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MAY 16, 2023 MEETING
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TOWN OF LEWISBORO
Westchester County, New York

Planning Board
79 Bouton Road
South Salem, New York 10590

Tel: (914) 763-5592
Fax: (914) 875-9148
Email: planning@lewisborogov.com

AGENDA

Tuesday, May 16, 2023 **Courtroom at 79 Bouton Road**

Meeting will start at 7:30 p.m. and end at or before 11:00 p.m.

I. EXTENSION OF TIME REQUESTS

Cal #07-21PB
Cross River Pharmacy, 890 Route 35, Cross River, NY 10518; Sheet 20, Block 10801, Lot 30 (Central Ave., White Plains, LLC., owner of record) - Extension of time request for a Change of Use Permit Approval and Waiver of Site Development Plan Procedures granted in the above-referenced application on October 19, 2021; current expiration date was April 19, 2023.

Cal #03-22PB
Arbor Hills Water System, 0 Brundige Drive, Goldens Bridge, NY 10526; Sheet 12, Block 11152, Lot 200 (Arbor Hill Waterworks, Inc, owner of record) - Extension of time request for the Site Development Plan Approval granted in the above-referenced application on May 17, 2022; current expiration was May 17, 2023.

Cal #09-22PB
Indian Hills Water System, 0 Apache Circle, Katonah, NY 10536; Sheet 10, Block 11152, Lot 189 (Waccabuc Water Works, Inc, owner of record) - Extension of time request for the Site Development Plan Approval granted in the above-referenced application on June 21, 2022; current expiration is June 21, 2023.

II. PUBLIC HEARINGS

Cal #06-22PB, Cal #05-22WP, Cal #03-22SW
Waccabuc Country Club Snack Bar, 18 Perch Bay Road, Waccabuc, NY 10597; Sheet 25A, Block 10813, Lot 1 & 0 Tarry-A-Bit Lane, Waccabuc, NY 10597; Sheet 25, Block 11155, Lot 148 (Waccabuc Country Club Co., owner of record for both lots) - Application for beachfront improvements including renovation of the boathouse, construction of a pavilion, replacement of the snack bar, and installation of accessible parking and walkways.

Cal #16-22PB
ATC Tower, 0 Route 35 (Leon Levy Preserve), South Salem, NY 10590; Sheet 40, Block 10263, Lot 62 (American Towers Corp., owner of record) - Application for a special use permit renewal.

III. DECISION

Cal #08-21PB
Oakridge Common, 920 Oakridge Common, South Salem, NY 10590; Sheet 49D, Block 9829, Lot 10 (Smith Ridge Housing, LLC, owner of record) – Application for a change of use from restaurant to residential.

IV. SITE DEVELOPMENT PLAN REVIEW

Cal #02-23PB
20 Boutonville LLC Horse Farm, 20 Boutonville Road South, Cross River, NY 10518; Sheet 18, Block 10526, Lot 10 (20 Boutonville LLC, owner of record) - Application for a Waiver of Site Development Plan Procedures for an existing horse farm.

Cal #04-23PB
Green deck, 114 Willow Court, Cross River, NY 10518; Sheet 17B, Block 10533, Lot 314 (Wendy & Josh Green, owners of record) – Application for enlarging an existing deck in a multi-family zone.

Cal #06-17PB
Wolf Conservation Center, Buck Run, South Salem, NY 10590; Sheet 21, Block 10803, Lots 3, 65, 67, 81, 82, 83, 86 & 88 (Wolf Conservation Center, owner of record) - Application for a Subdivision and Special Use Permit associated with a private nature preserve.

V. WETLAND PERMIT REVIEW

Cal #41-22WP, Cal #20-22SW
Nelson Residence, 30 Gideon Reynolds Road, Cross River, NY 10518; Sheet 16, Block 10533, Lot 515 (John & Christina Nelson, owners of record) – Application for a pool, patio and plantings.

Cal #34-22WP, Cal #01-21WV
Maple Tree Farm, 400 Smith Ridge Road, South Salem, NY 10590; Sheet 24, Block 9831, Lot 49B (Maple Tree Farm, LLC, owner of record) - Application for remediation of wetlands.

Cal#15-23PB
Rose patio, 15 Truesdale Lake Drive, South Salem, NY 10590; Sheet 36L, Block 10815, Lot 30 (Ellen & Robert Rose, owners of record) – Application for a patio.

Cal#18-23WP, Cal#07-23SW
Altholz driveway, 327 Waccabuc Road, Goldens Bridge, NY 10526; Sheet 7, Block 11137, Lot 30 (Michelle & Michael Altholz, owners of record) – Application for a driveway.

Cal#16-23WP
Catalano dock, 30 Twin Lakes Road, South Salem, NY 10590; Sheet 34A, Block 11831, Lot 15 (Agnes Catalano and Teresa Martens, owners of record) – Application for a dock.

Cal #19-23WP, Cal#08-23SW
Berk and Silvan Residence, 80 Ridgefield Ave, South Salem, NY 10590; Sheet 29, Block 10553, Lot 118 (Marnie Berk & Jon Silvan, owners of record) – Application for a patio and walkway.

VI. WETLAND VIOLATION

Cal #01-23WV
Ference and Malan Residence, 72 Chapel Road, Waccabuc, NY 10597; Sheet 30, Block 10802, Lot 23 & Ashley Ference & Michael Malan, owners of record)

VII. SITE VISIT REPORT

Cal #09-19WP, Cal #05-19SW
Kranz vacant land, 0 Elmwood Road, South Salem, NY 10590, Sheet 43, Block 10302, Lot 23 (Alexander Kranz, owner of record) – Application for a single-family residence, driveway, septic system and well.

VIII. CORRESPONDENCE

Ridgefield, CT Planning and Zoning Commission to amend its Town Code §2.2 and §7.3.D.4 related to electric vehicles charging stations.

IX. MINUTES OF April 18, 2023.

X. NEXT MEETING DATE: June 20, 2023.

XI. ADJOURN MEETING.

KELLARD SESSIONS

John Kellard, P.E.
David Sessions, RLA, AICP
Joseph M. Cermele, P.E., CFM
Jan K. Johannessen, AICP

MEMORANDUM

TO: Chairperson Janet Andersen and
Members of Lewisboro Planning Board

CC: Ciorsdan Conran
Judson Siebert, Esq.
Kevin Kelly, Building Inspector

FROM: Jan K. Johannessen, AICP
Joseph M. Cermele, P.E., CFM
Town Consulting Professionals

DATE: May 12, 2023

RE: Wolf Conservation Center
Mead Street and Buck Run
Sheet 21, Block 10803, Lots 3, 77, 65, 81, 82, 83, 86, and 88

PROJECT DESCRIPTION

The subject property consists of ±32.3 acres of land and is located off Buck Run, a private road, within the R-2A and R-4A Zoning Districts. The applicant has submitted an application for a Special Use Permit, under Section 220-43.2, Private Nature Preserves, of the Zoning Code, and is proposing several improvements in the furtherance of its goals and objectives.

SEQRA

The proposed action has been preliminarily identified as an Unlisted Action under the State Environmental Quality Review Act (SEQRA) and the Planning Board is conducting a coordinated review as Lead Agency. The Planning Board must issue a Determination of Significance prior to taking action on this pending application.

REQUIRED APPROVALS/REFERRALS

1. Subdivision, a Special Use Permit, a Wetland Activity Permit and a Town Stormwater Permit are required from the Planning Board; a public hearing is required to be held.

2. Area variance(s) may be required from the Zoning Board of Appeals.

3. The application must be referred to the Architecture and Community Appearance Review Council (ACARC) for review and recommendations.

4. Westchester County Department of Health (WCDH) Approval is required for Realty Subdivision, reconstruction of an existing sanitary sewage disposal systems and new potable water well(s). A public water system will likely be required by the WCDH.

5. The proposed action requires Stormwater Pollution Prevention Plan (SWPPP) approval from the New York City Department of Environmental Protection (NYCDEP).

6. Land disturbance will exceed one (1) acre located within the NYCDEP East of Hudson Watershed; coverage under the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharge from Construction Activity (GP-0-20-001) is required.

7. An Article 24 Freshwater Wetland Permit may be required from the NYSDEC.

8. Improvements and modifications within the State right-of-way will require approval from the New York State Department of Transportation (NYSDOT).

9. The proposed action must be referred to the Westchester County Planning Board in accordance with Section 239-m of the General Municipal Law; the Planning Board administrator will coordinate this referral.

PART 2 EAF REVIEW

During the March 21, 2023 Planning Board Meeting, the Planning Board reviewed the responses provided within the Part 2 EAF and provided requested revisions. The following items have not been incorporated into the revised Part 2 EAF:

1. Impact on Land, Question 1.e – "The proposed action may involve construction that continues for more than one (1) year or in multiple phase." As directed by the Board, this question should be marked "moderate to large impact may occur" and should be addressed within the Part 3 EAF.

2. Impact on Water, Question 3.d – "The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other waterbody." As directed by the Board, this question should be marked "moderate to large impact may occur" and should be addressed within the Part 3 EAF.

PART 3 EAF REVIEW

1. Impact on Land – This section does not address Questions 1.b (steep slope disturbance) and 1.e (duration of construction and phasing), as directed by the Planning Board. The applicant shall provide a cut and fill calculation and discuss the results within this section, along with the total trucks trips anticipated to import or export soil/material and anticipated duration of trucking. A steep slopes analysis shall be prepared and discussed; the applicant shall quantify the amount of steep slope disturbance (slopes of 15% or greater). Best management practices and mitigation measures should be discussed as should relevant sections of the SWPPP (reference to the SWPPP is also acceptable). This section should speak to the anticipated duration of construction (18 months is identified elsewhere within the EAF) as well as the phasing plan, if any.

2. Impact of Water – This section does not address Question 3.d (wetland buffer disturbance), as identified within Part 2 of the EAF. This section should quantify the amount of wetland buffer disturbance, explain why such disturbance is unavoidable, and discuss the wetland mitigation plan and compliance with the Town's 1:1 mitigation requirement. This section should speak to the need to obtain a Local and NYSDEC Wetland Permit for buffer disturbance. This section should also reference the required SWPPP and state that the SWPPP is being prepared in compliance with Town, NYSDEC and NYCDEP regulations and requirements.

3. Impact on Groundwater – This section shall calculate (total) the existing and proposed water demand in gallons per day. The applicant should discuss the WCDH requirements and regulations pertaining to a public water supply and state that a 72-hour pump test will be required by the WCDH as part of its permitting process. The 72-hour pump test shall be conducted during the Site Development Plan review process with the Planning Board and a pump test "work plan" shall be developed by the applicant and reviewed and approved by the Town Engineer and WCDH prior to performing the test.

4. Impacts on Plants and Animals – The NYSDEC will likely restrict tree removal to take place between November 1st and March 31st; this should be discussed.

5. Impact on Historic and Archeological Resource – This section should be revised to state that the subject property is located within (not adjacent to) a mapped archeological sensitive area.

6. The footer on the first Page of the Part 3 EAF should be revised to state that there is no disturbance, development or physical change proposed to the Old Field Preserve as a result of the project.

COMMENTS

1. The applicant acknowledges the request to submit an updated Existing Conditions Survey (boundary and 2-foot contours), signed and sealed by a NYS Licensed Land Surveyor.

2. The applicant has acknowledged the need to update and resubmit its previously submitted business plan and written description demonstrating compliance with the Special Use Permit provisions for Private Nature Preserves. The business plan shall include a title and date for reference purposes.

3. The proposed tree plantings have not been accounted for in the Area Reduction RR Techniques (Question #29 of the NOI). Please add.

4. Please provide a detail for Proposed Outlet Structure #1.1.

5. The applicant acknowledges that the SWPPP Report will need to include pipe flow calculations; please provide with future submissions. The calculations shall demonstrate that the proposed pipe network along the Buck Run driveway will have sufficient capacity.

6. We defer further comments regarding the SWPPP until the application has received comments back from the NYCDEP.

7. As previously noted, we continue to recommend the need for diversion swales and water bars to be utilized during construction. The practices as shown and described in the SWPPP will only function once the conveyances have been installed. It is recommended that temporary sediment traps be constructed during construction. A second temporary sediment trap may be required at the upper portion of the development. Provide adequate sizing calculations in accordance with the NYSDEC Stormwater Management Design Manual (SMDM). Alot of the disturbance will be located on steep slopes, which will affect the downgraded portions of the project. Furthermore, a phasing plan should be implemented which outlines the phases of construction noted in the construction sequencing notes.

8. A “No Parking Anytime” sign should be shown for the ADA loading space on the plan and detail.

9. Since all curbs will be concrete, please remove the asphalt pavement label located on sheet CD-1.

10. The applicant acknowledges that the WCDH will require that a 72-hour pump test be performed for the public water system. The applicant shall coordinate with this office regarding the pump test, including preparation and approval of a work plan.

In order to expedite the review of subsequent submissions, the applicant should provide annotated responses to each of the comments outlined herein.

PLANS REVIEWED, PREPARED BY BIBBO ASSOCIATES, LLP, DATED APRIL 25, 2023:

- Cover (CS-1)
- Preliminary Subdivision Plan (PP-1)
- Existing Conditions Plan (EX-1)
- Existing Conditions & Removals Plan (EX-2)
- Layout Plan – South (LP-1)
- Layout Plan – North (LP-2)
- Construction Plan – South (CP-1)
- Construction Plan – North (CP-2)
- Erosion Control Plan (EC-1)
- Erosion Control Notes & Details (EC-2)
- Road Profiles (P-1)
- Drainage Profiles (P-2)
- Turning Maneuvers (T-1)
- Sight Distance & Profiles (SD-1)
- Mitigation Plan (M-1)
- Lighting Plan (LP-1)
- Details (D-1, D-2, D-3)
- Cut and Fill Exhibit I, II and III

DOCUMENTS REVIEWED:

- Letter, prepared by Janet J. Giris, dated April 25, 2023
- Letter, prepared by South Salem Volunteer Fire Department, dated March 11, 2021
- Notice of Intent
- Full EAF Parts 1, 2 and 3
- Stormwater Pollution Prevention Plan Report, dated April 25, 2023
- Lighting Specification Sheets

JKJ/dc

DELBELLO DONNELLAN WEINGARTEN WISE & WIEDERKEHR, LLP

Janet J. Giris
Partner
jjg@ddw-law.com

COUNSELLORS AT LAW

THE GATEWAY BUILDING
ONE NORTH LEXINGTON AVENUE
WHITE PLAINS, NEW YORK 10601

(914) 681-0200
FACSIMILE (914) 684-0288

Connecticut Office
1111 SUMMER STREET
STAMFORD, CT 06905
(203) 298-0000

April 25, 2023

By Hand Delivery

Honorable Janet Anderson, Chair
and Members of the Planning Board
Town of Lewisboro
79 Bouton Road
South Salem, New York 10590

Re: Application of The Wolf Conservation Center, Inc., for Subdivision, Site Plan, Special Permit Approval, Wetland Permit and Stormwater Permit in Connection with a Private Nature Preserve on Property Located on Buck Run, South Salem.

Dear Chairwoman Anderson and Members of the Board:

As you know, this firm represents the Wolf Conservation Center, Inc. (the "Applicant"), in connection with the above-referenced applications. On behalf of the Applicant and in support of our applications, we respectfully submit the enclosed revised plans and materials for the Board's review and consideration at its meeting on May 16, 2023.

When we last met with the Board on March 21, 2023, the Applicant received comments from the Town's consulting professionals, Kellard Sessions in a memo dated March 16, 2023 (the "KS Memo"). Since that time, the enclosed plans have been revised in accordance with the comments contained in the KS Memo and the comments of the Board. Each set of revised plans consists of the following sheets:

Drawing No.	Title	Prepared By	Dated or Last Revised
CS-1	Cover Sheet	Bibbo Associates, LLP ("Bibbo")	04-25-2023
PP-1	Preliminary Plot Plan	Bibbo	04-25-2023
EX-1	Existing Conditions Plan	Bibbo	04-25-2023
EX-2	Removals Plan	Bibbo	04-25-2023

LP-1	Layout Plan - South	Bibbo	04-25-2023
LP-2	Layout Plan – North	Bibbo	04-25-2023
CP-1	Construction Plan - South	Bibbo	04-25-2023
CP-2	Construction Plan – North	Bibbo	04-25-2023
EC-1	Erosion Control Plan	Bibbo	04-25-2023
EC-2	Erosion Control Notes & Detail	Bibbo	04-25-2023
P-1	Road Profiles	Bibbo	04-25-2023
P-2	Drainage Profiles	Bibbo	04-25-2023
T-1	Turning Maneuvers	Bibbo	04-25-2023
SD-1	Sight Distance & Profiles	Bibbo	04-25-2023
M-1	Mitigation Plan	Bibbo	04-25-2023
LP-1	Lighting Plan	Bibbo	04-25-2023
D-1	Details	Bibbo	04-25-2023
D-2	Details	Bibbo	04-25-2023
D-3	Details	Bibbo	04-25-2023

In addition to the revised plans, this submission also includes:

- A revised Full Environmental Assessment Form (EAF) Part 2 which has been revised in accordance with our discussion with the Board and its consultant on March 21, 2023; and

- A completed EAF Part 3 together with an EAF Part 3 Narrative for the Board's consideration.

In response to the comments contained in the KS Memo, we respectfully offer the following responses prepared by the Applicant's project engineer, Bibbo Associates, LLP. As requested in the KS Memo, each of the comments is repeated below with the response following:

1. **Comment: It is recommended that the Planning Board review the responses provided in connection with the Part 2 EAF submitted by the applicant.**

   Response: Responses were reviewed with the Planning Board at its March 21, 2023 meeting; a revised Part 2 EAF revised in accordance with our discussion is enclosed.

2. **Comment: As previously requested, the applicant shall submit an updated Existing Conditions Survey (boundary and 2-foot contours), signed and sealed by a NYS Licensed Land Surveyor.**

   Response: An Existing Conditions Survey has been prepared and will be provided under separate cover.

3. **Comment: The applicant has acknowledged the need to update and resubmit its previously submitted business plan and written description demonstrating compliance with the Special Use Permit provisions for Private Nature Preserves. The business plan shall include a title and date for reference purposes.**

   Response: A revised business plan will be submitted shortly under separate cover.

4. **Comment: It is unclear on the plans which existing trees are to be removed and which are to remain and be protected during construction. Please make the tree symbols more pronounced and place an "X" through those trees to be removed. Provide tree protection measures for existing trees to remain and located within the limits of disturbance and 25 feet beyond; tree protection should be shown on the erosion control plan. A tree removal chart should be included.**

   Response: As requested, Drawing No. EX-1, entitled "Existing Conditions Plan" has been revised to clearly identify which trees are to be removed and those trees which are to remain. A tree chart has also been added, indicating the trees to be removed. Tree protection measures are shown on Drawing No. EC-1, entitled "Erosion Control Plan", and a note has been added to the proposed path indicating that the location should be field adjusted to avoid existing trees where possible.

5. **Comment: The Wetland Mitigation Plan appears appropriate; however, provide a calculation demonstrating compliance with the Town's 1:1 mitigation ratio requirement (area of disturbance within the buffer compared to area of mitigation).**

   Response: Drawing No. M-1, entitled "Mitigation Plan" has been revised to include quantified hatched areas to demonstrate compliance with the Town's 1:1 mitigation requirement.

6. **Comment: The Lighting Plan is satisfactory; however, please provide manufacturer cut sheets for the different light fixtures proposed.**

   Response: Lighting cut sheets are enclosed as part of this submission.

7. **Comment: We note that the driveway and road profiles have been reviewed by the Fire Department, and the applicant has indicated the proposed profiles are intended to match existing road and driveway grades to the greatest intent possible to minimize land disturbance. Please provide this office with a memo from the Fire Department's acceptance of the driveway grades. Also, as previously noted, both the private road and the driveway, proposed to be modified, do not meet width and grade requirements, as per Chapter 195, Subdivision of Land, and Section 220-55D of the Town Code. A determination must be made by the Building Inspector as to whether a zoning variance is required.**

   Response: Comment noted. A copy of the most recent correspondence from the South Salem Fire Department which has been previously submitted is enclosed. We are aware of a change in leadership within the Fire Department and are in the process of scheduling a meeting to review the project, and confirm the previous determinations made by the department. As previously stated in our letter dated February 7, 2023, we respectfully submit that the requirements contained in Chapter 195 relate to the creation of new roads in connection with the subdivision of land. Given that Buck Run is an existing road which is intended to be further improved as part of the project, a variance from Chapter 195 should not be required.

8. **Comment: As previously requested, a figure/exhibit illustrating the quantified cut and fill calculation should be provided. The applicant has acknowledged the request and will be submitting the map under separate cover.**

   Response: Cut and Fill exhibits I, II, and III have been prepared and are enclosed as requested.

9. **Comment: The use of Green Infrastructure Practices for compliance with required water quality treatment, as noted in the applicant's response to our previous comment memo (Comment #12) has not been included in the SWPPP. There are no proposed tree plantings calculated within the SWPPP's Area Reduction Practice Worksheet, nor is it accounted for in Question #29 of the NOI. Please revise or clarify. Finally, it does not appear that stormwater runoff will be able to flow toward this Green Infrastructure Practices due to the proposed curbing. It seems an alternate driveway or treatment practice design may be required.**

   Response: The SWPPP and NOI for the Project have been revised to account for the proposed tree planting in the RRV/WQV calculations provided in Appendix A. Figure 3 of the project SWPPP identifies the new impervious surface targeted for area reduction, and proposed trees to be utilized as a Green Infrastructure Practice (G.I.P.). Curbs from Sta. 0+00 to 2+25 have been removed to allow for the impervious surface to be directly connected to the areas of tree plantings. Please note however this office has utilized the similar application of this G.I.P. with curbs on various projects throughout the watershed, which received NYCDEP SWPPP approval.

10. **Comment: The elevation of the emergency spillway for Infiltration Basin 1.1 in relation to the rim and inverts of CB #10 and #11 should be evaluated. It appears that in the 100-year storm, the conveyance between CB #10 and #11 is completely submerged and the peak water surface elevation is within seven (7) inches of the catch basin's rim elevation. Additionally, it appears that the pond's emergency spillway is set higher than the catch basin rims. In the event of a major storm and/or a failure in the primary overflow control, stormwater will surcharge out of the catch basins before discharging over the emergency spillway as intended. Please review and revise as needed.**

    Response: The elevation of the emergency spillway of Infiltration Basin 1.1 is 456.0, the rim elevation of catch basins 10 and 11 are 465.99 and 456.48 respectively. Catch basin 12 has a rim elevation of 456.26 which we believe is the catch basin that was intended to be referenced. Please note, while these catch basin rim elevations are slightly higher than the emergency spillway, the 100-year peak elevation of the basin is 455.39, which yields approximately 10" of freeboard before the catch basins surcharge.

11. **The applicant acknowledges that the SWPPP Report will need to include pipe flow calculations; please provide with future submissions. The calculations shall demonstrate that the proposed pipe network along the Buck Run driveway will have sufficient capacity.**

    Response: Comment noted, pipe sizing calculations will be developed and provided as we proceed with the technical review by the NYCDEP.

12. As previously noted, we continue to recommend the need for diversion swales, water bars, and erosion blankets to be utilized during construction. The practices as shown and described in the SWPPP will only function once the conveyances have been installed. It is recommended that Infiltration Basin #1.1P should be used as temporary sediment trap during construction. A second temporary sediment trap may be required at the upper portion of the development. Provide adequate sizing calculations in accordance with the NYSDEC Stormwater Management Design Manual (SMDM).

Response: The Erosion Control measures shown are believed to be sufficient for construction. The proposed grass and rip swales will divert water from disturbed areas during construction, and the construction sequence on sheet EC-2 indicates drainage structures and conveyance measures are to be installed in the initial stages of the Project. Erosion Control blankets have been included on the detail sheet and are noted to be installed on all slopes 2H:1V or greater. Additional erosion control measures may be added during construction if deemed necessary as a result of the required inspections in accordance with the NYSDEC SPDES General Permit (GP-0-20-001). Please note, Infiltration basins are not permitted to be used as a temporary sediment control device during construction per the NYS Stormwater Management Design Manual.

13. Inlet protection is required around CB #24. Additionally silt fence is required west of the roadway work and any location downgradient from construction.

Response: Inlet protection has been added to CB#24. Additional silt fence has also been shown on the plans.

14. Comment: There appears to be discrepancies between the stormwater model and the plans that require coordination, as follows:

- **The inverts for Diversion Manhole #1.2 in the model differ from what is noted on the plan's Drainage Schedule as well as the detail.**
- **It appears that within Diversion Manhole #1.2 that the invert of the bypass out of DMH #2 is lower than the invert out to HDS 1.2 and the infiltration units. This would prevent stormwater from entering the treatment system.**
- **The detail of Diversion Manhole #1.2 requires clarification with the elevations shown and modeled in the SWPPP, specifically with regard to the weir elevation and inlet pipe.**
- **There appears to be two feet of void space in the Stormwater infiltration based on the peak stormwater elevation during the 100-yr storm event resulting in a large volume of unused storage volume within the practice. Please clarify.**
- **The curve numbers (CN value) used in hydraulic model is based soil groups with a soil class designation of B and C soils, however, Question #6 of the NOI indicates C and D soils. Please clarify.**

Response: The stormwater model and plans have been reviewed and the following previously noted discrepancies have been corrected:

- The inverts of Diversion Manhole #1.2 have been revised in the HydroCAD model to correspond to the Drainage schedule and detail on the project drawings.

- It is acknowledged that the bypass pipe invert within diversion manhole #1.2 is at a lower elevation than the primary outlet pipe to HDS #1.2. The structure was designed this way to maintain cover over the secondary outlet pipe as well as to reduce excessive pipe slope. The weir within the structure controls the flow and is set at the elevation necessary to comply with the required WQv/RRv treatment volume.
- The detail of diversion manhole #1.2 has been revised for clarity.
- The storage volume within the infiltration systems and corresponding weir elevation within the diversion structure is dictated by the required treatment volume generated by the contributing area. The diversion structures have been designed in accordance with SSDM and NYCDEP to bypass storm evens larger than the 1 year storm to the greatest extent possible.
- The curve numbers (CN) used in the hydraulic model and the NOI have been revised for consistency.

15. Comment: Comments regarding the NOI are as follows:

- **Provide the Federal Tax ID.**
- **Question #14 should be answered "yes".**
- **Question #40, "Freshwater Wetlands/Article 24" should be checked since work will take place in the NYSDEC Wetland Adjacent Area.**

Response: The N.O.I. has been revised as requested as follows:

- The Federal Tax ID has been added.
- Question #14 has been answered "yes.
- Question #40, "Freshwater wetland/Article 24" has been checked.

16. Comment: Proposed top and bottom wall elevations should be shown on the grading plan.

Response: The top and bottom of proposed retaining wall elevations have been added to the plans.

17. Comment: The proposed accessible parking spaces and loading areas required ADA signage.

Response: ADA signage has been included on the detail sheet and noted to be mounted to the retaining wall.

18. Comment: Additional spot grades should be provided in the vicinity of the ADA parking spaces to confirm they comply with maximum slope requirements (2% max).

Response: Additional spot grades have been added to the accessible parking spaces. The proposed parking spaces have been designed in compliance with ADA slope requirements.

19. It appears that the fire truck turning movements conflict with the accessible parking spaces, retaining wall, and edge of pavement at proposed Building #1, as well as the spaces at the administrative headquarters. Please revise and adjust as needed to demonstrate adequate maneuverability.

Response: The fire truck turning maneuver figure has been revised so that trucks no longer conflict with the accessible parking spaces at proposed Building #1. The vehicle will not conflict with the curb or retaining wall, the wheels maintain clearance within the paved driveway. Any appearance of conflict with the curb is from the bumper overhang which will be substantially higher than the curb height. Additionally, we have revised the turning maneuver figure associated with the administrative headquarters to show truck maneuvering clear of any proposed parking spaces.

20. On Sheet PP-1 it appears that the label for proposed acreage for Lot #2 located within the R-2A and R-4A Zones does not correspond to the zoning chart, when combined. Please clarify or revise.

Response: The zoning chart has been revised to correspond with the total acreage of Lot 2.

21. Revise and or add the following note to all the wall sections on the detail sheet: "The construction of all walls greater than or equal to four (4) feet in height shall be certified by the Design Professional prior to issuance of a Certificate of Occupancy/Completion."

Response: The note associated with the retaining wall details has been revised as requested.

22. The limits of disturbance shall be added to the grading plan. All erosion controls shall be located within the limits of disturbance. The plan shall note that disturbance limits shall be staked in the field prior to construction.

Response: The proposed limits of disturbance (L.O.D.) have been revised to include all perimeter erosion control measures. However, in order to maintain drawing clarity and legibility, the L.O.D. is shown on Drawing No. EC-1, entitled "Erosion Control Plan" only. A statement has been added to note # 2 of the construction sequence indicating the L.O.D. shall be survey located and staked.

23. The weep hole illustrated in the pipe anchor detail should be removed. This may promote a drainage pattern which could cause erosion below the pipes.

Response: The weep hole in the pipe anchor detail has been removed, as requested.

24. Please include the Pipe Anchor Detail notes below the drainage schedule on the drainage plans.

Response: The pipe anchor detail notes have been included under the drainage schedule.

25. We note that concrete curbs are shown only in the locations of the concrete sidewalks and asphalt curbs are proposed throughout the remining area of the site. The applicant should consider using concrete curbs throughout the project for their durability and longevity.

Response: The project plans and details have been revised to propose concrete curbing throughout the site.

26. Please dimension and illustrate on the site plans the two (2) foot bumper overhang for the 16.5 foot long parking spaces. This overhang area shall be shown to be free of guide railing, retaining walls, landscaping, etc.

Response: Dimensions have been added to the plans which show three feet (3') of clearance for bumper overhang from the face of curb to the proposed retaining wall and guide rail where the 16.5' parking spaces are proposed. The landscape plan does not indicate any proposed plantings which would interfere with the clearances.

27. It is expected that the WCDH will require that a 72-hour pump test be performed for the public water system. The applicant shall coordinate with this office regarding the pump test, including preparation and approval of a work plan.

Response: Comment Noted.

We respectfully request that this matter be placed on the Planning Board's May 16, 2023 agenda for continued review and for consideration of the adoption of a negative declaration under SEQRA. In the interim, please feel free to contact me if you have any questions or if you would like any additional information.

Thank you for your consideration. We look forward to meeting with the Planning Board May 16.

Very truly yours,

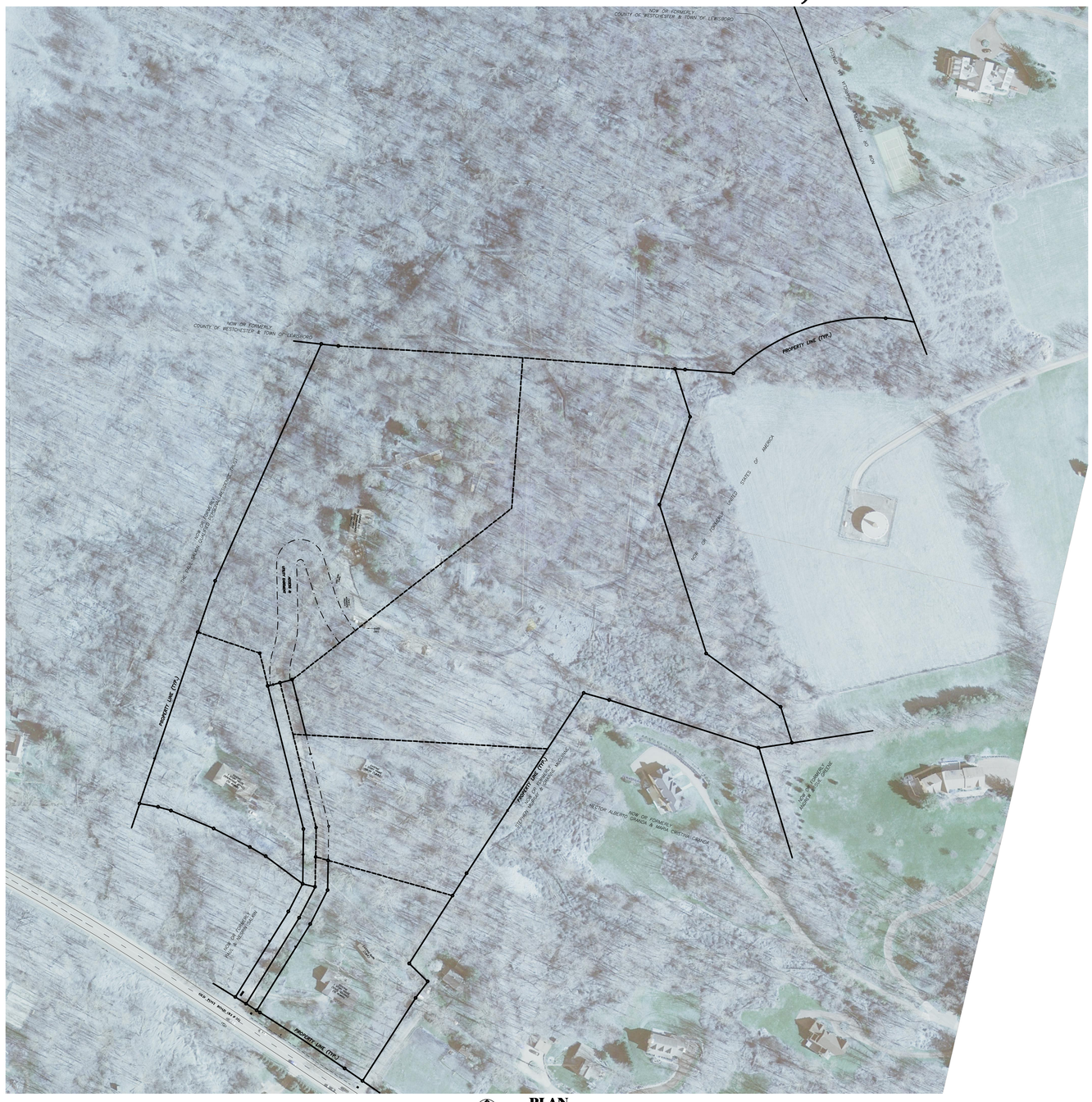
JANET J. GIRIS

Enclosures
cc: Judson Siebert, Esq.
Jan Johannessen, AICP, Kellard Sessions
Spencer Wilhelm, The Wolf Conservation Center
Matthew Gironda, P.E. Bibbo Associates
Erik Kaeyer, AIA, KD+G Architects

WOLF CONSERVATION CENTER

BUCK RUN, SOUTH SALEM, NY

WESTCHESTER COUNTY, NY



PLAN

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

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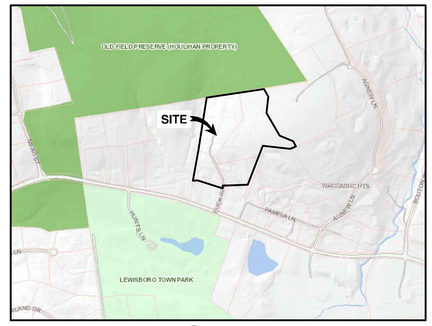

LOCATION MAP

1" = 2000'

PLAN SET (LIST OF DRAWINGS)
PLANS PROVIDED BY BIBBO ASSOCIATES, LLP.

DRAWING INDEX:

SHT #	DWG I.D.	TITLE
1	CS-1	COVER SHEET
2	PP-1	PRELIMINARY PLOT PLAN
3	EX-1	EXISTING CONDITIONS PLAN
4	EX-2	REMOVALS PLAN
5	LP-1	LAYOUT PLAN - SOUTH
6	LP-2	LAYOUT PLAN - NORTH
7	CP-1	CONSTRUCTION PLAN - SOUTH
8	CP-2	CONSTRUCTION PLAN - NORTH
9	EC-1	EROSION CONTROL PLAN
10	EC-2	EROSION CONTROL NOTES AND DETAIL
11	P-1	ROAD PROFILES
12	P-2	DRAINAGE PROFILES
13	T-1	TURNING MANEUVERS
14	SD-1	SIGHT DISTANCE & PROFILES
15	M-1	MITIGATION PLAN
16	LP-1	LIGHTING PLAN
17	D-1	DETAILS
18	D-2	DETAILS
19	D-3	DETAILS

PROJECT TEAM:

OWNER/APPLICANT
WOLF CONSERVATION CENTER
7 BUCK RUN
SOUTH SALEM, NY 10590
(914) 763-2373
CONTACT: SPENCER WILHELM

CIVIL ENGINEERING
BIBBO ASSOCIATES, LLP
293 ROUTE 100, SUITE 203
SOMERS, NY 10589
(914) 277-5805
CONTACT: MATTHEW J. GIRONDA, P.E.

ENVIRONMENTAL/WETLAND
EVANS ASSOCIATES ENVIRONMENTAL
CONSULTING, INC.
205 AMITY ROAD
BETHANY, CT 06524
(203) 393-0690
CONTACT: BETH EVANS, PWS

SURVEYOR
INSITE ENGINEERING, SURVEYING, &
LANDSCAPE ARCHITECTURE, P.C
3 GARRETT PLACE
CARMEL, NY 10512
(845) 225-9690
CONTACT: JEFFREY DEROSA, LS

ARCHITECT
(FOR EDUCATION PAVILION)
KG+D ARCHITECTS
285 MAIN STREET
MT. KISCO, NY 10549
(914) 666-5900
CONTACT: ERIK KAEYER, AIA

(FOR COMPOST RESTROOM & FREEZER FACILITIES)
CENTERBROOK
ARCHITECTS AND PLANNERS, LLP.
67 MAIN STREET
CENTERBROOK, CT 06409
(860) 767-0175

SITE DATA

1. TOTAL AREA OF PARCELS: 118.907 AC±
2. OWNER AND APPLICANT:
   WOLF CONSERVATION CENTER
   7 BUCK RUN
   SOUTH SALEM, NY 10590
3. ZONING DISTRICT(S): R-4A and R-2A
4. SURVEY BY:
   INSITE ENGINEERING, SURVEYING
   & LANDSCAPE ARCHITECTURE, P.C.
   3 GARRETT PLACE
   CARMEL, NY 10512
5. TAX ID #: SHEET 21
   BLOCK 10803
   LOT 3, 65,67, 81, 82, 83, 84, 86 & 88

REVISIONS						
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-07-22	WCHD NYCDEP COMMENTS	ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION	RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

CALL BEFORE YOU DIG 1-800-962-7962

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* THEY MUST PRESERVE STAKES AND MARKINGS UNTIL NO LONGER NEEDED AT SITE.
* THEY MUST CONTACT NON-UFPO MEMBER UTILITY OWNERS FOR STAKE-OUTS.

STATE OF NEW YORK — MATTHEW J. GIRONDA — LICENSED PROFESSIONAL ENGINEER — No. 096205

MATTHEW J. GIRONDA P.E.

COVER SHEET

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO, WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL 914 277 5805

DATE:	12-29-2020
SCALE:	1" = 100'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY	RH
SHT NO.	1 OF 19
DWG NO.	**CS-1**

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GENERAL NOTES:

1. EXISTING PROPERTY BOUNDARIES AND SITE FEATURES SHOWN HEREON FOR ARE BASED ON THE FOLLOWING:

   "SURVEY OF PROPERTY", DATED JUNE 12, 2017, PREPARED BY INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

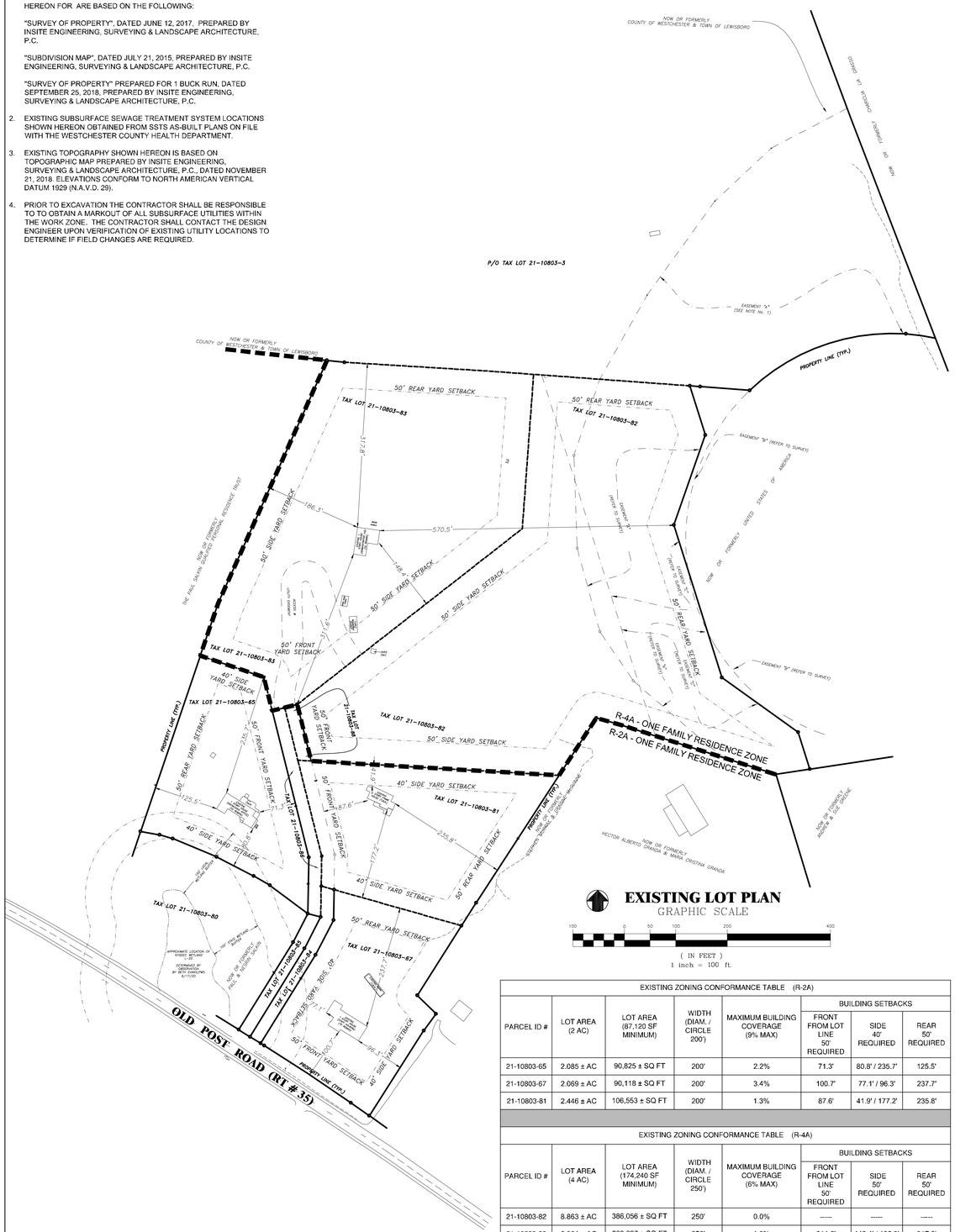
   "SUBDIVISION MAP", DATED JULY 21, 2015, PREPARED BY INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

   "SURVEY OF PROPERTY" PREPARED FOR 1 BUCK RUN, DATED SEPTEMBER 25, 2018, PREPARED BY INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

2. EXISTING SUBSURFACE SEWAGE TREATMENT SYSTEM LOCATIONS SHOWN HEREON OBTAINED FROM SSTS AS-BUILT PLANS ON FILE WITH THE WESTCHESTER COUNTY HEALTH DEPARTMENT.

3. EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON TOPOGRAPHIC MAP PREPARED BY INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C., DATED NOVEMBER 21, 2018. ELEVATIONS CONFORM TO NORTH AMERICAN VERTICAL DATUM 1929 (N.A.V.D. 29).

4. PRIOR TO EXCAVATION THE CONTRACTOR SHALL BE RESPONSIBLE TO TO OBTAIN A MARKOUT OF ALL SUBSURFACE UTILITIES WITHIN THE WORK ZONE. THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER UPON VERIFICATION OF EXISTING UTILITY LOCATIONS TO DETERMINE IF FIELD CHANGES ARE REQUIRED.



EXISTING LOT PLAN
GRAPHIC SCALE

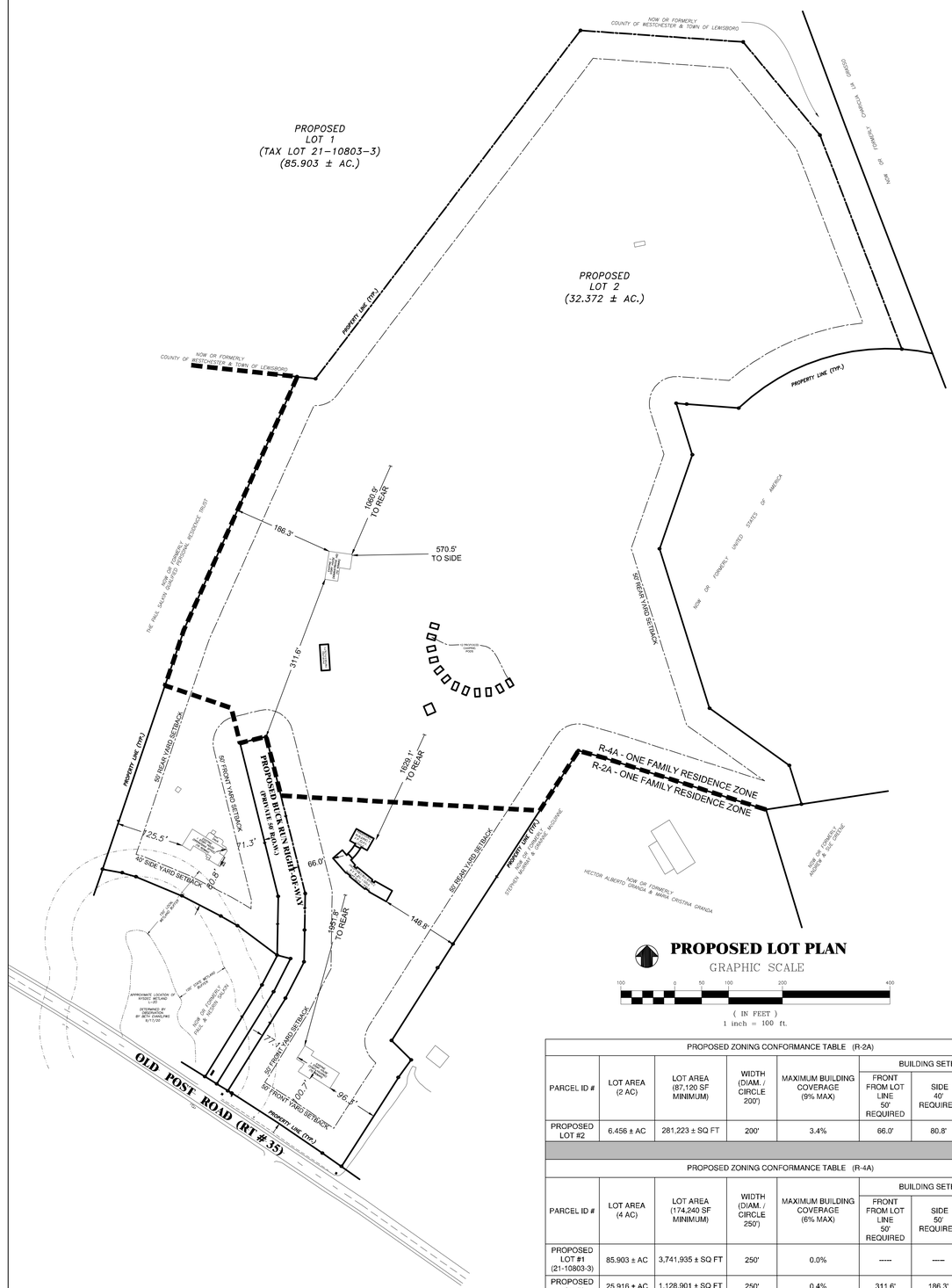
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

EXISTING ZONING CONFORMANCE TABLE (R-2A)

PARCEL ID #	LOT AREA (2 AC)	LOT AREA (87,120 SF MINIMUM)	WIDTH (DIAM. / CIRCLE 200')	MAXIMUM BUILDING COVERAGE (9% MAX)	BUILDING SETBACKS		
					FRONT FROM LOT LINE 50' REQUIRED	SIDE 40' REQUIRED	REAR 50' REQUIRED
21-10803-65	2.085 ± AC	90,825 ± SQ FT	200'	2.2%	71.3'	80.8' / 235.7'	125.5'
21-10803-67	2.069 ± AC	90,118 ± SQ FT	200'	3.4%	100.7'	77.1' / 96.3'	237.7'
21-10803-81	2.446 ± AC	106,553 ± SQ FT	200'	1.3%	87.6'	41.9' / 177.2'	235.8'

EXISTING ZONING CONFORMANCE TABLE (R-4A)

PARCEL ID #	LOT AREA (4 AC)	LOT AREA (174,240 SF MINIMUM)	WIDTH (DIAM. / CIRCLE 250')	MAXIMUM BUILDING COVERAGE (6% MAX)	BUILDING SETBACKS		
					FRONT FROM LOT LINE 50' REQUIRED	SIDE 50' REQUIRED	REAR 50' REQUIRED
21-10803-82	8.863 ± AC	386,056 ± SQ FT	250'	0.0%	-----	-----	-----
21-10803-83	6.054 ± AC	263,697 ± SQ FT	250'	1.0%	311.6'	148.4' / 186.3'	317.8'
21-10803-84	0.190 ± AC	8,228 ± SQ FT	-----	-----	-----	-----	-----
21-10803-86	0.234 ± AC	10,180 ± SQ FT	-----	-----	-----	-----	-----
21-10803-88	0.063 ± AC	2,723 ± SQ FT	-----	-----	-----	-----	-----
21-10803-3	96.903 ± AC	4,221,095 ± SQ FT	250'	0.0%	-----	-----	-----



PROPOSED LOT PLAN
GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

PROPOSED ZONING CONFORMANCE TABLE (R-2A)

PARCEL ID #	LOT AREA (2 AC)	LOT AREA (87,120 SF MINIMUM)	WIDTH (DIAM. / CIRCLE 200')	MAXIMUM BUILDING COVERAGE (9% MAX)	BUILDING SETBACKS		
					FRONT FROM LOT LINE 50' REQUIRED	SIDE 40' REQUIRED	REAR 50' REQUIRED
PROPOSED LOT #2	6.456 ± AC	281,223 ± SQ FT	200'	3.4%	66.0'	80.8'	50'+

PROPOSED ZONING CONFORMANCE TABLE (R-4A)

PARCEL ID #	LOT AREA (4 AC)	LOT AREA (174,240 SF MINIMUM)	WIDTH (DIAM. / CIRCLE 250')	MAXIMUM BUILDING COVERAGE (6% MAX)	BUILDING SETBACKS		
					FRONT FROM LOT LINE 50' REQUIRED	SIDE 50' REQUIRED	REAR 50' REQUIRED
PROPOSED LOT #1 (21-10803-3)	85.903 ± AC	3,741,935 ± SQ FT	250'	0.0%	-----	-----	-----
PROPOSED LOT #2	25.916 ± AC	1,128,901 ± SQ FT	250'	0.4%	311.6'	186.3'	1060.9'
PROPOSED R.O.W.	0.630 ± AC	27,446 ± SQ FT	-----	-----	-----	-----	-----

LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE
- EXISTING ZONING BOUNDARY

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REVISIONS						
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02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION		RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION		RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION		BY/CK

STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · No. 090301

MATTHEW J. GIRONDA P.E.

PRELIMINARY SUBDIVISION PLAN

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO, WESTCHESTER COUNTY, NY

DATE:	12-29-2020
SCALE:	1" = 100'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY:	RH
SHT NO.	2 OF 19
DWG NO.	**PP-1**

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

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LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR (420)

NOW OR FORMERLY COUNTY OF WESTCHESTER & TOWN OF LEWISBORO
N57°16'E
S83°47'40"E 34.38'
S15.84'
TAX LOT 21-10803-83
TAX LOT 21-10803-82
N85°48'30"W 20.00'
N85°38'50"W 96.38'
R=400.00'
Δ=47°29'16"
PROPERTY LINE (TYP.)
S17°47'00"E 310.00'
S19°15'10"W 185.00'
EASEMENT "B" (REFER TO SURVEY)
EASEMENT "A" (REFER TO SURVEY)
EASEMENT "C" (REFER TO SURVEY)
NOW OR FORMERLY UNITED STATES OF AMERICA
S54°21'30"E 182.26'
S17°47'00"E 312.58'
S81°22'W 67.16'
NOW OR FORMERLY ANDREW & SUE GREENE
N77°15'10"W 427.58'
N14°24'30"W 52.41'
312.05'
NOW OR FORMERLY HECTOR ALBERTO GRANDA & MARIA CRISTINA GRANDA
NOW OR FORMERLY STEPHEN J. MERRIGAN & JORDANNE MICHELINE
S35°01'50"W 52.49'
S32°26'50"W 52.49'
THE PAUL SALKIN QUALIFIED PERSONAL RESIDENCE TRUST
N24°09'30"E
N18°45'50"E 107.70'
TAX LOT 21-10803-65
PROPERTY LINE (TYP.)
TAX LOT 21-10803-88
TAX LOT 21-10803-86
TAX LOT 21-10803-81
TAX LOT 21-10803-80
TAX LOT 21-10803-85
TAX LOT 21-10803-84
TAX LOT 21-10803-67
ACCESS & UTILITY EASEMENT
100' LOCAL WETLAND BUFFER
100' STATE WETLAND BUFFER
APPROXIMATE LOCATION OF NYSDEC WETLAND L-20
DETERMINED BY OBSERVATION BY BETH EVANS,PWS 9/17/20
NOW OR FORMERLY EDWARD PAUL & HEIDEN SAMUEL
OLD POST ROAD (RT # 35)
N58°12'40"E 43.98'
R=3058.80' L=207.62'
S24°20'20"W 43.98'
N53°01'50"E
N57°08'40"W 25.00'
(Deed) N71°00'00"W 357.20'
(Deed) N71°00'00"W 28.40'
(Deed) N.00.57'00"E 36.10'
(Deed) N53°22'00"W 19.38'
(Deed) N53°22'00"W 19.38'
(Deed) N.00.57'00"E 36.10'
(Deed) N.00.57'00"E 36.10'
(Deed) N.00.57'00"E 36.10

LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE

NOW OR FORMERLY COUNTY OF WESTCHESTER & TOWN OF LEWISBORO

EXISTING PROPERTY LINE TO BE REMOVED

PROPERTY LINE (TYP.)

EASEMENT "B" (REFER TO SURVEY)

NOW OR FORMERLY UNITED STATES OF AMERICA

EASEMENT "A" (REFER TO SURVEY)

EASEMENT "C" (REFER TO SURVEY)

NOW OR FORMERLY THE PAUL SALKIN QUALIFIED PERSONAL RESIDENCE TRUST

EXISTING WATERCOURSE

EXIST. 1125 GAL. SEPTIC TANK

NEW DEAD-END POLE MOUNTED TRANSFORMER

EXISTING ASPHALT PARKING AREA TO BE RECONFIGURED

EXISTING WELL TO BE ABANDONED

ACCESS & UTILITY EASEMENT

EXISTING DIRT PATH TO REALIGNED

EXISTING DIRT PATH TO BE WIDENED

EXIST. PROPERTY LINE TO BE REMOVED

EXISTING DRIVEWAY TO BE WIDENED REALIGNED AND RESURFACED

EXISTING GRAVEL PARKING AREA TO BE REMOVED

EXISTING DRIVEWAY TO BE REMOVED

EXISTING WELL TO BE ABANDONED

EXISTING GRAVEL DRIVE

EXISTING PROPERTY LINE TO BE REMOVED

EXISTING DRIVEWAY TO BE WIDENED REALIGNED AND RESURFACED

EXISTING PROPERTY LINE TO BE REMOVED

EXISTING STONE WALL TO BE REMOVED

PROPERTY LINE (TYP.)

NOW OR FORMERLY STEPHEN MERRICK & SORAINE McGUINNESS

NOW OR FORMERLY HECTOR ALBERTO GRANDA & MARIA CRISTINA GRANDA

NOW OR FORMERLY ANDREW & SUE GREENE

150' LOCAL WETLAND BUFFER

150' STATE WETLAND BUFFER

APPROXIMATE LOCATION OF NYSDEC WETLAND L-20 DETERMINED BY OBSERVATION BY BETH EVANS,PWS 9/17/20

NOW OR FORMERLY PAUL & NESRIN SALKIN

EXISTING WELL TO BE ABANDONED

EXISTING BARN TO BE REMOVED

EXISTING ASPHALT ACESS DRIVE TO BE WIDENED AND RESURFACED. REFER TO LAYOUT PLANS FOR PROPOSED WIDTH.

OLD POST ROAD (RT # 35)

PROPERTY LINE (TYP.)

PLAN

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 inch = 60 ft.

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DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · NO. 090355

MATTHEW J. GIRONDA P.E.

EXISTING CONDITIONS & REMOVALS PLAN

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO, WESTCHESTER COUNTY, NY

DATE:	12-29-2020
SCALE:	1" = 60'
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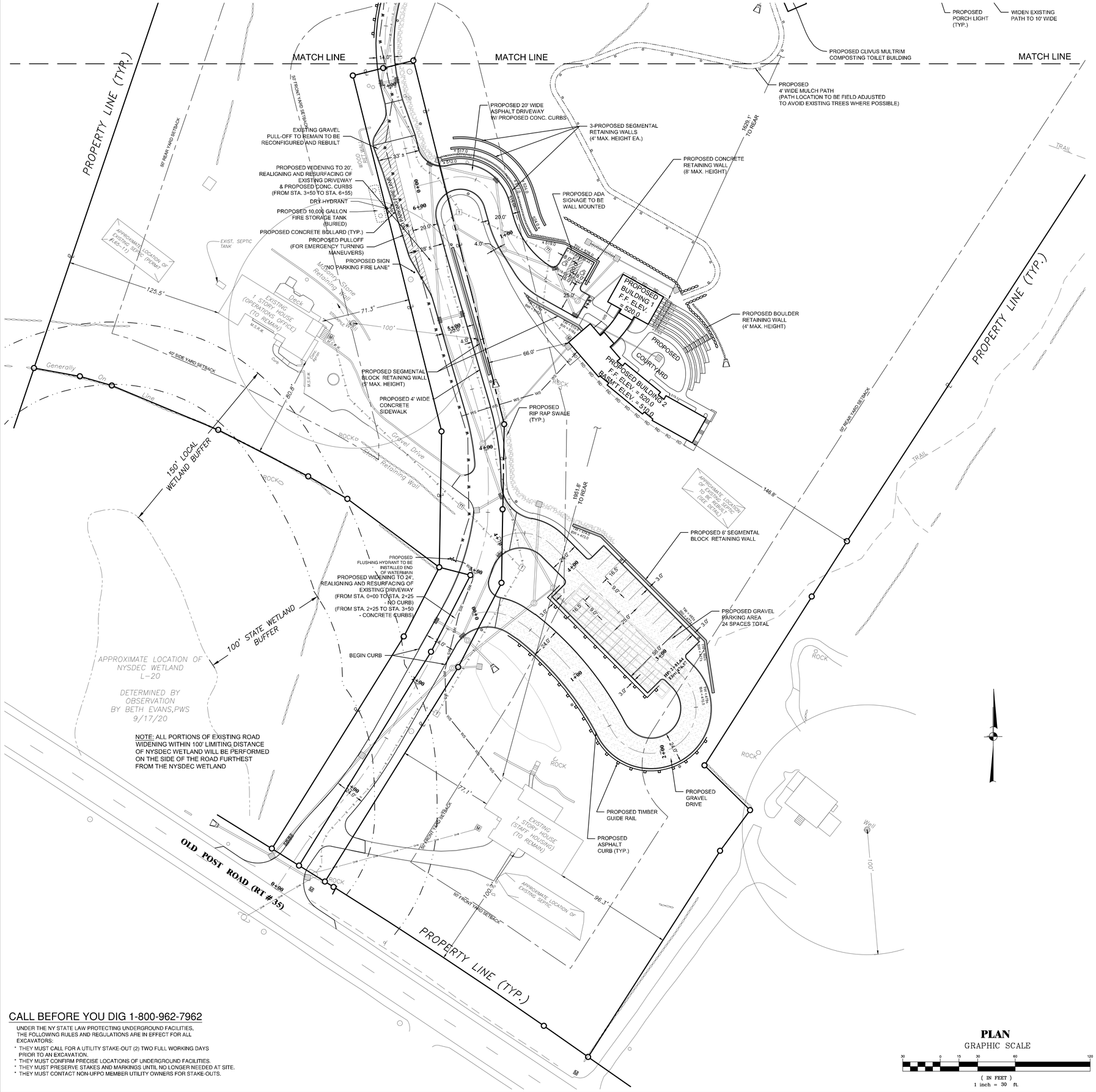
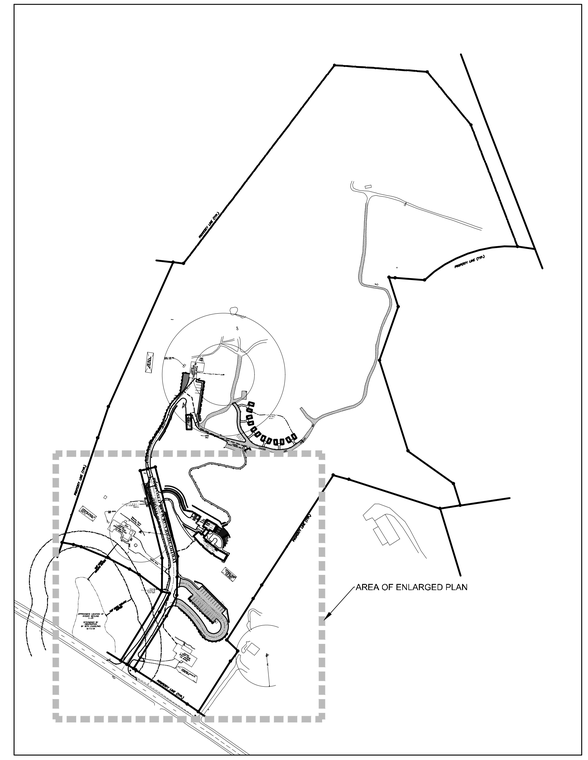
DRN. BY	RH
SHT NO.	4 OF 19
DWG NO.	**EX-2**

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

P:\Projects\WOLF CONSER_CNTR\Bibbo\gdlaw\Central Site Plan - Current.dwg, 4/24/2023 4:09:55 PM





OVERALL PLAN

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE
- PROPOSED RETAINING WALL
- PROPOSED ELECTRIC METER (M)
- PROPOSED TRANSFORMER (T)
- PROPOSED T-TAP (TT)
- PROPOSED OVERHEAD ELECTRIC SERVICE (OHE)
- PROPOSED UNDERGROUND ELECTRIC SERVICE (E)
- PROPOSED ROOF LEADER CONNECTION PIPE (RD)
- PROPOSED PVC DR-18 WATERMAIN (W)
- PROPOSED CU WATER SERVICE (WS)

PLAN

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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MATTHEW J. GIRONDA P.E.

LAYOUT PLAN - SOUTH

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE:	12-29-2020
SCALE:	1" = 30'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY:	RH
SHT NO.	5 OF 19
DWG NO.	LP-1

P:\Projects\WOLF CONSERV...CENTER\Drawings\Civil Comm Site Plan - Current.dwg, 4/24/2023 4:09:05 PM

LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE
- PROPOSED RETAINING WALL
- PROPOSED ELECTRIC METER
- PROPOSED TRANSFORMER
- PROPOSED T-TAP
- PROPOSED OVERHEAD ELECTRIC SERVICE
- PROPOSED UNDERGROUND ELECTRIC SERVICE
- PROPOSED ROOF LEADER CONNECTION PIPE
- PROPOSED PVC DR-18 WATERMAIN
- PROPOSED CU WATER SERVICE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

OVERALL PLAN

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

CALL BEFORE YOU DIG 1-800-962-7962

UNDER THE NY STATE LAW PROTECTING UNDERGROUND FACILITIES, THE FOLLOWING RULES AND REGULATIONS ARE IN EFFECT FOR ALL EXCAVATORS:

- THEY MUST CALL FOR A UTILITY STAKE-OUT (2) TWO FULL WORKING DAYS PRIOR TO AN EXCAVATION.
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REVISIONS					
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-07-22	WCHD NYCDEP COMMENTS	ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION	RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW.

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STATE OF NEW YORK · MATTHEW J. GRONDA · LICENSED PROFESSIONAL ENGINEER · 098205

MATTHEW J. GRONDA P.E.

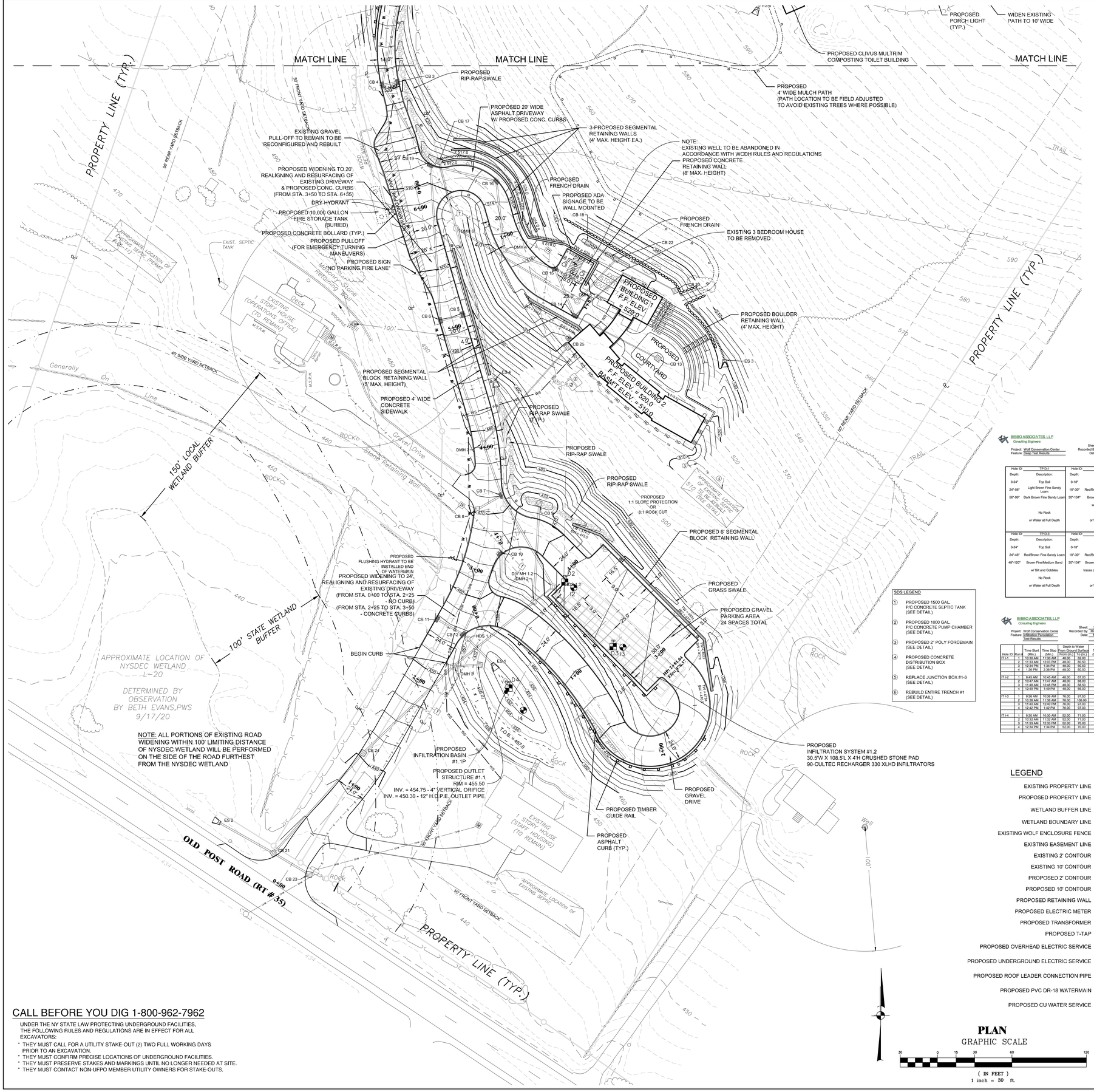
LAYOUT PLAN - NORTH

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE:	12-31-2020
SCALE:	1" = 30'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY:	RH
SHT NO.	6 OF 19
DWG NO.	**LP-2**

P:\Projects\WOLF CONSERV...\CNT\Building\plan\Comp Site Plan - Current.dwg, 4/24/2023 4:09:11 PM



DRAINAGE SCHEDULE

NAME	RIM:	PIPES IN:	PIPES OUT:
CB 1	552.37		15" HDPE INV. OUT =549.35 (TO CB 2) L = 9.9', S = 0.81%
CB 2	552.49	15" HDPE INV. IN =549.25 (FROM CB 1) L =9.9', S = 0.81%	15" HDPE INV. OUT =548.02 (TO DMH 1) L = 95.0', S = 20.00%
CB 3	521.39		15" HDPE INV. OUT =516.46 (TO CB 4) L = 8.9', S = 0.98%
CB 4	521.02	15" HDPE INV. IN =516.18 (FROM DMH 1) L =99.6', S = 10.00% 15" HDPE INV. IN =516.34 (FROM CB 3) L =9.9', S = 0.98%	15" HDPE INV. OUT =516.18 (TO CB 19) L = 73.1', S = 15.00%
CB 5	494.25		15" HDPE INV. OUT =490.50 (TO CB 6) L = 16.1', S = 7.67%
CB 6	493.96	15" HDPE INV. IN =489.05 (FROM CB 5) L =16.1', S = 7.67% 15" HDPE INV. IN =489.06 (FROM CB 19) L =123.2', S = 12.60%	15" HDPE INV. OUT =487.80 (TO DMH 7) L = 102.4', S = 14.00%
CB 7	472.11	15" HDPE INV. IN =467.00 (FROM DMH 7) L =41.5', S = 14.00% 15" HDPE INV. IN =466.93 (FROM CB 8) L =19.1', S = 1.01%	15" HDPE INV. OUT =466.94 (TO DIV MH 1.2) L = 81.1', S = 1.00%
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CB 9	468.00		15" HDPE INV. OUT =463.50 (TO DMH 2) L = 75.8', S = 9.43%
CB 10	465.99		15" HDPE INV. OUT =461.00 (TO CB 12) L = 68.9', S = 10.60%
CB 11	456.48		15" HDPE INV. OUT =453.62 (TO CB 12) L = 21.4', S = 0.90%
CB 12	456.26	15" HDPE INV. IN =453.40 (FROM CB 10) L =68.9', S = 10.60% 15" HDPE INV. IN =453.40 (FROM CB 11) L =21.4', S = 0.90%	15" HDPE INV. OUT =453.40 (TO HDS 1.1) L = 1.8', S = 1.33%
CB 13	519.99		8" HDPE INV. OUT =517.00 (TO CB 14) L = 71.9', S = 1.30%
CB 14	519.44	8" HDPE INV. IN =516.02 (FROM CB 13) L =71.9', S = 1.30% 6" HDPE INV. IN =516.00 (FROM) L =524.5', S = -994.29%	15" HDPE INV. OUT =514.27 (TO CB 15) L = 37.5', S = 1.30%
CB 15	518.63	15" HDPE INV. IN =513.74 (FROM CB 14) L =37.5', S = 1.30%	15" HDPE INV. OUT =513.74 (TO DMH 4) L = 40.0', S = 5.50%
CB 16	512.87	15" HDPE INV. IN =509.30 (FROM DMH 4) L =51.9', S = 4.00%	15" HDPE INV. OUT =509.29 (TO CB 19) L = 51.4', S = 4.00%
CB 17	511.50		15" HDPE INV. OUT =505.39 (TO DMH 6) L = 51.3', S = 8.00%
CB 18	528.00		8" HDPE INV. OUT =524.50 (TO CB 22) L = 22.2', S = 1.15%
CB 19	512.00	15" HDPE INV. IN =507.10 (FROM CB 16) L =51.4', S = 4.00% 15" HDPE INV. IN =504.86 (FROM CB 4) L =73.1', S = 15.00%	15" HDPE INV. OUT =504.86 (TO CB 6) L = 123.2', S = 12.60%
CB 20	531.52		6" HDPE INV. OUT =524.75 (TO CB 22) L = 49.3', S = 1.02%
CB 21	435.94	15" HDPE INV. IN =432.77 (FROM CB 24) L =104.1', S = 1.00% 15" HDPE INV. IN =432.77 (FROM CB 23) L =29.2', S = 0.09%	15" HDPE INV. OUT =432.77 (TO ES 2) L = 47.7', S = 1.14%
CB 22	528.00	8" HDPE INV. IN =524.20 (FROM CB 18) L =22.2', S = 1.15% 6" HDPE INV. IN =524.20 (FROM CB 20) L =49.3', S = 1.02%	12" HDPE INV. OUT =519.80 (TO DMH 5) L = 42.4', S = 9.23%
CB 23	435.82		15" HDPE INV. OUT =432.80 (TO CB 21) L = 29.2', S = 0.09%
CB 24	440.31	15" HDPE INV. IN =433.85 (FROM DMH 3) L =97.5', S = 12.30%	15" HDPE INV. OUT =433.85 (TO CB 21) L = 104.1', S = 1.00%
CB 25	509.56		8" HDPE INV. OUT =506.00 (TO DMH 7) L = 104.5', S = 31.02%
DIV MH 1.2	471.53	15" HDPE INV. IN =466.09 (FROM CB 7) L =81.1', S = 1.00%	8" HDPE INV. OUT =466.67 (TO HDS 1.2) L = 3.6', S = 1.00% 8" HDPE INV. OUT =462.28 (TO DMH 2) L = 15.9', S = 6.50%
DMH 1	533.75	15" HDPE INV. IN =528.74 (FROM CB 2) L =95.0', S = 20.00%	15" HDPE INV. OUT =526.45 (TO CB 4) L = 99.6', S = 10.00%
DMH 2	465.00	8" HDPE INV. IN =460.99 (FROM DIV MH 1.2) L =15.9', S = 6.50% 15" HDPE INV. IN =456.00 (FROM CB 9) L =75.8', S = 9.43%	15" HDPE INV. OUT =456.00 (TO DMH 3) L = 80.0', S = 11.73%
DMH 3	453.97	15" HDPE INV. IN =446.23 (FROM DMH 2) L =80.0', S = 11.73% 12" HDPE INV. IN =446.48 (FROM O.C.S. 1) L =17.9', S = 17.83%	15" HDPE INV. OUT =446.23 (TO CB 24) L = 97.5', S = 12.30%
DMH 4	517.30	15" HDPE INV. IN =511.34 (FROM CB 15) L =40.0', S = 5.50%	15" HDPE INV. OUT =511.53 (TO CB 16) L = 51.9', S = 4.00%
DMH 5	519.89	12" HDPE INV. IN =515.54 (FROM CB 22) L =42.4', S = 9.23%	12" HDPE INV. OUT =512.60 (TO DMH 6) L = 110.6', S = 10.00%
DMH 6	505.78	15" HDPE INV. IN =500.95 (FROM CB 17) L =51.3', S = 8.00% 12" HDPE INV. IN =501.20 (FROM DMH 5) L =110.6', S = 10.00%	15" HDPE INV. OUT =497.96 (TO ES 4) L = 125.6', S = 11.00%
DMH 7	478.50	15" HDPE INV. IN =473.15 (FROM CB 6) L =102.4', S = 14.00% 8" HDPE INV. IN =473.90 (FROM CB 25) L =104.5', S = 31.02%	15" HDPE INV. OUT =473.15 (TO CB 7) L = 41.5', S = 14.00%
ES 1		15" HDPE INV. IN =453.00 (FROM HDS 1.1) L =26.8', S = 1.17%	
ES 2		15" HDPE INV. IN =132.20 (FROM CB 21) L =47.7', S = 1.14%	
ES 3		8" HDPE INV. IN =530.00 (FROM UNDER DRAIN) L =51.1', S = 1.05%	
ES 4		15" HDPE INV. IN =484.06 (FROM DMH 6) L =125.6', S = 11.00%	
HDS 1.1	457.52	15" HDPE INV. IN =453.33 (FROM CB 12) L =1.8', S = 1.33%	15" HDPE INV. OUT =453.33 (TO ES 1) L = 26.8', S = 1.17%
HDS 1.2	471.96	8" HDPE INV. IN =466.60 (FROM DIV MH 1.2) L =3.6', S = 1.00%	8" HDPE INV. OUT =466.60 (TO INF 1.2) L = 7.4', S = 1.00%
INF 1.2		8" HDPE INV. IN =466.51 (FROM HDS 1.2) L =7.4', S = 1.00%	
O.C.S. 1	455.50		12" HDPE INV. OUT =450.30 (TO DMH 3) L = 17.9', S = 17.83%
UNDER DRAIN			8" HDPE INV. OUT =530.55 (TO ES 3) L = 51.1', S = 1.05%

DRAINAGE SCHEDULE

NAME	RIM:	PIPES IN:	PIPES OUT:
CB 26	583.76		6" HDPE INV. OUT =-2.52 (TO ES 5) L = 107.6', S = 1.02%
CB 26 (1)	583.76		
DIV MH 1.3	600.87		4" HDPE INV. OUT =593.10 (TO HDS 1.3) L = 2.9', S = 0.87% 8" HDPE INV. OUT =595.00 (TO ES 6) L = 42.0', S = 1.15%
ES 5		6" HDPE INV. IN =-3.62 (FROM CB 26) L =107.6', S = 1.02%	
ES 6		8" HDPE INV. IN =594.50 (FROM DIV MH 1.3) L =42.0', S = 1.15%	
HDS 1.3	600.11	4" HDPE INV. IN =593.04 (FROM DIV MH 1.3) L =2.9', S = 0.87%	4" HDPE INV. OUT =593.04 (TO INF 1.3) L = 2.4', S = 0.88%
INF 1.3		4" HDPE INV. IN =593.00 (FROM HDS 1.3) L =2.4', S = 0.88%	

NOTES:
1. PIPE ANCHORS TO BE INSTALLED WHERE PROPOSED DRAINAGE PIPE SLOPE EXCEEDS 15%
2. ANCHORS SHALL BE PLACED EVERY JOINT
3. PIPE TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
4. CONTRACTOR SHALL CONSULT WITH ADVANCED DRAINAGE SYSTEMS, INC. (ADS) FOR SPECIFIC DESIGN AND INSTALLATION REQUIREMENTS.

