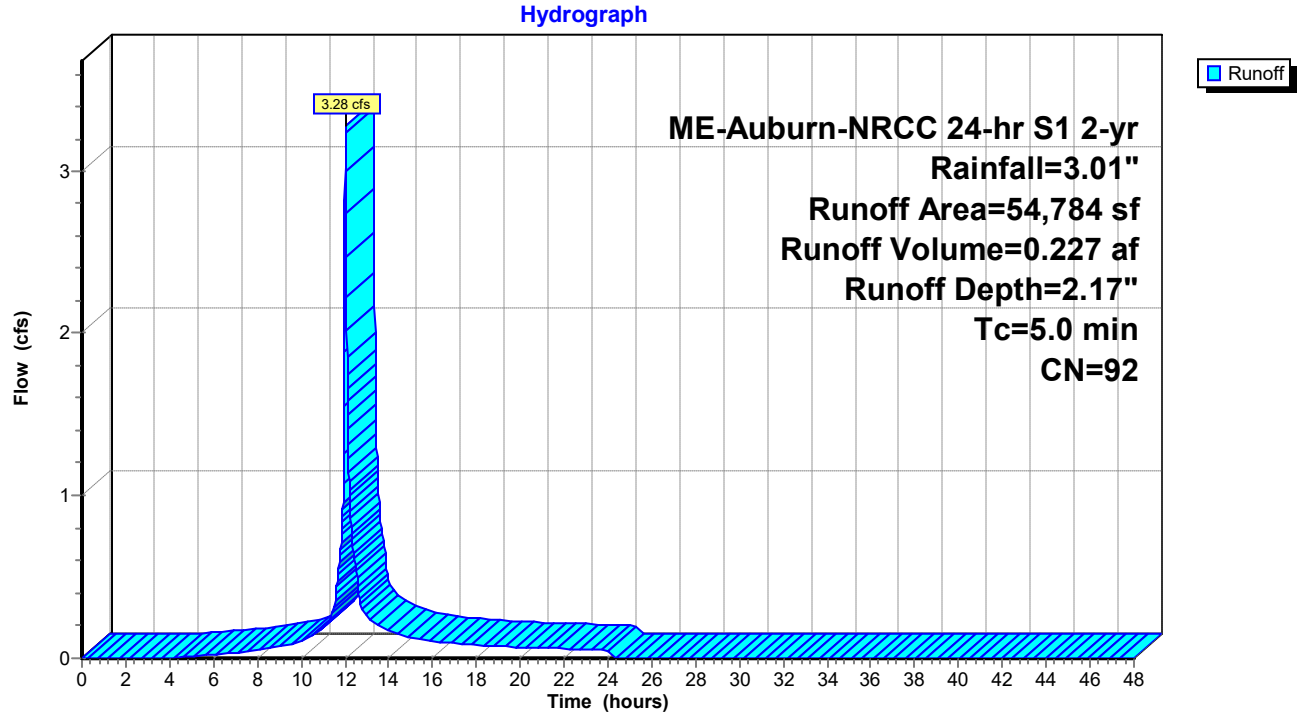
Runoff = 3.28 cfs @ 12.03 hrs, Volume= 0.227 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

	Area (sf)	CN	Description
*	39,768	98	Impervious
	14,306	74	>75% Grass cover, Good, HSG C
*	710	96	Gravel
	54,784	92	Weighted Average
	15,016		27.41% Pervious Area
	39,768		72.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: No Treat Parking Lot



Summary for Subcatchment 8S: No Treat to Stream

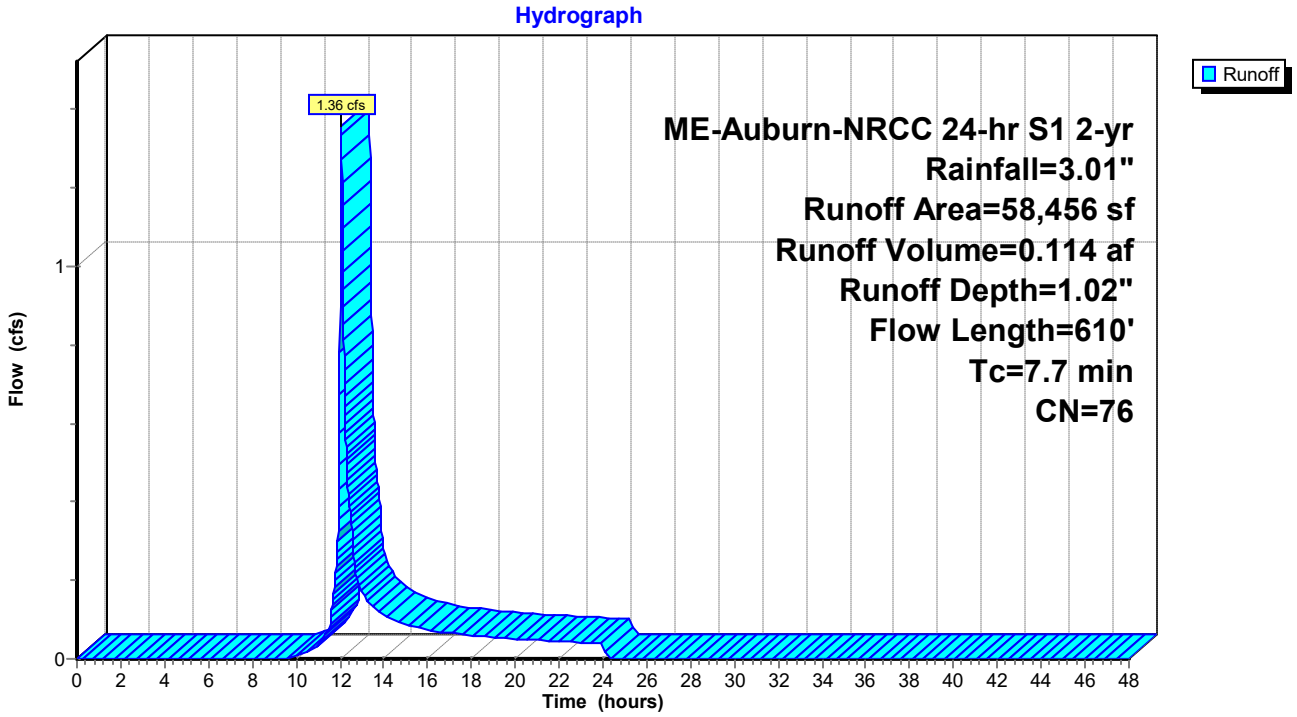
Runoff = 1.36 cfs @ 12.06 hrs, Volume= 0.114 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 2-yr Rainfall=3.01"

Area (sf)	CN	Description
4,705	98	Paved parking, HSG C
53,751	74	>75% Grass cover, Good, HSG C
58,456	76	Weighted Average
53,751		91.95% Pervious Area
4,705		8.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	65	0.2000	0.38		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	545	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.7	610	Total			

Subcatchment 8S: No Treat to Stream

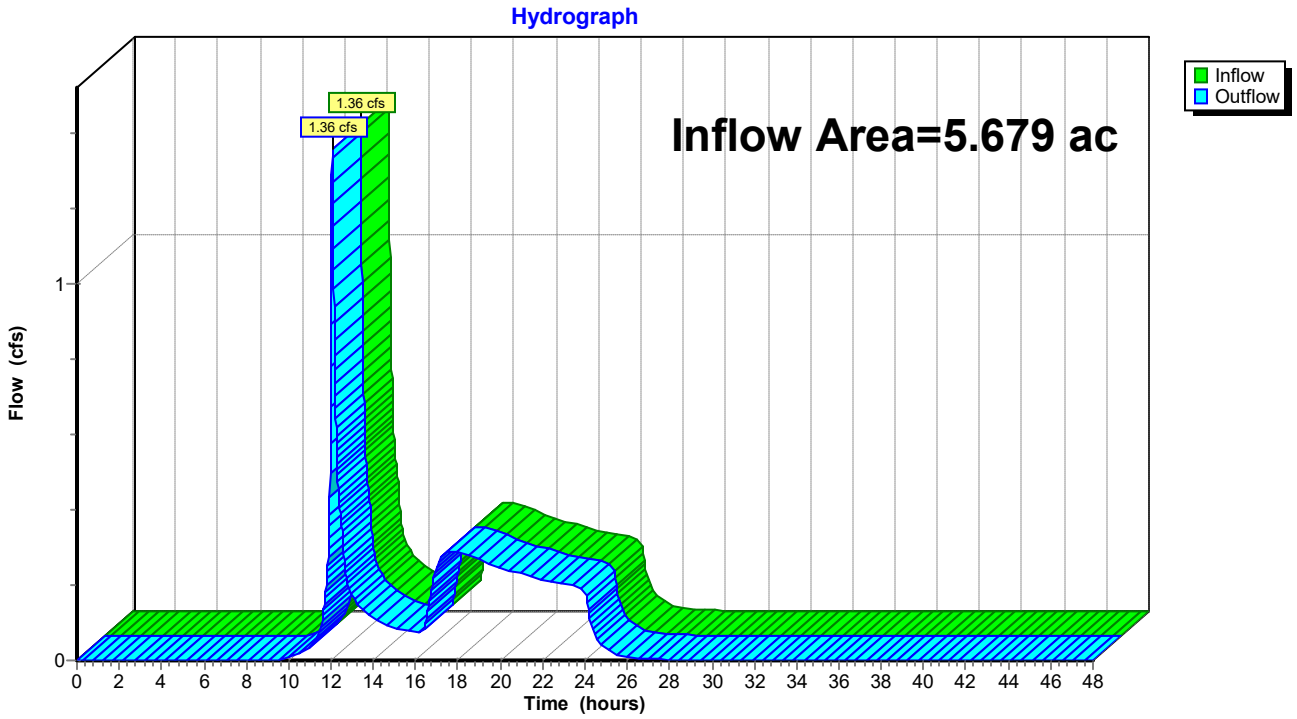


Summary for Reach SP1: Stream Inlet

Inflow Area = 5.679 ac, 40.23% Impervious, Inflow Depth = 0.50" for 2-yr event
Inflow = 1.36 cfs @ 12.06 hrs, Volume= 0.239 af
Outflow = 1.36 cfs @ 12.06 hrs, Volume= 0.239 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP1: Stream Inlet

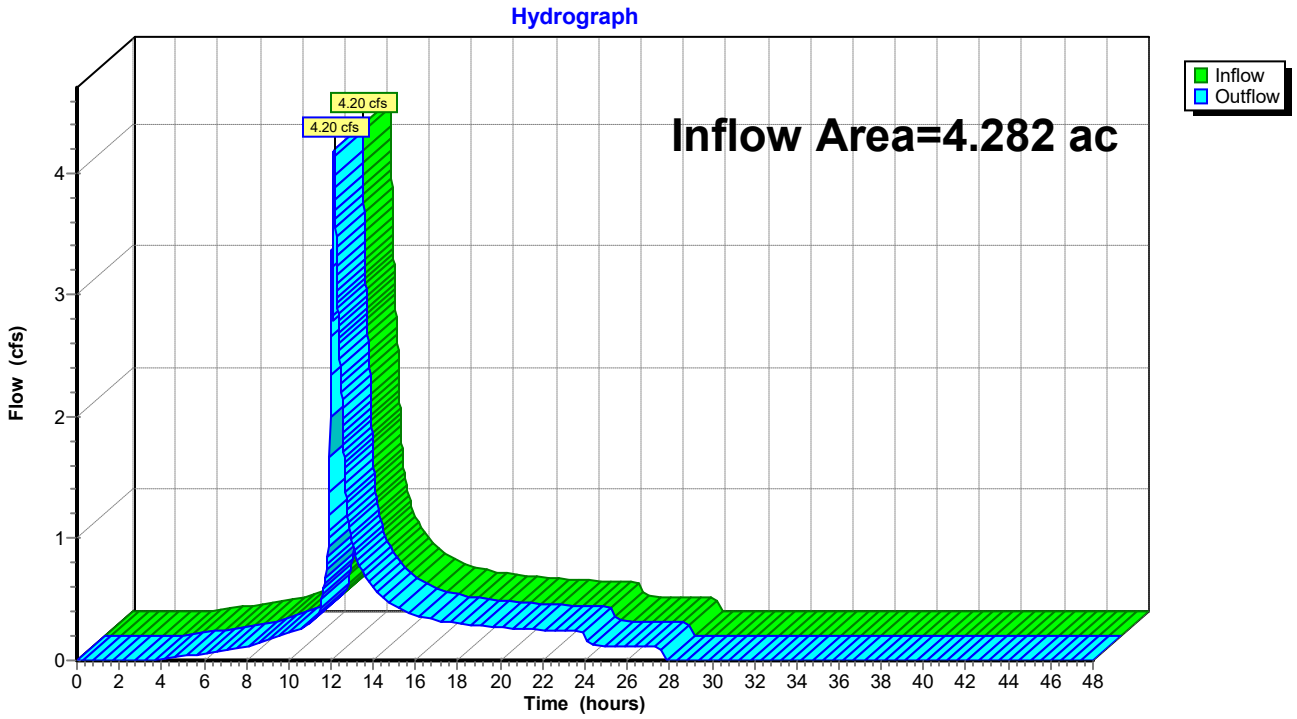


Summary for Reach SP2: Center Street CB

Inflow Area = 4.282 ac, 77.55% Impervious, Inflow Depth = 1.86" for 2-yr event
Inflow = 4.20 cfs @ 12.15 hrs, Volume= 0.665 af
Outflow = 4.20 cfs @ 12.15 hrs, Volume= 0.665 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP2: Center Street CB



Summary for Pond 1P: Wet Pond Full

Inflow Area = 3.923 ac, 49.32% Impervious, Inflow Depth = 1.72" for 2-yr event
Inflow = 8.15 cfs @ 12.03 hrs, Volume= 0.564 af
Outflow = 0.23 cfs @ 17.77 hrs, Volume= 0.125 af, Atten= 97%, Lag= 344.6 min
Primary = 0.23 cfs @ 17.77 hrs, Volume= 0.125 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 236.04' @ 17.77 hrs Surf.Area= 10,595 sf Storage= 19,586 cf

Plug-Flow detention time= 591.1 min calculated for 0.124 af (22% of inflow)
Center-of-Mass det. time= 387.2 min (1,226.5 - 839.2)

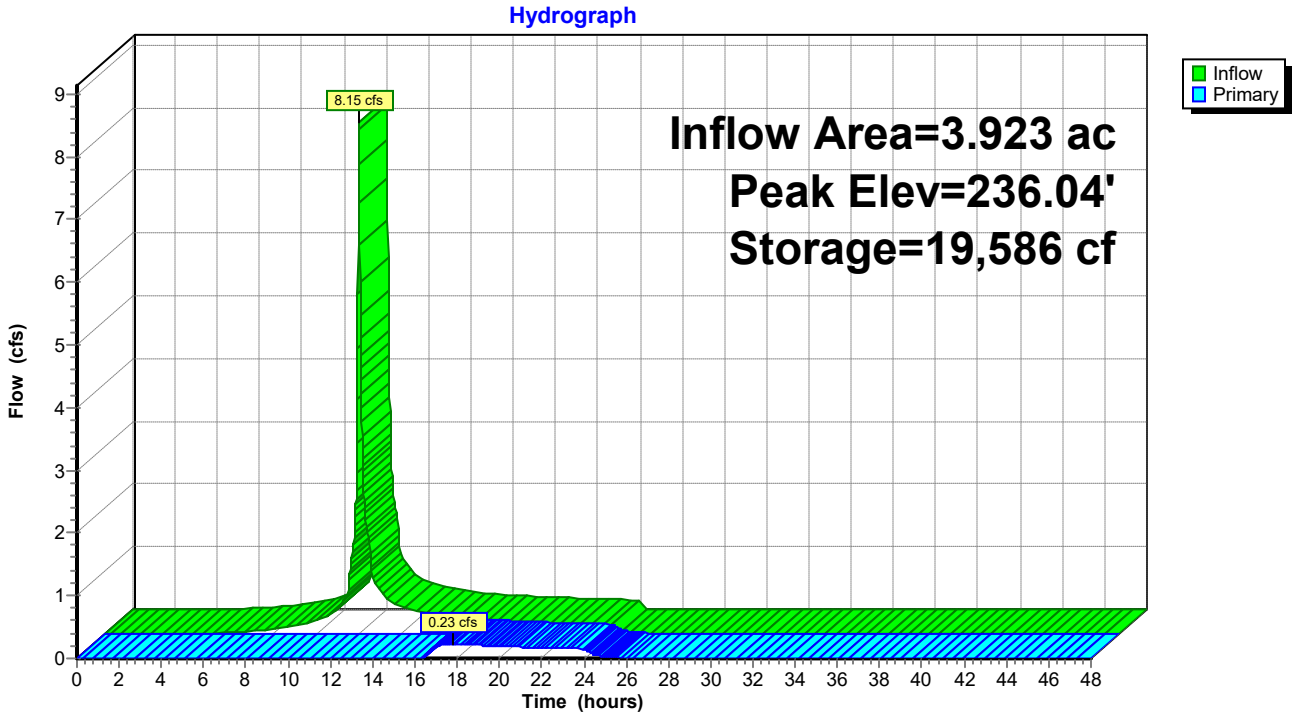
Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	36,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	8,533	0	0
235.00	9,585	9,059	9,059
236.00	10,550	10,068	19,127
237.00	11,575	11,063	30,189
237.50	12,488	6,016	36,205

Device	Routing	Invert	Outlet Devices
#1	Primary	236.00'	**10.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=0.23 cfs @ 17.77 hrs HW=236.04' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.23 cfs @ 0.54 fps)

Pond 1P: Wet Pond Full



Summary for Pond 2P: Extra Storage

Inflow	=	3.14 cfs @	12.06 hrs,	Volume=	0.077 af
Outflow	=	1.10 cfs @	12.22 hrs,	Volume=	0.072 af, Atten= 65%, Lag= 9.3 min
Primary	=	1.10 cfs @	12.22 hrs,	Volume=	0.072 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 226.50' @ 12.22 hrs Surf.Area= 1,371 sf Storage= 811 cf
Flood Elev= 231.00' Surf.Area= 1,371 sf Storage= 3,954 cf

Plug-Flow detention time= 21.7 min calculated for 0.072 af (93% of inflow)
Center-of-Mass det. time= 12.1 min (772.2 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	225.50'	2,392 cf	**11.00'W x 124.66'L x 5.50'H Field A** 7,542 cf Overall - 1,562 cf Embedded = 5,980 cf x 40.0% Voids
#2A	226.00'	1,562 cf	**ADS_StormTech SC-740 +Cap** x 34 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 34 Chambers in 2 Rows
		3,954 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	225.80'	**12.0" Round Culvert X 2.00** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 225.80' / 225.10' S= 0.0090 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	230.00'	**6.0' long Sharp-Crested Vee/Trap Weir X 2.00** Cv= 2.62 (C= 3.28)
#3	Device 1	225.90'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=1.10 cfs @ 12.22 hrs HW=226.50' TW=225.81' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.10 cfs of 2.83 cfs potential flow)
  ├─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Orifice Controls 1.10 cfs @ 3.16 fps)

Pond 2P: Extra Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

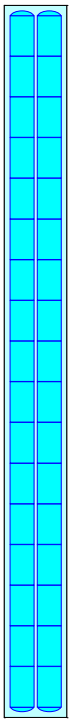
17 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 122.66' Row Length +12.0" End Stone x 2 = 124.66' Base Length
2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width
6.0" Base + 30.0" Chamber Height + 30.0" Cover = 5.50' Field Height

34 Chambers x 45.9 cf = 1,562.0 cf Chamber Storage

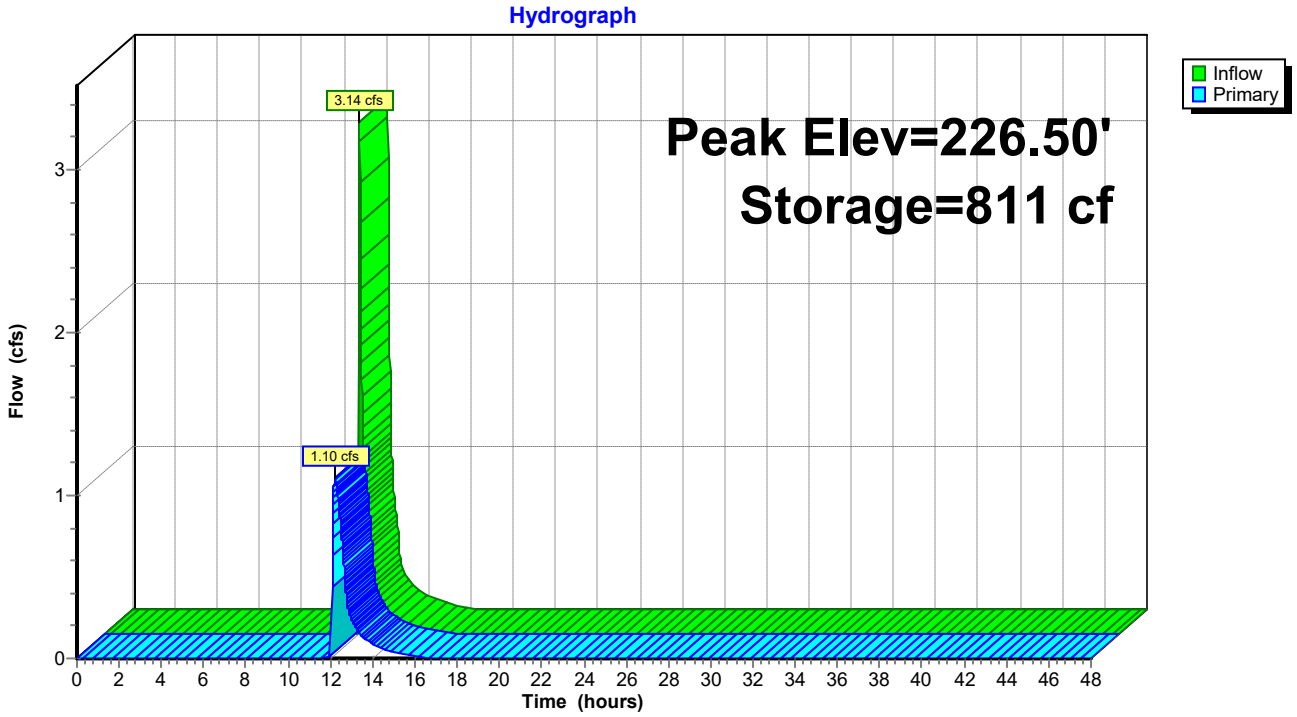
7,541.7 cf Field - 1,562.0 cf Chambers = 5,979.8 cf Stone x 40.0% Voids = 2,391.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,953.9 cf = 0.091 af
Overall Storage Efficiency = 52.4%
Overall System Size = 124.66' x 11.00' x 5.50'

34 Chambers
279.3 cy Field
221.5 cy Stone



Pond 2P: Extra Storage



Summary for Pond 3P: DMH

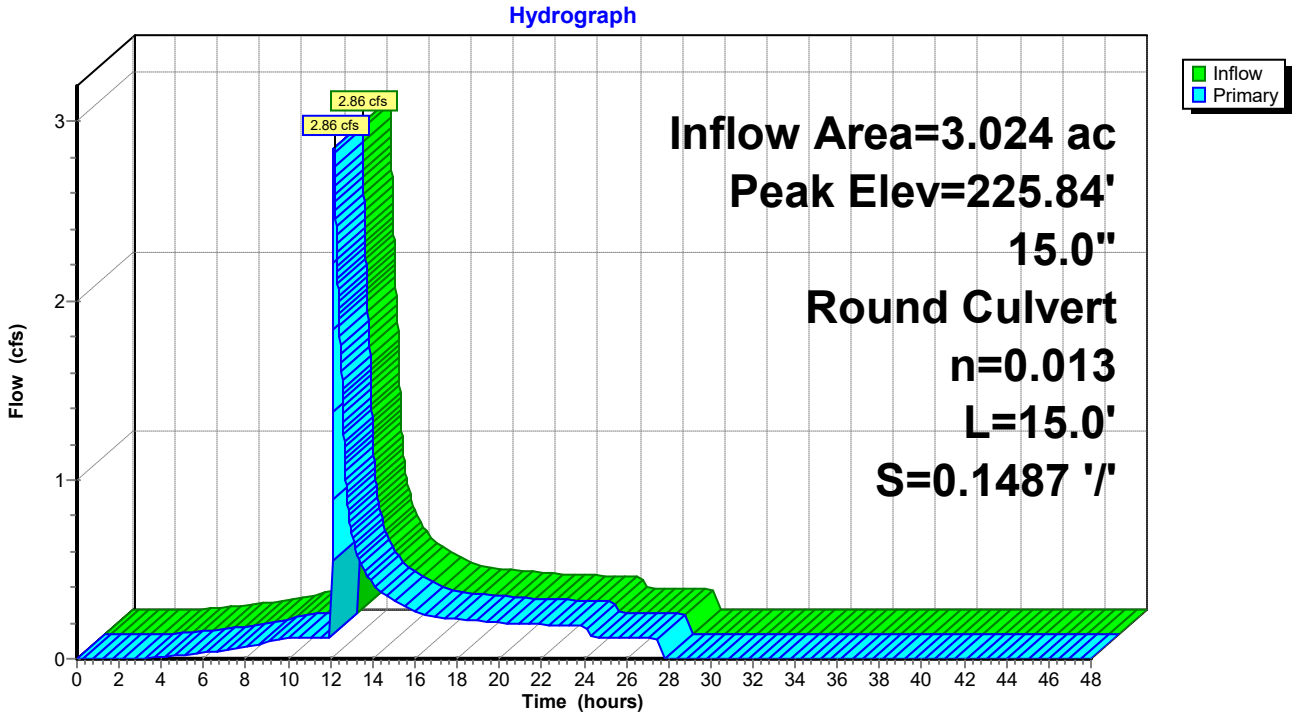
Inflow Area = 3.024 ac, 79.62% Impervious, Inflow Depth = 1.73" for 2-yr event
Inflow = 2.86 cfs @ 12.17 hrs, Volume= 0.437 af
Outflow = 2.86 cfs @ 12.17 hrs, Volume= 0.437 af, Atten= 0%, Lag= 0.0 min
Primary = 2.86 cfs @ 12.17 hrs, Volume= 0.437 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 225.84' @ 12.17 hrs
Flood Elev= 231.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.98'	**15.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 224.98' / 222.75' S= 0.1487 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.86 cfs @ 12.17 hrs HW=225.84' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.86 cfs @ 3.16 fps)