SOS LEGEND
1. PROPOSED 1500 GAL. P/C CONCRETE SEPTIC TANK (SEE DETAIL)
2. PROPOSED 1000 GAL. P/C CONCRETE PUMP CHAMBER (SEE DETAIL)
3. PROPOSED 2" POLY FORCEMAIN (SEE DETAIL)
4. PROPOSED CONCRETE DISTRIBUTION BOX (SEE DETAIL)
5. REPLACE JUNCTION BOX #1-3 (SEE DETAIL)
6. REBUILD ENTIRE TRENCH #1 (SEE DETAIL)

BIBBO ASSOCIATES, LLP
Consulting Engineers
Project: Wolf Conservation Center
Feature: Deep Test Results
Sheet 1 of 2
Recorded By: Matthew Gironda
Date: May 28, 2021

Hole ID:	TP D-1	Hole ID:	TP D-2
Depth:	Description:	Depth:	Description:
0-24"	Top Soil	0-18"	Top Soil
24"-66"	Light Brown Fine Sandy Loam	18"-30"	Red/Brown Fine Sandy Loam
66"-96"	Dark Brown Fine Sandy Loam	30"-104"	Brown Medium/Fine Sand w/ Silt and Cobbles
	No Rock or Water at Full Depth		No Rock or Water at Full Depth
Hole ID:	TP D-3	Hole ID:	TP D-4
Depth:	Description:	Depth:	Description:
0-24"	Top Soil	0-18"	Top Soil
24"-48"	Red/Brown Fine Sandy Loam	18"-30"	Red/Brown Fine Sandy Loam
48"-120"	Brown Fine/Medium Sand w/ Silt and Cobbles	30"-104"	Brown Medium/Fine Sand w/ traces of Silt and some cobbles
	No Rock or Water at Full Depth		No Rock or Water at Full Depth

BIBBO ASSOCIATES, LLP
Consulting Engineers
Project: Wolf Conservation Cente
Feature: Infiltration Percolation Test Results
Sheet 2 of 2
Recorded By: Matthew Gironda
Date: May 28, 2021

Hole ID:	Run #	Time Start (Min.)	Time Stop (Min.)	Depth to Water From Ground Surface (From (IN.))	To (In.)	Time (Min.)	Drop (In.)	Rate (In. / Hr)
IT-1.1	1	10:35 AM	11:30 AM	48.00	62.00	60	14.00	14.00
	2	11:33 AM	12:03 PM	48.00	60.50	60	12.50	12.50
	3	12:04 PM	12:34 PM	48.00	60.50	60	12.50	12.50
	4	1:36 PM	2:36 PM	48.00	60.50	60	12.50	12.50
IT-1.2	1	9:40 AM	10:45 AM	48.00	67.00	60	19.00	19.00
	2	10:47 AM	11:47 AM	48.00	68.00	60	20.00	20.00
	3	11:48 AM	12:48 PM	48.00	68.50	60	20.50	20.50
	4	12:49 PM	1:49 PM	48.00	66.00	60	18.00	18.00
IT-1.3	1	9:36 AM	10:36 AM	76.00	97.50	60	21.50	21.50
	2	10:38 AM	11:38 AM	76.00	100.00	60	24.00	24.00
	3	11:40 AM	12:40 PM	76.00	97.00	60	21.00	21.00
	4	12:42 PM	1:42 PM	76.00	97.00	60	21.00	21.00
IT-1.4	1	9:30 AM	10:30 AM	52.00	71.50	60	19.50	19.50
	2	10:32 AM	11:32 AM	52.00	71.00	60	19.00	19.00
	3	11:33 AM	12:33 PM	52.00	70.00	60	18.00	18.00
	4	12:34 PM	1:34 PM	52.00	70.00	60	18.00	18.00

LEGEND

EXISTING PROPERTY LINE
PROPOSED PROPERTY LINE
WETLAND BUFFER LINE
WETLAND BOUNDARY LINE
EXISTING WOLF ENCLOSURE FENCE
EXISTING EASEMENT LINE
EXISTING 2' CONTOUR
EXISTING 10' CONTOUR
PROPOSED 2' CONTOUR
PROPOSED 10' CONTOUR
PROPOSED RETAINING WALL
PROPOSED ELECTRIC METER
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PROPOSED ROOF LEADER CONNECTION PIPE
PROPOSED PVC DR-18 WATERMAIN
PROPOSED CU WATER SERVICE

PLAN
GRAPHIC SCALE

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

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DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · NO. 095008
MATTHEW J. GIRONDA P.E.

CONSTRUCTION PLAN - SOUTH

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SHT NO.	7 OF 19
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LEGEND

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- WETLAND BUFFER LINE
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- EXISTING EASEMENT LINE
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR (420)
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR (50)
- PROPOSED RETAINING WALL
- PROPOSED ELECTRIC METER (M)
- PROPOSED TRANSFORMER (T)
- PROPOSED T-TAP (TT)
- PROPOSED OVERHEAD ELECTRIC SERVICE (OHE)
- PROPOSED UNDERGROUND ELECTRIC SERVICE (E)
- PROPOSED ROOF LEADER CONNECTION PIPE (RD)
- PROPOSED PVC DR-18 WATERMAIN (W)
- PROPOSED CU WATER SERVICE (WS)

SDS LEGEND

1. PROPOSED 1500 GAL. P/C CONCRETE SEPTIC TANK (SEE DETAIL)
2. PROPOSED 1000 GAL. P/C CONCRETE PUMP CHAMBER (SEE DETAIL)
3. PROPOSED 2" POLY FORCEMAIN (SEE DETAIL)
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CB 16	512.87	15" HDPE INV. IN =509.30 (FROM DMH 4) L =51.9', S = 4.00%	15" HDPE INV. OUT =509.29 (TO CB 19) L = 51.4', S = 4.00%
CB 17	511.50		15" HDPE INV. OUT =505.39 (TO DMH 6) L = 51.3', S = 8.00%
CB 18	528.00		8" HDPE INV. OUT =524.50 (TO CB 22) L = 22.2', S = 1.15%
CB 19	512.00	15" HDPE INV. IN =507.10 (FROM CB 16) L =51.4', S = 4.00% 15" HDPE INV. IN =504.86 (FROM CB 4) L =73.1', S = 15.00%	15" HDPE INV. OUT =504.86 (TO CB 6) L = 123.2', S = 12.60%
CB 20	531.52		6" HDPE INV. OUT =524.75 (TO CB 22) L = 49.3', S = 1.02%
CB 21	435.94	15" HDPE INV. IN =432.77 (FROM CB 24) L =104.1', S = 1.00% 15" HDPE INV. IN =432.77 (FROM CB 23) L =29.2', S = 0.09%	15" HDPE INV. OUT =432.77 (TO ES 2) L = 47.7', S = 1.14%
CB 22	528.00	8" HDPE INV. IN =524.20 (FROM CB 18) L =22.2', S = 1.15% 6" HDPE INV. IN =524.20 (FROM CB 20) L =49.3', S = 1.02%	12" HDPE INV. OUT =519.80 (TO DMH 5) L = 42.4', S = 9.23%
CB 23	435.82		15" HDPE INV. OUT =432.80 (TO CB 21) L = 29.2', S = 0.09%
CB 24	440.31	15" HDPE INV. IN =433.85 (FROM DMH 3) L = 97.5', S = 12.30%	15" HDPE INV. OUT =433.85 (TO CB 21) L = 104.1', S = 1.00%
CB 25	509.56		8" HDPE INV. OUT =506.00 (TO DMH 7) L = 104.5', S = 31.02%
DIV MH 1.2	471.53	15" HDPE INV. IN =466.09 (FROM CB 7) L =81.1', S = 1.00%	8" HDPE INV. OUT =466.67 (TO HDS 1.2) L = 3.6', S = 1.00% 8" HDPE INV. OUT =462.28 (TO DMH 2) L = 15.9', S = 6.50%
DMH 1	533.75	15" HDPE INV. IN =528.74 (FROM CB 2) L =95.0', S = 20.00%	15" HDPE INV. OUT =526.45 (TO CB 4) L = 99.6', S = 10.00%
DMH 2	465.00	8" HDPE INV. IN =460.99 (FROM DIV MH 1.2) L =15.9', S = 6.50% 15" HDPE INV. IN =456.00 (FROM CB 9) L =75.8', S = 9.43%	15" HDPE INV. OUT =456.00 (TO DMH 3) L = 80.0', S = 11.73%
DMH 3	453.97	15" HDPE INV. IN =446.23 (FROM DMH 2) L =80.0', S = 11.73% 12" HDPE INV. IN =446.48 (FROM O.C.S. 1) L =17.9', S = 17.83%	15" HDPE INV. OUT =446.23 (TO CB 24) L = 97.5', S = 12.30%
DMH 4	517.30	15" HDPE INV. IN =511.34 (FROM CB 15) L =40.0', S = 5.50%	15" HDPE INV. OUT =511.53 (TO CB 16) L = 51.9', S = 4.00%
DMH 5	519.89	12" HDPE INV. IN =515.54 (FROM CB 22) L =42.4', S = 9.23%	12" HDPE INV. OUT =512.60 (TO DMH 6) L = 110.6', S = 10.00%
DMH 6	505.78	15" HDPE INV. IN =500.95 (FROM CB 17) L =51.3', S = 8.00% 12" HDPE INV. IN =501.20 (FROM DMH 5) L =110.6', S = 10.00%	15" HDPE INV. OUT =497.96 (TO ES 4) L = 125.6', S = 11.00%
DMH 7	478.50	15" HDPE INV. IN =473.15 (FROM CB 6) L =102.4', S = 14.00% 8" HDPE INV. IN =473.90 (FROM CB 25) L =104.5', S = 31.02%	15" HDPE INV. OUT =473.15 (TO CB 7) L = 41.5', S = 14.00%
ES 1		15" HDPE INV. IN =453.00 (FROM HDS 1.1) L =26.6', S = 1.17%	
ES 2		15" HDPE INV. IN =432.20 (FROM CB 21) L =47.7', S = 1.14%	
ES 3		8" HDPE INV. IN =530.00 (FROM UNDER DRAIN) L =51.1', S = 1.05%	
ES 4		15" HDPE INV. IN =484.06 (FROM DMH 6) L =125.6', S = 11.00%	
HDS 1.1	457.52	15" HDPE INV. IN =453.33 (FROM CB 12) L =1.8', S = 1.33%	15" HDPE INV. OUT =453.33 (TO ES 1) L = 26.6', S = 1.17%
HDS 1.2	471.96	8" HDPE INV. IN =466.60 (FROM DIV MH 1.2) L =3.6', S = 1.00%	8" HDPE INV. OUT =466.60 (TO INF 1.2) L = 7.4', S = 1.00%
INF 1.2		8" HDPE INV. IN =466.51 (FROM HDS 1.2) L =7.4', S = 1.00%	
O.C.S. 1	455.50		12" HDPE INV. OUT =450.30 (TO DMH 3) L = 17.9', S = 17.83%
UNDER DRAIN			8" HDPE INV. OUT =530.55 (TO ES 3) L = 51.1', S = 1.05%

DRAINAGE SCHEDULE

NAME	RIM:	PIPES IN:	PIPES OUT:
CB 26	583.76		6" HDPE INV. OUT =-2.52 (TO ES 5) L = 107.6', S = 1.02%
CB 26 (1)	583.76		
DIV MH 1.3	600.87		4" HDPE INV. OUT =593.10 (TO HDS 1.3) L = 2.9', S = 0.87% 8" HDPE INV. OUT =595.00 (TO ES 6) L = 42.0', S = 1.15%
ES 5		6" HDPE INV. IN =-3.62 (FROM CB 26) L =107.6', S = 1.02%	
ES 6		8" HDPE INV. IN =594.50 (FROM DIV MH 1.3) L =42.0', S = 1.15%	
HDS 1.3	600.11	4" HDPE INV. IN =593.04 (FROM DIV MH 1.3) L =2.9', S = 0.87%	4" HDPE INV. OUT =593.04 (TO INF 1.3) L = 2.4', S = 0.88%
		4" HDPE INV. IN =593.00 (FROM HDS 1.3)	

NOTES:

1. PIPE ANCHORS TO BE INSTALLED WHERE PROPOSED DRAINAGE PIPE SLOPE EXCEEDS 15%
2. ANCHORS SHALL BE PLACED EVERY JOINT.
3. PIPE TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
4. CONTRACTOR SHALL CONSULT WITH ADVANCED DRAINAGE SYSTEMS, INC. (ADS) FOR SPECIFIC DESIGN AND INSTALLATION REQUIREMENTS.

REVISIONS						
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-07-22	WCHD NYCDEP COMMENTS	ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION	RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW.

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STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · 095020

MATTHEW J. GIRONDA P.E.

CONSTRUCTION PLAN - NORTH

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE:	12-29-2020
SCALE:	1" = 30'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY:	RH
SHT NO.	8 OF 19
DWG NO.	CP-2

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EROSION CONTROL PLAN - SOUTH

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

EROSION CONTROL PLAN - NORTH

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

ESTIMATED QUANTITY OF EARTHWORK

CUT (CY)	FILL (CY)	NET (CY)
7,015*	2,940	4,075 (CUT)

*INCLUDES QUANTITY OF MATERIAL REMOVED FOR STORMWATER INFILTRATION SYSTEMS

NOTE: QUANTITIES NOT TO BE USED FOR BIDDING PURPOSES.

LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR (420)
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR (420)
- PROPOSED RETAINING WALL
- PROPOSED ELECTRIC METER (M)
- PROPOSED TRANSFORMER (T)
- PROPOSED T-TAP (TT)
- PROPOSED OVERHEAD ELECTRIC SERVICE (OHW)
- PROPOSED UNDERGROUND ELECTRIC SERVICE (E)

EROSION CONTROL LEGEND:

- DRAIN INLET PROTECTION (TYP.) * TO BE INSTALLED ON ALL CATCH BASINS
- PROPOSED SILT FENCE
- PROPOSED TEMPORARY CONSTRUCTION FENCING (ORANGE FENCING)
- PROPOSED TREE PROTECTION
- CONSTRUCTION ENTRANCE
- TEMPORARY STOCKPILE AREA
- LIMIT OF DISTURBANCE

CALL BEFORE YOU DIG 1-800-962-7962

UNDER THE NY STATE LAW PROTECTING UNDERGROUND FACILITIES, THE FOLLOWING RULES AND REGULATIONS ARE IN EFFECT FOR ALL EXCAVATORS:

* THEY MUST CALL FOR A UTILITY STAKE-OUT (2) TWO FULL WORKING DAYS PRIOR TO AN EXCAVATION.
* THEY MUST CONFIRM PRECISE LOCATIONS OF UNDERGROUND FACILITIES.
* THEY MUST PRESERVE STAKES AND MARKINGS UNTIL NO LONGER NEEDED AT SITE.
* THEY MUST CONTACT NON-UFPO MEMBER UTILITY OWNERS FOR STAKE-OUTS.

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DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

MATTHEW J. GIRONDA P.E.

EROSION CONTROL PLAN

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
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DWG NO.	EC-1

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CONSTRUCTION SEQUENCING:

1. SURVEY LOCATE THE CENTERLINE OF THE PROPOSED BUCK RUN DRIVEWAY EXTENSION, CENTERLINE OF THE PROPOSED DRIVEWAY TO PROPOSED BUILDING 1 AND 2 AND CENTERLINE OF THE PROPOSED GRAVEL PARKING AREA.
2. SURVEY LOCATE AND STAKE THE PROPOSED LIMITS OF DISTURBANCE, BERM OF THE INFILTRATION BASIN AND LOWER PROPOSED INFILTRATION SYSTEMS.
3. CORDON OFF LOWER INFILTRATION SYSTEMS AND EXISTING SSTS' ADJACENT TO PROPOSED BUILDING 1 WITH CONSTRUCTION FENCING.
4. IDENTIFY TREES TO REMAIN AND PROVIDE PROTECTIVE FENCING. CLEAR TREES WITHIN THE LIMITS OF DISTURBANCE (NOTE: MAINTAIN EXISTING VEGETATIVE GROUND COVER FOR AS LONG AS POSSIBLE ON AREAS NOT REQUIRING GRADING).
5. INSTALL STABILIZED CONSTRUCTION ENTRANCE FROM OLD POST ROAD (ROUTE 35).
6. INSTALL ALL SILT FENCE AS SHOWN.
7. DEMOLISH EXISTING STRUCTURES AS NEEDED AS CONSTRUCTION PROGRESSES FROM OLD POST ROAD NORTH INTO THE SITE.
8. STRIP TOPSOIL FROM THE DRIVEWAY SHOULDERS AND GRAVEL PARKING AREA AND STOCKPILE.
9. STRIP DRIVEWAY SURFACE OF BUCK RUN TO STA. 4+00, EXCAVATE AND FILL TO FORM EMBANKMENTS AND ROUGH GRADE GRAVEL PARKING AREA AND INFILTRATION BASIN.
10. CONSTRUCT PORTION OF DRIVEWAY TO STA. 4+00 AND GRAVEL PARKING AREA TO SUBGRADE. INSTALL CATCH BASIN(S), DRAIN MANHOLE(S), AND DRAINAGE PIPE, FROM STA. 0+00 TO 4+00. INSTALL INFILTRATION SYSTEM INCLUDING DIVERSION STRUCTURES AND HDS UNITS. PROVIDE INLET PROTECTION FOR CATCH BASINS.
11. REINSTALL CONSTRUCTION FENCING TO PROTECT INFILTRATION SYSTEM AREA.
12. ESTABLISH CONSTRUCTION STAGING AREA IN AREA OF GRAVEL PARKING AREA.
13. CONSTRUCT INFILTRATION BASIN.
14. INSTALL CURB AND BINDER COURSE OF PAVEMENT ON PORTION OF COMPLETED DRIVEWAY. BACK-UP CURBS WITH TOPSOIL AND APPLY SEED AND MULCH.
15. DEMOLISH EXISTING STRUCTURES IN AREA OF BUILDINGS 1 AND 2.
16. STRIP DRIVEWAY SURFACE OF BUCK RUN FROM STA. 4+00 TO 7+00, EXCAVATE AND FILL TO FORM EMBANKMENTS AND ROUGH GRADE AS NEEDED. CONSTRUCTION RETAINING WALL AND INSTALL SIDEWALK.
17. CONSTRUCT DRIVEWAY TO SUBGRADE AND RETAINING WALLS ASSOCIATED WITH ACCESS TO BUILDING'S 1 AND 2.
18. CONSTRUCT BUILDING 1 AND 2 AND ASSOCIATED IMPROVEMENTS AND INSTALL ELECTRICAL, TELEPHONE, AND CABLE UTILITIES.
19. INSTALL CATCH BASIN(S), DRAIN MANHOLE(S), AND DRAINAGE PIPE, FROM STA. 4+00 TO 7+00 AND PROPOSED DRIVEWAY TO NEW BUILDINGS. PROVIDE INLET PROTECTION FOR CATCH BASINS.
20. INSTALL CURB AND BINDER COURSE OF PAVEMENT ON PORTION OF COMPLETED DRIVEWAY. BACK-UP CURBS WITH TOPSOIL AND APPLY SEED AND MULCH.
21. STRIP DRIVEWAY SURFACE OF THE REMAINDER OF BUCK RUN, EXCAVATE AND FILL TO FORM EMBANKMENTS AND ROUGH GRADE AS NEEDED. CONSTRUCTION RETAINING WALLS AND PARKING AREA.
22. DEMOLISH EXISTING STRUCTURES AND CONSTRUCT PROPOSED FREEZER FACILITY.
23. INSTALL REMAINING CATCH BASIN(S), DRAIN MANHOLE(S), AND DRAINAGE PIPE ASSOCIATED WITH THE DRIVEWAY IMPROVEMENTS. PROVIDE INLET PROTECTION FOR CATCH BASINS.
24. INSTALL REMAINING ELECTRICAL, TELEPHONE, AND CABLE UTILITIES.
25. INSTALL CURB AND BINDER COURSE OF PAVEMENT ON PORTION OF COMPLETED DRIVEWAY. BACK-UP CURBS WITH TOPSOIL AND APPLY SEED AND MULCH.
26. CONSTRUCT UPPER SITE IMPROVEMENTS (CAMPING PODS AND RESTROOM FACILITIES) AND GRAVEL PATH RESURFACING AND REALIGNMENT.
27. FINE GRADE DRIVEWAY SHOULDERS, LAWN AREA, AND ALL OTHER DISTURBED AREAS TO BE RESTORED TO VEGETATIVE COVER AND COMPLETE RESTORATION OF THESE AREAS WITH SEED AND MULCH. INSTALL LANDSCAPE PLANTINGS AND MULCH BEDS. INDIVIDUAL INFILTRATION SYSTEMS SHALL BE PLACED INTO OPERATION ONLY AFTER FINAL STABILIZATION OF DISTURBED AREA FROM CONTRIBUTING AREA. REMOVE THE SEALS FROM THE PIPE OUTLETS IN DIVERSION STRUCTURES.
28. INSTALL GRAVEL COURSE OF GRAVEL PARKING AREA.
29. CLEANOUT CATCH BASINS AND REMOVE EROSION CONTROLS.
30. INSTALL TOP COURSE OF PAVEMENT.
31. INSTALL PAVEMENT MARKINGS AS NEEDED.
32. RE-VEGETATE ROAD SHOULDERS AND YARD AREAS AS NEEDED.

NOTE: SITE STABILIZATION (80% UNIFORM DENSITY OF PERMANENT VEGETATION OR PERMANENT MULCH/STONE) MUST BE ACHIEVED PRIOR TO REMOVING TEMPORARY EROSION CONTROL MEASURES.

CRITICAL AREA SEEDING SPECIFICATION

This practice applies to all disturbed areas void of vegetation except where specific seeding/planting recommendations exist in other standards and specifications for specific uses such as recreation.

SEEDING
Site preparation-scarify soil surface for: seedbed preparation if compacted.
Remove debris and obstacles such as rocks and stumps.

Soil Amendments
1. Lime to PH 6.0
2. Fertilize with 600lbs. of 5-10-10 or equivalent per acre (14lbs./ 1000 sq.ft.).

Seed Mixtures
1. Temporary Seeding's
   a. Ryegrass (annual or perennial) @ 30lbs. per acre(0.7 lbs/ 100sq.ft.).
   b. Certified "aroostook" winter rye (ceral rye) @ 100 lbs. per acre(2.5lbs./1000 sq.ft.).

   Use winter rye if seeding in October/November.

2) Permanent Seeding's
   a. Rough or occasionally mowed areas:

	lbs. / acre	lbs. / 1000sq. ft.
Empire birdsfoot trefoil(1)	8	0.20
OR		
Common white clover(1)	8	0.20
PLUS		
Tall fescue	20	0.45
PLUS		
Redtop	2	.05
OR		
Ryegrass	5	0.10 (perennial)

(1) add innoculant immediately prior to seeding.

Time of seeding

The optimum time for permanent seeding's with legumes (birdsfoot trefoil or clover) is early spring.

Permanent seeding's may be any time of the year if properly mulched and adequate moisture is provided. Mid summer is not a good time to seed, but these seeding's if construction is complete, will facilitate covering the land. Portions may fail and may need reseeding the following year.

Temporary seeding's should be made within 24 hours of construction or disturbance. If not, the soil must be scarified prior to seeding.

Method of seeding

Broadcasting. drilling with cultipack type seeder or hydroseeding are acceptable. Good soil to seed contact is the key to successful seeding's.

Mulching and Mulch Anchoring

See specifications below.

Irrigation

Watering may be essential to establish a new seeding. Weather conditions and the intended use of the area will dictate when to water. Irrigation is specialized practice and care needs to be taken not to exceed the application rate/infiltration rate of a given soil.

Each application must be uniformly applied and 1 to 2 inches of water should be applied per application set up.

Mulching

The mulching specifications provided hereon apply to any disturbed areas or exposed slopes 20' vertical or greater that are exposed outside of the spring and fall grass growing season.

Mulch Material:	Air-dried hay or straw: free of undesirable seeds and coarse materials.
Application Rate:	90-100 lbs per 1000 s.f. or 2 tons per acre.
Recommended Surface Coverage:	Approximately 90%
Mulch Anchoring Material:	Biodegradable Mulch netting: light-weight paper, jute wood fiber, or plastic netting
Method of Anchoring Application:	Staple mulch netting to soil surface in accordance with netting manufacturers recommendations.

SEDIMENTATION & EROSION CONTROL NOTES

A. General Notes

1. Prior to commencement of any clearing, grading, or excavation in connection with any proposed construction activity, the Owner of Record shall file a notice of Intent (NOI) with the New York State Department of Environmental Conservation (NYSDEC) and the Town of Lewisboro. When all construction has been completed and the site has reached final stabilization, the Owner shall submit a Notice of Termination NOT) to the NYSDEC and the Town of Lewisboro.
2. A copy of all Notice of Intents and all Contractor's Certifications, required pursuant to the NYS DEC's "SPDES General Permit for Stormwater Discharges from Construction Activity" (Permit No. GP-02-01) for all land disturbances, development or redevelopment located within the Town of Lewisboro, shall also be filed with the Lewisboro Planning Department.
3. All construction activities involving the removal or deposition of soil are to be provided with appropriate protective measures to minimize erosion and contain sediment deposition within the site. Minimum soil erosion and sediment control measures shall be implemented as shown on the plans approved by the Town of Lewisboro. All erosion and sediment control measures employed during construction shall comply with the NYS DEC's "New York Standards and Specifications for Erosion and Sediment Control," latest edition.
4. The Owner's Field Representative (O.F.R.) will be responsible for the implementation and maintenance of sediment and erosion control measures on the site prior to and during construction. All erosion control measures are to be maintained in proper functioning order and are to be repaired or replaced as necessary, or as required by the Town Planner, Building Inspector, Town ECI, or Town Engineer.
5. Sedimentation and erosion control measures shall be inspected and maintained on a daily basis by the O.F.R. to ensure that channels, temporary and permanent ditches and pipes are clear of debris, that embankments and berms have not been breached and that all straw bales and silt fences are intact. Any failure of sediment and erosion control measures shall be immediately repaired by the Contractor and inspected for approval by the O.F.R. and/or Site Engineer.
6. The O.F.R. shall inspect downstream conditions for evidence of sedimentation on a weekly basis and after rainstorms of 0.5 inches or greater.
7. All erosion control measures are to be inspected and maintained on a regular basis throughout the construction period and until all disturbed land has been stabilized by vegetation or paving. Responsibility for the erosion and sediment control plan rests with the landowner of record. This responsibility includes installation and maintenance of all control measures, informing all parties involved in site construction of the plan's objectives and requirements, notifying the Town of Lewisboro of any transfer of its responsibility and transferring a copy of the certified erosion and sediment control plan should the title of all or part of the land be transferred.
8. Site inspections shall be conducted by a qualified soil erosion control professional (retained by the Owner) at least twice every seven (7) calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.
9. Wherever feasible, natural vegetation should be retained and protected. Only the smallest practical area of land should be exposed at any one time during development, and the exposure shall be kept to the shortest practical period of time. Disturbance shall be limited to the areas required to perform construction.
10. Stabilized construction entrances, silt fences and other erosion and sediment controls shall be installed as shown on plans approved by the Town of Lewisboro prior to beginning any clearing and grubbing or earthwork.
11. The exposure of an area by site preparation shall be kept to the shortest practical period of time. Erosion and sediment control requirements shall include surface stabilization measures applied as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than seven (7) days after the construction activity in that portion of the site has temporarily or permanently ceased. From November 1 through March 31 any disturbed area must be stabilized using a heavy mulch layer, a rolled erosion control product or another method that does not require seed germination to control erosion. Any graded areas not subject to further disturbance or construction traffic shall be immediately brought to final grade and receive permanent vegetation cover in combination with a suitable mulch.
12. The permanent final vegetation and structures shall be installed as soon as practical and as may be directed by the Town Planner, Town ECI, or Town Engineer.
13. All topsoil to be stripped from the area being developed shall be stockpiled not less than two hundred (200) feet from any body of surface water and shall be immediately seeded with a rye grass mixture having a quick germination time.
14. Grass seed mix may be applied by either mechanical or hydroseeding methods. All seeding and turf establishment shall be performed in accordance with the current edition of the NYS DOT's "Standard Specifications- Construction and Materials," Section 610-3.02, Method No. 1. If seeding is performed between May 15th and August 15th irrigation may be required to ensure proper lawn establishment, and shall be performed if so directed by the project engineer or the Town's representatives.
15. All cut slopes and embankment fills are to be immediately laid back and stabilized using appropriate techniques which meet the design standards found in the "New York Standards and Specifications for Erosion and Sediment Control," latest edition. At a minimum, slopes and embankments shall be stabilized as follows:
    a. Grade to finished slopes.
    b. Scarified.
    c. Topsoiled with not less than four (4) inches of suitable topsoil material.
    d. Seeded with perennial rye grass. Seed shall be applied at the rate of not less than five (5) pounds per one thousand (1,000) square feet.
    e. Mulched with not less than one (1) inch and not more than three (3) inches of straw (two tons per acre) and anchored in a suitable manner.
    f. All graded slopes greater than a 2h:1v shall use a rolled erosion control product or other means necessary to provide permanent stabilization, and shall be approved by the Town of Lewisboro prior to installation.
16. On all embankment fill slopes, topsoil shall be stripped at least five (5) feet wider than required for the embankment toe of slope. A protective berm of topsoil shall be left in this area, running parallel to the contours for the purpose of restricting drainage runoff. The topsoil berm shall be seeded as required for stockpiles.
17. Paved roadways shall be kept clean at all times.
18. The site shall at all times be graded and maintained such that all stormwater runoff is diverted to soil erosion and sediment control facilities.
19. All storm drainage outlets shall be stabilized, as required, before the discharge points become operational.
20. Stormwater from disturbed areas must be passed through sediment control devices before discharge beyond disturbed areas or discharged into other drainage systems.
21. Dust shall be controlled by sprinkling or other approved methods as necessary, or as directed by the O.F.R.
22. Cut and fills shall not endanger adjoining property, nor divert water onto the property of others.
23. All fills shall be compacted to provide stability of material and to prevent settlement.
24. Erosion control measures shall remain in place until all soil disturbing activities have been completed and all disturbed areas are suitably stabilized. A disturbed area shall be deemed to be "suitably stabilized" upon establishment of a uniform perennial vegetative cover (having a density of at least 80%) on all unpaved areas or areas not covered by permanent structures. Areas which are paved or covered by a permanent structures shall also be considered to be "suitably stabilized."
25. Construction equipment shall not unnecessarily cross live streams except by means of bridges and culverts or other approved methods.
26. Temporary on-site sedimentation basins for the immediate control of erosion and sediment transport are to be provided when and where required or ordered. The length, width and depth of such basins are to be determined in the field in accordance with the "New York Standards and Specifications for Erosion and Sediment Control," latest edition.
27. As warranted by field conditions, special additional sedimentation and erosion control measures, as specified by the site Engineer, the Building Inspector, the Town Planner the Town ECI and/or the Town Engineer shall be installed by the Contractor at no cost to the Town.

B. Streams

1. All construction activities in or around streams are to be provided with temporary erosion control structures, dewatering devices, or temporary stream diversions as approved by the Town of Lewisboro. These structures shall be in place as shown on the approved plans prior to the start of any construction activity.
2. Construction of temporary erosion control measures shall begin with the installation of devices/measures located farthest downstream, and thence proceed upstream until all required erosion control measures are in place.
3. After construction, the temporary erosion control measures are to be removed in reverse order, with the erosion control measures located farthest upstream removed first, and thence proceeding downstream.
4. Construction activities are to begin with the farthest downstream work and proceed to activities farthest upstream. Prior to commencement of upstream activities, all downstream construction must be completed and permanently stabilized.
5. All temporary erosion control measures are to be left in place, maintained and replaced as needed or as directed, until all work upstream therefrom has been completed and all related temporary erosion control measures have been removed.

MAINTENANCE AND INSPECTION REQUIREMENTS

A. Construction Phase

Throughout project construction, the responsibility for installation, maintenance and repair of erosion controls and SMP's will rest with the site contractor as the owner's representative. Oversight of the preparedness of erosion controls and SMP's will be conducted by the owner's qualified professional through regular inspections in accordance with NYSDEC SPDES GP-0-15-002 General Permit requirements. On a daily basis, the project superintendent shall check for damaged silt fence, the need to clean mud tracked onto Route 35. Street sweeping should be conducted as required. Monitor catch basin sumps for sediment accumulation and clean out when one half full.

Construction debris, such as sheet metal and wood scrap, paper and insulation products, styrofoam cups and paper wrappers can become windblown litter over and off the site if neglected. Such litter is easily controlled and prevented when the project superintendent sets the tone for vigilant litter control at the outset of the project. Suitable and ample refuse containers will be provided on the site and emptied when full. Any scattered debris will be picked up and placed in containers on a daily basis. Heavy equipment will be refueled by daily deliveries to the site. Gasoline and oil for small engine equipment will be stored in construction equipment storage sheds. Refueling will take place at least 100 feet from the drainage swales to preclude any possible escape of spilled fuel to stormwater. In the event of any major spill, its capture and the removal of contaminated soil will be conducted under NYSDEC regulations for spill remediation.

As work progresses, the superintendent must ensure that the new work area is first protected with perimeter erosion controls. As important as the need to identify areas requiring protection, is the need to determine disturbed areas that can be stabilized with temporary vegetation. Site management responsibilities will include identification of sections in a work phase where active site work will not occur over the next 7 days. If disturbed earth is present, the superintendent will direct the spreading of rye grass seed and mulch for a temporary protective cover.

B. Post Construction

Following completion of construction, stabilization of the site and establishment of turf material, responsibility and maintenance will remain with the Owner. These items will require the following maintenance tasks:

Inspection - Following construction, each Infiltration System, detention system,

CDS's outlet and diversion MH's will require regular inspections on at least a semi-annual basis and following major storm events to check for:

a. Evidence of clogging of detention system outlet structure.
b. Accumulation of sediment at the inlet and around detention system outlet control structure.
c. Sediment accumulation at the Infiltration Systems.
d. Accumulation of debris and sediment in the diversion manholes, detention system inlet and equallization piping and catch basins.
e. Swale erosion.

Debris and Litter Control - Removal of debris and litter should be undertaken during the mowing operation.

Erosion Control - Eroding soil on slopes, contributory areas noted during inspections and in diversion swales should be stabilized immediately with topsoil replacement, seeding and mulching. Any riprap dislodged at pipe outlets and in swales should be repositioned.

Sediment Removal - Sediment deposition in the detention and Infiltration Systems, CDS pretreatments and diversion Manholes will need to be removed in order to maintain capacity for stormwater treatment and prevent clogging of the outlet structure. The need for sediment removal should be determined during routine inspections and the appropriate equipment and manpower scheduled for the task.

Catch Basin Cleanout - Catch basins are provided with sumps 18 inches below the pipe inverts for sediment trapping purposes. Catch basin sumps should be cleaned annually using a vacuum cleaning service.

SOIL RESTORATION

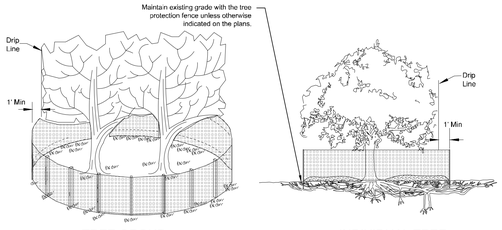
SOIL RESTORATION IS A REQUIRED PRACTICE APPLIED ACROSS AREAS OF A DEVELOPMENT SITE WHERE SOILS HAVE BEEN DISTURBED AND WILL BE VEGETATED IN ORDER TO RECOVER THE ORIGINAL PROPERTIES AND POROSITY OF THE SOIL.

SOIL RESTORATION IS APPLIED IN THE CLEANUP, RESTORATION, AND LANDSCAPING PHASE OF CONSTRUCTION FOLLOWED BY THE PERMANENT ESTABLISHMENT OF AN APPROPRIATE, DEEP-ROOTED GROUNDCOVER TO HELP MAINTAIN THE RESTORED SOIL STRUCTURE. SOIL RESTORATION INCLUDES MECHANICAL DECOMPACTION, COMPOST AMENDMENT, OR BOTH.

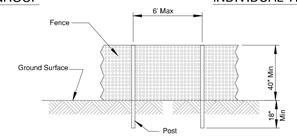
DURING PERIODS OF RELATIVELY LOW TO MODERATE SUBSOIL MOISTURE, THE DISTURBED SUBSOILS ARE RETURNED TO ROUGH GRADE AND THE FOLLOWING SOIL RESTORATION STEPS APPLIED:

1. APPLY 3 INCHES OF COMPOSTj OVER SUBSOIL
2. TILL COMPOST INTO SUBSOIL TO A DEPTH OF AT LEAST 12" (INCHES) USING A CAT-MOUNTED RIPPER, TRACTOR- MOUNTED DISC, OR TILLER. MIXING, AND CIRCULATING AIR AND COMPOST INTO SUBSOILS.
3. ROCK-PICK UNTIL UPLIFTED STONE/ROCK MATERIALS OF FOUR INCHES AND LARGER SIZE ARE CLEANED OFF THE SITE.
4. APPLY TOPSOIL TO A DEPTH OF 6" (INCHES).
5. VEGETATE AS REQUIRED BY APPROVED PLAN.

COMPOST SHALL BE AGED. FROM PLANT DERIVED MATERIALS, FREE OF VIABLE WEED SEEDS, HAVE NO VISIBLE FREE WATER OR DUST PRODUCED WHEN HANDLING, PASS THROUGH A HALF INCH SCREEN AND HAVE A PH SUITABLE TO GROW DESIRED PLANTS.



TREE GROUP — INDIVIDUAL TREE

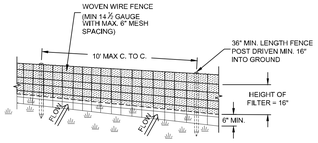


POST AND FENCE DETAIL

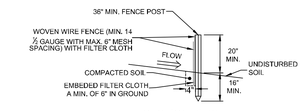
EXISTING TREE PROTECTION
N.T.S.

TREE PROTECTION SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY.

NOTES:
1. THE FENCE SHALL BE LOCATED A MINIMUM OF 1 FOOT OUTSIDE THE DRIP LINE OF THE TREE TO BE SAVED AND IN NO CASE CLOSER THAN 5 FEET TO THE TRUNK OF ANY TREE.
2. FENCE POSTS SHALL BE EITHER STANDARD STEEL OR 2" X 6" WOOD POSTS OR APPROVED EQUAL.
3. THE FENCE MAY BE EITHER 40" HIGH SNOW FENCE, 40" PLASTIC WEB FENCING OR APPROVED EQUAL.
4. NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
5. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.



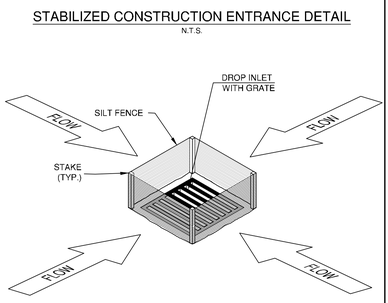
PERSPECTIVE VIEW



SECTION VIEW

CONSTRUCTION SPECIFICATIONS:
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL WITHER "T" OR "U" TYPE OR HARDWOOD
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL
N.T.S.



CONSTRUCTION SPECIFICATION
1 STONE SIZE- USE 2" STONE, OR RECYCLED CONCRETE EQUIVALENT.

2 LENGTH-NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGHT WOULD APPLY.)

3 THICKNESS- NOT LESS THAN SIX (6) INCHES.

4 WIDTH- TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.

5 FILTER CLOTH- WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.

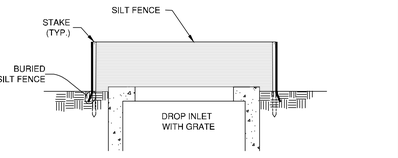
6 SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRACES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

7 MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8 WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE & WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9 PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

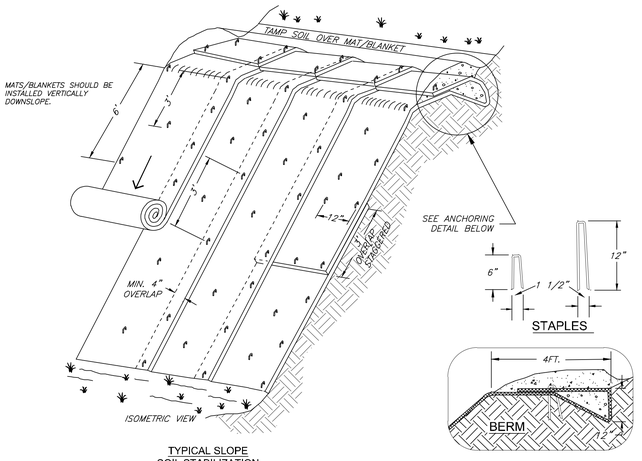
STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.

DROP INLET PROTECTION AT CATCH BASIN
N.T.S.



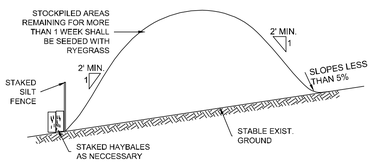
TYPICAL SLOPE SOIL STABILIZATION

CURLEX 1 BLANKET OR APPROVED EQUAL TO BE UTILIZED ON ALL NEW EMBANKMENTS SLOPED GREATER THAN 2 ON 1 IN THE AREA OF DISTURBANCE

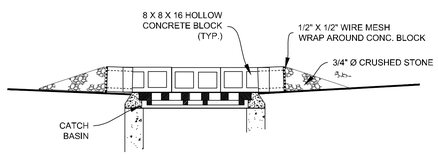
EROSION BLANKETS INSTALLATION
(N.T.S.)

CALL BEFORE YOU DIG 1-800-962-7962

UNDER THE NY STATE LAW PROTECTING UNDERGROUND FACILITIES, THE FOLLOWING RULES AND REGULATIONS ARE IN EFFECT FOR ALL EXCAVATORS:
* THEY MUST CALL FOR A UTILITY STAKE-OUT (2) TWO FULL WORKING DAYS PRIOR TO AN EXCAVATION.
* THEY MUST CONFIRM PRECISE LOCATIONS OF UNDERGROUND FACILITIES.
* THEY MUST PRESERVE STAKES AND MARKINGS UNTIL NO LONGER NEEDED AT SITE.
* THEY MUST CONTACT NON-UFPO MEMBER UTILITY OWNERS FOR STAKE-OUTS.



TYPICAL SOIL STOCKPILE DETAIL
N.T.S.



STONE & CONCRETE BLOCK INLET PROTECTION AT CATCH BASIN
N.T.S.
(TO BE INSTALLED ON DRIVEWAY AFTER INSTALLATION OF ITEM #4)

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REVISIONS					
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-07-22	WCHD NYCDEP COMMENTS	ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION	RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · 090040
MATTHEW J. GIRONDA P.E.

EROSION CONTROL NOTES & DETAILS

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

DATE:	12-29-2020
SCALE:	1" = 60'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY	RH
SHT NO.	10 OF 19
DWG NO.	EC-2

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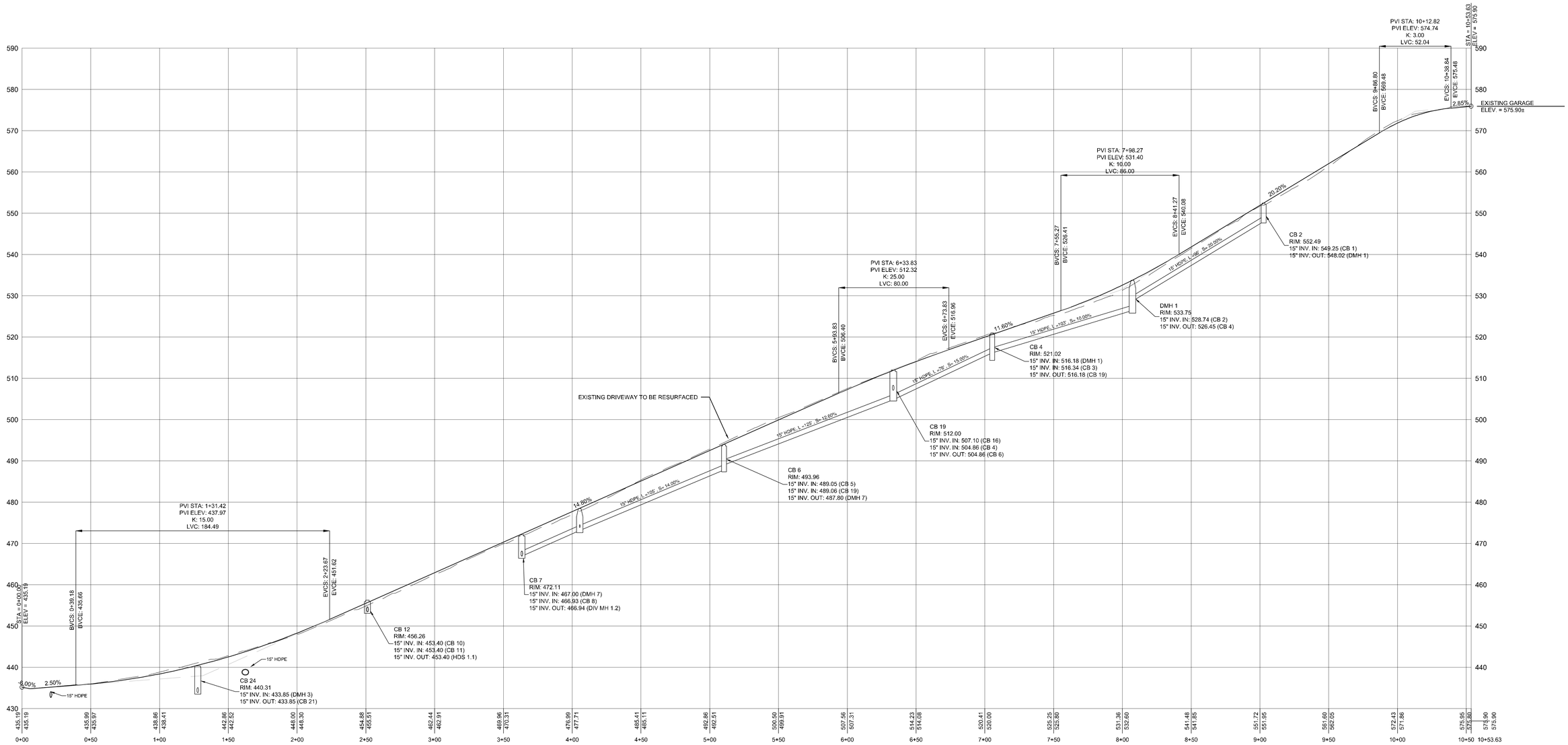

MAIN DRIVEWAY PROFILE
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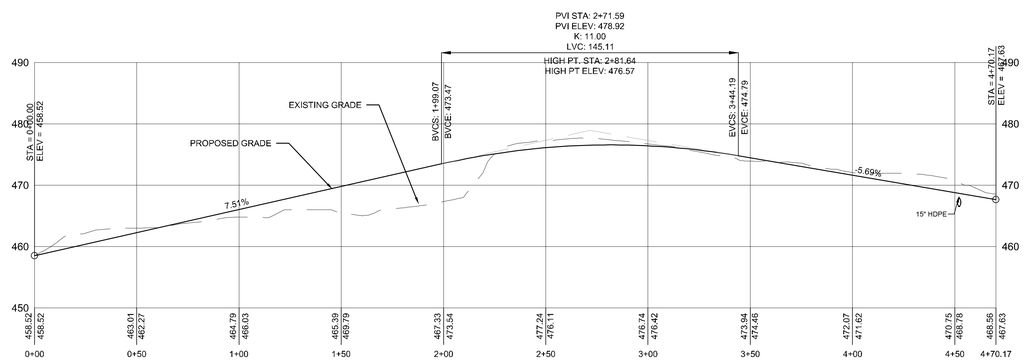

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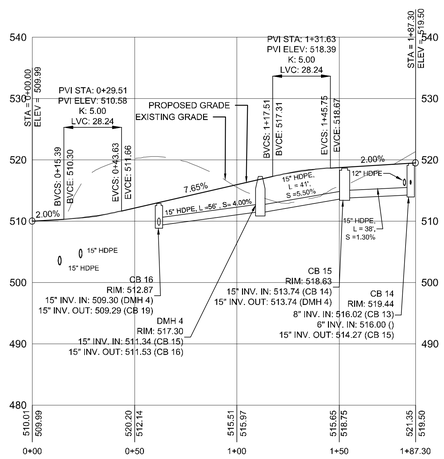

EDUCATION PAVILION PROFILE
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1" = 10' (V)

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MATTHEW J. GIRONDA
LICENSED PROFESSIONAL ENGINEER
MATTHEW J. GIRONDA P.E.

ROAD PROFILES

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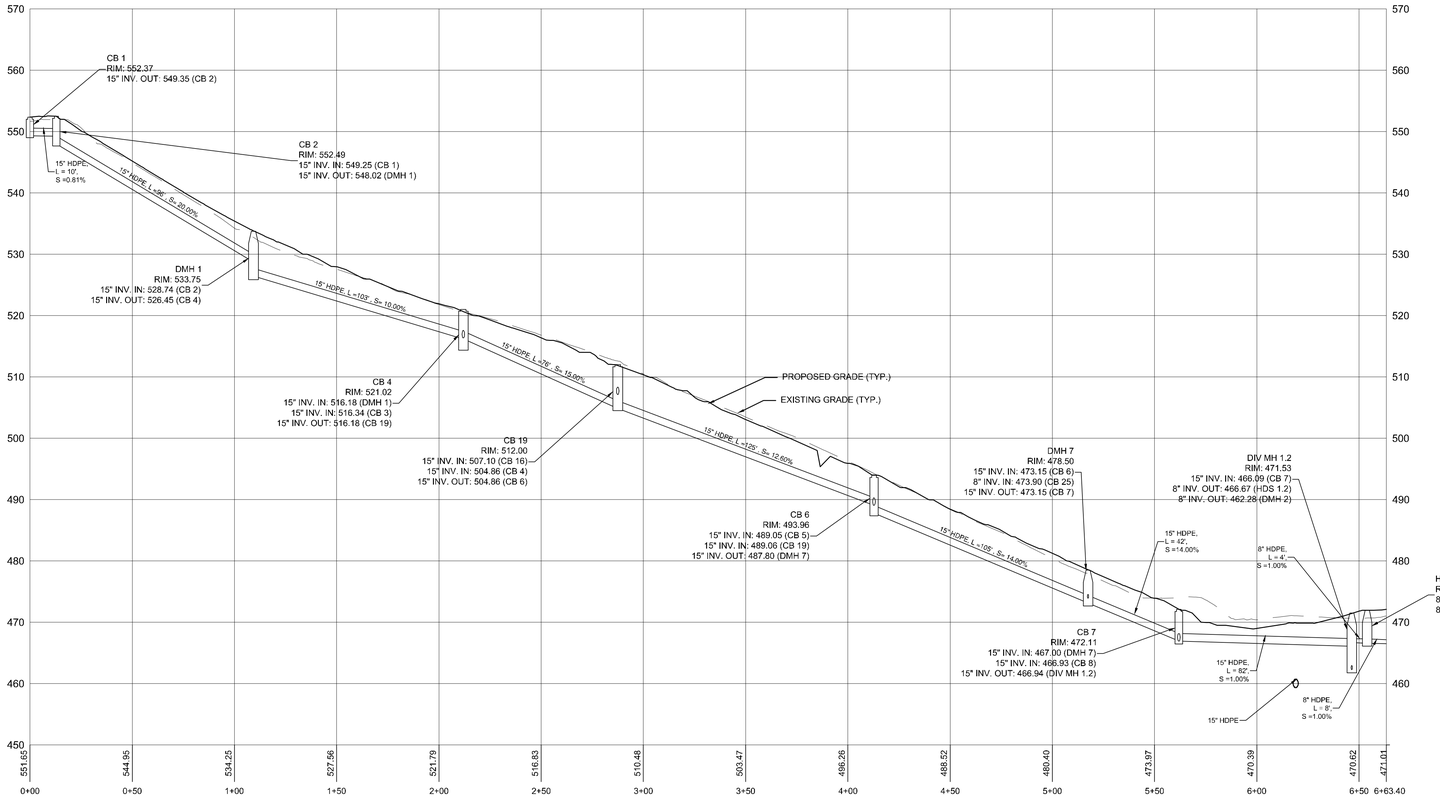

DRAINAGE PROFILE (CB 1 TO INF 1.2)
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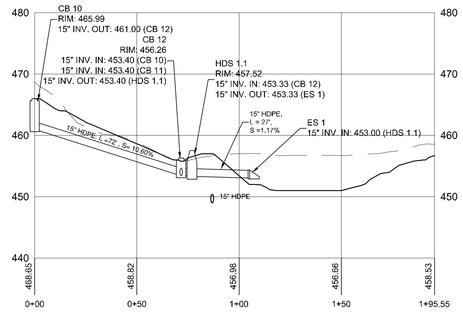

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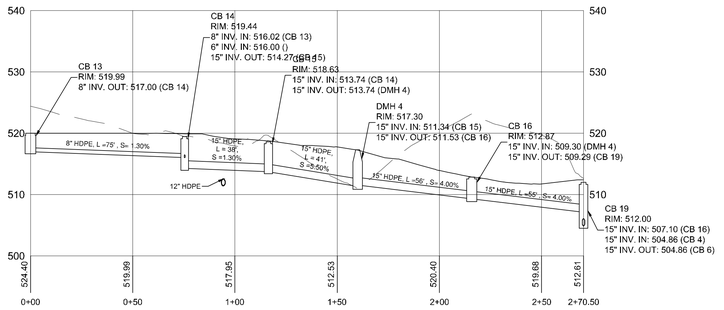

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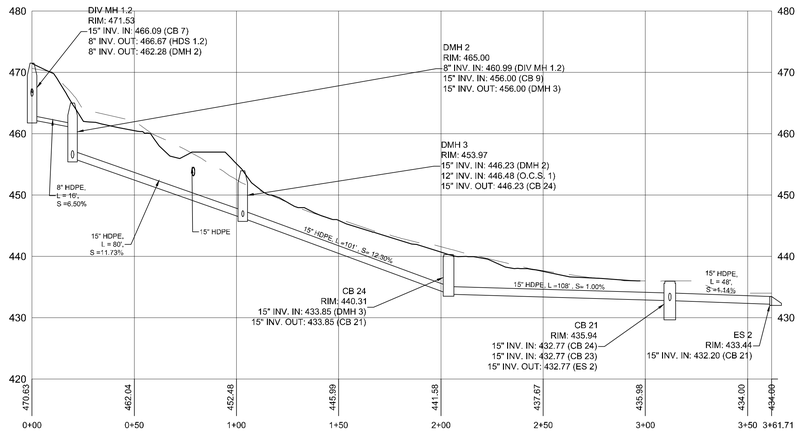

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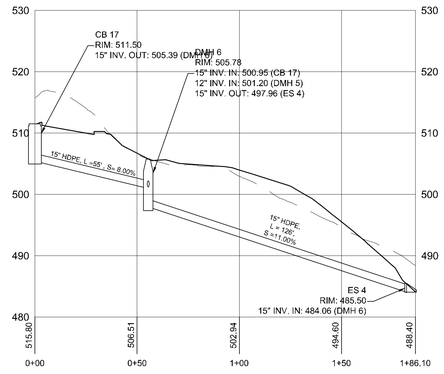

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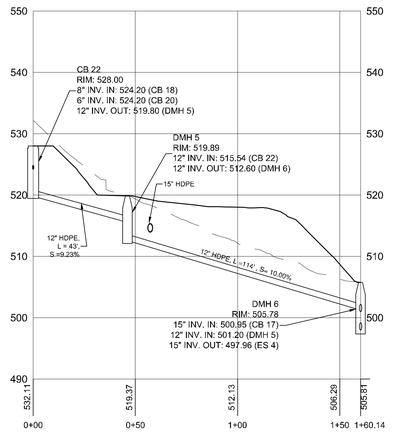

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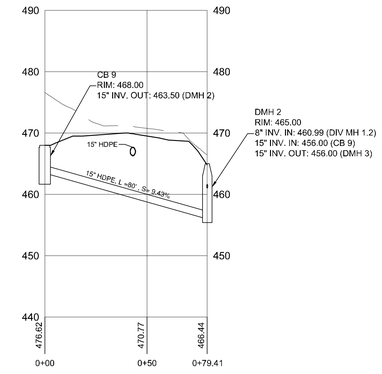

DRAINAGE PROFILE (CB 9 TO DMH 2)
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STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · No. 096030

MATTHEW J. GIRONDA P.E.

DRAINAGE PROFILES

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

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SOMERS, NEW YORK 10589
TEL. 914 277 5805

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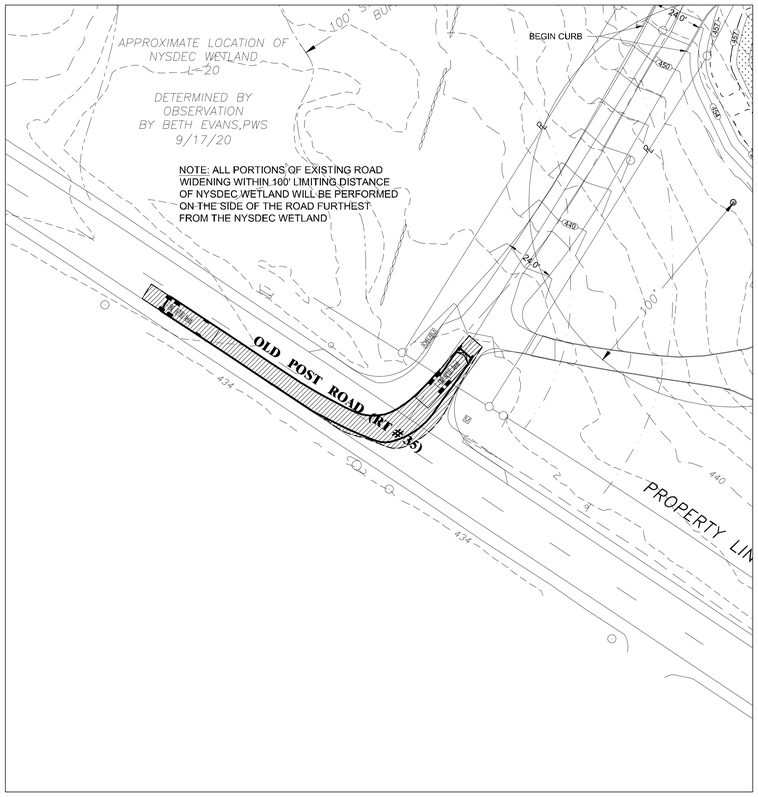

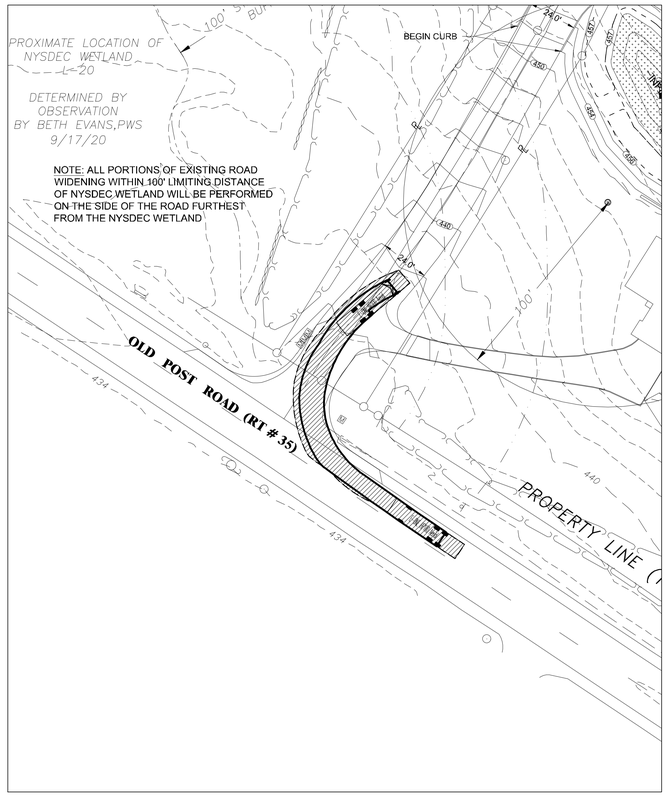

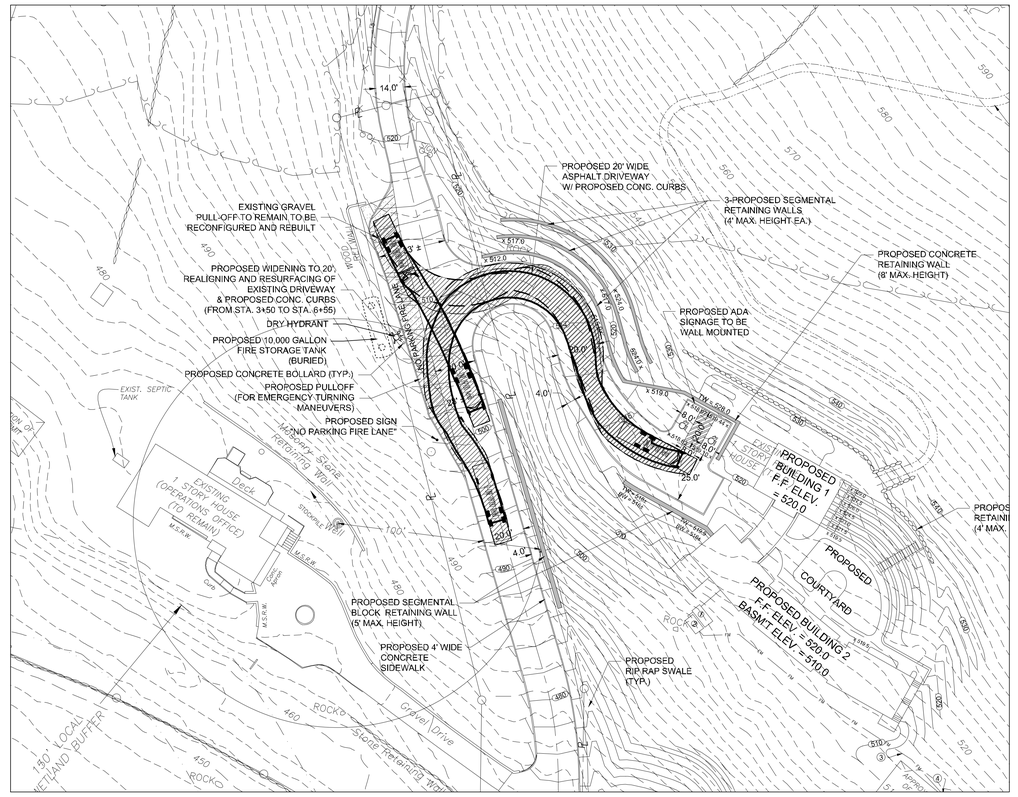

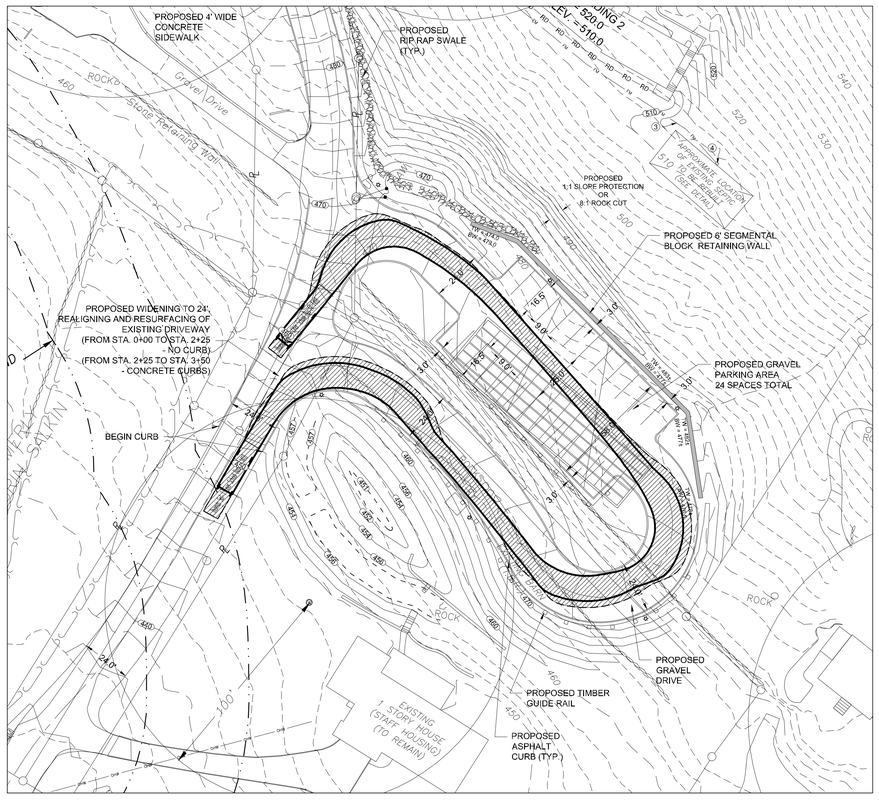

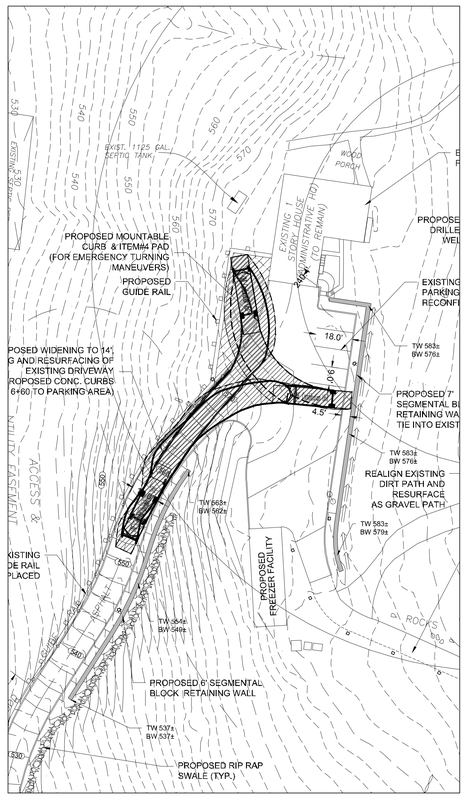

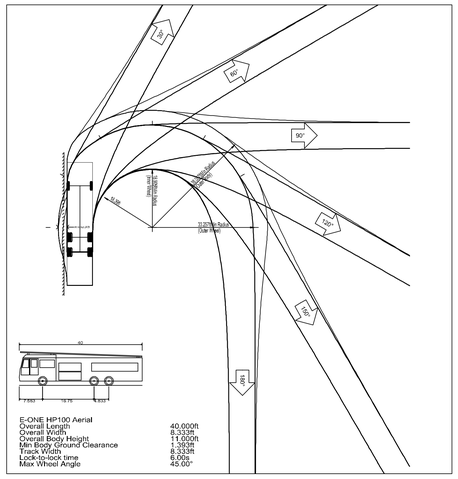

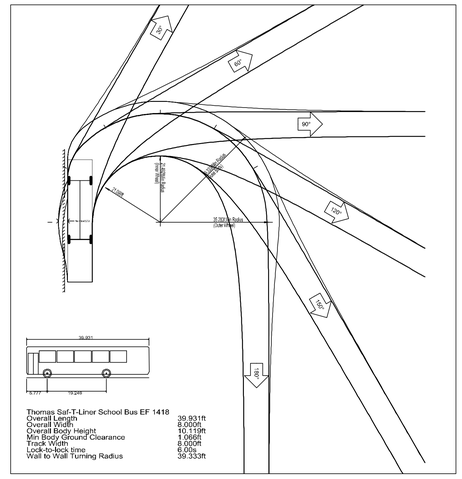

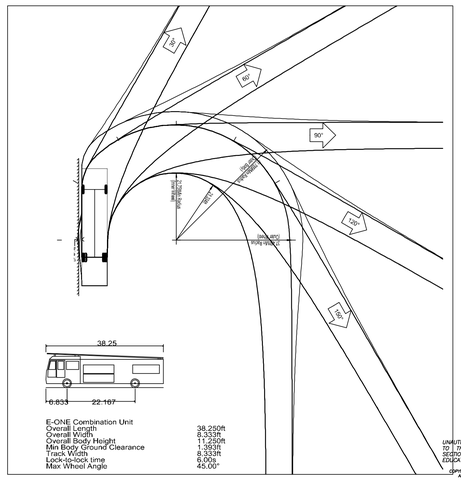

LEGEND:

- E-ONE HP100 Aerial — DESIGN VEHICLE OUTLINE & DIRECTION OF TRAVEL
- E-ONE COMBINATION UNIT — DESIGN VEHICLE OUTLINE & DIRECTION OF TRAVEL
- SCHOOL BUS — DESIGN VEHICLE OUTLINE & DIRECTION OF TRAVEL
- FORWARD MOVEMENT WHEEL PATH
- REVERSE MOVEMENT WHEEL PATH
- VEHICLE BODY ENVELOPE

REVISIONS					
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-07-22	WCHD NYCDEP COMMENTS	ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION	RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

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MATTHEW J. GIRONDA P.E.

TURNING MANEUVERS

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE:	12-29-2020
SCALE:	1" = 30'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY:	RH
SHT NO.	13 OF 19
DWG NO.	T-1

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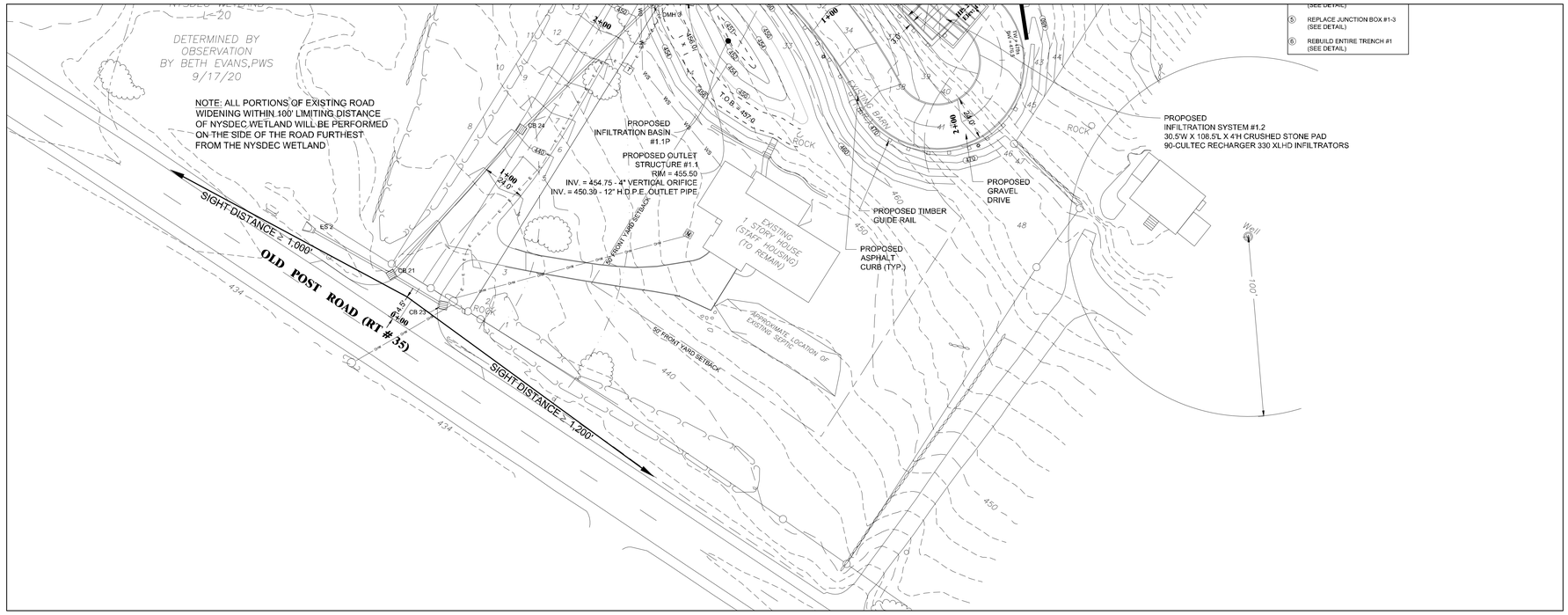


LEGEND

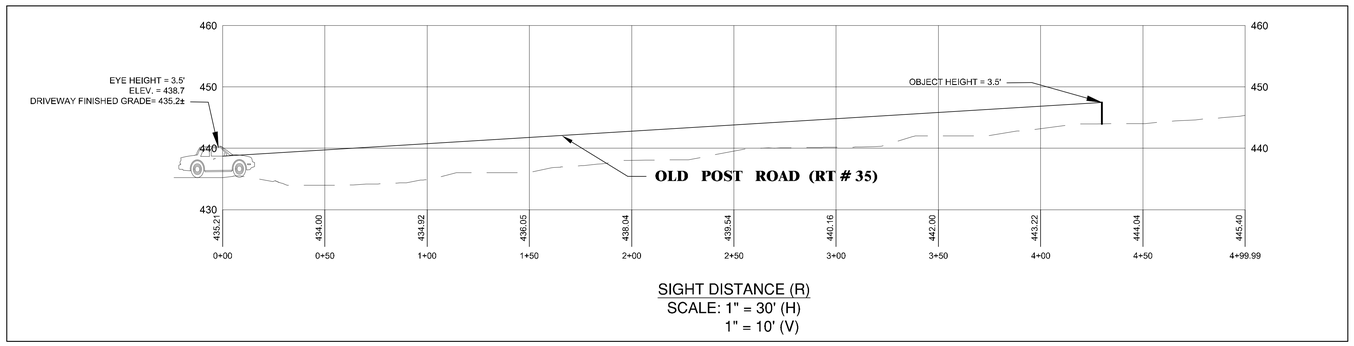
- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE
- PROPOSED RETAINING WALL
- PROPOSED ELECTRIC METER (M)
- PROPOSED TRANSFORMER (T)
- PROPOSED T-TAP (TT)
- PROPOSED OVERHEAD ELECTRIC SERVICE (OHE)
- PROPOSED UNDERGROUND ELECTRIC SERVICE (E)
- PROPOSED ROOF LEADER CONNECTION PIPE (RD)
- PROPOSED PVC DR-18 WATERMAIN (W)
- PROPOSED CU WATER SERVICE (WS)

SIGHT DISTANCE

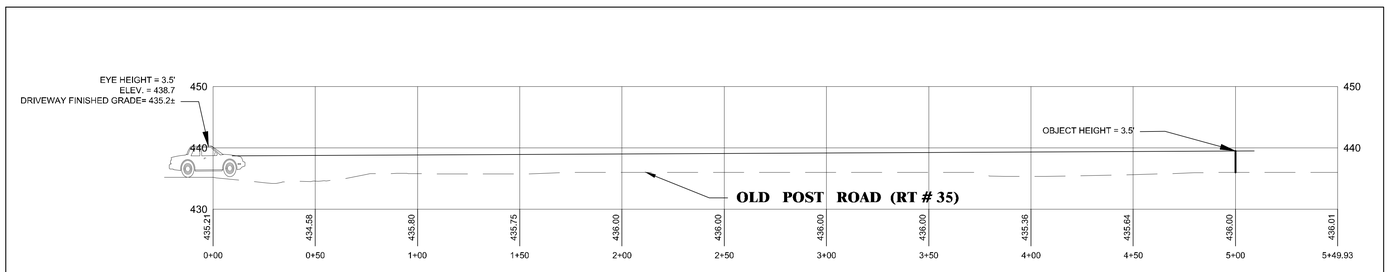
GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SIGHT DISTANCE (R)
SCALE: 1" = 30' (H)
1" = 10' (V)



SIGHT DISTANCE (L)
SCALE: 1" = 30' (H)
1" = 10' (V)

SPEED LIMIT (mph)	REQUIRED INTERSECTION SIGHT DISTANCE *	PROVIDED SIGHT DISTANCE
45	500' (L)	> 500' (L)
	430' (R)	> 430' (R)

* Sight Distances measured in accordance with AASHTO "Policy on Geometric Design of Highways and Streets"

BUCK RUN ENTRANCE NOTES:
1. ANY TREE BRANCHES OR BRUSH WHICH MAY OBSTRUCT SIGHT DISTANCE SHALL BE REMOVED.

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CALL BEFORE YOU DIG 1-800-962-7962

UNDER THE NY STATE LAW PROTECTING UNDERGROUND FACILITIES, THE FOLLOWING RULES AND REGULATIONS ARE IN EFFECT FOR ALL EXCAVATORS:

- THEY MUST CALL FOR A UTILITY STAKE-OUT (2) TWO FULL WORKING DAYS PRIOR TO AN EXCAVATION.
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- THEY MUST CONTACT NON-UFPO MEMBER UTILITY OWNERS FOR STAKE-OUTS.

REVISIONS						
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-07-22	WCHD NYCDEP COMMENTS	ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION	RH/MG
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STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · LIC. NO. 095035

MATTHEW J. GIRONDA P.E.

SIGHT DISTANCE & PROFILES

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL: 914 277 5805

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DRN. BY:	RH
SHT NO.	14 OF 19
DWG NO.	**SD-1**

Plotted by:MICG | COGSBL - GNYI\Bibbo\Wolf Center Site Plan - Current.dwg 4/14/2023 1:47:18 PM

150' LOCAL WETLAND BUFFER

100' STATE WETLAND BUFFER

APPROXIMATE LOCATION OF NYSDEC WETLAND L-20

DETERMINED BY OBSERVATION BY BETH EVANS, PWS 9/17/20

PROPOSED FLUSHING HYDRANT TO BE INSTALLED END OF WATERMAIN

PROPOSED TREE PLANTING FOR AREA REDUCTION (TYP.)

PROPOSED GREEN INFRASTRUCTURE TREE PLANTINGS (29 TREES REQUIRED)

7,700 FT² BUFFER DISTURBANCE

9,700 FT² MITIGATION AREA

PROPOSED 1:1 SLOPE PROTECTION OR 8:1 ROCK CUT

APPROXIMATE LOCATION OF EXISTING SEPTIC TO BE REBUILT (SEE DETAIL)

EXISTING 1 STORY HOUSE (STAFF HOUSING) (TO REMAIN)

APPROXIMATE LOCATION OF EXISTING SEPTIC

EXISTING BARN

OLD POST ROAD (RT # 35)

Gravel Drive

Stone Retaining Wall

ROCK

CB 7, CB 8, CB 9, CB 10, CB 11, CB 12, CB 23

DMH 7, DMH 3, DIV MH 1.2, DMH 2

HDS 1.1, HDS 1.2

ES 1, ES 2

TW = 474.0 BW = 473.0

TW = 477± BW = 477±

TW = 478± BW = 476.3

1-100

2-100

3-100

4-100

4-70

WS-1+00

0+00

0+50

2+00

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GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

STORMWATER MITIGATION PLANT SCHEDULE

TREES (OR APPROVED EQUAL)

Symbol	Code	Quantity	Scientific Name	Common Name	Size at Planting	Remarks
	AS	15	ACER SACCHARUM	SUGAR MAPLE	2 1/2– 3 IN. CAL.	
	UAP	14	ULMUS AMERICANA 'PRINCETON'	PRINCETON ELM	3–3 1/2 IN. CAL.	

WETLAND MITIGATION PLANT SCHEDULE

TREES (OR APPROVED EQUAL)

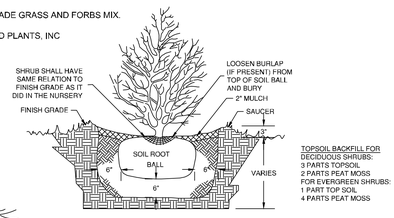
Symbol	Code	Quantity	Scientific Name	Common Name	Size at Planting	Remarks
	AAB	6	AMELANCHIER ARBOREA AUTNAM BRILLIANCE	SERVICEBERRY	7'–8' HT	12'–15' O.C.
	CCF	5	CERCIS CANADENSIS ' FOREST PANSY'	EASTERN REDBUD	6'–7' HT	20' O.C.
	CFL	5	CORNUS FLORIDA ' CHEROKEE PRINCESS'	WH. FLOWERING DOGWOOD		6'–12' O.C.

SHRUBS (OR APPROVED EQUAL)

Symbol	Code	Quantity	Scientific Name	Common Name	Size at Planting	Remarks
	CA	8	CORNUS AMOMUM	SILKY DOGWOOD	#3 CONT.	10' O.C.
	HVI	15	HAMAMELSIS VIRGINIANA	COMMON WITCHHAZEL	#3 CONT.	6' O.C.
	IV	9	ILEX VERTICILLATA	WINTERBERRY	#3 CONT.	10' O.C.

PLANTING LEGEND

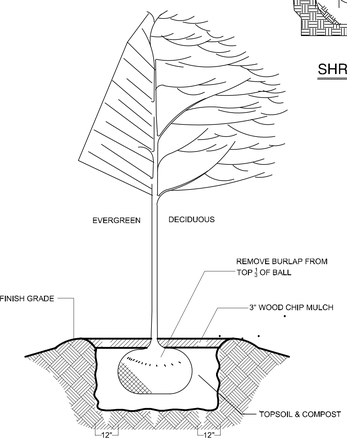
SEED MIX: NEW ENGLAND SEMI-SHADE GRASS AND FORBS MIX.
APPLICATION: 1,450 SQ FEET PER LB
SUPPLIER: NEW ENGLAND WETLAND PLANTS, INC
820 WEST STREET
AMHERST, MA 01002
PHONE: 413-548-8000



TOPSOIL BACKFILL FOR DECIDUOUS SHRUBS: 3 PARTS TOPSOIL 2 PARTS PEAT MOSS FOR EVERGREEN SHRUBS: 1 PART TOP SOIL 4 PARTS PEAT MOSS

SHRUB PLANTING
N.T.S.

NOTE: PRUNE BY THINNING BRANCHES (NOT ALL END TIPS) RETAINING NORMAL SHAPE NEVER CUT EVERGREEN LEADER.



TREE PLANTING DETAIL
N.T.S.

LEGEND

EXISTING PROPERTY LINE
WETLAND BUFFER LINE
WETLAND BOUNDARY LINE
EXISTING WOLF ENCLOSURE FENCE
EXISTING EASEMENT LINE
EXISTING 2' CONTOUR
EXISTING 10' CONTOUR 420
PROPOSED 2' CONTOUR
PROPOSED 10' CONTOUR 420
PROPOSED RETAINING WALL
PROPOSED ELECTRIC METER M
PROPOSED TRANSFORMER T
PROPOSED T-TAP TT
PROPOSED OVERHEAD ELECTRIC SERVICE OHE
PROPOSED UNDERGROUND ELECTRIC SERVICE E

REVISIONS					
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02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
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STATE OF NEW YORK MATTHEW J. GIRONDA LICENSED PROFESSIONAL ENGINEER NO. 096020

MATTHEW J. GIRONDA P.E.

MITIGATION PLAN

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE:	12-29-2020
SCALE:	1" = 20'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY	RH
SHT NO.	15 OF 19
DWG NO.	**M-1**

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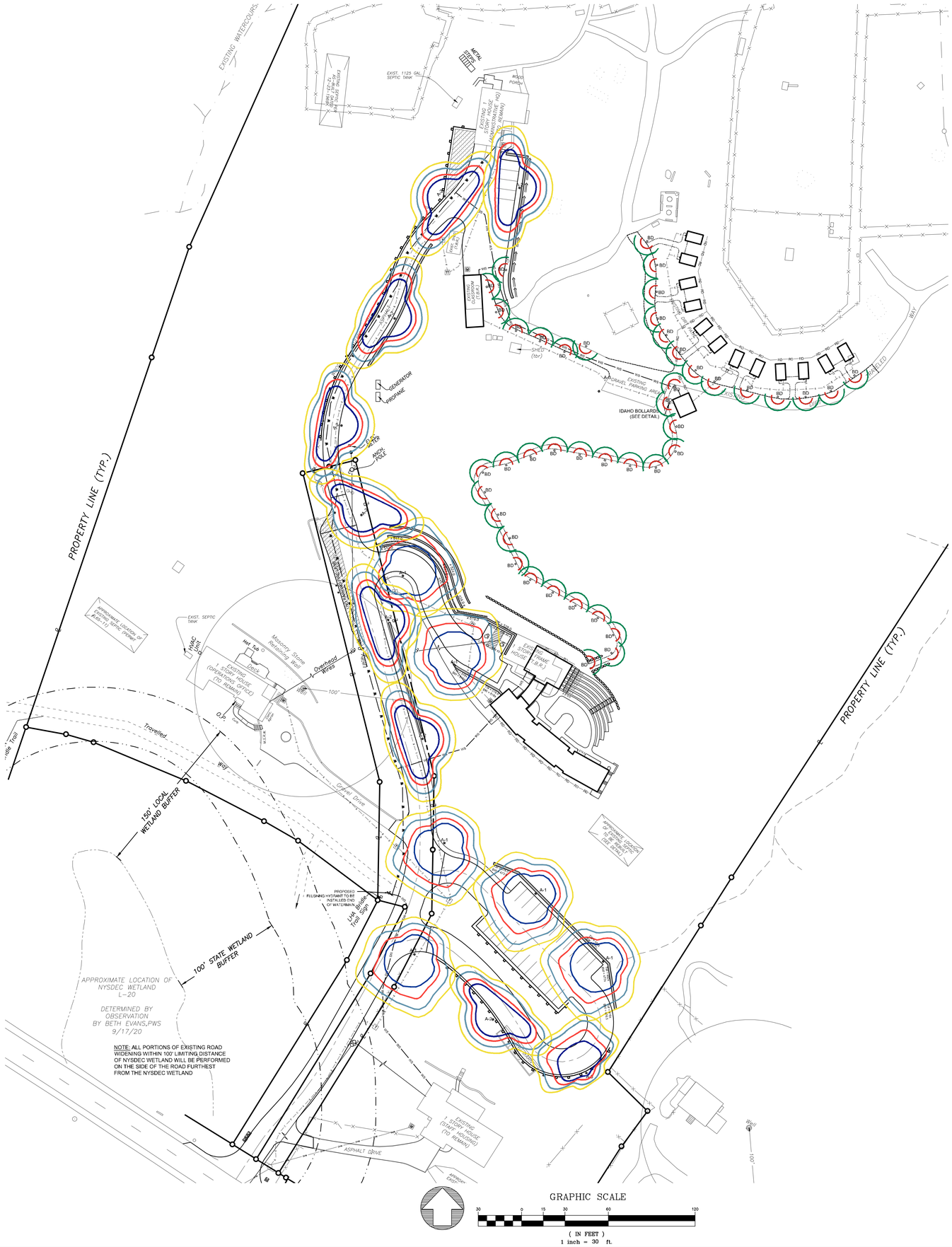

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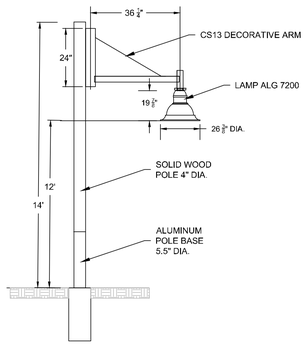
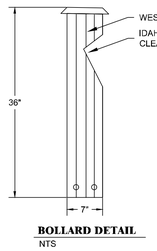
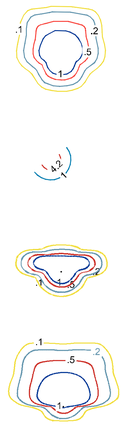


LAMP POST DETAIL
NTS



BOLLARD DETAIL
NTS



PHOTOMETRIC LEGEND
Units are measured in footcandles

LUMINAIRE SCHEDULE						
SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS /LAMP	WATTS	DESCRIPTION
☼		A-1	SINGLE	6617	64	ALLEGRA MEDIUM ALG-120/277-CSL-M80-30K-CRI 70-4 14ft POLE
☼		A-2	SINGLE	6329	64	ALLEGRA MEDIUM ALG-120/277-CSL-M80-30K-CRI 70-4 BLS 14ft POLE
☼		A-3	SINGLE	3524	64	ALLEGRA MEDIUM ALG-120/277-CSL-M80-30K-CRI 70-2 14ft POLE
□		BD	SINGLE	1600	15 LED	IDAHO WOOD NO. 2271DC-LED15 WATT

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STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · 090600

MATTHEW J. GIRONDA P.E.

LIGHTING PLAN

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
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SHT NO.	16 OF 19
DWG NO.	**LP-1**

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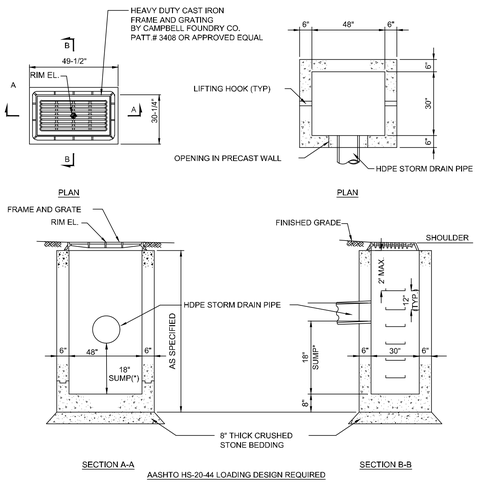
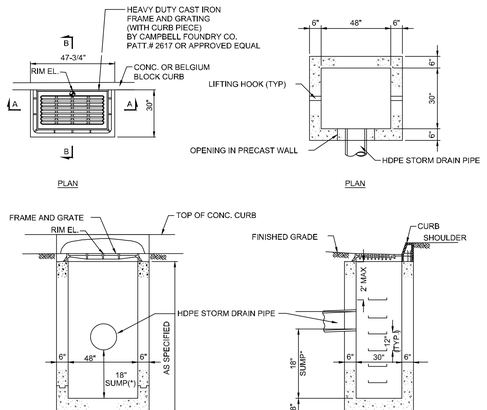


AASHTO HS-20-44 LOADING DESIGN REQUIRED

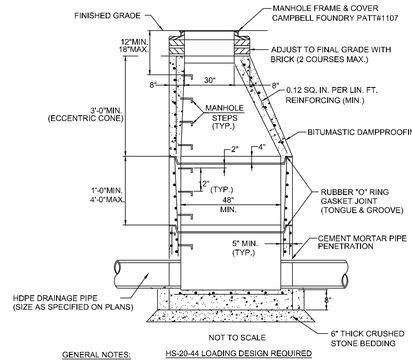
1. BASE & RISE SECTIONS SHALL BE PRECAST & MONOLITHICALLY POURED.
2. CONCRETE SHALL BE 4,000 PSI AT TIME OF DELIVERY.
3. ALL BASINS SHALL HAVE 18" MINIMUM SUMPS.
4. PROVIDE PROPER LIP AND / OR ANCHORING IN CASES OF HIGH GROUND WATER TO PREVENT FLOATATION.
5. LADDER RUNGS CONFORMING TO N.Y.S.D.O.T. SPEC. NO.725-02.01
6. ALL PIPES SHALL BE LAID OR CUT FLUSH WITH THE INSIDE OF THE BASIN WALL & SHALL BE FIRMLY PARGED IN PLACE, BOTH INSIDE AND OUTSIDE.
7. BRICK FRAME & GRATE TO GRADE TO MATCH BOTH CROWN OF ROAD & SLOPE OF ROAD. A MAX. OF TWO (2) CONCRETE BRICKS OR ONE (1) 6" SOLID BLOCK WILL BE PERMITTED, PARGED INSIDE & OUTSIDE.

TYPICAL CATCH BASIN (FT TYPE)
N.T.S.



AASHTO HS-20-44 LOADING DESIGN REQUIRED

TYPICAL CATCH BASIN (CI TYPE)
N.T.S.



GENERAL NOTES: HS-20-44 LOADING DESIGN REQUIRED

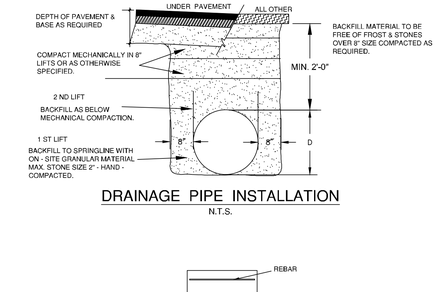
1. DRAINAGE PIPES MARKED WITH "HDPE" SHALL BE HIGH DENSITY POLYETHYLENE SMOOTH BORE AS MANUFACTURED BY ADS N-12 OR APPROVED EQUAL
2. CATCH BASINS, MANHOLES AND ALL CASTINGS SHALL BE IN ACCORDANCE WITH TOWN OF SOMERS REQUIREMENTS, STANDARDS AND SPECIFICATIONS AND AS SHOWN ON PLANS.
3. UNDERDRAINS SHALL BE 6" DIA. PERFORATED CORRUGATED STEEL PIPE OR EQUAL.
4. CATCH BASIN OR DRAIN MANHOLE WITH 3 OR MORE PIPE CONNECTIONS SHALL BE OVERSIZED DIMENSIONS.

NOTES:

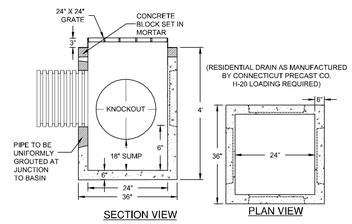
1. 5' OR 6' DIA. PRECAST BASES MAY BE USED WHEN REQUIRED DUE TO SIZE OR NUMBER OF PIPES AT THE MANHOLE. ECCENTRIC PRECAST REDUCERS SHALL BE PLACED ABOVE THE 5' OR 6' BASE AND THE WALL THICKNESS INCREASED 1" FOR EACH 1' OF INSIDE DIAMETER INCREASE.
2. NON-SHRINK GROUT MAY BE UTILIZED IN LIEU OF FLEXIBLE SLEEVES FOR STORM DRAINAGE MANHOLES.
3. LIFTING HOLES IN PRECAST SECTIONS TO BE FILLED WITH MORTAR.
4. FOR SHALLOW MANHOLES, SUBSTITUTE PRECAST SLAB TOP FOR ECCENTRIC CONE. SLAB SHALL BE CAPABLE OF SUPPORTING AN HS-20-44 LOAD.

EXCEPTION: DMH #4 WILL HAVE 2' SUMP AT THE END OF THE BYPASS LINE TO TREAT OFFSITE AREAS

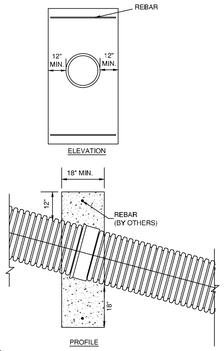
PRECAST CONCRETE DRAINAGE MANHOLE
N.T.S.



DRAINAGE PIPE INSTALLATION
N.T.S.



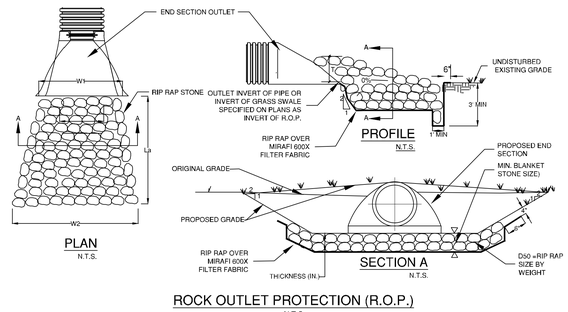
YARD DRAIN DETAIL
N.T.S.



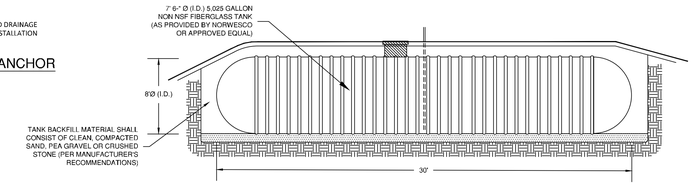
NOTES:

1. PIPE ANCHORS TO BE INSTALLED WHERE PROPOSED DRAINAGE PIPE SLOPE EXCEEDS 15%
2. ANCHORS SHALL BE PLACED EVERY JOINT.
3. PIPE TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
4. CONTRACTOR SHALL CONSULT WITH ADVANCED DRAINAGE SYSTEMS, INC. (ADS) FOR SPECIFIC DESIGN AND INSTALLATION REQUIREMENTS.

CONCRETE DRAIN PIPE ANCHOR
N.T.S



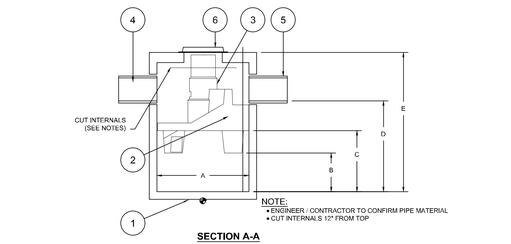
ROCK OUTLET PROTECTION (R.O.P.)
N.T.S



INSTALLATION NOTE:
TO INSURE TANK STABILITY, PROVIDE FOR SUBSURFACE DRAINAGE OF BEDDING AND BACKFILL AREA AS EXISTING CONDITIONS WARRANT. THE USE OF ANCHORING "DEADMEN" WITH STRAPS SHALL ALSO BE USED, IF REQUIRED BY THE PROJECT ENGINEER AFTER INSPECTION OF SITE CONDITIONS PRIOR TO TANK PLACEMENT.

NOTE:
FINAL TANK LOCATION AND CONNECTION DETAILS TO BE COORDINATED WITH THE LOCAL FIRE DEPARTMENT PRIOR TO PURCHASE AND INSTALLATION.

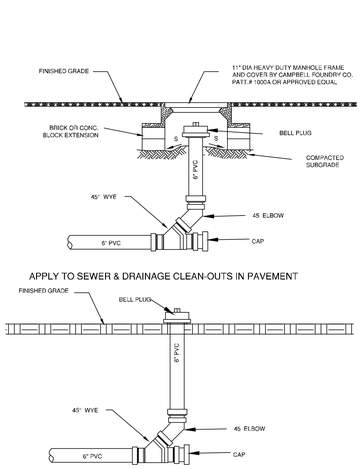
10,000 GAL. FIRE SUPPRESSION WATER STORAGE TANK
N.T.S.



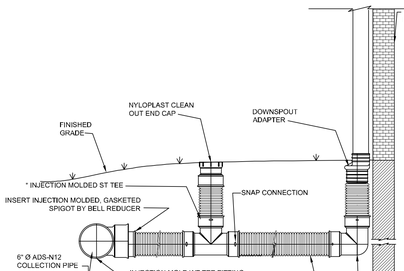
SECTION A-A
NTS

PARTS LIST : **FIRST DEFENSE HC**	
ITEM	**DESCRIPTION**
1	I.D. PRECAST MANHOLE
2	LEDGER SUPPORT
3	SEPARATION MODULE
4	INLET PIPE (BY OTHERS)
5	OUTLET PIPE (BY OTHERS)
6	FRAME & COVER

STRUCTURE NUMBER	MODEL	DIMENSIONS (FT)				
		A (MANHOLE DIAMETER (I.D.))	B	C	D	E
HDS 1.1	FD-4HC	4	2.25	3.47	4.97	8.0
HDS 1.2	FD-5HC	5	2.40	3.90	5.83	9.33
HDS 1.3	FD-3HC	3	1.83	2.67	3.71	6.46



TYPICAL CLEANOUT DETAIL
N.T.S.



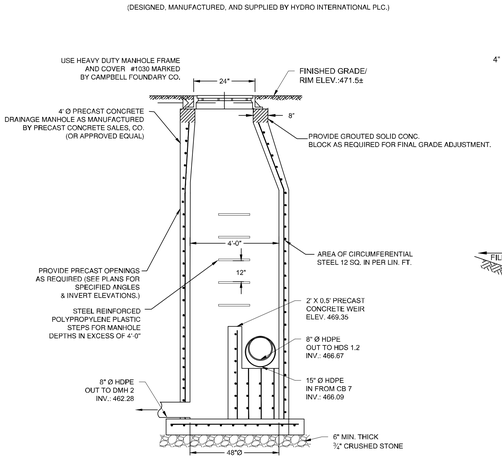
NOTE: EDUCATION PAVILION ROOF DRAINS TO BE 8" SDR 35 PVC, MIN SLOPE 1%
CAMPING DEN ROOF DRAINS TO BE 6" SDR 35 PVC, MIN SLOPE 1%

ROOF LEADER CONNECTION DETAIL
N.T.S.

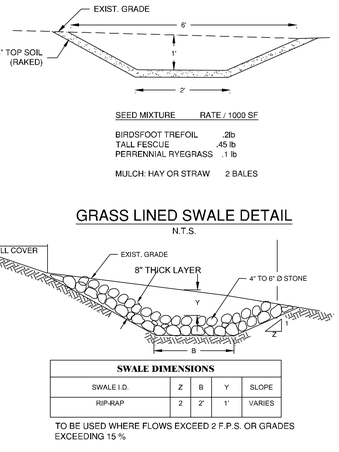
POST HYDRANT DETAIL
NOT TO SCALE

TANK FILL DETAIL
NOT TO SCALE

FIRST DEFENSE DETAIL
N.T.S.
(DESIGNED, MANUFACTURED, AND SUPPLIED BY HYDRO INTERNATIONAL PLC.)



DIVERSION MANHOLE 1.2 DETAIL
N.T.S.

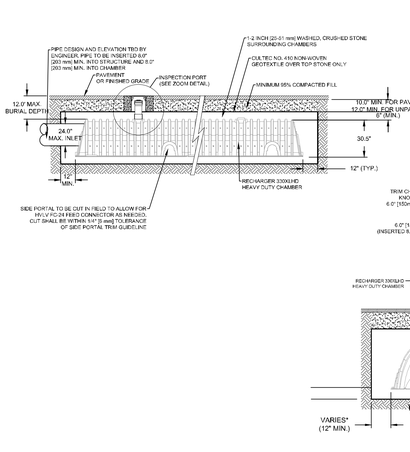


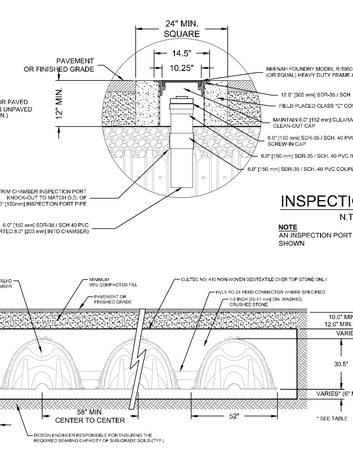
SWALE DIMENSIONS				
SWALE I.D.	Z	B	Y	SLOPE
RIP-RAP	2	2'	1'	VARIES

TO BE USED WHERE FLOWS EXCEED 2 F.P.S. OR GRADES EXCEEDING 15 %

GRASS LINED SWALE DETAIL
N.T.S.

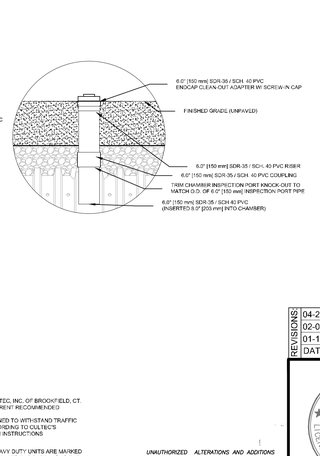
RIP-RAP SWALE DETAIL
N.T.S.

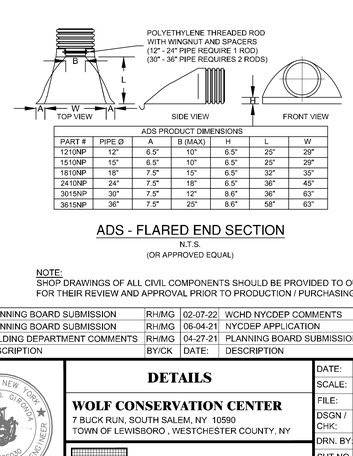




INSPECTION PORT
N.T.S.

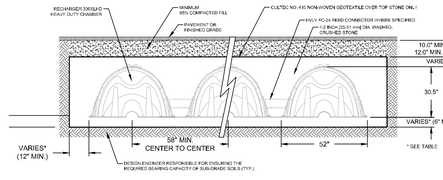
NOTE
AN INSPECTION PORT SHALL BE INSTALLED AS SHOWN





ADS PRODUCT DIMENSIONS						
PART #	PIPE Ø	A	B (MAX)	H	L	W
1210NP	12"	6.5"	10"	6.5"	25"	29"
1510NP	15"	6.5"	10"	6.5"	25"	29"
1810NP	18"	7.5"	15"	6.5"	32"	35"
2410NP	24"	7.5"	18"	6.5"	36"	45"
3015NP	30"	7.5"	12"	8.6"	36"	63"
3615NP	36"	7.5"	25"	8.6"	58"	63"

ADS - FLARED END SECTION
N.T.S.
(OR APPROVED EQUAL)



CULTEC RECHARGER 330 XLHD
N.T.S.
(OR APPROVED EQUAL)

GENERAL NOTES
RECHARGER 330XL HD BY CULTEC, INC. OF BROOKFIELD, CT. REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
THE CHAMBER WILL BE DESIGNED TO WITH-STAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

ALL RECHARGER 330XL HD "HEAVY DUTY" UNITS ARE MARKED WITH A COLOR STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
ALL RECHARGER 330XL HD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS

NOTE:
SHOP DRAWINGS OF ALL CIVIL COMPONENTS SHOULD BE PROVIDED TO OUR OFFICE FOR THEIR REVIEW AND APPROVAL PRIOR TO PRODUCTION / PURCHASING

REVISIONS					
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-07-22	WCHD NYCDEP COMMENTS	ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION	RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW.

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STATE OF NEW YORK — MATTHEW J. GIRONDA — LICENSED PROFESSIONAL ENGINEER — NO. 096058

MATTHEW J. GIRONDA P.E.

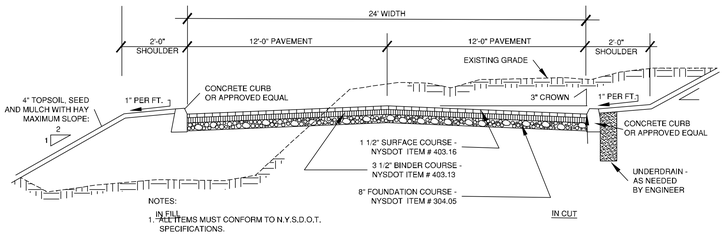
DETAILS

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

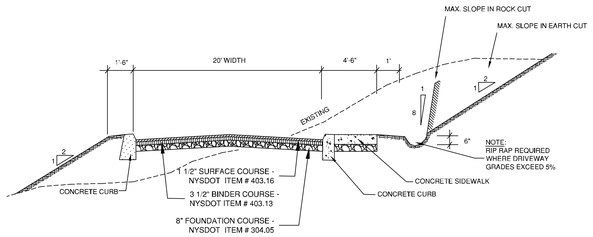
BIBBO ASSOCIATES, LLP
283 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE:	12-29-2020
SCALE:	1" = 30'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY:	RH
SHT NO.	17 OF 19
DWG NO.	**D-1**

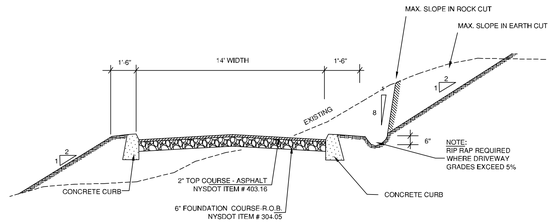
G:\Projects\WCS\2 CIVIL\DWG_CEXT\Bridge\dwg\F Corner Tile Plan - Current.dwg, 6/14/2023 4:43:38 PM



24' WIDE PRIVATE ROAD PAVEMENT SECTION
(STATION 0+00 - 3+50)
N.T.S.



20' WIDE DRIVEWAY PAVEMENT SECTION
(STATION 3+50 - 6+60)
N.T.S.



14' WIDE DRIVEWAY PAVEMENT SECTION
(STATION 6+60 - PARKING AREA)
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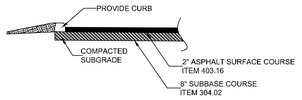

PROPOSED PARKING AREA PAVEMENT SECTION
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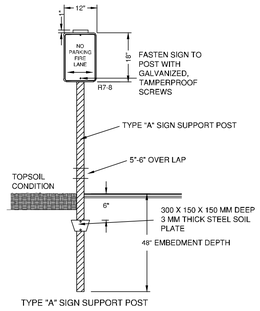
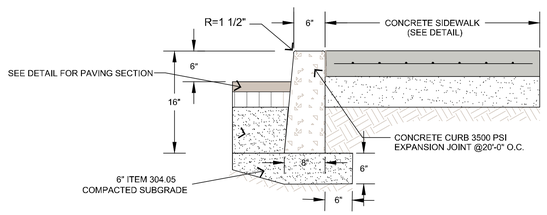
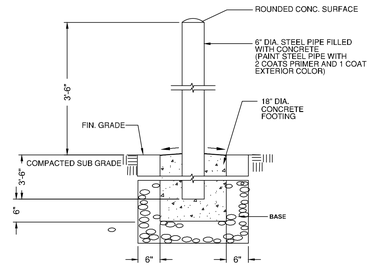


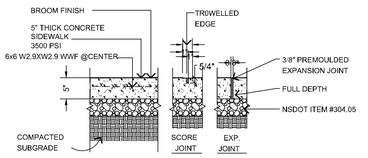
NO PARKING SIGNAGE
N.T.S.



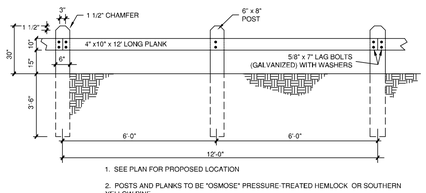
CONCRETE CURB DETAIL
N.T.S.



CONCRETE FILLED STEEL BOLLARD
N.T.S.

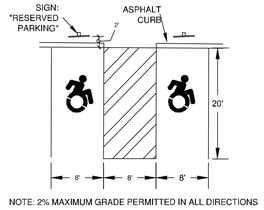


CONCRETE SIDEWALK DETAIL
N.T.S.



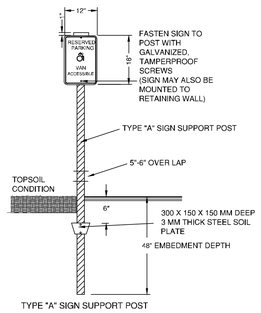
1. SEE PLAN FOR PROPOSED LOCATION
2. POSTS AND PLANKS TO BE "OSMOSE" PRESSURE-TREATED HEMLOCK OR SOUTHERN YELLOW PINE.

TIMBER GUIDE RAIL DETAIL
N.T.S.

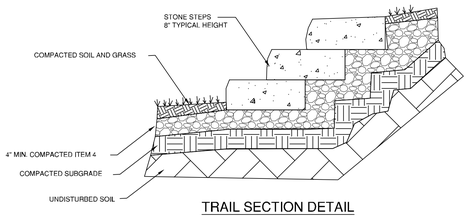


NOTE: 2% MAXIMUM GRADE PERMITTED IN ALL DIRECTIONS

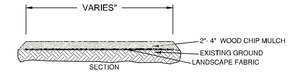
ACCESSIBLE PARKING DIMENSIONS & SIGN PLACEMENT
N.T.S.



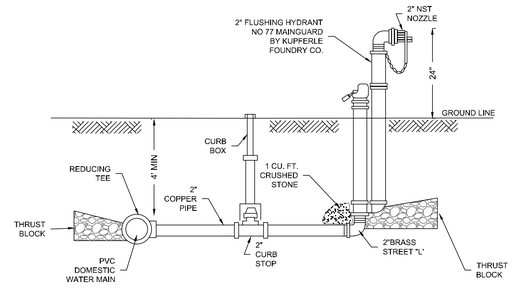
ACCESSIBLE PARKING SIGNAGE
N.T.S.



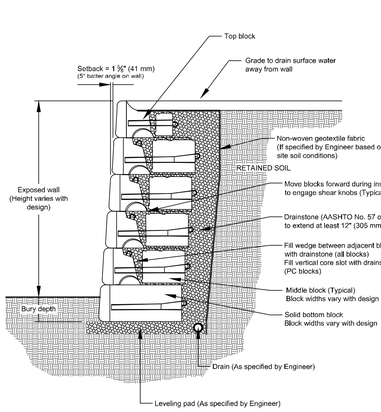
TRAIL SECTION DETAIL
N.T.S.



WOOD CHIP WALKING TRAIL
N.T.S.



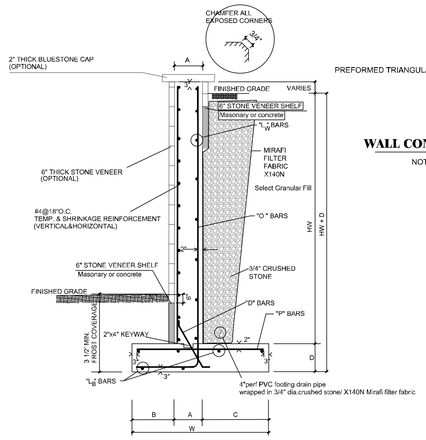
FLUSHING HYDRANT DETAIL
N.T.S.



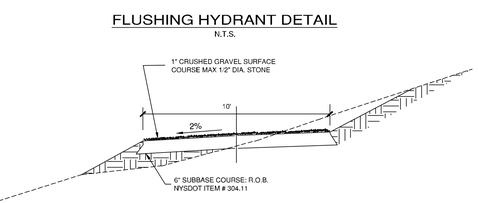
TYPICAL SEGMENTAL BLOCK RETAINING WALL DETAIL
N.T.S.

NOTES:

1. TYPICAL WALL DETAIL IS PROVIDED FOR REFERENCE ONLY. WALL DESIGN DRAWINGS PREPARED BY A NYS LICENSED ENGINEER SHALL BE PROVIDED TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. ACTUAL WALL DESIGN DRAWINGS AND CALCULATIONS SHALL BE BASED ON SITE CONDITIONS.
3. TYPICAL WALL DETAIL PROVIDED ABOVE BASED ON "TYPICAL GRAVITY WALL SECTION" AS MANUFACTURED BY REDI ROCK.
4. THE CONSTRUCTION OF RETAINING WALLS GREATER THAN OR EQUAL TO FOUR (4') IN HEIGHT SHALL BE CERTIFIED BY THE DESIGN PROFESSIONAL PRIOR TO ISSUANCE TO A CERTIFICATE OF OCCUPANCY / COMPLETION.



REINFORCED CONCRETE RETAINING WALL DETAIL- SECTION
NTS



WALL CONTRACTION JOINT DETAIL

NOTE: 1. CONCRETE TO BE CONTINUOUSLY PLACED ACROSS JOINT

RETAINING WALL SCHEDULE											
HW	A	B	C	W	"O" BARS	"D" BARS	"L" BARS	"L" BARS	"P" BARS	"D" BASE DEPTH	DESCRIPTIONS
0' to 10'	12"	15"	3'-5"	5'-8"	#5@12"o.c.	#4@12"	6-#5	#5@12"o.c.	#5@12"o.c.	12"	

NOTES:

1. THE CONSTRUCTION OF RETAINING WALLS GREATER THAN OR EQUAL TO FOUR (4') IN HEIGHT SHALL BE CERTIFIED BY THE DESIGN PROFESSIONAL PRIOR TO ISSUANCE TO A CERTIFICATE OF OCCUPANCY / COMPLETION.

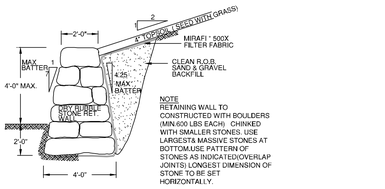
NOTES:

1. THE CONTRACTOR SHALL VERIFY THE EXISTING SOIL, TOPOGRAPHIC CONDITIONS, SUBSEQUENT RETAINING WALL HEIGHTS AND SOIL CONDITIONS PRIOR TO STARTING THE WORK. ANY INCONSISTENCIES SHALL BE REPORTED TO THE DESIGN ENGINEER TO DETERMINE IF FIELD CHANGES ARE REQUIRED.
2. REINFORCEMENT SHALL BE ASTM GRADE 60, DEFORMED BILLET-STEEL REBAR FOR CONCRETE REINFORCEMENT COMPLIANCE WITH ASTM A615.
3. ALL POURED IN PLACE CONCRETE SHALL HAVE A 3000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
4. WHERE THE RETAINING WALL SHALL BE CONSTRUCTED ON A SLOPE, SUFFICIENT LEVEL SHELVING SHALL BE PROVIDED FOR FOOTING CONSTRUCTION. BOTTOM OF FOOTING SHALL BE CONSTRUCTED AS SHOWN ON THE RETAINING WALL CROSS SECTION
5. BACKFILL MATERIAL OF THE RETAINING WALL SHALL BE SELECT GRANULAR FILL CONFORMING TO THE GRADATION REQUIREMENTS SPECIFIED IN TABLE 7-7 OF THE NYSDOT STANDARD SPECIFICATIONS AND AS DESCRIBED BELOW.

SIEVE SIZE	PERCENT PASSING
4"	100%
No. 40	0-70%
No. 200	0-15%

6. SELECT GRANULAR FILL SHALL BE FREE OF LARGE STONES, ORGANIC MATTER, SOILS CONTAINING LARGE PERCENTAGES OF SILT / CLAY AND FROZEN MATERIALS. BACKFILL SHALL PROVIDE ADEQUATE DRAINAGE BEHIND THE WALL.
7. RETAINING WALL DESIGN IS BASED ON A 2.0 TON/SF SOIL BEARING CAPACITY. THE CONTRACTOR SHALL FIELD VERIFY SOIL CONDITIONS AND BEARING CAPACITIES OF IN-SITU SOIL. IF SOIL TESTING REVEALS INADEQUATE SOIL BEARING CAPACITIES, THE DESIGN ENGINEER SHALL BE NOTIFIED TO CONFIRM WALL DESIGN PARAMETERS PRIOR TO CONSTRUCTION.
8. THE RETAINING WALL DESIGN IS BASED ON A "B" CLASS "GRANULAR SOILS, MIX GRAIN SIZES" BACKFILL SOIL CONDITION. ANY ALTERATION FROM THESE SOILS, SUCH AS HIGH GROUNDWATER, HIGH PERCENTAGES OF FINES, SILTS AND CLAYS WILL CONSTITUTE DESIGN CHANGES.
9. CONTRACTOR SHALL TAKE CONCRETE CORE SAMPLES FROM FOOTING AND STEM POURS SEPARATELY AND HAVE THEM LABORATORY TESTED FOR COMPRESSIVE STRENGTH FOR 7 AND 28 DAYS.
10. ALL REBAR LAP SPLICES SHALL BE A MINIMUM OF 32" IN LENGTH.
11. WALL CONTRACTION JOINTS WILL BE PROVIDED AT EVERY 25' O.C. AS INDICATED ON THE PLANS
12. CHAMFER ALL EXPOSED CORNERS ¾"
13. NO WALL DRAINAGE SHALL DISCHARGE DIRECTLY TO ADJOINING PROPERTIES.
14. THE COMPLETED RETAINING WALL CONSTRUCTION SHALL BE CERTIFIED BY A LICENSED NEW YORK STATE PROFESSIONAL ENGINEER TO BE IN CONFORMANCE WITH THE APPROVED PLANS AND MUST INCLUDE LABORATORY TESTING RESULTS FOR SUB GRADE BEARING CAPACITY, BACKFILL GRADATION, COMPACTION, CONCRETE STRENGTH AND REBAR PLACEMENT.
14. RETAINING WALL FOOTING BOTTOM WILL BE ON THE EXISTING GRADE. ALL CONCRETE POURS SHALL BE MONOLITHIC AND NO HORIZONTAL COLD JOINTS WILL BE ALLOWED.
15. CONTRACTOR TO ENSURE PROPER SHORING AND/PR BRACING TO STABILIZE OR PREVENT CAVE-INS OF LOOSE SOIL AT THE EXCAVATION SITE.
16. WHEN BACKFILLING AGAINST THE WALLS, HEAVY COMPACTION EQUIPMENT SHALL BE KEPT AT LEAST 5 FEET AWAY FROM THE WALL. ONLY THE LIGHTWEIGHT COMPACTION EQUIPMENT SHALL BE USED NEAR THE WALL.
17. TOP OF WALL ELEVATIONS SHOWN ON THE PLANS INCLUDE 2" THICK CAP STONE, FOR NET CONCRETE ELEVATION SUBTRACT 2" FROM TOP ELEVATIONS.

GRAVEL PATH DETAIL
N.T.S.



NOTE
RETAINING WALL TO CONSTRUCTED WITH BOULDERS (MIN.600 LBS EACH) CHINKED WITH SMALLER STONES. USE LARGEST& MASSIVE STONES AT BOTTOM.USE PATTERN OF STONES AS INDICATED(OVERLAP JOINTS) LONGEST DIMENSION OF STONE TO BE SET HORIZONTALLY.

BOULDER RETAINING WALL DETAIL
N.T.S.

NOTE:
SHOP DRAWINGS OF ALL CIVIL COMPONENTS SHOULD BE PROVIDED TO OUR OFFICE FOR THEIR REVIEW AND APPROVAL PRIOR TO PRODUCTION / PURCHASING

REVISIONS					
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-07-22	WCHD NYCDEP COMMENTS	ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION	RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION	RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION	BY/CK

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STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · No. 099000

MATTHEW J. GIRONDA P.E.

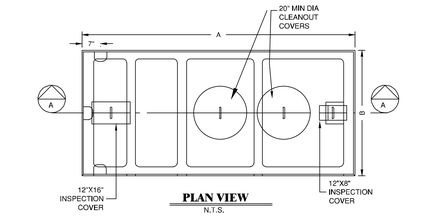
DETAILS

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

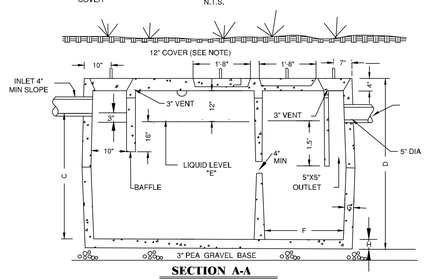
DATE:	12-29-2020
SCALE:	1" = 30'
FILE:	L5
DSGN / CHK:	SB
DRN. BY	NH
SHT NO.	18 OF 19
DWG NO.	**D-2**

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

J:\Projects\WCS & CCWS\DWG - CAD FILES\Design\Detail Cover Site Plan - Current.dwg, 6/1/2023 4:01:33 PM



PLAN VIEW
N.T.S.



SECTION A-A
N.T.S.

TYPICAL SEPTIC TANK DETAIL

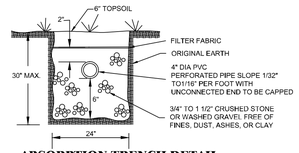
MANUFACTURED BY M & M PRECAST OR , APPROVED EQUAL
WITH LENGTH TO WIDTH RATIO 2:1

SEPTIC TANK SPECIFICATIONS & CAPACITIES

LIQUID CAPACITY	A LENGTH	B WIDTH	C INVERT	D HEIGHT	E LIQUID LEVEL	F COMPART LENGTH	G WALL THICKN	H BOTTOM THICKN
1000 GAL.	9'-0"	4'-6"	4'-7"	5'-8"	4'-0"	N/A	3"	4"
1250 GAL.	10'-4"	4'-10"	4'-7"	5'-8"	4'-0"	3'-1"	3"	4"
1500 GAL.	10'-4"	4'-10"	5'-5.1"	6'-6"	5'-1.5"	3'-1"	3"	4"

ST*

NOTE: IF TANK COVER EXCEEDS 24" USE BRICK OR CONCRETE RISER OVER ACCESS MANHOLE AS NECESSARY TO MAINTAIN 12 " COVER



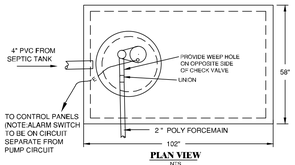
ABSORPTION TRENCH DETAIL

N.T.S.

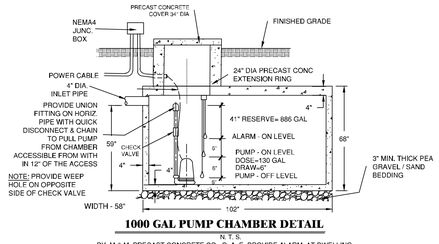
1.) TRENCHES ARE TO BE INSTALLED PARALLEL TO FINISHED CONTOURS

2.) A 5' MINIMUM SEPARATION DISTANCE IS REQUIRED FROM THE BOTTOM OF THE TRENCH TO THE PRESENCE OF LEDGE OR GROUNDWATER.

3.) PROVIDE END CAPS AT THE END OF ALL TRENCHES.



PLAN VIEW
N.T.S

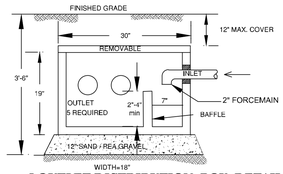


1000 GAL PUMP CHAMBER DETAIL

N. T. S.

BY M & M PRECAST CONCRETE CO. O. A. E. PROVIDE ALARM AT DWELLING PUMP STATION SPECIFICATIONS:

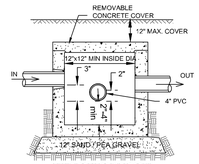
1) EFFLUENT PUMP - GOULDS MODEL PE51 0.5 HP 115 VOLTS
2) SIMPLEX CONTROL PANEL WITH HIGH LEVEL ALARM CIRCUIT, HORN AND FLASHING RED LIGHT. ALARM TO BE POWERED BY SEPARATE POWER SUPPLY FROM MAIN PANEL.
3) MECHANICAL FLOAT CONTROL SWITCHES (3 REQUIRED) GOULDS MODEL A2.7
4) ALL ELECTRICAL WORK AND MATERIAL FOR PUMP SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE.
5) THE PUMP CONTROL PANEL DISCONNECTS AND ALARM SHALL BE LOCATED INSIDE THE HOUSE.
6) NEMA 4X FILBERGLASS JUNCTION BOX (TO BE POST MOUNTED AT EXTERIOR OF PUMP STATION)



5 OUTLET DISTRIBUTION BOX DETAIL

N. T. S.

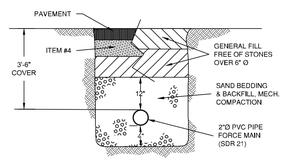
NOTE:
1. BOTTOM OF THE D-BOX MUST BE LEVEL AND SUPPORTED SOLIDLY TO BELOW FROST LINE AND THE FOOTING TO BE EXTENDED TO 36" BELOW GROUND LEVEL.
2. PROVIDE SPEED LEVELERS AS NEEDED TO EVENLY DISTRIBUTE FLOW.



JUNCTION BOX DETAIL

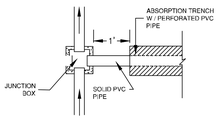
N.T.S.

NOTE:
BOTTOM OF THE J-BOX MUST BE LEVEL AND SUPPORTED SOLIDLY TO BELOW FROST LINE AND THE FOOTING TO BE EXTENDED TO 36" BELOW GROUND LEVEL.



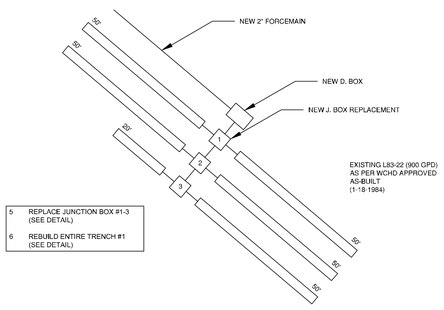
FORCE MAIN INSTALLATION DETAIL

N.T.S.



JUNCTION BOX & TRENCH CONNECTION DETAIL

N.T.S.



EXISTING SEPTIC

N. T. S.

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REVISIONS						
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	02-02-22	WCHD NYCDEP COMMENTS		ZF/ED
02-07-23	PLANNING BOARD SUBMISSION	RH/MG	06-04-21	NYCDEP APPLICATION		RH/MG
01-16-23	BUILDING DEPARTMENT COMMENTS	RH/MG	04-27-21	PLANNING BOARD SUBMISSION		RH/MG
DATE:	DESCRIPTION	BY/CK	DATE:	DESCRIPTION		BY/CK

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STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · LIC. NO. 099058

MATTHEW J. GIRONDA P.E.

ON-SITE WASTEWATER TREATMENT SYSTEM

DETAILS

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

DATE:	12-29-2020
SCALE:	1" = 30'
FILE:	L5
DSGN / CHK:	SB
DRN. BY:	NH
SHT NO.	19 OF 19
DWG NO.	D-3

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

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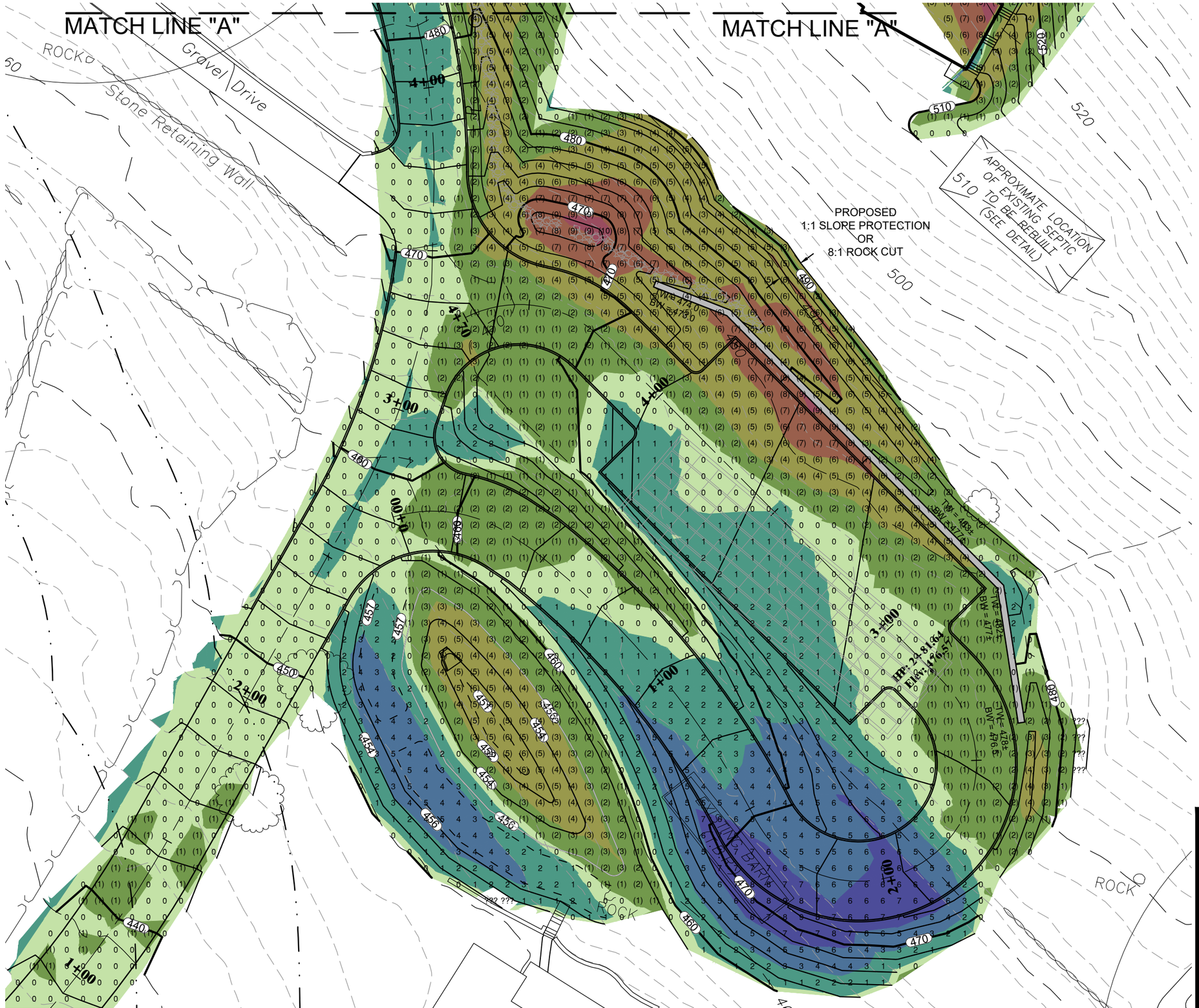

ESTIMATED QUANTITY OF EARTHWORK		
CUT (CY)	FILL (CY)	NET (CY)
7,015*	2,940	4,075 (CUT)

* INCLUDES QUANTITY OF MATERIAL REMOVED FOR STORMWATER INFILTRATION SYSTEMS

NOTE: QUANTITIES NOT TO BE USED FOR BIDDING PURPOSES.

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-12.00	-9.00	
2	-9.00	-6.00	
3	-6.00	-3.00	
4	-3.00	-0.50	
5	-0.50	0.50	
6	0.50	3.00	
7	3.00	6.00	
8	6.00	19.00	
9	9.00	12.00	

CUT AND FILL EXHIBIT I

DATE: 4-25-23

SCALE: 1"= 30'

WOLF CONSERVATION CENTER

7 BUCK RUN, SOUTH SALEM, NY 10590

TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP

293 ROUTE 100 SUITE 203

SOMERS, NEW YORK 10589

TEL. 914 277 5805

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MATCH LINE "B"

MATCH LINE "B"

MATCH LINE "A"

MATCH LINE "A"

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-12.00	-9.00	
2	-9.00	-6.00	
3	-6.00	-3.00	
4	-3.00	-0.50	
5	-0.50	0.50	
6	0.50	3.00	
7	3.00	6.00	
8	6.00	19.00	
9	9.00	12.00	

CUT AND FILL EXHIBIT II

DATE: 4-25-23

SCALE: 1"= 30'

WOLF CONSERVATION CENTER

7 BUCK RUN, SOUTH SALEM, NY 10590

TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP

293 ROUTE 100 SUITE 203

SOMERS, NEW YORK 10589

TEL. 914 277 5805

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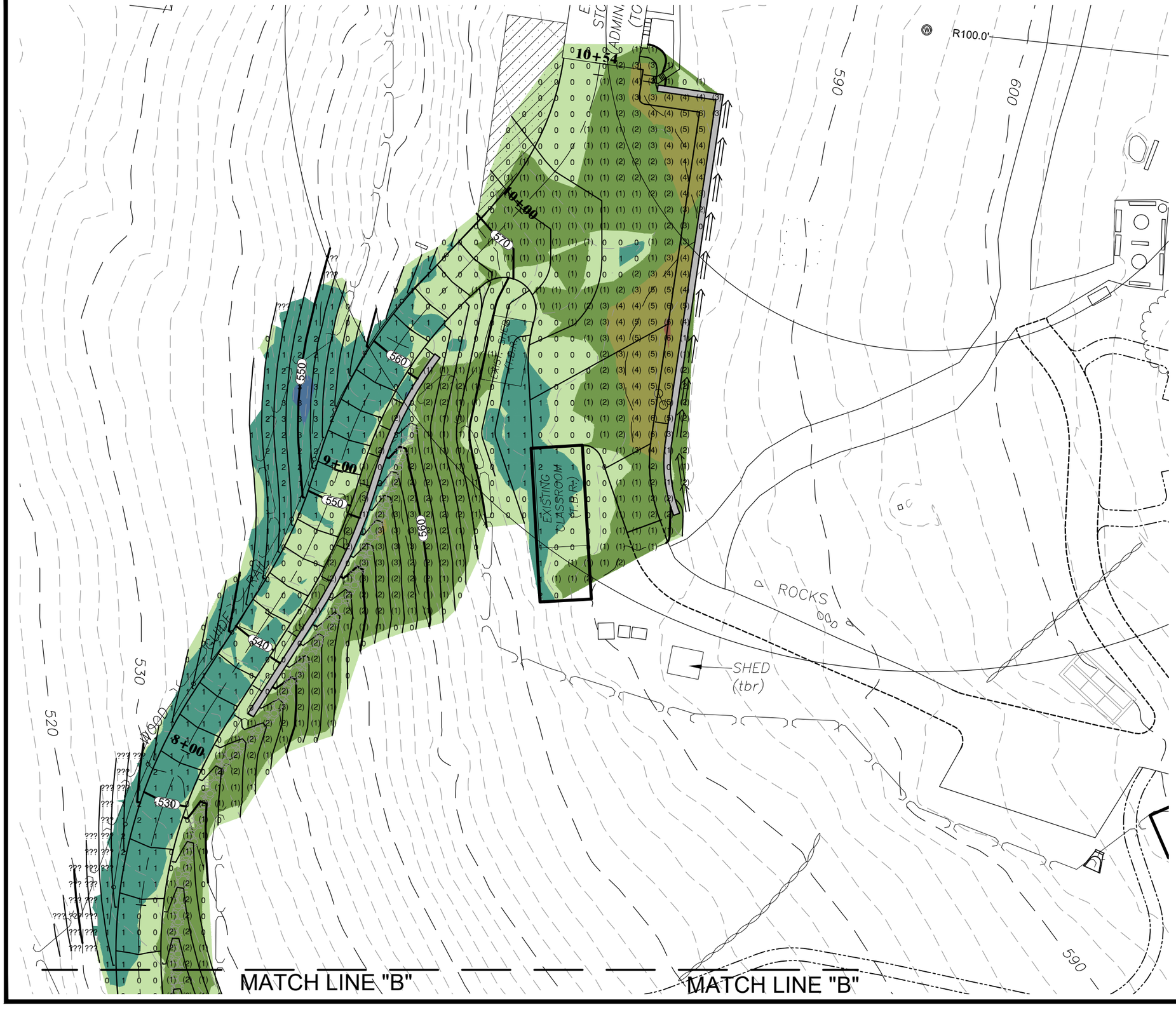


Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-12.00	-9.00	
2	-9.00	-6.00	
3	-6.00	-3.00	
4	-3.00	-0.50	
5	-0.50	0.50	
6	0.50	3.00	
7	3.00	6.00	
8	6.00	19.00	
9	9.00	12.00	

CUT AND FILL EXHIBIT III

DATE: 4-25-23

SCALE: 1"= 30'

WOLF CONSERVATION CENTER

7 BUCK RUN, SOUTH SALEM, NY 10590

TOWN OF LEWISBORO , WESTCHESTER COUNTY, NY

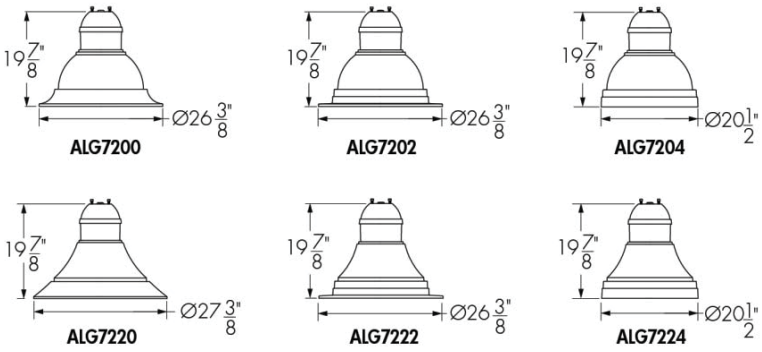
BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

SHEET 3 OF 3

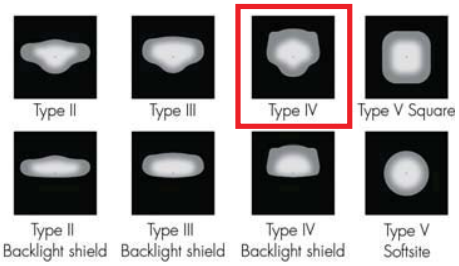
P:\Projects\WOLF CONSERV. CENTER\dwg\Wolf Center Site Plan- Current.dwg, 4/24/2023 3:44:04 PM

Project Name Wolf Conservation Center **Qty**

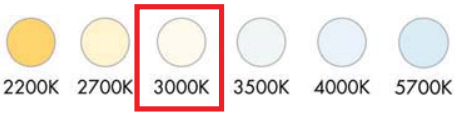
Type A1 **Catalog / Part Number** Wolf Conservation Center



Distributions



Colors and Color Temperatures



Controls

ON/OFF 0-10V

Rating

IP66 (optical chamber)

Certifications

Description

The Allegra Medium is a durable, stylish luminaire for urban lighting applications, including pedestrian plazas, residential streets and collector roads. Offering a choice of outputs, color temperatures, and distributions, the Allegra Medium is elegance personified.