Pond 3P: DMH



Summary for Pond GUSF1: Soil Filter

Inflow Area = 0.414 ac, 58.42% Impervious, Inflow Depth = 1.83" for 2-yr event
Inflow = 0.92 cfs @ 12.03 hrs, Volume= 0.063 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 233.10' @ 24.29 hrs Surf.Area= 2,990 sf Storage= 2,744 cf
Flood Elev= 234.00' Surf.Area= 3,800 sf Storage= 5,800 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

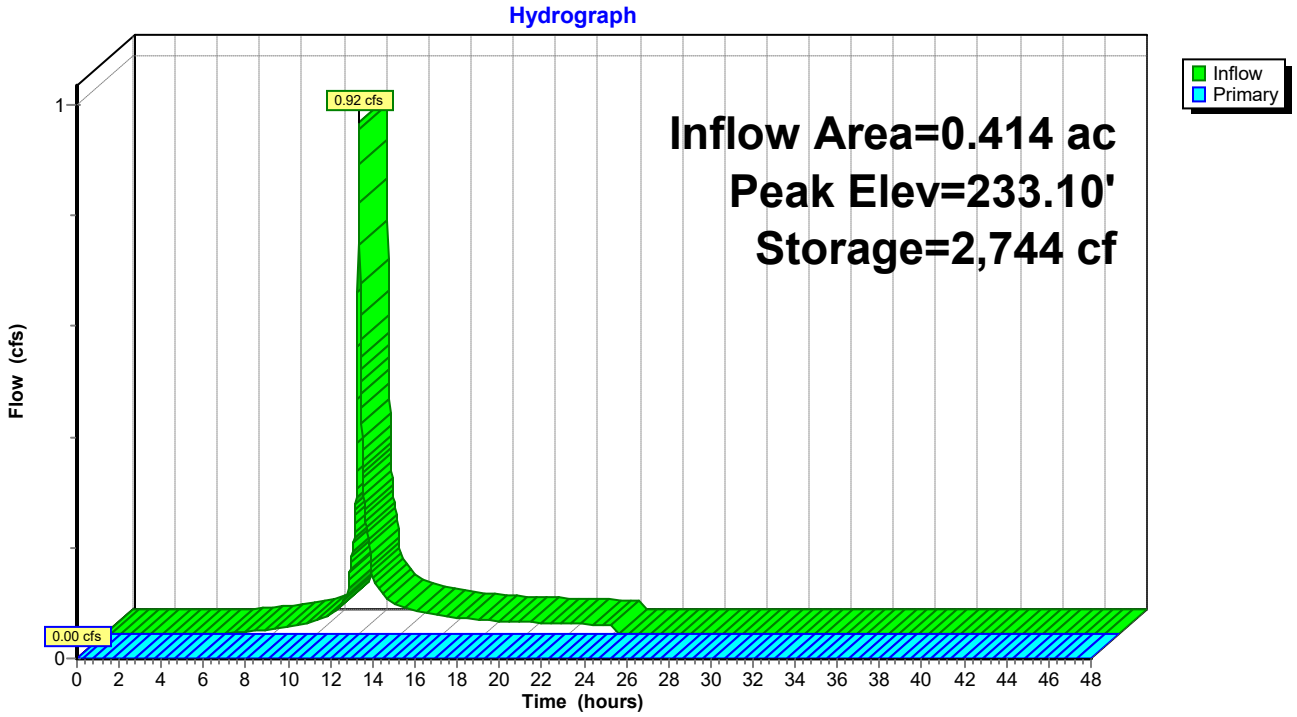
Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	10,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.00	2,000	0	0
233.00	2,900	2,450	2,450
234.00	3,800	3,350	5,800
235.00	5,000	4,400	10,200

Device	Routing	Invert	Outlet Devices
#1	Device 2	233.50'	**6.0" x 1.5" Horiz. Orifice/Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	229.17'	**12.0" Round Culvert** L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 229.00' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=232.00' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 0.00 cfs of 4.35 cfs potential flow)
↑**1=Orifice/Grate** (Controls 0.00 cfs)

Pond GUSF1: Soil Filter



Summary for Pond GUSF2: Soil Filter

Inflow Area = 1.586 ac, 79.43% Impervious, Inflow Depth = 2.26" for 2-yr event
Inflow = 4.28 cfs @ 12.03 hrs, Volume= 0.299 af
Outflow = 1.68 cfs @ 12.16 hrs, Volume= 0.171 af, Atten= 61%, Lag= 8.2 min
Primary = 1.68 cfs @ 12.16 hrs, Volume= 0.171 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 233.57' @ 12.16 hrs Surf.Area= 4,482 sf Storage= 5,883 cf
Flood Elev= 234.00' Surf.Area= 4,870 sf Storage= 7,910 cf

Plug-Flow detention time= 267.9 min calculated for 0.171 af (57% of inflow)
Center-of-Mass det. time= 127.8 min (935.9 - 808.1)

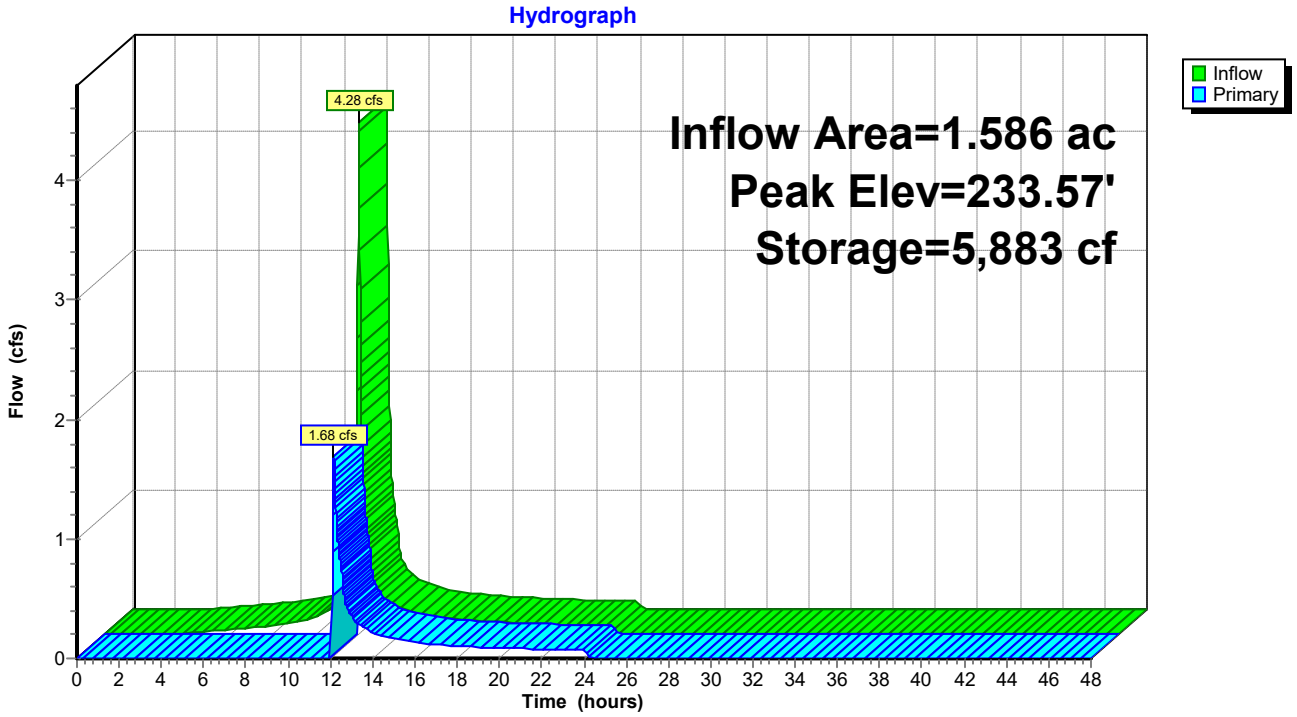
Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	13,595 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.00	3,000	0	0
233.00	3,975	3,488	3,488
234.00	4,870	4,423	7,910
235.00	6,500	5,685	13,595

Device	Routing	Invert	Outlet Devices
#1	Device 2	233.50'	**6.0" x 1.5" Horiz. Orifice/Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	229.17'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 227.00' S= 0.0155 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.68 cfs @ 12.16 hrs HW=233.57' TW=225.84' (Dynamic Tailwater)
↑**2=Culvert** (Passes 1.68 cfs of 6.12 cfs potential flow)
↑**1=Orifice/Grate** (Weir Controls 1.68 cfs @ 0.84 fps)

Pond GUSF2: Soil Filter



Summary for Pond SSF1: Sand Filter

Inflow Area = 1.438 ac, 79.82% Impervious, Inflow Depth = 2.26" for 2-yr event
Inflow = 3.88 cfs @ 12.03 hrs, Volume= 0.271 af
Outflow = 3.25 cfs @ 12.06 hrs, Volume= 0.271 af, Atten= 16%, Lag= 2.1 min
Primary = 0.11 cfs @ 10.13 hrs, Volume= 0.194 af
Secondary = 3.14 cfs @ 12.06 hrs, Volume= 0.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 230.69' @ 12.06 hrs Surf.Area= 2,257 sf Storage= 2,571 cf
Flood Elev= 231.00' Surf.Area= 2,257 sf Storage= 2,855 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 151.4 min (959.5 - 808.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.67'	1,605 cf	**18.17'W x 124.24'L x 2.33'H Field A** 5,266 cf Overall - 1,253 cf Embedded = 4,013 cf x 40.0% Voids
#2A	229.17'	1,253 cf	**ADS_StormTech SC-310 +Cap** x 85 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 85 Chambers in 5 Rows
		2,858 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Secondary	229.17'	**12.0" Round Culvert X 2.00** L= 9.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 228.90' S= 0.0300 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	230.50'	**6.0' long Sharp-Crested Vee/Trap Weir X 2.00** Cv= 2.62 (C= 3.28)
#3	Primary	228.67'	**2.200 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.11 cfs @ 10.13 hrs HW=228.69' TW=225.13' (Dynamic Tailwater)
└─**3=Exfiltration** (Exfiltration Controls 0.11 cfs)

Secondary OutFlow Max=3.10 cfs @ 12.06 hrs HW=230.68' TW=225.94' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.10 cfs of 7.62 cfs potential flow)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 3.10 cfs @ 1.41 fps)

Pond SSF1: Sand Filter - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

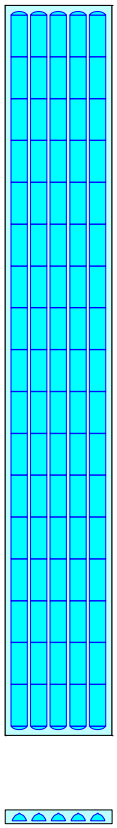
17 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 122.24' Row Length +12.0" End Stone x 2 = 124.24' Base Length
5 Rows x 34.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 18.17' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

85 Chambers x 14.7 cf = 1,253.1 cf Chamber Storage

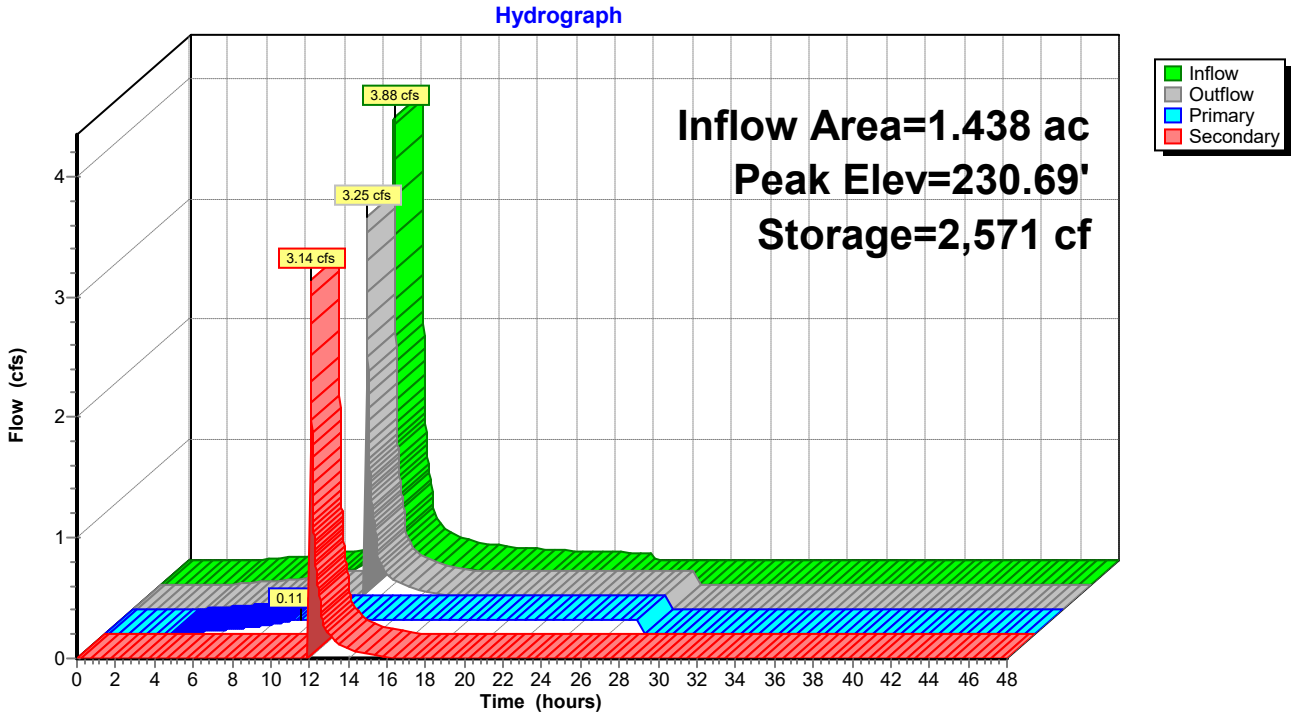
5,266.4 cf Field - 1,253.1 cf Chambers = 4,013.3 cf Stone x 40.0% Voids = 1,605.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,858.4 cf = 0.066 af
Overall Storage Efficiency = 54.3%
Overall System Size = 124.24' x 18.17' x 2.33'

85 Chambers
195.1 cy Field
148.6 cy Stone



Pond SSF1: Sand Filter



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Rear Paved Runoff Area=31,476 sf 0.00% Impervious Runoff Depth=2.95"
Tc=5.0 min CN=86 Runoff=2.45 cfs 0.178 af

Subcatchment 2S: Storage Building Area Runoff Area=106,131 sf 74.22% Impervious Runoff Depth=3.34"
Tc=5.0 min CN=90 Runoff=9.21 cfs 0.678 af

Subcatchment 3S: To GUSF1 Runoff Area=18,025 sf 58.42% Impervious Runoff Depth=3.14"
Tc=5.0 min CN=88 Runoff=1.49 cfs 0.108 af

Subcatchment 4S: To GUSF2 Runoff Area=69,088 sf 79.43% Impervious Runoff Depth=3.65"
Tc=5.0 min CN=93 Runoff=6.40 cfs 0.482 af

Subcatchment 5S: Treated Parking Lot Runoff Area=62,654 sf 79.82% Impervious Runoff Depth=3.65"
Tc=5.0 min CN=93 Runoff=5.80 cfs 0.437 af

Subcatchment 6S: Off-Site to Pond Runoff Area=33,300 sf 16.56% Impervious Runoff Depth=1.93"
Tc=5.0 min CN=74 Runoff=1.68 cfs 0.123 af

Subcatchment 7S: No Treat Parking Lot Runoff Area=54,784 sf 72.59% Impervious Runoff Depth=3.54"
Tc=5.0 min CN=92 Runoff=4.97 cfs 0.371 af

Subcatchment 8S: No Treat to Stream Runoff Area=58,456 sf 8.05% Impervious Runoff Depth=2.08"
Flow Length=610' Tc=7.7 min CN=76 Runoff=2.79 cfs 0.233 af

Reach SP1: Stream Inlet Inflow=3.28 cfs 0.788 af
Outflow=3.28 cfs 0.788 af

Reach SP2: Center Street CB Inflow=10.33 cfs 1.158 af
Outflow=10.33 cfs 1.158 af

Pond 1P: Wet Pond Full Peak Elev=236.21' Storage=21,406 cf Inflow=13.34 cfs 0.978 af
Outflow=2.54 cfs 0.539 af

Pond 2P: Extra Storage Peak Elev=228.40' Storage=2,527 cf Inflow=5.63 cfs 0.207 af
Outflow=2.24 cfs 0.202 af

Pond 3P: DMH Peak Elev=226.69' Inflow=6.17 cfs 0.786 af
15.0" Round Culvert n=0.013 L=15.0' S=0.1487 '/' Outflow=6.17 cfs 0.786 af

Pond GUSF1: Soil Filter Peak Elev=233.51' Storage=4,030 cf Inflow=1.49 cfs 0.108 af
Outflow=0.04 cfs 0.016 af

Pond GUSF2: Soil Filter Peak Elev=233.81' Storage=6,998 cf Inflow=6.40 cfs 0.482 af
Outflow=4.02 cfs 0.354 af

Pond SSF1: Sand Filter Peak Elev=230.77' Storage=2,651 cf Inflow=5.80 cfs 0.437 af
Primary=0.11 cfs 0.230 af Secondary=5.63 cfs 0.207 af Outflow=5.75 cfs 0.437 af

Total Runoff Area = 9.961 ac Runoff Volume = 2.610 af Average Runoff Depth = 3.14"
43.73% Pervious = 4.356 ac 56.27% Impervious = 5.606 ac

Summary for Subcatchment 1S: Rear Paved Area/Building

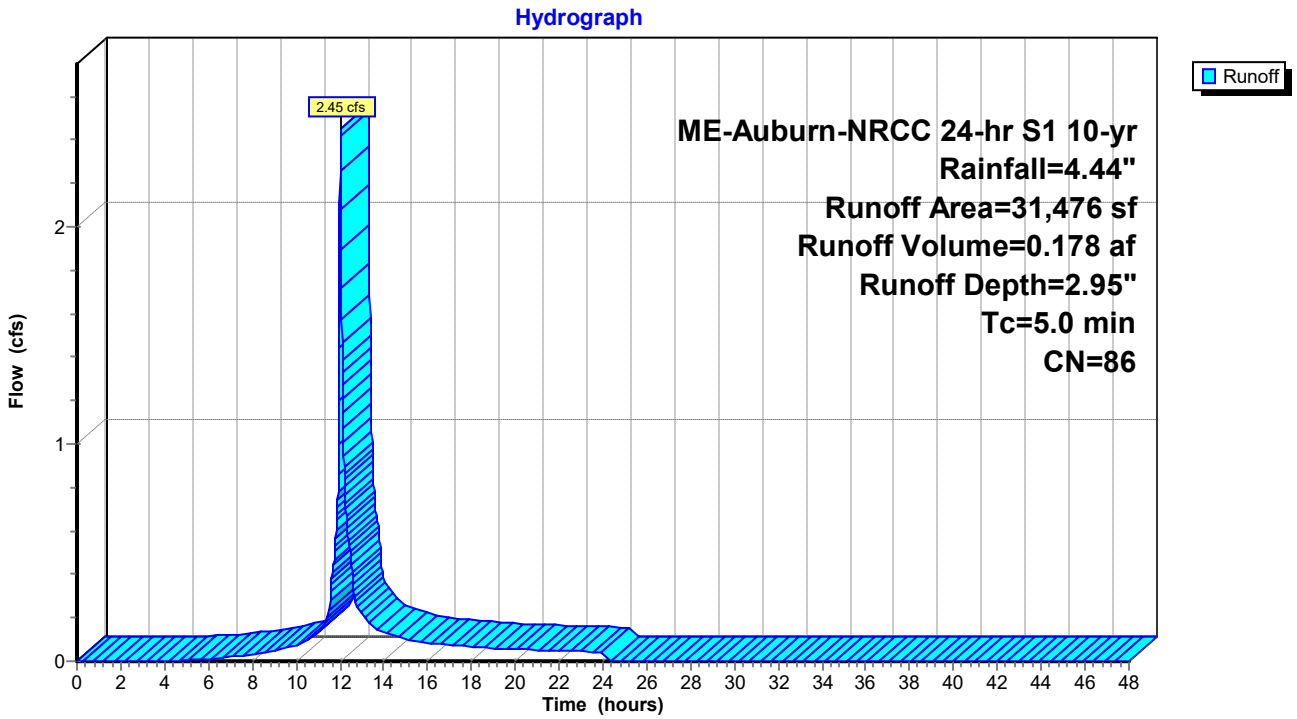
Runoff = 2.45 cfs @ 12.03 hrs, Volume= 0.178 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
	13,645	74	>75% Grass cover, Good, HSG C
*	17,831	96	Gravel
	31,476	86	Weighted Average
	31,476		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Rear Paved Area/Building



Summary for Subcatchment 2S: Storage Building Area

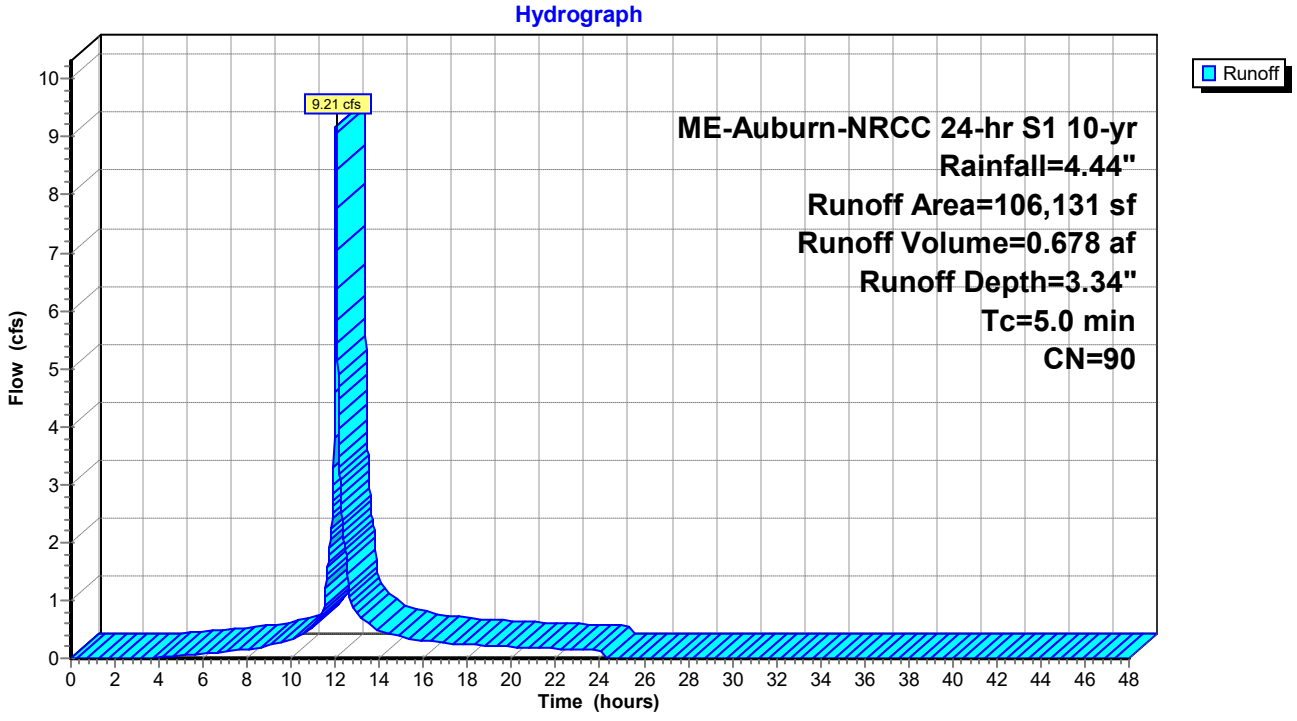
Runoff = 9.21 cfs @ 12.03 hrs, Volume= 0.678 af, Depth= 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	78,774	98	Impervious
	13,470	74	>75% Grass cover, Good, HSG C
	13,887	61	>75% Grass cover, Good, HSG B
	106,131	90	Weighted Average
	27,357		25.78% Pervious Area
	78,774		74.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Storage Building Area