Features

Color and Color Temperature	2200K, 2700K, 3000K, 3500K, 4000K, 5700K
Distributions	Type II, Type III or Type IV (with or without backlight shield), Type 5 square and Type V Softsite
Options	Corrosion-resistant coating for hostile environments, Surge protector
Mounting Options	Top mounted, Side top mounted
Warranty	5-year limited warranty

Performance

Output (nominal lumens)	Minimum 3000lm / Maximum 17000lm
Color Rendering	3 SDCM at CRI 70+ and 2 SDCM at CRI 80+
Lumen Maintenance	TM-21 L70 527,000 hrs (projected, Ta 77 °F), 36,000 hrs (reported, Ta 77 °F)
Dark sky	Dark sky compliant (2200K, 2700K and 3000K color temperatures, BUG rating of U0)

Physical

Housing Material	Die cast low copper 360 aluminum alloy
Lens material	Optical tempered clear glass (Clearsite lens), Optical tempered opal glass (Softsite lens)
Weight	Up to 35 lbs

GoldstickLightingDesign,Ltd.
629 Fifth Avenue, Suite 204
Pelham, NY 10803
(914) 693-0221
www.goldsticklighting.com

Project Name:
Wolf Conservation Center Site Lighting
Issue Date:
November 16, 2020
For Reference Only - See Fixture Schedule for Full Specification

TYPE
A1

Photometric information

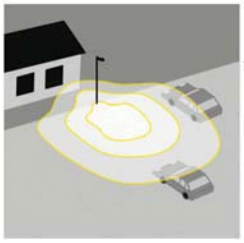
Type II, 4000K, CRI 70+

	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,376	109	1	0	1	31
S60	5,204	95	1	0	1	55
M80	6,892	108	2	0	1	64
M110	9,423	102	2	0	2	92
M150	12,518	95	2	0	2	132
L170	14,023*	96	3*	0*	2*	146

Type III, 4000K, CRI 70+

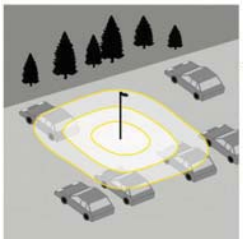
	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,801	123	1	0	1	31
S60	5,861	107	1	0	1	55
M80	7,761	121	2	0	2	64
M110	10,612	115	2	0	2	92
M150	14,097	107	3	0	2	132
L170	15,792*	108	3*	0*	2*	146

Type IV, 4000K, CRI 70+



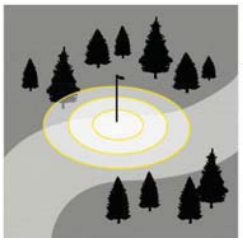
	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,529	114	1	0	1	31
S60	5,441	99	1	0	1	55
M80	7,205	113	2	0	2	64
M110	9,852	107	2	0	2	92
M150	13,087	99	3	0	3	132
L170	14,662*	100	3*	0*	3*	146

Type V square, 4000K, CRI 70+



	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,844	124	2	0	1	31
S60	5,927	108	3	0	1	55
M80	7,849	123	3	0	1	64
M110	10,733	117	3	0	2	92
M150	14,257	108	4	0	2	132
L170	15,980*	110	4*	0*	2*	146

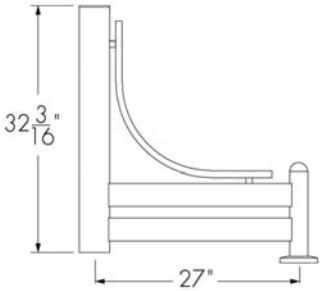
Type V Softsite, 4000K, CRI 70+



	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
L30	3,048	66	1	0	1	47
L50	5,856	60	2	0	1	96
L70	8,022*	55	3*	0*	1*	146

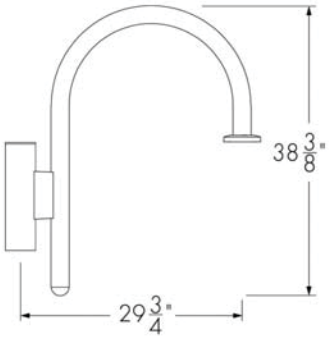
Compatible decorative arms (consult related specification sheets for details)

CS2 decorative arm



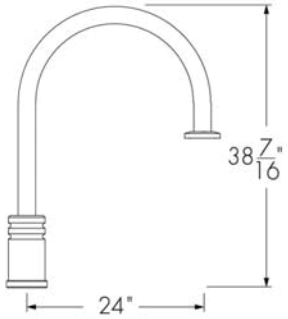
SIDE VIEW

CS4 decorative arm



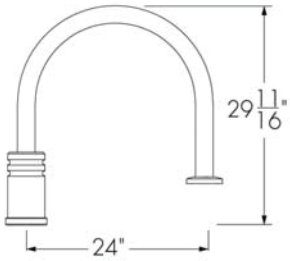
SIDE VIEW

CS6 decorative arm



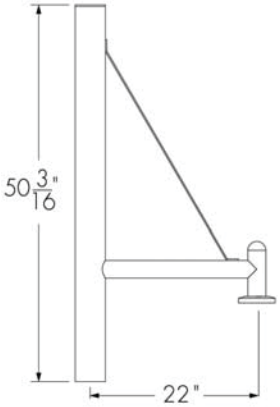
SIDE VIEW

CS9 decorative arm



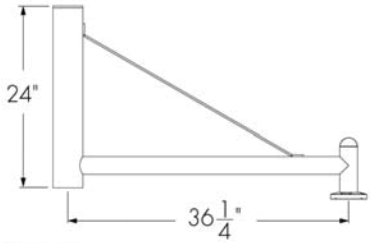
SIDE VIEW

CS12 decorative arm



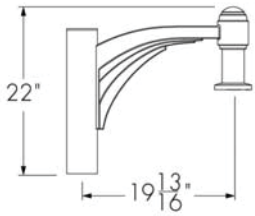
SIDE VIEW

CS13 decorative arm



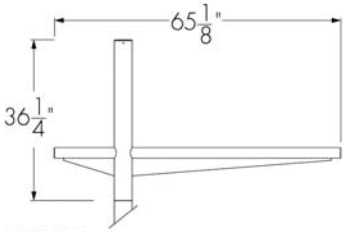
SIDE VIEW

MC5 decorative arm



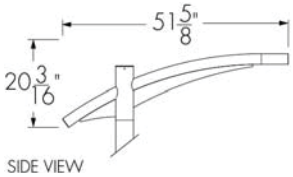
SIDE VIEW

PU4 decorative arm



SIDE VIEW

PU5 decorative arm



SIDE VIEW

How to order

Housing [1]	Voltage	Lens	Output (nominal lumens)	Color and Color Temperature [7]	Color Rendering	Distributions	Finish	Control	Options	Mounting Options
ALG7200 Allegra 7200	**120** 120 volts	**CSL** Clearsite lens [2] [3]	**S40** 4000lm [6]	**22K** 2200K [8]	**CRI 70** CRI 70+ [9]	**2** Type II	**BK** Black Sandtex®	**DIM** 0-10V dimming [14]	**CRC** Corrosion-resistant coating for hostile environments	**TM** Top mounted [15]
ALG7202 Allegra 7202	**240** 240 volts	**SSL** Softsite lens [4] [5]	**S60** 6000lm	**27K** 2700K [8]	**CRI 80** CRI 80+ [10]	**2BLS** Type II backlight shield	**BRZ** Bronze Sandtex®		**SP** Surge protector	**ST** Side top mounted [16]
ALG7204 Allegra 7204	**277** 277 volts		**M80** 8000lm	**30K** 3000K		**3** Type III	**SI** Silver Sandtex®			
ALG7220 Allegra 7220	**347** 347 volts		**M110** 11 000lm	**35K** 3500K		**3BLS** Type III backlight shield	**BKTX** Textured black			
ALG7222 Allegra 7222	**480** 480 volts		**M150** 15 000lm	**40K** 4000K		**4** Type IV	**BRZTX** Textured bronze non-metallic			
ALG7224 Allegra 7224			**L170** 17 000lm	**57K** 5700K		**4BLS** Type IV backlight shield	**GRATX** Textured medium gray			
			L30 3000lm Softsite [5]			**5S** Type V square	**GRNTX** Textured green			
			L50 5000lm Softsite [5]			**5** Type V Softsite [4]	**WHTX** Textured white			
			L70 7000lm Softsite [5]				**CC** Custom color and finish (please specify RAL color) [11] [12] [13]			

Notes:

1. Consult Related Products section on webpage for a selection of compatible decorative arms, decorative poles (sold separately).
2. Available with S40, S60, M80, M110, M150 and L170 output option only.
3. Available with types 2, 2BLS, 3, 3BLS, 4, 4BLS and 5S distribution only.
4. Available with L30, L50 and L70 output options only.
5. Available with type 5 distribution only.
6. Available up to 277V.
7. Consult factory for more color temperature options.
8. Available for CRI 80 only.
9. Binning within a 3 step McAdam ellipse, with the exception of 2200K and 5700K.
10. Binning within a 2 step MacAdam ellipse, with the exception of 5700K.
11. Specify RAL number followed by "TX" for textured finish (ex: RAL9007TX) or STX for Sandtex finish (ex: RAL9007STX). Textured or Sandtex finishes are recommended for the durability of all products. If a finish is not specified with the RAL number (ex: RAL9007), a glossy finish will be provided. Please consult factory for other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
12. Charges apply for RAL colors. Consult factory for details.
13. Longer lead times can be expected for custom RAL color finishes.
14. DIM control can be used as NO (On/off control) if no data is required.
15. Required for CS2, CS4, CS6, CS9, CS12 and MC5 decorative arms.
16. Required for PU4, PU5 and PU8 decorative arms.

lumenpulse™

1220 Marie-Victorin Blvd., Longueuil, QC J4G 2H9 CA
info@lumenpulse.com **www.lumenpulse.com**
T Stati Uniti 617.307.5700 | Canada 1.877.937.3003 | 514.937.3003 **F** 514.937.6289
www.lumenpulse.com/products/1755

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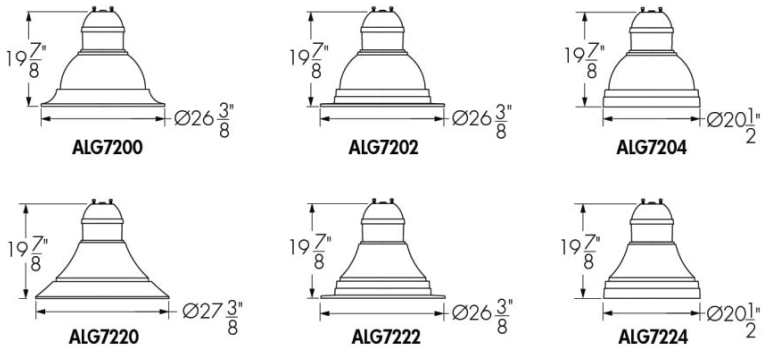
GoldstickLightingDesign,Ltd.
629 Fifth Avenue, Suite 204
Pelham, NY 10803
(914) 693-0221
www.goldsticklighting.com

Project Name:
Wolf Conservation Center Site Lighting
Issue Date:
November 16, 2020
For Reference Only - See Fixture Schedule for Full Specification

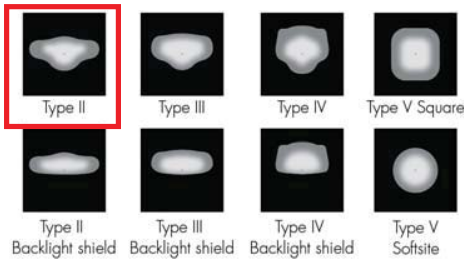
TYPE
A1
4 of 4

Project Name Wolf Conservation Center **Qty**

Type A2 **Catalog / Part Number** Wolf Conservation Center



Distributions



Colors and Color Temperatures

Controls

ON/OFF 0-10V

Rating

IP66 (optical chamber)

Certifications

Description

The Allegra Medium is a durable, stylish luminaire for urban lighting applications, including pedestrian plazas, residential streets and collector roads. Offering a choice of outputs, color temperatures, and distributions, the Allegra Medium is elegance personified.

Features

Color and Color Temperature	2200K, 2700K, 3000K, 3500K, 4000K, 5700K
Distributions	Type II, Type III or Type IV (with or without backlight shield), Type 5 square and Type V Softsite
Options	Corrosion-resistant coating for hostile environments, Surge protector
Mounting Options	Top mounted, Side top mounted
Warranty	5-year limited warranty

Performance

Output (nominal lumens)	Minimum 3000lm / Maximum 17000lm
Color Rendering	3 SDCM at CRI 70+ and 2 SDCM at CRI 80+
Lumen Maintenance	TM-21 L70 527,000 hrs (projected, Ta 77 °F), 36,000 hrs (reported, Ta 77 °F)
Dark sky	Dark sky compliant (2200K, 2700K and 3000K color temperatures, BUG rating of U0)

Physical

Housing Material	Die cast low copper 360 aluminum alloy
Lens material	Optical tempered clear glass (Clearsite lens), Optical tempered opal glass (Softsite lens)
Weight	Up to 35 lbs

GoldstickLightingDesign,Ltd.
629 Fifth Avenue, Suite 204
Pelham, NY 10803
(914) 693-0221
www.goldsticklighting.com

Project Name:
Wolf Conservation Center Site Lighting
Issue Date:
November 16, 2020
For Reference Only - See Fixture Schedule for Full Specification

TYPE
A2

Photometric information

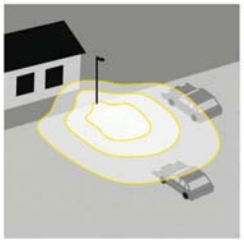
Type II, 4000K, CRI 70+

	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,376	109	1	0	1	31
S60	5,204	95	1	0	1	55
M80	6,892	108	2	0	1	64
M110	9,423	102	2	0	2	92
M150	12,518	95	2	0	2	132
L170	14,023*	96	3*	0*	2*	146

Type III, 4000K, CRI 70+

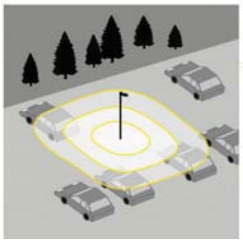
	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,801	123	1	0	1	31
S60	5,861	107	1	0	1	55
M80	7,761	121	2	0	2	64
M110	10,612	115	2	0	2	92
M150	14,097	107	3	0	2	132
L170	15,792*	108	3*	0*	2*	146

Type IV, 4000K, CRI 70+



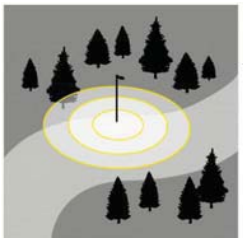
	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,529	114	1	0	1	31
S60	5,441	99	1	0	1	55
M80	7,205	113	2	0	2	64
M110	9,852	107	2	0	2	92
M150	13,087	99	3	0	3	132
L170	14,662*	100	3*	0*	3*	146

Type V square, 4000K, CRI 70+



	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,844	124	2	0	1	31
S60	5,927	108	3	0	1	55
M80	7,849	123	3	0	1	64
M110	10,733	117	3	0	2	92
M150	14,257	108	4	0	2	132
L170	15,980*	110	4*	0*	2*	146

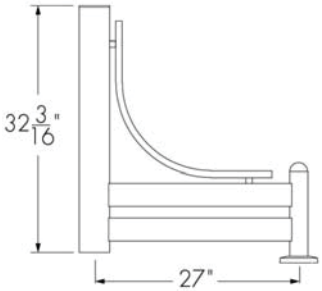
Type V Softsite, 4000K, CRI 70+



	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
L30	3,048	66	1	0	1	47
L50	5,856	60	2	0	1	96
L70	8,022*	55	3*	0*	1*	146

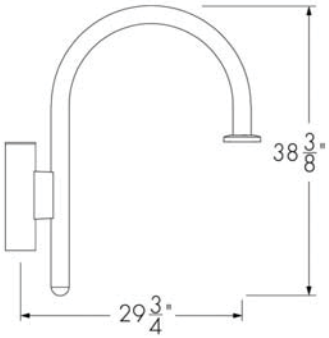
Compatible decorative arms (consult related specification sheets for details)

CS2 decorative arm



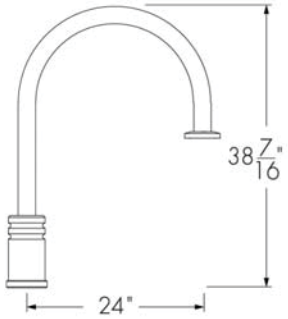
SIDE VIEW

CS4 decorative arm



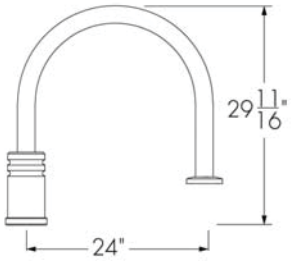
SIDE VIEW

CS6 decorative arm



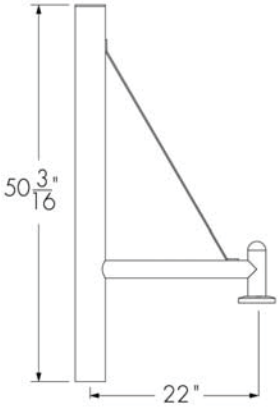
SIDE VIEW

CS9 decorative arm



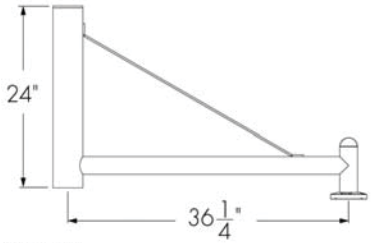
SIDE VIEW

CS12 decorative arm



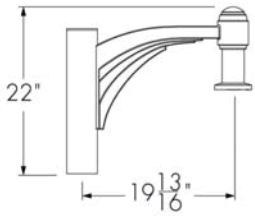
SIDE VIEW

CS13 decorative arm



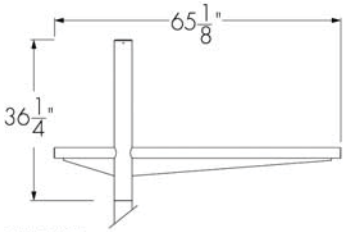
SIDE VIEW

MC5 decorative arm



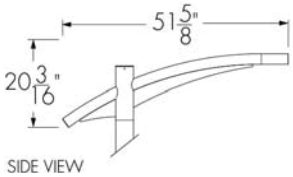
SIDE VIEW

PU4 decorative arm



SIDE VIEW

PU5 decorative arm



SIDE VIEW

How to order

Housing [1]	Voltage	Lens	Output (nominal lumens)	Color and Color Temperature [7]	Color Rendering	Distributions	Finish	Control	Options	Mounting Options
ALG7200 Allegra 7200	**120** 120 volts	**CSL** Clearsite lens [2] [3]	**S40** 4000lm [6]	**22K** 2200K [8]	**CRI 70** CRI 70+ [9]	**2** Type II	**BK** Black Sandtex®	**DIM** 0-10V dimming [14]	**CRC** Corrosion-resistant coating for hostile environments	**TM** Top mounted [15]
ALG7202 Allegra 7202	**240** 240 volts	**SSL** Softsite lens [4] [5]	**S60** 6000lm	**27K** 2700K [8]	**CRI 80** CRI 80+ [10]	**2BLS** Type II backlight shield	**BRZ** Bronze Sandtex®		**SP** Surge protector	**ST** Side top mounted [16]
ALG7204 Allegra 7204	**277** 277 volts		**M80** 8000lm	**30K** 3000K		**3** Type III	**SI** Silver Sandtex®			
ALG7220 Allegra 7220	**347** 347 volts		**M110** 11 000lm	**35K** 3500K		**3BLS** Type III backlight shield	**BKTX** Textured black			
ALG7222 Allegra 7222	**480** 480 volts		**M150** 15 000lm	**40K** 4000K		**4** Type IV	**BRZTX** Textured bronze non-metallic			
ALG7224 Allegra 7224			**L170** 17 000lm	**57K** 5700K		**4BLS** Type IV backlight shield	**GRATX** Textured medium gray			
			L30 3000lm Softsite [5]			**5S** Type V square	**GRNTX** Textured green			
			L50 5000lm Softsite [5]			**5** Type V Softsite [4]	**WHTX** Textured white			
			L70 7000lm Softsite [5]				**CC** Custom color and finish (please specify RAL color) [11] [12] [13]			

Notes:

1. Consult Related Products section on webpage for a selection of compatible decorative arms, decorative poles (sold separately).
2. Available with S40, S60, M80, M110, M150 and L170 output option only.
3. Available with types 2, 2BLS, 3, 3BLS, 4, 4BLS and 5S distribution only.
4. Available with L30, L50 and L70 output options only.
5. Available with type 5 distribution only.
6. Available up to 277V.
7. Consult factory for more color temperature options.
8. Available for CRI 80 only.
9. Binning within a 3 step McAdam ellipse, with the exception of 2200K and 5700K.
10. Binning within a 2 step MacAdam ellipse, with the exception of 5700K.
11. Specify RAL number followed by "TX" for textured finish (ex: RAL9007TX) or STX for Sandtex finish (ex: RAL9007STX). Textured or Sandtex finishes are recommended for the durability of all products. If a finish is not specified with the RAL number (ex: RAL9007), a glossy finish will be provided. Please consult factory for other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
12. Charges apply for RAL colors. Consult factory for details.
13. Longer lead times can be expected for custom RAL color finishes.
14. DIM control can be used as NO (On/off control) if no data is required.
15. Required for CS2, CS4, CS6, CS9, CS12 and MC5 decorative arms.
16. Required for PU4, PU5 and PU8 decorative arms.

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1220 Marie-Victorin Blvd., Longueuil, QC J4G 2H9 CA
info@lumenpulse.com **www.lumenpulse.com**
T Stati Uniti 617.307.5700 | Canada 1.877.937.3003 | 514.937.3003 **F** 514.937.6289
www.lumenpulse.com/products/1755

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GoldstickLightingDesign,Ltd.
629 Fifth Avenue, Suite 204
Pelham, NY 10803
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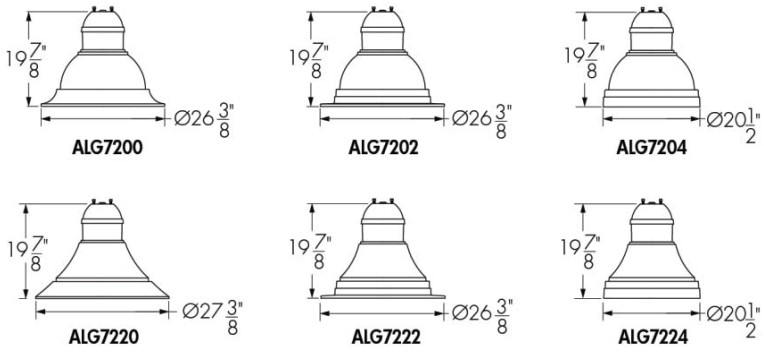
Project Name:
Wolf Conservation Center Site Lighting
Issue Date:
November 16, 2020
For Reference Only - See Fixture Schedule for Full Specification

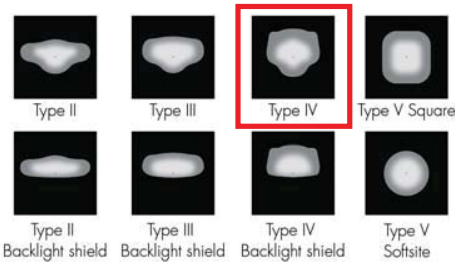
TYPE
A2
4 of 4

Project Name Wolf Conservation Center **Qty**

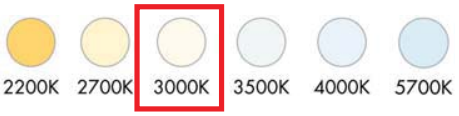
Type A3 **Catalog / Part Number** Wolf Conservation Center



Distributions



Colors and Color Temperatures



Controls

ON/OFF 0-10V

Rating

IP66 (optical chamber)

Certifications

Description

The Allegra Medium is a durable, stylish luminaire for urban lighting applications, including pedestrian plazas, residential streets and collector roads. Offering a choice of outputs, color temperatures, and distributions, the Allegra Medium is elegance personified.

Features

Color and Color Temperature	2200K, 2700K, 3000K, 3500K, 4000K, 5700K
Distributions	Type II, Type III or Type IV (with or without backlight shield), Type 5 square and Type V Softsite
Options	Corrosion-resistant coating for hostile environments, Surge protector
Mounting Options	Top mounted, Side top mounted
Warranty	5-year limited warranty

Performance

Output (nominal lumens)	Minimum 3000lm / Maximum 17000lm
Color Rendering	3 SDCM at CRI 70+ and 2 SDCM at CRI 80+
Lumen Maintenance	TM-21 L70 527,000 hrs (projected, Ta 77 °F), 36,000 hrs (reported, Ta 77 °F)
Dark sky	Dark sky compliant (2200K, 2700K and 3000K color temperatures, BUG rating of U0)

Physical

Housing Material	Die cast low copper 360 aluminum alloy
Lens material	Optical tempered clear glass (Clearsite lens), Optical tempered opal glass (Softsite lens)
Weight	Up to 35 lbs

GoldstickLightingDesign,Ltd.
629 Fifth Avenue, Suite 204
Pelham, NY 10803
(914) 693-0221
www.goldsticklighting.com

Project Name:
Wolf Conservation Center Site Lighting
Issue Date:
November 16, 2020
For Reference Only - See Fixture Schedule for Full Specification

TYPE
A3

Photometric information

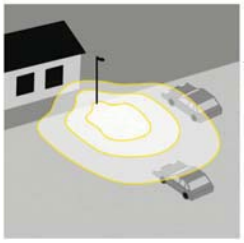
Type II, 4000K, CRI 70+

	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,376	109	1	0	1	31
S60	5,204	95	1	0	1	55
M80	6,892	108	2	0	1	64
M110	9,423	102	2	0	2	92
M150	12,518	95	2	0	2	132
L170	14,023*	96	3*	0*	2*	146

Type III, 4000K, CRI 70+

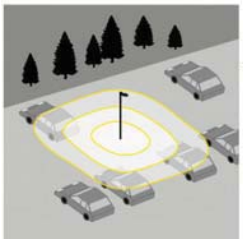
	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,801	123	1	0	1	31
S60	5,861	107	1	0	1	55
M80	7,761	121	2	0	2	64
M110	10,612	115	2	0	2	92
M150	14,097	107	3	0	2	132
L170	15,792*	108	3*	0*	2*	146

Type IV, 4000K, CRI 70+



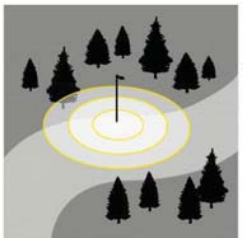
	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,529	114	1	0	1	31
S60	5,441	99	1	0	1	55
M80	7,205	113	2	0	2	64
M110	9,852	107	2	0	2	92
M150	13,087	99	3	0	3	132
L170	14,662*	100	3*	0*	3*	146

Type V square, 4000K, CRI 70+



	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
S40	3,844	124	2	0	1	31
S60	5,927	108	3	0	1	55
M80	7,849	123	3	0	1	64
M110	10,733	117	3	0	2	92
M150	14,257	108	4	0	2	132
L170	15,980*	110	4*	0*	2*	146

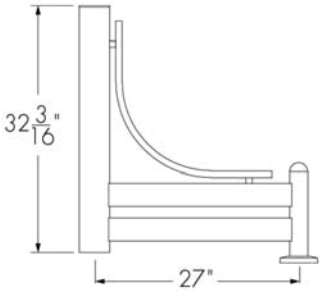
Type V Softsite, 4000K, CRI 70+



	Nominal output [lm]	Typical delivered output [lm]	Efficiency (lm/W)	BUG Rating B	U	G	Typical maximum power 120/277V (W)
L30	3,048	66	1	0	1	47
L50	5,856	60	2	0	1	96
L70	8,022*	55	3*	0*	1*	146

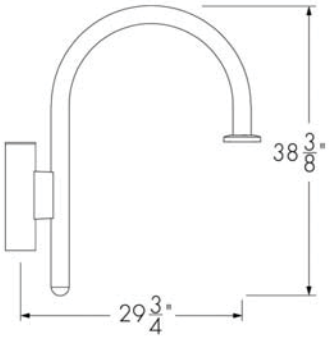
Compatible decorative arms (consult related specification sheets for details)

CS2 decorative arm



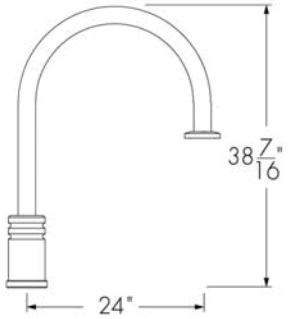
SIDE VIEW

CS4 decorative arm



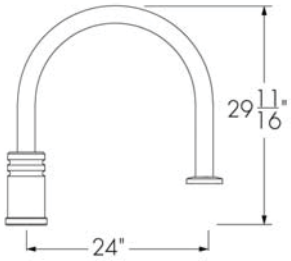
SIDE VIEW

CS6 decorative arm



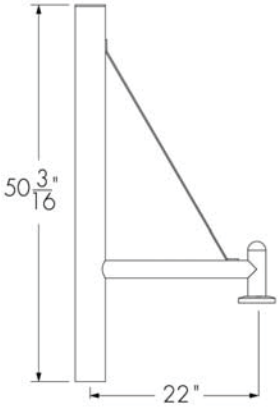
SIDE VIEW

CS9 decorative arm



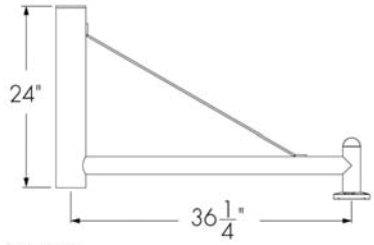
SIDE VIEW

CS12 decorative arm



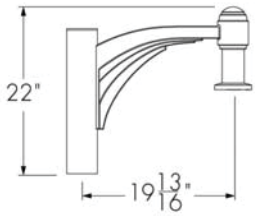
SIDE VIEW

CS13 decorative arm



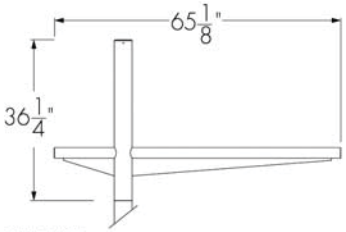
SIDE VIEW

MC5 decorative arm



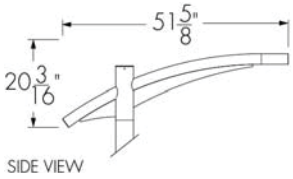
SIDE VIEW

PU4 decorative arm



SIDE VIEW

PU5 decorative arm



SIDE VIEW

How to order

Housing [1]	Voltage	Lens	Output (nominal lumens)	Color and Color Temperature [7]	Color Rendering	Distributions	Finish	Control	Options	Mounting Options
ALG7200 Allegra 7200	**120** 120 volts	**CSL** Clearsite lens [2] [3]	**S40** 4000lm [6]	**22K** 2200K [8]	**CRI 70** CRI 70+ [9]	**2** Type II	**BK** Black Sandtex®	**DIM** 0-10V dimming [14]	**CRC** Corrosion-resistant coating for hostile environments	**TM** Top mounted [15]
ALG7202 Allegra 7202	**240** 240 volts	**SSL** Softsite lens [4] [5]	**S60** 6000lm	**27K** 2700K [8]	**CRI 80** CRI 80+ [10]	**2BLS** Type II backlight shield	**BRZ** Bronze Sandtex®		**SP** Surge protector	**ST** Side top mounted [16]
ALG7204 Allegra 7204	**277** 277 volts		**M80** 8000lm	**30K** 3000K		**3** Type III	**SI** Silver Sandtex®			
ALG7220 Allegra 7220	**347** 347 volts		**M110** 11 000lm	**35K** 3500K		**3BLS** Type III backlight shield	**BKTX** Textured black			
ALG7222 Allegra 7222	**480** 480 volts		**M150** 15 000lm	**40K** 4000K		**4** Type IV	**BRZTX** Textured bronze non-metallic			
ALG7224 Allegra 7224			**L170** 17 000lm	**57K** 5700K		**4BLS** Type IV backlight shield	**GRATX** Textured medium gray			
			L30 3000lm Softsite [5]			**5S** Type V square	**GRNTX** Textured green			
			L50 5000lm Softsite [5]			**5** Type V Softsite [4]	**WHTX** Textured white			
			L70 7000lm Softsite [5]				**CC** Custom color and finish (please specify RAL color) [11] [12] [13]			

Notes:

1. Consult Related Products section on webpage for a selection of compatible decorative arms, decorative poles (sold separately).
2. Available with S40, S60, M80, M110, M150 and L170 output option only.
3. Available with types 2, 2BLS, 3, 3BLS, 4, 4BLS and 5S distribution only.
4. Available with L30, L50 and L70 output options only.
5. Available with type 5 distribution only.
6. Available up to 277V.
7. Consult factory for more color temperature options.
8. Available for CRI 80 only.
9. Binning within a 3 step McAdam ellipse, with the exception of 2200K and 5700K.
10. Binning within a 2 step MacAdam ellipse, with the exception of 5700K.
11. Specify RAL number followed by "TX" for textured finish (ex: RAL9007TX) or STX for Sandtex finish (ex: RAL9007STX). Textured or Sandtex finishes are recommended for the durability of all products. If a finish is not specified with the RAL number (ex: RAL9007), a glossy finish will be provided. Please consult factory for other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
12. Charges apply for RAL colors. Consult factory for details.
13. Longer lead times can be expected for custom RAL color finishes.
14. DIM control can be used as NO (On/off control) if no data is required.
15. Required for CS2, CS4, CS6, CS9, CS12 and MC5 decorative arms.
16. Required for PU4, PU5 and PU8 decorative arms.

Lumenpulse Group Inc. reserves the right to make changes to this product at any time without prior notice and such modification shall be effective immediately
2020.02.26 copyright © 2020 Lumenpulse Group Inc.
MS - R12

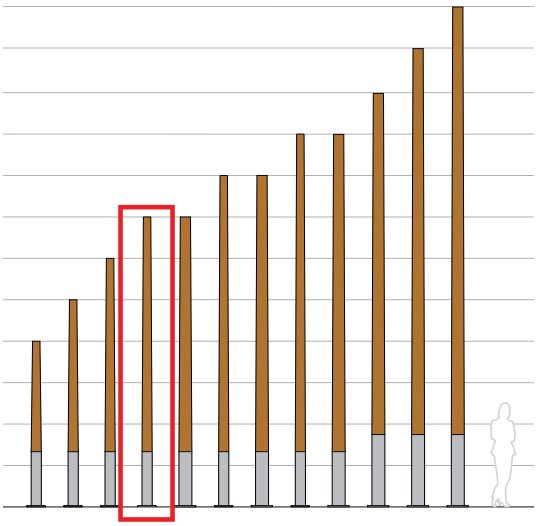
GoldstickLightingDesign,Ltd. 629 Fifth Avenue, Suite 204 Pelham, NY 10803 (914) 693-0221 www.goldsticklighting.com	Project Name: Wolf Conservation Center Site Lighting Issue Date: November 16, 2020 For Reference Only - See Fixture Schedule for Full Specification	TYPE A3 1 of 4

Bol 8' – 24' Round Tapered and Straight Wood Poles

structura

FIXTURE TYPE: T pe Pole

PROJECT NAME: Wolf Conservation Center



Round Taper

Glulam solid wood and aluminum pole available in 8' – 24' lengths. Tenon adapters, slip fitters and side bracket mounts are available for luminaire mounting.

FEATURES:

- Round extruded aluminum pole base with flush handhole cover held with countersunk stainless steel fasteners.
- Tapered, round, solid glulam wood pole

SPECIFICATIONS:

HOUSING: Solid wood pole is assembled through glulam construction and precision machined using CNC technology. An electrical raceway is provided in the pole's center for wiring. Laminations measure no more than 2" in thickness. Adhesive complies with ASTM D-2559 glulam construction specifications for extreme exposed weather conditions, is waterproof and rated for wet or dry use exposure.

Glulam wood shaft is fastened to aluminum pole base welded to a 3/4" thick aluminum anchor bolt base. Anchor bolt kit includes (4) 3/4" hot dip galvanized anchor bolts and fasteners and ridged concrete pour template.

FIXTURE MOUNTING: Fixtures mount either by 2 3/8", 2 7/8", 3 1/2", or 4" diameter by 4" tall tenon or drill mount for arm brackets. Consult factory for other tenon sizes. Luminaires shall be provided by others.

ELECTRICAL: A 5/16" – 18 grounding point is provided on the aluminum pole base. Wireway access is provided through a NEC compliant handhole with a flush, gasketed cover plate.

FINISHES AND MATERIALS: Woods are finished with a low VOC waterborne matte exterior finish containing UV and mildew inhibitors. All aluminum parts are polyester powder coat painted.

HARDWARE: Fasteners are stainless steel. Anchor bolt kits are hot dip galvanized.

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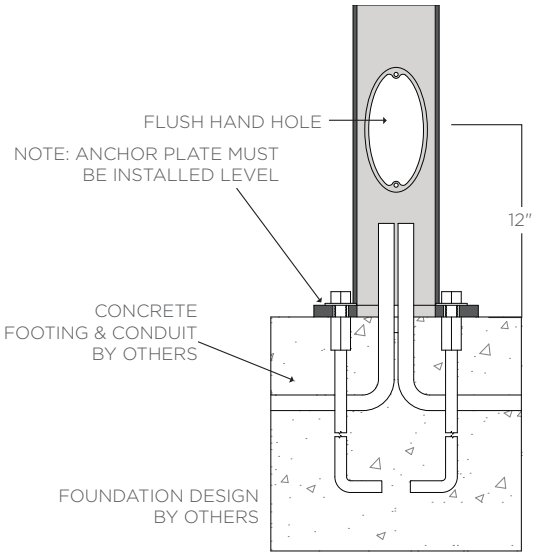
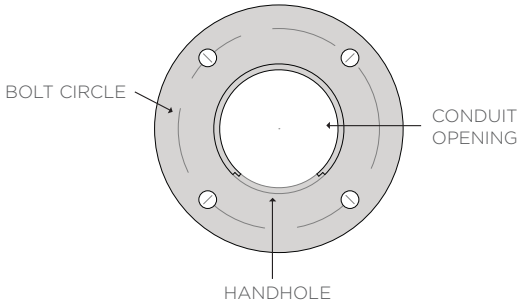
GoldstickLightingDesign,Ltd. 629 Fifth Avenue, Suite 204 Pelham, NY 10803 (914) 693-0221 www.goldsticklighting.com	Project Name: Wolf Conservation Center Site Lighting Issue Date: November 16, 2020 For Reference Only - See Fixture Schedule for Full Specification	TYPE A Pole 1 of 2



Pole Size	Bolt Circle	Conduit Opening
5.5"	8.5" dia.	5" dia.
7.0"	11" dia.	6.5" dia.



ORDERING GUIDE: EXAMPLE: BOL-S-12-55-55-S3-C6-T3124-STD

BOL								
1	2	3	4	5	6	7	8	9

1 Series

BOL	Bol

2 Shaft Shape

T	Round Tapered
S	Round Straight

3 Height

8	8'
10	10'
12	12'
14	14'
16	16'
18	18'
20	20'
22	22'
24	24'

4 Base Diameter

55	5.5" - 20' Maximum Height
70	7.0" - 24' Maximum Height

5 Top Diameter

40	4.0"
55	5.5"
70	7.0"

6 Wood Finish

S*	See color options on finishes technical sheet

7 Metal Finish

C*	See color options on finishes technical sheet
CSM	Custom Color

8 Fixture Mounting

Tenon

T2384	2 3/8" x 4" Tenon
T2784	2 7/8" x 4" Tenon
T3124	3 1/2" x 4" Tenon
T4004	4" x 4" Tenon
TXXX	Specify diameter and height

Drill

D1	1 @ 90deg
D2	2 @ 180deg
D3	2 @ 90deg
D4	3 @ 90deg
D5	4 @ 90deg

9 Special

STD	Standard
MOD	Modified

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Project Name:
Wolf Conservation Center Site Lighting
Issue Date:
November 16, 2020
For Reference Only - See Fixture Schedule for Full Specification

TYPE A Pole

2 of 2

ARTISTAR LED (INTEGRAL DRIVER)

IP66 RATED

DATE: | PROJECT: Wolf Conservation Center | TYPE: C

CATALOG NUMBER LOGIC:

**Base height limited to 6" max. with Brass and Stainless Steel Canopy.*

CATALOG NUMBER LOGIC
Example: B - AR - LED - TR - x54 - SP - POL - 12 - 11 - C - 20 - INC - MT - PP
MATERIAL
(Blank) - Aluminum B - Brass S - Stainless Steel
SERIES
AR - ArtiStar
SOURCE
LED - Chip on Board Technology
HOUSING
TR - Integral Driver
LED TYPE
x52 - 10W LED/2700K x53 - 10W LED/3000K x54 - 10W LED/4000K
OPTICS
SP - Spot (20°) FL - Flood (40°) WFL - Wide Flood (60°)
FINISH (See page 2 for full-color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRI, CRM, HUG, MDS, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)
Also available in RAL Finishes
Brass Finishes (MAC, POL, MIT)
Stainless Steel Finishes (MAC, POL)
LENS TYPE
9 - Clear (Standard) 12 - Soft Focus 13 - Rectilinear
SHIELDING
11 - Honeycomb Baffle
CAP STYLE
A - 45°
B - 90°
C - Flush
D - 45° Less Weephole (Interior use only)
E - 90° Less Weephole (Interior use only)
F - 90° with Flush Lens
BASE HEIGHT
8" (Standard), 14", 20", & 26" with Anchor Base
CONTROL TYPE
INC - 10W TRIAC/ELV Dimming 1-100%, 120V only
010 - 10 Dimming Driver 0-10V Dimming 1-100%
INPUT VOLTAGE
MT - 120-277 VAC Input
MOUNTING OPTIONS
PP - 18" Power Pipe Stake Mount
SF - Stability Flange (For use with Power Pipe)
WM - Wall or Ceiling Mount with 5" dia. Machined Canopy*

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01/15/2020 SKU-1016
SUB-2125-00

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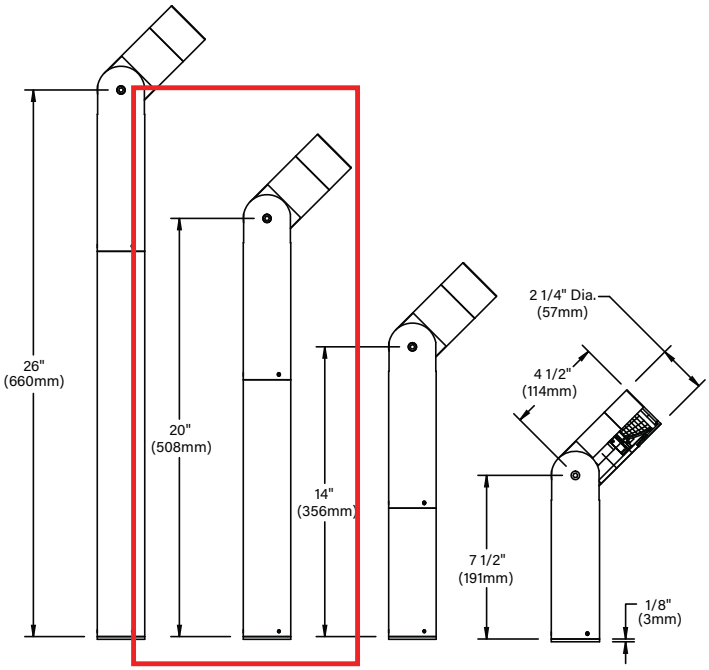
Pelham, NY 10803
(914) 693-0221
www.goldsticklighting.com

Project Name:
Wolf Conservation Center Site Lighting
Issue Date:
November 16, 2020

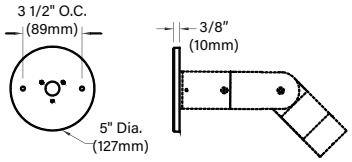
For Reference Only - See Fixture Schedule for Full Specification

TYPE C

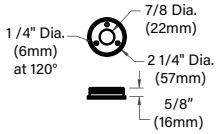
DATE: | PROJECT: | TYPE:

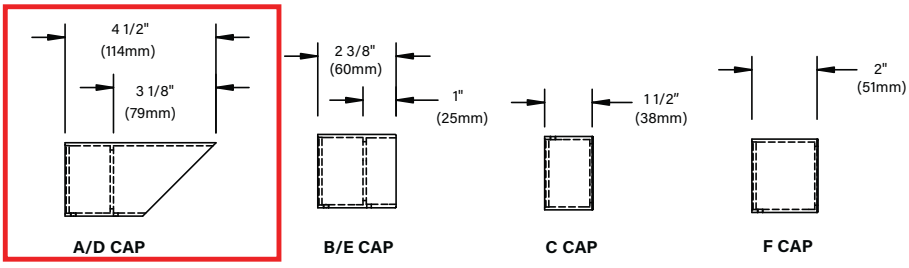


WALL MOUNT CANOPY

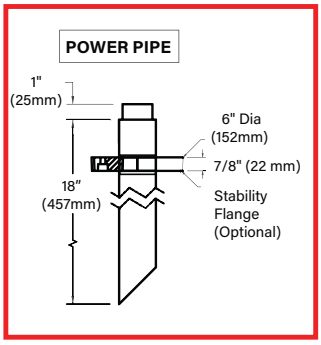


STANDARD BASE





POWER PIPE



STANDARD FINISHES

Satin Black (BLP)	Satin Bronze (BZP)	Satin White (WHP)	Satin Aluminum (SAP)
Black Wrinkle (BLW)	Bronze Wrinkle (BZW)	White Wrinkle (WHW)	Verde (VER)

Click Here to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES

Cascade Mtn. Granite (CMG)	Rocky Mtn. Granite (RMG)	Sierra Mtn Granite (SMG)	Aleutian Mtn Granite (AMG)	Textured Forest (TXF)
Black Chrome (BCM)	Beige (BGE)	Weathered Copper (WCP)	Old Copper (OCP)	Hunter Green (HUG)
Cracked Ice (CRI)	Mojave Desert Sandstone (MDS)	Antique Brass Powder (ABP)	Brown Patina Powder (BPP)	Sonoran Desert Sandstone (SDS)
Weathered Iron (WIR)	Clear Anodized Powder (CAP)	Cream (CRM)	Antique White (AQW)	Natural Brass Powder (NBP)

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Project Name:
Wolf Conservation Center Site Lighting
Issue Date:
November 16, 2020
For Reference Only - See Fixture Schedule for Full Specification

TYPE C

LAMP & DRIVER DATA (x52, x53, & x54)

DATE:	PROJECT:	TYPE:

DRIVER ELECTRICAL DATA

Type	AC Input Range	Frequency Hz	Power Factor At Full Load (Efficiency)	THD	InRush Current	Operating Current	Operation Ambient Temperature	Dimmer Type	Dimmer Range
INC	120-277VAC	50/60	> 0.9	<20%	n/a	350mA	-30° C ~ 90°C	TRIAC/ELV (120V)	1-100%
0-10	120-277VAC	50/60	> 0.9	<20%	n/a	350mA	-30° C ~ 90°C	0-10V Dimming	1-100%

LM79 DATA

BK No.	LUMENS (Source)	CCT (Typ.)	CRI (Ra. Typ.)	Input Watts (Typ.)
x52	1180	2700K	80	10
x53	1230	3000K	80	10
x54	1280	4000K	80	10

L70 DATA

Minimum Rated Life (hrs.) 70% of initial lumens (L_{70})
50,000
50,000
50,000

OPTICAL DATA

Beam Type	Angle	CBCP
Spot	20°	2680
Flood	40°	1744
Wide Flood	60°	640

B-K LIGHTING | **MADE IN THE USA** | **559.438.5800 | INFO@BKLIGHTING.COM | BKLIGHTING.COM**

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November 16, 2020
For Reference Only - See Fixture Schedule for Full Specification

TYPE C

SOUTH SALEM VOLUNTEER FIRE DEPARTMENT

PO Box 191 – 1190 Route 35
South Salem, New York 10590

TO: **Janet Andersen, Planning Board Chair**

FROM: **Chief Michael Devito**

SUBJECT: **Wolf Conservation Center**

DATE: **March 11, 2021**

Thank you for giving the South Salem Fire Department the opportunity to review and make recommendations to the Wolf Conservation Center proposed site plan.

Myself and 2nd Assistant Chief Matthew Yorke met on site with Spencer Wilhelm, Director of Operations for the Wolf Conservation Center and Matthew Gironda, Senior Engineer at Bibbo Associates along with other representatives from their team on March 8, 2021. We reviewed the plans, and the overall concept as well as access to the site meets with our approval. We also discussed alternative water tank locations during the meeting and recommend either an additional water tank in closer proximity to the proposed educational pavilion or moving the location of the proposed water tank to a location that could best service both the existing one story house at 7 Buck Run as well as the proposed educational pavilion.

Again thank you for the opportunity and please feel free to contact me if you have any questions or if you would like any additional information.

Very truly yours,

Michael Devito

Chief

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE
OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Wolf Conservation Center

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Wilhelm

Owner/Operator Contact Person First Name
Spencer

Owner/Operator Mailing Address
7 Buck Run

City
South Salem

State: NY
Zip: 10590-

Phone (Owner/Operator): 9147683237
Fax (Owner/Operator): ---

Email (Owner/Operator)
Spencer@nywolf.org

FED TAX ID
13-4073912 (not required for individuals)

Project Site Information

Project/Site Name
Wolf Conservation Center

Street Address (NOT P.O. BOX)
7 Buck Run

Side of Street
● **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)
South Salem

State: NY
Zip: 10590-
County: Westchester
DEC Region: 3

Name of Nearest Cross Street
Old Post Road (Route 35)

Distance to Nearest Cross Street (Feet)
350

Project In Relation to Cross Street
● **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel
21-10803-3

Tax Map Numbers
81 82 83 88

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)
-73585
Ex. -73.749

Y Coordinates (Northing)
41279
Ex. 42.652

2. What is the nature of this construction project?

○ **New Construction**

● **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use
○ FOREST	○ SINGLE FAMILY HOME
○ PASTURE/OPEN LAND	○ SINGLE FAMILY SUBDIVISION
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL/SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	● COMMERCIAL
○ INSTITUTIONAL/SCHOOL	○ MUNICIPAL
○ INDUSTRIAL	○ ROAD/HIGHWAY
● COMMERCIAL	○ RECREATIONAL/SPORTS FIELD
○ ROAD/HIGHWAY	○ BIKE PATH/TRAIL
○ RECREATIONAL/SPORTS FIELD	○ LINEAR UTILITY (water, sewer, gas, etc.)
○ BIKE PATH/TRAIL	○ PARKING LOT
○ LINEAR UTILITY	○ CLEARING/GRADING ONLY
○ PARKING LOT	○ DEMOLITION, NO REDEVELOPMENT
○ OTHER	○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
	○ OTHER

Number of Lots

***Note**: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
232.3	4.54.5	0.60.6	1.41.4

5. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ● **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
%	4 %	74 %	22 %

7. Is this a phased project? ○ **Yes** ○ **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date 04/01/2024 - **End Date** 12/31/2026

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name: DEC Wetland

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ● Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ● Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ **Yes** ● **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ● **Yes** ○ **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ● **Yes** ○ **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ● **No**
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ● **Yes** ○ **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ Yes ● No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Bibbo Associates, LLP

Contact Name (Last, Space, First)

Gironda, Matthew, P.E.

Mailing Address

293 Route 100, Suite 203

City

Somers

State NY Zip 10589-

Phone 9142775805 Fax 9142782810

Email

mgironda@bibboassociates.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name Matthew **MI** J

Last Name Gironda

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ● Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ● Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ● Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ● **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ● **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

0.205225 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

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Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)		and/or	
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
○ Tree Planting/Tree Pit (RR-3)		and/or	
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
● Infiltration Basin (I-2)			0.30.3
○ Dry Well (I-3)			
● Underground Infiltration System (I-4)			
○ Bioretention (F-5)			0.70.777
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
○ Wet Pond (P-2)			
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
○ Pocket Pond (P-5)			
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.20525 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

● **Yes** ○ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). [ ][ ][ ].[ ][ ][ ]

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

0.205525 **acre-feet**

CPv Provided

0.205525 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

262.644 **CFS**

Post-development

242.488 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

616.100 **CFS**

Post-development

575.755 **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Property Owner

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ● Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP [N][Y][R][ ][ ][ ][ ][ ][ ]
- ○ Other [ ]
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ● **No**
If Yes, Indicate Size of Impact. [ ][ ][ ][ ][ ].[ ]

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. [N][Y][R][ ][ ][ ][ ][ ][ ]

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name: Spencer

MI:

Print Last Name: Wilhelm

Owner/Operator Signature:

Date: / /

Agency Use Only [If applicable]

Project :

Date :

Full Environmental Assessment Form
Part 2 - Identification of Potential Project Impacts

Part 2 is to be completed by the lead agency. Part 2 is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

If the lead agency is a state agency **and** the action is in any Coastal Area, complete the Coastal Assessment Form before proceeding with this assessment.

Tips for completing Part 2:

- Review all of the information provided in Part 1.
- Review any application, maps, supporting materials and the Full EAF Workbook.
- Answer each of the 18 questions in Part 2.
- If you answer "**Yes"** to a numbered question, please complete all the questions that follow in that section.
- If you answer "**No"** to a numbered question, move on to the next numbered question.
- Check appropriate column to indicate the anticipated size of the impact.
- Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box "Moderate to large impact may occur."
- The reviewer is not expected to be an expert in environmental analysis.
- If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- When answering a question consider all components of the proposed activity, that is, the "whole action".
- Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- Answer the question in a reasonable manner considering the scale and context of the project.

1. Impact on Land
Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1. D.1)
If "Yes", answer questions a - j. If "No", move on to Section 2.

☐ NO ☑ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	☑	☐
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	☐	☑
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	☑	☐
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	☑	☐
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	☑	☐
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	☑	☐
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	☑	☐
h. Other impacts: _____ _____		☐	☐

2. Impact on Geological Features

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g)

☑ NO ☐ YES

If "Yes", answer questions a - c. If "No", move on to Section 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Identify the specific land form(s) attached: _____ _____	E2g	□	□
b. The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark. Specific feature: _____	E3c	□	□
c. Other impacts: _____ _____		□	□

3. Impacts on Surface Water

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h)

☐ NO ☑ YES

If "Yes", answer questions a - l. If "No", move on to Section 4.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may create a new water body.	D2b, D1h	☑	☐
b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D2b	☑	☐
c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D2a	☑	☐
d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E2h	☑	☐
e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediments.	D2a, D2h	☑	☐
f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D2c	☑	☐
g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D2d	☑	☐
h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D2e	☑	☐
i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E2h	☑	☐
j. The proposed action may involve the application of pesticides or herbicides in or around any water body.	D2q, E2h	☑	☐
k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D1a, D2d	☐	☑

l. Other impacts: _____ _____		☐	☐

4. Impact on groundwater

The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer. (See Part 1. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t)

☐ NO ☑ YES

If "Yes", answer questions a - h. If "No", move on to Section 5.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D2c	☐	☑
b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source: _____	D2c	☑	☐
c. The proposed action may allow or result in residential uses in areas without water and sewer services.	D1a, D2c	☑	☐
d. The proposed action may include or require wastewater discharged to groundwater.	D2d, E2l	☐	☑
e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D2c, E1f, E1g, E1h	☑	☐
f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D2p, E2l	☑	☐
g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	E2h, D2q, E2l, D2c	☑	☐
h. Other impacts: _____ _____		☐	☐

5. Impact on Flooding

The proposed action may result in development on lands subject to flooding. (See Part 1. E.2)

☑ NO ☐ YES

If "Yes", answer questions a - g. If "No", move on to Section 6.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in development in a designated floodway.	E2i	□	□
b. The proposed action may result in development within a 100 year floodplain.	E2j	□	□
c. The proposed action may result in development within a 500 year floodplain.	E2k	□	□
d. The proposed action may result in, or require, modification of existing drainage patterns.	D2b, D2e	□	□
e. The proposed action may change flood water flows that contribute to flooding.	D2b, E2i, E2j, E2k	□	□
f. If there is a dam located on the site of the proposed action, is the dam in need of repair, or upgrade?	E1e	□	□

g. Other impacts: _____ _____		☐	☐

6. Impacts on Air

The proposed action may include a state regulated air emission source. (See Part 1. D.2.f., D.2.h, D.2.g) ☑ NO ☐ YES

If "Yes", answer questions a - f. If "No", move on to Section 7.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels:			
i. More than 1000 tons/year of carbon dioxide (CO_2)	D2g	☐	☐
ii. More than 3.5 tons/year of nitrous oxide (N_2O)	D2g	☐	☐
iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs)	D2g	☐	☐
iv. More than .045 tons/year of sulfur hexafluoride (SF_6)	D2g	☐	☐
v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflourocarbons (HFCs) emissions	D2g	☐	☐
vi. 43 tons/year or more of methane	D2h	☐	☐
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	☐	☐
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	☐	☐
d. The proposed action may reach 50% of any of the thresholds in "a" through "c", above.	D2g	☐	☐
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	☐	☐
f. Other impacts: _____ _____		☐	☐

7. Impact on Plants and Animals

The proposed action may result in a loss of flora or fauna. (See Part 1. E.2. m.-q.) ☐ NO ☑ YES

If "Yes", answer questions a - j. If "No", move on to Section 8.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2o	☑	☐
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	☑	☐
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	☑	☐
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	☑	☐

e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E3c	☑	☐
f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source: _____	E2n	☑	☐
g. The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E2m	☑	☐
h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source: _____ _____	E1b	☑	☐
i. Proposed action (commercial, industrial or recreational projects, only) involves use of herbicides or pesticides.	D2q	☑	☐
j. Other impacts: _____ _____		☑	☐

8. Impact on Agricultural Resources

The proposed action may impact agricultural resources. (See Part 1. E.3.a. and b.) ☑ NO ☐ YES

If "Yes", answer questions a - h. If "No", move on to Section 9.

	Relevant Part I Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	□	□
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, Elb	□	□
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	□	□
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	□	□
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	El a, E1b	□	□
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	□	□
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	□	□
h. Other impacts: _____		□	□

9. Impact on Aesthetic Resources

The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.)

☑ NO ☐ YES

If "Yes", answer questions a - g. If "No", go to Section 10.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	☐	☐
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	☐	☐
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	 ☐ ☐	 ☐ ☐
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	 ☐ ☐	 ☐ ☐
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	☐	☐
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile ½ -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	☐	☐
g. Other impacts: _____ _____		☐	☐

10. Impact on Historic and Archeological Resources

The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.)

☐ NO ☑ YES

If "Yes", answer questions a - e. If "No", go to Section 11.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on the National or State Register of Historical Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places.	E3e	☑	☐
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	☑	☐
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	☑	☐

d. Other impacts: _____ _____		☐	☐
e. If any of the above (a-d) are answered "Moderate to large impact may occur", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	☐	☐
ii. The proposed action may result in the alteration of the property's setting or integrity.	E3e, E3f, E3g, E1a, E1b	☐	☐
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	☐	☐

11. Impact on Open Space and Recreation

The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan.
(See Part 1. C.2.c, E.1.c., E.2.q.)
If "Yes", answer questions a - e. If "No", go to Section 12.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2e, E1b E2h, E2m, E2o, E2n, E2p	□	□
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	□	□
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c E1c, E2q	□	□
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	□	□
e. Other impacts: _____ _____		□	□

12. Impact on Critical Environmental Areas

The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d)
If "Yes", answer questions a - c. If "No", go to Section 13.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	□	□
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	□	□
c. Other impacts: _____ _____		□	□

13. Impact on Transportation

The proposed action may result in a change to existing transportation systems. ☑ NO ☐ YES
(See Part 1. D.2.j)
If "Yes", answer questions a - f. If "No", go to Section 14.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Projected traffic increase may exceed capacity of existing road network.	D2j	☐	☐
b. The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D2j	☐	☐
c. The proposed action will degrade existing transit access.	D2j	☐	☐
d. The proposed action will degrade existing pedestrian or bicycle accommodations.	D2j	☐	☐
e. The proposed action may alter the present pattern of movement of people or goods.	D2j	☐	☐
f. Other impacts: _____ _____		☐	☐

14. Impact on Energy

The proposed action may cause an increase in the use of any form of energy. ☐ NO ☑ YES
(See Part 1. D.2.k)
If "Yes", answer questions a - e. If "No", go to Section 15.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action will require a new, or an upgrade to an existing, substation.	D2k	☑	☐
b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D1f, D1q, D2k	☑	☐
c. The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D2k	☑	☐
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D1g	☑	☐
e. Other Impacts: _____ _____		☐	☐

15. Impact on Noise, Odor, and Light

The proposed action may result in an increase in noise, odors, or outdoor lighting. ☐ NO ☑ YES
(See Part 1. D.2.m., n., and o.)
If "Yes", answer questions a - f. If "No", go to Section 16.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may produce sound above noise levels established by local regulation.	D2m	☑	☐
b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D2m, E1d	☑	☐
c. The proposed action may result in routine odors for more than one hour per day.	D2o	☑	☐

d. The proposed action may result in light shining onto adjoining properties.	D2n	☑	☐
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	☑	☐
f. Other impacts: _____ _____		☐	☐

16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.) ☑ NO ☐ YES

If "Yes", answer questions a - m. If "No", go to Section 17.

	Relevant Part I Question(s)	No,or small impact may cccur	Moderate to large impact may occur
a. The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E1d	□	□
b. The site of the proposed action is currently undergoing remediation.	E1g, E1h	□	□
c. There is a completed emergency spill remediation, or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E1g, E1h	□	□
d. The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction).	E1g, E1h	□	□
e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E1g, E1h	□	□
f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D2t	□	□
g. The proposed action involves construction or modification of a solid waste management facility.	D2q, E1f	□	□
h. The proposed action may result in the unearthing of solid or hazardous waste.	D2q, E1f	□	□
i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D2r, D2s	□	□
j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E1f, E1g E1h	□	□
k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E1f, E1g	□	□
l. The proposed action may result in the release of contaminated leachate from the project site.	D2s, E1f, D2r	□	□
m. Other impacts: _____ _____			

17. Consistency with Community Plans

The proposed action is not consistent with adopted land use plans. ☑ NO ☐ YES

(See Part 1. C.1, C.2. and C.3.)

If "Yes", answer questions a - h. If "No", go to Section 18.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C2, C3, D1a E1a, E1b	☐	☐
b. The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C2	☐	☐
c. The proposed action is inconsistent with local land use plans or zoning regulations.	C2, C2, C3	☐	☐
d. The proposed action is inconsistent with any County plans, or other regional land use plans.	C2, C2	☐	☐
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C3, D1c, D1d, D1f, D1d, Elb	☐	☐
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C4, D2c, D2d D2j	☐	☐
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C2a	☐	☐
h. Other: _____ _____		☐	☐

18. Consistency with Community Character

The proposed project is inconsistent with the existing community character. ☑ NO ☐ YES

(See Part 1. C.2, C.3, D.2, E.3)

If "Yes", answer questions a - g. If "No", proceed to Part 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E3e, E3f, E3g	☐	☐
b. The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C4	☐	☐
c. The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C2, C3, D1f D1g, E1a	☐	☐
d. The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C2, E3	☐	☐
e. The proposed action is inconsistent with the predominant architectural scale and character.	C2, C3	☐	☐
f. Proposed action is inconsistent with the character of the existing natural landscape.	C2, C3 E1a, E1b E2g, E2h	☐	☐
g. Other impacts: _____ _____		☐	☐

PRINT FULL FORM

Agency Use Only [IfApplicable]

Project :

Date :

Full Environmental Assessment Form
Part 3 - Evaluation of the Magnitude and Importance of Project Impacts
and
Determination of Significance

Part 3 provides the reasons in support of the determination of significance. The lead agency must complete Part 3 for every question in Part 2 where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.

Based on the analysis in Part 3, the lead agency must decide whether to require an environmental impact statement to further assess the proposed action or whether available information is sufficient for the lead agency to conclude that the proposed action will not have a significant adverse environmental impact. By completing the certification on the next page, the lead agency can complete its determination of significance.

Reasons Supporting This Determination:

To complete this section:

- Identify the impact based on the Part 2 responses and describe its magnitude. Magnitude considers factors such as severity, size or extent of an impact.
- Assess the importance of the impact. Importance relates to the geographic scope, duration, probability of the impact occurring, number of people affected by the impact and any additional environmental consequences if the impact were to occur.
- The assessment should take into consideration any design element or project changes.
- Repeat this process for each Part 2 question where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.
- Provide the reason(s) why the impact may, or will not, result in a significant adverse environmental impact
- For Conditional Negative Declarations identify the specific condition(s) imposed that will modify the proposed action so that no significant adverse environmental impacts will result.
- Attach additional sheets, as needed.

Please see the attached pages.

Determination of Significance - Type 1 and Unlisted Actions

SEQR Status: ☐ Type 1 ☑ Unlisted

Identify portions of EAF completed for this Project: ☑ Part 1 ☑ Part 2 ☑ Part 3

Upon review of the information recorded on this EAF, as noted, plus this additional support information

and considering both the magnitude and importance of each identified potential impact, it is the conclusion of the Town of Lewisboro Planning Board as lead agency that:

☑ A. This project will result in no significant adverse impacts on the environment, and, therefore, an environmental impact statement need not be prepared. Accordingly, this negative declaration is issued.

☐ B. Although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the following conditions which will be required by the lead agency:

There will, therefore, be no significant adverse impacts from the project as conditioned, and, therefore, this conditioned negative declaration is issued. A conditioned negative declaration may be used only for UNLISTED actions (see 6 NYCRR 617.7(d)).

☐ C. This Project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued.

Name of Action: The Wolf Conservation Center

Name of Lead Agency: Town of Lewisboro Planning Board

Name of Responsible Officer in Lead Agency: Ciorsdan Conran

Title of Responsible Officer: Planning Board Administrator

Signature of Responsible Officer in Lead Agency: Date:

Signature of Preparer (if different from Responsible Officer) Date:

For Further Information:

Contact Person: Ciorsdan Conran, Planning Board Administrator

Address: 79 Bouton Road, South Salem, New York 10590

Telephone Number: 914-763-3060

E-mail: planning@lewisborogov.com

For Type 1 Actions and Conditioned Negative Declarations, a copy of this Notice is sent to:

Chief Executive Officer of the political subdivision in which the action will be principally located (e.g., Town / City / Village of)
Other involved agencies (if any)
Applicant (if any)
Environmental Notice Bulletin: http://www.dec.ny.gov/enb/enb.html

PRINT FULL FORM

Full Environmental Assessment Form
Part 3 – Evaluation of the Magnitude and Importance of Project Impacts
And
Determination of Significance

The Planning Board of the Town of Lewisboro (the "Planning Board"), as lead agency, has determined that the "Proposed Action" described below will not have a significant effect on the environment and a Draft Environmental Impact Statement will NOT be prepared.

Description of the Action: The Wolf Conservation Center, Inc. (the "WCC" or the "Applicant") is seeking site development plan and special permit approvals, subdivision approval[1], and wetland and stormwater permits from the Planning Board to permit the establishment of a "Private Nature Preserve" and the construction of a new Educational Pavilion and other related site improvements to support its wolf conservation operations at its property located at Mead Street and 1, 3, 4, and 7 Buck Run, South Salem (the "Proposed Action" or the "Project"). The property affected by these applications is also known and designated on the tax assessment map of the Town of Lewisboro (the "Town") as Sheet 21, Block 10802, Lots 3, 65, 67, 81, 82, 83, 84, 86, and 88 (the property owned by the Applicant collectively referred to as the "Property")[2]. The Property is partially located in the R-4A One-Family Residence District of the Town (Lots 3, 82, 83, 84, 86 and 88) and partially located in the R-2A One-family Residence District (Lots 65, 67 and 81). The Property consists of approximately 33.1 acres. It is currently developed with four (4) single family residences which are utilized for the WCC's current operations, several small out-buildings and fenced wolf enclosures which currently house several endangered species of wolves.

The WCC has three (3) primary objectives: (1) to promote wolf conservation through education; (2) to provide a natural habitat sanctuary for captive wolves where observation of their natural behavior is possible; and (3) to support reintroduction of wolves into federally designated areas that can sustain viable wolf populations.

To accomplish its mission to provide a natural habitat sanctuary for wolves, the WCC shelters and breeds both red wolves (*Canis rufus)* and Mexican grey wolves (*Canis lupis baileyi)* as part of the national "Species Survival Plan" programs administered by the United States Fish and Wildlife Service and the American Zoo and Aquarium Association. The Property is currently

[1]The applications also include the subdivision of the 96.9 acre property located on Mead Street, Waccabuc which property is also known and designated on the tax assessment map of the Town of Lewisboro as Sheet 21, Block 10802, Lots 3. In 2003, that property was acquired by the Westchester Land Trust. Immediately thereafter, on July 23, 2003, approximately 85.9 acres of that property was transferred by deed to the County of Westchester and the Town of Lewisboro by the Land Trust (now known as the "Old Field Preserve"), and the remaining 11 acres were conveyed to the WCC. The subdivision will formally separate the Old Field Preserve from the 11 acres owned by the WCC, and the 11 acres will then be combined with the other parcels owned by the WCC, resulting in two (2) lots; one consisting of approximately 85.9 acres (the "Old Field Preserve") and the Property.

[2] The portion of the Property owned by the Town and County (p/o Lot 3) referred to in the footnote above is referred to herein as the "Old Field Preserve."

home to thirty-two (32) wolves, two of which are the "Ambassador" wolves (Alawa and Nikai)[3]. The Ambassador wolves assist the WCC in accomplishing its education mission.

In furtherance of its objective to promote wolf conservation through education, the WCC offers a number of educational programs to the public, with the assistance of the Ambassador wolves, both at the Property and off-site. The conservation and educational activities of the WCC are licensed by the United States Department of Agriculture, the United Sates Fish and Wildlife Service and the New York Department of Environmental Conservation.

The Applicant is seeking a special permit form the Planning Board to formally permit the establishment of a "Private Nature Preserve" on the Property pursuant to Section 220-43.2 of the Zoning Code of the Town of Lewisboro (the "Zoning Code"). Further, to enhance the site and the programs offered by the WCC, the Applicant is also seeking site development plan approval to permit a number of improvements to the Property including: 1) demolition of the existing single-family residence at 3 Buck Run, and the construction of a new Educational Pavilion consisting of approximately 4,680 square feet square feet, together with the construction of a new off-street parking area containing a total of 26 parking spaces, including two (2) handicap accessible spaces; 2) construction of an amphitheater; 3) the addition of twelve (12) camping pods; 4) construction of composting toilets; 5) conversion of the existing classroom to a freezer facility for animal food preparation and storage; 6) improvements to and widening of Buck Run; and 7) additional site and infrastructure improvements including the construction of a number of retaining walls, swales and stormwater management measures. The design of the Educational Pavilion incorporates a number of green features, including photovoltaic panels on the roof.

The Proposed Action complies with the special permit standards for Private Nature Preserves contained in Section 220-43.2 (B) of the Zoning Code of the Town of Lewisboro (the "Zoning Code") as well as the site development approval standards contained in Section 220-48 of the Zoning Code and Chapter 195 of the Code of the Town entitled "Subdivision of Land". In addition to the approvals listed above, the Applicant is also seeking a single area variance from the Zoning Board of Appeals of the Town of Lewisboro (the "ZBA") from section 220-12(E)(1) of the Zoning Code to permit to permit an increase in the maximum permitted height of fences in required yards from six (6) feet permitted to (11) feet for the existing wolf enclosures. With the exception of the height of the fences, the Proposed Action complies in all respects with the Zoning Code.

SEQRA Classification: The Proposed Action has been classified by the lead agency as an Unlisted Action.

Reasons Supporting this Determination:

This determination of significance is based on the Full Environmental Assessment Form ("FEAF"), and application materials that were prepared by the Applicant and upon the criteria contained in Section 617.7 of the SEQRA Regulations.

[3] This number varies depending on births, deaths and relocation of wolves. The WCC awaits the arrival of a new ambassador wolf this spring.

The Planning Board conducted a coordinated review and an analysis of the information provided and the potential environmental effects of the Proposed Action. Involved and interested agencies include:

Involved Agencies:
- Town of Lewisboro Zoning Board of Appeals
- Town of Lewisboro Building Department
- Westchester County Department of Health
- New York State Department of Environmental Conservation
- New York City Department of Environmental Protection
- New York State Department of Transportation
- New York State Department of Parks, Recreation & Historic Preservation

Interested Agencies:
- Town of Lewisboro Architecture &Community Appearance Review Council
- Town of Lewisboro Conservation Advisory Council
- Westchester County Planning Board/Department of Planning
- South Salem Fire Department

The Planning Board has reviewed Parts 1 and 2 of the Full EAF and the applications, and all materials submitted in support of the Proposed Action, including project plans and renderings, and the stormwater pollution prevention plan (SWPPP)(collectively, the "Application").

The Planning Board received and considered comments and communications from Kellard Sessions Consulting, its planning and consultants, Town professional staff, the South Salem Fire Chief, the Westchester County Planning Board and the public.

Based upon review of the entire record, the Planning Board directed the Applicant to complete Part 2 of the Full EAF, which has been amended by the Planning Board and is incorporated herein by reference. As indicated in Part 2 of the Full EAF, the Planning Board has identified several potential impacts of the Proposed Action on land, surface water, groundwater, plants and animals, historic and archeological resources, energy, and noise odor and light.

Project Impacts and Their Magnitude

1. **Impact on Land.** The Proposed Action will result in a minor physical change to the Property. This Application proposes the modification of the Property to include: a) demolition of the existing single-family residence at 3 Buck Run, and the construction of a new Educational Pavilion consisting of approximately 4,680 square feet square feet, together with the construction of a new off-street parking area containing a total of 26 parking spaces, including two (2) handicap accessible spaces; b) construction of an amphitheater; c) the addition of twelve (12) camping pods; d) construction of composting toilets; e) conversion of the existing classroom to a freezer facility for animal food preparation and storage; f) improvements to and widening of Buck Run; and g) additional site and infrastructure improvements including the construction of a number of retaining walls, swales and stormwater management measures.

Approximately 4.5 acres of the Property will be physically disturbed and approximately 0.71 acres of impervious surface will be added as a result of the Proposed Action to accommodate the off-street parking area and the widening of Buck Run. The Applicant intends to preserve the wooded and natural environment of the Property, and the improvement plan for the Property has been thoughtfully designed to minimize disturbance to the Property. The Wolf Conservation Center has harmoniously existed in its current location since 1999; the additional land acquired by the Applicant and the proposed improvements to the Property will further enhance its harmonious existence within the community.

2. **Impacts on Surface Water.** The majority of the Property is wooded with lawn areas in the vicinity of the existing structures. It includes areas of impervious surfaces consisting of Buck Run, individual driveways and existing structures. Slopes on site range from moderate to steep, and the topography generally directs runoff from north to south toward an off-site NYSDEC regulated wetland located southwest of the Property. The wetland flows from north to south under NYS Route 35 through a drainage culvert.

   As stated above, approximately 4.5 acres of the Property will be physically disturbed and approximately 0.71 acres of impervious surface will be added as a result of the Proposed Action. In connection with the construction of the parking area and other site improvements, the Applicant proposes the construction of drainage and water quality improvements on the Property to avoid minor increases in peak runoff rate and volume. Stormwater runoff generated by the proposed impervious surfaces will be captured and treated in two (2) subsurface infiltration systems and one (1) infiltration basin sized to provide storage volume for 100% of the contributing water quality volume to each practice in accordance with NYSDEC Water Quality Volume and Runoff Reduction Volume requirements. In addition to the proposed infiltration practices, additional green infrastructure will be provided for impervious area reduction purposes in the form of tree planting along the entrance to the Property.

   Stormwater peak runoff rates following construction of the Project will not exceed those in the existing condition. As proposed, stormwater runoff rates following implementation of the Proposed Action will have no adverse impacts on downstream properties or stormwater conveying systems. Similarly, considering the nature of the existing conditions on the Property and the level of stormwater treatment proposed as part of the Project, the Proposed Action will not result in any adverse impacts to downstream reservoirs, streams, wetlands or watercourses.

3. **Impact on Ground Water**. It is anticipated that the Proposed Action will actually result in reduced impacts to ground water over current conditions. The Property is currently improved with four (4) single family residences, each of which has its own well for potable water and associated septic system. Each of those homes utilized more water daily (500-600 gpd each) which when combined is in excess of that anticipated of the Proposed Action. As part of the Proposed Action, the two (2) of the wells will be abandoned. The remaining two (2) wells will be used only for autofill of the proposed fire protection storage tanks proposed on the Property. Two (2) new wells will be drilled to be utilized as a public water supply; only one of the wells will actually be utilized and the second will be a "backup."

It is anticipated that the Proposed Action will result in a daily reduction in the number of gallons of water used per day, and there will be a corresponding reduction in the amount of wastewater discharged. Wastewater will be discharged to an existing septic system which is sized appropriately to accommodate wastewater generated by the Project. In addition, impacts will be further reduced through the use of composting toilets.

4. **Impact on Plants and Animals**. In connection with the preparation of the Full EAF submitted as part of the Application, the Applicant utilized the NYSDEC Environmental Resources Mapper which indicates that there are no significant natural communities or rare plants or animals on, or in the vicinity of the Property. The Applicant currently occupies the Property which is currently home to thirty-two (32) wolves. Other animals that were documented on or expected to be on the Property include deer, turkeys, squirrels and raccoons. Given that the Property will remain largely in its natural state, no discernable impact to wildlife or its habitat is anticipated as a result of the Proposed Action.