Summary for Subcatchment 3S: To GUSF1

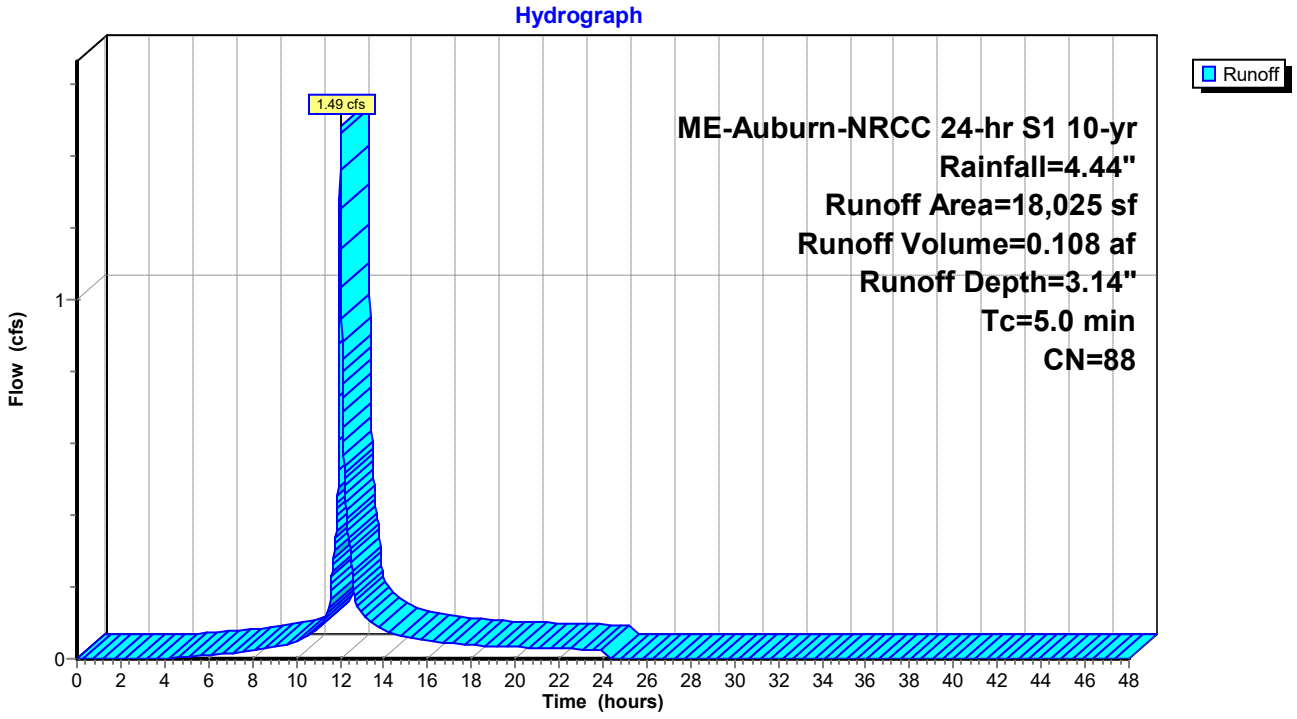
Runoff = 1.49 cfs @ 12.03 hrs, Volume= 0.108 af, Depth= 3.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

Area (sf)	CN	Description
10,530	98	Paved parking, HSG C
7,495	74	>75% Grass cover, Good, HSG C
18,025	88	Weighted Average
7,495		41.58% Pervious Area
10,530		58.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: To GUSF1



Summary for Subcatchment 4S: To GUSF2

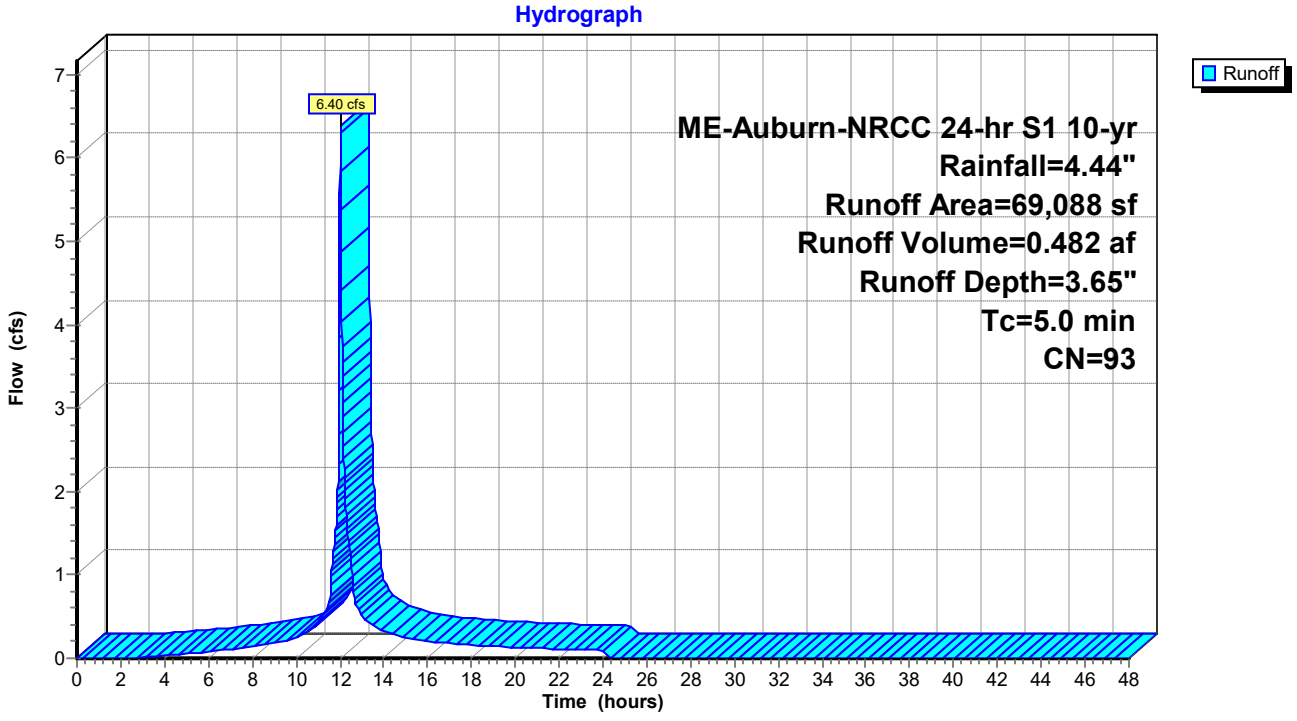
Runoff = 6.40 cfs @ 12.03 hrs, Volume= 0.482 af, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	53,245	98	Impervious
	14,211	74	>75% Grass cover, Good, HSG C
*	1,632	98	Impervious
	69,088	93	Weighted Average
	14,211		20.57% Pervious Area
	54,877		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: To GUSF2



Summary for Subcatchment 5S: Treated Parking Lot

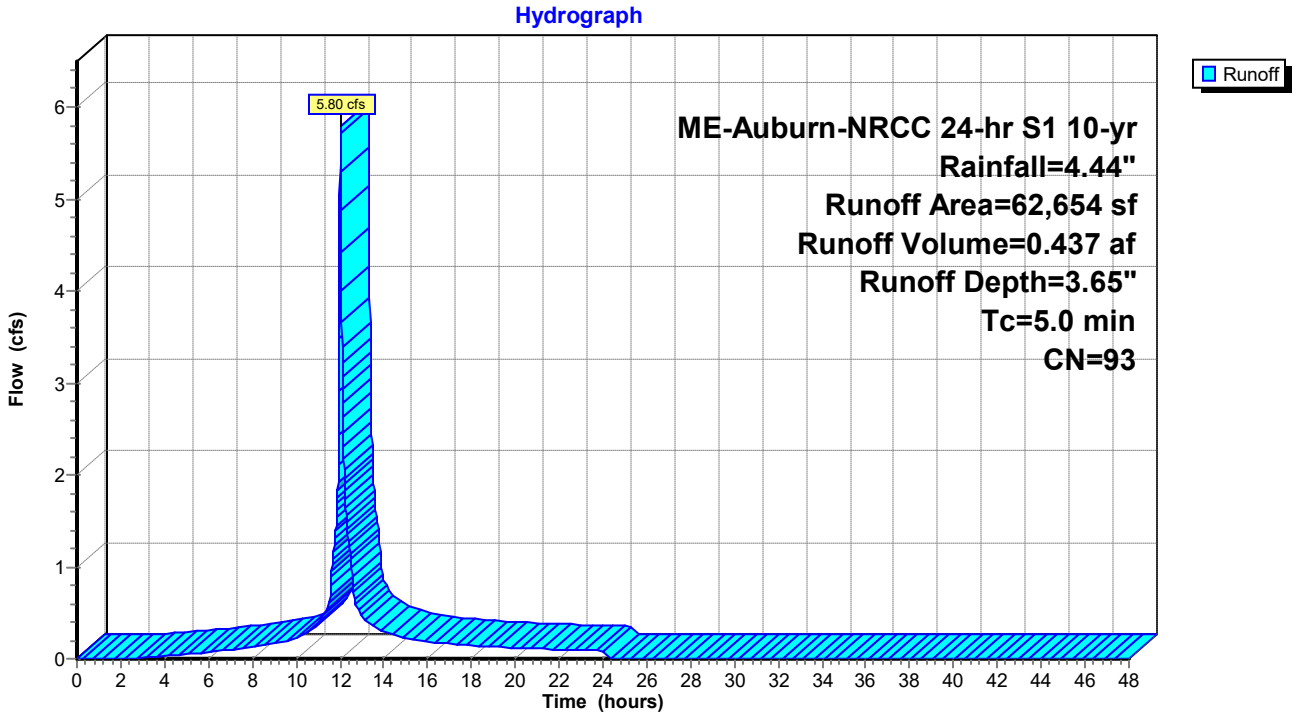
Runoff = 5.80 cfs @ 12.03 hrs, Volume= 0.437 af, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
	12,643	74	>75% Grass cover, Good, HSG C
*	50,011	98	Impervious
	62,654	93	Weighted Average
	12,643		20.18% Pervious Area
	50,011		79.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: Treated Parking Lot



Summary for Subcatchment 6S: Off-Site to Pond

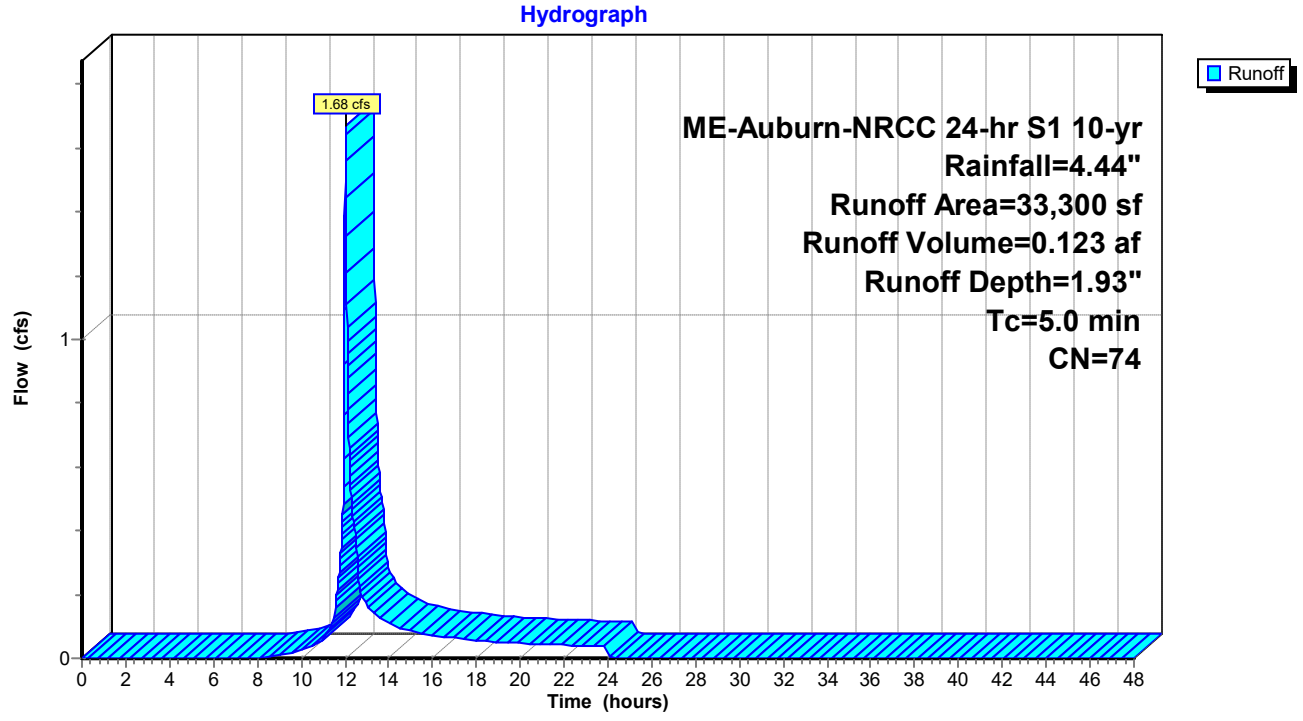
Runoff = 1.68 cfs @ 12.03 hrs, Volume= 0.123 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	5,516	98	Impervious
	11,046	61	>75% Grass cover, Good, HSG B
	16,738	74	>75% Grass cover, Good, HSG C
	33,300	74	Weighted Average
	27,784		83.44% Pervious Area
	5,516		16.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: Off-Site to Pond



Summary for Subcatchment 7S: No Treat Parking Lot

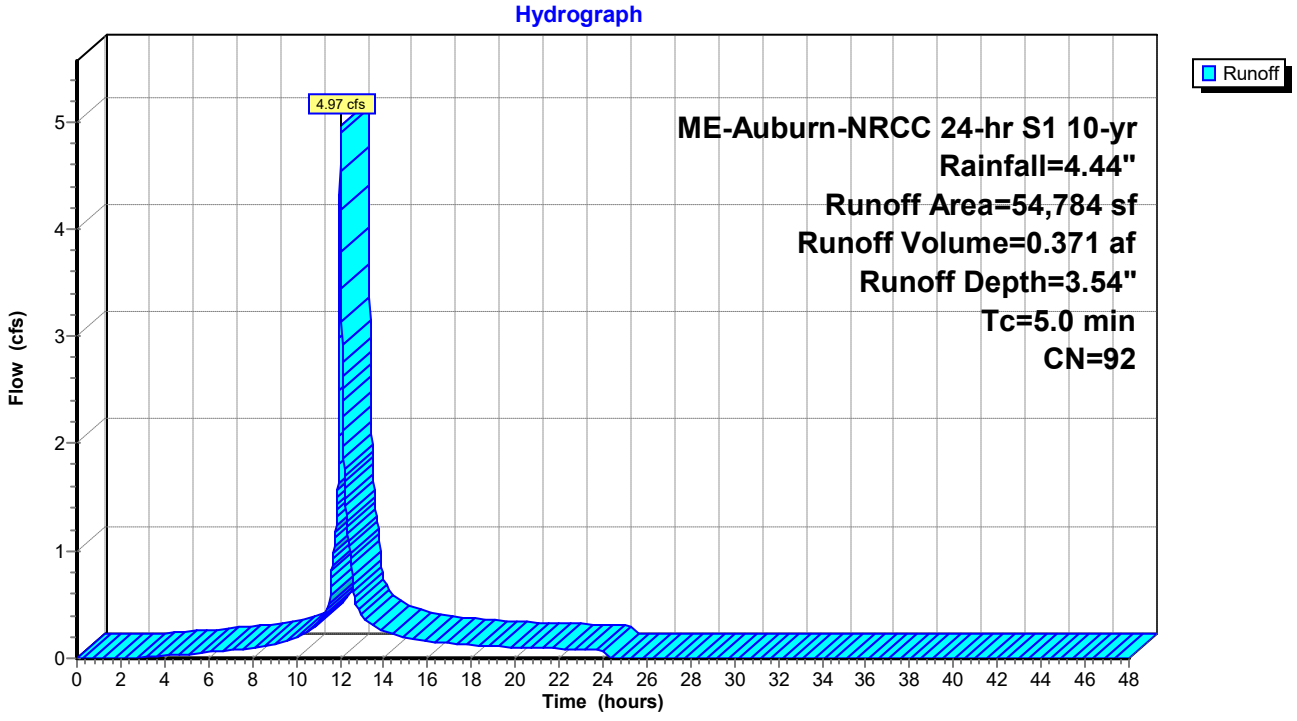
Runoff = 4.97 cfs @ 12.03 hrs, Volume= 0.371 af, Depth= 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

	Area (sf)	CN	Description
*	39,768	98	Impervious
	14,306	74	>75% Grass cover, Good, HSG C
*	710	96	Gravel
	54,784	92	Weighted Average
	15,016		27.41% Pervious Area
	39,768		72.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: No Treat Parking Lot



Summary for Subcatchment 8S: No Treat to Stream

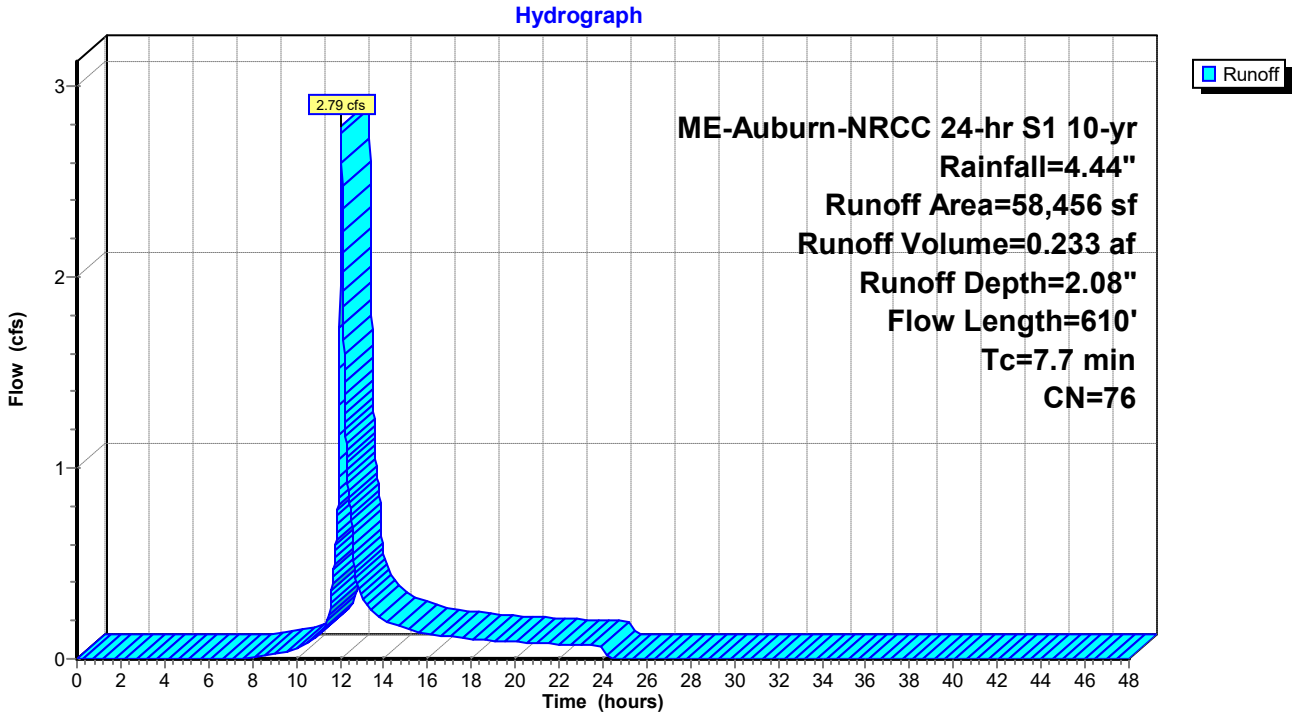
Runoff = 2.79 cfs @ 12.06 hrs, Volume= 0.233 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 10-yr Rainfall=4.44"

Area (sf)	CN	Description
4,705	98	Paved parking, HSG C
53,751	74	>75% Grass cover, Good, HSG C
58,456	76	Weighted Average
53,751		91.95% Pervious Area
4,705		8.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	65	0.2000	0.38		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	545	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.7	610	Total			

Subcatchment 8S: No Treat to Stream

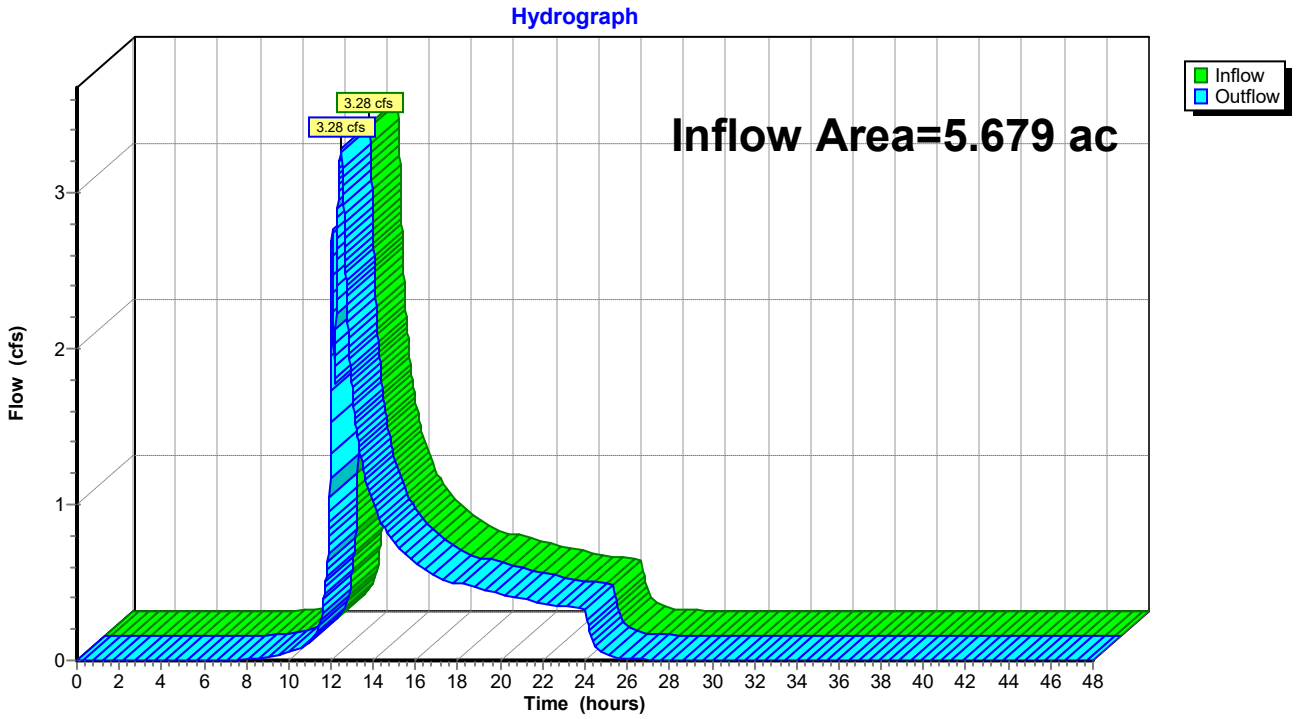


Summary for Reach SP1: Stream Inlet

Inflow Area = 5.679 ac, 40.23% Impervious, Inflow Depth = 1.66" for 10-yr event
Inflow = 3.28 cfs @ 12.48 hrs, Volume= 0.788 af
Outflow = 3.28 cfs @ 12.48 hrs, Volume= 0.788 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP1: Stream Inlet

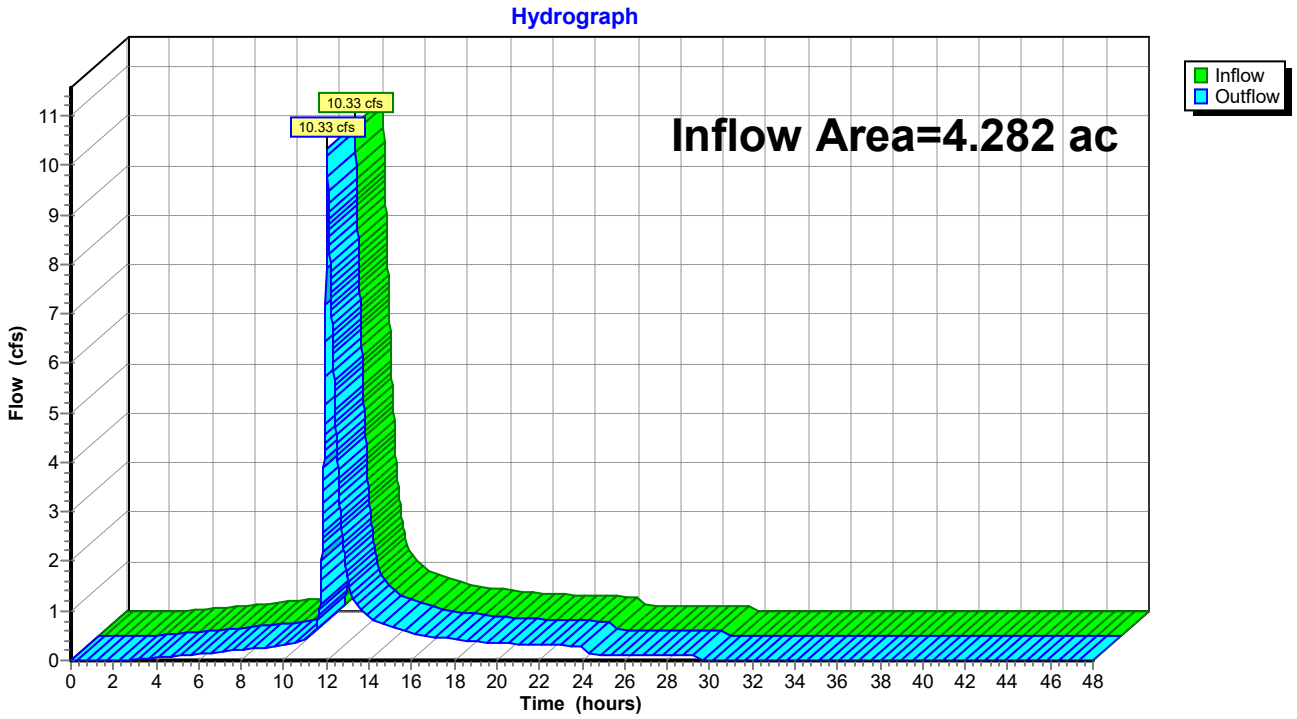


Summary for Reach SP2: Center Street CB

Inflow Area = 4.282 ac, 77.55% Impervious, Inflow Depth = 3.24" for 10-yr event
Inflow = 10.33 cfs @ 12.04 hrs, Volume= 1.158 af
Outflow = 10.33 cfs @ 12.04 hrs, Volume= 1.158 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP2: Center Street CB



Summary for Pond 1P: Wet Pond Full

Inflow Area = 3.923 ac, 49.32% Impervious, Inflow Depth = 2.99" for 10-yr event
Inflow = 13.34 cfs @ 12.03 hrs, Volume= 0.978 af
Outflow = 2.54 cfs @ 12.53 hrs, Volume= 0.539 af, Atten= 81%, Lag= 30.1 min
Primary = 2.54 cfs @ 12.53 hrs, Volume= 0.539 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 236.21' @ 12.53 hrs Surf.Area= 10,769 sf Storage= 21,406 cf

Plug-Flow detention time= 294.9 min calculated for 0.539 af (55% of inflow)
Center-of-Mass det. time= 152.2 min (971.2 - 819.0)

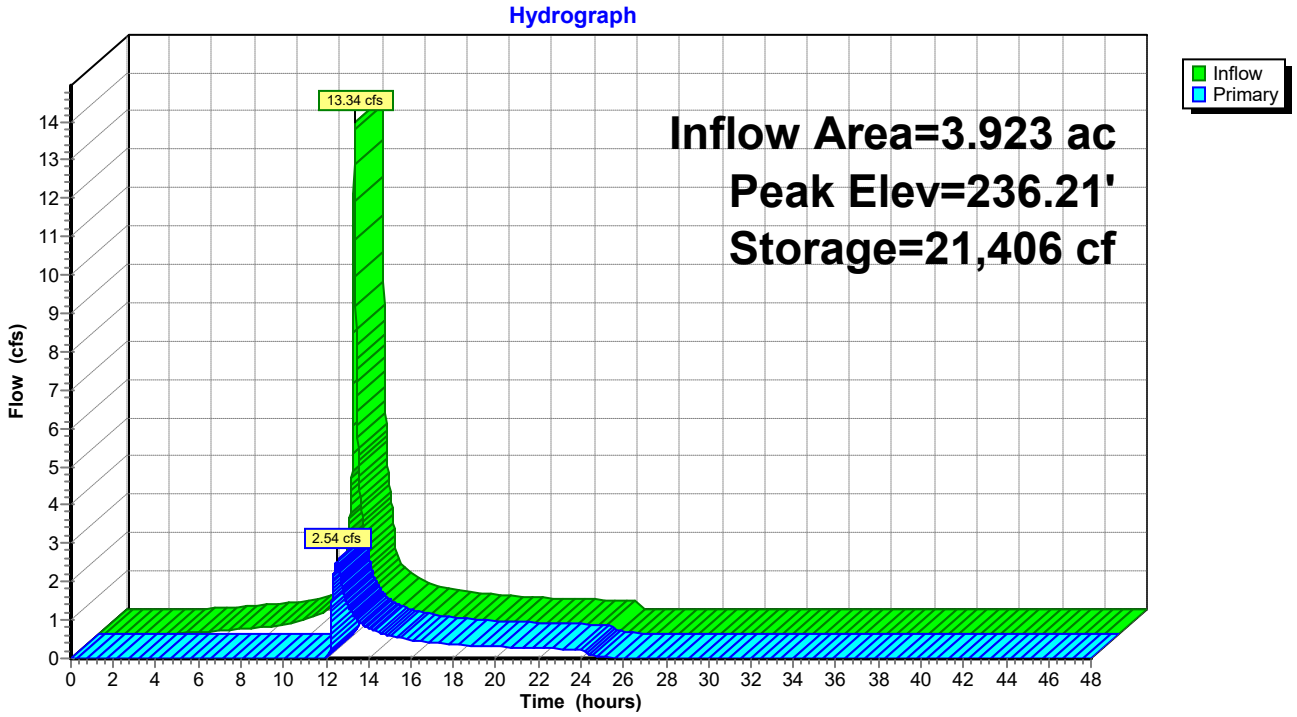
Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	36,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	8,533	0	0
235.00	9,585	9,059	9,059
236.00	10,550	10,068	19,127
237.00	11,575	11,063	30,189
237.50	12,488	6,016	36,205

Device	Routing	Invert	Outlet Devices
#1	Primary	236.00'	**10.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=2.54 cfs @ 12.53 hrs HW=236.21' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.54 cfs @ 1.19 fps)

Pond 1P: Wet Pond Full



Summary for Pond 2P: Extra Storage

Inflow	=	5.63 cfs @	12.03 hrs,	Volume=	0.207 af
Outflow	=	2.24 cfs @	12.22 hrs,	Volume=	0.202 af, Atten= 60%, Lag= 11.2 min
Primary	=	2.24 cfs @	12.22 hrs,	Volume=	0.202 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 228.40' @ 12.18 hrs Surf.Area= 1,371 sf Storage= 2,527 cf
Flood Elev= 231.00' Surf.Area= 1,371 sf Storage= 3,954 cf

Plug-Flow detention time= 22.1 min calculated for 0.202 af (98% of inflow)
Center-of-Mass det. time= 14.0 min (782.8 - 768.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	225.50'	2,392 cf	**11.00'W x 124.66'L x 5.50'H Field A** 7,542 cf Overall - 1,562 cf Embedded = 5,980 cf x 40.0% Voids
#2A	226.00'	1,562 cf	**ADS_StormTech SC-740 +Cap** x 34 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 34 Chambers in 2 Rows
		3,954 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	225.80'	**12.0" Round Culvert X 2.00** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 225.80' / 225.10' S= 0.0090 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	230.00'	**6.0' long Sharp-Crested Vee/Trap Weir X 2.00** Cv= 2.62 (C= 3.28)
#3	Device 1	225.90'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=2.26 cfs @ 12.22 hrs HW=228.34' TW=226.54' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.26 cfs of 8.51 cfs potential flow)
  ├─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Orifice Controls 2.26 cfs @ 6.46 fps)

Pond 2P: Extra Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

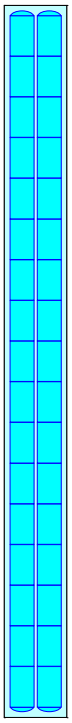
17 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 122.66' Row Length +12.0" End Stone x 2 = 124.66' Base Length
2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width
6.0" Base + 30.0" Chamber Height + 30.0" Cover = 5.50' Field Height

34 Chambers x 45.9 cf = 1,562.0 cf Chamber Storage

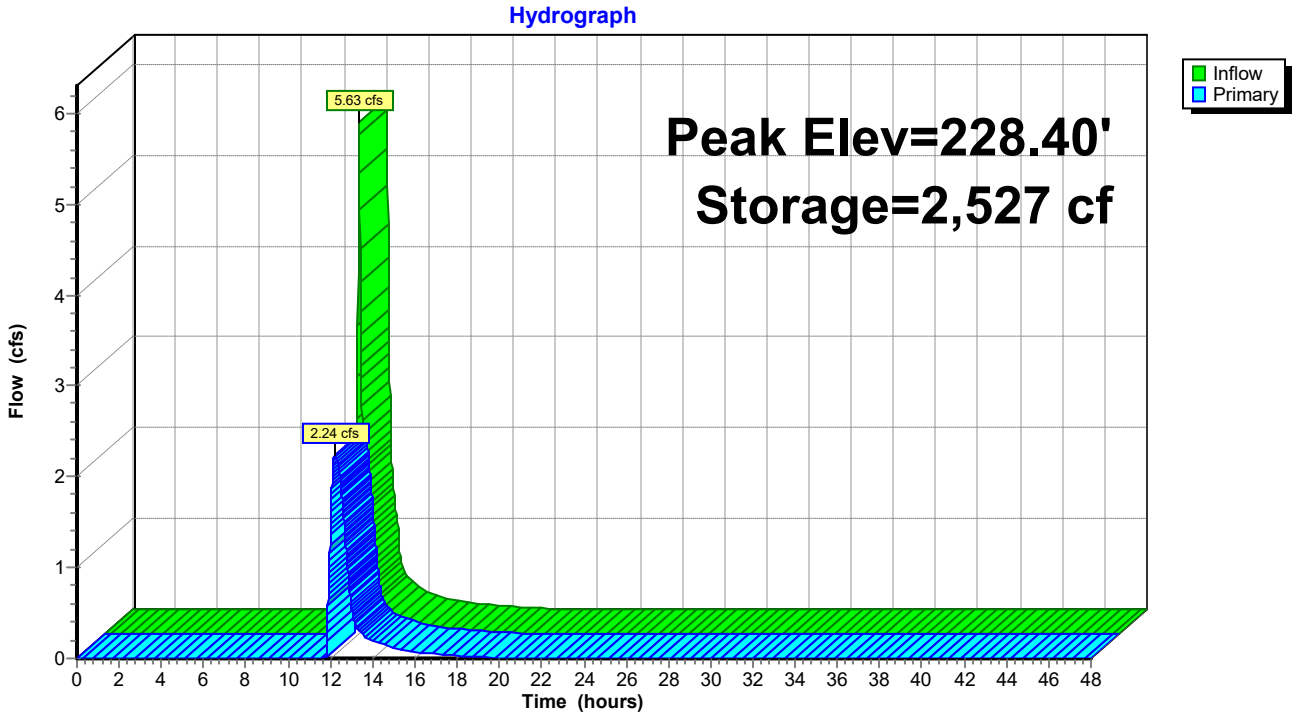
7,541.7 cf Field - 1,562.0 cf Chambers = 5,979.8 cf Stone x 40.0% Voids = 2,391.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,953.9 cf = 0.091 af
Overall Storage Efficiency = 52.4%
Overall System Size = 124.66' x 11.00' x 5.50'

34 Chambers
279.3 cy Field
221.5 cy Stone



Pond 2P: Extra Storage



Summary for Pond 3P: DMH

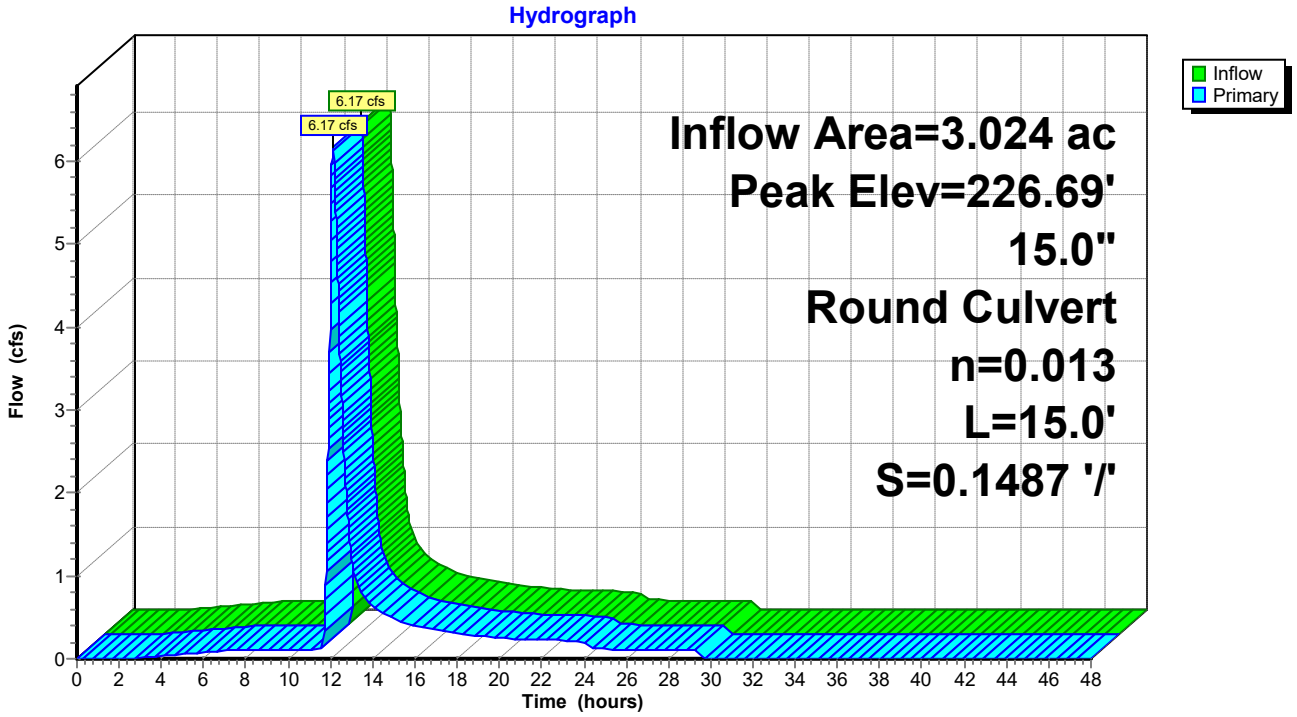
Inflow Area = 3.024 ac, 79.62% Impervious, Inflow Depth = 3.12" for 10-yr event
Inflow = 6.17 cfs @ 12.12 hrs, Volume= 0.786 af
Outflow = 6.17 cfs @ 12.12 hrs, Volume= 0.786 af, Atten= 0%, Lag= 0.0 min
Primary = 6.17 cfs @ 12.12 hrs, Volume= 0.786 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 226.69' @ 12.12 hrs
Flood Elev= 231.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.98'	**15.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 224.98' / 222.75' S= 0.1487 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=6.17 cfs @ 12.12 hrs HW=226.69' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 6.17 cfs @ 5.02 fps)

Pond 3P: DMH



Summary for Pond GUSF1: Soil Filter

Inflow Area = 0.414 ac, 58.42% Impervious, Inflow Depth = 3.14" for 10-yr event
Inflow = 1.49 cfs @ 12.03 hrs, Volume= 0.108 af
Outflow = 0.04 cfs @ 18.24 hrs, Volume= 0.016 af, Atten= 97%, Lag= 372.5 min
Primary = 0.04 cfs @ 18.24 hrs, Volume= 0.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 233.51' @ 18.24 hrs Surf.Area= 3,355 sf Storage= 4,030 cf
Flood Elev= 234.00' Surf.Area= 3,800 sf Storage= 5,800 cf

Plug-Flow detention time= 688.8 min calculated for 0.016 af (15% of inflow)
Center-of-Mass det. time= 431.4 min (1,248.7 - 817.3)

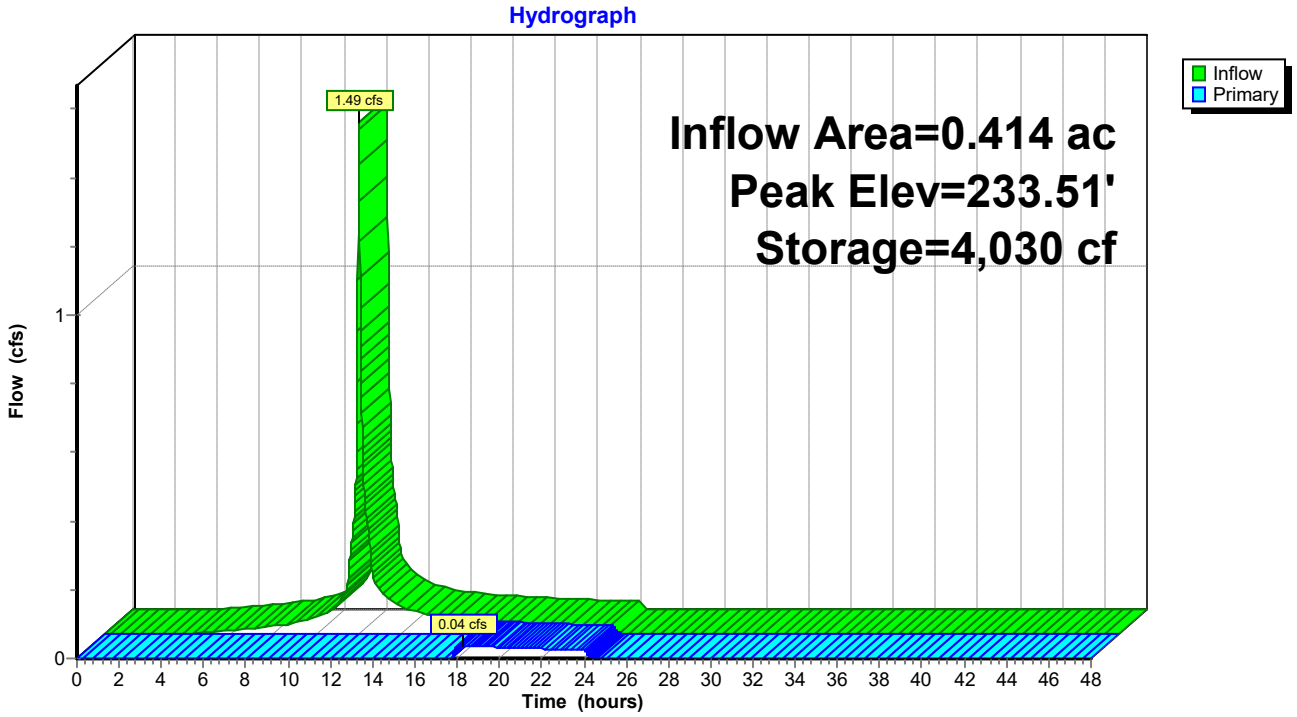
Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	10,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.00	2,000	0	0
233.00	2,900	2,450	2,450
234.00	3,800	3,350	5,800
235.00	5,000	4,400	10,200

Device	Routing	Invert	Outlet Devices
#1	Device 2	233.50'	**6.0" x 1.5" Horiz. Orifice/Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	229.17'	**12.0" Round Culvert** L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 229.00' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 18.24 hrs HW=233.51' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 0.04 cfs of 5.76 cfs potential flow)
↑**1=Orifice/Grate** (Weir Controls 0.04 cfs @ 0.24 fps)

Pond GUSF1: Soil Filter



Summary for Pond GUSF2: Soil Filter

Inflow Area = 1.586 ac, 79.43% Impervious, Inflow Depth = 3.65" for 10-yr event
Inflow = 6.40 cfs @ 12.03 hrs, Volume= 0.482 af
Outflow = 4.02 cfs @ 12.09 hrs, Volume= 0.354 af, Atten= 37%, Lag= 3.9 min
Primary = 4.02 cfs @ 12.09 hrs, Volume= 0.354 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 233.81' @ 12.09 hrs Surf.Area= 4,699 sf Storage= 6,998 cf
Flood Elev= 234.00' Surf.Area= 4,870 sf Storage= 7,910 cf

Plug-Flow detention time= 195.7 min calculated for 0.354 af (73% of inflow)
Center-of-Mass det. time= 85.8 min (876.4 - 790.6)

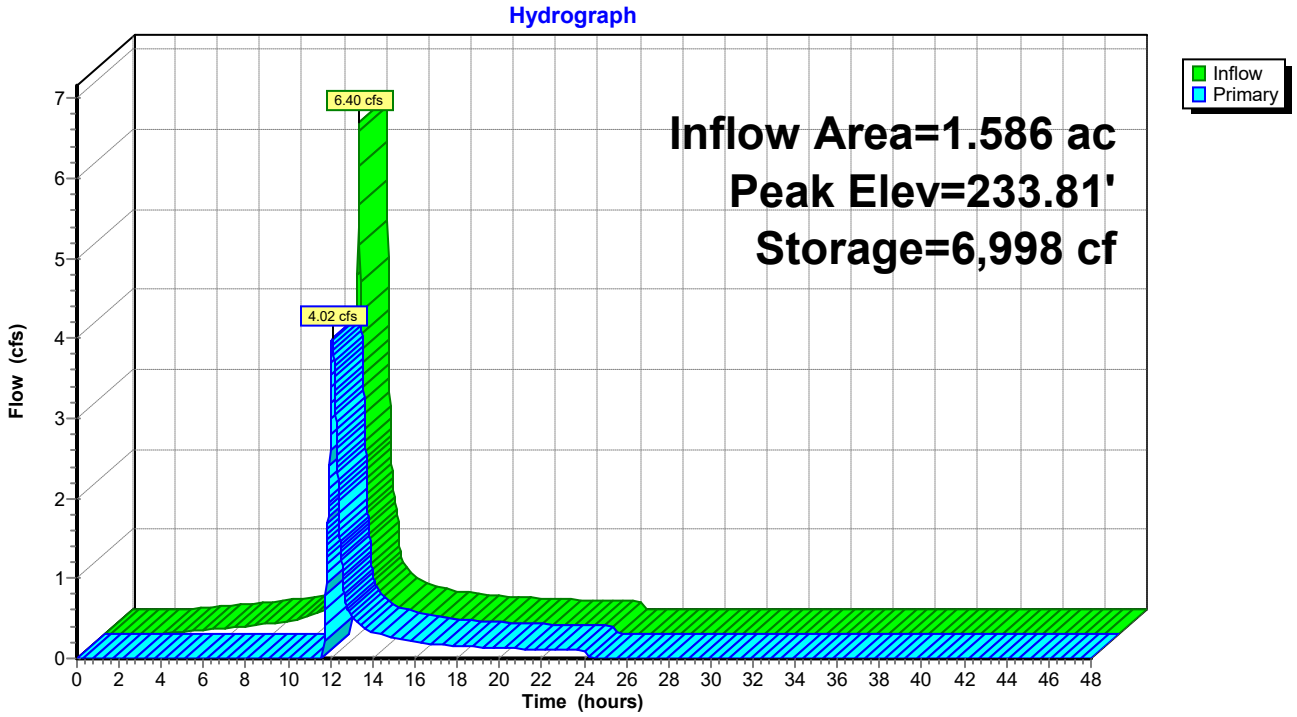
Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	13,595 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.00	3,000	0	0
233.00	3,975	3,488	3,488
234.00	4,870	4,423	7,910
235.00	6,500	5,685	13,595

Device	Routing	Invert	Outlet Devices
#1	Device 2	233.50'	**6.0" x 1.5" Horiz. Orifice/Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	229.17'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 227.00' S= 0.0155 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.02 cfs @ 12.09 hrs HW=233.81' TW=226.67' (Dynamic Tailwater)
↑**2=Culvert** (Passes 4.02 cfs of 6.26 cfs potential flow)
↑**1=Orifice/Grate** (Orifice Controls 4.02 cfs @ 2.68 fps)

Pond GUSF2: Soil Filter



Summary for Pond SSF1: Sand Filter

Inflow Area = 1.438 ac, 79.82% Impervious, Inflow Depth = 3.65" for 10-yr event
Inflow = 5.80 cfs @ 12.03 hrs, Volume= 0.437 af
Outflow = 5.75 cfs @ 12.03 hrs, Volume= 0.437 af, Atten= 1%, Lag= 0.4 min
Primary = 0.11 cfs @ 8.31 hrs, Volume= 0.230 af
Secondary = 5.63 cfs @ 12.03 hrs, Volume= 0.207 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 230.77' @ 12.03 hrs Surf.Area= 2,257 sf Storage= 2,651 cf
Flood Elev= 231.00' Surf.Area= 2,257 sf Storage= 2,855 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 118.6 min (909.2 - 790.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.67'	1,605 cf	**18.17'W x 124.24'L x 2.33'H Field A** 5,266 cf Overall - 1,253 cf Embedded = 4,013 cf x 40.0% Voids
#2A	229.17'	1,253 cf	**ADS_StormTech SC-310 +Cap** x 85 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 85 Chambers in 5 Rows
		2,858 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Secondary	229.17'	**12.0" Round Culvert X 2.00** L= 9.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 228.90' S= 0.0300 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	230.50'	**6.0' long Sharp-Crested Vee/Trap Weir X 2.00** Cv= 2.62 (C= 3.28)
#3	Primary	228.67'	**2.200 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.11 cfs @ 8.31 hrs HW=228.69' TW=225.13' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.11 cfs)

Secondary OutFlow Max=5.62 cfs @ 12.03 hrs HW=230.77' TW=227.31' (Dynamic Tailwater)
└**1=Culvert** (Passes 5.62 cfs of 7.94 cfs potential flow)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 5.62 cfs @ 1.71 fps)

Pond SSF1: Sand Filter - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

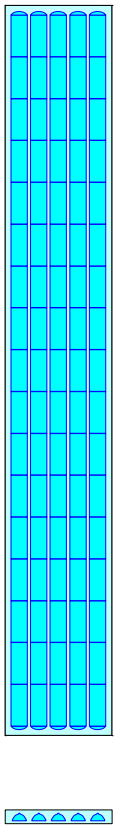
17 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 122.24' Row Length +12.0" End Stone x 2 = 124.24' Base Length
5 Rows x 34.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 18.17' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