   The Proposed Action has been designed to preserve as many trees on the Property as practicable and in accordance with the purposes of Chapter 203 of the Town Code, but nevertheless will require the removal of approximately 143 trees. The Application includes Drawing No. EX-1, entitled "Existing Conditions Plan" which identifies all regulated trees on the Property and includes those trees to be removed.

   The Applicant has submitted a landscaping plan (Drawing No. L-100, entitled "Landscape Plan") and a mitigation planting plan (Drawing No. M-1, entitled "Mitigation Plan") which propose extensive planting of shrubs and trees, including more than 165 shrubs and 100 new evergreen, deciduous and flowering trees on the Property. The Landscape Plan has been prepared in accordance with Section 220-15 of the Zoning Code. The Mitigation Plan has been prepared in accordance with the requirements of Chapter 217, Appendix B of the Town Code and has been designed to enhance the wetland buffer in the area of disturbance as described above. The landscape design takes into consideration limiting water consumption on the Property by utilizing indigenous landscape materials that will require no or minimal irrigation once established over the first year.

5. **Impact on Historic and Archeological Resources**. The Property does not contain structures of archeological or historical significance, however, it is adjacent to the Waccabuc Historic District which was established in 2014 and is adjacent to an area designated as sensitive for archeological sites on the NY State Historic Preservation Office (SHPO) archeological site inventory. The Proposed Action is not anticipated to result in any impacts to any historic or archeological resources.

6. **Impact on Energy**. The Proposed Action is not anticipated to result in any significant negative impact on energy resources, and in fact will result in positive impacts on our climate and will preserve natural resources through the use of "green" features. The Applicant's "green" approach will feature water efficiency through the use of low flow fixtures, the utilization of efficient mechanical and electrical systems, and will utilize natural light and ventilation to minimize the use of fossil fuels. The Applicant has committed to the installation of a 38kw photovoltaic (solar panel) system, ground source heat pumps (geothermal), direct on demand hot water, touchless and low flow sinks and toilets, touchless

air hand dryers, long lasting LED light fixtures, bird friendly "no strike" glass, a green vegetative roof, a super insulated exterior wall envelope, and extensive use of materials with high recycled content and no VOCs (volatile organic compounds).

The Education Center has been positioned to face north on the southern sloped hill to limit the sun's impact on thermal gain which minimizes the demand of the mechanical cooling system. Facing north also provides for a use of soft natural daylight throughout the day.

7. **Impact on Noise, Odor and Light**.

Noise. The Proposed Action will not have permanent impacts on noise, but will result in minor temporary construction noise impacts. Construction is anticipated to occur over a period of approximately eighteen (18) months. Construction noise is addressed in Chapter 160 of the Town Code, which prohibits the operation of tools which result in the creation of noise between the hours of 7:00 p.m. and 7:00 a.m. the following day or at any time on Sunday. Short term noise impacts during the construction period will be mitigated by adherence to Westchester County Best Management Practices, the Town Code, and through the implementation of a construction sequencing plan. Therefore, the Proposed Action is not expected to cause significant adverse construction-related noise or vibration impacts.

The levels of external sound from the Property are currently, and will continue to be below the maximum limits contained in Chapter 160 of the Town Code.

Odor: The Proposed Action will not generate odors.

Light: The Proposed Action will not result in significant light impacts. The proposed lighting is shown on Drawing No. LP-1, entitled "Lighting Plan," and accompanying cut sheets for the lighting fixtures. The proposed lighting plan is dark sky compliant and also complies with Section 220-14 of the Zoning Code in that all lighting will be directed away from nearby streets and properties, and will not cause objectionable glare observable from such street and properties. In addition, all exterior lighting will be placed or shielded so that no direct light source is visible at any property line at a height of more than four feet above grade. As stated above, the Applicant will also utilize long lasting energy efficient LED light fixtures.

Conclusion.

The Planning Board has conducted a coordinated review of the Proposed Action and any potential environmental impacts. It has reviewed and considered Parts 1 and 2 of the Full EAF, and the Application, including the proposed site plans and renderings, the SWPPP and other project materials.

The Planning Board received and considered comments and communications from Kellard Sessions Consulting, its planning and engineering consultants, Town professional staff, the South Salem Fire Chief, the Westchester County Planning Board and the public, and all comments have been given careful consideration.

The Planning Board has completed a thorough and rigorous review of the identified areas of environmental concern. Based upon the entire record and for the reasons discussed above, the Planning Board as lead agency determines that the Proposed Action will not result in any significant adverse environmental impact, and that any minor impacts of the Proposed Action have been mitigated to the maximum extent practicable. Accordingly, the Planning Board hereby: 1) adopts a negative declaration of environmental significance for the Proposed Action; and 2) determines that an environmental impact statement ("EIS") will not be prepared.

For Further Information:

Contact person: Ciorsdan Conran, Planning Board Administrator
Town of Lewisboro
79 Bouton Road
South Salem, New York 10590
(914) 763-3060
Email: planning@lewisborogov.com

Stormwater Pollution Prevention Plan

for

Wolf Conservation Center

1,3,4 & 7 Buck Run
Town of Lewisboro,
New York

Revised: April 25, 2023 (Lewisboro (T))
Revised: February 7, 2023 (Lewisboro (T))
Revised: June 4, 2021 (NYCDEP Application)
Revised: April 27, 2021
Date: December 29, 2020

Prepared by:

Bibbo Associates, LLP
Mill Pond Offices
293 Route 100- Suite 203
Somers, New York 10589
(914) 277-5805

_____
Matthew J. Gironda, P.E.
NYS License No. 096030

CONTACT INFORMATION AND CERTIFICATION

Applicant:

Wolf Conservation Center
7 Buck Run
South Salem, NY 10590

Project Engineer & Qualified Inspector:

Bibbo Associates, LLP
293 Route 100, Suite 203
Somers, NY 10589
Attn: Matthew J. Gironda, P.E., NY License 096030
mgironda@bibboassociates.com
(914) 277-5805 ext. 314

Contractor's Certification:

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Name & Title: _____

Signature: _____

Company Name: _____

Company Address _____

Phone: _____

Date: _____

Trained Contractor: _____
(On-site, Daily)

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Appendix E: New York Standards and Specifications for Erosion and Sediment Control Construction Site Log Book

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1.0 Introduction

1.1 Project Description

The Wolf Conservation Center is proposing to construct a new educational pavilion and related site improvements to support their existing operations on the subject parcel. The project site is located on Buck Run in the Town of Lewisboro and consists of multiple tax parcels which were previously developed for single family residential use. The Wolf Center currently utilizes the existing dwellings and large wooded areas for their daily operations. In order to better facilitate the current use The Wolf Center is seeking to implement the following site improvements:

- Widening of the existing private road (Buck Run) which provides access to the project site from NYS Route 35.
- Demolition of the existing single-family residence located at 4 Buck Run.
- Construction of a new educational pavilion and supporting water supply and wastewater treatment components.
- Construction of new site wide Stormwater Management system.
- Construction of new and expanded parking areas as well as pedestrian access ways to support the new educational pavilion.
- Construction of new freezer building.
- Construction of 12 camping pods / Yurts.

The total land disturbance resulting from the proposed development including all individual lot construction is approximately 4.5 ac.±. As the total land disturbance exceeds 1-acre and the project is located within the NYC East of Hudson Watershed, coverage under the SPDES General Permit for Temporary Stormwater Discharges from Construction Activity (GP-0-20-001) is required and all proposed SMP's must be designed in accordance with the Enhanced Phosphorous Removal standards specified in Chapter 10 of the Design Manual. In addition, the project will also require a SWPPP approval from the NYCDEP per section 18-39 of their Rules and Regulations. For further discussion regarding NYCDEP requirements, refer to section 2.6 of this report.

Assuming a timely permitting process construction is anticipated to begin in the Spring of 2024.

The following permits are required for the subject project:

Wolf Conservation Center – Required Approvals

Agency and Approval Required:	Status:
Town of Lewisboro Planning Board: Subdivision Approval (Preliminary & Final) Site Development Plan Approval Wetland Permit Stormwater Permit	 Pending Pending Pending Pending
Westchester County Health Department Realty Subdivision Approval Change of Use Approval Public Water Supply Approval	 Pending Pending Pending
New York City Dept. of Environmental Protection: SWPPP Approval	Pending
New York State Dept. of Environmental Conservation: Coverage under SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001) Freshwater Wetland Activity Permit	 Pending Pending Pending
New York State Department of Transportation: Highway Work Permit for Commercial Entrance	 Pending

1.2 Existing Conditions

The project site is located on the north side of NYS Rte. 35 at the intersection with Buck Run in the Town of Lewisboro. The site consists of six (6) separate tax parcels, four (4) of which contain existing single-family dwellings. The two (2) remaining parcels are largely undeveloped and are utilize for the wolf enclosures located in the north and northeastern portions of the property.

The majority of the site is wooded, with lawn areas in the vicinity of the existing dwellings. Existing onsite impervious surfaces consist of the private road (Buck Run), individual driveways and dwellings. Slopes onsite range from moderate to steep, and site topography generally directs runoff from north to south towards an offsite NYSDEC regulated wetland located southwest of the project site. The wetland flows from north to south under NYS Rte. 35 through a drainage culvert. The entrance of which was utilized as the design point in the enclosed peak flow analysis.

The Natural Resource Conservation Service Soil Survey identifies the onsite soils

as Charlton Loam (ChC), Paxton Fine Sandy Loam (PnC & PnD), Sutton Loam (SuB), and Woodbridge Loam (WdC). The Charlton soils are specified as Hydrologic Soil Group "B", the Paxton soils are identified as Hydrologic soil group "C", and the Sutton Loam as well as Woodbridge Loam are given dual "C/D" hydrologic group classifications.

1.3 Proposed Conditions

As described above the proposed development consists of the following site improvements:

- Widening of the existing private road (Buck Run) which provides access to the project site from NYS Route 35.
- Demolition of the existing single-family residence located at 4 Buck Run.
- Construction of a new educational pavilion and supporting water supply and wastewater treatment components.
- Construction of new site wide Stormwater Management system.
- Construction of new and expanded parking areas as well as pedestrian access ways to support the new educational pavilion.
- Construction of new freezer building.
- Construction of 12 camping pods / Yurts.

Stormwater runoff generated by the proposed impervious surfaces will be captured and treated in two (2) subsurface infiltration systems and one (1) Infiltration Basin sized to provide storage volume for 100% of the contributing WQv to each practice in accordance with the NYSDEC WQV and RRv requirements. In addition to the proposed infiltration practices additional Green Infrastructure will be provided for impervious area reduction purposes in the form of tree planting along the site entrance.

Stormwater peak runoff rates following development will not exceed those in the existing condition. As proposed, stormwater runoff rates following development would have no adverse impacts on downstream properties or stormwater conveying systems. Similarly, considering the nature of the existing site conditions and the level of stormwater treatment proposed in the post-development condition, it is predicted that this development will not result in any adverse impacts to downstream reservoirs, streams, wetlands or watercourses.

2.0 Stormwater Management

2.1 Methodology

Stormwater management computations provided in this report are based upon the Soil Conservation Service (SCS) a.k.a. Natural Resource Conservation Service (NRCS), TR-20 methodologies and recommendations included in the NYSDEC Design Manual and GP-0-20-001 requirements. Pre-and post-development rates for stormwater runoff have been computed for comparison of the 1, 10, and 100-year

storm events using the precip.net, Northeast Regional Climate Center (NRCC) precipitation data website for New York and New England. Extreme precipitation tables for the specific site location for various storms have been provided in appendix I of this report.

The computer software entitled "HydroCAD Version 10.00-21" by Applied Microcomputer Systems has been utilized to determine runoff volumes, peak runoff rates, and high-water elevations in the stormwater treatment facilities. The precipitation values obtained for the above-mentioned storm events are summarized in the Table provided below:

TABLE 1
Precipitation Values based on 24-hours
Accumulation Period and Recurrence Interval

Storm Frequency	Precipitation (inches) – 24 hour
1-year	2.83
10-year	4.03
100-year	9.04
90% Rainfall	1.50

2.2 NYSDEC Requirements

The subject project lies within The New York City East of Hudson watershed as identified in Appendix C of GP-0-20-001, and proposes to disturb in excess of 1 acre of land. Therefore, a SWPPP with post construction stormwater management practices must be provided, and all proposed stormwater management practices must conform to the Enhanced Phosphorous Removal Standards specified in Chapter 10 of the NYSDEC Design Manual.

2.3 Water Quality Volume (WQv) / Runoff Reduction Volume (RRv)

The stormwater management practices employed have been sized to satisfy the Water Quality Volume (RRv) and Runoff Reduction Volume (RRv) requirements specified in the Design Manual. In accordance with chapter 10, the minimum WQv/RRv for the subject project was determined based on the volume of runoff generated by the 1 year 24-hour storm event. For the portions of the subject project which consist of redevelopment activities, Water Quality Volume (WQv) sizing criteria was applied based on the Redevelopment rules specified in chapter 9 of the design manual. Figure 3 included at the end of this report has been prepared to illustrate the areas of new development as well as the areas where redevelopment sizing can be applied.

The WQv requirements set forth in the Design Manual specify that the goal for each site is to reduce the entire WQv through the use of green infrastructure practices (GIP's) and standard stormwater management practices (SMP's) with runoff reduction capacity. The proposed stormwater management practices (SMP's) to be utilized for WQv/RRv treatment are two (2) subsurface infiltration systems and one infiltration basin. Each infiltration practice is designated as a standard SMP with RRv capacity.

Calculations for the required WQv can be found in appendix "E" of this report and are summarized in the table provided below. It should be noted that WQv/RRv treatment is proposed for runoff generated by all proposed impervious surfaces as well as areas of existing impervious located within the project disturbance limits.

Calculations for the required water quality volume at design point 1 can be found in Appendix "A" of this report and are summarized in the table provided below. Please note the Impervious areas treated through the application of green infrastructure area reduction practices have been excluded.

TABLE 2
Water Quality Volume Summary

SMP ID #	Watershed Area (Ac.)*	WQv Required (AF)**	RRv Minimum (AF)***	RRv Provided (AF)****
1.1 P	0.722	0.075	0.022	0.075
INF 1.2	1.03	0.167	0.045	0.167
INF 1.3	0.046	0.01	0.003	0.01

(*) Watershed area identified above is based on contributing drainage area to the proposed infiltration practices. All sub catchments which do not contain proposed impervious surfaces or provide RRv treatment through the use of Green Infrastructure Area Reduction Practices have been excluded from the WQv calculations summarized above.
(**) Refer to HydroCAD output provided in Appendix C for 1-year storm runoff Volumes.
(***) Refer to Minimum RRv calculations provided in Appendix A.
(****) Refer to stage storage tables in HydroCAD routing contained in Appendix C. 100% RRv has been provided through the use of subsurface infiltration systems and infiltration basins.

As indicated in the above table, the project SWPPP provides treatment for 100% of the contributing WQv to the proposed infiltration practices which are designated as standard SMP's with runoff reduction capacity. Storage for 100% of the WQv is provided within each infiltration practice based on the volume of runoff generated by its contributing area. It should be noted that for the purposes of calculating the above summarized required WQv, the proposed gravel parking lot was considered impervious.

The HydroCAD routings contained in Appendix C account for an exfiltration rate utilized for modeling purposes to minimize oscillations within the infiltration system outflow hydrographs. The exfiltration rate utilized has been confirmed based on

preliminary soil testing results. The results of which are provided in Appendix L. The test results indicate suitable soils exist for infiltration as well as adequate separation to groundwater or ledge rock. Witnessed deep test descriptions and infiltration testing results will be provided in the final project SWPPP.

The subsurface infiltration systems have been designed offline. Diversion structures have been provided to divert inflow from storms larger than the 1 year to the downstream infiltration basins. In accordance with chapter 3 of the Design Manual extended detention storage has been provided in the infiltration basins and the outlet control structures have been designed peak flow attenuation requirements. Pretreatment for the infiltration practices will consist of hydrodynamic separator pretreatment units.

Stormwater runoff from proposed impervious surfaces will be directed via a piping network to the stormwater treatment facilities. Pipe sizing calculations for the proposed stormwater conveyance system will be included in the final project SWPPP.

2.4 NYSDEC Redevelopment Requirements

As noted in previous sections of this report, the subject property contains existing impervious surfaces associated with the onsite dwellings, access road and driveways. Portions of these areas will be reconstructed as impervious and as such can be considered "Redevelopment Areas" per NYSDEC requirements.

There are several options listed on chapter 9 of the design manual which can be used to satisfy the redevelopment sizing criteria. This S.W.P.P.P. was prepared based on option II. Which specifies that a minimum of 25% of the WQv generated by the disturbed impervious area is captured and treated by the implementation of a standard SMP or reduced by application of green infrastructure techniques. As the subject project includes both areas of New Development as well as redevelopment activities, treatment is required for a minimum of 25% of the existing disturbed impervious area.

In order to demonstrate that runoff from a minimum of 25% of the existing impervious areas to be disturbed will be captured and treated, a Redevelopment Figure is included at the end of this report (Figure 3). The attached figure clearly illustrates that the project will provide WQv/RRv treatment through the use of standard SMP's with RRv capacity as well as Green Infrastructure area reduction practices for 100% of all new impervious as well as more than 25% of existing disturbed impervious areas, thus satisfying the requirements of chapter 9.

2.5 Stream Channel Protection Volume (CPv)

Stream Channel Protection is intended to protect stream channels from erosion and the requirements are met by providing 24-hr extended detention of the 1-yr 24-hr rainfall event. However, this requirement may be waived if the entire Stream Channel Protection Volume (CP_v) is reduced through the use of green infrastructure practices and or infiltration. Or if the site discharges directly to tidal waters or fifth

order or larger streams as determined by the Strahler-Horton methodology (Section 4.3 of the Design Manual).

As a result of the chapter 10 design specifications, this project satisfies the CPv requirement as infiltration has been provided for 100% of the required WQv which is equivalent to the 1-year storm runoff volume.

2.6 Overbank and Extreme Flood Control

Overbank Flood Control is intended to prevent an increase in the frequency and magnitude of out-of–bank flooding resulting from proposed development. To achieve Overbank Flood Control at a site the post-development peak rate of runoff generated by the 10-yr design storm must be attenuated to pre-development levels. The exception to this is for sites that discharge to fifth order streams or larger.

Extreme Flood Control is intended to prevent the risk of flood damage from large storms, maintain the pre-development 100-yr floodplain boundary, and protect the integrity of stormwater management practices. The requirement for Extreme Flood Control is met by attenuating the post-development peak flow rates generated by the 100-yr storm event to pre-development levels, unless the site discharges to a fifth order or larger stream.

As shown in the HydroCAD routings contained in Appendix C, peak flows from the 10- and 100-year storm events have been reduced to predevelopment levels with modification of summary of the pre development vs post development peak flows is provided below:

TABLE 3
Peak Runoff Discharges to Design Point 1

Design Storm (yr)	Pre-Development Peak Runoff (cfs)	Post-Development Peak Runoff (cfs)
1	8.0	7.5
10	26.4	24.8
100	61.0	57.7

2.7 NYCDEP Requirements

The subject project is located within the NYC East of Hudson Watershed and a NYCDEP SWPPP approval is required as it meets or exceeds the following thresholds listed in the Rules and Regulations described below:

§18-39(b)(3)(iv): A land clearing or land grading project, involving two (2) or more acres, located at least in part within the limiting distance of 100 feet of a watercourse or wetland, or within the limiting distance of 300 feet of a reservoir, reservoir stem or controlled lake or on a slope exceeding 15 percent;

The proposed site improvements will result in land disturbance in excess of 2 acres, a portion of which will take on slopes exceeding 15% thus exceeding the threshold specified in §18-39(b)(3)(iv) of the Rules and Regulations.

The NYCDEP Rules and Regulations generally match the requirements of the NYSDEC and Town of Lewisboro with several exceptions. There are two (2) exceptions of note discussed below.

The first exception of note being that two (2) different standard SMP's are required in series when the contributing drainage area to that SMP is greater than 20% impervious or an infiltration practice is not provided. As noted previously infiltration practices will provide treatment of stormwater runoff from all proposed impervious surfaces, therefore two (2) SMP's in series are not required.

The second exception is the NYCDEP requires that the minimum required stormwater treatment volume used shall be the greater of the 1-year 24 hour storm event or the volume generated by the 90% storm.

In accordance with chapter 4 of the Design Manual the following equation was used to determine the water quality volume generated by the 90% rainfall event:

$$WQv = \frac{(P)(Rv)(A)}{12}$$

Where,

WQv = Runoff Volume (acre-feet)
P = 90% Rainfall Value (inches) – (Use 1. 5")
Rv = 0.05 + 0.009(I), where I is percent Impervious Cover (use 0.2 min)
A = Contributing Drainage Area in acres

A comparison of the Runoff volumes for each infiltration system's respective contributing area are summarized in the table below:

Water Quality Volume Comparison Summary (90% Storm Runoff Volume vs 1-Year Storm Runoff Volume)

Sub Area	P (in.) Rainfall Value	Rv	Area (Ac.)	WQv (af) (90% Storm)	WQv (af) (1-Yr Storm)
1.1S	1.5	0.43	0.722	0.039	0.075
1.2S	1.5	0.67	0.813	0.088	0.167
1.3S	1.5	0.95	0.046	0.005	0.010

As discussed in previous sections of this report all proposed SMP's have been sized based on their contributing runoff volume generated by the 1-year 24-hour storm event, which as summarized above provides the larger runoff volume.

3.0 Erosion and Sediment Control

The plans provide for specific erosion and sediment controls to be employed during construction. It is the intent to provide effective erosion control by minimizing land disturbance at one given time, containing sediment from disturbed areas, treating runoff where possible, and stabilizing disturbed soils as soon as possible. The directives specified on the plans and in this report serve as a minimum for erosion and sediment control. Further practices and measures may be required pursuant to onsite inspections in conformance with the requirements of the SPDES #GP-0-15-002 permit. As per the SPDES permit onsite, inspections are to be performed at a rate of at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days. All erosion and sediment control practices specified for this site shall be in conformance with the New York Standards & Specifications for Erosion & Sediment Control.

3.1 Temporary Erosion and Sediment Control Practices

Listed below are the Temporary Erosion and Sediment Control Practices specified for the subject project. All practices shall be installed and maintained in conformance with the New York Standards & Specifications for Erosion & Sediment Control:

- Stabilized Construction Entrance
- Silt Fence
- Drop Inlet Protection
- Soil Stockpiles
- Debris Control

A stabilized construction entrance should be installed at construction vehicle access points. The construction entrance is designed to prevent outgoing trucks from tracking soil onto the public roadways. Construction details specifying installation requirements can be found on the plan.

The silt fence for the site will consist of a geotextile fabric installed at the toe of all disturbed slopes and parallel to the contours. The silt fence is intended to reduce runoff velocity and intercept sediment-laden runoff. Construction details specifying the proposed installation and type of permissible silt fence can be found on the plans.

Drop inlet protection for the site will consist of stone and concrete block wrapped with wire mesh surrounding the catch basins. The purpose of the stone and block inlet protection is to filter stormwater runoff and prevent sediment laden runoff from entering the drainage system through existing or proposed drain inlet structures.

Soil stockpiles are to be stabilized with vegetation and surrounded with silt fencing. This will ensure the topsoil that is stripped from the site during construction will be protected for use during final grading and that no sediment from the stockpiles will be deposited downstream.

Construction debris, such as sheet metal, wood scrap, paper and insulation products, Styrofoam cups and paper wrappers can become windblown litter over and off the site if neglected. Suitable and ample refuse containers shall be provided on the site and emptied when full. Any scattered debris shall be picked up and placed in containers on an as needed basis.

3.2 Permanent Erosion and Sediment Control Practices

The intent of the permanent erosion and sediment control practices is to permanently stabilize the ground surface via vegetative and structural practices, while controlling and reducing runoff velocities. The following permanent erosion & sediment control practices are proposed for the site:

- Land Grading
- Vegetation

Land grading is the reshaping of the existing land surface in accordance with the grading plan. Proper land grading is an essential component of the erosion control plan, as well as the stormwater pollution prevention plan. Proper grading will ensure the intended drainage areas are directed to the stormwater management practices.

Vegetation will be provided on all disturbed soils not covered by the proposed impervious surfaces. Permanent vegetation will reduce runoff velocities, filter stormwater runoff, and minimize soil erosion. Optimum times for planting are the early spring and fall; however, plantings can be started in the summer provided adequate mulch and moisture is supplied.

4.0 Maintenance & Inspection Requirements

4.1 Short Term Maintenance and Inspection Requirements

As per the SPDES permit onsite, inspections are to be performed at a rate of at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days. All erosion and sediment control practices specified for this site shall be in conformance with the New York Standards & Specifications for Erosion & Sediment Control.

Inspections performed during construction should verify that all practices are functioning properly, correctly maintained, and that accumulated sediment is removed from all control structures. The inspector must also examine the site for any evidence of soil erosion, the potential for pollutants to enter the storm drain system, turbid discharge at all outfalls, and the potential for soil and mud to be transported on the public roadway at the site entrance. In addition to these general guidelines, the project plans will provide more specific erosion control guidelines, as well as a construction sequence to guide the contractor through the construction process. Discussed below are specific maintenance and inspection requirements for the temporary practices to be employed at the site.

During construction, the silt fence should be inspected weekly to ensure correct installation. In addition, any accumulated sediment resulting in "bulges" in the silt fence should be removed and mixed with onsite soil. Any damaged or torn silt fence should be replaced.

The construction entrance should be checked to ensure no sediment is being deposited onto the public roadway. Should sediment be observed, it should be removed from the street, and the stone in the construction entrance replaced.

The drop inlet protection shall be checked for accumulated sediment on a monthly basis and after significant rainfall. Any accumulated sediment shall be removed and the crushed stone shall be replaced as needed.

Once construction is completed and the site has been stabilized, a "Notice of Termination" shall be filed. At this point limited maintenance requirements are anticipated.

4.2 Long Term Maintenance and Inspection Requirements

Once final stabilization is achieved and construction complete, only limited maintenance will be required. A copy of the Maintenance and Inspection Checklists from Appendix "G" of the New York State Stormwater Management Design Manual is included in Appendix "G" of this report to serve as a guide for maintaining and inspecting the stormwater infiltration practices.

Inspections of the following items should be performed at a minimum annually and following significant rainstorms in excess of ½" of rainfall within 24 hours.

Infiltration Systems:
Refer to manufacturer's maintenance schedule in Appendix J for more specific maintenance requirements.

- Inspect the infiltration systems to ensure accumulated water is infiltrating into the soil, and debris has not entered the diversion manholes and pretreatment structures; any debris should be removed. Once debris is removed, if stormwater is still not infiltrating contact a professional engineer licensed in the State of New York to examine the system.
- Inspection of the outlet of the overflow pipe to ensure it is not plugged or clogged.

Infiltration Basin:

- Inspect emergency spillway and rock outlet protection for any dislodged stones or signs of erosion; additional stone / rip-rap shall be added as needed.
- Inspect outlet structure for clogging and debris/sediment accumulation. Any accumulated sediment/debris shall be removed and properly disposed of.
- Basin berm shall be inspected annually and mowed as needed to prevent woody growth.
- Vegetative establishment within the infiltration basin is critical to its function. Any dead, invasive, or diseased species shall be removed immediately and replaced. Additional seed and mulch shall be used as needed to maintain healthy vegetative cover.

Hydrodynamic Separators (CDS) - Pretreatment Units:
Refer to manufacturer's maintenance schedule in Appendix M for more specific maintenance requirements.

- Inspect after heavy rainfall greater than ½" in 24 hours for the first year to determine an appropriate maintenance schedule. Subsequent inspections are reduced to quarterly.
- When the sediment volume reaches within 24"-30" of the water surface, the system should be maintained.
- Maintenance is to be performed using a vacuum truck and removing the accumulated sediment pile and debris.

Catch Basins and Drain Manholes:

- Inspect monthly and after heavy rain storms >½" in 24 hours for sediment accumulation in sumps. Accumulated sediment should be removed immediately.

5.0 Outstanding Violations or Enforcement Actions

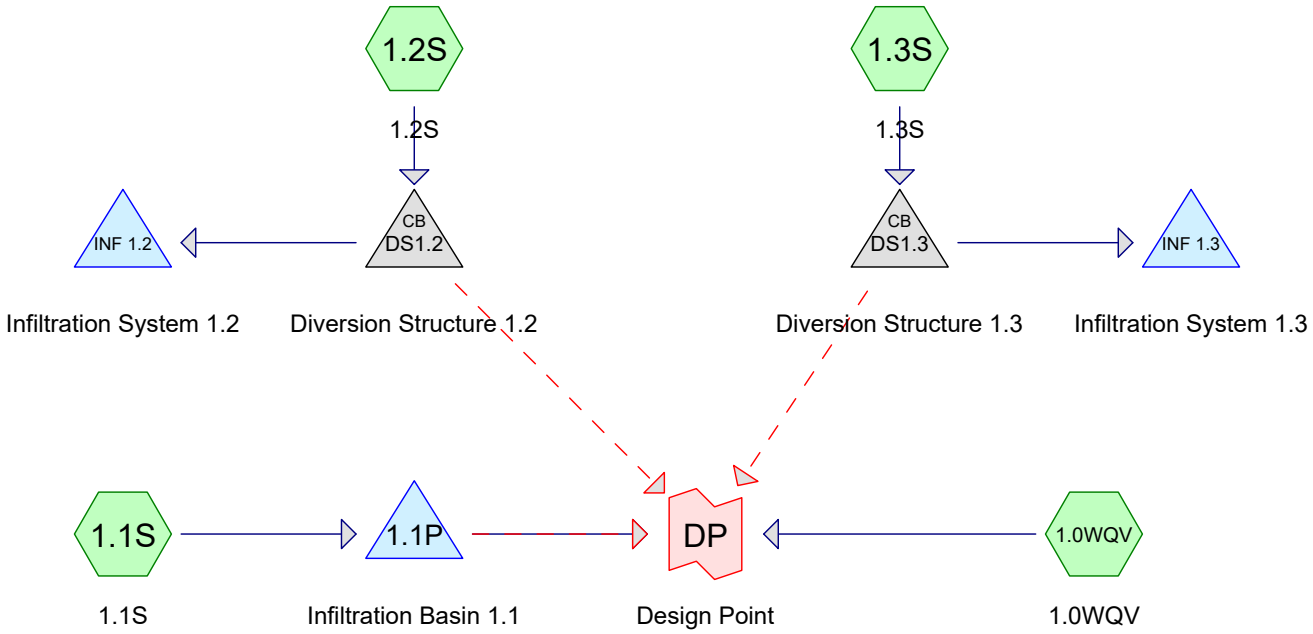
There are no known outstanding violations or enforcement actions against this property, the owner or the applicant. There are no stormwater discharges associated with industrial activity from this site.

6.0 Conclusion

The Stormwater Pollution Prevention Plan prepared for the subject project has been prudently designed to manage stormwater runoff from both qualitative and quantitative standpoints. Proper implementation of this plan will ensure meeting water quality and quantity standards as required by the NYSDEC based on current New York State guidelines as well as most recent guidelines set forth by the NYCDEP.

Appendix A:

Water Quality Volume (WQv) / Runoff Reduction Volume (RRv) Calculations



Subcat Reach Pond Link

Routing Diagram for Wolf Center - WQV
Prepared by Bibbo Associates, llp., Printed 4/21/2023
HydroCAD® 10.00-24 s/n 02226 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.067	98	(1.0WQV)
0.120	61	>75% Grass cover, Good, HSG B (1.1S)
0.619	74	>75% Grass cover, Good, HSG C (1.1S, 1.2S)
0.111	98	Proposed Building (1.2S)
0.043	98	Proposed Courtyard Imp (1.2S)
0.295	98	Proposed Pavement (1.1S)
0.574	98	Proposed Pavement & Walkway (1.2S)
0.046	98	Proposed Pods and Facilities (1.3S)
0.008	98	Proposed Sidewalk (1.1S)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1.0WQV: 1.0WQV Runoff Area=2,900 sf 100.00% Impervious Runoff Depth=2.60"
Flow Length=1,585' Tc=23.5 min CN=98 Runoff=0.1 cfs 0.014 af

Subcatchment 1.1S: 1.1S Runoff Area=31,450 sf 42.00% Impervious Runoff Depth=1.25"
Tc=6.0 min CN=82 Runoff=1.1 cfs 0.075 af

Subcatchment 1.2S: 1.2S Runoff Area=45,619 sf 69.42% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=91 Runoff=2.5 cfs 0.167 af

Subcatchment 1.3S: 1.3S Runoff Area=2,000 sf 100.00% Impervious Runoff Depth=2.60"
Tc=6.0 min CN=98 Runoff=0.1 cfs 0.010 af

Pond 1.1P: Infiltration Basin 1.1 Peak Elev=452.60' Storage=633 cf Inflow=1.1 cfs 0.075 af
Discarded=0.3 cfs 0.075 af Primary=0.0 cfs 0.000 af Secondary=0.0 cfs 0.000 af Outflow=0.3 cfs 0.075 af

Pond DS1.2: Diversion Structure 1.2 Peak Elev=469.20' Inflow=2.5 cfs 0.167 af
Primary=2.5 cfs 0.167 af Secondary=0.0 cfs 0.000 af Outflow=2.5 cfs 0.167 af

Pond DS1.3: Diversion Structure 1.3 Peak Elev=593.39' Inflow=0.1 cfs 0.010 af
Primary=0.1 cfs 0.010 af Secondary=0.0 cfs 0.000 af Outflow=0.1 cfs 0.010 af

Pond INF 1.2: Infiltration System 1.2 Peak Elev=466.22' Storage=0.006 af Inflow=2.5 cfs 0.167 af
Outflow=1.8 cfs 0.167 af

Pond INF 1.3: Infiltration System 1.3 Peak Elev=593.20' Storage=0.001 af Inflow=0.1 cfs 0.010 af
Outflow=0.1 cfs 0.010 af

Link DP: Design Point Inflow=0.1 cfs 0.014 af
Primary=0.1 cfs 0.014 af

Summary for Subcatchment 1.0WQV: 1.0WQV

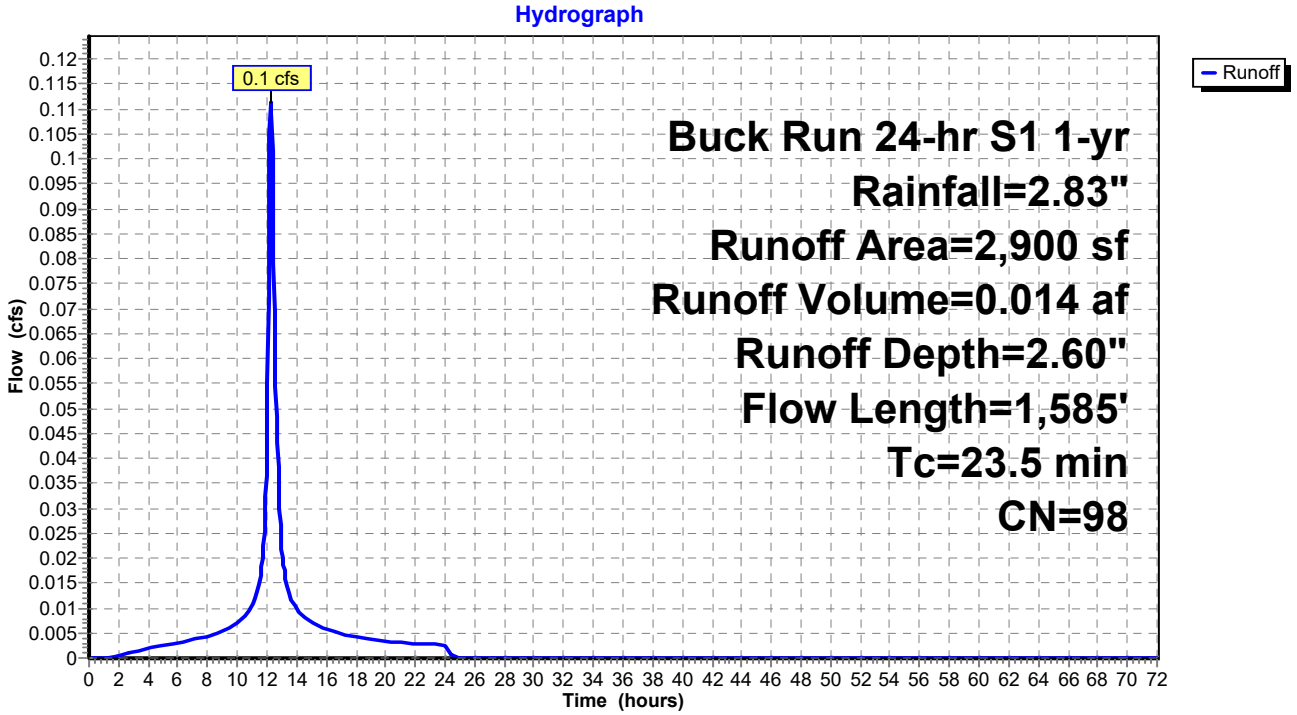
Runoff = 0.1 cfs @ 12.26 hrs, Volume= 0.014 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	2,900	98	
	2,900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
12.1	1,485	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.5	1,585	Total			

Subcatchment 1.0WQV: 1.0WQV



Summary for Subcatchment 1.1S: 1.1S

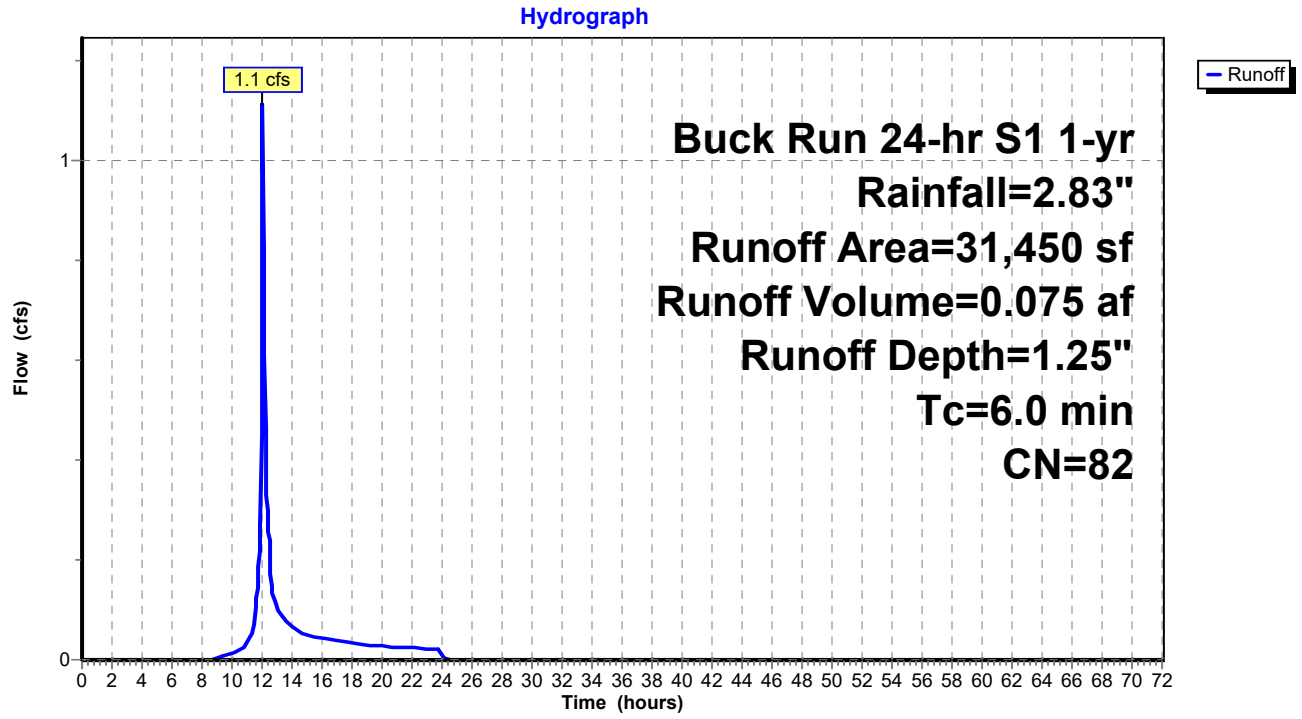
Runoff = 1.1 cfs @ 12.04 hrs, Volume= 0.075 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	12,870	98	Proposed Pavement
*	340	98	Proposed Sidewalk
	5,235	61	>75% Grass cover, Good, HSG B
	13,005	74	>75% Grass cover, Good, HSG C
	31,450	82	Weighted Average
	18,240		58.00% Pervious Area
	13,210		42.00% Impervious Area

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

Subcatchment 1.1S: 1.1S



Summary for Subcatchment 1.2S: 1.2S

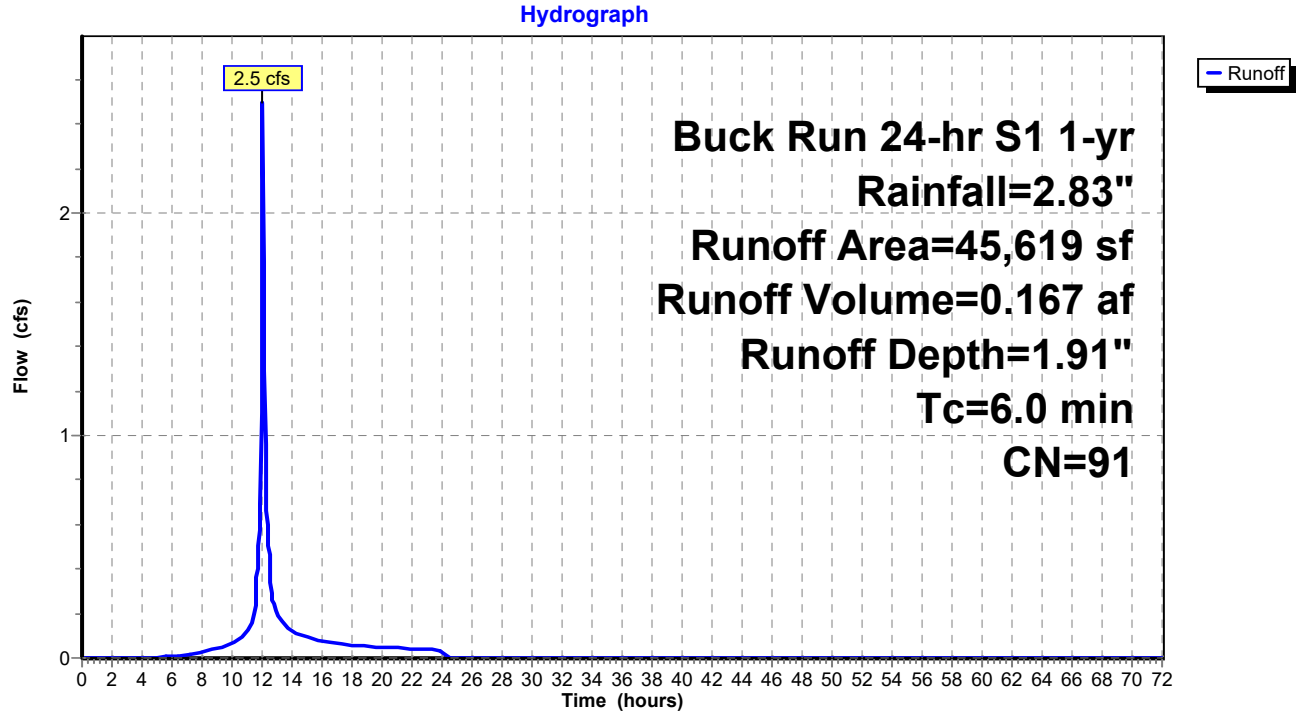
Runoff = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	24,985	98	Proposed Pavement & Walkway
*	4,815	98	Proposed Building
	10,849	74	>75% Grass cover, Good, HSG C
*	1,870	98	Proposed Courtyard Imp
	3,100	74	>75% Grass cover, Good, HSG C
	45,619	91	Weighted Average
	13,949		30.58% Pervious Area
	31,670		69.42% Impervious Area

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

Subcatchment 1.2S: 1.2S



Summary for Subcatchment 1.3S: 1.3S

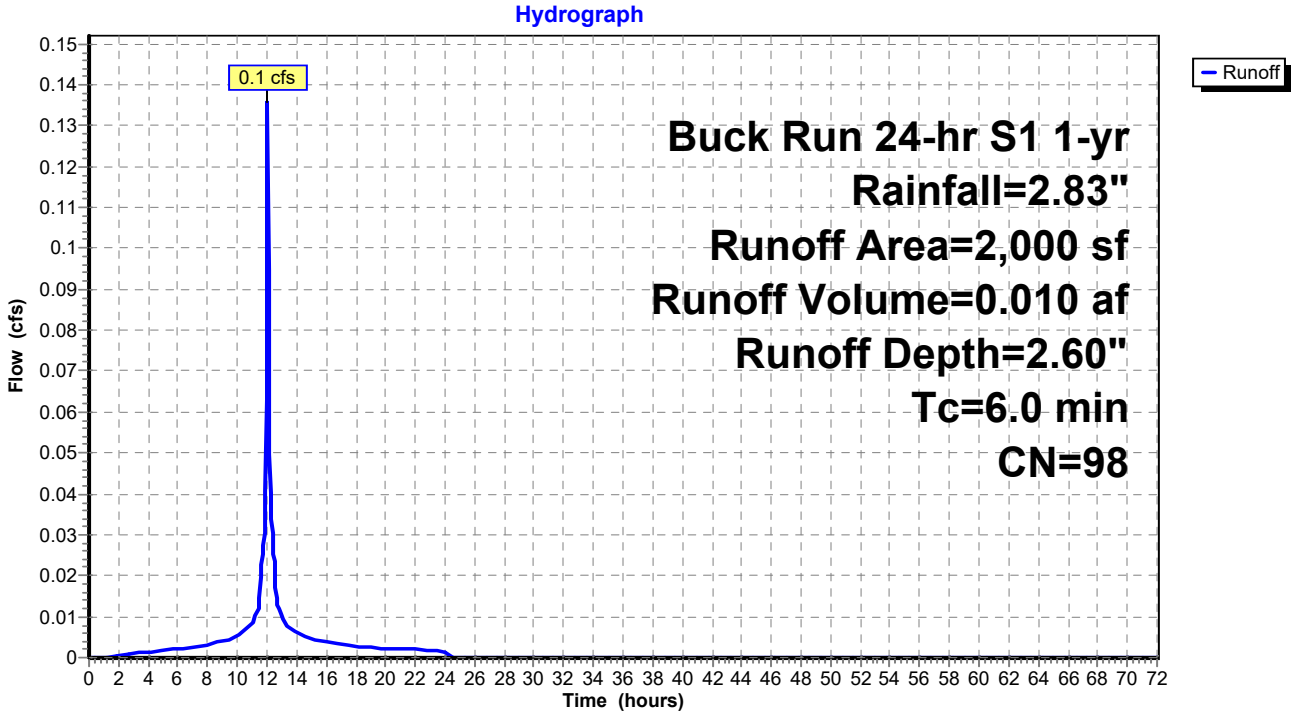
Runoff = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	2,000	98	Proposed Pods and Facilities
	2,000		100.00% Impervious Area

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

Subcatchment 1.3S: 1.3S



Summary for Pond 1.1P: Infiltration Basin 1.1

Inflow Area = 0.722 ac, 42.00% Impervious, Inflow Depth = 1.25" for 1-yr event
Inflow = 1.1 cfs @ 12.04 hrs, Volume= 0.075 af
Outflow = 0.3 cfs @ 12.30 hrs, Volume= 0.075 af, Atten= 70%, Lag= 15.5 min
Discarded = 0.3 cfs @ 12.30 hrs, Volume= 0.075 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 452.60' @ 12.30 hrs Surf.Area= 718 sf Storage= 633 cf

Plug-Flow detention time= 14.9 min calculated for 0.075 af (100% of inflow)
Center-of-Mass det. time= 14.9 min (879.1 - 864.2)

Volume	Invert	Avail.Storage	Storage Description
#1	451.00'	9,077 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
451.00	125	0	0
452.00	447	286	286
454.00	1,356	1,803	2,089
456.00	2,634	3,990	6,079
457.00	3,362	2,998	9,077

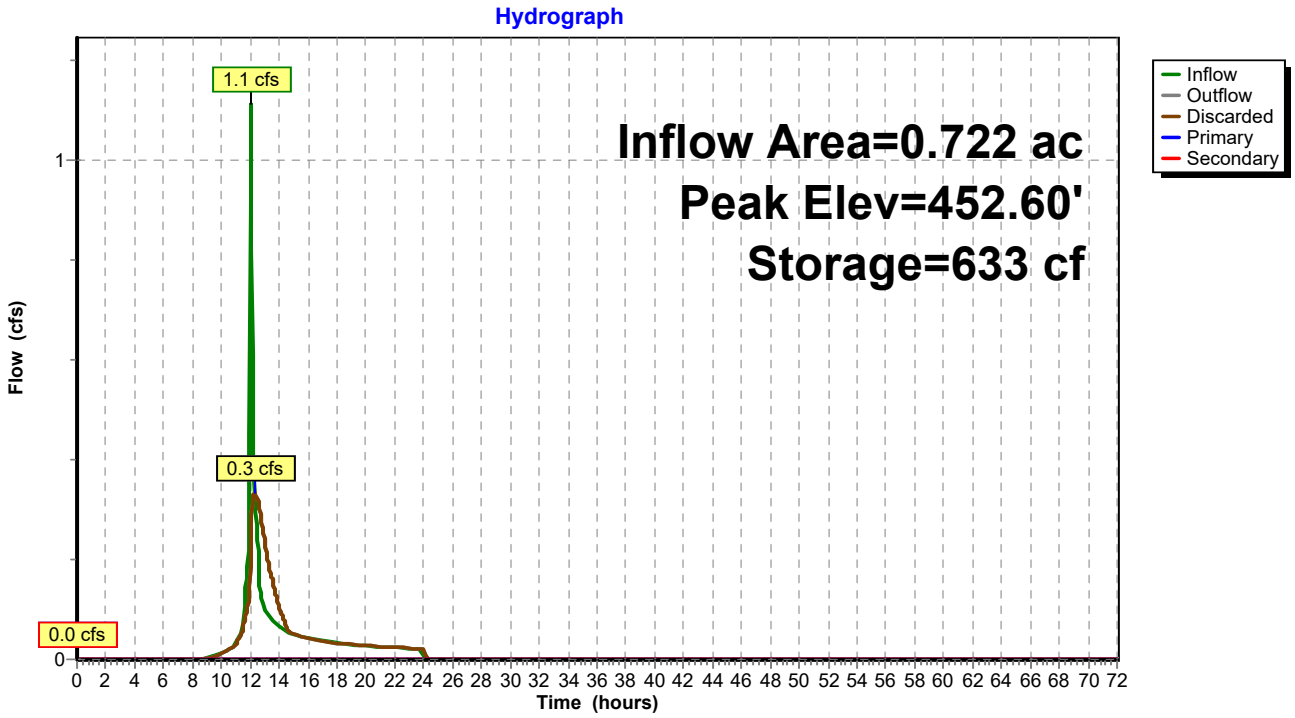
Device	Routing	Invert	Outlet Devices
#1	Primary	450.30'	**12.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 450.30' / 449.50' S= 0.0138 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	454.75'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	455.50'	**30.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	451.00'	**20.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#5	Secondary	456.00'	**10.0' 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

Discarded OutFlow Max=0.3 cfs @ 12.30 hrs HW=452.59' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=451.00' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.0 cfs of 1.7 cfs potential flow)
  └**2=Orifice/Grate** (Controls 0.0 cfs)
  └**3=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=451.00' TW=0.00' (Dynamic Tailwater)
└**5=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1.1P: Infiltration Basin 1.1



Stage-Area-Storage for Pond 1.1P: Infiltration Basin 1.1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
451.00	125	0
451.10	157	14
451.20	189	31
451.30	222	52
451.40	254	76
451.50	286	103
451.60	318	133
451.70	350	166
451.80	383	203
451.90	415	243
452.00	447	286
452.10	492	333
452.20	538	384
452.30	583	441
452.40	629	501
452.50	674	566
452.60	720	636
452.70	765	710
452.80	811	789
452.90	856	872
453.00	902	960
453.10	947	1,053
453.20	992	1,150
453.30	1,038	1,251
453.40	1,083	1,357
453.50	1,129	1,468
453.60	1,174	1,583
453.70	1,220	1,703
453.80	1,265	1,827
453.90	1,311	1,956
454.00	1,356	2,089
454.10	1,420	2,228
454.20	1,484	2,373
454.30	1,548	2,525
454.40	1,612	2,683
454.50	1,676	2,847
454.60	1,739	3,018
454.70	1,803	3,195
454.80	1,867	3,378
454.90	1,931	3,568
455.00	1,995	3,765
455.10	2,059	3,967
455.20	2,123	4,176
455.30	2,187	4,392
455.40	2,251	4,614
455.50	2,315	4,842
455.60	2,378	5,077
455.70	2,442	5,318
455.80	2,506	5,565
455.90	2,570	5,819
456.00	2,634	6,079
456.10	2,707	6,346
456.20	2,780	6,620
456.30	2,852	6,902
456.40	2,925	7,191
456.50	2,998	7,487
456.60	3,071	7,790
456.70	3,144	8,101
456.80	3,216	8,419
456.90	3,289	8,744
457.00	**3,362**	**9,077**

Summary for Pond DS1.2: Diversion Structure 1.2

Inflow Area = 1.047 ac, 69.42% Impervious, Inflow Depth = 1.91" for 1-yr event
Inflow = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af
Outflow = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min
Primary = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

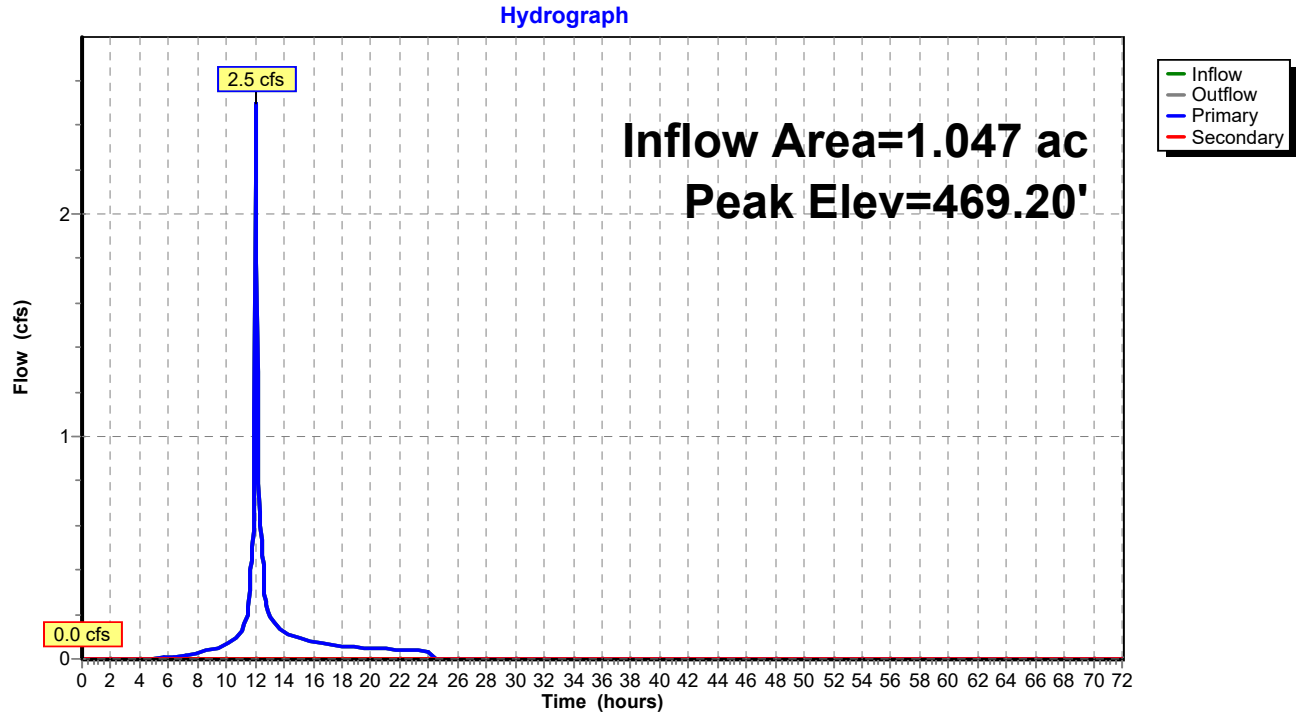
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 469.20' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	466.67'	**8.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 466.67' / 466.60' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 3	469.35'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Secondary	462.28'	**8.0" Round Culvert** L= 103.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 462.28' / 448.16' S= 0.1371 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=2.4 cfs @ 12.04 hrs HW=469.09' TW=466.16' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.4 cfs @ 6.95 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=462.28' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Controls 0.0 cfs)
└**2=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Pond DS1.2: Diversion Structure 1.2



Stage-Area-Storage for Pond DS1.2: Diversion Structure 1.2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
462.28	**0**	464.92	0	467.56	0
462.32	0	464.96	0	467.60	0
462.36	0	465.00	0	467.64	0
462.40	0	465.04	0	467.68	0
462.44	0	465.08	0	467.72	0
462.48	0	465.12	0	467.76	0
462.52	0	465.16	0	467.80	0
462.56	0	465.20	0	467.84	0
462.60	0	465.24	0	467.88	0
462.64	0	465.28	0	467.92	0
462.68	0	465.32	0	467.96	0
462.72	0	465.36	0	468.00	0
462.76	0	465.40	0	468.04	0
462.80	0	465.44	0	468.08	0
462.84	0	465.48	0	468.12	0
462.88	0	465.52	0	468.16	0
462.92	0	465.56	0	468.20	0
462.96	0	465.60	0	468.24	0
463.00	0	465.64	0	468.28	0
463.04	0	465.68	0	468.32	0
463.08	0	465.72	0	468.36	0
463.12	0	465.76	0	468.40	0
463.16	0	465.80	0	468.44	0
463.20	0	465.84	0	468.48	0
463.24	0	465.88	0	468.52	0
463.28	0	465.92	0	468.56	0
463.32	0	465.96	0	468.60	0
463.36	0	466.00	0	468.64	0
463.40	0	466.04	0	468.68	0
463.44	0	466.08	0	468.72	0
463.48	0	466.12	0	468.76	0
463.52	0	466.16	0	468.80	0
463.56	0	466.20	0	468.84	0
463.60	0	466.24	0	468.88	0
463.64	0	466.28	0	468.92	0
463.68	0	466.32	0	468.96	0
463.72	0	466.36	0	469.00	0
463.76	0	466.40	0	469.04	0
463.80	0	466.44	0	469.08	0
463.84	0	466.48	0	469.12	0
463.88	0	466.52	0	469.16	0
463.92	0	466.56	0	469.20	0
463.96	0	466.60	0	469.24	0
464.00	0	466.64	0	469.28	0
464.04	0	466.68	0	469.32	0
464.08	0	466.72	0		
464.12	0	466.76	0		
464.16	0	466.80	0		
464.20	0	466.84	0		
464.24	0	466.88	0		
464.28	0	466.92	0		
464.32	0	466.96	0		
464.36	0	467.00	0		
464.40	0	467.04	0		
464.44	0	467.08	0		
464.48	0	467.12	0		
464.52	0	467.16	0		
464.56	0	467.20	0		
464.60	0	467.24	0		
464.64	0	467.28	0		
464.68	0	467.32	0		
464.72	0	467.36	0		
464.76	0	467.40	0		
464.80	0	467.44	0		
464.84	0	467.48	0		
464.88	0	467.52	0		

Summary for Pond DS1.3: Diversion Structure 1.3

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth = 2.60" for 1-yr event
Inflow = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af
Outflow = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

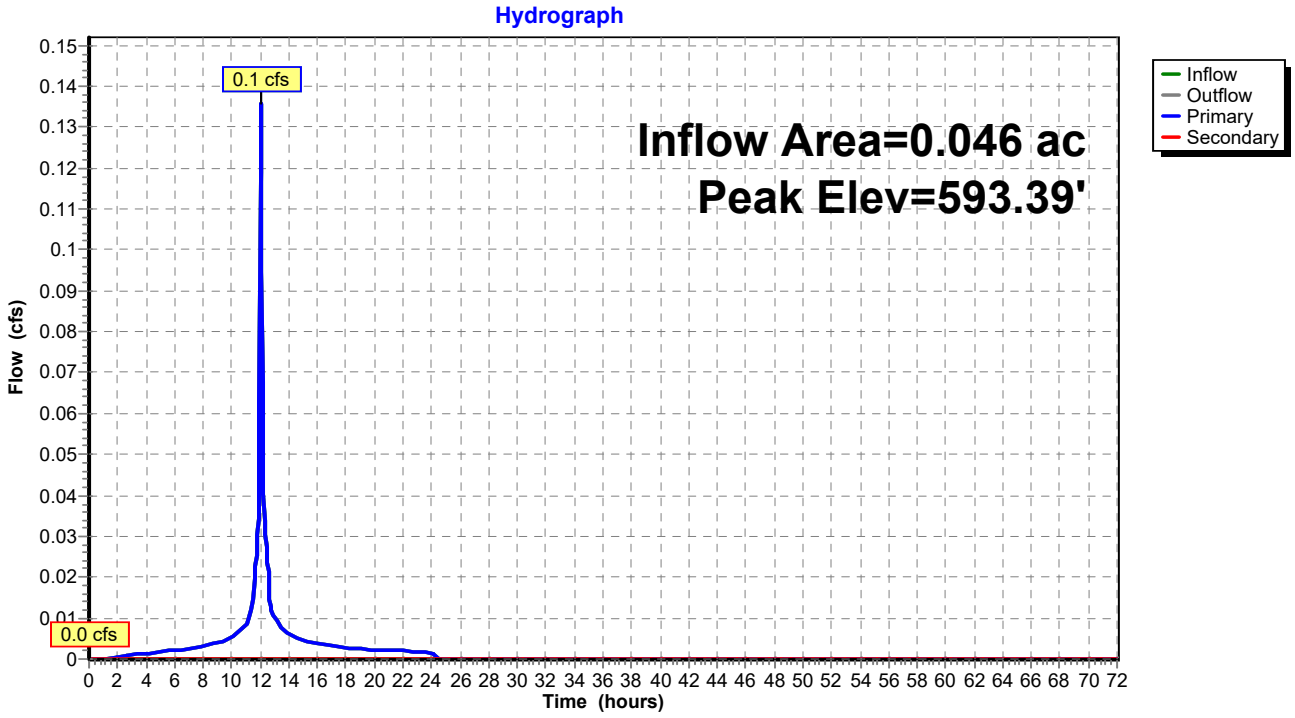
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 593.39' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	593.10'	**4.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 593.10' / 593.00' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Secondary	595.20'	**8.0" Round Culvert** L= 154.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 595.20' / 590.00' S= 0.0338 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.1 cfs @ 12.04 hrs HW=593.38' TW=593.14' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.1 cfs @ 2.24 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=593.10' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Controls 0.0 cfs)

Pond DS1.3: Diversion Structure 1.3



Stage-Area-Storage for Pond DS1.3: Diversion Structure 1.3

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
593.10	**0**	594.42	0	595.74	0
593.12	0	594.44	0	595.76	0
593.14	0	594.46	0	595.78	0
593.16	0	594.48	0	595.80	0
593.18	0	594.50	0	595.82	0
593.20	0	594.52	0	595.84	0
593.22	0	594.54	0	595.86	0
593.24	0	594.56	0		
593.26	0	594.58	0		
593.28	0	594.60	0		
593.30	0	594.62	0		
593.32	0	594.64	0		
593.34	0	594.66	0		
593.36	0	594.68	0		
593.38	0	594.70	0		
593.40	0	594.72	0		
593.42	0	594.74	0		
593.44	0	594.76	0		
593.46	0	594.78	0		
593.48	0	594.80	0		
593.50	0	594.82	0		
593.52	0	594.84	0		
593.54	0	594.86	0		
593.56	0	594.88	0		
593.58	0	594.90	0		
593.60	0	594.92	0		
593.62	0	594.94	0		
593.64	0	594.96	0		
593.66	0	594.98	0		
593.68	0	595.00	0		
593.70	0	595.02	0		
593.72	0	595.04	0		
593.74	0	595.06	0		
593.76	0	595.08	0		
593.78	0	595.10	0		
593.80	0	595.12	0		
593.82	0	595.14	0		
593.84	0	595.16	0		
593.86	0	595.18	0		
593.88	0	595.20	0		
593.90	0	595.22	0		
593.92	0	595.24	0		
593.94	0	595.26	0		
593.96	0	595.28	0		
593.98	0	595.30	0		
594.00	0	595.32	0		
594.02	0	595.34	0		
594.04	0	595.36	0		
594.06	0	595.38	0		
594.08	0	595.40	0		
594.10	0	595.42	0		
594.12	0	595.44	0		
594.14	0	595.46	0		
594.16	0	595.48	0		
594.18	0	595.50	0		
594.20	0	595.52	0		
594.22	0	595.54	0		
594.24	0	595.56	0		
594.26	0	595.58	0		
594.28	0	595.60	0		
594.30	0	595.62	0		
594.32	0	595.64	0		
594.34	0	595.66	0		
594.36	0	595.68	0		
594.38	0	595.70	0		
594.40	0	595.72	0		

Summary for Pond INF 1.2: Infiltration System 1.2

Inflow Area = 1.047 ac, 69.42% Impervious, Inflow Depth = 1.91" for 1-yr event
Inflow = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af
Outflow = 1.8 cfs @ 12.05 hrs, Volume= 0.167 af, Atten= 26%, Lag= 0.5 min
Discarded = 1.8 cfs @ 12.05 hrs, Volume= 0.167 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 466.22' @ 12.10 hrs Surf.Area= 0.076 ac Storage= 0.006 af

Plug-Flow detention time= 1.3 min calculated for 0.167 af (100% of inflow)
Center-of-Mass det. time= 1.3 min (821.9 - 820.6)

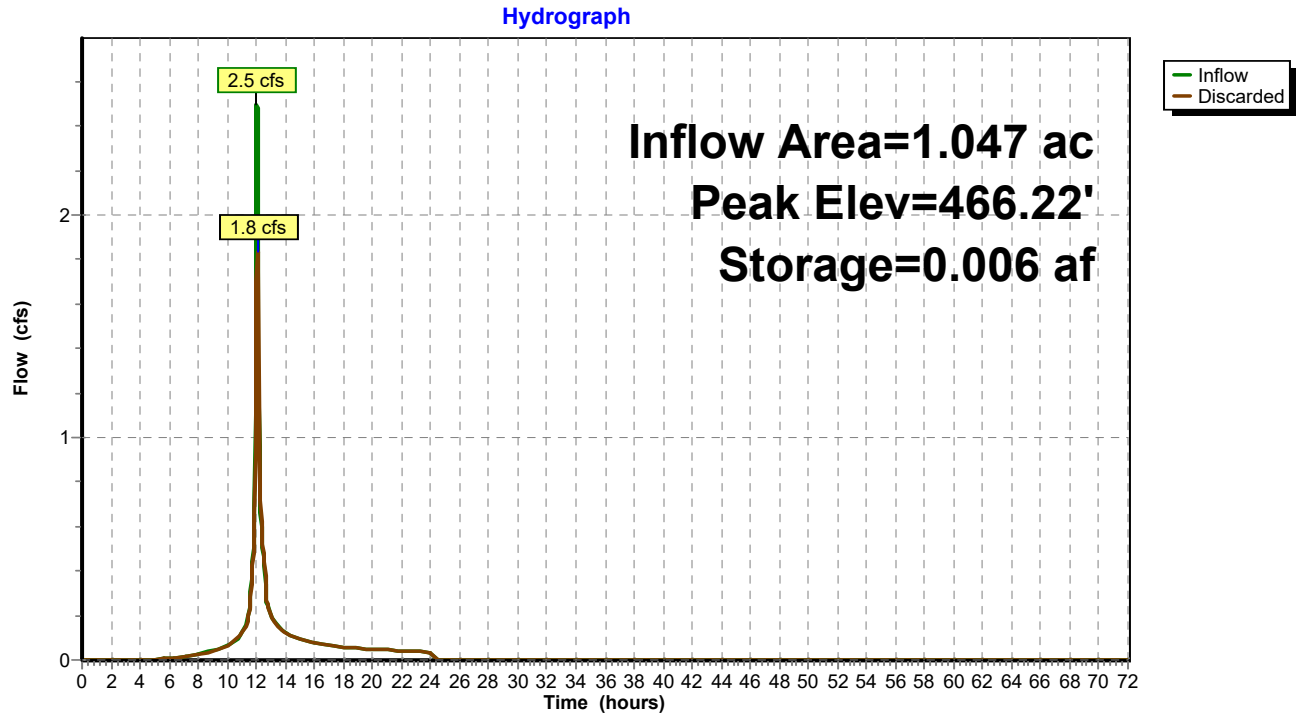
Volume	Invert	Avail.Storage	Storage Description
#1A	466.01'	0.064 af	**30.50'W x 108.50'L x 3.54'H Field A** 0.269 af Overall - 0.109 af Embedded = 0.160 af x 40.0% Voids
#2A	466.51'	0.109 af	**Cultec R-330XLHD** x 90 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
		0.173 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	466.01'	**24.000 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'

Discarded OutFlow Max=1.8 cfs @ 12.05 hrs HW=466.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 1.8 cfs)

Pond INF 1.2: Infiltration System 1.2



Stage-Area-Storage for Pond INF 1.2: Infiltration System 1.2

Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
466.01	**0.076**	0.000	467.33	0.076	0.068	468.65	0.076	0.143
466.03	0.076	0.001	467.35	0.076	0.069	468.67	0.076	0.144
466.05	0.076	0.001	467.37	0.076	0.070	468.69	0.076	0.145
466.07	0.076	0.002	467.39	0.076	0.072	468.71	0.076	0.146
466.09	0.076	0.002	467.41	0.076	0.073	468.73	0.076	0.147
466.11	0.076	0.003	467.43	0.076	0.074	468.75	0.076	0.147
466.13	0.076	0.004	467.45	0.076	0.075	468.77	0.076	0.148
466.15	0.076	0.004	467.47	0.076	0.077	468.79	0.076	0.149
466.17	0.076	0.005	467.49	0.076	0.078	468.81	0.076	0.150
466.19	0.076	0.005	467.51	0.076	0.079	468.83	0.076	0.151
466.21	0.076	0.006	467.53	0.076	0.080	468.85	0.076	0.151
466.23	0.076	0.007	467.55	0.076	0.082	468.87	0.076	0.152
466.25	0.076	0.007	467.57	0.076	0.083	468.89	0.076	0.153
466.27	0.076	0.008	467.59	0.076	0.084	468.91	0.076	0.153
466.29	0.076	0.009	467.61	0.076	0.085	468.93	0.076	0.154
466.31	0.076	0.009	467.63	0.076	0.086	468.95	0.076	0.155
466.33	0.076	0.010	467.65	0.076	0.088	468.97	0.076	0.155
466.35	0.076	0.010	467.67	0.076	0.089	468.99	0.076	0.156
466.37	0.076	0.011	467.69	0.076	0.090	469.01	0.076	0.157
466.39	0.076	0.012	467.71	0.076	0.091	469.03	0.076	0.157
466.41	0.076	0.012	467.73	0.076	0.093	469.05	0.076	0.158
466.43	0.076	0.013	467.75	0.076	0.094	469.07	0.076	0.159
466.45	0.076	0.013	467.77	0.076	0.095	469.09	0.076	0.159
466.47	0.076	0.014	467.79	0.076	0.096	469.11	0.076	0.160
466.49	0.076	0.015	467.81	0.076	0.097	469.13	0.076	0.160
466.51	0.076	0.015	467.83	0.076	0.099	469.15	0.076	0.161
466.53	0.076	0.017	467.85	0.076	0.100	469.17	0.076	0.162
466.55	0.076	0.018	467.87	0.076	0.101	469.19	0.076	0.162
466.57	0.076	0.019	467.89	0.076	0.102	469.21	0.076	0.163
466.59	0.076	0.020	467.91	0.076	0.103	469.23	0.076	0.163
466.61	0.076	0.022	467.93	0.076	0.105	469.25	0.076	0.164
466.63	0.076	0.023	467.95	0.076	0.106	469.27	0.076	0.165
466.65	0.076	0.024	467.97	0.076	0.107	469.29	0.076	0.165
466.67	0.076	0.026	467.99	0.076	0.108	469.31	0.076	0.166
466.69	0.076	0.027	468.01	0.076	0.109	469.33	0.076	0.166
466.71	0.076	0.028	468.03	0.076	0.110	469.35	0.076	0.167
466.73	0.076	0.030	468.05	0.076	0.112	469.37	0.076	0.168
466.75	0.076	0.031	468.07	0.076	0.113	469.39	0.076	0.168
466.77	0.076	0.032	468.09	0.076	0.114	469.41	0.076	0.169
466.79	0.076	0.033	468.11	0.076	0.115	469.43	0.076	0.170
466.81	0.076	0.035	468.13	0.076	0.116	469.45	0.076	0.170
466.83	0.076	0.036	468.15	0.076	0.117	469.47	0.076	0.171
466.85	0.076	0.037	468.17	0.076	0.118	469.49	0.076	0.171
466.87	0.076	0.039	468.19	0.076	0.119	469.51	0.076	0.172
466.89	0.076	0.040	468.21	0.076	0.121	469.53	0.076	0.173
466.91	0.076	0.041	468.23	0.076	0.122	469.55	0.076	**0.173**
466.93	0.076	0.042	468.25	0.076	0.123			
466.95	0.076	0.044	468.27	0.076	0.124			
466.97	0.076	0.045	468.29	0.076	0.125			
466.99	0.076	0.046	468.31	0.076	0.126			
467.01	0.076	0.048	468.33	0.076	0.127			
467.03	0.076	0.049	468.35	0.076	0.128			
467.05	0.076	0.050	468.37	0.076	0.129			
467.07	0.076	0.051	468.39	0.076	0.130			
467.09	0.076	0.053	468.41	0.076	0.131			
467.11	0.076	0.054	468.43	0.076	0.132			
467.13	0.076	0.055	468.45	0.076	0.133			
467.15	0.076	0.057	468.47	0.076	0.134			
467.17	0.076	0.058	468.49	0.076	0.135			
467.19	0.076	0.059	468.51	0.076	0.136			
467.21	0.076	0.060	468.53	0.076	0.137			
467.23	0.076	0.062	468.55	0.076	0.138			
467.25	0.076	0.063	468.57	0.076	0.139			
467.27	0.076	0.064	468.59	0.076	0.140			
467.29	0.076	0.065	468.61	0.076	0.141			
467.31	0.076	0.067	468.63	0.076	0.142			