85 Chambers x 14.7 cf = 1,253.1 cf Chamber Storage

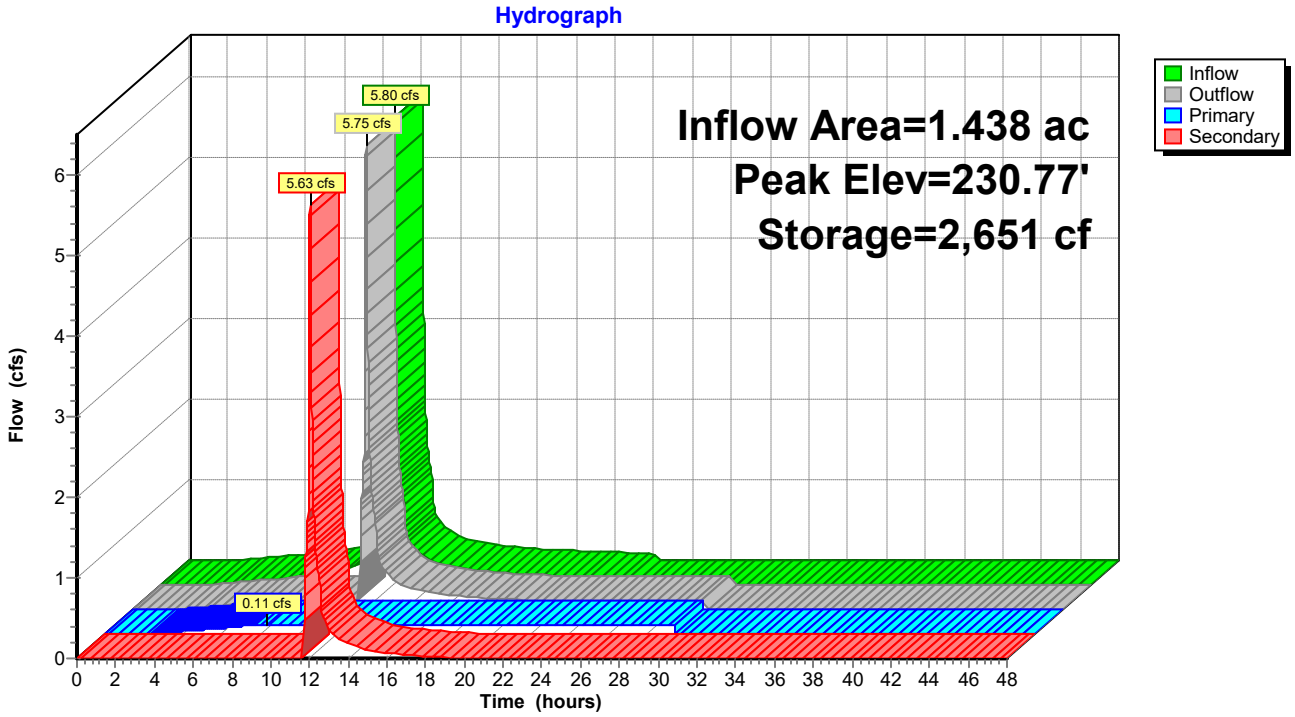
5,266.4 cf Field - 1,253.1 cf Chambers = 4,013.3 cf Stone x 40.0% Voids = 1,605.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,858.4 cf = 0.066 af
Overall Storage Efficiency = 54.3%
Overall System Size = 124.24' x 18.17' x 2.33'

85 Chambers
195.1 cy Field
148.6 cy Stone



Pond SSF1: Sand Filter



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Rear Paved Runoff Area=31,476 sf 0.00% Impervious Runoff Depth=3.99"
Tc=5.0 min CN=86 Runoff=3.25 cfs 0.240 af

Subcatchment 2S: Storage Building Area Runoff Area=106,131 sf 74.22% Impervious Runoff Depth=4.42"
Tc=5.0 min CN=90 Runoff=11.87 cfs 0.897 af

Subcatchment 3S: To GUSF1 Runoff Area=18,025 sf 58.42% Impervious Runoff Depth=4.20"
Tc=5.0 min CN=88 Runoff=1.94 cfs 0.145 af

Subcatchment 4S: To GUSF2 Runoff Area=69,088 sf 79.43% Impervious Runoff Depth=4.75"
Tc=5.0 min CN=93 Runoff=8.10 cfs 0.628 af

Subcatchment 5S: Treated Parking Lot Runoff Area=62,654 sf 79.82% Impervious Runoff Depth=4.75"
Tc=5.0 min CN=93 Runoff=7.35 cfs 0.569 af

Subcatchment 6S: Off-Site to Pond Runoff Area=33,300 sf 16.56% Impervious Runoff Depth=2.82"
Tc=5.0 min CN=74 Runoff=2.46 cfs 0.180 af

Subcatchment 7S: No Treat Parking Lot Runoff Area=54,784 sf 72.59% Impervious Runoff Depth=4.64"
Tc=5.0 min CN=92 Runoff=6.33 cfs 0.486 af

Subcatchment 8S: No Treat to Stream Runoff Area=58,456 sf 8.05% Impervious Runoff Depth=3.00"
Flow Length=610' Tc=7.7 min CN=76 Runoff=4.03 cfs 0.336 af

Reach SP1: Stream Inlet Inflow=10.44 cfs 1.267 af
Outflow=10.44 cfs 1.267 af

Reach SP2: Center Street CB Inflow=12.79 cfs 1.550 af
Outflow=12.79 cfs 1.550 af

Pond 1P: Wet Pond Full Peak Elev=236.44' Storage=23,848 cf Inflow=17.58 cfs 1.317 af
Outflow=7.64 cfs 0.878 af

Pond 2P: Extra Storage Peak Elev=230.08' Storage=3,447 cf Inflow=7.18 cfs 0.324 af
Outflow=3.49 cfs 0.319 af

Pond 3P: DMH Peak Elev=227.59' Inflow=8.32 cfs 1.064 af
15.0" Round Culvert n=0.013 L=15.0' S=0.1487 '/' Outflow=8.32 cfs 1.064 af

Pond GUSF1: Soil Filter Peak Elev=233.51' Storage=4,056 cf Inflow=1.94 cfs 0.145 af
Outflow=0.14 cfs 0.053 af

Pond GUSF2: Soil Filter Peak Elev=233.94' Storage=7,603 cf Inflow=8.10 cfs 0.628 af
Outflow=4.77 cfs 0.499 af

Pond SSF1: Sand Filter Peak Elev=230.82' Storage=2,695 cf Inflow=7.35 cfs 0.569 af
Primary=0.11 cfs 0.245 af Secondary=7.18 cfs 0.324 af Outflow=7.29 cfs 0.569 af

Total Runoff Area = 9.961 ac Runoff Volume = 3.481 af Average Runoff Depth = 4.19"
43.73% Pervious = 4.356 ac 56.27% Impervious = 5.606 ac

Summary for Subcatchment 1S: Rear Paved Area/Building

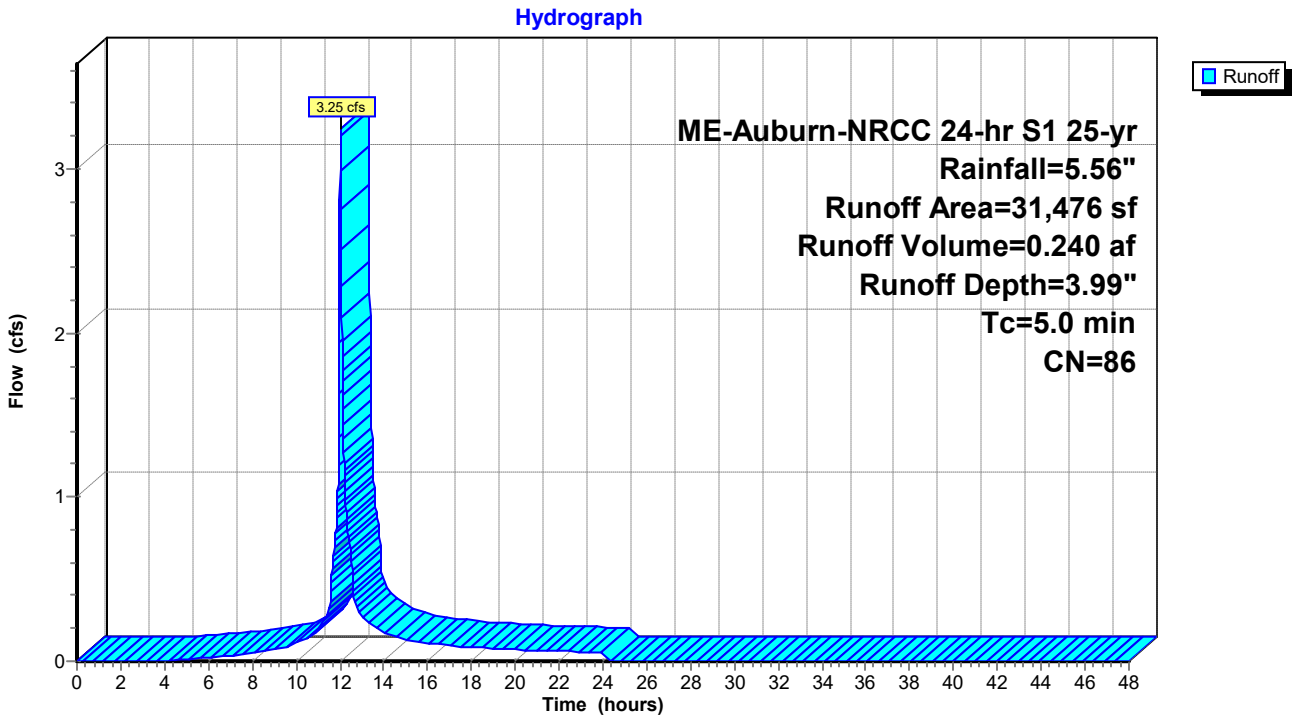
Runoff = 3.25 cfs @ 12.03 hrs, Volume= 0.240 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
	13,645	74	>75% Grass cover, Good, HSG C
*	17,831	96	Gravel
	31,476	86	Weighted Average
	31,476		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Rear Paved Area/Building



Summary for Subcatchment 2S: Storage Building Area

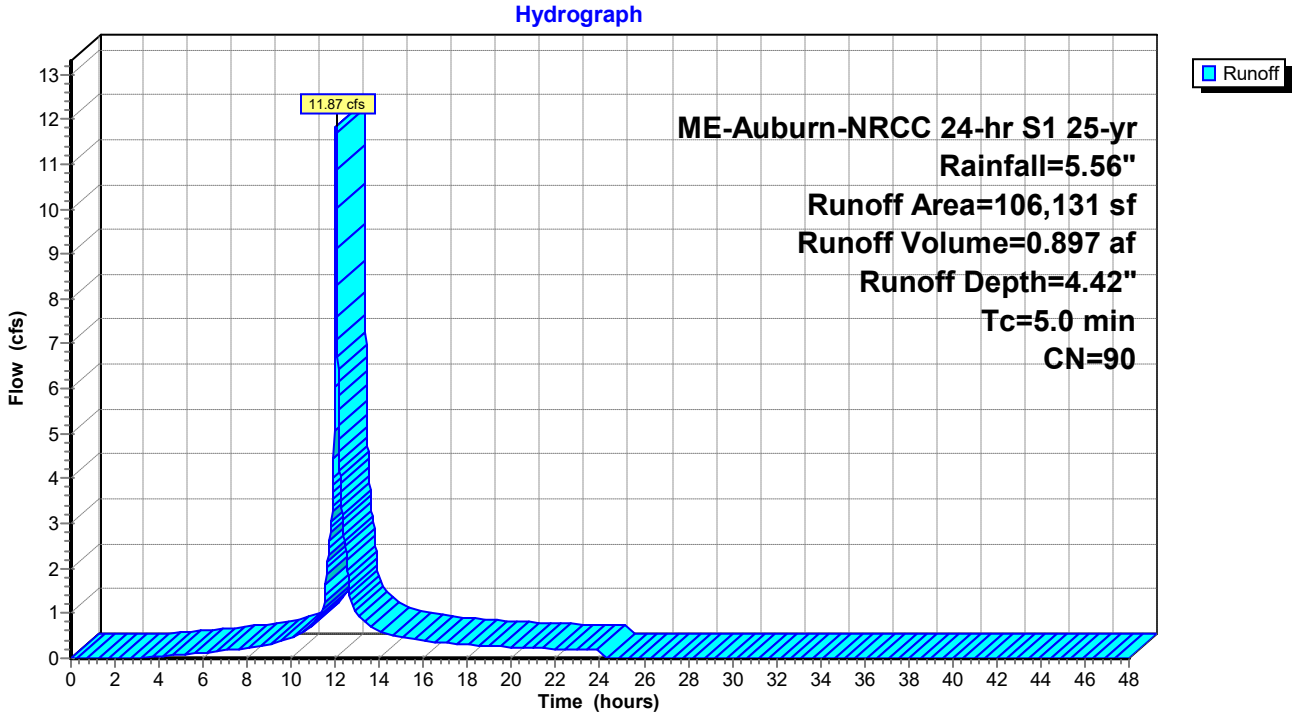
Runoff = 11.87 cfs @ 12.03 hrs, Volume= 0.897 af, Depth= 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	78,774	98	Impervious
	13,470	74	>75% Grass cover, Good, HSG C
	13,887	61	>75% Grass cover, Good, HSG B
	106,131	90	Weighted Average
	27,357		25.78% Pervious Area
	78,774		74.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Storage Building Area



Summary for Subcatchment 3S: To GUSF1

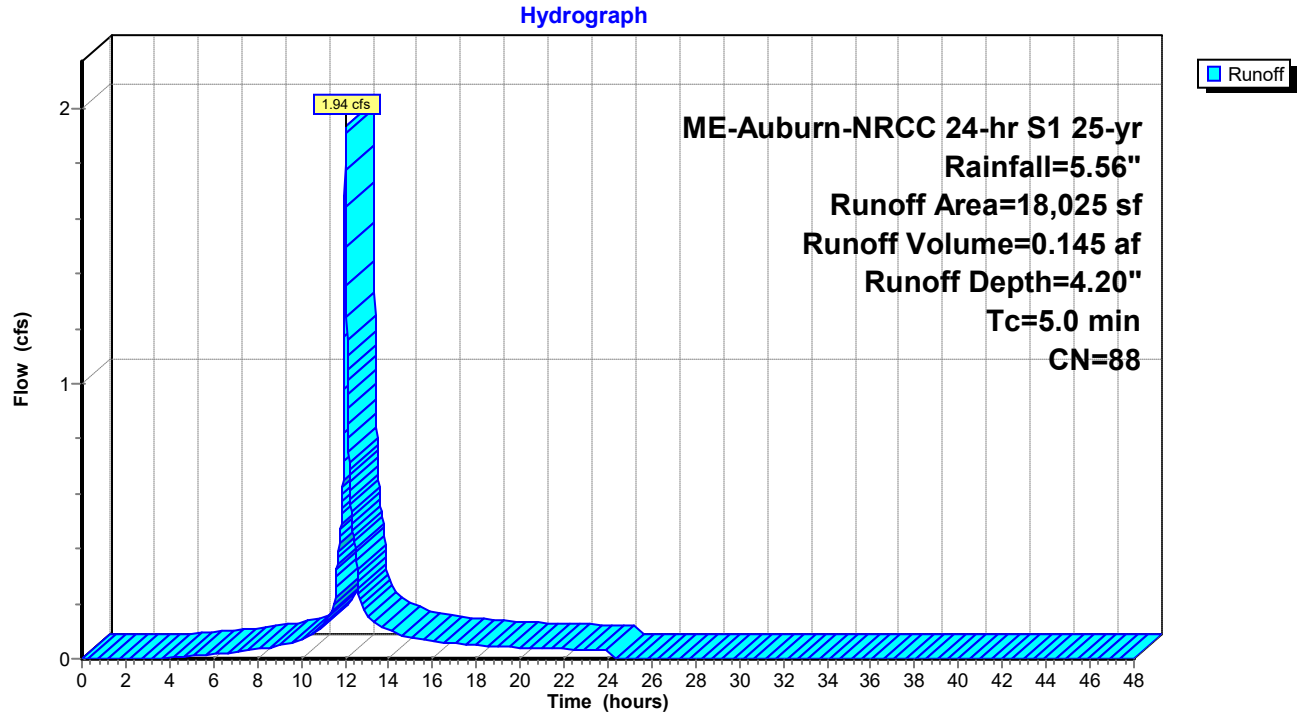
Runoff = 1.94 cfs @ 12.03 hrs, Volume= 0.145 af, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

Area (sf)	CN	Description
10,530	98	Paved parking, HSG C
7,495	74	>75% Grass cover, Good, HSG C
18,025	88	Weighted Average
7,495		41.58% Pervious Area
10,530		58.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: To GUSF1



Summary for Subcatchment 4S: To GUSF2

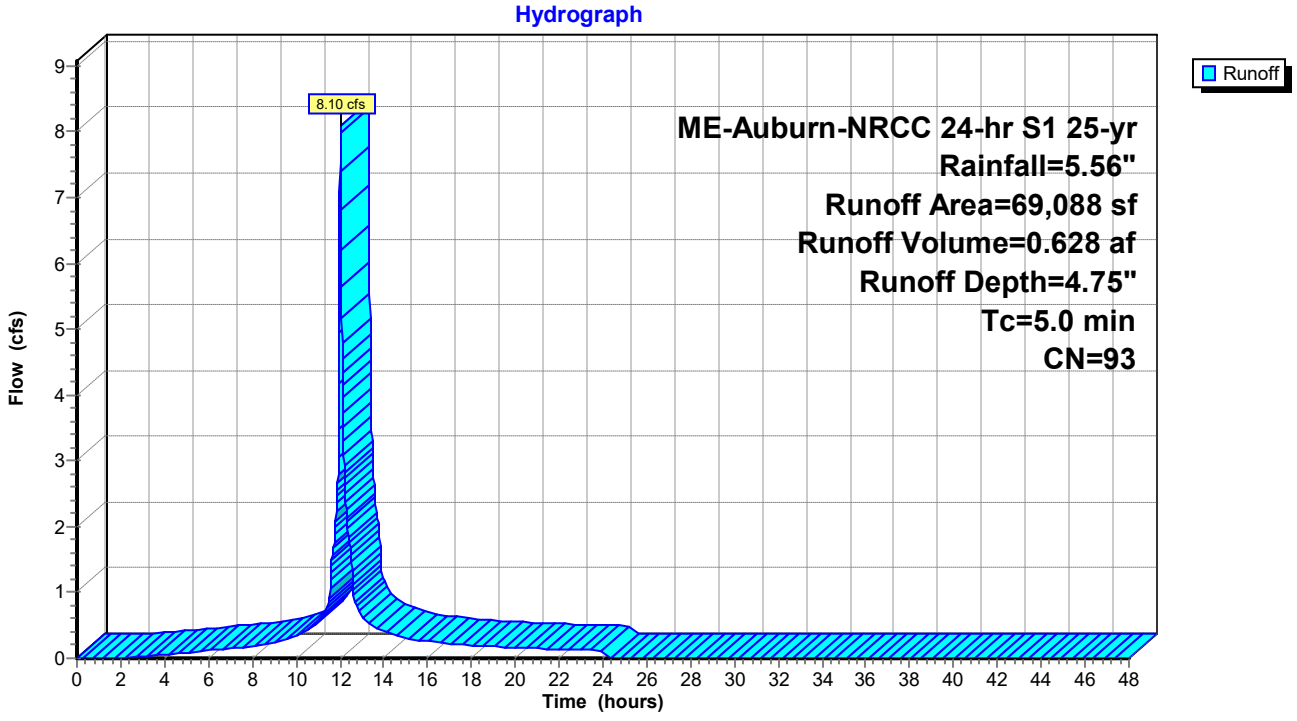
Runoff = 8.10 cfs @ 12.03 hrs, Volume= 0.628 af, Depth= 4.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	53,245	98	Impervious
	14,211	74	>75% Grass cover, Good, HSG C
*	1,632	98	Impervious
	69,088	93	Weighted Average
	14,211		20.57% Pervious Area
	54,877		79.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: To GUSF2



Summary for Subcatchment 5S: Treated Parking Lot

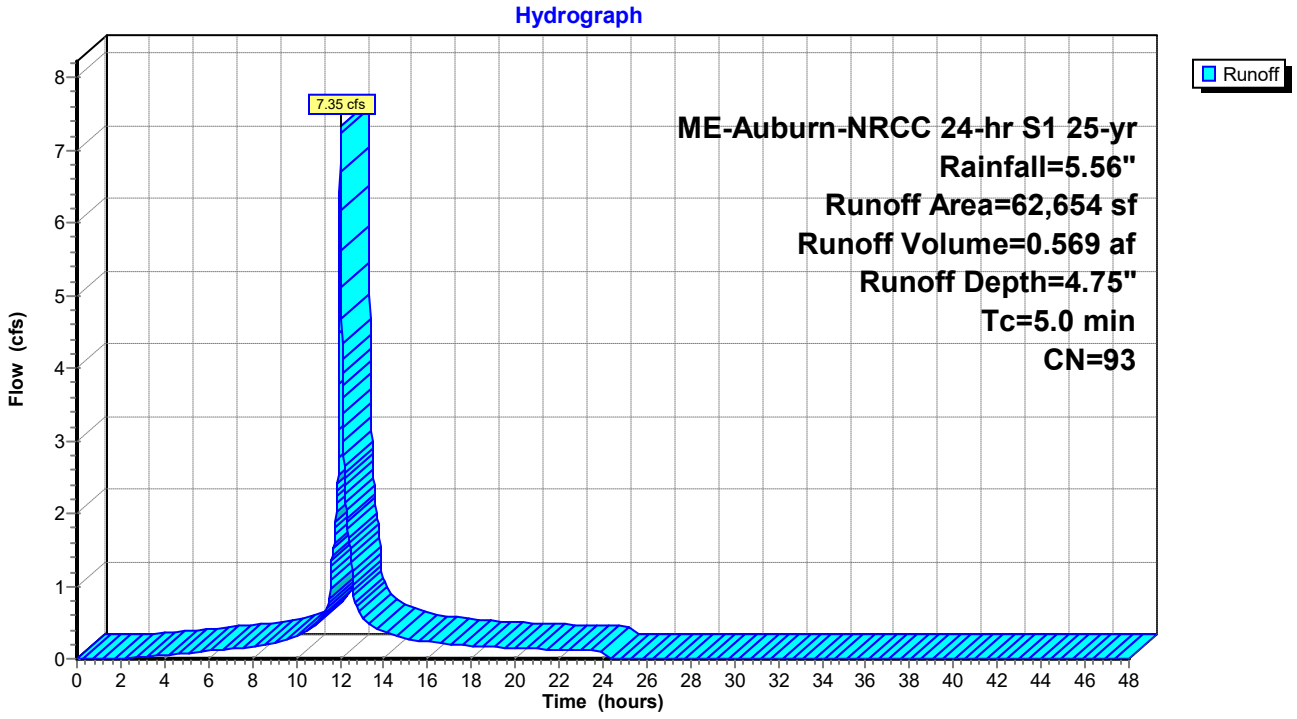
Runoff = 7.35 cfs @ 12.03 hrs, Volume= 0.569 af, Depth= 4.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
	12,643	74	>75% Grass cover, Good, HSG C
*	50,011	98	Impervious
	62,654	93	Weighted Average
	12,643		20.18% Pervious Area
	50,011		79.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: Treated Parking Lot



Summary for Subcatchment 6S: Off-Site to Pond

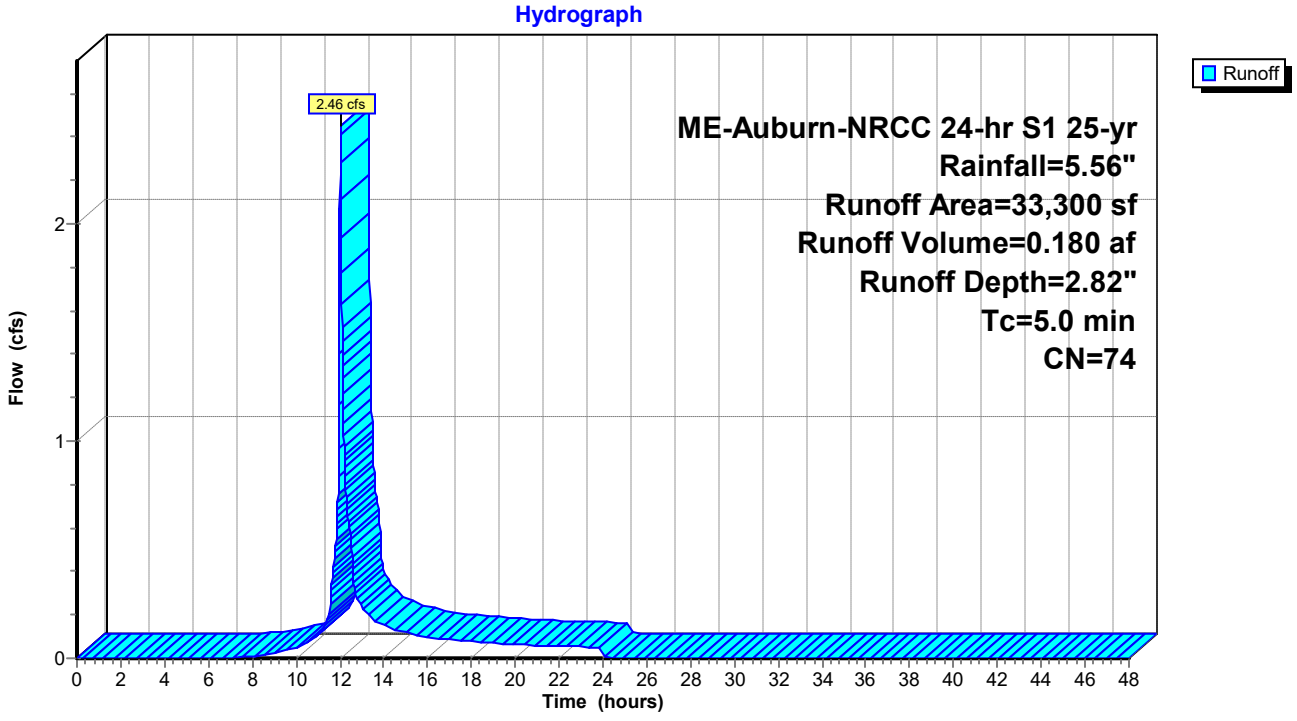
Runoff = 2.46 cfs @ 12.03 hrs, Volume= 0.180 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	5,516	98	Impervious
	11,046	61	>75% Grass cover, Good, HSG B
	16,738	74	>75% Grass cover, Good, HSG C
	33,300	74	Weighted Average
	27,784		83.44% Pervious Area
	5,516		16.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: Off-Site to Pond



Summary for Subcatchment 7S: No Treat Parking Lot

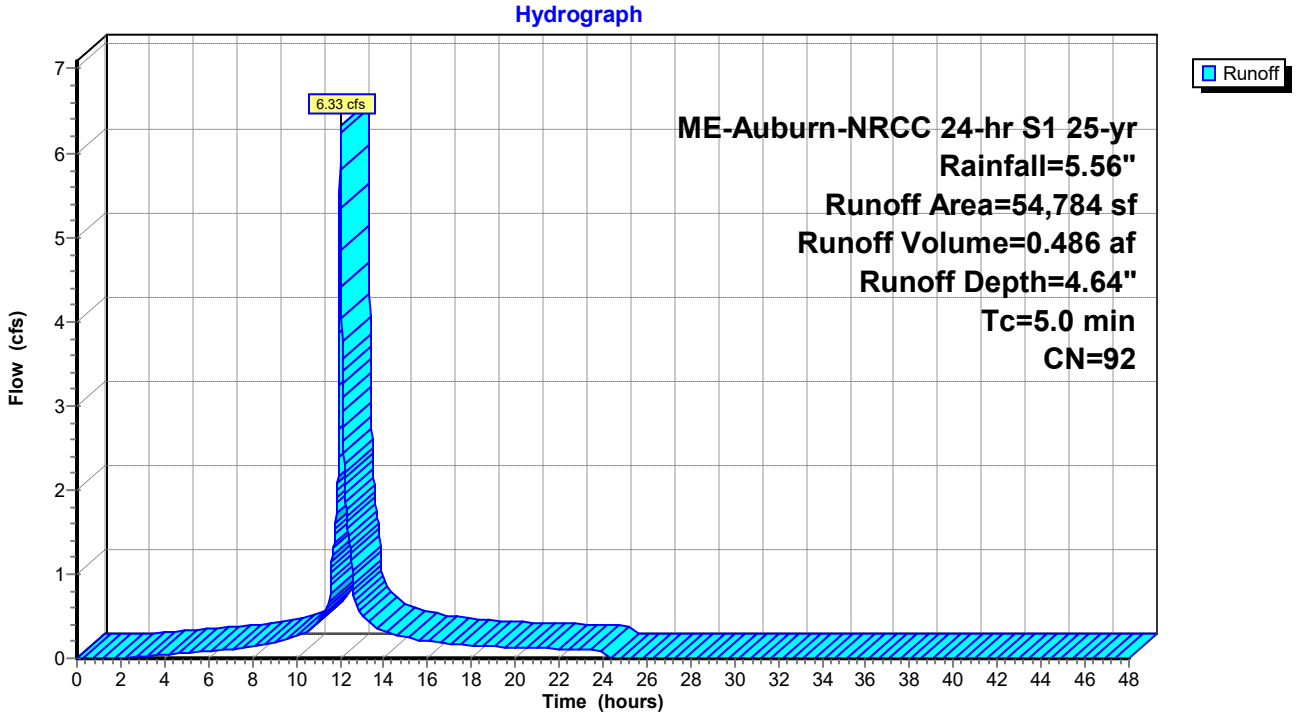
Runoff = 6.33 cfs @ 12.03 hrs, Volume= 0.486 af, Depth= 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

	Area (sf)	CN	Description
*	39,768	98	Impervious
	14,306	74	>75% Grass cover, Good, HSG C
*	710	96	Gravel
	54,784	92	Weighted Average
	15,016		27.41% Pervious Area
	39,768		72.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: No Treat Parking Lot



Summary for Subcatchment 8S: No Treat to Stream

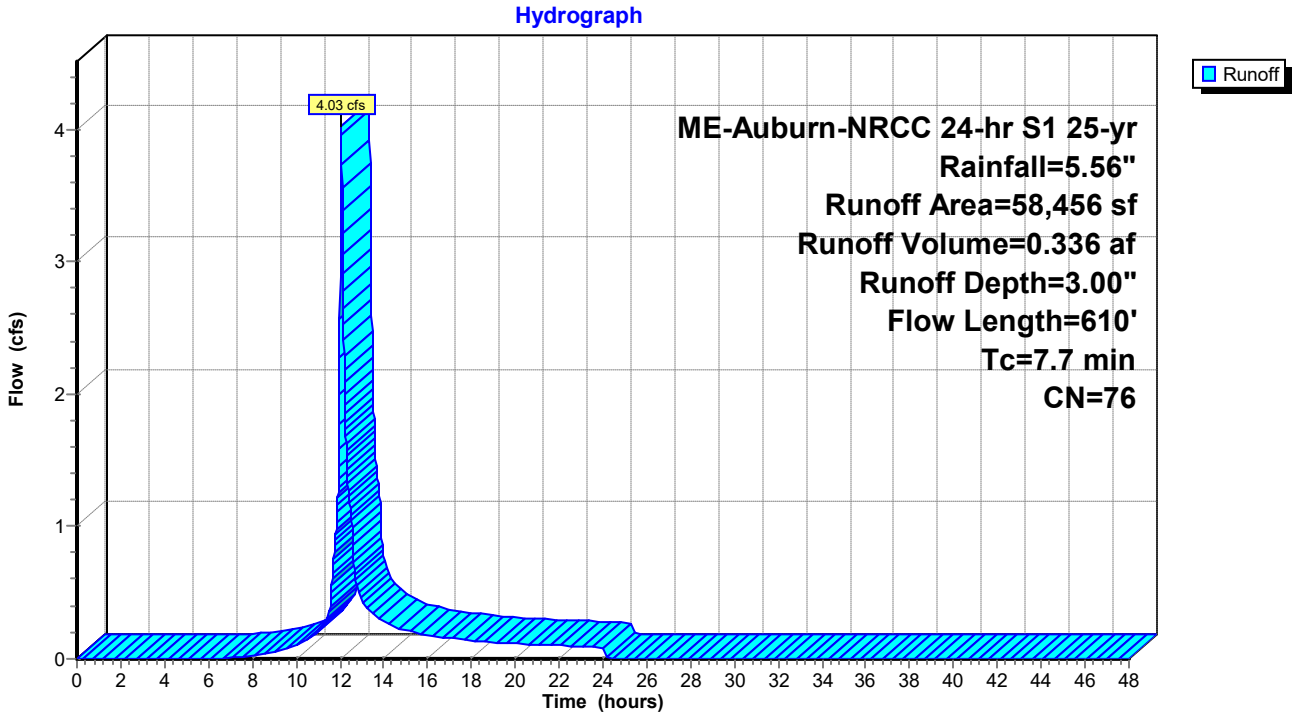
Runoff = 4.03 cfs @ 12.06 hrs, Volume= 0.336 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
ME-Auburn-NRCC 24-hr S1 25-yr Rainfall=5.56"

Area (sf)	CN	Description
4,705	98	Paved parking, HSG C
53,751	74	>75% Grass cover, Good, HSG C
58,456	76	Weighted Average
53,751		91.95% Pervious Area
4,705		8.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	65	0.2000	0.38		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.01"
4.9	545	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.7	610	Total			

Subcatchment 8S: No Treat to Stream

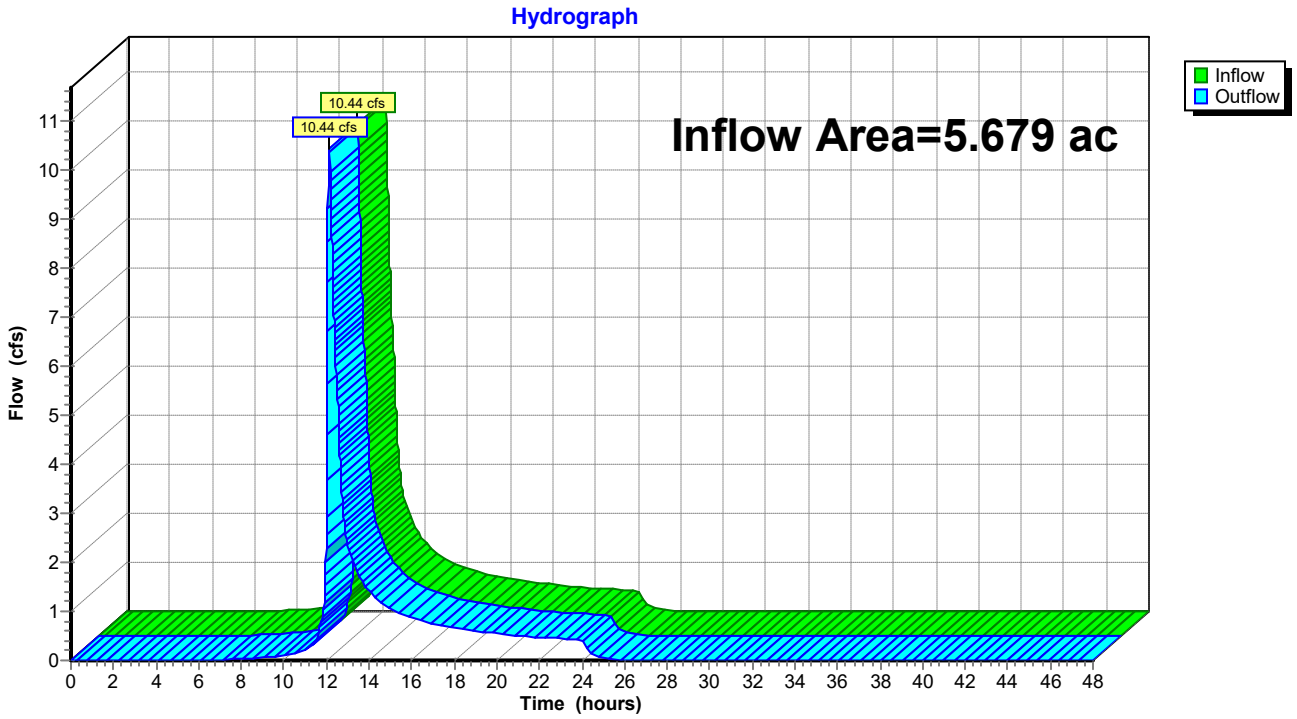


Summary for Reach SP1: Stream Inlet

Inflow Area = 5.679 ac, 40.23% Impervious, Inflow Depth = 2.68" for 25-yr event
Inflow = 10.44 cfs @ 12.13 hrs, Volume= 1.267 af
Outflow = 10.44 cfs @ 12.13 hrs, Volume= 1.267 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP1: Stream Inlet

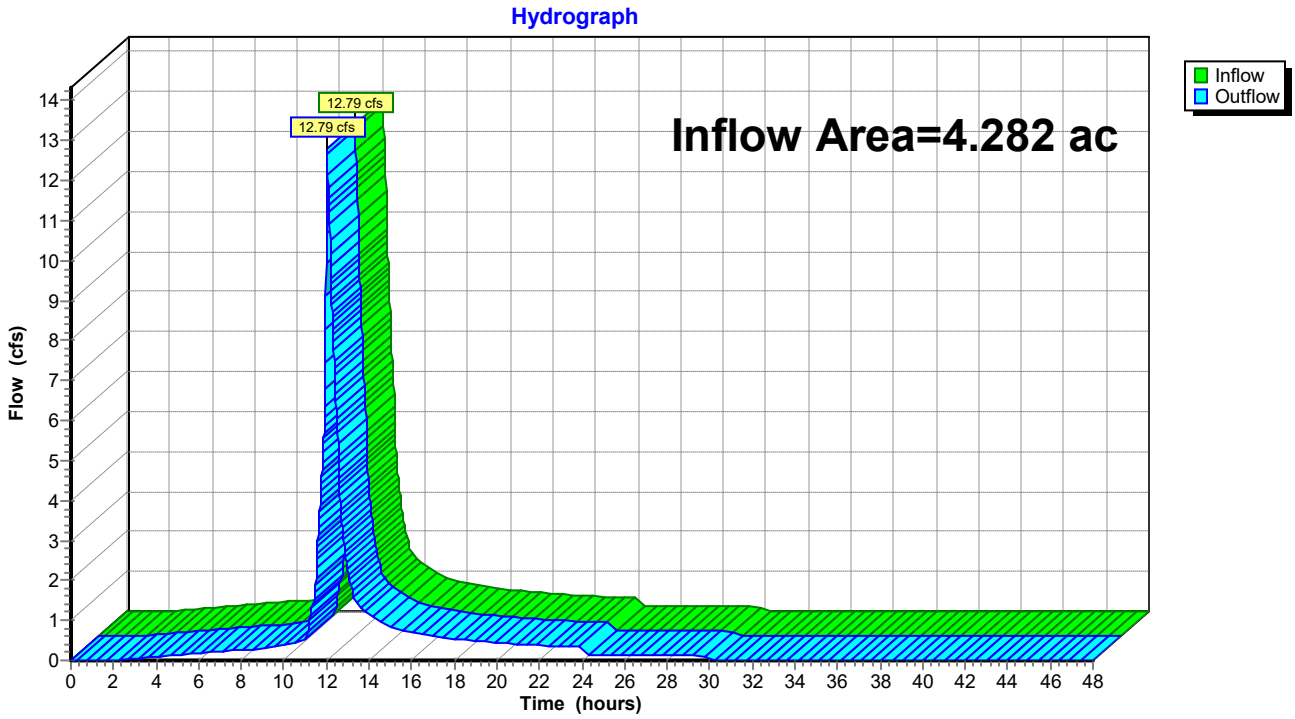


Summary for Reach SP2: Center Street CB

Inflow Area = 4.282 ac, 77.55% Impervious, Inflow Depth = 4.34" for 25-yr event
Inflow = 12.79 cfs @ 12.04 hrs, Volume= 1.550 af
Outflow = 12.79 cfs @ 12.04 hrs, Volume= 1.550 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach SP2: Center Street CB



Summary for Pond 1P: Wet Pond Full

Inflow Area = 3.923 ac, 49.32% Impervious, Inflow Depth = 4.03" for 25-yr event
Inflow = 17.58 cfs @ 12.03 hrs, Volume= 1.317 af
Outflow = 7.64 cfs @ 12.16 hrs, Volume= 0.878 af, Atten= 57%, Lag= 8.2 min
Primary = 7.64 cfs @ 12.16 hrs, Volume= 0.878 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 236.44' @ 12.16 hrs Surf.Area= 10,999 sf Storage= 23,848 cf

Plug-Flow detention time= 234.2 min calculated for 0.878 af (67% of inflow)
Center-of-Mass det. time= 110.6 min (918.9 - 808.3)

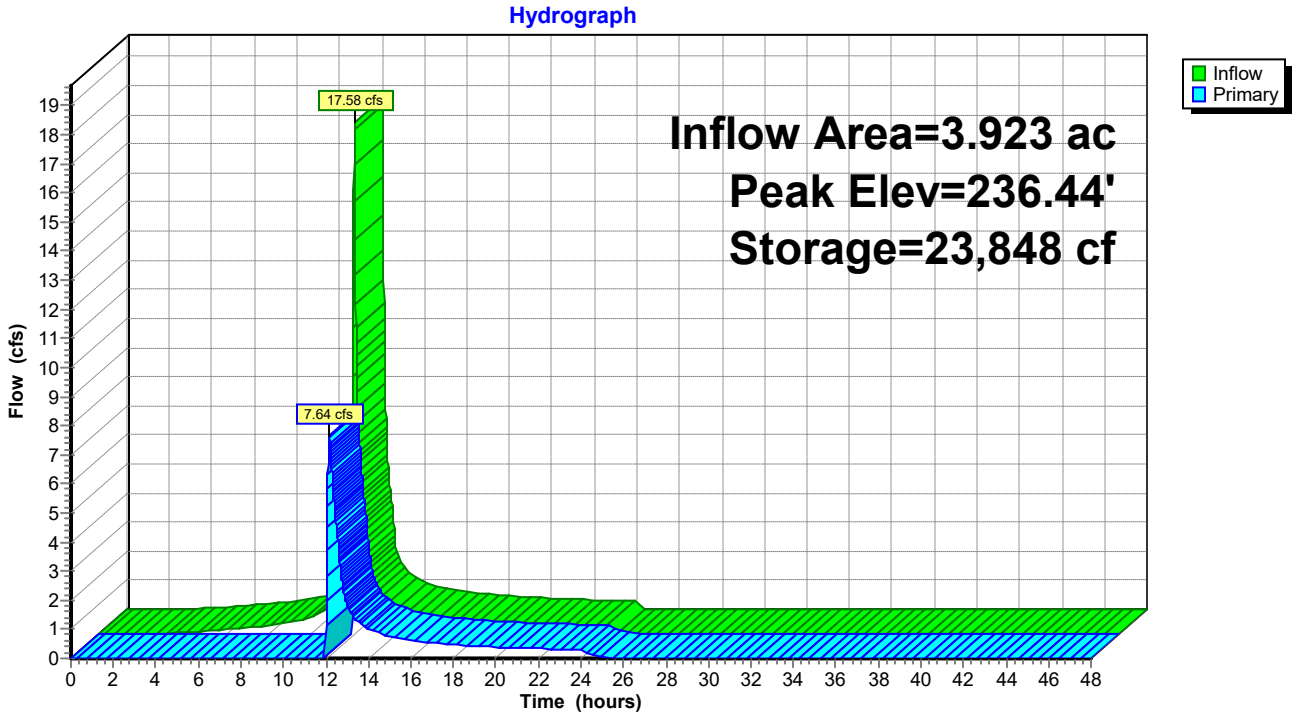
Volume	Invert	Avail.Storage	Storage Description
#1	234.00'	36,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
234.00	8,533	0	0
235.00	9,585	9,059	9,059
236.00	10,550	10,068	19,127
237.00	11,575	11,063	30,189
237.50	12,488	6,016	36,205

Device	Routing	Invert	Outlet Devices
#1	Primary	236.00'	**10.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=7.64 cfs @ 12.16 hrs HW=236.44' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 7.64 cfs @ 1.74 fps)

Pond 1P: Wet Pond Full



Summary for Pond 2P: Extra Storage

Inflow	=	7.18 cfs @	12.03 hrs,	Volume=	0.324 af
Outflow	=	3.49 cfs @	12.15 hrs,	Volume=	0.319 af, Atten= 51%, Lag= 6.8 min
Primary	=	3.49 cfs @	12.15 hrs,	Volume=	0.319 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 230.08' @ 12.15 hrs Surf.Area= 1,371 sf Storage= 3,447 cf
Flood Elev= 231.00' Surf.Area= 1,371 sf Storage= 3,954 cf

Plug-Flow detention time= 22.3 min calculated for 0.319 af (98% of inflow)
Center-of-Mass det. time= 14.5 min (793.0 - 778.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	225.50'	2,392 cf	**11.00'W x 124.66'L x 5.50'H Field A** 7,542 cf Overall - 1,562 cf Embedded = 5,980 cf x 40.0% Voids
#2A	226.00'	1,562 cf	**ADS_StormTech SC-740 +Cap** x 34 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 34 Chambers in 2 Rows
		3,954 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	225.80'	**12.0" Round Culvert X 2.00** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 225.80' / 225.10' S= 0.0090 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	230.00'	**6.0' long Sharp-Crested Vee/Trap Weir X 2.00** Cv= 2.62 (C= 3.28)
#3	Device 1	225.90'	**4.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=3.45 cfs @ 12.15 hrs HW=230.07' TW=227.57' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.45 cfs of 10.04 cfs potential flow)
  ├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.79 cfs @ 0.89 fps)
  └─**3=Orifice/Grate** (Orifice Controls 2.66 cfs @ 7.62 fps)

Pond 2P: Extra Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

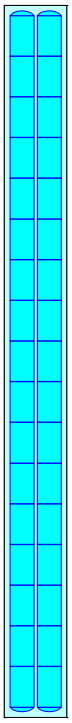
17 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 122.66' Row Length +12.0" End Stone x 2 = 124.66' Base Length
2 Rows x 51.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.00' Base Width
6.0" Base + 30.0" Chamber Height + 30.0" Cover = 5.50' Field Height

34 Chambers x 45.9 cf = 1,562.0 cf Chamber Storage

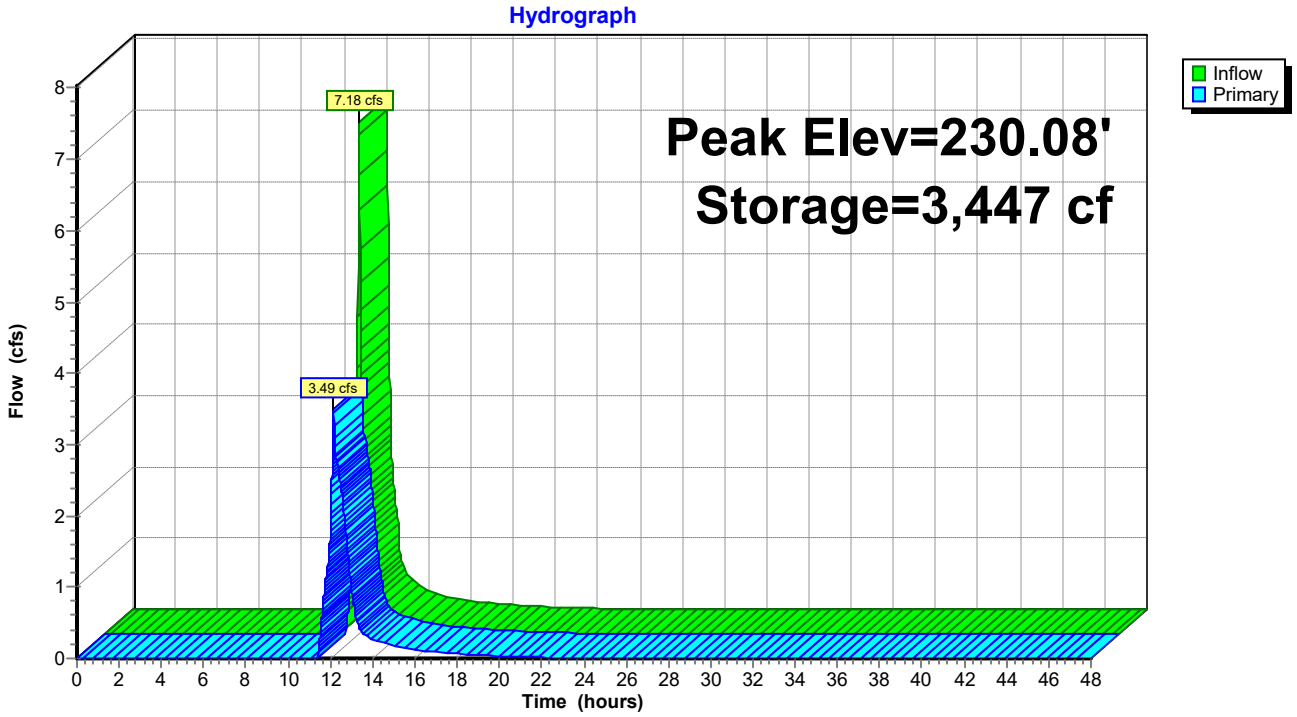
7,541.7 cf Field - 1,562.0 cf Chambers = 5,979.8 cf Stone x 40.0% Voids = 2,391.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,953.9 cf = 0.091 af
Overall Storage Efficiency = 52.4%
Overall System Size = 124.66' x 11.00' x 5.50'

34 Chambers
279.3 cy Field
221.5 cy Stone



Pond 2P: Extra Storage



Summary for Pond 3P: DMH

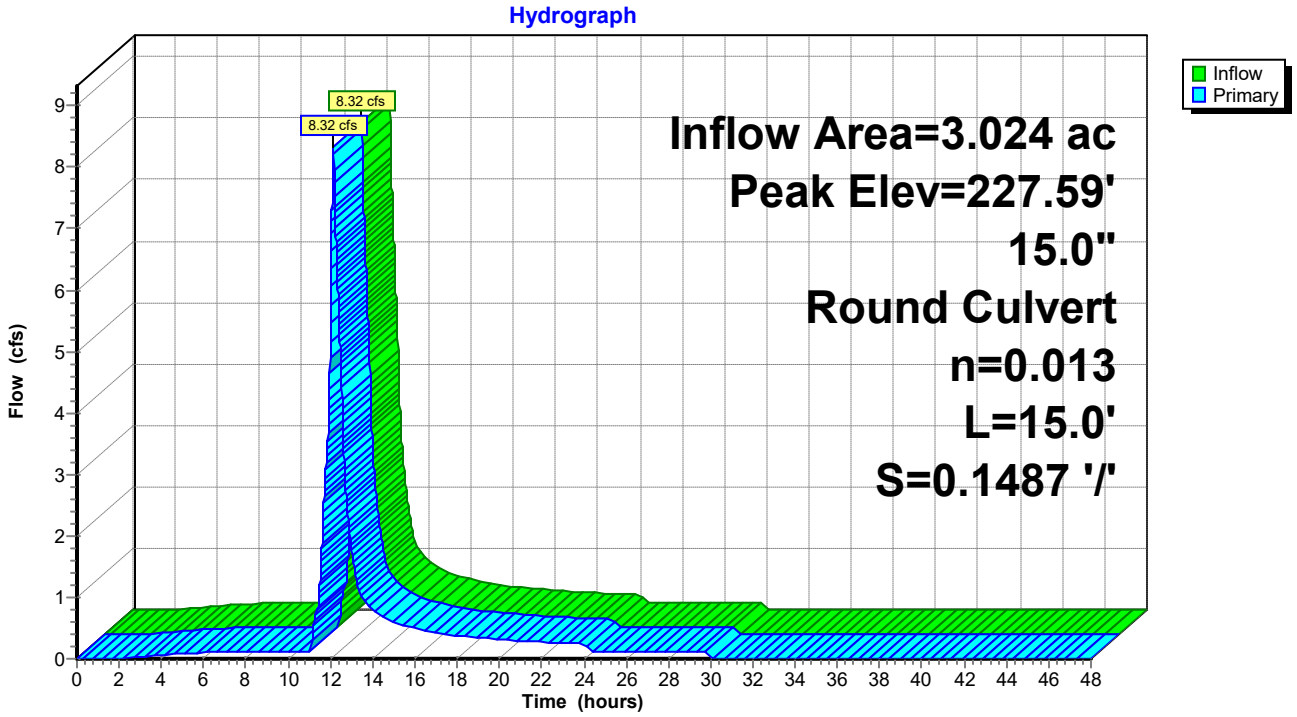
Inflow Area = 3.024 ac, 79.62% Impervious, Inflow Depth = 4.22" for 25-yr event
Inflow = 8.32 cfs @ 12.14 hrs, Volume= 1.064 af
Outflow = 8.32 cfs @ 12.14 hrs, Volume= 1.064 af, Atten= 0%, Lag= 0.0 min
Primary = 8.32 cfs @ 12.14 hrs, Volume= 1.064 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 227.59' @ 12.14 hrs
Flood Elev= 231.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.98'	**15.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 224.98' / 222.75' S= 0.1487 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=8.28 cfs @ 12.14 hrs HW=227.57' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 8.28 cfs @ 6.75 fps)