Summary for Pond INF 1.3: Infiltration System 1.3

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth = 2.60" for 1-yr event
Inflow = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af
Outflow = 0.1 cfs @ 12.05 hrs, Volume= 0.010 af, Atten= 33%, Lag= 0.7 min
Discarded = 0.1 cfs @ 12.05 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 593.20' @ 12.11 hrs Surf.Area= 0.006 ac Storage= 0.001 af

Plug-Flow detention time= 2.3 min calculated for 0.010 af (100% of inflow)
Center-of-Mass det. time= 2.3 min (764.0 - 761.8)

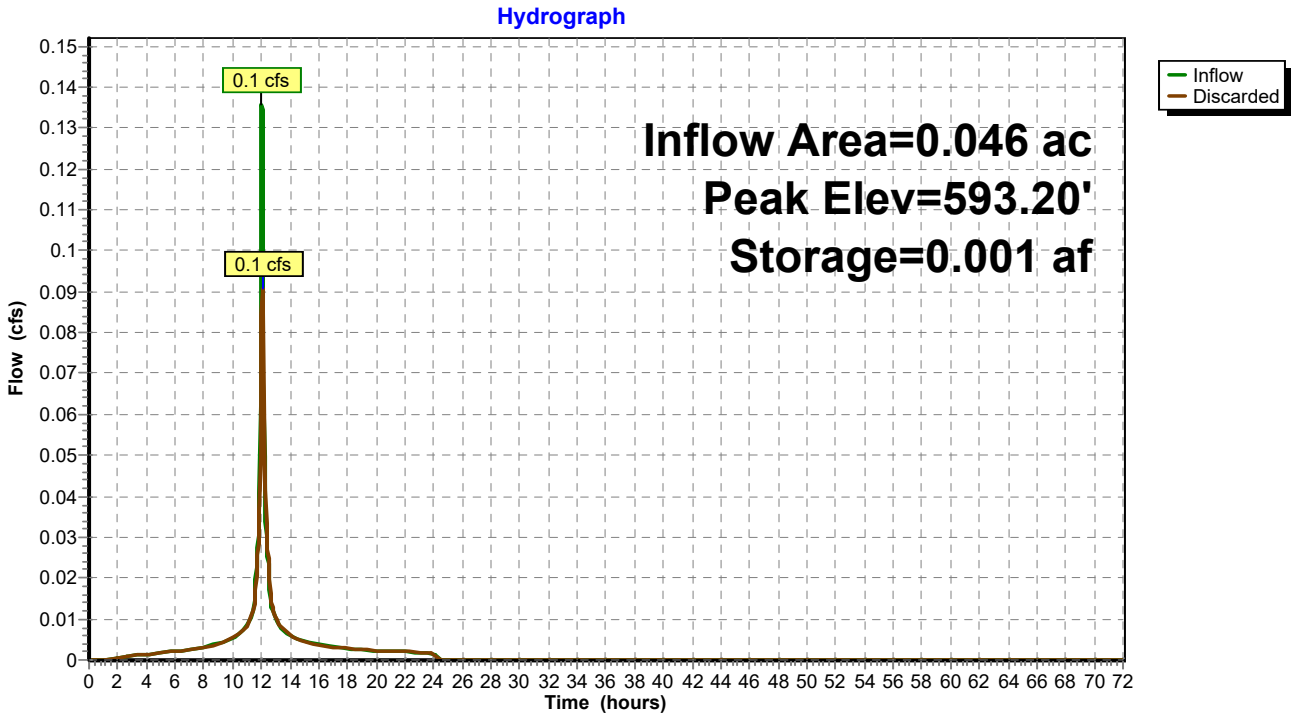
Volume	Invert	Avail.Storage	Storage Description
#1A	593.00'	0.006 af	**16.00'W x 17.50'L x 3.54'H Field A** 0.023 af Overall - 0.008 af Embedded = 0.015 af x 40.0% Voids
#2A	593.50'	0.008 af	**Cultec R-330XLHD** x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		0.014 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	593.00'	**14.000 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'

Discarded OutFlow Max=0.1 cfs @ 12.05 hrs HW=593.16' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.1 cfs)

Pond INF 1.3: Infiltration System 1.3



Stage-Area-Storage for Pond INF 1.3: Infiltration System 1.3

Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
593.00	**0.006**	0.000	594.32	0.006	0.005	595.64	0.006	0.011
593.02	0.006	0.000	594.34	0.006	0.006	595.66	0.006	0.011
593.04	0.006	0.000	594.36	0.006	0.006	595.68	0.006	0.011
593.06	0.006	0.000	594.38	0.006	0.006	595.70	0.006	0.012
593.08	0.006	0.000	594.40	0.006	0.006	595.72	0.006	0.012
593.10	0.006	0.000	594.42	0.006	0.006	595.74	0.006	0.012
593.12	0.006	0.000	594.44	0.006	0.006	595.76	0.006	0.012
593.14	0.006	0.000	594.46	0.006	0.006	595.78	0.006	0.012
593.16	0.006	0.000	594.48	0.006	0.006	595.80	0.006	0.012
593.18	0.006	0.000	594.50	0.006	0.006	595.82	0.006	0.012
593.20	0.006	0.001	594.52	0.006	0.006	595.84	0.006	0.012
593.22	0.006	0.001	594.54	0.006	0.006	595.86	0.006	0.012
593.24	0.006	0.001	594.56	0.006	0.007	595.88	0.006	0.012
593.26	0.006	0.001	594.58	0.006	0.007	595.90	0.006	0.012
593.28	0.006	0.001	594.60	0.006	0.007	595.92	0.006	0.012
593.30	0.006	0.001	594.62	0.006	0.007	595.94	0.006	0.012
593.32	0.006	0.001	594.64	0.006	0.007	595.96	0.006	0.012
593.34	0.006	0.001	594.66	0.006	0.007	595.98	0.006	0.012
593.36	0.006	0.001	594.68	0.006	0.007	596.00	0.006	0.012
593.38	0.006	0.001	594.70	0.006	0.007	596.02	0.006	0.013
593.40	0.006	0.001	594.72	0.006	0.007	596.04	0.006	0.013
593.42	0.006	0.001	594.74	0.006	0.007	596.06	0.006	0.013
593.44	0.006	0.001	594.76	0.006	0.008	596.08	0.006	0.013
593.46	0.006	0.001	594.78	0.006	0.008	596.10	0.006	0.013
593.48	0.006	0.001	594.80	0.006	0.008	596.12	0.006	0.013
593.50	0.006	0.001	594.82	0.006	0.008	596.14	0.006	0.013
593.52	0.006	0.001	594.84	0.006	0.008	596.16	0.006	0.013
593.54	0.006	0.001	594.86	0.006	0.008	596.18	0.006	0.013
593.56	0.006	0.002	594.88	0.006	0.008	596.20	0.006	0.013
593.58	0.006	0.002	594.90	0.006	0.008	596.22	0.006	0.013
593.60	0.006	0.002	594.92	0.006	0.008	596.24	0.006	0.013
593.62	0.006	0.002	594.94	0.006	0.008	596.26	0.006	0.013
593.64	0.006	0.002	594.96	0.006	0.008	596.28	0.006	0.013
593.66	0.006	0.002	594.98	0.006	0.009	596.30	0.006	0.013
593.68	0.006	0.002	595.00	0.006	0.009	596.32	0.006	0.013
593.70	0.006	0.002	595.02	0.006	0.009	596.34	0.006	0.013
593.72	0.006	0.002	595.04	0.006	0.009	596.36	0.006	0.013
593.74	0.006	0.003	595.06	0.006	0.009	596.38	0.006	0.013
593.76	0.006	0.003	595.08	0.006	0.009	596.40	0.006	0.014
593.78	0.006	0.003	595.10	0.006	0.009	596.42	0.006	0.014
593.80	0.006	0.003	595.12	0.006	0.009	596.44	0.006	0.014
593.82	0.006	0.003	595.14	0.006	0.009	596.46	0.006	0.014
593.84	0.006	0.003	595.16	0.006	0.009	596.48	0.006	0.014
593.86	0.006	0.003	595.18	0.006	0.009	596.50	0.006	0.014
593.88	0.006	0.003	595.20	0.006	0.010	596.52	0.006	0.014
593.90	0.006	0.003	595.22	0.006	0.010	596.54	0.006	**0.014**
593.92	0.006	0.003	595.24	0.006	0.010			
593.94	0.006	0.004	595.26	0.006	0.010			
593.96	0.006	0.004	595.28	0.006	0.010			
593.98	0.006	0.004	595.30	0.006	0.010			
594.00	0.006	0.004	595.32	0.006	0.010			
594.02	0.006	0.004	595.34	0.006	0.010			
594.04	0.006	0.004	595.36	0.006	0.010			
594.06	0.006	0.004	595.38	0.006	0.010			
594.08	0.006	0.004	595.40	0.006	0.010			
594.10	0.006	0.004	595.42	0.006	0.010			
594.12	0.006	0.004	595.44	0.006	0.011			
594.14	0.006	0.005	595.46	0.006	0.011			
594.16	0.006	0.005	595.48	0.006	0.011			
594.18	0.006	0.005	595.50	0.006	0.011			
594.20	0.006	0.005	595.52	0.006	0.011			
594.22	0.006	0.005	595.54	0.006	0.011			
594.24	0.006	0.005	595.56	0.006	0.011			
594.26	0.006	0.005	595.58	0.006	0.011			
594.28	0.006	0.005	595.60	0.006	0.011			
594.30	0.006	0.005	595.62	0.006	0.011			

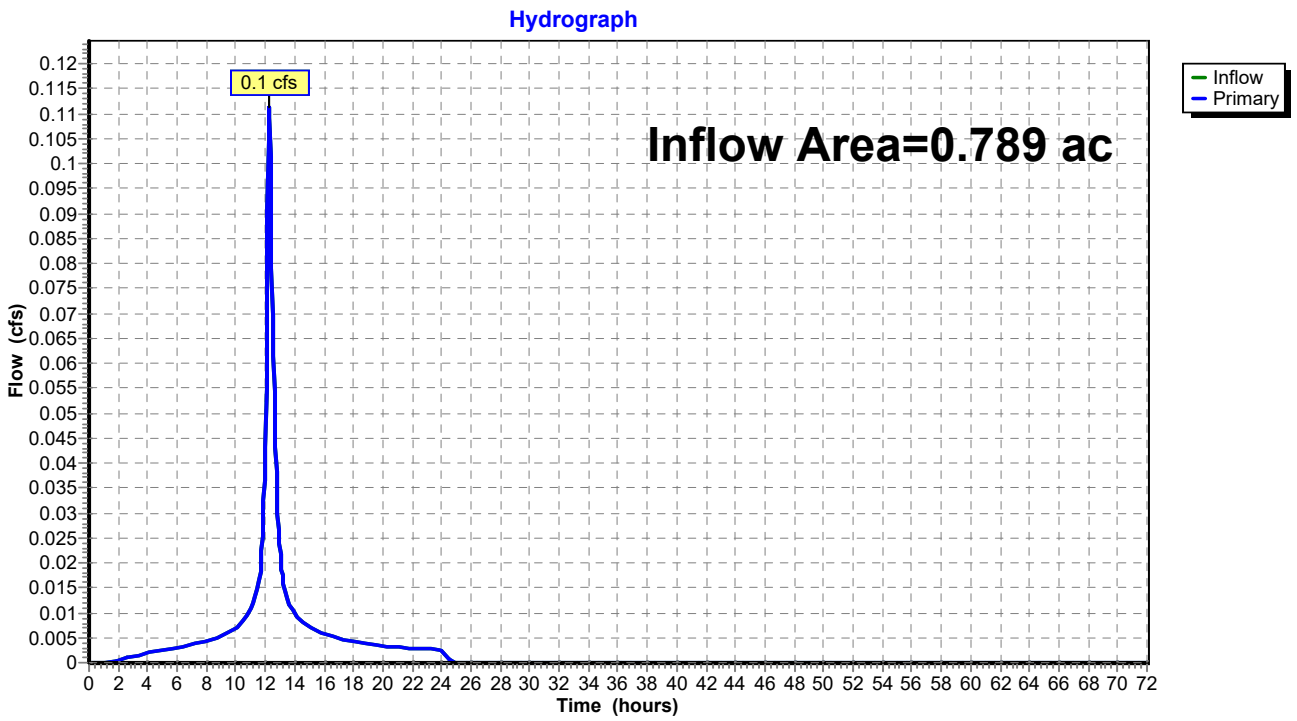
Summary for Link DP: Design Point

Inflow Area = 0.789 ac, 46.90% Impervious, Inflow Depth = 0.22" for 1-yr event
Inflow = 0.1 cfs @ 12.26 hrs, Volume= 0.014 af
Primary = 0.1 cfs @ 12.26 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP: Design Point

Hydrograph



Project **WOLF CENTER**

Water Quality Volume (WQv) Calculation

Rev. April 25, 2023
Rev. April 27, 2021
February 3, 2023

Basin ID: **Design Point**

The required stormwater quality volume will be determined using “New York State Stormwater Management Design Manual – GP 0-20-0001" Unified Stormwater Sizing Criteria. Since the project is located within the NYCDEP Watershed the “Chapter 10- Enhanced Phosphorus Removal Standards” will apply.

Rainfall events for this project have been obtained from "precip.net", Northeast Regional Climate Center - NRCC - Precipitation Data website for New York and New Englans. Extreme Precipitation Tables for the specific site location for various storms have been downloaded to HydroCAD Version 10.00-24 computer model.

Precipitation distribution curves are generated for each grid directly eliminating the need to use a static Type III curve.

Original WQv:	Subcatchment Area (A):	81,969	sq.ft.
	Rainfall (P):	2.83	in.
	Impervious Area	49,780	sq.ft.
	Percent Imperviousness(I):	60.73	%
	WQv from HydroCAD =	11,587	cu.ft.
		or	
		0.2660	ac.ft.
Area Reduced WQv:	Subcatchment Area (A):	79,069	sq.ft.
	Rainfall (P):	2.83	in.
	Impervious Area	46,880	sq.ft.
	Percent Imperviousness(I):	59.29	%
	WQv from HydroCAD (Required) =	10,977	cu.ft.
		or	
		0.2520	ac.ft.
Remaining WQv for Standard Treatment:			
	Subcatchment Area (A):	0	sq.ft.
	Rainfall (P):	2.83	in.
	Impervious Area	2,900	sq.ft.
	Percent Imperviousness(I):	0.00	%
	WQv from HydroCAD =	0	cu.ft.
		or	
		0.0000	ac.ft.

Project **WOLF CENTER**

Specified Runoff Reduction Volume (S-RRv)

RRv (in acre-feet of storage) = [(P)(Rv)(Ai)] /12

Basin ID: **1.1S** HSG: **B**

P = Rainfall (inches)	2.83	in
Rv = 0.05+0.009(I) where I is 100% impervious	0.95	
Aic = Total area of new impervious cover	2,856	ft²
S = Hydrologic Soil Group (HSG) Specific Reduction Factor (S)	0.40	

HSG A = 0.55 HSG C = 0.30
HSG B = 0.40 HSG D = 0.20

Ai = (S)(Aic) 1,142 ft²

Ai = impervious cover targeted for runoff reduction

therefore:

RRv =	[(P)	(Rv)	(Ai)]	/ 12		
	2.83	0.95	1,142	/ 12	=	**256 cu.ft.**
						0.0059 ac.ft

Project **WOLF CENTER**

Specified Runoff Reduction Volume (S-RRv)

RRv (in acre-feet of storage) = [(P)(Rv)(Ai)] /12

Basin ID: **1.1S** HSG: **C**

P = Rainfall (inches)	2.83	in
Rv = 0.05+0.009(I) where I is 100% impervious	0.95	
Aic = Total area of new impervious cover	10,354	ft²
S = Hydrologic Soil Group (HSG) Specific Reduction Factor (S)	0.30	

HSG A = 0.55 HSG C = 0.30
HSG B = 0.40 HSG D = 0.20

Ai = (S)(Aic) 3,106 ft²

Ai = impervious cover targeted for runoff reduction

therefore:

RRv =	[(P)	(Rv)	(Ai)]	/ 12		
	2.83	0.95	3,106	/ 12	=	**696 cu.ft.**
						0.0160 ac.ft

Project **WOLF CENTER**

Specified Runoff Reduction Volume (S-RRv)

RRv (in acre-feet of storage) = [(P)(Rv)(Ai)] /12

Basin ID: **1.2S** HSG: **C**

P = Rainfall (inches)	2.83	in
Rv = 0.05+0.009(I) where I is 100% impervious	0.95	
Aic = Total area of new impervious cover	31,670	ft²
S = Hydrologic Soil Group (HSG) Specific Reduction Factor (S)	0.30	

HSG A = 0.55 HSG C = 0.30
HSG B = 0.40 HSG D = 0.20

Ai = (S)(Aic) 9,501 ft²

Ai = impervious cover targeted for runoff reduction

therefore:

RRv =	[(P)	(Rv)	(Ai)]	/ 12		
	2.83	0.95	9,501	/ 12	=	**2,129 cu.ft.**
						0.0489 ac.ft

Project **WOLF CENTER**

Specified Runoff Reduction Volume (S-RRv)

RRv (in acre-feet of storage) = [(P)(Rv)(Ai)] /12

Basin ID: **1.3S** HSG: **C**

P = Rainfall (inches)	2.83	in
Rv = 0.05+0.009(I) where I is 100% impervious	0.95	
Aic = Total area of new impervious cover	2,000	ft²
S = Hydrologic Soil Group (HSG) Specific Reduction Factor (S)	0.30	

HSG A = 0.55 HSG C = 0.30
HSG B = 0.40 HSG D = 0.20

Ai = (S)(Aic) 600 ft²

Ai = impervious cover targeted for runoff reduction

therefore:

RRv =	[(P)	(Rv)	(Ai)]	/ 12		
	2.83	0.95	600	/ 12	=	**134 cu.ft.**
						0.0031 ac.ft

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Project **WOLF CENTER**

Specified Runoff Reduction Volume (S-RRv)

RRv (in acre-feet of storage) = [(P)(Rv)(Ai)] /12

Basin ID: **Total- Design Point** HSG: **C**

P = Rainfall (inches)	2.83	in
Rv = 0.05+0.009(I) where I is 100% impervious	0.95	
Aic = Total area of new impervious cover	44,880	ft²
S = Hydrologic Soil Group (HSG) Specific Reduction Factor (S)	0.30	

HSG A = 0.55 HSG C = 0.30
HSG B = 0.40 HSG D = 0.20

Ai = (S)(Aic) 13,464 ft²

Ai = impervious cover targeted for runoff reduction

therefore:

		RRv =	[(P)	(Rv)	(Ai)]	/ 12		
1.1S		RRv =	2.83	0.95	1,142	/ 12	=	256 cu.ft. 0.0059 ac.ft
1.1S		RRv =	2.83	0.95	3,106	/ 12	=	696 cu.ft. 0.0160 ac.ft
1.2S		RRv =	2.83	0.95	9,501	/ 12	=	2,129 cu.ft. 0.0489 ac.ft
1.3S		RRv =	2.83	0.95	600	/ 12	=	134 cu.ft. 0.0031 ac.ft
	Total	**RRv =**	**2.83**	**0.95**	**13,464**	**/ 12**	**=**	**3,016 cu.ft.** **0.0692 ac.ft**

Project **WOLF CENTER**

Area Reduction Practices

Basin ID: **Design Point**

		Total Area			Area of Impervious (AI)	
Original Drainage Area (DA):		81,969	sq.ft.		49,780	sq.ft.
Conservation of Natural Areas:	-	0	sq.ft.	-	0	sq.ft.
Riparian Buffers / Filter Strips:	-	0	sq.ft.	-	0	sq.ft.
Tree Planting / Tree Preservation:	-	2,900	sq.ft.	-	2,900	sq.ft.
Total Area Reduction:	=	2,900	sq.ft.			
Total AI Reduction:	=				2,900	sq.ft.
Remaining DA:		**79,069**	**sq.ft.**		-	
Remaining AI:		-			**46,880**	**sq.ft.**
	or	**1.8152**	**ac.ft.**		**1.0762**	**ac.ft.**

Project **WOLF CENTER**

Source Control Practices

Basin ID: **1.1S** HSG: B & C

Practice Type: I = Infiltration

(I)=Infiltration, (B)=Bioretention, (D)=Dry Swale, (V)=Vegetated Swale, (G)=Green Roof, (R)=Rain Garden, (S)=Stormwater Planters, (C)=Cisterns/Rain Barrels, (P)=Porous Pavement

	Total Area:
DA Tributary to Practice(s):	31,450 sq.ft.
AI to Practice(s):	13,210 sq.ft.

Subcatchment Area (A):	31,450	sq.ft.
Rainfall (P):	2.83	in.
Impervious Area	13,210	sq.ft.
Percent Imperviousness(I):	42.00	%

WQv from HydroCAD = **3,267 cu.ft.**
or
0.0750 ac.ft.

Allowable Runoff Reduction Volume (RRv)

Practice Type: I = Infiltration **HSG:** B & C

Allowable runoff reduction volume for Infiltration is 100%

3,267 x 1.00 = **3,267 cu.ft.**
or
0.0750 ac.ft.

Project **WOLF CENTER**

Source Control Practices

Basin ID: **1.2S** HSG: C

Practice Type: I = Infiltration

(I)=Infiltration, (B)=Bioretention, (D)=Dry Swale, (V)=Vegetated Swale, (G)=Green Roof, (R)=Rain Garden, (S)=Stormwater Planters, (C)=Cisterns/Rain Barrels, (P)=Porous Pavement

	Total Area:
DA Tributary to Practice(s):	45,619 sq.ft.
AI to Practice(s):	31,670 sq.ft.

Subcatchment Area (A):	45,619	sq.ft.
Rainfall (P):	2.83	in.
Impervious Area	31,670	sq.ft.
Percent Imperviousness(I):	69.42	%

WQv from HydroCAD = **7,275 cu.ft.**
or
0.1670 ac.ft.

Allowable Runoff Reduction Volume (RRv)

Practice Type: I = Infiltration **HSG:** C

Allowable runoff reduction volume for Infiltration in C soil = 100% of WQv

7,275 x 1.00 = **7,275 cu.ft.**
or
0.1670 ac.ft.

Project **WOLF CENTER**

Source Control Practices

Basin ID: **1.3S** HSG: C

Practice Type: I = Infiltration

(I)=Infiltration, (B)=Bioretention, (D)=Dry Swale, (V)=Vegetated Swale, (G)=Green Roof, (R)=Rain Garden, (S)=Stormwater Planters, (C)=Cisterns/Rain Barrels, (P)=Porous Pavement

	Total Area:
DA Tributary to Practice(s):	2,000 sq.ft.
AI to Practice(s):	2,000 sq.ft.

Subcatchment Area (A):	2,000	sq.ft.
Rainfall (P):	2.83	in.
Impervious Area	2,000	sq.ft.
Percent Imperviousness(I):	100.00	%

WQv from HydroCAD = **436 cu.ft.**
or
0.0100 ac.ft.

Allowable Runoff Reduction Volume (RRv)

Practice Type: I = Infiltration **HSG:** C

Allowable runoff reduction volume for Infiltration in C soil = 100% of WQv

436 x 1.00 = **436 cu.ft.**
or
0.0100 ac.ft.

Project WOLF CENTER

Total Runoff Reduction Volume

Basin ID: **Design Point**

Total RRv provided:

				RRv	
Original WQv - Area Reduced WQv:	11,587	-	10,977	=	610 cu.ft.
Source Control WQv Treatment Practices:					
Basin:					
1.1S				=	3,267 cu.ft.
1.2S				=	7,275 cu.ft.
1.3S				=	436 cu.ft.

Total RRv provided: **11,587 cu.ft.**
or
0.266 ac.ft.

Is RRv provided	**11,587 cu.ft.**	≥ Original WQv	**11,587 cu.ft.**	
	0.266 ac.ft		0.266 ac.ft	
			Yes	
Is RRv provided	**11,587 cu.ft.**	≥ S-RRv (min. RRv)	**3,016 cu.ft.**	
	0.266 ac.ft		0.069 ac.ft	
			Yes	

Total drainage area treated with runoff reduction / source control practices:

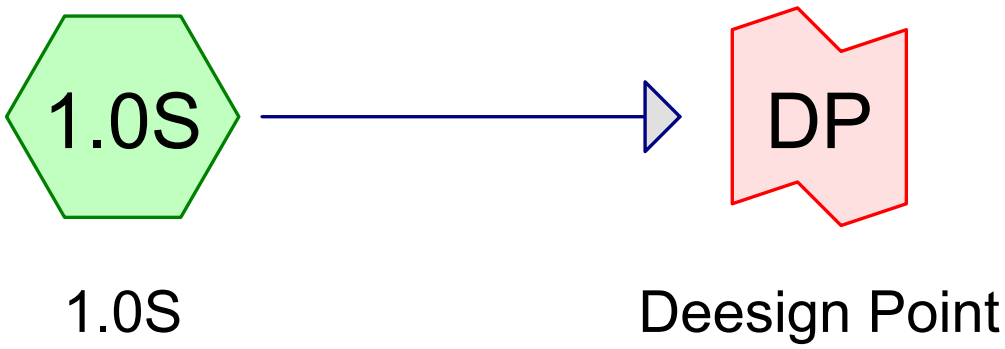
Area Reduction Practices:	2,900 sq.ft.	or	**0.067 Acres**
Source Control Practices:	79,069 sq.ft.	or	**1.815 Acres**
		Total:	**1.882 Acres**

Total impervious area treated with runoff reduction / source control practices:

Area Reduction Practices:	0 sq.ft.	or	**0.000 Acres**
Source Control Practices:	46,880 sq.ft.	or	**1.076 Acres**
		Total:	**1.076 Acres**

Appendix B:

Pre Development Peak Flow Analysis -
(HydroCAD Output for 1, 10 & 100-year Storm Events)



Subcat Reach Pond Link

Routing Diagram for Wolf Center - Pre- 4-20-2023
Prepared by Bibbo Associates, llp., Printed 4/21/2023
HydroCAD® 10.00-24 s/n 02226 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.238	61	>75% Grass cover, Good, HSG B (1.0S)
0.301	74	>75% Grass cover, Good, HSG C (1.0S)
0.191	80	>75% Grass cover, Good, HSG D (1.0S)
0.202	87	Dirt roads, HSG C (1.0S)
0.187	98	Existing Buildings (1.0S)
0.830	98	Existing Pavement (1.0S)
0.027	89	Gravel roads, HSG C (1.0S)
0.606	55	Woods, Good, HSG B (1.0S)
11.645	70	Woods, Good, HSG C (1.0S)
3.785	77	Woods, Good, HSG D (1.0S)

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.844	HSG B	1.0S
12.175	HSG C	1.0S
3.976	HSG D	1.0S
1.017	Other	1.0S

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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

Subcatchment1.0S: 1.0S Runoff Area=784,606 sf 5.65% Impervious Runoff Depth>0.65"
Flow Length=1,750' Tc=25.7 min CN=73 Runoff=8.0 cfs 0.968 af

Link DP: Deesign Point Inflow=8.0 cfs 0.968 af
Primary=8.0 cfs 0.968 af

Summary for Subcatchment 1.0S: 1.0S

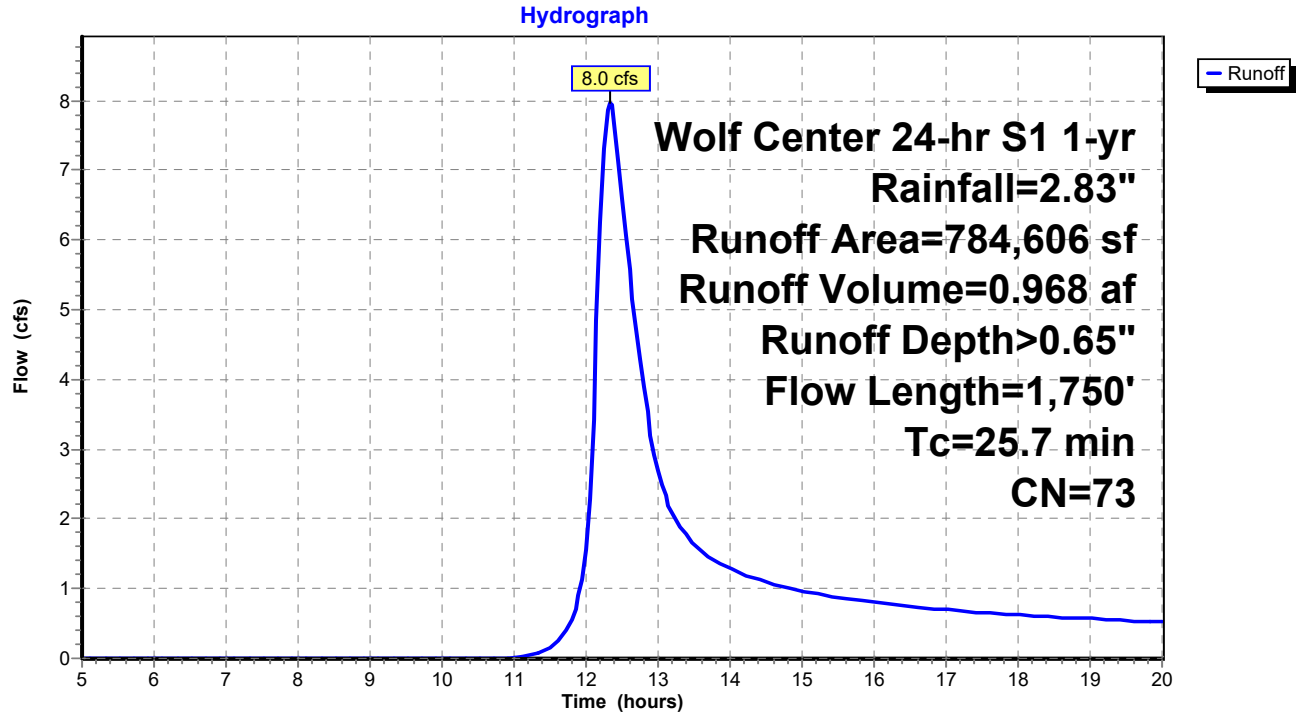
Runoff = 8.0 cfs @ 12.34 hrs, Volume= 0.968 af, Depth> 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Wolf Center 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	36,175	98	Existing Pavement
*	8,130	98	Existing Buildings
	10,353	61	>75% Grass cover, Good, HSG B
	13,090	74	>75% Grass cover, Good, HSG C
	8,325	80	>75% Grass cover, Good, HSG D
	1,182	89	Gravel roads, HSG C
	8,804	87	Dirt roads, HSG C
	26,408	55	Woods, Good, HSG B
	507,257	70	Woods, Good, HSG C
	164,882	77	Woods, Good, HSG D
	784,606	73	Weighted Average
	740,301		94.35% Pervious Area
	44,305		5.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
6.8	860	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	20	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.4	770	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.7	1,750	Total			

Subcatchment 1.0S: 1.0S

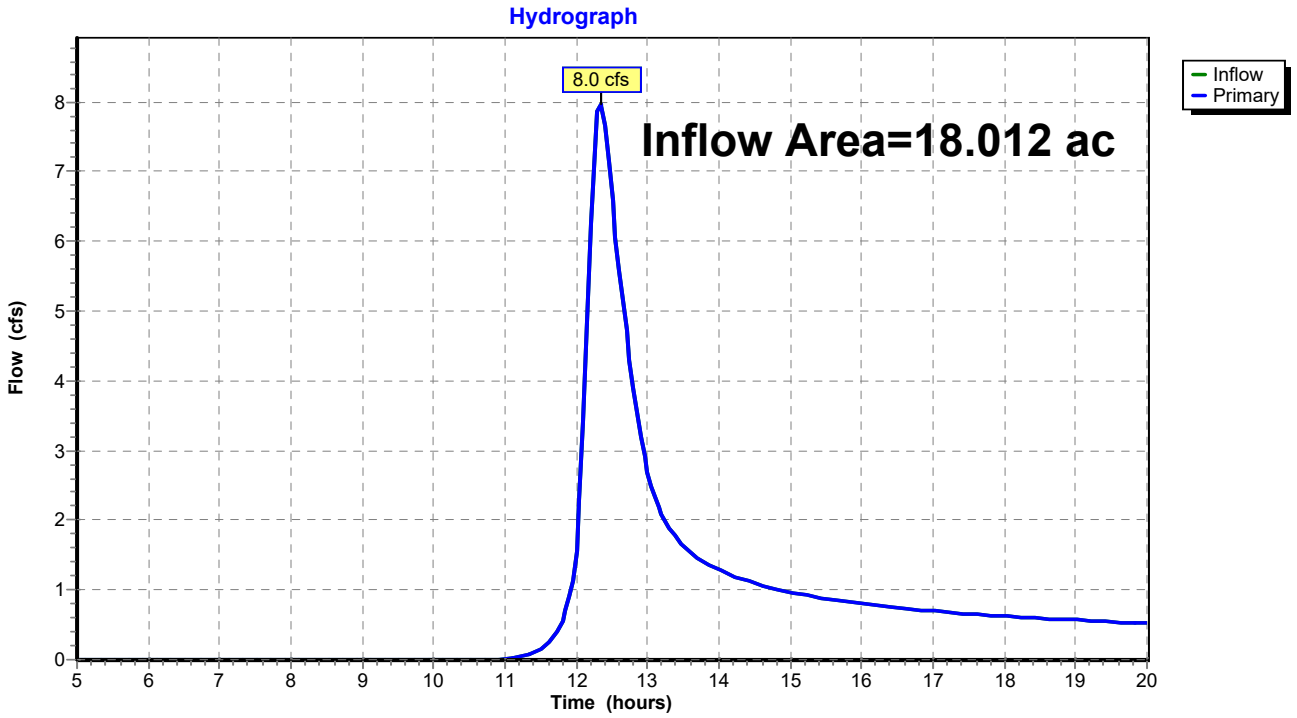


Summary for Link DP: Deesign Point

Inflow Area = 18.012 ac, 5.65% Impervious, Inflow Depth > 0.65" for 1-yr event
Inflow = 8.0 cfs @ 12.34 hrs, Volume= 0.968 af
Primary = 8.0 cfs @ 12.34 hrs, Volume= 0.968 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP: Deesign Point



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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

Subcatchment1.0S: 1.0S Runoff Area=784,606 sf 5.65% Impervious Runoff Depth>2.07"
Flow Length=1,750' Tc=25.7 min CN=73 Runoff=26.4 cfs 3.112 af

Link DP: Deesign Point Inflow=26.4 cfs 3.112 af
Primary=26.4 cfs 3.112 af

Summary for Subcatchment 1.0S: 1.0S

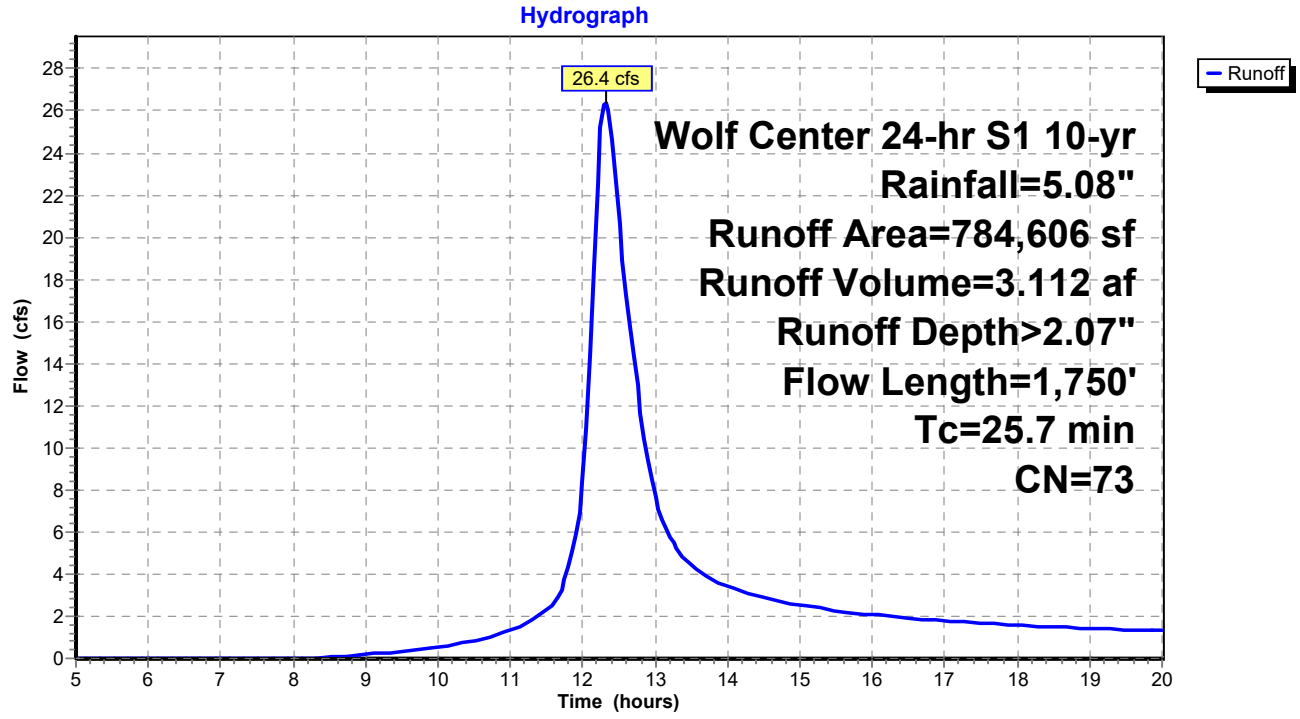
Runoff = 26.4 cfs @ 12.31 hrs, Volume= 3.112 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Wolf Center 24-hr S1 10-yr Rainfall=5.08"

	Area (sf)	CN	Description
*	36,175	98	Existing Pavement
*	8,130	98	Existing Buildings
	10,353	61	>75% Grass cover, Good, HSG B
	13,090	74	>75% Grass cover, Good, HSG C
	8,325	80	>75% Grass cover, Good, HSG D
	1,182	89	Gravel roads, HSG C
	8,804	87	Dirt roads, HSG C
	26,408	55	Woods, Good, HSG B
	507,257	70	Woods, Good, HSG C
	164,882	77	Woods, Good, HSG D
	784,606	73	Weighted Average
	740,301		94.35% Pervious Area
	44,305		5.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
6.8	860	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	20	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.4	770	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.7	1,750	Total			

Subcatchment 1.0S: 1.0S

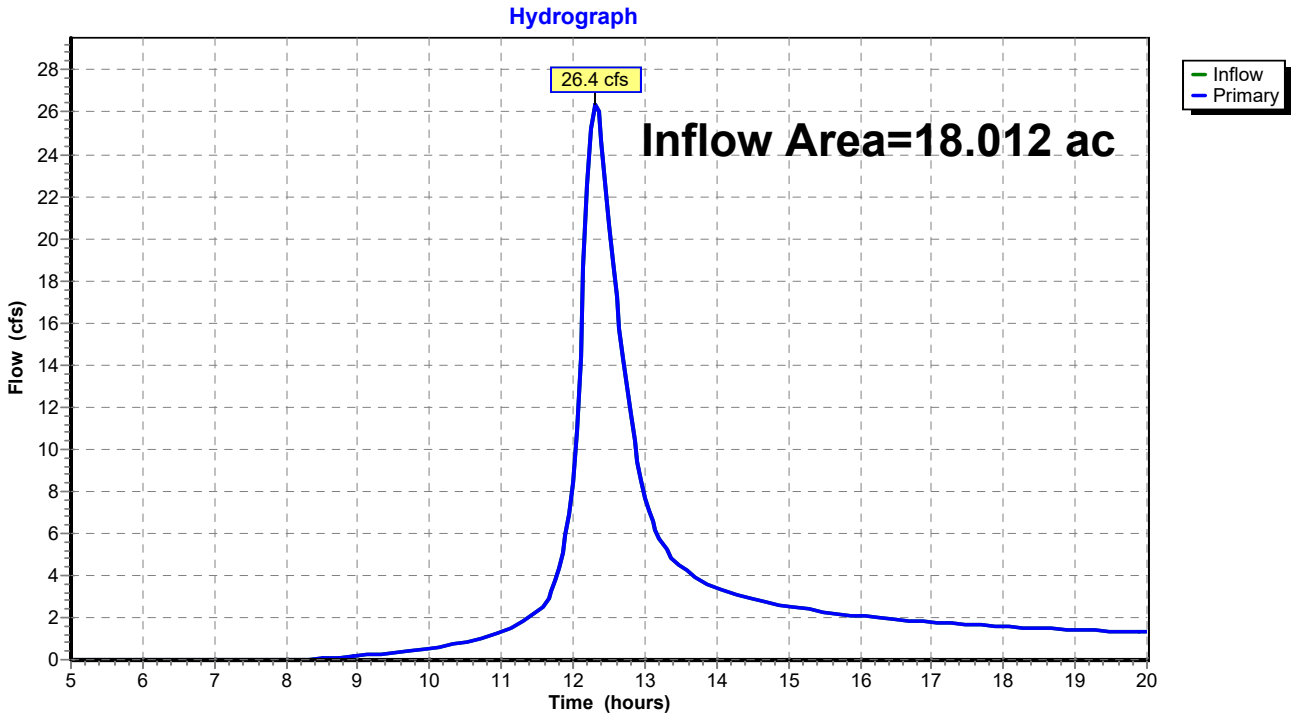


Summary for Link DP: Deesign Point

Inflow Area = 18.012 ac, 5.65% Impervious, Inflow Depth > 2.07" for 10-yr event
Inflow = 26.4 cfs @ 12.31 hrs, Volume= 3.112 af
Primary = 26.4 cfs @ 12.31 hrs, Volume= 3.112 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP: Deesign Point



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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

Subcatchment1.0S: 1.0S Runoff Area=784,606 sf 5.65% Impervious Runoff Depth>5.17"
Flow Length=1,750' Tc=25.7 min CN=73 Runoff=61.0 cfs 7.758 af

Link DP: Deesign Point Inflow=61.0 cfs 7.758 af
Primary=61.0 cfs 7.758 af

Summary for Subcatchment 1.0S: 1.0S

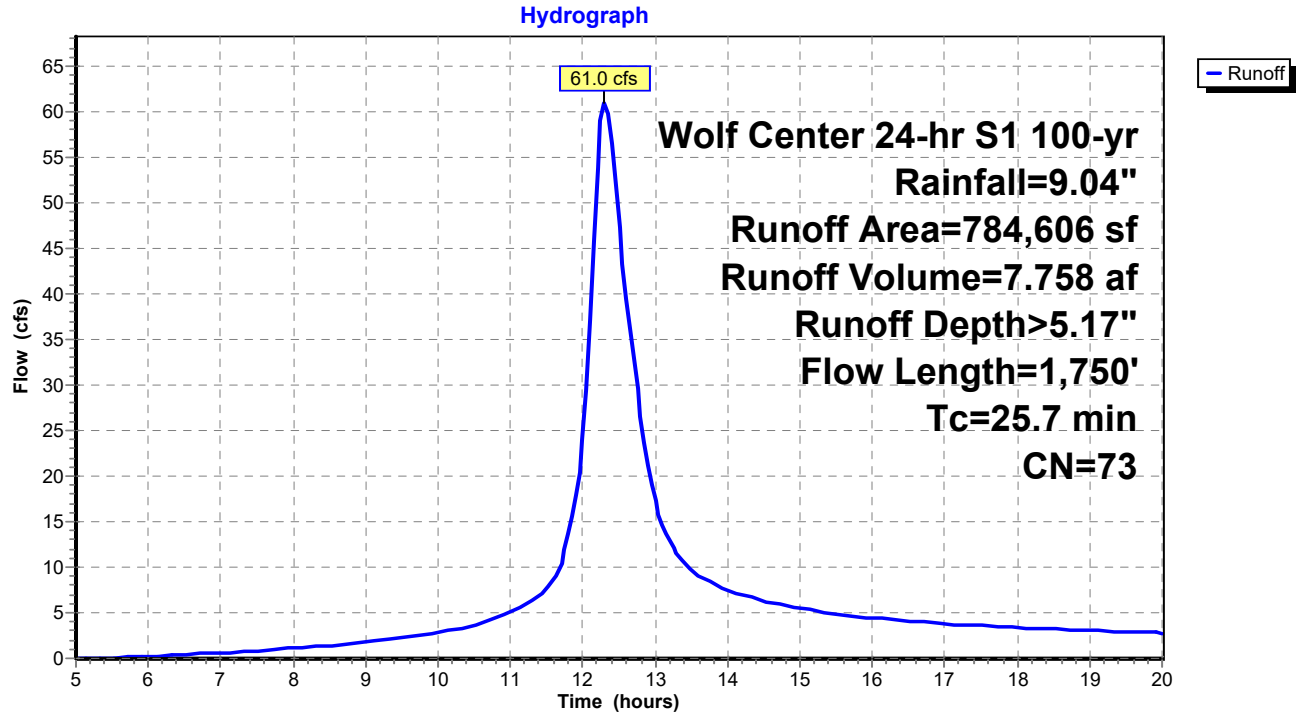
Runoff = 61.0 cfs @ 12.31 hrs, Volume= 7.758 af, Depth> 5.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Wolf Center 24-hr S1 100-yr Rainfall=9.04"

	Area (sf)	CN	Description
*	36,175	98	Existing Pavement
*	8,130	98	Existing Buildings
	10,353	61	>75% Grass cover, Good, HSG B
	13,090	74	>75% Grass cover, Good, HSG C
	8,325	80	>75% Grass cover, Good, HSG D
	1,182	89	Gravel roads, HSG C
	8,804	87	Dirt roads, HSG C
	26,408	55	Woods, Good, HSG B
	507,257	70	Woods, Good, HSG C
	164,882	77	Woods, Good, HSG D
	784,606	73	Weighted Average
	740,301		94.35% Pervious Area
	44,305		5.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
6.8	860	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	20	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.4	770	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.7	1,750	Total			

Subcatchment 1.0S: 1.0S

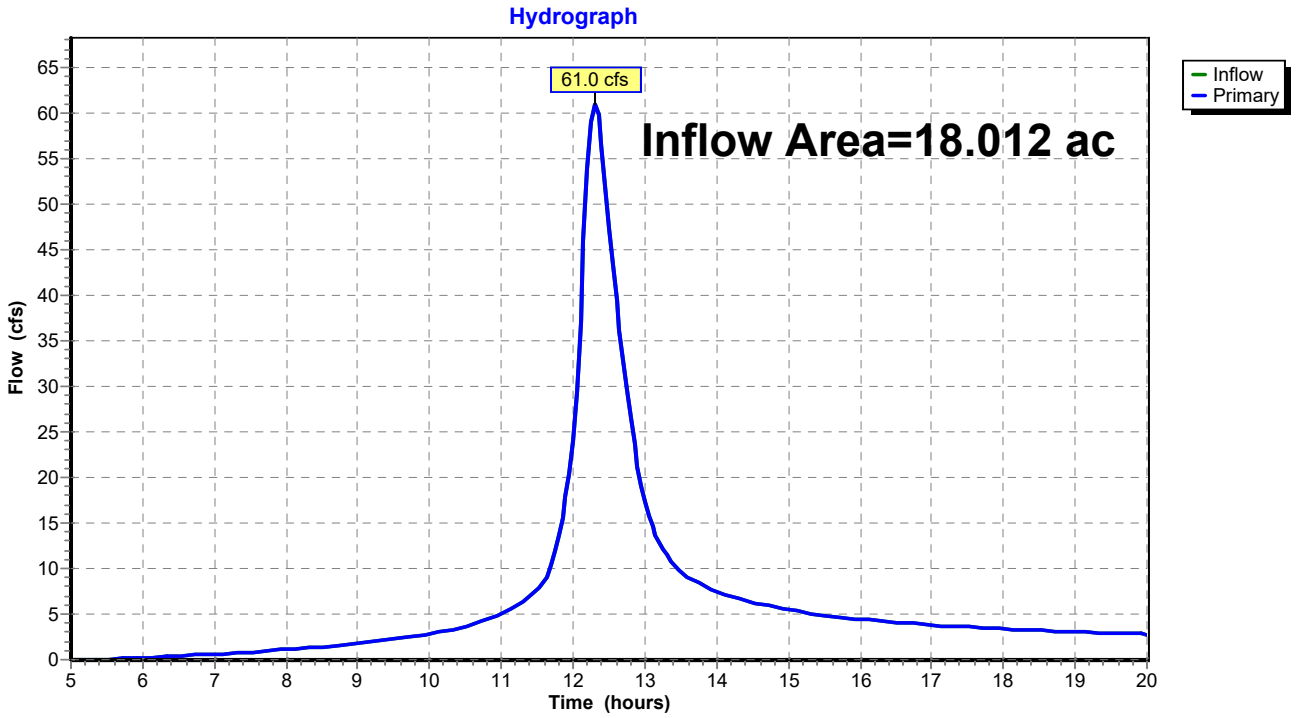


Summary for Link DP: Deesign Point

Inflow Area = 18.012 ac, 5.65% Impervious, Inflow Depth > 5.17" for 100-yr event
Inflow = 61.0 cfs @ 12.31 hrs, Volume= 7.758 af
Primary = 61.0 cfs @ 12.31 hrs, Volume= 7.758 af, Atten= 0%, Lag= 0.0 min

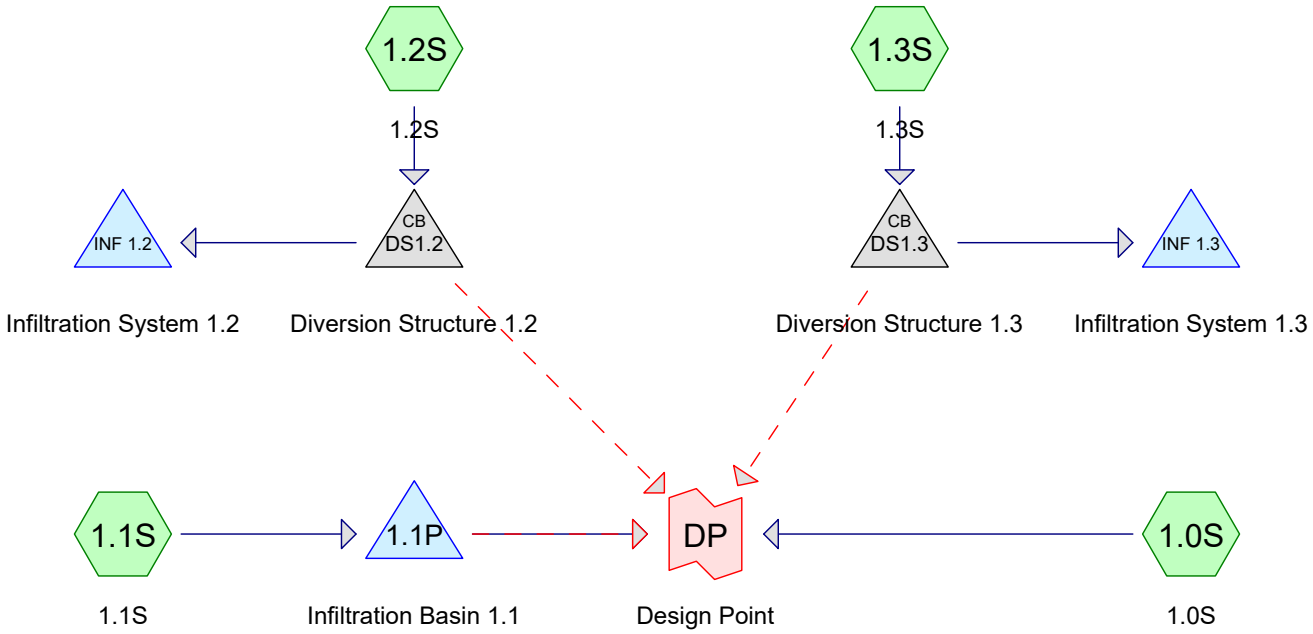
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP: Deesign Point



Appendix C:

Post Development Peak Flow Analysis –
(HydroCAD Output for 1, 10 & 100-year Storm Events)



Subcat Reach Pond Link

Routing Diagram for Wolf Center - Post-4-20- 2023
Prepared by Bibbo Associates, llp., Printed 4/21/2023
HydroCAD® 10.00-24 s/n 02226 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.120	61	>75% Grass cover, Good, HSG B (1.1S)
0.619	74	>75% Grass cover, Good, HSG C (1.1S, 1.2S)
0.129	87	Dirt roads, HSG C (1.0S)
0.067	74	Existing >75% Grass cover, Good, HSG C (1.0S)
0.141	98	Existing Buildings (1.0S)
0.435	98	Existing Pavement (1.0S)
0.032	61	Existing>75% Grass cover, Good, HSG B (1.0S)
0.310	89	Gravel roads, HSG C (1.0S)
0.809	71	Meadow, non-grazed, HSG C (1.0S)
0.071	61	Proposed >75% Grass cover, Good, HSG B (1.0S)
0.407	74	Proposed >75% Grass cover, Good, HSG C (1.0S)
0.079	80	Proposed >75% Grass cover, Good, HSG D (1.0S)
0.111	98	Proposed Building (1.2S)
0.043	98	Proposed Courtyard Imp (1.2S)
0.455	98	Proposed Pavement (1.0S, 1.1S)
0.574	98	Proposed Pavement & Walkway (1.2S)
0.046	98	Proposed Pods and Facilities (1.3S)
0.008	98	Proposed Sidewalk (1.1S)
0.508	55	Woods, Good, HSG B (1.0S)
9.594	70	Woods, Good, HSG C (1.0S)
3.455	77	Woods, Good, HSG D (1.0S)

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.731	HSG B	1.0S, 1.1S
11.935	HSG C	1.0S, 1.1S, 1.2S
3.534	HSG D	1.0S
1.812	Other	1.0S, 1.1S, 1.2S, 1.3S

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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

Subcatchment1.0S: 1.0S Runoff Area=705,538 sf 4.54% Impervious Runoff Depth=0.75"
Flow Length=1,585' Tc=23.5 min CN=73 Runoff=7.5 cfs 1.019 af

Subcatchment1.1S: 1.1S Runoff Area=31,450 sf 42.00% Impervious Runoff Depth=1.25"
Tc=6.0 min CN=82 Runoff=1.1 cfs 0.075 af

Subcatchment1.2S: 1.2S Runoff Area=45,619 sf 69.42% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=91 Runoff=2.5 cfs 0.167 af

Subcatchment1.3S: 1.3S Runoff Area=2,000 sf 100.00% Impervious Runoff Depth=2.60"
Tc=6.0 min CN=98 Runoff=0.1 cfs 0.010 af

Pond 1.1P: Infiltration Basin 1.1 Peak Elev=452.60' Storage=633 cf Inflow=1.1 cfs 0.075 af
Discarded=0.3 cfs 0.075 af Primary=0.0 cfs 0.000 af Secondary=0.0 cfs 0.000 af Outflow=0.3 cfs 0.075 af

Pond DS1.2: Diversion Structure 1.2 Peak Elev=469.20' Inflow=2.5 cfs 0.167 af
Primary=2.5 cfs 0.167 af Secondary=0.0 cfs 0.000 af Outflow=2.5 cfs 0.167 af

Pond DS1.3: Diversion Structure 1.3 Peak Elev=593.39' Inflow=0.1 cfs 0.010 af
Primary=0.1 cfs 0.010 af Secondary=0.0 cfs 0.000 af Outflow=0.1 cfs 0.010 af

Pond INF 1.2: Infiltration System 1.2 Peak Elev=466.22' Storage=0.006 af Inflow=2.5 cfs 0.167 af
Outflow=1.8 cfs 0.167 af

Pond INF 1.3: Infiltration System 1.3 Peak Elev=593.20' Storage=0.001 af Inflow=0.1 cfs 0.010 af
Outflow=0.1 cfs 0.010 af

Link DP: Design Point Inflow=7.5 cfs 1.019 af
Primary=7.5 cfs 1.019 af

Summary for Subcatchment 1.0S: 1.0S

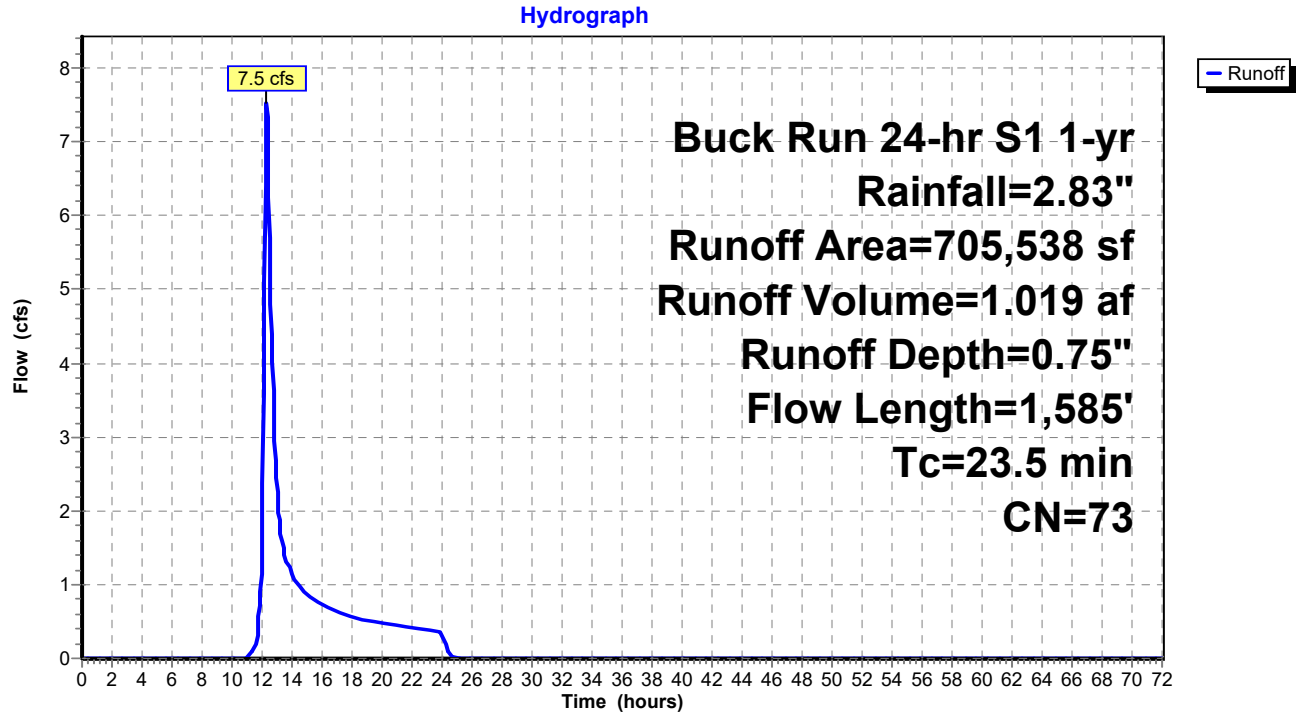
Runoff = 7.5 cfs @ 12.31 hrs, Volume= 1.019 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	18,932	98	Existing Pavement
*	6,135	98	Existing Buildings
	5,607	87	Dirt roads, HSG C
*	6,970	98	Proposed Pavement
*	1,405	61	Existing>75% Grass cover, Good, HSG B
*	3,457	80	Proposed >75% Grass cover, Good, HSG D
*	3,083	61	Proposed >75% Grass cover, Good, HSG B
*	2,900	74	Existing >75% Grass cover, Good, HSG C
*	17,714	74	Proposed >75% Grass cover, Good, HSG C
	13,520	89	Gravel roads, HSG C
	22,115	55	Woods, Good, HSG B
	417,935	70	Woods, Good, HSG C
	150,505	77	Woods, Good, HSG D
	35,260	71	Meadow, non-grazed, HSG C
	705,538	73	Weighted Average
	673,501		95.46% Pervious Area
	32,037		4.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
12.1	1,485	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.5	1,585	Total			

Subcatchment 1.0S: 1.0S



Summary for Subcatchment 1.1S: 1.1S

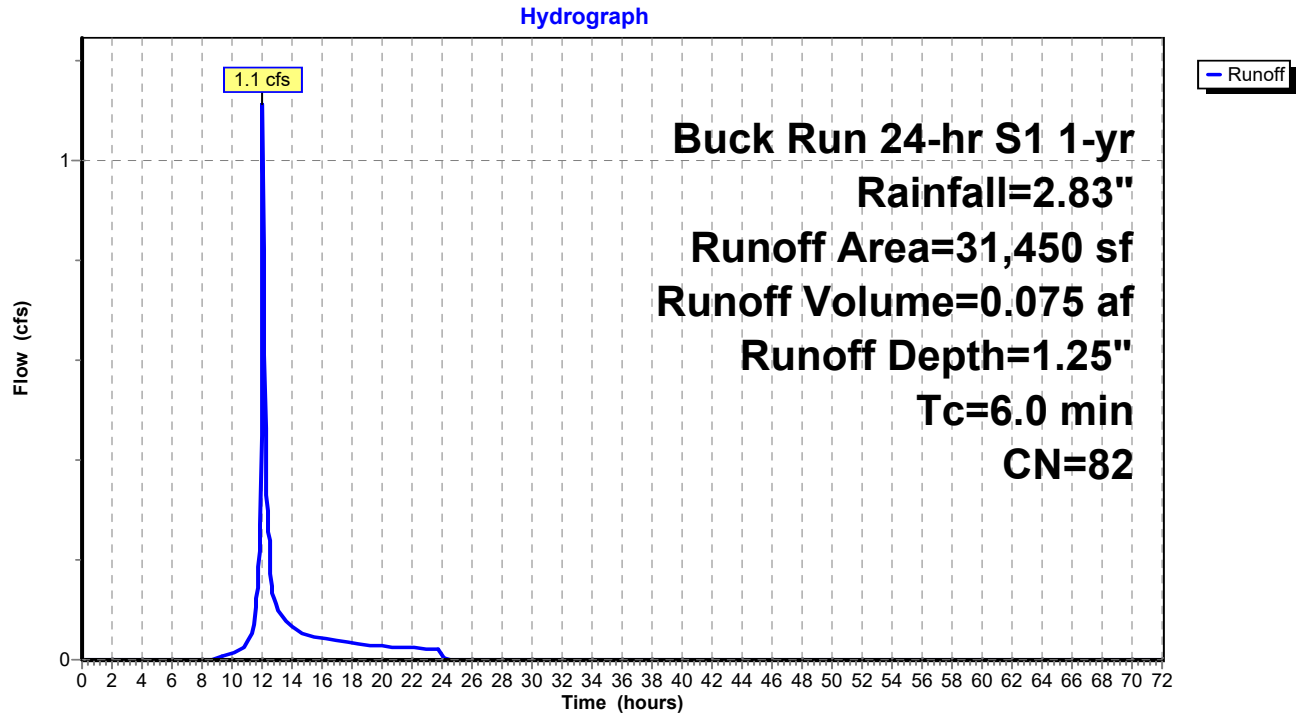
Runoff = 1.1 cfs @ 12.04 hrs, Volume= 0.075 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	12,870	98	Proposed Pavement
*	340	98	Proposed Sidewalk
	5,235	61	>75% Grass cover, Good, HSG B
	13,005	74	>75% Grass cover, Good, HSG C
	31,450	82	Weighted Average
	18,240		58.00% Pervious Area
	13,210		42.00% Impervious Area

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

Subcatchment 1.1S: 1.1S



Summary for Subcatchment 1.2S: 1.2S

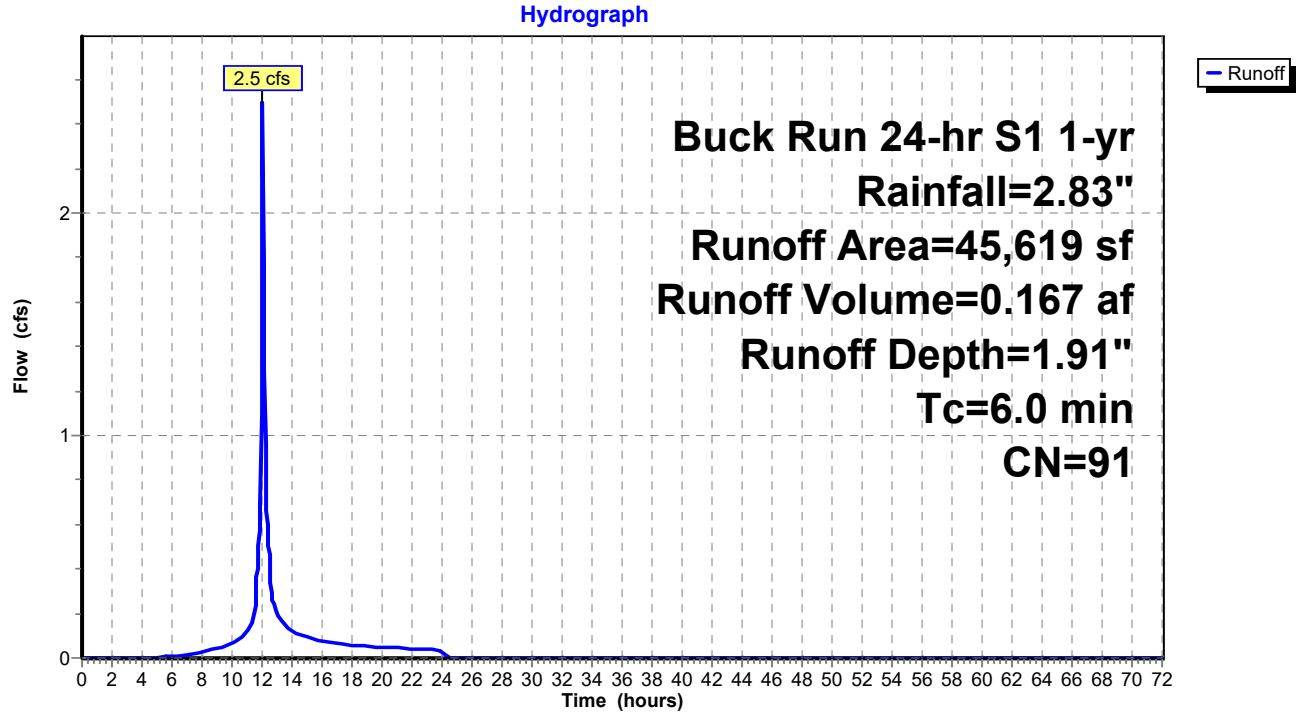
Runoff = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	24,985	98	Proposed Pavement & Walkway
*	4,815	98	Proposed Building
	10,849	74	>75% Grass cover, Good, HSG C
*	1,870	98	Proposed Courtyard Imp
	3,100	74	>75% Grass cover, Good, HSG C
	45,619	91	Weighted Average
	13,949		30.58% Pervious Area
	31,670		69.42% Impervious Area

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

Subcatchment 1.2S: 1.2S



Summary for Subcatchment 1.3S: 1.3S

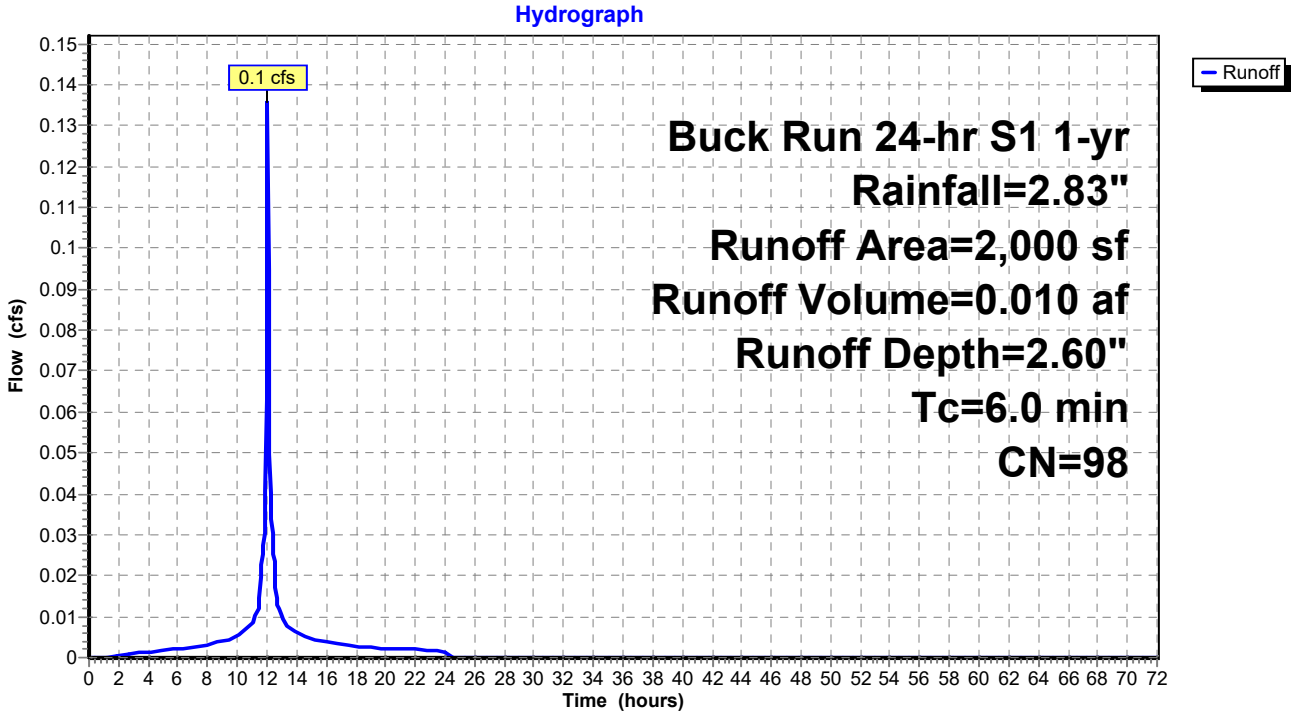
Runoff = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 1-yr Rainfall=2.83"

	Area (sf)	CN	Description
*	2,000	98	Proposed Pods and Facilities
	2,000		100.00% Impervious Area

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

Subcatchment 1.3S: 1.3S



Summary for Pond 1.1P: Infiltration Basin 1.1

Inflow Area = 0.722 ac, 42.00% Impervious, Inflow Depth = 1.25" for 1-yr event
Inflow = 1.1 cfs @ 12.04 hrs, Volume= 0.075 af
Outflow = 0.3 cfs @ 12.30 hrs, Volume= 0.075 af, Atten= 70%, Lag= 15.5 min
Discarded = 0.3 cfs @ 12.30 hrs, Volume= 0.075 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 452.60' @ 12.30 hrs Surf.Area= 718 sf Storage= 633 cf

Plug-Flow detention time= 14.9 min calculated for 0.075 af (100% of inflow)
Center-of-Mass det. time= 14.9 min (879.1 - 864.2)

Volume	Invert	Avail.Storage	Storage Description
#1	451.00'	9,077 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
451.00	125	0	0
452.00	447	286	286
454.00	1,356	1,803	2,089
456.00	2,634	3,990	6,079
457.00	3,362	2,998	9,077

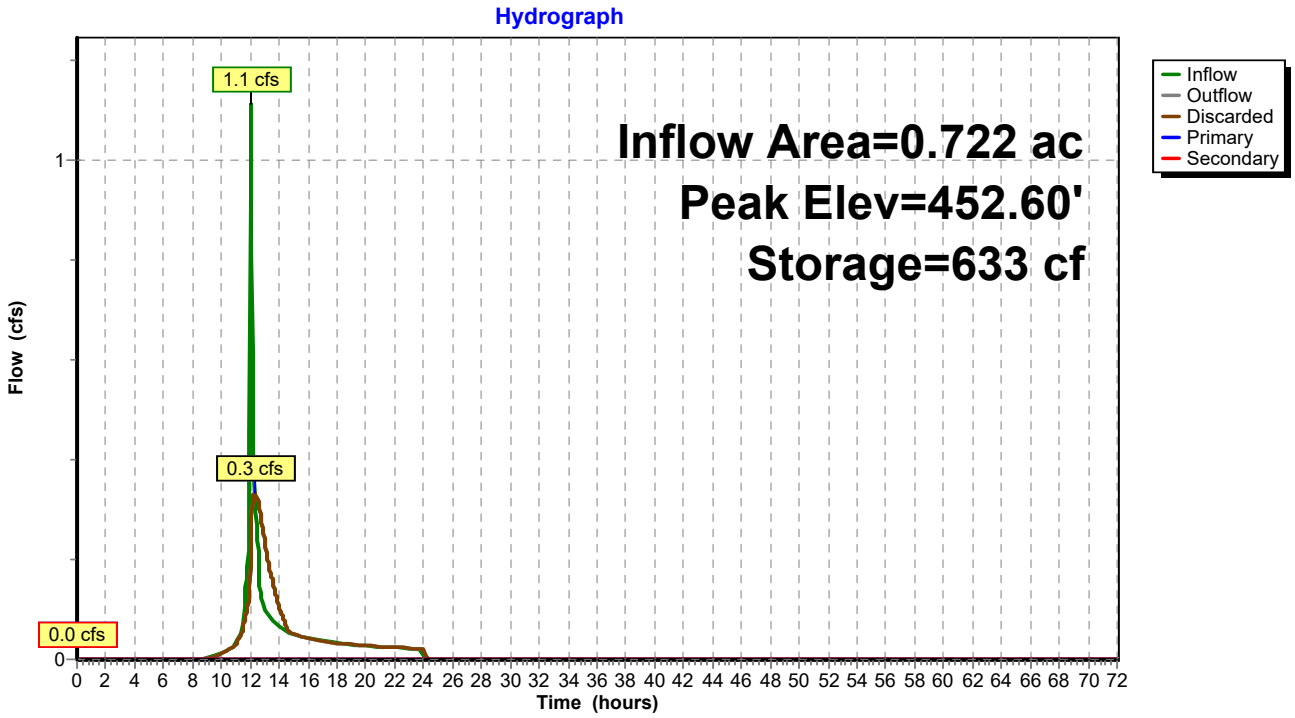
Device	Routing	Invert	Outlet Devices
#1	Primary	450.30'	**12.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 450.30' / 449.50' S= 0.0138 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	454.75'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	455.50'	**30.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	451.00'	**20.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#5	Secondary	456.00'	**10.0' 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