Pond 3P: DMH



Summary for Pond GUSF1: Soil Filter

Inflow Area = 0.414 ac, 58.42% Impervious, Inflow Depth = 4.20" for 25-yr event
Inflow = 1.94 cfs @ 12.03 hrs, Volume= 0.145 af
Outflow = 0.14 cfs @ 13.19 hrs, Volume= 0.053 af, Atten= 93%, Lag= 69.9 min
Primary = 0.14 cfs @ 13.19 hrs, Volume= 0.053 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 233.51' @ 13.19 hrs Surf.Area= 3,362 sf Storage= 4,056 cf
Flood Elev= 234.00' Surf.Area= 3,800 sf Storage= 5,800 cf

Plug-Flow detention time= 401.4 min calculated for 0.053 af (36% of inflow)
Center-of-Mass det. time= 229.3 min (1,035.3 - 806.1)

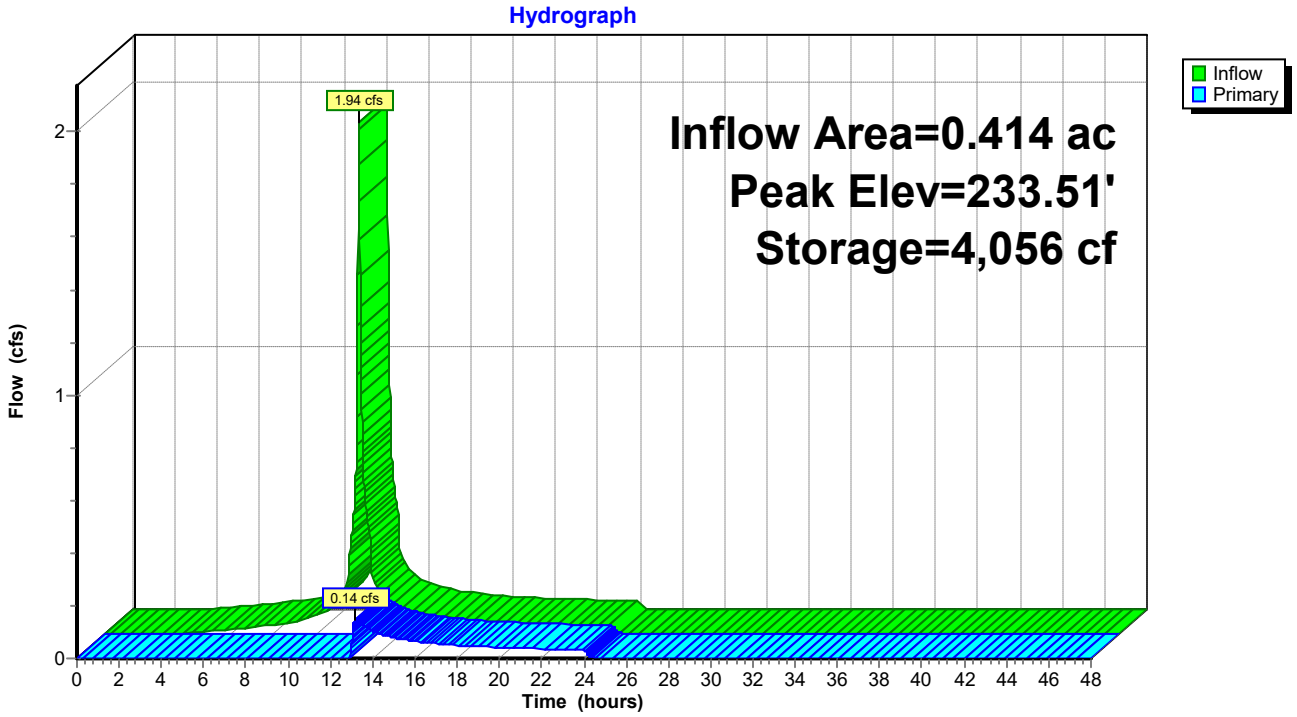
Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	10,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.00	2,000	0	0
233.00	2,900	2,450	2,450
234.00	3,800	3,350	5,800
235.00	5,000	4,400	10,200

Device	Routing	Invert	Outlet Devices
#1	Device 2	233.50'	**6.0" x 1.5" Horiz. Orifice/Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	229.17'	**12.0" Round Culvert** L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 229.00' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 13.19 hrs HW=233.51' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 0.14 cfs of 5.76 cfs potential flow)
↑**1=Orifice/Grate** (Weir Controls 0.14 cfs @ 0.37 fps)

Pond GUSF1: Soil Filter



Summary for Pond GUSF2: Soil Filter

Inflow Area = 1.586 ac, 79.43% Impervious, Inflow Depth = 4.75" for 25-yr event
Inflow = 8.10 cfs @ 12.03 hrs, Volume= 0.628 af
Outflow = 4.77 cfs @ 12.10 hrs, Volume= 0.499 af, Atten= 41%, Lag= 4.6 min
Primary = 4.77 cfs @ 12.10 hrs, Volume= 0.499 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 233.94' @ 12.10 hrs Surf.Area= 4,813 sf Storage= 7,603 cf
Flood Elev= 234.00' Surf.Area= 4,870 sf Storage= 7,910 cf

Plug-Flow detention time= 168.7 min calculated for 0.499 af (80% of inflow)
Center-of-Mass det. time= 74.9 min (856.6 - 781.7)

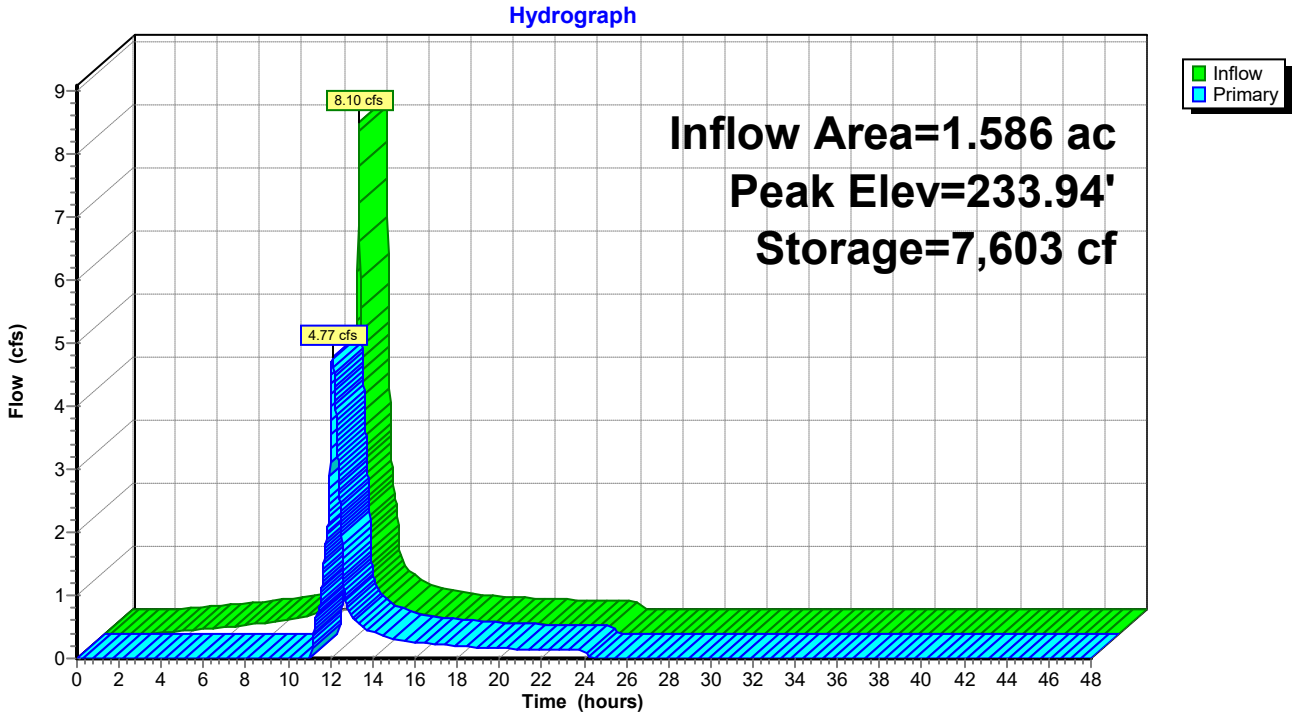
Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	13,595 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.00	3,000	0	0
233.00	3,975	3,488	3,488
234.00	4,870	4,423	7,910
235.00	6,500	5,685	13,595

Device	Routing	Invert	Outlet Devices
#1	Device 2	233.50'	**6.0" x 1.5" Horiz. Orifice/Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	229.17'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 227.00' S= 0.0155 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.77 cfs @ 12.10 hrs HW=233.94' TW=227.25' (Dynamic Tailwater)
↑**2=Culvert** (Passes 4.77 cfs of 6.32 cfs potential flow)
↑**1=Orifice/Grate** (Orifice Controls 4.77 cfs @ 3.18 fps)

Pond GUSF2: Soil Filter



Summary for Pond SSF1: Sand Filter

Inflow Area = 1.438 ac, 79.82% Impervious, Inflow Depth = 4.75" for 25-yr event
Inflow = 7.35 cfs @ 12.03 hrs, Volume= 0.569 af
Outflow = 7.29 cfs @ 12.03 hrs, Volume= 0.569 af, Atten= 1%, Lag= 0.4 min
Primary = 0.11 cfs @ 6.96 hrs, Volume= 0.245 af
Secondary = 7.18 cfs @ 12.03 hrs, Volume= 0.324 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 230.82' @ 12.03 hrs Surf.Area= 2,257 sf Storage= 2,695 cf
Flood Elev= 231.00' Surf.Area= 2,257 sf Storage= 2,855 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 99.6 min (881.2 - 781.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	228.67'	1,605 cf	**18.17'W x 124.24'L x 2.33'H Field A** 5,266 cf Overall - 1,253 cf Embedded = 4,013 cf x 40.0% Voids
#2A	229.17'	1,253 cf	**ADS_StormTech SC-310 +Cap** x 85 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 85 Chambers in 5 Rows
		2,858 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Secondary	229.17'	**12.0" Round Culvert X 2.00** L= 9.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 228.90' S= 0.0300 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	230.50'	**6.0' long Sharp-Crested Vee/Trap Weir X 2.00** Cv= 2.62 (C= 3.28)
#3	Primary	228.67'	**2.200 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.11 cfs @ 6.96 hrs HW=228.69' TW=225.13' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.11 cfs)

Secondary OutFlow Max=7.16 cfs @ 12.03 hrs HW=230.82' TW=228.22' (Dynamic Tailwater)
└**1=Culvert** (Passes 7.16 cfs of 8.12 cfs potential flow)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 7.16 cfs @ 1.86 fps)

Pond SSF1: Sand Filter - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

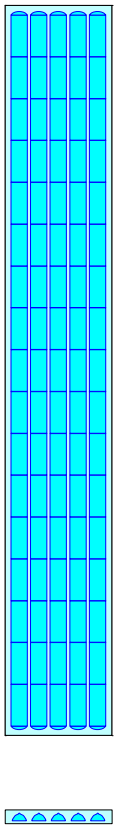
17 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 122.24' Row Length +12.0" End Stone x 2 = 124.24' Base Length
5 Rows x 34.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 18.17' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

85 Chambers x 14.7 cf = 1,253.1 cf Chamber Storage

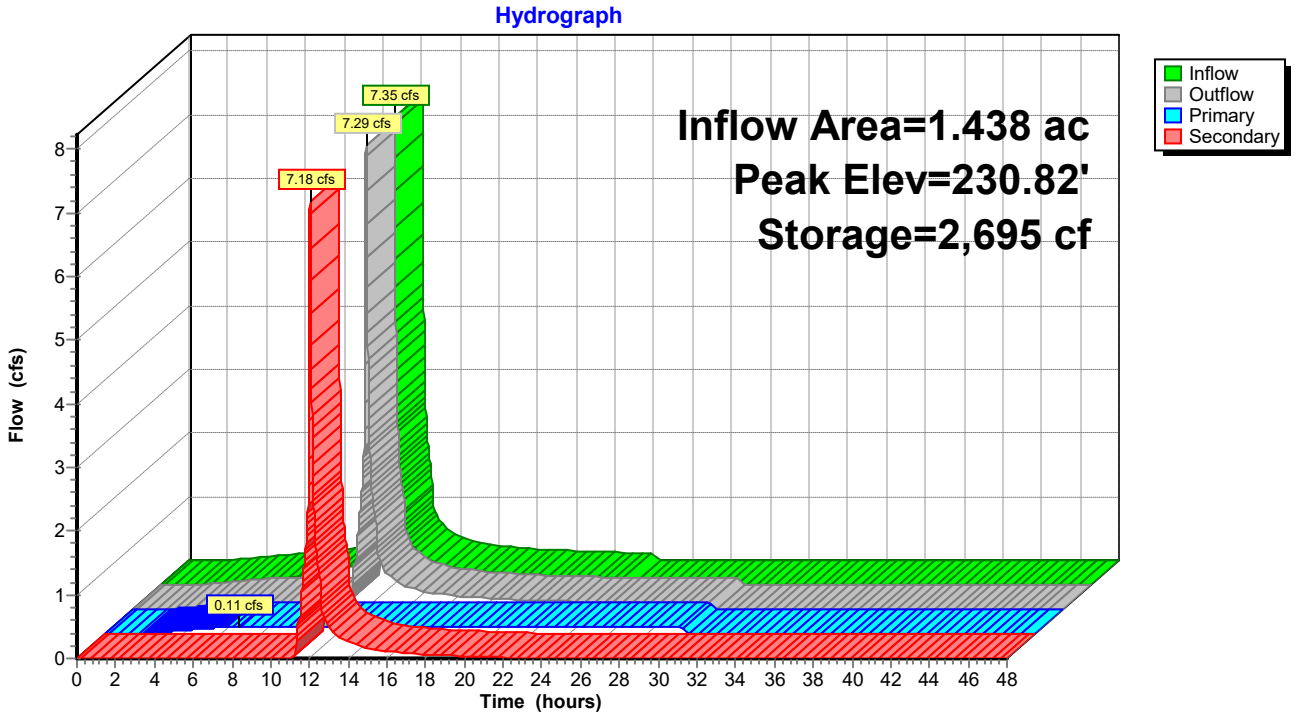
5,266.4 cf Field - 1,253.1 cf Chambers = 4,013.3 cf Stone x 40.0% Voids = 1,605.3 cf Stone Storage

Chamber Storage + Stone Storage = 2,858.4 cf = 0.066 af
Overall Storage Efficiency = 54.3%
Overall System Size = 124.24' x 18.17' x 2.33'

85 Chambers
195.1 cy Field
148.6 cy Stone



Pond SSF1: Sand Filter



Summary for Pond GUSF1: Soil Filter

Inflow Area = 0.414 ac, 58.42% Impervious, Inflow Depth = 6.38" for 100-yr event
Inflow = 2.81 cfs @ 12.03 hrs, Volume= 0.220 af
Outflow = 1.64 cfs @ 12.11 hrs, Volume= 0.128 af, Atten= 42%, Lag= 5.1 min
Primary = 1.64 cfs @ 12.11 hrs, Volume= 0.128 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 233.57' @ 12.11 hrs Surf.Area= 3,409 sf Storage= 4,234 cf
Flood Elev= 234.00' Surf.Area= 3,800 sf Storage= 5,800 cf

Plug-Flow detention time= 256.8 min calculated for 0.128 af (58% of inflow)
Center-of-Mass det. time= 122.5 min (913.4 - 790.9)

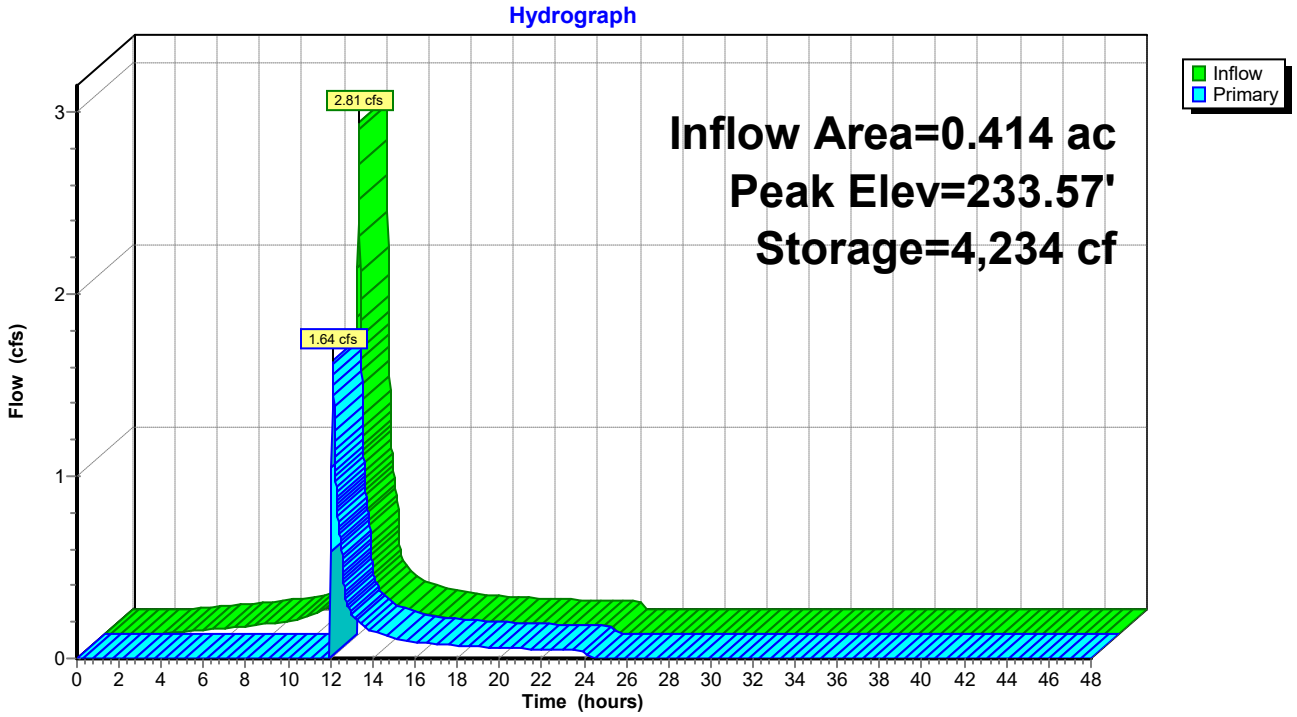
Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	10,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.00	2,000	0	0
233.00	2,900	2,450	2,450
234.00	3,800	3,350	5,800
235.00	5,000	4,400	10,200

Device	Routing	Invert	Outlet Devices
#1	Device 2	233.50'	**6.0" x 1.5" Horiz. Orifice/Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	229.17'	**12.0" Round Culvert** L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 229.00' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.64 cfs @ 12.11 hrs HW=233.57' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 1.64 cfs of 5.81 cfs potential flow)
↑**1=Orifice/Grate** (Weir Controls 1.64 cfs @ 0.84 fps)

Pond GUSF1: Soil Filter



Summary for Pond GUSF2: Soil Filter

Inflow Area = 1.586 ac, 79.43% Impervious, Inflow Depth = 6.97" for 100-yr event
Inflow = 11.34 cfs @ 12.03 hrs, Volume= 0.922 af
Outflow = 6.64 cfs @ 12.21 hrs, Volume= 0.794 af, Atten= 41%, Lag= 11.1 min
Primary = 6.64 cfs @ 12.21 hrs, Volume= 0.794 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 234.46' @ 12.21 hrs Surf.Area= 5,617 sf Storage= 10,312 cf
Flood Elev= 234.00' Surf.Area= 4,870 sf Storage= 7,910 cf

Plug-Flow detention time= 135.7 min calculated for 0.794 af (86% of inflow)
Center-of-Mass det. time= 63.6 min (833.4 - 769.8)

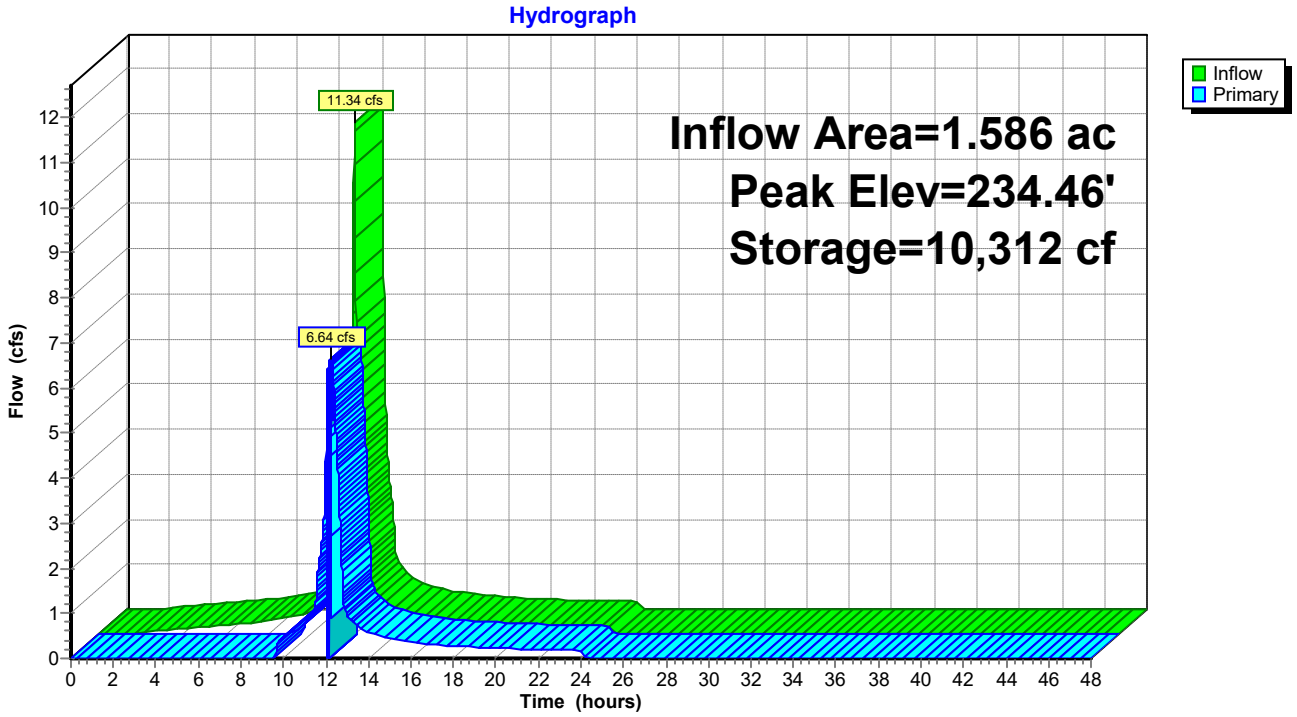
Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	13,595 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
232.00	3,000	0	0
233.00	3,975	3,488	3,488
234.00	4,870	4,423	7,910
235.00	6,500	5,685	13,595