Discarded OutFlow Max=0.3 cfs @ 12.30 hrs HW=452.59' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=451.00' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.0 cfs of 1.7 cfs potential flow)
  └**2=Orifice/Grate** (Controls 0.0 cfs)
  └**3=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=451.00' TW=0.00' (Dynamic Tailwater)
└**5=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1.1P: Infiltration Basin 1.1



Stage-Discharge for Pond 1.1P: Infiltration Basin 1.1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
451.00	0.0	0.0	0.0	0.0
451.10	0.1	0.1	0.0	0.0
451.20	0.1	0.1	0.0	0.0
451.30	0.1	0.1	0.0	0.0
451.40	0.1	0.1	0.0	0.0
451.50	0.1	0.1	0.0	0.0
451.60	0.1	0.1	0.0	0.0
451.70	0.2	0.2	0.0	0.0
451.80	0.2	0.2	0.0	0.0
451.90	0.2	0.2	0.0	0.0
452.00	0.2	0.2	0.0	0.0
452.10	0.2	0.2	0.0	0.0
452.20	0.2	0.2	0.0	0.0
452.30	0.3	0.3	0.0	0.0
452.40	0.3	0.3	0.0	0.0
452.50	0.3	0.3	0.0	0.0
452.60	0.3	0.3	0.0	0.0
452.70	0.4	0.4	0.0	0.0
452.80	0.4	0.4	0.0	0.0
452.90	0.4	0.4	0.0	0.0
453.00	0.4	0.4	0.0	0.0
453.10	0.4	0.4	0.0	0.0
453.20	0.5	0.5	0.0	0.0
453.30	0.5	0.5	0.0	0.0
453.40	0.5	0.5	0.0	0.0
453.50	0.5	0.5	0.0	0.0
453.60	0.5	0.5	0.0	0.0
453.70	0.6	0.6	0.0	0.0
453.80	0.6	0.6	0.0	0.0
453.90	0.6	0.6	0.0	0.0
454.00	0.6	0.6	0.0	0.0
454.10	0.7	0.7	0.0	0.0
454.20	0.7	0.7	0.0	0.0
454.30	0.7	0.7	0.0	0.0
454.40	0.7	0.7	0.0	0.0
454.50	0.8	0.8	0.0	0.0
454.60	0.8	0.8	0.0	0.0
454.70	0.8	0.8	0.0	0.0
454.80	0.9	0.9	0.0	0.0
454.90	0.9	0.9	0.1	0.0
455.00	1.0	0.9	0.1	0.0
455.10	1.1	1.0	0.2	0.0
455.20	1.2	1.0	0.2	0.0
455.30	1.3	1.0	0.3	0.0
455.40	1.3	1.0	0.3	0.0
455.50	1.4	1.1	0.3	0.0
455.60	2.8	1.1	1.7	0.0
455.70	5.3	1.1	4.2	0.0
455.80	8.5	1.2	7.4	0.0
455.90	9.2	1.2	8.0	0.0
456.00	9.3	1.2	8.1	0.0
456.10	10.2	1.3	8.2	0.8
456.20	11.8	1.3	8.3	2.2
456.30	13.8	1.3	8.3	4.1
456.40	16.2	1.4	8.4	6.5
456.50	19.2	1.4	8.5	9.3
456.60	22.5	1.4	8.5	12.5
456.70	25.9	1.5	8.6	15.8
456.80	29.4	1.5	8.7	19.2
456.90	33.2	1.5	8.7	22.9
457.00	**37.2**	**1.6**	**8.8**	**26.8**

Stage-Area-Storage for Pond 1.1P: Infiltration Basin 1.1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
451.00	125	0
451.10	157	14
451.20	189	31
451.30	222	52
451.40	254	76
451.50	286	103
451.60	318	133
451.70	350	166
451.80	383	203
451.90	415	243
452.00	447	286
452.10	492	333
452.20	538	384
452.30	583	441
452.40	629	501
452.50	674	566
452.60	720	636
452.70	765	710
452.80	811	789
452.90	856	872
453.00	902	960
453.10	947	1,053
453.20	992	1,150
453.30	1,038	1,251
453.40	1,083	1,357
453.50	1,129	1,468
453.60	1,174	1,583
453.70	1,220	1,703
453.80	1,265	1,827
453.90	1,311	1,956
454.00	1,356	2,089
454.10	1,420	2,228
454.20	1,484	2,373
454.30	1,548	2,525
454.40	1,612	2,683
454.50	1,676	2,847
454.60	1,739	3,018
454.70	1,803	3,195
454.80	1,867	3,378
454.90	1,931	3,568
455.00	1,995	3,765
455.10	2,059	3,967
455.20	2,123	4,176
455.30	2,187	4,392
455.40	2,251	4,614
455.50	2,315	4,842
455.60	2,378	5,077
455.70	2,442	5,318
455.80	2,506	5,565
455.90	2,570	5,819
456.00	2,634	6,079
456.10	2,707	6,346
456.20	2,780	6,620
456.30	2,852	6,902
456.40	2,925	7,191
456.50	2,998	7,487
456.60	3,071	7,790
456.70	3,144	8,101
456.80	3,216	8,419
456.90	3,289	8,744
457.00	**3,362**	**9,077**

Summary for Pond DS1.2: Diversion Structure 1.2

Inflow Area = 1.047 ac, 69.42% Impervious, Inflow Depth = 1.91" for 1-yr event
Inflow = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af
Outflow = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min
Primary = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

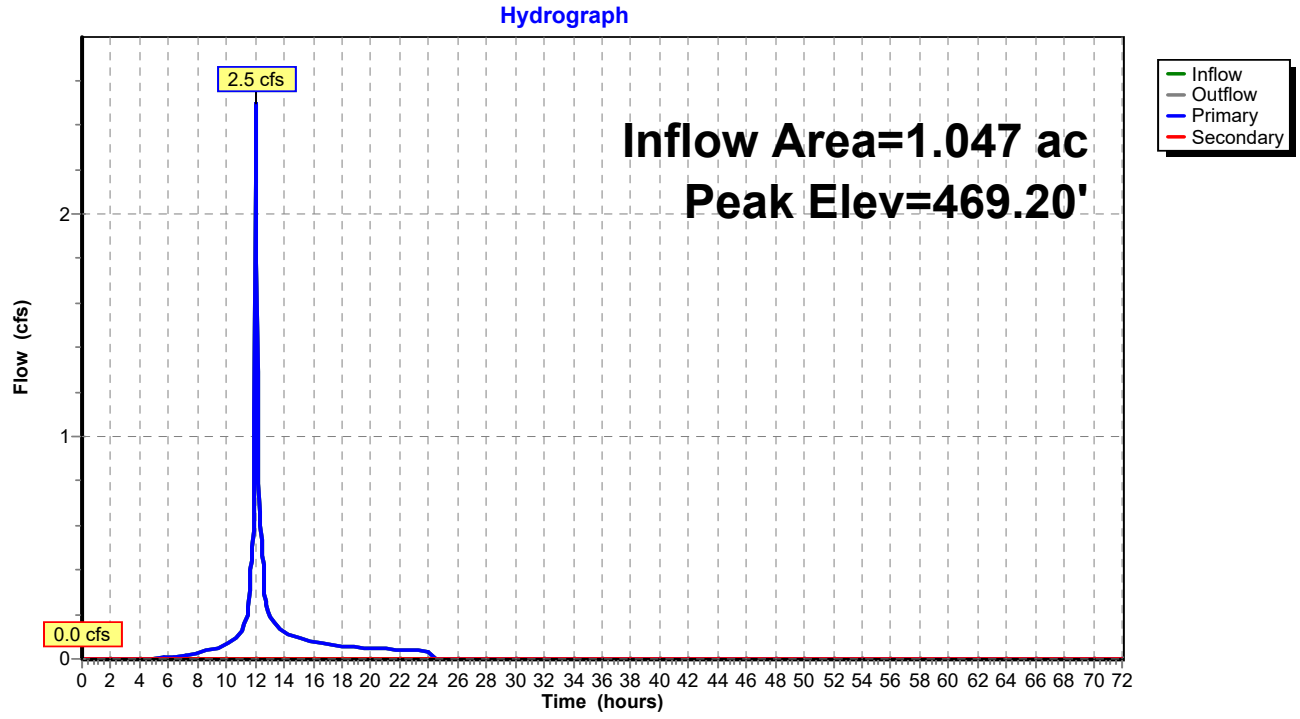
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 469.20' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	466.67'	**8.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 466.67' / 466.60' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 3	469.35'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Secondary	462.28'	**8.0" Round Culvert** L= 103.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 462.28' / 448.16' S= 0.1371 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=2.4 cfs @ 12.04 hrs HW=469.09' TW=466.16' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.4 cfs @ 6.95 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=462.28' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Controls 0.0 cfs)
└**2=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Pond DS1.2: Diversion Structure 1.2



Stage-Discharge for Pond DS1.2: Diversion Structure 1.2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
462.28	0.0	0.0	**0.0**
462.38	0.0	0.0	0.0
462.48	0.0	0.0	0.0
462.58	0.0	0.0	0.0
462.68	0.0	0.0	0.0
462.78	0.0	0.0	0.0
462.88	0.0	0.0	0.0
462.98	0.0	0.0	0.0
463.08	0.0	0.0	0.0
463.18	0.0	0.0	0.0
463.28	0.0	0.0	0.0
463.38	0.0	0.0	0.0
463.48	0.0	0.0	0.0
463.58	0.0	0.0	0.0
463.68	0.0	0.0	0.0
463.78	0.0	0.0	0.0
463.88	0.0	0.0	0.0
463.98	0.0	0.0	0.0
464.08	0.0	0.0	0.0
464.18	0.0	0.0	0.0
464.28	0.0	0.0	0.0
464.38	0.0	0.0	0.0
464.48	0.0	0.0	0.0
464.58	0.0	0.0	0.0
464.68	0.0	0.0	0.0
464.78	0.0	0.0	0.0
464.88	0.0	0.0	0.0
464.98	0.0	0.0	0.0
465.08	0.0	0.0	0.0
465.18	0.0	0.0	0.0
465.28	0.0	0.0	0.0
465.38	0.0	0.0	0.0
465.48	0.0	0.0	0.0
465.58	0.0	0.0	0.0
465.68	0.0	0.0	0.0
465.78	0.0	0.0	0.0
465.88	0.0	0.0	0.0
465.98	0.0	0.0	0.0
466.08	0.0	0.0	0.0
466.18	0.0	0.0	0.0
466.28	0.0	0.0	0.0
466.38	0.0	0.0	0.0
466.48	0.0	0.0	0.0
466.58	0.0	0.0	0.0
466.68	0.0	0.0	0.0
466.78	0.0	0.0	0.0
466.88	0.1	0.1	0.0
466.98	0.2	0.2	0.0
467.08	0.4	0.4	0.0
467.18	0.6	0.6	0.0
467.28	0.7	0.7	0.0
467.38	0.9	0.9	0.0
467.48	1.1	1.1	0.0
467.58	1.2	1.2	0.0
467.68	1.3	1.3	0.0
467.78	1.5	1.5	0.0
467.88	1.6	1.6	0.0
467.98	1.7	1.7	0.0
468.08	1.7	1.7	0.0
468.18	1.8	1.8	0.0
468.28	1.9	1.9	0.0
468.38	2.0	2.0	0.0
468.48	2.0	2.0	0.0
468.58	2.1	2.1	0.0
468.68	2.2	2.2	0.0
468.78	2.2	2.2	0.0
468.88	2.3	2.3	0.0
468.98	2.4	2.4	0.0
469.08	2.4	2.4	0.0
469.18	2.5	2.5	0.0
469.28	**2.5**	**2.5**	0.0

Stage-Area-Storage for Pond DS1.2: Diversion Structure 1.2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
462.28	**0**	464.92	0	467.56	0
462.32	0	464.96	0	467.60	0
462.36	0	465.00	0	467.64	0
462.40	0	465.04	0	467.68	0
462.44	0	465.08	0	467.72	0
462.48	0	465.12	0	467.76	0
462.52	0	465.16	0	467.80	0
462.56	0	465.20	0	467.84	0
462.60	0	465.24	0	467.88	0
462.64	0	465.28	0	467.92	0
462.68	0	465.32	0	467.96	0
462.72	0	465.36	0	468.00	0
462.76	0	465.40	0	468.04	0
462.80	0	465.44	0	468.08	0
462.84	0	465.48	0	468.12	0
462.88	0	465.52	0	468.16	0
462.92	0	465.56	0	468.20	0
462.96	0	465.60	0	468.24	0
463.00	0	465.64	0	468.28	0
463.04	0	465.68	0	468.32	0
463.08	0	465.72	0	468.36	0
463.12	0	465.76	0	468.40	0
463.16	0	465.80	0	468.44	0
463.20	0	465.84	0	468.48	0
463.24	0	465.88	0	468.52	0
463.28	0	465.92	0	468.56	0
463.32	0	465.96	0	468.60	0
463.36	0	466.00	0	468.64	0
463.40	0	466.04	0	468.68	0
463.44	0	466.08	0	468.72	0
463.48	0	466.12	0	468.76	0
463.52	0	466.16	0	468.80	0
463.56	0	466.20	0	468.84	0
463.60	0	466.24	0	468.88	0
463.64	0	466.28	0	468.92	0
463.68	0	466.32	0	468.96	0
463.72	0	466.36	0	469.00	0
463.76	0	466.40	0	469.04	0
463.80	0	466.44	0	469.08	0
463.84	0	466.48	0	469.12	0
463.88	0	466.52	0	469.16	0
463.92	0	466.56	0	469.20	0
463.96	0	466.60	0	469.24	0
464.00	0	466.64	0	469.28	0
464.04	0	466.68	0	469.32	0
464.08	0	466.72	0		
464.12	0	466.76	0		
464.16	0	466.80	0		
464.20	0	466.84	0		
464.24	0	466.88	0		
464.28	0	466.92	0		
464.32	0	466.96	0		
464.36	0	467.00	0		
464.40	0	467.04	0		
464.44	0	467.08	0		
464.48	0	467.12	0		
464.52	0	467.16	0		
464.56	0	467.20	0		
464.60	0	467.24	0		
464.64	0	467.28	0		
464.68	0	467.32	0		
464.72	0	467.36	0		
464.76	0	467.40	0		
464.80	0	467.44	0		
464.84	0	467.48	0		
464.88	0	467.52	0		

Summary for Pond DS1.3: Diversion Structure 1.3

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth = 2.60" for 1-yr event
Inflow = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af
Outflow = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

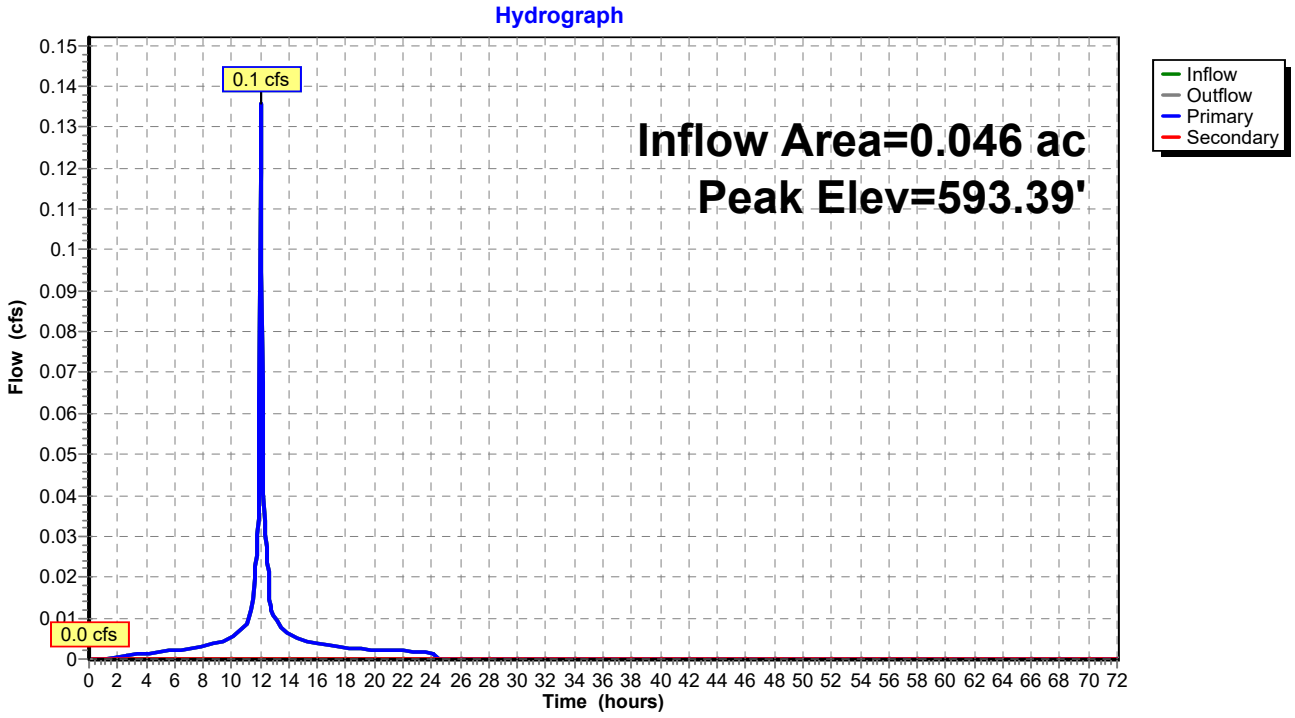
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 593.39' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	593.10'	**4.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 593.10' / 593.00' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Secondary	595.20'	**8.0" Round Culvert** L= 154.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 595.20' / 590.00' S= 0.0338 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.1 cfs @ 12.04 hrs HW=593.38' TW=593.14' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.1 cfs @ 2.24 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=593.10' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Controls 0.0 cfs)

Pond DS1.3: Diversion Structure 1.3



Stage-Discharge for Pond DS1.3: Diversion Structure 1.3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
593.10	0.0	0.0	0.0
593.15	0.0	0.0	0.0
593.20	0.0	0.0	0.0
593.25	0.0	0.0	0.0
593.30	0.1	0.1	0.0
593.35	0.1	0.1	0.0
593.40	0.1	0.1	0.0
593.45	0.2	0.2	0.0
593.50	0.2	0.2	0.0
593.55	0.2	0.2	0.0
593.60	0.2	0.2	0.0
593.65	0.3	0.3	0.0
593.70	0.3	0.3	0.0
593.75	0.3	0.3	0.0
593.80	0.3	0.3	0.0
593.85	0.3	0.3	0.0
593.90	0.3	0.3	0.0
593.95	0.3	0.3	0.0
594.00	0.4	0.4	0.0
594.05	0.4	0.4	0.0
594.10	0.4	0.4	0.0
594.15	0.4	0.4	0.0
594.20	0.4	0.4	0.0
594.25	0.4	0.4	0.0
594.30	0.4	0.4	0.0
594.35	0.4	0.4	0.0
594.40	0.4	0.4	0.0
594.45	0.5	0.5	0.0
594.50	0.5	0.5	0.0
594.55	0.5	0.5	0.0
594.60	0.5	0.5	0.0
594.65	0.5	0.5	0.0
594.70	0.5	0.5	0.0
594.75	0.5	0.5	0.0
594.80	0.5	0.5	0.0
594.85	0.5	0.5	0.0
594.90	0.5	0.5	0.0
594.95	0.5	0.5	0.0
595.00	0.6	0.6	0.0
595.05	0.6	0.6	0.0
595.10	0.6	0.6	0.0
595.15	0.6	0.6	0.0
595.20	0.6	0.6	0.0
595.25	0.6	0.6	0.0
595.30	0.6	0.6	0.0
595.35	0.7	0.6	0.1
595.40	0.7	0.6	0.1
595.45	0.8	0.6	0.2
595.50	0.9	0.6	0.3
595.55	1.0	0.6	0.4
595.60	1.1	0.6	0.5
595.65	1.2	0.6	0.6
595.70	1.3	0.7	0.7
595.75	1.4	0.7	0.8
595.80	1.5	0.7	0.9
595.85	**1.6**	**0.7**	**1.0**

Stage-Area-Storage for Pond DS1.3: Diversion Structure 1.3

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
593.10	**0**	594.42	0	595.74	0
593.12	0	594.44	0	595.76	0
593.14	0	594.46	0	595.78	0
593.16	0	594.48	0	595.80	0
593.18	0	594.50	0	595.82	0
593.20	0	594.52	0	595.84	0
593.22	0	594.54	0	595.86	0
593.24	0	594.56	0		
593.26	0	594.58	0		
593.28	0	594.60	0		
593.30	0	594.62	0		
593.32	0	594.64	0		
593.34	0	594.66	0		
593.36	0	594.68	0		
593.38	0	594.70	0		
593.40	0	594.72	0		
593.42	0	594.74	0		
593.44	0	594.76	0		
593.46	0	594.78	0		
593.48	0	594.80	0		
593.50	0	594.82	0		
593.52	0	594.84	0		
593.54	0	594.86	0		
593.56	0	594.88	0		
593.58	0	594.90	0		
593.60	0	594.92	0		
593.62	0	594.94	0		
593.64	0	594.96	0		
593.66	0	594.98	0		
593.68	0	595.00	0		
593.70	0	595.02	0		
593.72	0	595.04	0		
593.74	0	595.06	0		
593.76	0	595.08	0		
593.78	0	595.10	0		
593.80	0	595.12	0		
593.82	0	595.14	0		
593.84	0	595.16	0		
593.86	0	595.18	0		
593.88	0	595.20	0		
593.90	0	595.22	0		
593.92	0	595.24	0		
593.94	0	595.26	0		
593.96	0	595.28	0		
593.98	0	595.30	0		
594.00	0	595.32	0		
594.02	0	595.34	0		
594.04	0	595.36	0		
594.06	0	595.38	0		
594.08	0	595.40	0		
594.10	0	595.42	0		
594.12	0	595.44	0		
594.14	0	595.46	0		
594.16	0	595.48	0		
594.18	0	595.50	0		
594.20	0	595.52	0		
594.22	0	595.54	0		
594.24	0	595.56	0		
594.26	0	595.58	0		
594.28	0	595.60	0		
594.30	0	595.62	0		
594.32	0	595.64	0		
594.34	0	595.66	0		
594.36	0	595.68	0		
594.38	0	595.70	0		
594.40	0	595.72	0		

Summary for Pond INF 1.2: Infiltration System 1.2

Inflow Area = 1.047 ac, 69.42% Impervious, Inflow Depth = 1.91" for 1-yr event
Inflow = 2.5 cfs @ 12.04 hrs, Volume= 0.167 af
Outflow = 1.8 cfs @ 12.05 hrs, Volume= 0.167 af, Atten= 26%, Lag= 0.5 min
Discarded = 1.8 cfs @ 12.05 hrs, Volume= 0.167 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 466.22' @ 12.10 hrs Surf.Area= 0.076 ac Storage= 0.006 af

Plug-Flow detention time= 1.3 min calculated for 0.167 af (100% of inflow)
Center-of-Mass det. time= 1.3 min (821.9 - 820.6)

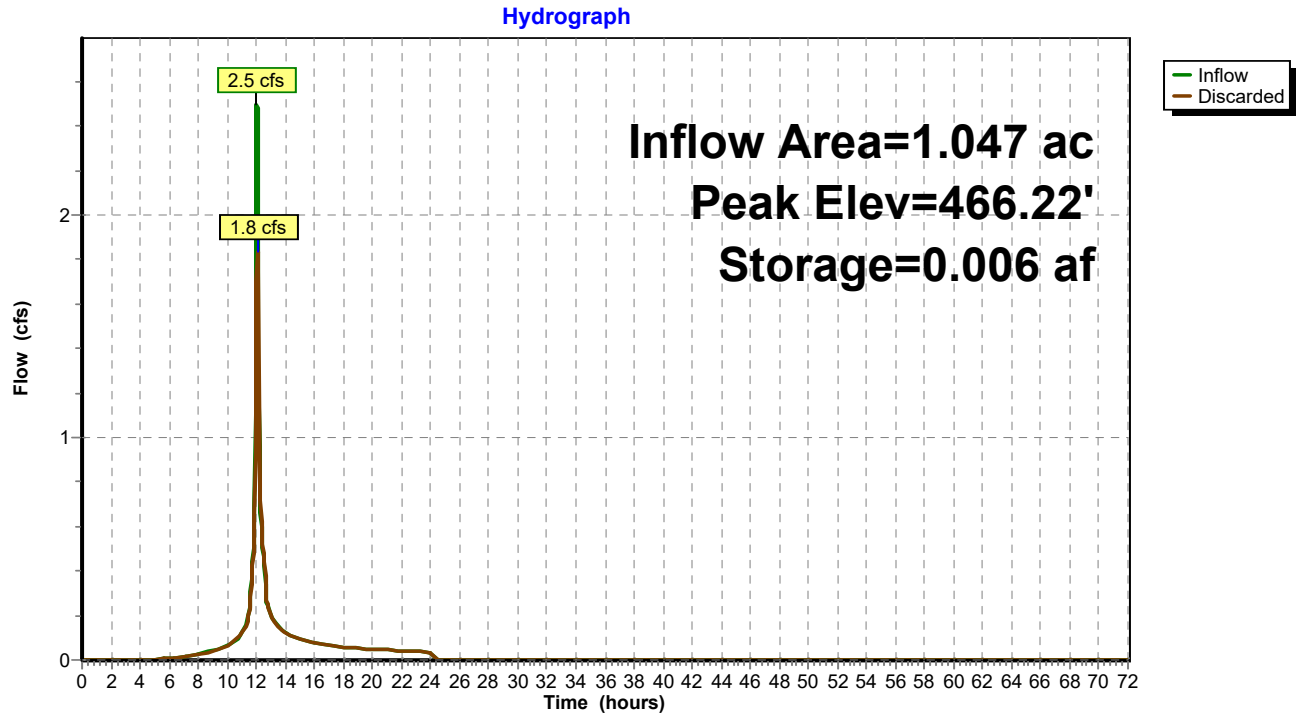
Volume	Invert	Avail.Storage	Storage Description
#1A	466.01'	0.064 af	**30.50'W x 108.50'L x 3.54'H Field A** 0.269 af Overall - 0.109 af Embedded = 0.160 af x 40.0% Voids
#2A	466.51'	0.109 af	**Cultec R-330XLHD** x 90 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
		0.173 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	466.01'	**24.000 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'

Discarded OutFlow Max=1.8 cfs @ 12.05 hrs HW=466.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 1.8 cfs)

Pond INF 1.2: Infiltration System 1.2



Stage-Discharge for Pond INF 1.2: Infiltration System 1.2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
466.01	0.0	467.33	1.8	468.65	1.8
466.03	0.4	467.35	1.8	468.67	1.8
466.05	0.7	467.37	1.8	468.69	1.8
466.07	1.1	467.39	1.8	468.71	1.8
466.09	1.5	467.41	1.8	468.73	1.8
466.11	**1.8**	467.43	1.8	468.75	1.8
466.13	1.8	467.45	1.8	468.77	1.8
466.15	1.8	467.47	1.8	468.79	1.8
466.17	1.8	467.49	1.8	468.81	1.8
466.19	1.8	467.51	1.8	468.83	1.8
466.21	1.8	467.53	1.8	468.85	1.8
466.23	1.8	467.55	1.8	468.87	1.8
466.25	1.8	467.57	1.8	468.89	1.8
466.27	1.8	467.59	1.8	468.91	1.8
466.29	1.8	467.61	1.8	468.93	1.8
466.31	1.8	467.63	1.8	468.95	1.8
466.33	1.8	467.65	1.8	468.97	1.8
466.35	1.8	467.67	1.8	468.99	1.8
466.37	1.8	467.69	1.8	469.01	1.8
466.39	1.8	467.71	1.8	469.03	1.8
466.41	1.8	467.73	1.8	469.05	1.8
466.43	1.8	467.75	1.8	469.07	1.8
466.45	1.8	467.77	1.8	469.09	1.8
466.47	1.8	467.79	1.8	469.11	1.8
466.49	1.8	467.81	1.8	469.13	1.8
466.51	1.8	467.83	1.8	469.15	1.8
466.53	1.8	467.85	1.8	469.17	1.8
466.55	1.8	467.87	1.8	469.19	1.8
466.57	1.8	467.89	1.8	469.21	1.8
466.59	1.8	467.91	1.8	469.23	1.8
466.61	1.8	467.93	1.8	469.25	1.8
466.63	1.8	467.95	1.8	469.27	1.8
466.65	1.8	467.97	1.8	469.29	1.8
466.67	1.8	467.99	1.8	469.31	1.8
466.69	1.8	468.01	1.8	469.33	1.8
466.71	1.8	468.03	1.8	469.35	1.8
466.73	1.8	468.05	1.8	469.37	1.8
466.75	1.8	468.07	1.8	469.39	1.8
466.77	1.8	468.09	1.8	469.41	1.8
466.79	1.8	468.11	1.8	469.43	1.8
466.81	1.8	468.13	1.8	469.45	1.8
466.83	1.8	468.15	1.8	469.47	1.8
466.85	1.8	468.17	1.8	469.49	1.8
466.87	1.8	468.19	1.8	469.51	1.8
466.89	1.8	468.21	1.8	469.53	1.8
466.91	1.8	468.23	1.8	469.55	1.8
466.93	1.8	468.25	1.8		
466.95	1.8	468.27	1.8		
466.97	1.8	468.29	1.8		
466.99	1.8	468.31	1.8		
467.01	1.8	468.33	1.8		
467.03	1.8	468.35	1.8		
467.05	1.8	468.37	1.8		
467.07	1.8	468.39	1.8		
467.09	1.8	468.41	1.8		
467.11	1.8	468.43	1.8		
467.13	1.8	468.45	1.8		
467.15	1.8	468.47	1.8		
467.17	1.8	468.49	1.8		
467.19	1.8	468.51	1.8		
467.21	1.8	468.53	1.8		
467.23	1.8	468.55	1.8		
467.25	1.8	468.57	1.8		
467.27	1.8	468.59	1.8		
467.29	1.8	468.61	1.8		
467.31	1.8	468.63	1.8		

Stage-Area-Storage for Pond INF 1.2: Infiltration System 1.2

Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
466.01	**0.076**	0.000	467.33	0.076	0.068	468.65	0.076	0.143
466.03	0.076	0.001	467.35	0.076	0.069	468.67	0.076	0.144
466.05	0.076	0.001	467.37	0.076	0.070	468.69	0.076	0.145
466.07	0.076	0.002	467.39	0.076	0.072	468.71	0.076	0.146
466.09	0.076	0.002	467.41	0.076	0.073	468.73	0.076	0.147
466.11	0.076	0.003	467.43	0.076	0.074	468.75	0.076	0.147
466.13	0.076	0.004	467.45	0.076	0.075	468.77	0.076	0.148
466.15	0.076	0.004	467.47	0.076	0.077	468.79	0.076	0.149
466.17	0.076	0.005	467.49	0.076	0.078	468.81	0.076	0.150
466.19	0.076	0.005	467.51	0.076	0.079	468.83	0.076	0.151
466.21	0.076	0.006	467.53	0.076	0.080	468.85	0.076	0.151
466.23	0.076	0.007	467.55	0.076	0.082	468.87	0.076	0.152
466.25	0.076	0.007	467.57	0.076	0.083	468.89	0.076	0.153
466.27	0.076	0.008	467.59	0.076	0.084	468.91	0.076	0.153
466.29	0.076	0.009	467.61	0.076	0.085	468.93	0.076	0.154
466.31	0.076	0.009	467.63	0.076	0.086	468.95	0.076	0.155
466.33	0.076	0.010	467.65	0.076	0.088	468.97	0.076	0.155
466.35	0.076	0.010	467.67	0.076	0.089	468.99	0.076	0.156
466.37	0.076	0.011	467.69	0.076	0.090	469.01	0.076	0.157
466.39	0.076	0.012	467.71	0.076	0.091	469.03	0.076	0.157
466.41	0.076	0.012	467.73	0.076	0.093	469.05	0.076	0.158
466.43	0.076	0.013	467.75	0.076	0.094	469.07	0.076	0.159
466.45	0.076	0.013	467.77	0.076	0.095	469.09	0.076	0.159
466.47	0.076	0.014	467.79	0.076	0.096	469.11	0.076	0.160
466.49	0.076	0.015	467.81	0.076	0.097	469.13	0.076	0.160
466.51	0.076	0.015	467.83	0.076	0.099	469.15	0.076	0.161
466.53	0.076	0.017	467.85	0.076	0.100	469.17	0.076	0.162
466.55	0.076	0.018	467.87	0.076	0.101	469.19	0.076	0.162
466.57	0.076	0.019	467.89	0.076	0.102	469.21	0.076	0.163
466.59	0.076	0.020	467.91	0.076	0.103	469.23	0.076	0.163
466.61	0.076	0.022	467.93	0.076	0.105	469.25	0.076	0.164
466.63	0.076	0.023	467.95	0.076	0.106	469.27	0.076	0.165
466.65	0.076	0.024	467.97	0.076	0.107	469.29	0.076	0.165
466.67	0.076	0.026	467.99	0.076	0.108	469.31	0.076	0.166
466.69	0.076	0.027	468.01	0.076	0.109	469.33	0.076	0.166
466.71	0.076	0.028	468.03	0.076	0.110	469.35	0.076	0.167
466.73	0.076	0.030	468.05	0.076	0.112	469.37	0.076	0.168
466.75	0.076	0.031	468.07	0.076	0.113	469.39	0.076	0.168
466.77	0.076	0.032	468.09	0.076	0.114	469.41	0.076	0.169
466.79	0.076	0.033	468.11	0.076	0.115	469.43	0.076	0.170
466.81	0.076	0.035	468.13	0.076	0.116	469.45	0.076	0.170
466.83	0.076	0.036	468.15	0.076	0.117	469.47	0.076	0.171
466.85	0.076	0.037	468.17	0.076	0.118	469.49	0.076	0.171
466.87	0.076	0.039	468.19	0.076	0.119	469.51	0.076	0.172
466.89	0.076	0.040	468.21	0.076	0.121	469.53	0.076	0.173
466.91	0.076	0.041	468.23	0.076	0.122	469.55	0.076	**0.173**
466.93	0.076	0.042	468.25	0.076	0.123			
466.95	0.076	0.044	468.27	0.076	0.124			
466.97	0.076	0.045	468.29	0.076	0.125			
466.99	0.076	0.046	468.31	0.076	0.126			
467.01	0.076	0.048	468.33	0.076	0.127			
467.03	0.076	0.049	468.35	0.076	0.128			
467.05	0.076	0.050	468.37	0.076	0.129			
467.07	0.076	0.051	468.39	0.076	0.130			
467.09	0.076	0.053	468.41	0.076	0.131			
467.11	0.076	0.054	468.43	0.076	0.132			
467.13	0.076	0.055	468.45	0.076	0.133			
467.15	0.076	0.057	468.47	0.076	0.134			
467.17	0.076	0.058	468.49	0.076	0.135			
467.19	0.076	0.059	468.51	0.076	0.136			
467.21	0.076	0.060	468.53	0.076	0.137			
467.23	0.076	0.062	468.55	0.076	0.138			
467.25	0.076	0.063	468.57	0.076	0.139			
467.27	0.076	0.064	468.59	0.076	0.140			
467.29	0.076	0.065	468.61	0.076	0.141			
467.31	0.076	0.067	468.63	0.076	0.142			

Summary for Pond INF 1.3: Infiltration System 1.3

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth = 2.60" for 1-yr event
Inflow = 0.1 cfs @ 12.04 hrs, Volume= 0.010 af
Outflow = 0.1 cfs @ 12.05 hrs, Volume= 0.010 af, Atten= 33%, Lag= 0.7 min
Discarded = 0.1 cfs @ 12.05 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 593.20' @ 12.11 hrs Surf.Area= 0.006 ac Storage= 0.001 af

Plug-Flow detention time= 2.3 min calculated for 0.010 af (100% of inflow)
Center-of-Mass det. time= 2.3 min (764.0 - 761.8)

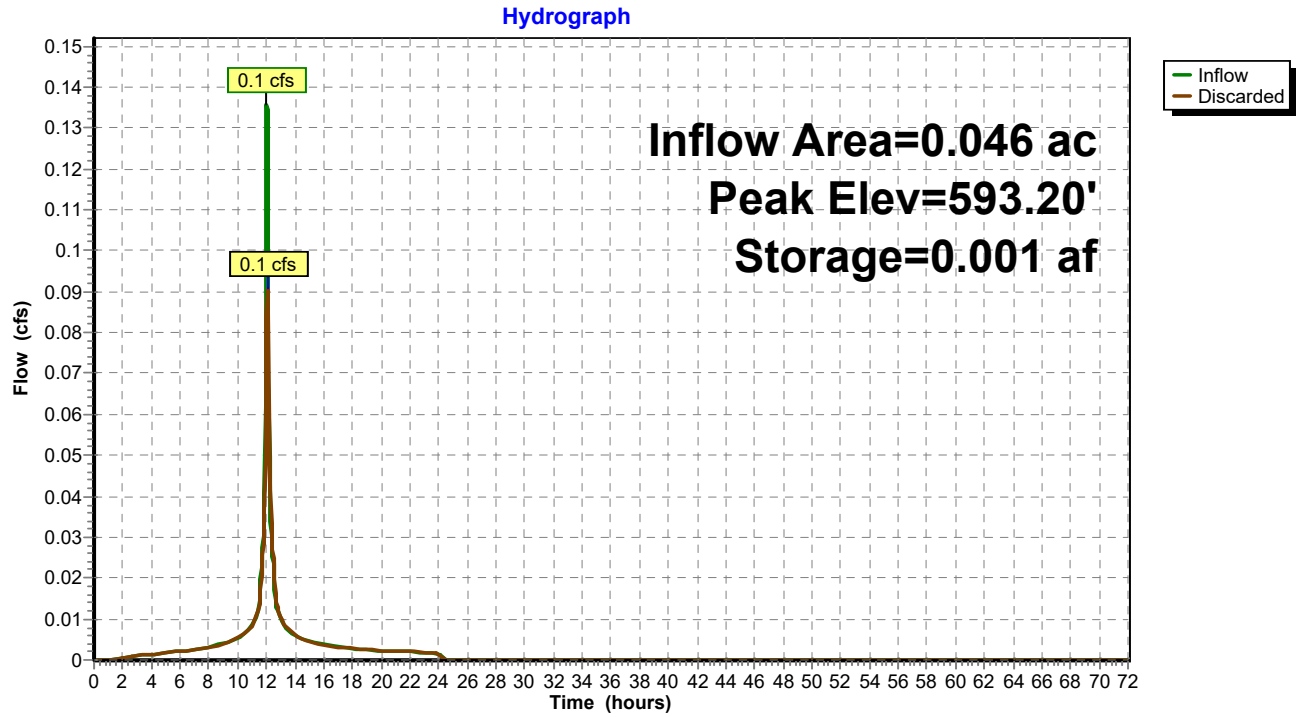
Volume	Invert	Avail.Storage	Storage Description
#1A	593.00'	0.006 af	**16.00'W x 17.50'L x 3.54'H Field A** 0.023 af Overall - 0.008 af Embedded = 0.015 af x 40.0% Voids
#2A	593.50'	0.008 af	**Cultec R-330XLHD** x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		0.014 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	593.00'	**14.000 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'

Discarded OutFlow Max=0.1 cfs @ 12.05 hrs HW=593.16' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.1 cfs)

Pond INF 1.3: Infiltration System 1.3



Stage-Discharge for Pond INF 1.3: Infiltration System 1.3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
593.00	0.0	594.32	0.1	595.64	0.1
593.02	0.0	594.34	0.1	595.66	0.1
593.04	0.0	594.36	0.1	595.68	0.1
593.06	0.1	594.38	0.1	595.70	0.1
593.08	0.1	594.40	0.1	595.72	0.1
593.10	**0.1**	594.42	0.1	595.74	0.1
593.12	0.1	594.44	0.1	595.76	0.1
593.14	0.1	594.46	0.1	595.78	0.1
593.16	0.1	594.48	0.1	595.80	0.1
593.18	0.1	594.50	0.1	595.82	0.1
593.20	0.1	594.52	0.1	595.84	0.1
593.22	0.1	594.54	0.1	595.86	0.1
593.24	0.1	594.56	0.1	595.88	0.1
593.26	0.1	594.58	0.1	595.90	0.1
593.28	0.1	594.60	0.1	595.92	0.1
593.30	0.1	594.62	0.1	595.94	0.1
593.32	0.1	594.64	0.1	595.96	0.1
593.34	0.1	594.66	0.1	595.98	0.1
593.36	0.1	594.68	0.1	596.00	0.1
593.38	0.1	594.70	0.1	596.02	0.1
593.40	0.1	594.72	0.1	596.04	0.1
593.42	0.1	594.74	0.1	596.06	0.1
593.44	0.1	594.76	0.1	596.08	0.1
593.46	0.1	594.78	0.1	596.10	0.1
593.48	0.1	594.80	0.1	596.12	0.1
593.50	0.1	594.82	0.1	596.14	0.1
593.52	0.1	594.84	0.1	596.16	0.1
593.54	0.1	594.86	0.1	596.18	0.1
593.56	0.1	594.88	0.1	596.20	0.1
593.58	0.1	594.90	0.1	596.22	0.1
593.60	0.1	594.92	0.1	596.24	0.1
593.62	0.1	594.94	0.1	596.26	0.1
593.64	0.1	594.96	0.1	596.28	0.1
593.66	0.1	594.98	0.1	596.30	0.1
593.68	0.1	595.00	0.1	596.32	0.1
593.70	0.1	595.02	0.1	596.34	0.1
593.72	0.1	595.04	0.1	596.36	0.1
593.74	0.1	595.06	0.1	596.38	0.1
593.76	0.1	595.08	0.1	596.40	0.1
593.78	0.1	595.10	0.1	596.42	0.1
593.80	0.1	595.12	0.1	596.44	0.1
593.82	0.1	595.14	0.1	596.46	0.1
593.84	0.1	595.16	0.1	596.48	0.1
593.86	0.1	595.18	0.1	596.50	0.1
593.88	0.1	595.20	0.1	596.52	0.1
593.90	0.1	595.22	0.1	596.54	0.1
593.92	0.1	595.24	0.1		
593.94	0.1	595.26	0.1		
593.96	0.1	595.28	0.1		
593.98	0.1	595.30	0.1		
594.00	0.1	595.32	0.1		
594.02	0.1	595.34	0.1		
594.04	0.1	595.36	0.1		
594.06	0.1	595.38	0.1		
594.08	0.1	595.40	0.1		
594.10	0.1	595.42	0.1		
594.12	0.1	595.44	0.1		
594.14	0.1	595.46	0.1		
594.16	0.1	595.48	0.1		
594.18	0.1	595.50	0.1		
594.20	0.1	595.52	0.1		
594.22	0.1	595.54	0.1		
594.24	0.1	595.56	0.1		
594.26	0.1	595.58	0.1		
594.28	0.1	595.60	0.1		
594.30	0.1	595.62	0.1		

Stage-Area-Storage for Pond INF 1.3: Infiltration System 1.3

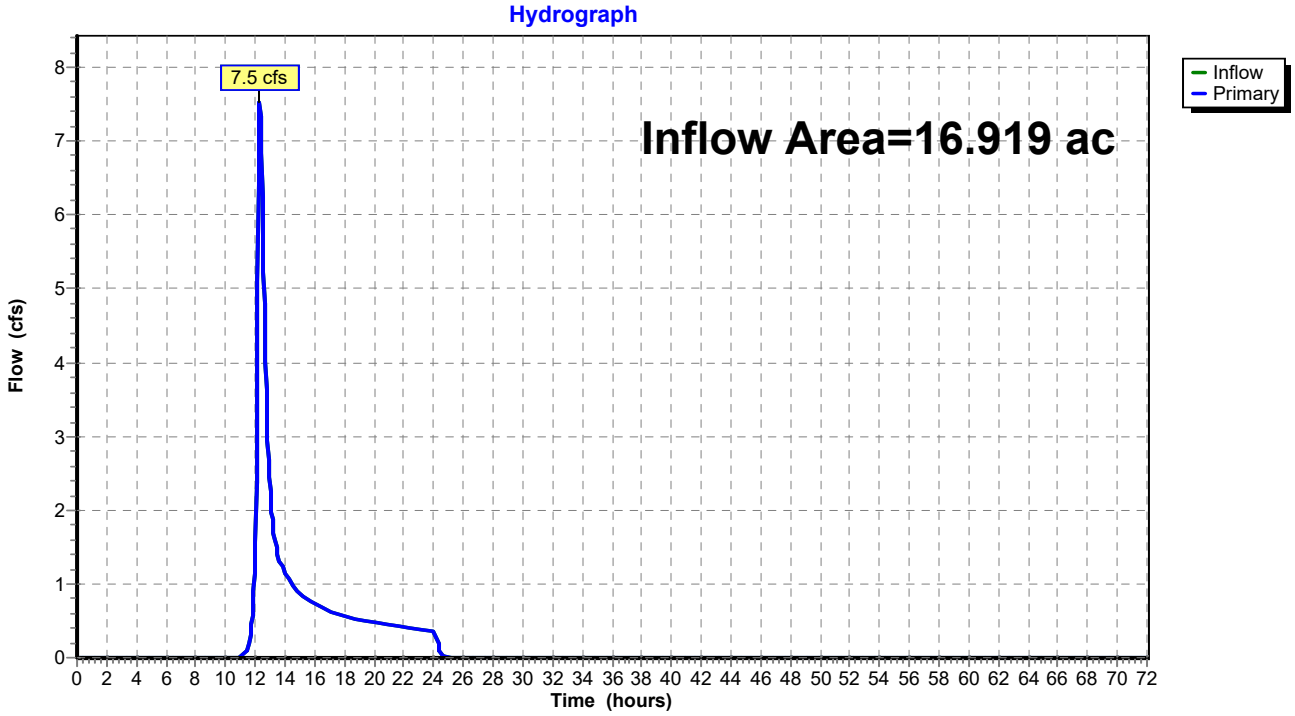
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
593.00	**0.006**	0.000	594.32	0.006	0.005	595.64	0.006	0.011
593.02	0.006	0.000	594.34	0.006	0.006	595.66	0.006	0.011
593.04	0.006	0.000	594.36	0.006	0.006	595.68	0.006	0.011
593.06	0.006	0.000	594.38	0.006	0.006	595.70	0.006	0.012
593.08	0.006	0.000	594.40	0.006	0.006	595.72	0.006	0.012
593.10	0.006	0.000	594.42	0.006	0.006	595.74	0.006	0.012
593.12	0.006	0.000	594.44	0.006	0.006	595.76	0.006	0.012
593.14	0.006	0.000	594.46	0.006	0.006	595.78	0.006	0.012
593.16	0.006	0.000	594.48	0.006	0.006	595.80	0.006	0.012
593.18	0.006	0.000	594.50	0.006	0.006	595.82	0.006	0.012
593.20	0.006	0.001	594.52	0.006	0.006	595.84	0.006	0.012
593.22	0.006	0.001	594.54	0.006	0.006	595.86	0.006	0.012
593.24	0.006	0.001	594.56	0.006	0.007	595.88	0.006	0.012
593.26	0.006	0.001	594.58	0.006	0.007	595.90	0.006	0.012
593.28	0.006	0.001	594.60	0.006	0.007	595.92	0.006	0.012
593.30	0.006	0.001	594.62	0.006	0.007	595.94	0.006	0.012
593.32	0.006	0.001	594.64	0.006	0.007	595.96	0.006	0.012
593.34	0.006	0.001	594.66	0.006	0.007	595.98	0.006	0.012
593.36	0.006	0.001	594.68	0.006	0.007	596.00	0.006	0.012
593.38	0.006	0.001	594.70	0.006	0.007	596.02	0.006	0.013
593.40	0.006	0.001	594.72	0.006	0.007	596.04	0.006	0.013
593.42	0.006	0.001	594.74	0.006	0.007	596.06	0.006	0.013
593.44	0.006	0.001	594.76	0.006	0.008	596.08	0.006	0.013
593.46	0.006	0.001	594.78	0.006	0.008	596.10	0.006	0.013
593.48	0.006	0.001	594.80	0.006	0.008	596.12	0.006	0.013
593.50	0.006	0.001	594.82	0.006	0.008	596.14	0.006	0.013
593.52	0.006	0.001	594.84	0.006	0.008	596.16	0.006	0.013
593.54	0.006	0.001	594.86	0.006	0.008	596.18	0.006	0.013
593.56	0.006	0.002	594.88	0.006	0.008	596.20	0.006	0.013
593.58	0.006	0.002	594.90	0.006	0.008	596.22	0.006	0.013
593.60	0.006	0.002	594.92	0.006	0.008	596.24	0.006	0.013
593.62	0.006	0.002	594.94	0.006	0.008	596.26	0.006	0.013
593.64	0.006	0.002	594.96	0.006	0.008	596.28	0.006	0.013
593.66	0.006	0.002	594.98	0.006	0.009	596.30	0.006	0.013
593.68	0.006	0.002	595.00	0.006	0.009	596.32	0.006	0.013
593.70	0.006	0.002	595.02	0.006	0.009	596.34	0.006	0.013
593.72	0.006	0.002	595.04	0.006	0.009	596.36	0.006	0.013
593.74	0.006	0.003	595.06	0.006	0.009	596.38	0.006	0.013
593.76	0.006	0.003	595.08	0.006	0.009	596.40	0.006	0.014
593.78	0.006	0.003	595.10	0.006	0.009	596.42	0.006	0.014
593.80	0.006	0.003	595.12	0.006	0.009	596.44	0.006	0.014
593.82	0.006	0.003	595.14	0.006	0.009	596.46	0.006	0.014
593.84	0.006	0.003	595.16	0.006	0.009	596.48	0.006	0.014
593.86	0.006	0.003	595.18	0.006	0.009	596.50	0.006	0.014
593.88	0.006	0.003	595.20	0.006	0.010	596.52	0.006	0.014
593.90	0.006	0.003	595.22	0.006	0.010	596.54	0.006	**0.014**
593.92	0.006	0.003	595.24	0.006	0.010			
593.94	0.006	0.004	595.26	0.006	0.010			
593.96	0.006	0.004	595.28	0.006	0.010			
593.98	0.006	0.004	595.30	0.006	0.010			
594.00	0.006	0.004	595.32	0.006	0.010			
594.02	0.006	0.004	595.34	0.006	0.010			
594.04	0.006	0.004	595.36	0.006	0.010			
594.06	0.006	0.004	595.38	0.006	0.010			
594.08	0.006	0.004	595.40	0.006	0.010			
594.10	0.006	0.004	595.42	0.006	0.010			
594.12	0.006	0.004	595.44	0.006	0.011			
594.14	0.006	0.005	595.46	0.006	0.011			
594.16	0.006	0.005	595.48	0.006	0.011			
594.18	0.006	0.005	595.50	0.006	0.011			
594.20	0.006	0.005	595.52	0.006	0.011			
594.22	0.006	0.005	595.54	0.006	0.011			
594.24	0.006	0.005	595.56	0.006	0.011			
594.26	0.006	0.005	595.58	0.006	0.011			
594.28	0.006	0.005	595.60	0.006	0.011			
594.30	0.006	0.005	595.62	0.006	0.011			

Summary for Link DP: Design Point

Inflow Area = 16.919 ac, 6.14% Impervious, Inflow Depth = 0.72" for 1-yr event
Inflow = 7.5 cfs @ 12.31 hrs, Volume= 1.019 af
Primary = 7.5 cfs @ 12.31 hrs, Volume= 1.019 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP: Design Point



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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

Subcatchment1.0S: 1.0S Runoff Area=705,538 sf 4.54% Impervious Runoff Depth=2.34"
Flow Length=1,585' Tc=23.5 min CN=73 Runoff=24.8 cfs 3.163 af

Subcatchment1.1S: 1.1S Runoff Area=31,450 sf 42.00% Impervious Runoff Depth=3.15"
Tc=6.0 min CN=82 Runoff=2.6 cfs 0.190 af

Subcatchment1.2S: 1.2S Runoff Area=45,619 sf 69.42% Impervious Runoff Depth=4.06"
Tc=6.0 min CN=91 Runoff=4.7 cfs 0.354 af

Subcatchment1.3S: 1.3S Runoff Area=2,000 sf 100.00% Impervious Runoff Depth=4.84"
Tc=6.0 min CN=98 Runoff=0.2 cfs 0.019 af

Pond 1.1P: Infiltration Basin 1.1 Peak Elev=453.96' Storage=2,030 cf Inflow=2.6 cfs 0.190 af
Discarded=0.6 cfs 0.190 af Primary=0.0 cfs 0.000 af Secondary=0.0 cfs 0.000 af Outflow=0.6 cfs 0.190 af

Pond DS1.2: Diversion Structure 1.2 Peak Elev=469.81' Inflow=4.7 cfs 0.354 af
Primary=2.8 cfs 0.338 af Secondary=1.9 cfs 0.016 af Outflow=4.7 cfs 0.354 af

Pond DS1.3: Diversion Structure 1.3 Peak Elev=593.61' Inflow=0.2 cfs 0.019 af
Primary=0.2 cfs 0.019 af Secondary=0.0 cfs 0.000 af Outflow=0.2 cfs 0.019 af

Pond INF 1.2: Infiltration System 1.2 Peak Elev=466.56' Storage=0.019 af Inflow=2.8 cfs 0.338 af
Outflow=1.8 cfs 0.338 af

Pond INF 1.3: Infiltration System 1.3 Peak Elev=593.58' Storage=0.002 af Inflow=0.2 cfs 0.019 af
Outflow=0.1 cfs 0.019 af

Link DP: Design Point Inflow=24.8 cfs 3.179 af
Primary=24.8 cfs 3.179 af

Summary for Subcatchment 1.0S: 1.0S

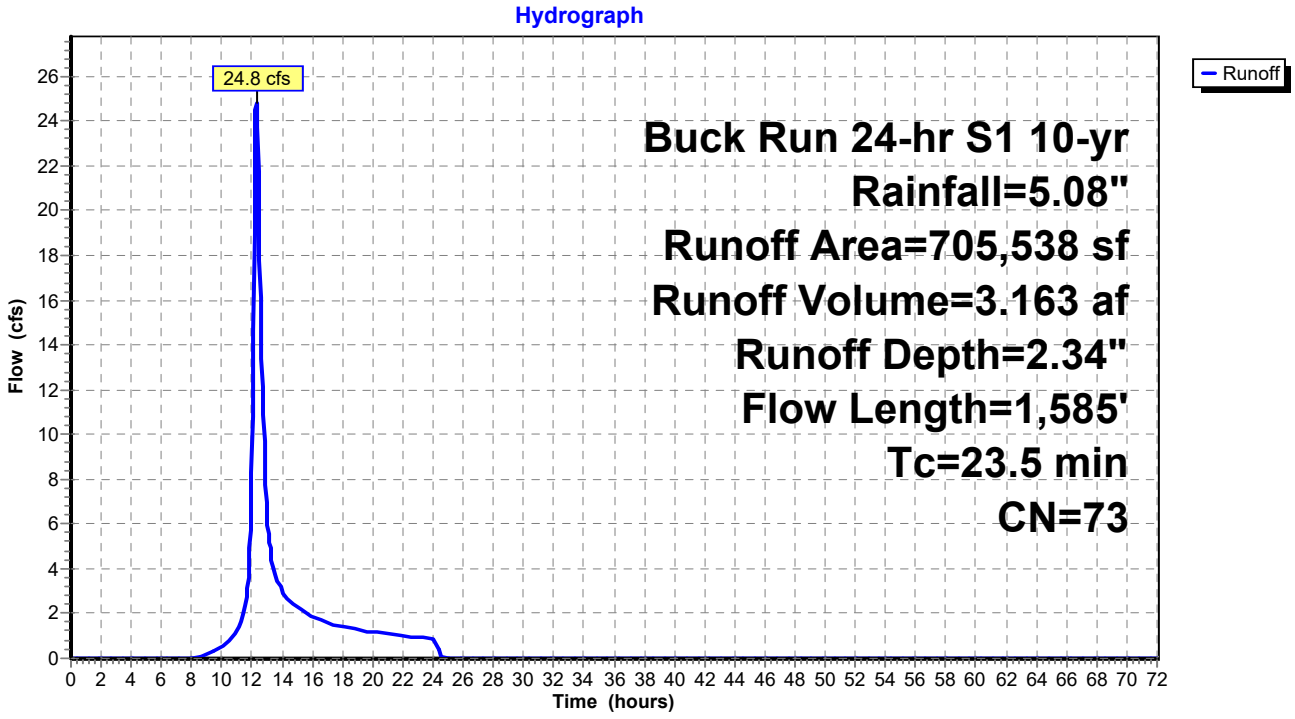
Runoff = 24.8 cfs @ 12.29 hrs, Volume= 3.163 af, Depth= 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 10-yr Rainfall=5.08"

	Area (sf)	CN	Description
*	18,932	98	Existing Pavement
*	6,135	98	Existing Buildings
	5,607	87	Dirt roads, HSG C
*	6,970	98	Proposed Pavement
*	1,405	61	Existing>75% Grass cover, Good, HSG B
*	3,457	80	Proposed >75% Grass cover, Good, HSG D
*	3,083	61	Proposed >75% Grass cover, Good, HSG B
*	2,900	74	Existing >75% Grass cover, Good, HSG C
*	17,714	74	Proposed >75% Grass cover, Good, HSG C
	13,520	89	Gravel roads, HSG C
	22,115	55	Woods, Good, HSG B
	417,935	70	Woods, Good, HSG C
	150,505	77	Woods, Good, HSG D
	35,260	71	Meadow, non-grazed, HSG C
	705,538	73	Weighted Average
	673,501		95.46% Pervious Area
	32,037		4.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
12.1	1,485	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.5	1,585	Total			

Subcatchment 1.0S: 1.0S



Summary for Subcatchment 1.1S: 1.1S

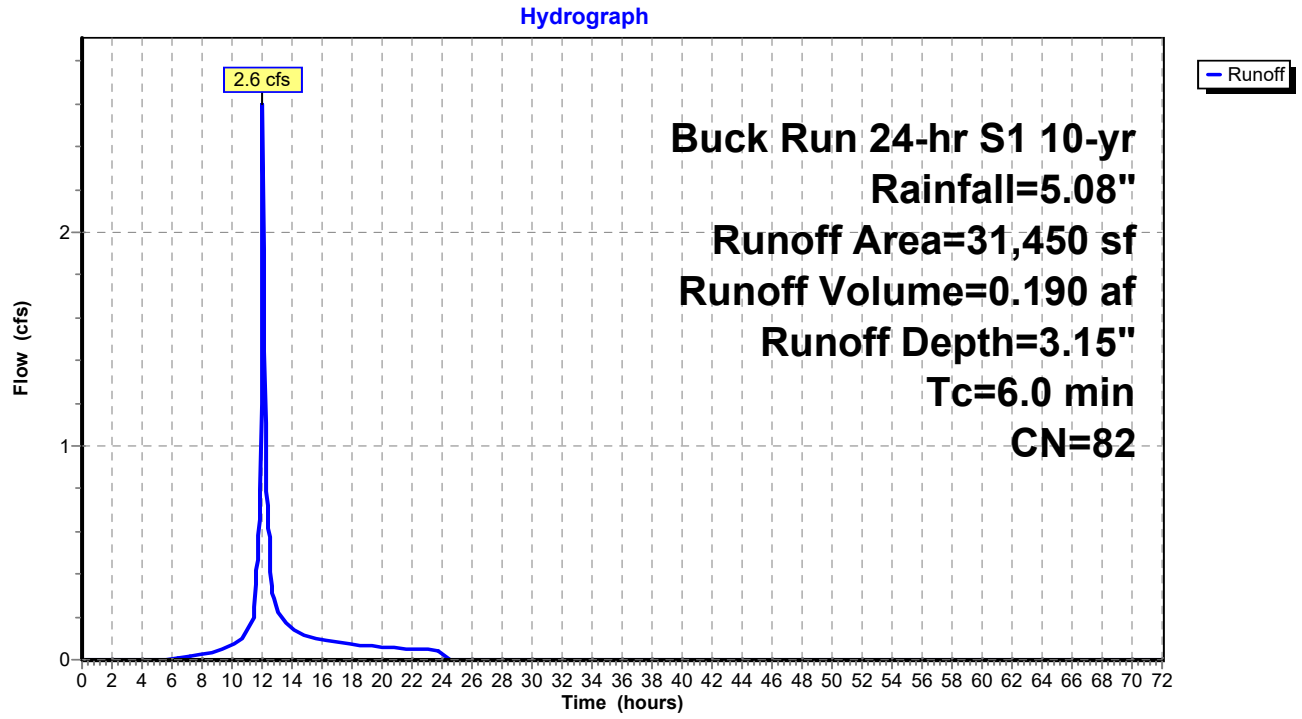
Runoff = 2.6 cfs @ 12.04 hrs, Volume= 0.190 af, Depth= 3.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 10-yr Rainfall=5.08"

	Area (sf)	CN	Description
*	12,870	98	Proposed Pavement
*	340	98	Proposed Sidewalk
	5,235	61	>75% Grass cover, Good, HSG B
	13,005	74	>75% Grass cover, Good, HSG C
	31,450	82	Weighted Average
	18,240		58.00% Pervious Area
	13,210		42.00% Impervious Area

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

Subcatchment 1.1S: 1.1S



Summary for Subcatchment 1.2S: 1.2S

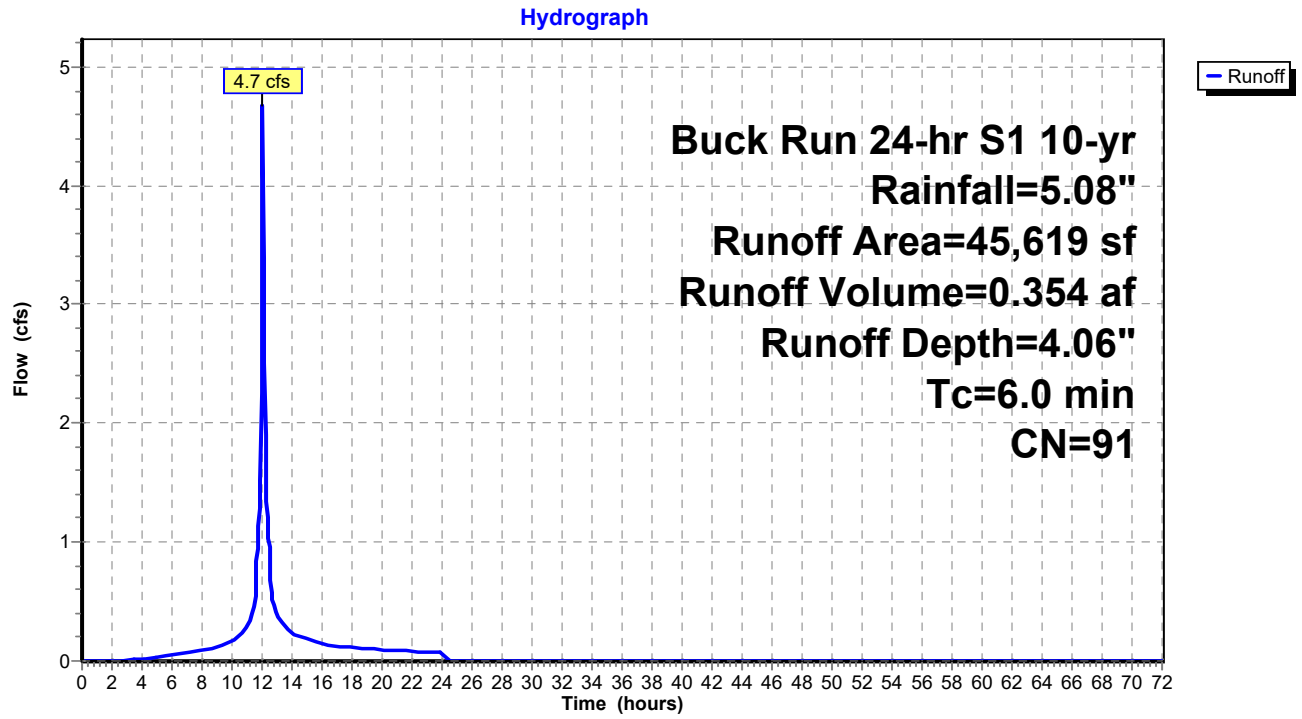
Runoff = 4.7 cfs @ 12.04 hrs, Volume= 0.354 af, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 10-yr Rainfall=5.08"

	Area (sf)	CN	Description
*	24,985	98	Proposed Pavement & Walkway
*	4,815	98	Proposed Building
	10,849	74	>75% Grass cover, Good, HSG C
*	1,870	98	Proposed Courtyard Imp
	3,100	74	>75% Grass cover, Good, HSG C
	45,619	91	Weighted Average
	13,949		30.58% Pervious Area
	31,670		69.42% Impervious Area

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

Subcatchment 1.2S: 1.2S



Summary for Subcatchment 1.3S: 1.3S

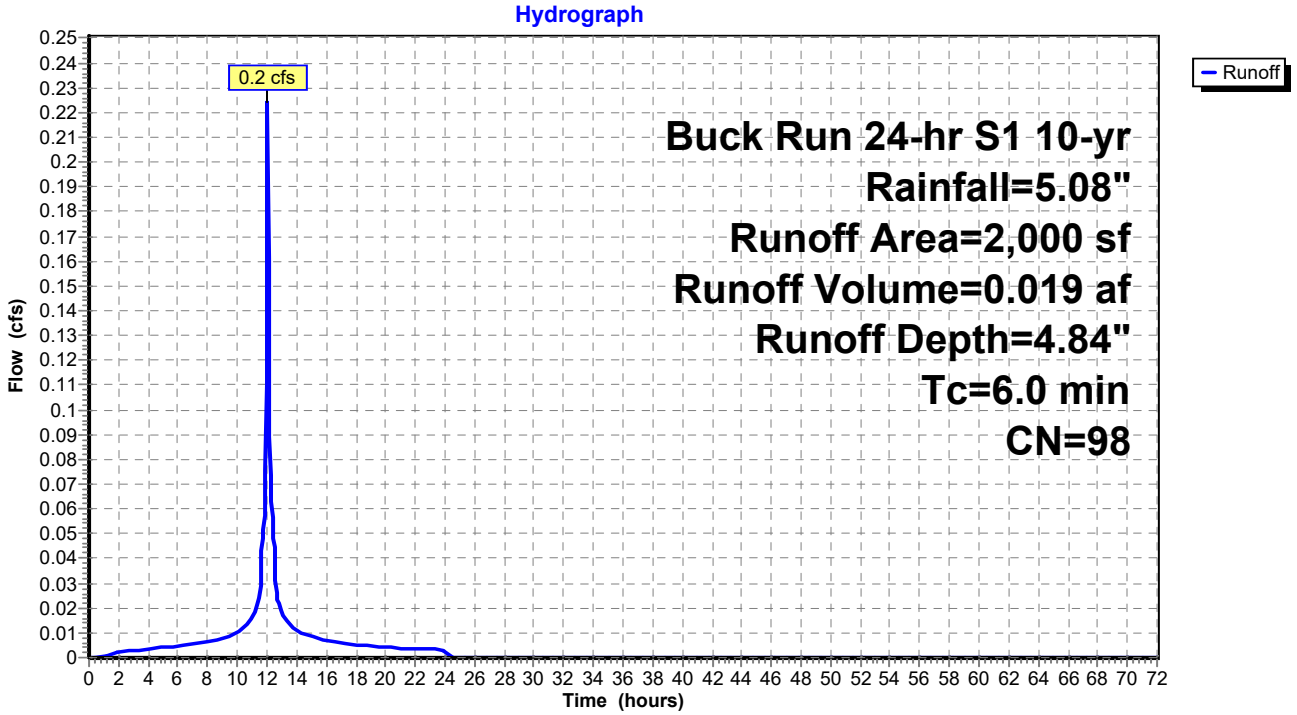
Runoff = 0.2 cfs @ 12.04 hrs, Volume= 0.019 af, Depth= 4.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 10-yr Rainfall=5.08"

	Area (sf)	CN	Description
*	2,000	98	Proposed Pods and Facilities
	2,000		100.00% Impervious Area

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

Subcatchment 1.3S: 1.3S



Summary for Pond 1.1P: Infiltration Basin 1.1

Inflow Area = 0.722 ac, 42.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 2.6 cfs @ 12.04 hrs, Volume= 0.190 af
Outflow = 0.6 cfs @ 12.45 hrs, Volume= 0.190 af, Atten= 76%, Lag= 24.2 min
Discarded = 0.6 cfs @ 12.45 hrs, Volume= 0.190 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 453.96' @ 12.45 hrs Surf.Area= 1,336 sf Storage= 2,030 cf

Plug-Flow detention time= 27.6 min calculated for 0.189 af (100% of inflow)
Center-of-Mass det. time= 27.6 min (860.1 - 832.5)

Volume	Invert	Avail.Storage	Storage Description
#1	451.00'	9,077 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
451.00	125	0	0
452.00	447	286	286
454.00	1,356	1,803	2,089
456.00	2,634	3,990	6,079
457.00	3,362	2,998	9,077

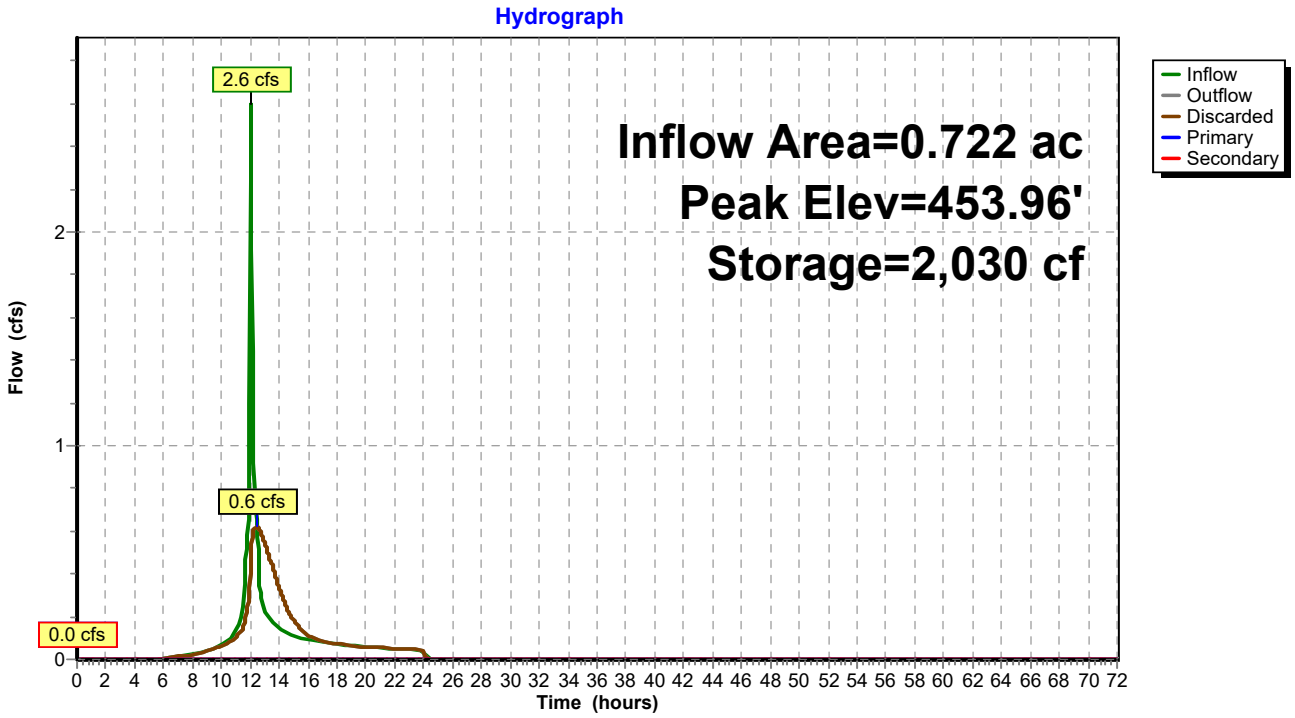
Device	Routing	Invert	Outlet Devices
#1	Primary	450.30'	**12.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 450.30' / 449.50' S= 0.0138 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	454.75'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	455.50'	**30.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	451.00'	**20.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#5	Secondary	456.00'	**10.0' 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

Discarded OutFlow Max=0.6 cfs @ 12.45 hrs HW=453.96' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.6 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=451.00' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.0 cfs of 1.7 cfs potential flow)
  └**2=Orifice/Grate** (Controls 0.0 cfs)
  └**3=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=451.00' TW=0.00' (Dynamic Tailwater)
└**5=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1.1P: Infiltration Basin 1.1