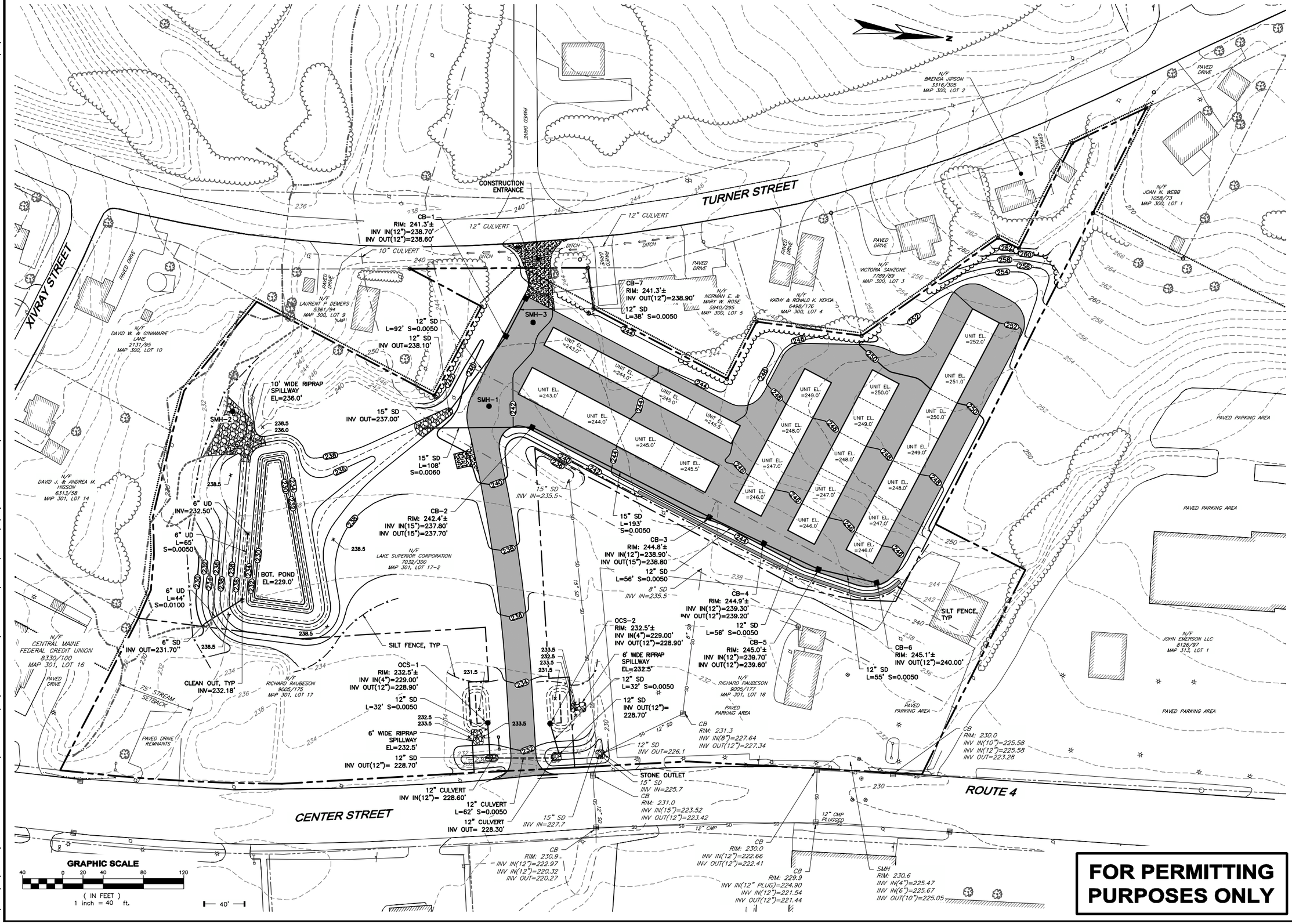
Device	Routing	Invert	Outlet Devices
#1	Device 2	233.50'	**6.0" x 1.5" Horiz. Orifice/Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Primary	229.17'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.17' / 227.00' S= 0.0155 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.51 cfs @ 12.21 hrs HW=234.46' TW=232.63' (Dynamic Tailwater)
↑**2=Culvert** (Outlet Controls 3.51 cfs @ 4.46 fps)
↑**1=Orifice/Grate** (Passes 3.51 cfs of 7.07 cfs potential flow)

Pond GUSF2: Soil Filter



Previous Approval Grading Plan



FOR PERMITTING PURPOSES ONLY

NO	SUBMISSIONS/REVISIONS	APP'D	DATE
	FOR PLANNING BOARD APPROVAL	JBW	6-15
1	REVISED PER PLANNING BOARD COMMENTS	JBW	6-15
2			
3			
4			
5			

DESIGNED BY: MDM
CAD CO'RD: RPB
CAD: RPB
CHECKED BY: JBW
DATE: 6-30-15
APPROVED BY: JBW
DATE: 6-30-15
PROJECT NO: 13034A

STATE OF MAINE
JAN B.S. WIEGMAN
No. 5862
REGISTERED PROFESSIONAL ENGINEER
6-30-15

WRIGHT-PIERCE
Engineering a Better Environment
Offices Throughout New England
888.621.8156 | www.wright-pierce.com

LAKE SUPERIOR CORPORATION
SITE PLAN REVIEW DRAWINGS FOR
SELF STORAGE FACILITY
AUBURN, MAINE

PROPOSED GRADING, DRAINAGE & EROSION CONTROL PLAN

DRAWING
C-4

Easement Deed

299

THIS AGREEMENT , made this 18th day of August,1920, WITNESSETH THat I, H.L. Wills, of Auburn in the County of Androscoggin and State of Maine do hereby grant the Central Maine Power Company, its successors and assigns the right to set and maintain over and across my land in the town of Auburn in the County of Androscoggin a line of poles together with fixtures and wires connecting to convey currents of electricity and the right to attach wires and appliances for guying from said poles where necessary to or into my land. The location of said poles to be as follows: From the land of Albert Jumper to the upper Turner Street road, so called, running southernly along the route now staked out to land of the City of Auburn, together with the right to enter upon said land for the purpose of making the necessary repairs to said poles or wires and for the purpose of trimming and cutting such tree or trees as may be necessary to keep the wires of said Company free from interference by said tree or trees and with the further understanding that in case it becomes necessary for said Company yo set additional poles on my land in the same line as those now staked out, the right to set said additional poles is hereby granted,said Company to pay for the same at the rate of $ 10.00 per pole provided said Company pays me the sum of 100 dollars on or before Sept.1,1920 it being understood that nothing except surveying shall be done on said land until after receipt of said payment.

August 18, 1920.

Received of the Central Maine Power Company, one hundred dollars in accordance with the above agreement and said right is hereby granted.

IN WITNESS WHEREOF I the said H.L. Wills and Blanche A.Wills my wife who joins to release whatever right she might have to interfere with the continuance of this grant after my death have hereunto set our hands and seals this 18th day of August,A.D. 1920.

H.L.Wills (Seal)
Blanche A.Wills (SEal)

State of Maine,
Androscoggin,SS. Aug. 18. 1920

Personally appeared the above named and acknowledged this instrument to be his free act and deed.

Before me,

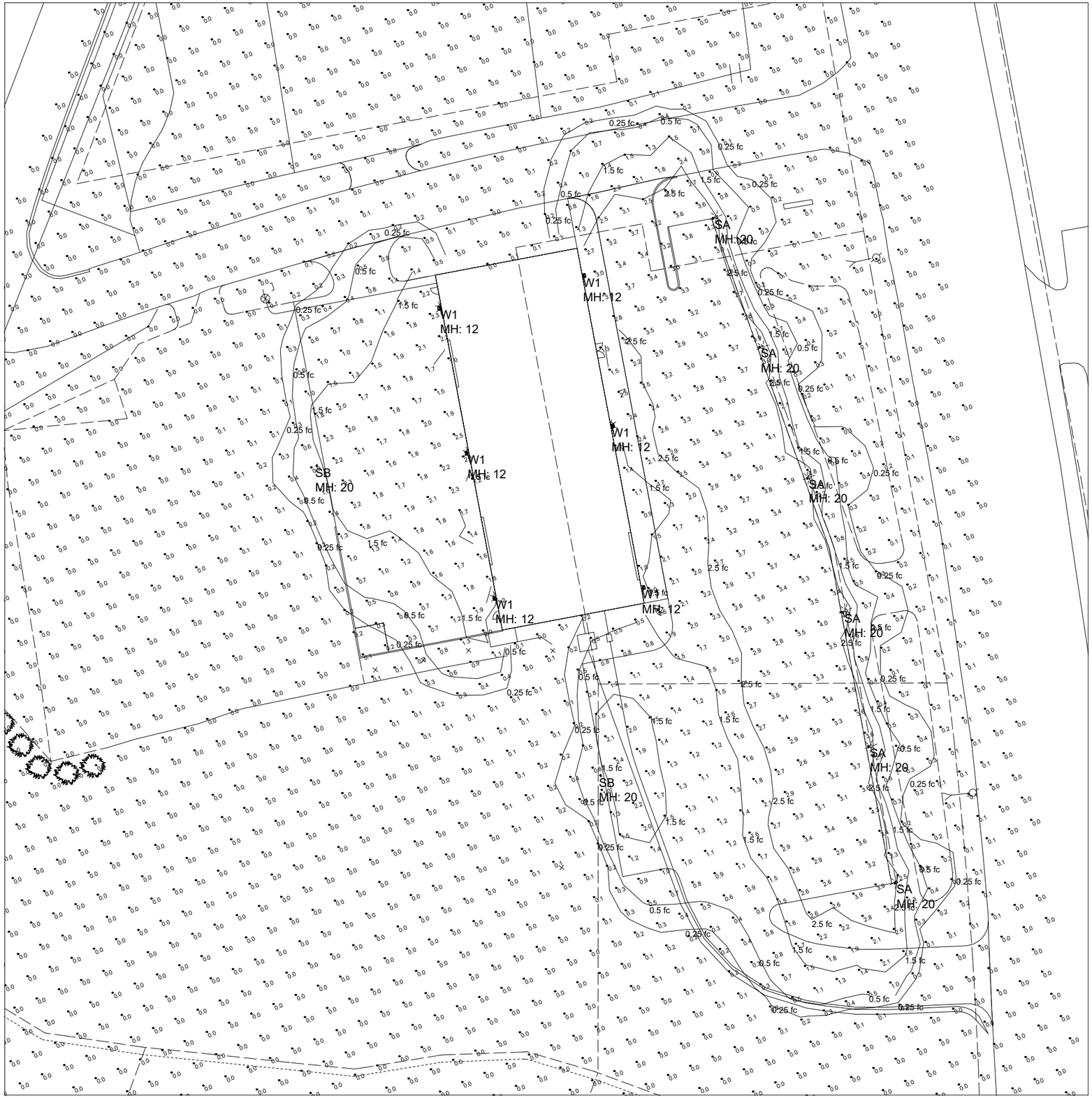
Seth May,

(Seal) Notary Public

Received August 26th, 1920 at 8 H. A.M. and recorded from the original.

Attest: Katherine P. Jones Register.

Photometric Plan and Specifications



PLAN VIEW

NOTES:
1) EXACT MOUNTING DETAILS TO BE DETERMINED AT JOBSITE BY OTHERS.
2) CALCULATIONS MAY or MAY NOT SHOW THE EFFECT OF SHADOWING CAUSED BY BUILDINGS AND OBJECTS WITHIN THE CALCULATED SPACE OR IN THE SITE AREA.
3) READINGS SHOWN ARE INITIAL HORIZONTAL FOOTCANDLES ON A FLAT SITE WITHOUT REFLECTIONS OR OBSTRUCTIONS UNLESS OTHERWISE INDICATED.
4) THIS CALCULATION IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO SWANEY LIGHTING ASSOCIATES AND STANDARD ASSUMPTIONS OF THE SPACE AND/OR SITE.
5) CONFORMANCE TO CODES AND OTHER LOCAL REQUIREMENTS AS DETERMINED BY THE AHJ ARE THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.
6) THIS LAYOUT DRAWING MUST BE COORDINATED WITH THE SITE LOCATION FOR CORRECT FIXTURE ORIENTATION.
7) DOCUMENTS PRINTED OR PLOTTED FROM ELECTRONIC FILES MAY APPEAR AT OTHER THAN THE DESIRED OR ASSUMED GRAPHIC SCALES. IT IS THE RESPONSIBILITY OF THE RECIPIENT TO VERIFY THAT THE PRINTED OR PLOTTED-TO-SCALE DRAWING IS PRINTED TO SCALE.

Calculation Summary					
Label	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
site	0.30	4.6	0.0	N.A.	N.A.

Luminaire Schedule (note fixture cataloge numbers are not complete)						
Type	**Qty**	**Lum. Lumens**	**LLF**	**Lum. Watts**	**Description**	**Mounting Height**
W1	6	3216	0.900	22.6	VPW2-18L-25-3K7-4W	12
SB	2	10733	0.900	120.9	VP-ST-1-36L-120-3K7-4W	20
SA	6	11983	0.900	120.9	VP-ST-1-36L-120-3K7-4F	20

site ltg 7-26-24.AGI

GENERATED BY SWANEY LIGHTING, SCARBOROUGH ME - 207-883-7100 - swaneylighting.com

TITLE
K&R AUTO - BAER SLEF STORAGE
AUBURN, ME
SITE LIGHTING LAYOUT

GENERATED FOR:
WRIGHT PIERCE

SCALE NOT TO SCALE

Page 1 of 1

Date:7/29/2024

SWANEY LIGHTING ASSOCIATES, INC.

BEACON
design . performance . technology

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

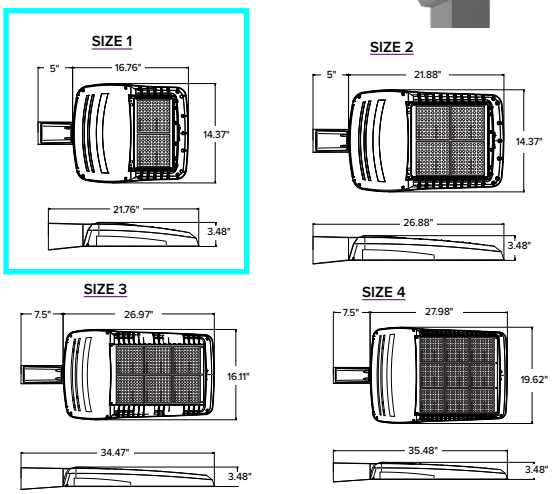
VIPER LUMINAIRE

MICRO STRIKE | OPTICS STRIKE

FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Lighting Controls™, LightGRID+ and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped

c UL us IP65 DLC LISTED DLC LISTED PREMIUM ida DARK SKY APPROVED 2016 BAA TAA



CONTROL TECHNOLOGY

NX CONNECT NX WIRED NX WIRELESS LIGHTGRID+

SERVICE PROGRAMS

STOCK QS10

SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

OPTICS

- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

INSTALLATION

- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles
- All mounting hardware included
- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/ IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised
- Dual Driver option provides 2 drivers within luminaire but only one set of leads exiting the luminaire, where Dual Power Feed provides two drivers which can be wired independently as two sets of leads are extended from the luminaire. Both options cannot be combined

CONTROLS

- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)

CONTROLS (CONTINUED)

- 0- 10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- NX Lighting Controls™ available with in fixture wireless control module, features dimming and occupancy sensor
- LightGRID+ available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration

	EPA				
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	Config.
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Not all product variations listed in this document are DLC® qualified. Refer to http://www.designlights.org for the most up-to-date list.
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-9) and Trade Agreements Act (FAR 52.225-11). See Buy America(n) Solutions (link to https://www.currentlighting.com/resources/america-solutions).

WARRANTY

- 5 year warranty

BEACON
design . performance . technology

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

STRIKE OPTIC – ORDERING GUIDE

Example: VP–ST–1–36L-39–3K7–2–UNV–A–BLT

CATALOG #

VP –

Series	
VP	Viper

Optic Platform	
ST	Strike

Size	
1	Size 1
2	Size 2
3	Size 3
4	Size 4

Light Engine	
36L-39 [8]	5500 lumens
36L-55 [8]	7500 lumens
36L-85	10000 lumens
36L-105	12500 lumens
36L-120	14000 lumens
72L-115	15000 lumens
72L-145	18000 lumens
72L-180	21000 lumens
72L-210	24000 lumens
72L-240	27000 lumens
108L-215 [8]	27000 lumens
108L-250	30000 lumens
108L-280	33000 lumens
108L-325	36000 lumens
108L-365	40000 lumens
162L-320	40000 lumens
162L-365 [10]	44000 lumens
162L-405	48000 lumens
162L-445	52000 lumens
162L-485	55000 lumens
162L-545 [8]	60000 lumens
CLO	Custom Lumen Output [1]

CCT/CRI	
AM	monochromatic amber, 595nm
27K8	2700K, 80 CRI
3K7	3000K, 70 CRI
3K8	3000K, 80 CRI
3K9	3000K, 90 CRI
35K8	3500K, 80 CRI
4K7	4000K, 70 CRI
4K8	4000K, 80 CRI
4K9	4000K, 90 CRI
5K7	5000K, 70 CRI
5K8	5000K, 80 CRI

Distribution	
FR	Auto Front Row
2	Type 2
3	Type 3
4F	Type 4 Forward
4W	Type 4 Wide
5QN	Type 5 Square Narrow
5QW	Type 5 Square Wide
5QM	Type 5 Square Medium
5W	Type 5 Wide (Round)
5RW	Type 5 Rectangular
C	Corner Optic
TC	Tennis Court Optic

Optic Rotation	
BLANK	No Rotation
L	Optic rotation left
R	Optic rotation right

Voltage	
UNV	120-277V
120	120V
208	208V
240	240V
277	277V
347	347V
480	480V

Mounting	
A	Arm mount for square pole/flat surface
A_	Arm mount for round pole [3]
ASQU	Universal arm mount for square pole
A_U	Universal arm mount for round pole [3]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [3]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [3]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

Color	
BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Gloss Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured
Color Option	
CC	Custom Color

Options	
F	Fusing
E	Battery Backup [1,2,7,8,9]
2PF	Dual Power Feed
2DR	Dual Driver
TE	Tooless Entry
BC	Backlight Control
TB	Terminal Block

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,4,5]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,4,5]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [4,5]
WIR	LightGRID+ In-Fixture Module [4,5]
WIRSC	LightGRID+ Module and Occupancy Sensor [4,5]
Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming® Photocell and 360° Lens
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]
Programmed Controls	
SCP-_F	Sensor Control Programmable, 8F or 40F [11]
ADD	AutoDim Timer Based Dimming [4]
ADT	AutoDim Time of Day Dimming [4]
Photocontrols	
PC	Button Photocontrol [4,7]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Battery temperature rating -20C to 55C
3 – Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
4 – Networked Controls cannot be combined with other control options
5 – Not available with 2PF option
6 – Not available with 480V
7 – Not available with 347 or 480V
8 – Not available with Dual Driver option
9 – Only available in Size 1 housing, up to 105 Watts
10 – Some voltage restrictions may apply when combined with controls
11 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.

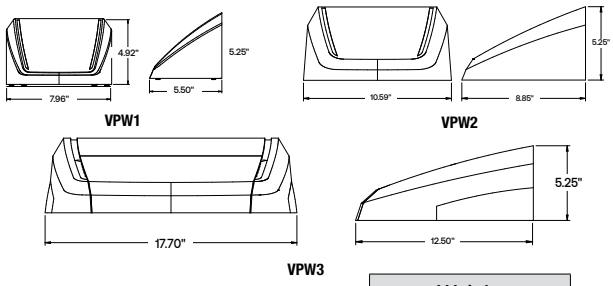
BEACON
design . performance . technology

VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

MICRO STRIKE | OPTICS STRIKE



	Weight
VPW1	4.1 lbs / 1.86 kg
VPW2	7.15 lbs / 3.24 kg
VPW3	17.1 lbs / 7.80 kg

FEATURES

- Low profile LED wall luminaire with a variety of IES distributions for lighting applications such as retail, commercial and industrial building mount
- Featuring Strike and Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual Comfort - Option for Size 2 and Size 3
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™, and LightGRID+.
- Battery Backup options available for emergency code compliance
- Quick-mount adapter allows easy installation/maintenance
- 347V and 480V versions for industrial applications and Canada

C US BAA TAA

CONTROL TECHNOLOGY

NX CONNECT NX WIRED NX WIRELESS LIGHTGRID+

SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish
- Powder paint finish provides durability in outdoor environments. Tested to meet 1000 hour salt spray rating

OPTICS

- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 2700K, 3000K, 3500K, 4000K and 5000K CCTs
- Zero uplight distributions
- LED optics provide IES type II, III and IV distributions.

INSTALLATION

- Quick-mount adapter provides easy installation to wall or to recessed junction boxes (4" square junction box)
- Designed for direct j-box mount.

ELECTRICAL

- 120V-277V universal voltage 50/60Hz 0-10V dimming drivers
- 347V input is available in most wattage, 480V is available for 55W and above.
- Ambient operating temperature -40˚C to 40˚C
- Driver RoHS and IP66
- 10kV Surge Protector optional
- Drivers have greater than .90 power factor and less than 20% Total Harmonic Distortion
- Dual Driver option provides 2 drivers within luminaire but only one set of leads exiting the luminaire, where Dual Power Feed provides two drivers which can be wired independently as two sets of leads are extended from the luminaire. Both options can not be included in one same fixture.
- Dimming drivers are standard. Select CD (Customer Dimming) for the dimming wires to be extended outside the fixture.

CONTROLS

- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- Button photocontrol is suitable for 120-277V operation
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor

CONTROLS CONTINUED

- Integral Battery Backup provides emergency lighting for the required 90 minute path of egress
- Battery Backup suitable for operating temperatures -20˚C to 40˚C.
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application.
- LightGRID+ available with in fixture wireless control module, features dimming and occupancy sensor.

CERTIFICATIONS

- Certified to UL 1598 and CSA 22.2#250.0-24
- IP65 rated housing
- Emergency battery backup options are California Energy Commission (CEC) Title 20 Compliant
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-9) and Trade Agreements Act (FAR 52.225- 11). See Buy America(n) Solutions (link to https://http://www.currentlighting.com/resources/americasolutions).

WARRANTY

- 5 year limited warranty

BEACON
design . performance . technology

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

ORDERING GUIDE

Example: VPW1–24L–10–3K7–2–UNV–BLS

CATALOG # _____ – _____ – _____ – _____ – _____ – _____ – _____

Series		# LEDs - Wattage		CCT/CRI		Distribution		Voltage		Color	
VPW1	Viper Wall 1	**24L-10**	1,000 Lumens	**27K8**	2700K, 80 CRI	**FR**	Auto Front Row[7]	**UNV**	120-277V	**BLT**	Black Matte Textured
		24L-15	2,000 Lumens	**3K7**	3000K, 70 CRI	**2**	IES TYPE 2	**120**	120V	**BLS**	Black Gloss Smooth
		24L-25	3,000 Lumens	**4K7**	4000K, 70 CRI	**3**	IES TYPE 3	**208**	208V	**DBT**	Dark Bronze Matte Textured
VPW2	Viper Wall 2	**48L-15**	2,000 Lumens	**5K7**	5000K, 70 CRI	**4F**	IES TYPE 4 Forward	**240**	240V	**DBS**	Dark Bronze Gloss Smooth
		48L-20	3,000 Lumens	**3K8**	3000K, 80 CRI	**4W**	IES TYPE 4W	**277**	277V	**GTT**	Graphite Matte Textured
		48L-30	4,000 Lumens	**35K8**	3500K, 80 CRI			**347**	347V	**LGS**	Light Grey Gloss Smooth
		48L-35	5,000 Lumens	**4K8**	4000K, 80 CRI			**480**	480V	**LGT**	Light Grey Matte Textured
		48L-45	6,000 Lumens	**5K8**	5000K, 80 CRI					**PSS**	Platinum Silver Smooth
		80L-20	3,000 Lumens	**AP**	Phosphor Converted Amber[1]					**WHT**	White Matte Textured
		80L-25	4,000 Lumens							**WHS**	White Gloss Smooth
		80L-35	5,000 Lumens							**VGT**	Verde Green Textured
		80L-45	6,000 Lumens							**Color Option**	
		80L-55	7,000 Lumens							**CC**	Custom Color
		80L-65	8,000 Lumens								
		80L-70	8,500 Lumens								
		18L-25	3,000 Lumens, Strike Optics								
		18L-30	4,000 Lumens, Strike Optics								
		18L-39	4,750 Lumens, Strike Optics								
		18L-50	6,000 Lumens, Strike Optics								
		18L-60	6,500 Lumens, Strike Optics								
VPW3	Viper Wall 3	**160L-45**	7,000 Lumens								
		160L-70	10,000 Lumens								
		160L-95	12,500 Lumens								
		160L-105	15,000 Lumens								
		160L-135	17,500 Lumens								
		160L-155	20,000 Lumens								
		36L-55	7,000 Lumens, Strike Optics								
		36L-80	9,500 Lumens, Strike Optics								
		36L-100	11,500 Lumens, Strike Optics								
		36L-120	13,000 Lumens, Strike Optics								

– _____

Control Options Network[3,7,11,13]	
NXWS12F	NX Networked Wireless Enabled Integral NXSMP2-OMNI PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[14]
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[9]
NXWS24F	NX Networked Wireless Enabled Integral NXSMP2-OMNI-HM PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[9]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[9]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor
WIR	LightGRID+ In-Fixture Module[9]
WIRSC	LightGRID+ In-Fixture Moduel with BTS occupancy[9]
Stand Alone Sensors[7,11,13]	
BTS-14F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor[4,9]
BTS-40F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor[4,9]
BTSO-12F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor, up to 12' mounting height[14]
Photocontrol[13]	
PC	Button Photocontrol 120-277V

Options	
F	Fusing[5,7]
E	Battery[6,7,8]
EH	Battery with Heater[6,7,8]
CS	Comfort Shield[7,10]
SP	10kA Surge Protector
2PF	Dual Power Feed[2,7,8]
2DR	Dual Driver[2,7,8]
CD	Customer Dimming[12]
DTS	Dimming Transfer Switch[7]

Notes:

1 Available with Micro Strike Optics only
2 Not available with 480V in Size 1 and Size 2
3 Networked controls cannot be combined with other control options
4 Not available with VPW1 or with 2PF or 2DR options
5 Must specify voltage (VPW1 & VPW2: 120V, 277V or 347V; VPW3: 120V, 208V, 240V, 277V, 347V or 480V)
6 See page 10 for detail Battery configurations
7 Not available in VPW1
8 2PF can't be combined with E or EH; 2DR can't be combined with E or EH in VPW2
9 Not avialable in VPW1 and VPW2
10 Not available with Micro Strike 24L and 48L. Not available with Strike 18L and 36L
11 Not available with 2PF
12 Not available with Network Control options or Stand Alone Sensors. Can be ordered with PC
13 Not available in 480V in VPW2; Only available in 480V in VPW3 in 80W, 100W, 120W, 135W and 155W
14 NXWS12F and BTSO-12F are the only sensors available in VPW2