Stage-Discharge for Pond 1.1P: Infiltration Basin 1.1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
451.00	0.0	0.0	0.0	0.0
451.10	0.1	0.1	0.0	0.0
451.20	0.1	0.1	0.0	0.0
451.30	0.1	0.1	0.0	0.0
451.40	0.1	0.1	0.0	0.0
451.50	0.1	0.1	0.0	0.0
451.60	0.1	0.1	0.0	0.0
451.70	0.2	0.2	0.0	0.0
451.80	0.2	0.2	0.0	0.0
451.90	0.2	0.2	0.0	0.0
452.00	0.2	0.2	0.0	0.0
452.10	0.2	0.2	0.0	0.0
452.20	0.2	0.2	0.0	0.0
452.30	0.3	0.3	0.0	0.0
452.40	0.3	0.3	0.0	0.0
452.50	0.3	0.3	0.0	0.0
452.60	0.3	0.3	0.0	0.0
452.70	0.4	0.4	0.0	0.0
452.80	0.4	0.4	0.0	0.0
452.90	0.4	0.4	0.0	0.0
453.00	0.4	0.4	0.0	0.0
453.10	0.4	0.4	0.0	0.0
453.20	0.5	0.5	0.0	0.0
453.30	0.5	0.5	0.0	0.0
453.40	0.5	0.5	0.0	0.0
453.50	0.5	0.5	0.0	0.0
453.60	0.5	0.5	0.0	0.0
453.70	0.6	0.6	0.0	0.0
453.80	0.6	0.6	0.0	0.0
453.90	0.6	0.6	0.0	0.0
454.00	0.6	0.6	0.0	0.0
454.10	0.7	0.7	0.0	0.0
454.20	0.7	0.7	0.0	0.0
454.30	0.7	0.7	0.0	0.0
454.40	0.7	0.7	0.0	0.0
454.50	0.8	0.8	0.0	0.0
454.60	0.8	0.8	0.0	0.0
454.70	0.8	0.8	0.0	0.0
454.80	0.9	0.9	0.0	0.0
454.90	0.9	0.9	0.1	0.0
455.00	1.0	0.9	0.1	0.0
455.10	1.1	1.0	0.2	0.0
455.20	1.2	1.0	0.2	0.0
455.30	1.3	1.0	0.3	0.0
455.40	1.3	1.0	0.3	0.0
455.50	1.4	1.1	0.3	0.0
455.60	2.8	1.1	1.7	0.0
455.70	5.3	1.1	4.2	0.0
455.80	8.5	1.2	7.4	0.0
455.90	9.2	1.2	8.0	0.0
456.00	9.3	1.2	8.1	0.0
456.10	10.2	1.3	8.2	0.8
456.20	11.8	1.3	8.3	2.2
456.30	13.8	1.3	8.3	4.1
456.40	16.2	1.4	8.4	6.5
456.50	19.2	1.4	8.5	9.3
456.60	22.5	1.4	8.5	12.5
456.70	25.9	1.5	8.6	15.8
456.80	29.4	1.5	8.7	19.2
456.90	33.2	1.5	8.7	22.9
457.00	**37.2**	**1.6**	**8.8**	**26.8**

Stage-Area-Storage for Pond 1.1P: Infiltration Basin 1.1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
451.00	125	0
451.10	157	14
451.20	189	31
451.30	222	52
451.40	254	76
451.50	286	103
451.60	318	133
451.70	350	166
451.80	383	203
451.90	415	243
452.00	447	286
452.10	492	333
452.20	538	384
452.30	583	441
452.40	629	501
452.50	674	566
452.60	720	636
452.70	765	710
452.80	811	789
452.90	856	872
453.00	902	960
453.10	947	1,053
453.20	992	1,150
453.30	1,038	1,251
453.40	1,083	1,357
453.50	1,129	1,468
453.60	1,174	1,583
453.70	1,220	1,703
453.80	1,265	1,827
453.90	1,311	1,956
454.00	1,356	2,089
454.10	1,420	2,228
454.20	1,484	2,373
454.30	1,548	2,525
454.40	1,612	2,683
454.50	1,676	2,847
454.60	1,739	3,018
454.70	1,803	3,195
454.80	1,867	3,378
454.90	1,931	3,568
455.00	1,995	3,765
455.10	2,059	3,967
455.20	2,123	4,176
455.30	2,187	4,392
455.40	2,251	4,614
455.50	2,315	4,842
455.60	2,378	5,077
455.70	2,442	5,318
455.80	2,506	5,565
455.90	2,570	5,819
456.00	2,634	6,079
456.10	2,707	6,346
456.20	2,780	6,620
456.30	2,852	6,902
456.40	2,925	7,191
456.50	2,998	7,487
456.60	3,071	7,790
456.70	3,144	8,101
456.80	3,216	8,419
456.90	3,289	8,744
457.00	**3,362**	**9,077**

Summary for Pond DS1.2: Diversion Structure 1.2

Inflow Area = 1.047 ac, 69.42% Impervious, Inflow Depth = 4.06" for 10-yr event
Inflow = 4.7 cfs @ 12.04 hrs, Volume= 0.354 af
Outflow = 4.7 cfs @ 12.04 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min
Primary = 2.8 cfs @ 12.04 hrs, Volume= 0.338 af
Secondary = 1.9 cfs @ 12.04 hrs, Volume= 0.016 af

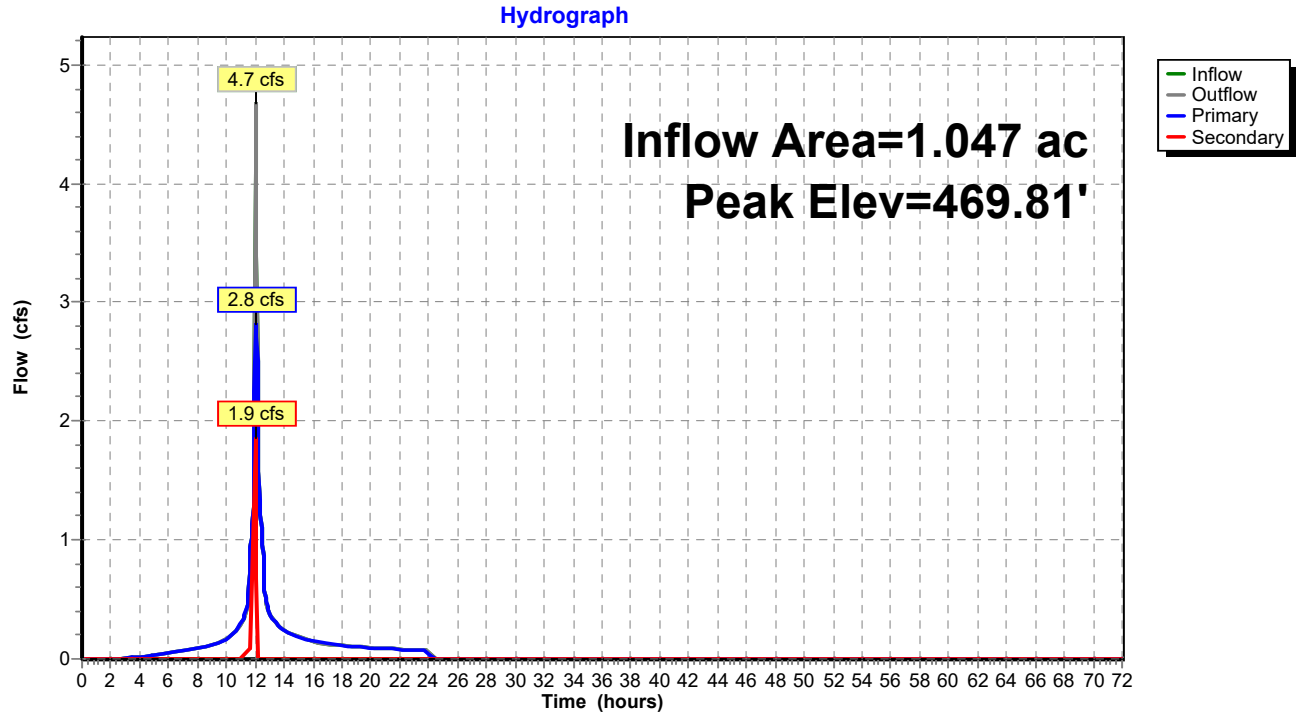
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 469.81' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	466.67'	**8.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 466.67' / 466.60' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 3	469.35'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Secondary	462.28'	**8.0" Round Culvert** L= 103.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 462.28' / 448.16' S= 0.1371 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=2.8 cfs @ 12.04 hrs HW=469.79' TW=466.31' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.8 cfs @ 8.03 fps)

Secondary OutFlow Max=1.7 cfs @ 12.04 hrs HW=469.79' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Passes 1.7 cfs of 4.5 cfs potential flow)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.7 cfs @ 1.96 fps)

Pond DS1.2: Diversion Structure 1.2



Stage-Discharge for Pond DS1.2: Diversion Structure 1.2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
462.28	0.0	0.0	0.0
462.38	0.0	0.0	0.0
462.48	0.0	0.0	0.0
462.58	0.0	0.0	0.0
462.68	0.0	0.0	0.0
462.78	0.0	0.0	0.0
462.88	0.0	0.0	0.0
462.98	0.0	0.0	0.0
463.08	0.0	0.0	0.0
463.18	0.0	0.0	0.0
463.28	0.0	0.0	0.0
463.38	0.0	0.0	0.0
463.48	0.0	0.0	0.0
463.58	0.0	0.0	0.0
463.68	0.0	0.0	0.0
463.78	0.0	0.0	0.0
463.88	0.0	0.0	0.0
463.98	0.0	0.0	0.0
464.08	0.0	0.0	0.0
464.18	0.0	0.0	0.0
464.28	0.0	0.0	0.0
464.38	0.0	0.0	0.0
464.48	0.0	0.0	0.0
464.58	0.0	0.0	0.0
464.68	0.0	0.0	0.0
464.78	0.0	0.0	0.0
464.88	0.0	0.0	0.0
464.98	0.0	0.0	0.0
465.08	0.0	0.0	0.0
465.18	0.0	0.0	0.0
465.28	0.0	0.0	0.0
465.38	0.0	0.0	0.0
465.48	0.0	0.0	0.0
465.58	0.0	0.0	0.0
465.68	0.0	0.0	0.0
465.78	0.0	0.0	0.0
465.88	0.0	0.0	0.0
465.98	0.0	0.0	0.0
466.08	0.0	0.0	0.0
466.18	0.0	0.0	0.0
466.28	0.0	0.0	0.0
466.38	0.0	0.0	0.0
466.48	0.0	0.0	0.0
466.58	0.0	0.0	0.0
466.68	0.0	0.0	0.0
466.78	0.0	0.0	0.0
466.88	0.1	0.1	0.0
466.98	0.2	0.2	0.0
467.08	0.4	0.4	0.0
467.18	0.6	0.6	0.0
467.28	0.7	0.7	0.0
467.38	0.9	0.9	0.0
467.48	1.1	1.1	0.0
467.58	1.2	1.2	0.0
467.68	1.3	1.3	0.0
467.78	1.5	1.5	0.0
467.88	1.6	1.6	0.0
467.98	1.7	1.7	0.0
468.08	1.7	1.7	0.0
468.18	1.8	1.8	0.0
468.28	1.9	1.9	0.0
468.38	2.0	2.0	0.0
468.48	2.0	2.0	0.0
468.58	2.1	2.1	0.0
468.68	2.2	2.2	0.0
468.78	2.2	2.2	0.0
468.88	2.3	2.3	0.0
468.98	2.4	2.4	0.0
469.08	2.4	2.4	0.0
469.18	2.5	2.5	0.0
469.28	2.5	2.5	0.0
469.38	2.6	2.6	0.0
469.48	2.9	2.6	0.3
469.58	3.3	2.7	0.6
469.68	3.8	2.7	1.1
469.78	**4.5**	**2.8**	**1.7**

Stage-Area-Storage for Pond DS1.2: Diversion Structure 1.2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
462.28	**0**	464.92	0	467.56	0
462.32	0	464.96	0	467.60	0
462.36	0	465.00	0	467.64	0
462.40	0	465.04	0	467.68	0
462.44	0	465.08	0	467.72	0
462.48	0	465.12	0	467.76	0
462.52	0	465.16	0	467.80	0
462.56	0	465.20	0	467.84	0
462.60	0	465.24	0	467.88	0
462.64	0	465.28	0	467.92	0
462.68	0	465.32	0	467.96	0
462.72	0	465.36	0	468.00	0
462.76	0	465.40	0	468.04	0
462.80	0	465.44	0	468.08	0
462.84	0	465.48	0	468.12	0
462.88	0	465.52	0	468.16	0
462.92	0	465.56	0	468.20	0
462.96	0	465.60	0	468.24	0
463.00	0	465.64	0	468.28	0
463.04	0	465.68	0	468.32	0
463.08	0	465.72	0	468.36	0
463.12	0	465.76	0	468.40	0
463.16	0	465.80	0	468.44	0
463.20	0	465.84	0	468.48	0
463.24	0	465.88	0	468.52	0
463.28	0	465.92	0	468.56	0
463.32	0	465.96	0	468.60	0
463.36	0	466.00	0	468.64	0
463.40	0	466.04	0	468.68	0
463.44	0	466.08	0	468.72	0
463.48	0	466.12	0	468.76	0
463.52	0	466.16	0	468.80	0
463.56	0	466.20	0	468.84	0
463.60	0	466.24	0	468.88	0
463.64	0	466.28	0	468.92	0
463.68	0	466.32	0	468.96	0
463.72	0	466.36	0	469.00	0
463.76	0	466.40	0	469.04	0
463.80	0	466.44	0	469.08	0
463.84	0	466.48	0	469.12	0
463.88	0	466.52	0	469.16	0
463.92	0	466.56	0	469.20	0
463.96	0	466.60	0	469.24	0
464.00	0	466.64	0	469.28	0
464.04	0	466.68	0	469.32	0
464.08	0	466.72	0	469.36	0
464.12	0	466.76	0	469.40	0
464.16	0	466.80	0	469.44	0
464.20	0	466.84	0	469.48	0
464.24	0	466.88	0	469.52	0
464.28	0	466.92	0	469.56	0
464.32	0	466.96	0	469.60	0
464.36	0	467.00	0	469.64	0
464.40	0	467.04	0	469.68	0
464.44	0	467.08	0	469.72	0
464.48	0	467.12	0	469.76	0
464.52	0	467.16	0	469.80	0
464.56	0	467.20	0	469.84	0
464.60	0	467.24	0		
464.64	0	467.28	0		
464.68	0	467.32	0		
464.72	0	467.36	0		
464.76	0	467.40	0		
464.80	0	467.44	0		
464.84	0	467.48	0		
464.88	0	467.52	0		

Summary for Pond DS1.3: Diversion Structure 1.3

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth = 4.84" for 10-yr event
Inflow = 0.2 cfs @ 12.04 hrs, Volume= 0.019 af
Outflow = 0.2 cfs @ 12.04 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.04 hrs, Volume= 0.019 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

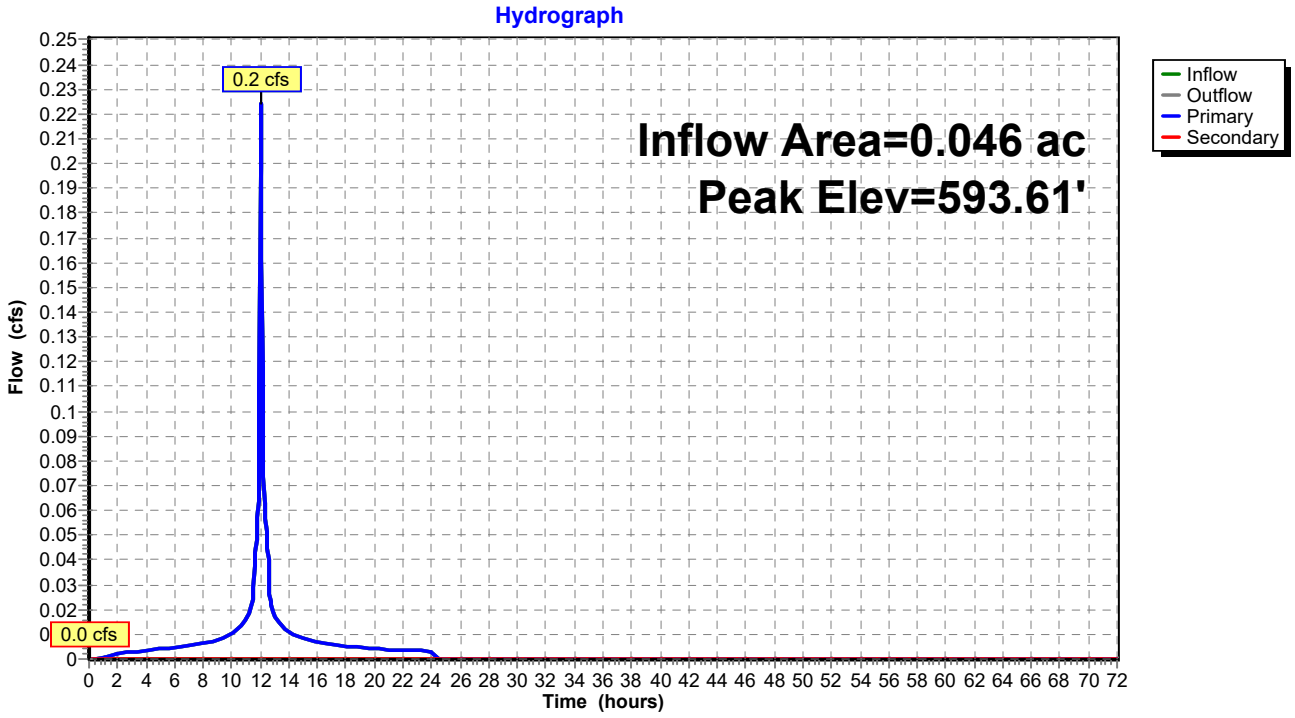
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 593.61' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	593.10'	**4.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 593.10' / 593.00' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Secondary	595.20'	**8.0" Round Culvert** L= 154.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 595.20' / 590.00' S= 0.0338 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.2 cfs @ 12.04 hrs HW=593.55' TW=593.35' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.2 cfs @ 2.14 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=593.10' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Controls 0.0 cfs)

Pond DS1.3: Diversion Structure 1.3



Stage-Discharge for Pond DS1.3: Diversion Structure 1.3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
593.10	0.0	0.0	0.0
593.15	0.0	0.0	0.0
593.20	0.0	0.0	0.0
593.25	0.0	0.0	0.0
593.30	0.1	0.1	0.0
593.35	0.1	0.1	0.0
593.40	0.1	0.1	0.0
593.45	0.2	0.2	0.0
593.50	0.2	0.2	0.0
593.55	0.2	0.2	0.0
593.60	0.2	0.2	0.0
593.65	0.3	0.3	0.0
593.70	0.3	0.3	0.0
593.75	0.3	0.3	0.0
593.80	0.3	0.3	0.0
593.85	0.3	0.3	0.0
593.90	0.3	0.3	0.0
593.95	0.3	0.3	0.0
594.00	0.4	0.4	0.0
594.05	0.4	0.4	0.0
594.10	0.4	0.4	0.0
594.15	0.4	0.4	0.0
594.20	0.4	0.4	0.0
594.25	0.4	0.4	0.0
594.30	0.4	0.4	0.0
594.35	0.4	0.4	0.0
594.40	0.4	0.4	0.0
594.45	0.5	0.5	0.0
594.50	0.5	0.5	0.0
594.55	0.5	0.5	0.0
594.60	0.5	0.5	0.0
594.65	0.5	0.5	0.0
594.70	0.5	0.5	0.0
594.75	0.5	0.5	0.0
594.80	0.5	0.5	0.0
594.85	0.5	0.5	0.0
594.90	0.5	0.5	0.0
594.95	0.5	0.5	0.0
595.00	0.6	0.6	0.0
595.05	0.6	0.6	0.0
595.10	0.6	0.6	0.0
595.15	0.6	0.6	0.0
595.20	0.6	0.6	0.0
595.25	0.6	0.6	0.0
595.30	0.6	0.6	0.0
595.35	0.7	0.6	0.1
595.40	0.7	0.6	0.1
595.45	0.8	0.6	0.2
595.50	0.9	0.6	0.3
595.55	1.0	0.6	0.4
595.60	1.1	0.6	0.5
595.65	1.2	0.6	0.6
595.70	1.3	0.7	0.7
595.75	1.4	0.7	0.8
595.80	1.5	0.7	0.9
595.85	**1.6**	**0.7**	**1.0**

Stage-Area-Storage for Pond DS1.3: Diversion Structure 1.3

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
593.10	**0**	594.42	0	595.74	0
593.12	0	594.44	0	595.76	0
593.14	0	594.46	0	595.78	0
593.16	0	594.48	0	595.80	0
593.18	0	594.50	0	595.82	0
593.20	0	594.52	0	595.84	0
593.22	0	594.54	0	595.86	0
593.24	0	594.56	0		
593.26	0	594.58	0		
593.28	0	594.60	0		
593.30	0	594.62	0		
593.32	0	594.64	0		
593.34	0	594.66	0		
593.36	0	594.68	0		
593.38	0	594.70	0		
593.40	0	594.72	0		
593.42	0	594.74	0		
593.44	0	594.76	0		
593.46	0	594.78	0		
593.48	0	594.80	0		
593.50	0	594.82	0		
593.52	0	594.84	0		
593.54	0	594.86	0		
593.56	0	594.88	0		
593.58	0	594.90	0		
593.60	0	594.92	0		
593.62	0	594.94	0		
593.64	0	594.96	0		
593.66	0	594.98	0		
593.68	0	595.00	0		
593.70	0	595.02	0		
593.72	0	595.04	0		
593.74	0	595.06	0		
593.76	0	595.08	0		
593.78	0	595.10	0		
593.80	0	595.12	0		
593.82	0	595.14	0		
593.84	0	595.16	0		
593.86	0	595.18	0		
593.88	0	595.20	0		
593.90	0	595.22	0		
593.92	0	595.24	0		
593.94	0	595.26	0		
593.96	0	595.28	0		
593.98	0	595.30	0		
594.00	0	595.32	0		
594.02	0	595.34	0		
594.04	0	595.36	0		
594.06	0	595.38	0		
594.08	0	595.40	0		
594.10	0	595.42	0		
594.12	0	595.44	0		
594.14	0	595.46	0		
594.16	0	595.48	0		
594.18	0	595.50	0		
594.20	0	595.52	0		
594.22	0	595.54	0		
594.24	0	595.56	0		
594.26	0	595.58	0		
594.28	0	595.60	0		
594.30	0	595.62	0		
594.32	0	595.64	0		
594.34	0	595.66	0		
594.36	0	595.68	0		
594.38	0	595.70	0		
594.40	0	595.72	0		

Summary for Pond INF 1.2: Infiltration System 1.2

Inflow Area = 1.047 ac, 69.42% Impervious, Inflow Depth = 3.88" for 10-yr event
Inflow = 2.8 cfs @ 12.04 hrs, Volume= 0.338 af
Outflow = 1.8 cfs @ 11.95 hrs, Volume= 0.338 af, Atten= 35%, Lag= 0.0 min
Discarded = 1.8 cfs @ 11.95 hrs, Volume= 0.338 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 466.56' @ 12.21 hrs Surf.Area= 0.076 ac Storage= 0.019 af

Plug-Flow detention time= 2.1 min calculated for 0.338 af (100% of inflow)
Center-of-Mass det. time= 2.1 min (801.0 - 798.8)

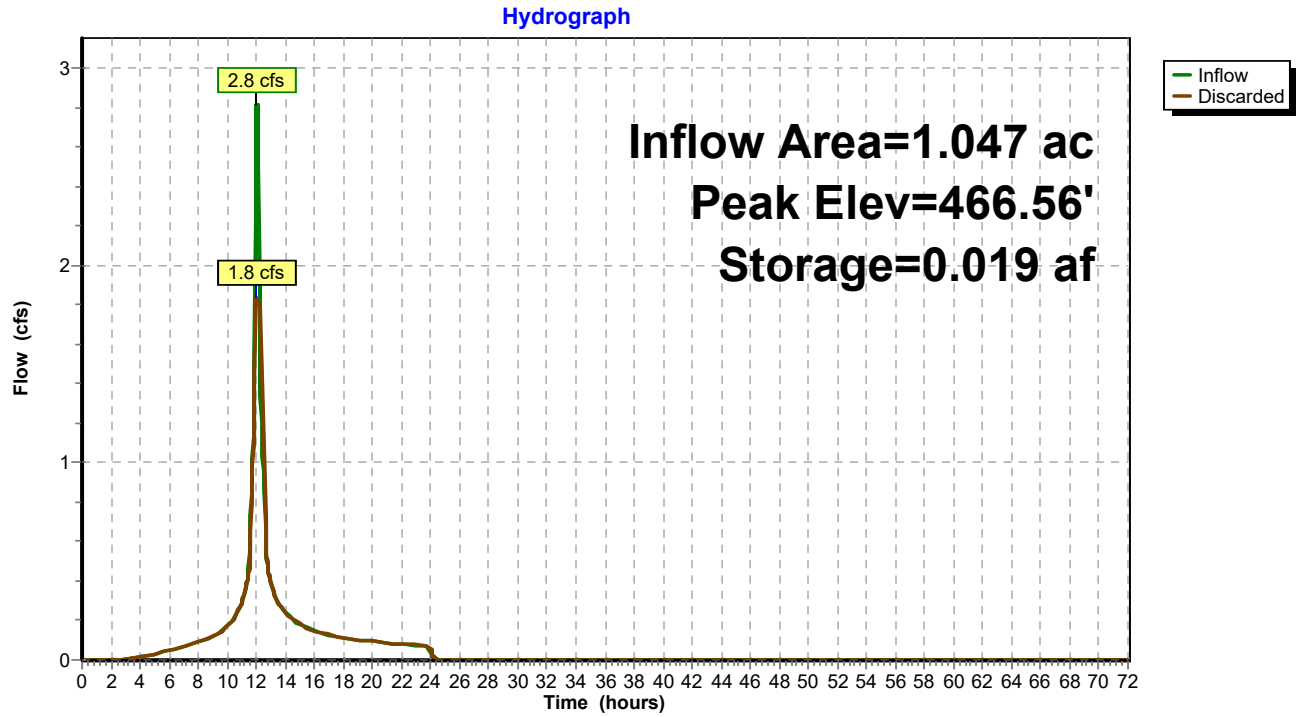
Volume	Invert	Avail.Storage	Storage Description
#1A	466.01'	0.064 af	**30.50'W x 108.50'L x 3.54'H Field A** 0.269 af Overall - 0.109 af Embedded = 0.160 af x 40.0% Voids
#2A	466.51'	0.109 af	**Cultec R-330XLHD** x 90 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
		0.173 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	466.01'	**24.000 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'

Discarded OutFlow Max=1.8 cfs @ 11.95 hrs HW=466.12' (Free Discharge)
1=Exfiltration (Exfiltration Controls 1.8 cfs)

Pond INF 1.2: Infiltration System 1.2



Stage-Discharge for Pond INF 1.2: Infiltration System 1.2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
466.01	0.0	467.33	1.8	468.65	1.8
466.03	0.4	467.35	1.8	468.67	1.8
466.05	0.7	467.37	1.8	468.69	1.8
466.07	1.1	467.39	1.8	468.71	1.8
466.09	1.5	467.41	1.8	468.73	1.8
466.11	**1.8**	467.43	1.8	468.75	1.8
466.13	1.8	467.45	1.8	468.77	1.8
466.15	1.8	467.47	1.8	468.79	1.8
466.17	1.8	467.49	1.8	468.81	1.8
466.19	1.8	467.51	1.8	468.83	1.8
466.21	1.8	467.53	1.8	468.85	1.8
466.23	1.8	467.55	1.8	468.87	1.8
466.25	1.8	467.57	1.8	468.89	1.8
466.27	1.8	467.59	1.8	468.91	1.8
466.29	1.8	467.61	1.8	468.93	1.8
466.31	1.8	467.63	1.8	468.95	1.8
466.33	1.8	467.65	1.8	468.97	1.8
466.35	1.8	467.67	1.8	468.99	1.8
466.37	1.8	467.69	1.8	469.01	1.8
466.39	1.8	467.71	1.8	469.03	1.8
466.41	1.8	467.73	1.8	469.05	1.8
466.43	1.8	467.75	1.8	469.07	1.8
466.45	1.8	467.77	1.8	469.09	1.8
466.47	1.8	467.79	1.8	469.11	1.8
466.49	1.8	467.81	1.8	469.13	1.8
466.51	1.8	467.83	1.8	469.15	1.8
466.53	1.8	467.85	1.8	469.17	1.8
466.55	1.8	467.87	1.8	469.19	1.8
466.57	1.8	467.89	1.8	469.21	1.8
466.59	1.8	467.91	1.8	469.23	1.8
466.61	1.8	467.93	1.8	469.25	1.8
466.63	1.8	467.95	1.8	469.27	1.8
466.65	1.8	467.97	1.8	469.29	1.8
466.67	1.8	467.99	1.8	469.31	1.8
466.69	1.8	468.01	1.8	469.33	1.8
466.71	1.8	468.03	1.8	469.35	1.8
466.73	1.8	468.05	1.8	469.37	1.8
466.75	1.8	468.07	1.8	469.39	1.8
466.77	1.8	468.09	1.8	469.41	1.8
466.79	1.8	468.11	1.8	469.43	1.8
466.81	1.8	468.13	1.8	469.45	1.8
466.83	1.8	468.15	1.8	469.47	1.8
466.85	1.8	468.17	1.8	469.49	1.8
466.87	1.8	468.19	1.8	469.51	1.8
466.89	1.8	468.21	1.8	469.53	1.8
466.91	1.8	468.23	1.8	469.55	1.8
466.93	1.8	468.25	1.8		
466.95	1.8	468.27	1.8		
466.97	1.8	468.29	1.8		
466.99	1.8	468.31	1.8		
467.01	1.8	468.33	1.8		
467.03	1.8	468.35	1.8		
467.05	1.8	468.37	1.8		
467.07	1.8	468.39	1.8		
467.09	1.8	468.41	1.8		
467.11	1.8	468.43	1.8		
467.13	1.8	468.45	1.8		
467.15	1.8	468.47	1.8		
467.17	1.8	468.49	1.8		
467.19	1.8	468.51	1.8		
467.21	1.8	468.53	1.8		
467.23	1.8	468.55	1.8		
467.25	1.8	468.57	1.8		
467.27	1.8	468.59	1.8		
467.29	1.8	468.61	1.8		
467.31	1.8	468.63	1.8		

Stage-Area-Storage for Pond INF 1.2: Infiltration System 1.2

Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
466.01	**0.076**	0.000	467.33	0.076	0.068	468.65	0.076	0.143
466.03	0.076	0.001	467.35	0.076	0.069	468.67	0.076	0.144
466.05	0.076	0.001	467.37	0.076	0.070	468.69	0.076	0.145
466.07	0.076	0.002	467.39	0.076	0.072	468.71	0.076	0.146
466.09	0.076	0.002	467.41	0.076	0.073	468.73	0.076	0.147
466.11	0.076	0.003	467.43	0.076	0.074	468.75	0.076	0.147
466.13	0.076	0.004	467.45	0.076	0.075	468.77	0.076	0.148
466.15	0.076	0.004	467.47	0.076	0.077	468.79	0.076	0.149
466.17	0.076	0.005	467.49	0.076	0.078	468.81	0.076	0.150
466.19	0.076	0.005	467.51	0.076	0.079	468.83	0.076	0.151
466.21	0.076	0.006	467.53	0.076	0.080	468.85	0.076	0.151
466.23	0.076	0.007	467.55	0.076	0.082	468.87	0.076	0.152
466.25	0.076	0.007	467.57	0.076	0.083	468.89	0.076	0.153
466.27	0.076	0.008	467.59	0.076	0.084	468.91	0.076	0.153
466.29	0.076	0.009	467.61	0.076	0.085	468.93	0.076	0.154
466.31	0.076	0.009	467.63	0.076	0.086	468.95	0.076	0.155
466.33	0.076	0.010	467.65	0.076	0.088	468.97	0.076	0.155
466.35	0.076	0.010	467.67	0.076	0.089	468.99	0.076	0.156
466.37	0.076	0.011	467.69	0.076	0.090	469.01	0.076	0.157
466.39	0.076	0.012	467.71	0.076	0.091	469.03	0.076	0.157
466.41	0.076	0.012	467.73	0.076	0.093	469.05	0.076	0.158
466.43	0.076	0.013	467.75	0.076	0.094	469.07	0.076	0.159
466.45	0.076	0.013	467.77	0.076	0.095	469.09	0.076	0.159
466.47	0.076	0.014	467.79	0.076	0.096	469.11	0.076	0.160
466.49	0.076	0.015	467.81	0.076	0.097	469.13	0.076	0.160
466.51	0.076	0.015	467.83	0.076	0.099	469.15	0.076	0.161
466.53	0.076	0.017	467.85	0.076	0.100	469.17	0.076	0.162
466.55	0.076	0.018	467.87	0.076	0.101	469.19	0.076	0.162
466.57	0.076	0.019	467.89	0.076	0.102	469.21	0.076	0.163
466.59	0.076	0.020	467.91	0.076	0.103	469.23	0.076	0.163
466.61	0.076	0.022	467.93	0.076	0.105	469.25	0.076	0.164
466.63	0.076	0.023	467.95	0.076	0.106	469.27	0.076	0.165
466.65	0.076	0.024	467.97	0.076	0.107	469.29	0.076	0.165
466.67	0.076	0.026	467.99	0.076	0.108	469.31	0.076	0.166
466.69	0.076	0.027	468.01	0.076	0.109	469.33	0.076	0.166
466.71	0.076	0.028	468.03	0.076	0.110	469.35	0.076	0.167
466.73	0.076	0.030	468.05	0.076	0.112	469.37	0.076	0.168
466.75	0.076	0.031	468.07	0.076	0.113	469.39	0.076	0.168
466.77	0.076	0.032	468.09	0.076	0.114	469.41	0.076	0.169
466.79	0.076	0.033	468.11	0.076	0.115	469.43	0.076	0.170
466.81	0.076	0.035	468.13	0.076	0.116	469.45	0.076	0.170
466.83	0.076	0.036	468.15	0.076	0.117	469.47	0.076	0.171
466.85	0.076	0.037	468.17	0.076	0.118	469.49	0.076	0.171
466.87	0.076	0.039	468.19	0.076	0.119	469.51	0.076	0.172
466.89	0.076	0.040	468.21	0.076	0.121	469.53	0.076	0.173
466.91	0.076	0.041	468.23	0.076	0.122	469.55	0.076	**0.173**
466.93	0.076	0.042	468.25	0.076	0.123			
466.95	0.076	0.044	468.27	0.076	0.124			
466.97	0.076	0.045	468.29	0.076	0.125			
466.99	0.076	0.046	468.31	0.076	0.126			
467.01	0.076	0.048	468.33	0.076	0.127			
467.03	0.076	0.049	468.35	0.076	0.128			
467.05	0.076	0.050	468.37	0.076	0.129			
467.07	0.076	0.051	468.39	0.076	0.130			
467.09	0.076	0.053	468.41	0.076	0.131			
467.11	0.076	0.054	468.43	0.076	0.132			
467.13	0.076	0.055	468.45	0.076	0.133			
467.15	0.076	0.057	468.47	0.076	0.134			
467.17	0.076	0.058	468.49	0.076	0.135			
467.19	0.076	0.059	468.51	0.076	0.136			
467.21	0.076	0.060	468.53	0.076	0.137			
467.23	0.076	0.062	468.55	0.076	0.138			
467.25	0.076	0.063	468.57	0.076	0.139			
467.27	0.076	0.064	468.59	0.076	0.140			
467.29	0.076	0.065	468.61	0.076	0.141			
467.31	0.076	0.067	468.63	0.076	0.142			

Summary for Pond INF 1.3: Infiltration System 1.3

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth = 4.84" for 10-yr event
Inflow = 0.2 cfs @ 12.04 hrs, Volume= 0.019 af
Outflow = 0.1 cfs @ 12.00 hrs, Volume= 0.019 af, Atten= 60%, Lag= 0.0 min
Discarded = 0.1 cfs @ 12.00 hrs, Volume= 0.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 593.58' @ 12.20 hrs Surf.Area= 0.006 ac Storage= 0.002 af

Plug-Flow detention time= 4.0 min calculated for 0.019 af (100% of inflow)
Center-of-Mass det. time= 4.0 min (752.8 - 748.8)

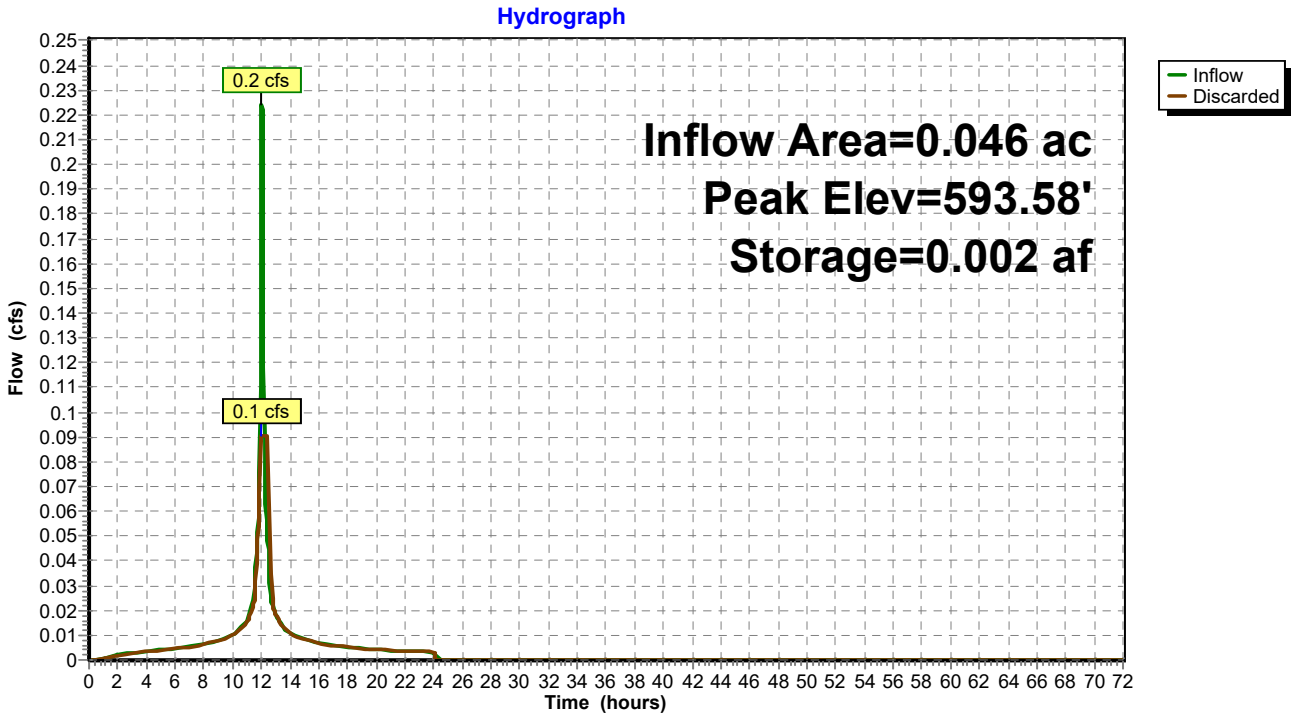
Volume	Invert	Avail.Storage	Storage Description
#1A	593.00'	0.006 af	**16.00'W x 17.50'L x 3.54'H Field A** 0.023 af Overall - 0.008 af Embedded = 0.015 af x 40.0% Voids
#2A	593.50'	0.008 af	**Cultec R-330XLHD** x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		0.014 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	593.00'	**14.000 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'

Discarded OutFlow Max=0.1 cfs @ 12.00 hrs HW=593.20' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.1 cfs)

Pond INF 1.3: Infiltration System 1.3



Stage-Discharge for Pond INF 1.3: Infiltration System 1.3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
593.00	0.0	594.32	0.1	595.64	0.1
593.02	0.0	594.34	0.1	595.66	0.1
593.04	0.0	594.36	0.1	595.68	0.1
593.06	0.1	594.38	0.1	595.70	0.1
593.08	0.1	594.40	0.1	595.72	0.1
593.10	**0.1**	594.42	0.1	595.74	0.1
593.12	0.1	594.44	0.1	595.76	0.1
593.14	0.1	594.46	0.1	595.78	0.1
593.16	0.1	594.48	0.1	595.80	0.1
593.18	0.1	594.50	0.1	595.82	0.1
593.20	0.1	594.52	0.1	595.84	0.1
593.22	0.1	594.54	0.1	595.86	0.1
593.24	0.1	594.56	0.1	595.88	0.1
593.26	0.1	594.58	0.1	595.90	0.1
593.28	0.1	594.60	0.1	595.92	0.1
593.30	0.1	594.62	0.1	595.94	0.1
593.32	0.1	594.64	0.1	595.96	0.1
593.34	0.1	594.66	0.1	595.98	0.1
593.36	0.1	594.68	0.1	596.00	0.1
593.38	0.1	594.70	0.1	596.02	0.1
593.40	0.1	594.72	0.1	596.04	0.1
593.42	0.1	594.74	0.1	596.06	0.1
593.44	0.1	594.76	0.1	596.08	0.1
593.46	0.1	594.78	0.1	596.10	0.1
593.48	0.1	594.80	0.1	596.12	0.1
593.50	0.1	594.82	0.1	596.14	0.1
593.52	0.1	594.84	0.1	596.16	0.1
593.54	0.1	594.86	0.1	596.18	0.1
593.56	0.1	594.88	0.1	596.20	0.1
593.58	0.1	594.90	0.1	596.22	0.1
593.60	0.1	594.92	0.1	596.24	0.1
593.62	0.1	594.94	0.1	596.26	0.1
593.64	0.1	594.96	0.1	596.28	0.1
593.66	0.1	594.98	0.1	596.30	0.1
593.68	0.1	595.00	0.1	596.32	0.1
593.70	0.1	595.02	0.1	596.34	0.1
593.72	0.1	595.04	0.1	596.36	0.1
593.74	0.1	595.06	0.1	596.38	0.1
593.76	0.1	595.08	0.1	596.40	0.1
593.78	0.1	595.10	0.1	596.42	0.1
593.80	0.1	595.12	0.1	596.44	0.1
593.82	0.1	595.14	0.1	596.46	0.1
593.84	0.1	595.16	0.1	596.48	0.1
593.86	0.1	595.18	0.1	596.50	0.1
593.88	0.1	595.20	0.1	596.52	0.1
593.90	0.1	595.22	0.1	596.54	0.1
593.92	0.1	595.24	0.1		
593.94	0.1	595.26	0.1		
593.96	0.1	595.28	0.1		
593.98	0.1	595.30	0.1		
594.00	0.1	595.32	0.1		
594.02	0.1	595.34	0.1		
594.04	0.1	595.36	0.1		
594.06	0.1	595.38	0.1		
594.08	0.1	595.40	0.1		
594.10	0.1	595.42	0.1		
594.12	0.1	595.44	0.1		
594.14	0.1	595.46	0.1		
594.16	0.1	595.48	0.1		
594.18	0.1	595.50	0.1		
594.20	0.1	595.52	0.1		
594.22	0.1	595.54	0.1		
594.24	0.1	595.56	0.1		
594.26	0.1	595.58	0.1		
594.28	0.1	595.60	0.1		
594.30	0.1	595.62	0.1		

Stage-Area-Storage for Pond INF 1.3: Infiltration System 1.3

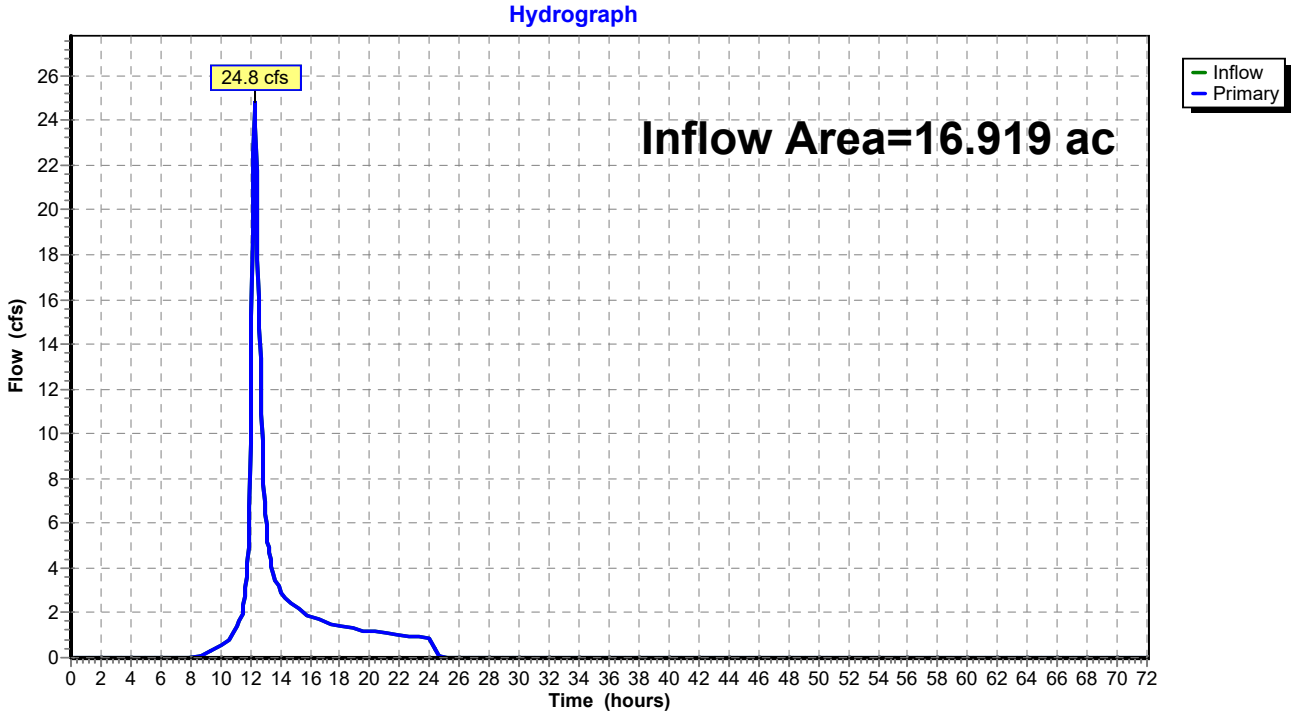
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
593.00	**0.006**	0.000	594.32	0.006	0.005	595.64	0.006	0.011
593.02	0.006	0.000	594.34	0.006	0.006	595.66	0.006	0.011
593.04	0.006	0.000	594.36	0.006	0.006	595.68	0.006	0.011
593.06	0.006	0.000	594.38	0.006	0.006	595.70	0.006	0.012
593.08	0.006	0.000	594.40	0.006	0.006	595.72	0.006	0.012
593.10	0.006	0.000	594.42	0.006	0.006	595.74	0.006	0.012
593.12	0.006	0.000	594.44	0.006	0.006	595.76	0.006	0.012
593.14	0.006	0.000	594.46	0.006	0.006	595.78	0.006	0.012
593.16	0.006	0.000	594.48	0.006	0.006	595.80	0.006	0.012
593.18	0.006	0.000	594.50	0.006	0.006	595.82	0.006	0.012
593.20	0.006	0.001	594.52	0.006	0.006	595.84	0.006	0.012
593.22	0.006	0.001	594.54	0.006	0.006	595.86	0.006	0.012
593.24	0.006	0.001	594.56	0.006	0.007	595.88	0.006	0.012
593.26	0.006	0.001	594.58	0.006	0.007	595.90	0.006	0.012
593.28	0.006	0.001	594.60	0.006	0.007	595.92	0.006	0.012
593.30	0.006	0.001	594.62	0.006	0.007	595.94	0.006	0.012
593.32	0.006	0.001	594.64	0.006	0.007	595.96	0.006	0.012
593.34	0.006	0.001	594.66	0.006	0.007	595.98	0.006	0.012
593.36	0.006	0.001	594.68	0.006	0.007	596.00	0.006	0.012
593.38	0.006	0.001	594.70	0.006	0.007	596.02	0.006	0.013
593.40	0.006	0.001	594.72	0.006	0.007	596.04	0.006	0.013
593.42	0.006	0.001	594.74	0.006	0.007	596.06	0.006	0.013
593.44	0.006	0.001	594.76	0.006	0.008	596.08	0.006	0.013
593.46	0.006	0.001	594.78	0.006	0.008	596.10	0.006	0.013
593.48	0.006	0.001	594.80	0.006	0.008	596.12	0.006	0.013
593.50	0.006	0.001	594.82	0.006	0.008	596.14	0.006	0.013
593.52	0.006	0.001	594.84	0.006	0.008	596.16	0.006	0.013
593.54	0.006	0.001	594.86	0.006	0.008	596.18	0.006	0.013
593.56	0.006	0.002	594.88	0.006	0.008	596.20	0.006	0.013
593.58	0.006	0.002	594.90	0.006	0.008	596.22	0.006	0.013
593.60	0.006	0.002	594.92	0.006	0.008	596.24	0.006	0.013
593.62	0.006	0.002	594.94	0.006	0.008	596.26	0.006	0.013
593.64	0.006	0.002	594.96	0.006	0.008	596.28	0.006	0.013
593.66	0.006	0.002	594.98	0.006	0.009	596.30	0.006	0.013
593.68	0.006	0.002	595.00	0.006	0.009	596.32	0.006	0.013
593.70	0.006	0.002	595.02	0.006	0.009	596.34	0.006	0.013
593.72	0.006	0.002	595.04	0.006	0.009	596.36	0.006	0.013
593.74	0.006	0.003	595.06	0.006	0.009	596.38	0.006	0.013
593.76	0.006	0.003	595.08	0.006	0.009	596.40	0.006	0.014
593.78	0.006	0.003	595.10	0.006	0.009	596.42	0.006	0.014
593.80	0.006	0.003	595.12	0.006	0.009	596.44	0.006	0.014
593.82	0.006	0.003	595.14	0.006	0.009	596.46	0.006	0.014
593.84	0.006	0.003	595.16	0.006	0.009	596.48	0.006	0.014
593.86	0.006	0.003	595.18	0.006	0.009	596.50	0.006	0.014
593.88	0.006	0.003	595.20	0.006	0.010	596.52	0.006	0.014
593.90	0.006	0.003	595.22	0.006	0.010	596.54	0.006	**0.014**
593.92	0.006	0.003	595.24	0.006	0.010			
593.94	0.006	0.004	595.26	0.006	0.010			
593.96	0.006	0.004	595.28	0.006	0.010			
593.98	0.006	0.004	595.30	0.006	0.010			
594.00	0.006	0.004	595.32	0.006	0.010			
594.02	0.006	0.004	595.34	0.006	0.010			
594.04	0.006	0.004	595.36	0.006	0.010			
594.06	0.006	0.004	595.38	0.006	0.010			
594.08	0.006	0.004	595.40	0.006	0.010			
594.10	0.006	0.004	595.42	0.006	0.010			
594.12	0.006	0.004	595.44	0.006	0.011			
594.14	0.006	0.005	595.46	0.006	0.011			
594.16	0.006	0.005	595.48	0.006	0.011			
594.18	0.006	0.005	595.50	0.006	0.011			
594.20	0.006	0.005	595.52	0.006	0.011			
594.22	0.006	0.005	595.54	0.006	0.011			
594.24	0.006	0.005	595.56	0.006	0.011			
594.26	0.006	0.005	595.58	0.006	0.011			
594.28	0.006	0.005	595.60	0.006	0.011			
594.30	0.006	0.005	595.62	0.006	0.011			

Summary for Link DP: Design Point

Inflow Area = 16.919 ac, 6.14% Impervious, Inflow Depth = 2.25" for 10-yr event
Inflow = 24.8 cfs @ 12.29 hrs, Volume= 3.179 af
Primary = 24.8 cfs @ 12.29 hrs, Volume= 3.179 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP: Design Point



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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

Subcatchment1.0S: 1.0S Runoff Area=705,538 sf 4.54% Impervious Runoff Depth=5.74"
Flow Length=1,585' Tc=23.5 min CN=73 Runoff=57.2 cfs 7.750 af

Subcatchment1.1S: 1.1S Runoff Area=31,450 sf 42.00% Impervious Runoff Depth=6.85"
Tc=6.0 min CN=82 Runoff=4.9 cfs 0.412 af

Subcatchment1.2S: 1.2S Runoff Area=45,619 sf 69.42% Impervious Runoff Depth=7.95"
Tc=6.0 min CN=91 Runoff=7.9 cfs 0.694 af

Subcatchment1.3S: 1.3S Runoff Area=2,000 sf 100.00% Impervious Runoff Depth=8.80"
Tc=6.0 min CN=98 Runoff=0.4 cfs 0.034 af

Pond 1.1P: Infiltration Basin 1.1 Peak Elev=455.39' Storage=4,587 cf Inflow=4.9 cfs 0.412 af
Discarded=1.0 cfs 0.395 af Primary=0.3 cfs 0.018 af Secondary=0.0 cfs 0.000 af Outflow=1.3 cfs 0.412 af

Pond DS1.2: Diversion Structure 1.2 Peak Elev=470.47' Inflow=7.9 cfs 0.694 af
Primary=3.1 cfs 0.628 af Secondary=4.8 cfs 0.066 af Outflow=7.9 cfs 0.694 af

Pond DS1.3: Diversion Structure 1.3 Peak Elev=594.27' Inflow=0.4 cfs 0.034 af
Primary=0.4 cfs 0.034 af Secondary=0.0 cfs 0.000 af Outflow=0.4 cfs 0.034 af

Pond INF 1.2: Infiltration System 1.2 Peak Elev=467.00' Storage=0.047 af Inflow=3.1 cfs 0.628 af
Outflow=1.8 cfs 0.628 af

Pond INF 1.3: Infiltration System 1.3 Peak Elev=594.19' Storage=0.005 af Inflow=0.4 cfs 0.034 af
Outflow=0.1 cfs 0.034 af

Link DP: Design Point Inflow=57.7 cfs 7.834 af
Primary=57.7 cfs 7.834 af

Summary for Subcatchment 1.0S: 1.0S

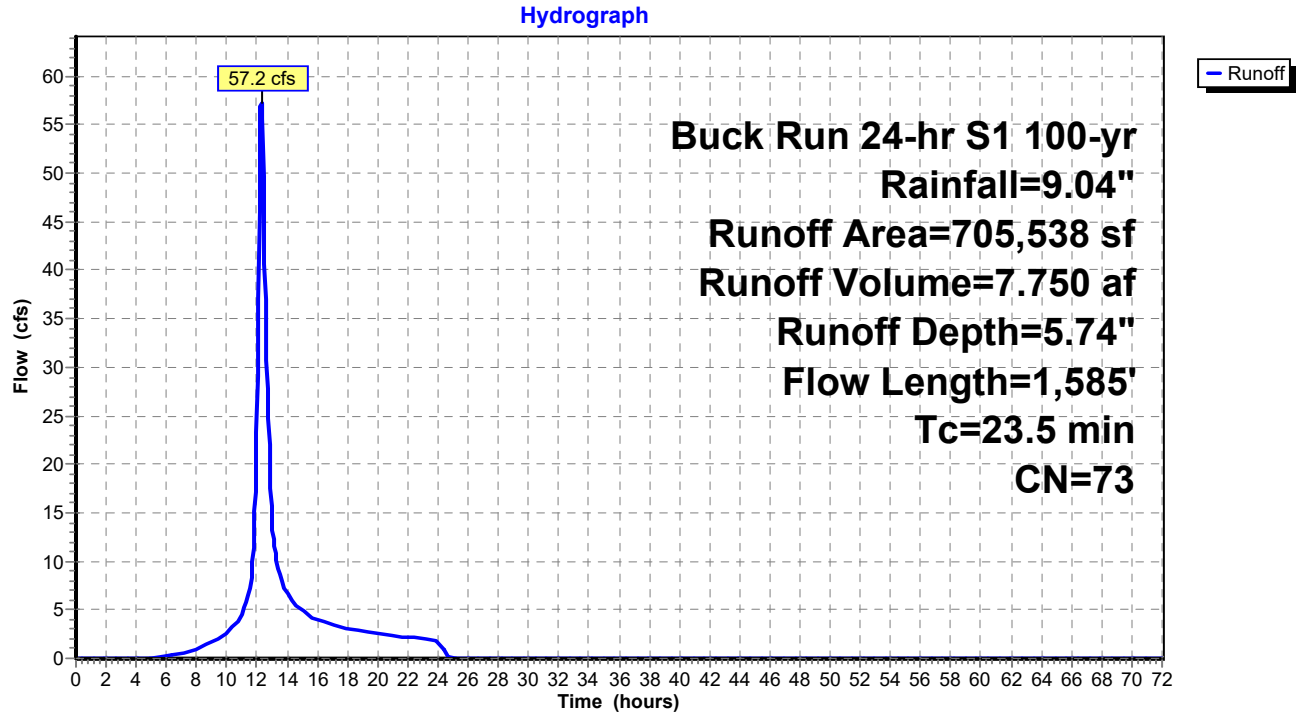
Runoff = 57.2 cfs @ 12.28 hrs, Volume= 7.750 af, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 100-yr Rainfall=9.04"

	Area (sf)	CN	Description
*	18,932	98	Existing Pavement
*	6,135	98	Existing Buildings
	5,607	87	Dirt roads, HSG C
*	6,970	98	Proposed Pavement
*	1,405	61	Existing>75% Grass cover, Good, HSG B
*	3,457	80	Proposed >75% Grass cover, Good, HSG D
*	3,083	61	Proposed >75% Grass cover, Good, HSG B
*	2,900	74	Existing >75% Grass cover, Good, HSG C
*	17,714	74	Proposed >75% Grass cover, Good, HSG C
	13,520	89	Gravel roads, HSG C
	22,115	55	Woods, Good, HSG B
	417,935	70	Woods, Good, HSG C
	150,505	77	Woods, Good, HSG D
	35,260	71	Meadow, non-grazed, HSG C
	705,538	73	Weighted Average
	673,501		95.46% Pervious Area
	32,037		4.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
12.1	1,485	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.5	1,585	Total			

Subcatchment 1.0S: 1.0S



Summary for Subcatchment 1.1S: 1.1S

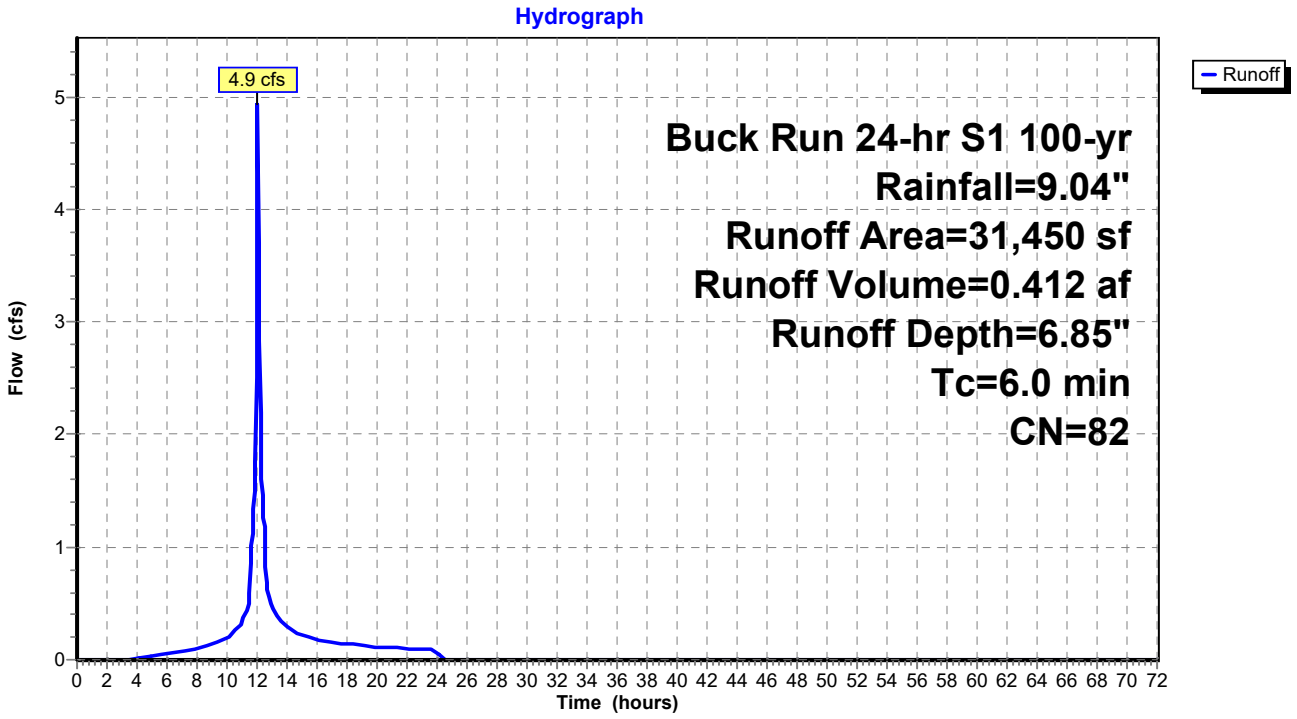
Runoff = 4.9 cfs @ 12.04 hrs, Volume= 0.412 af, Depth= 6.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 100-yr Rainfall=9.04"

	Area (sf)	CN	Description
*	12,870	98	Proposed Pavement
*	340	98	Proposed Sidewalk
	5,235	61	>75% Grass cover, Good, HSG B
	13,005	74	>75% Grass cover, Good, HSG C
	31,450	82	Weighted Average
	18,240		58.00% Pervious Area
	13,210		42.00% Impervious Area

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

Subcatchment 1.1S: 1.1S



Summary for Subcatchment 1.2S: 1.2S

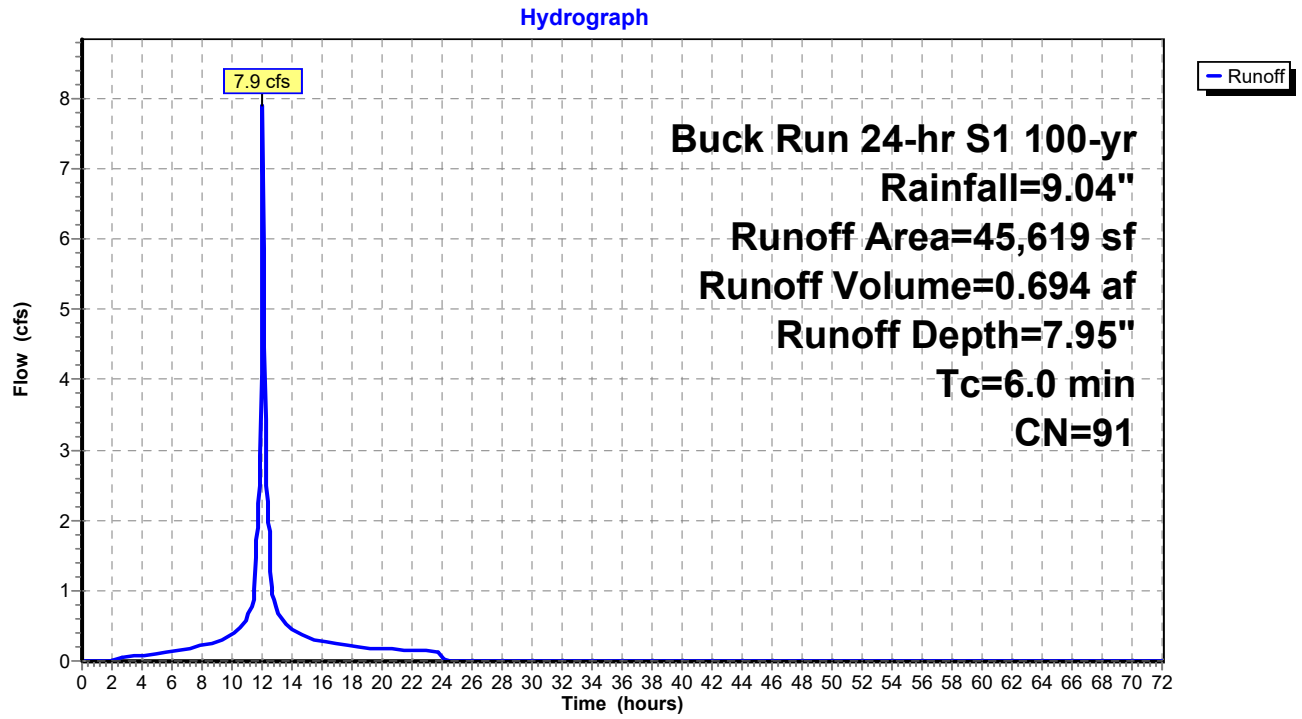
Runoff = 7.9 cfs @ 12.04 hrs, Volume= 0.694 af, Depth= 7.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 100-yr Rainfall=9.04"

	Area (sf)	CN	Description
*	24,985	98	Proposed Pavement & Walkway
*	4,815	98	Proposed Building
	10,849	74	>75% Grass cover, Good, HSG C
*	1,870	98	Proposed Courtyard Imp
	3,100	74	>75% Grass cover, Good, HSG C
	45,619	91	Weighted Average
	13,949		30.58% Pervious Area
	31,670		69.42% Impervious Area

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

Subcatchment 1.2S: 1.2S



Summary for Subcatchment 1.3S: 1.3S

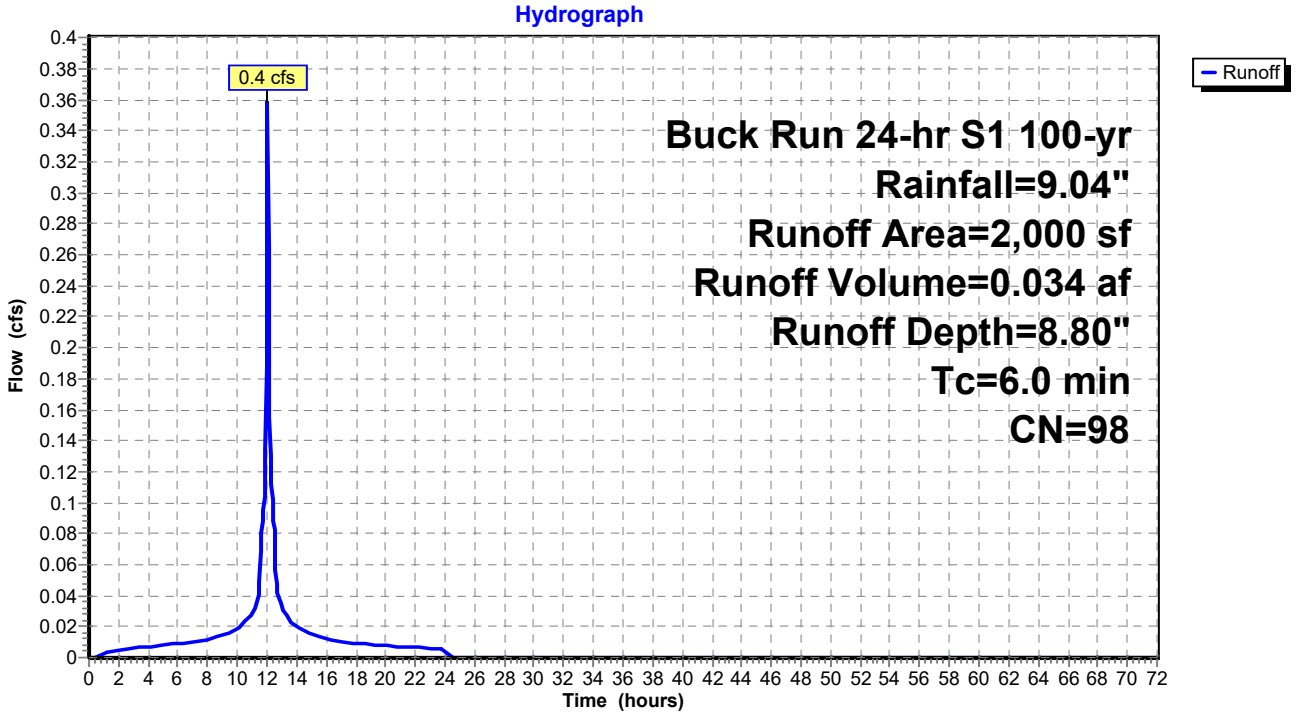
Runoff = 0.4 cfs @ 12.04 hrs, Volume= 0.034 af, Depth= 8.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Buck Run 24-hr S1 100-yr Rainfall=9.04"

	Area (sf)	CN	Description
*	2,000	98	Proposed Pods and Facilities
	2,000		100.00% Impervious Area

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

Subcatchment 1.3S: 1.3S



Summary for Pond 1.1P: Infiltration Basin 1.1

Inflow Area = 0.722 ac, 42.00% Impervious, Inflow Depth = 6.85" for 100-yr event
Inflow = 4.9 cfs @ 12.04 hrs, Volume= 0.412 af
Outflow = 1.3 cfs @ 12.41 hrs, Volume= 0.412 af, Atten= 73%, Lag= 22.4 min
Discarded = 1.0 cfs @ 12.41 hrs, Volume= 0.395 af
Primary = 0.3 cfs @ 12.41 hrs, Volume= 0.018 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 455.39' @ 12.41 hrs Surf.Area= 2,243 sf Storage= 4,587 cf

Plug-Flow detention time= 38.9 min calculated for 0.412 af (100% of inflow)
Center-of-Mass det. time= 38.9 min (845.0 - 806.1)

Volume	Invert	Avail.Storage	Storage Description
#1	451.00'	9,077 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
451.00	125	0	0
452.00	447	286	286
454.00	1,356	1,803	2,089
456.00	2,634	3,990	6,079
457.00	3,362	2,998	9,077

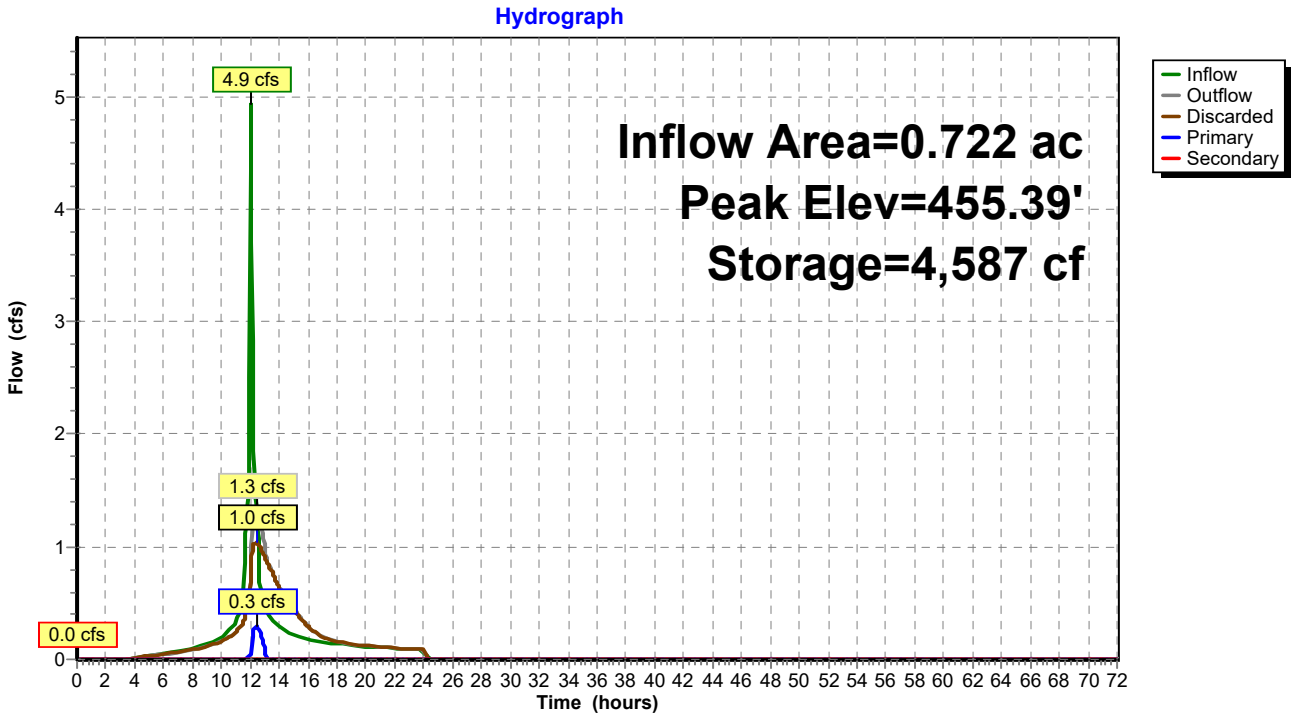
Device	Routing	Invert	Outlet Devices
#1	Primary	450.30'	**12.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 450.30' / 449.50' S= 0.0138 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	454.75'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	455.50'	**30.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	451.00'	**20.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#5	Secondary	456.00'	**10.0' 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

Discarded OutFlow Max=1.0 cfs @ 12.41 hrs HW=455.39' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 1.0 cfs)

Primary OutFlow Max=0.3 cfs @ 12.41 hrs HW=455.39' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.3 cfs of 7.6 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.3 cfs @ 3.30 fps)
  └**3=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=451.00' TW=0.00' (Dynamic Tailwater)
└**5=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1.1P: Infiltration Basin 1.1



Stage-Discharge for Pond 1.1P: Infiltration Basin 1.1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
451.00	0.0	0.0	0.0	0.0
451.10	0.1	0.1	0.0	0.0
451.20	0.1	0.1	0.0	0.0
451.30	0.1	0.1	0.0	0.0
451.40	0.1	0.1	0.0	0.0
451.50	0.1	0.1	0.0	0.0
451.60	0.1	0.1	0.0	0.0
451.70	0.2	0.2	0.0	0.0
451.80	0.2	0.2	0.0	0.0
451.90	0.2	0.2	0.0	0.0
452.00	0.2	0.2	0.0	0.0
452.10	0.2	0.2	0.0	0.0
452.20	0.2	0.2	0.0	0.0
452.30	0.3	0.3	0.0	0.0
452.40	0.3	0.3	0.0	0.0
452.50	0.3	0.3	0.0	0.0
452.60	0.3	0.3	0.0	0.0
452.70	0.4	0.4	0.0	0.0
452.80	0.4	0.4	0.0	0.0
452.90	0.4	0.4	0.0	0.0
453.00	0.4	0.4	0.0	0.0
453.10	0.4	0.4	0.0	0.0
453.20	0.5	0.5	0.0	0.0
453.30	0.5	0.5	0.0	0.0
453.40	0.5	0.5	0.0	0.0
453.50	0.5	0.5	0.0	0.0
453.60	0.5	0.5	0.0	0.0
453.70	0.6	0.6	0.0	0.0
453.80	0.6	0.6	0.0	0.0
453.90	0.6	0.6	0.0	0.0
454.00	0.6	0.6	0.0	0.0
454.10	0.7	0.7	0.0	0.0
454.20	0.7	0.7	0.0	0.0
454.30	0.7	0.7	0.0	0.0
454.40	0.7	0.7	0.0	0.0
454.50	0.8	0.8	0.0	0.0
454.60	0.8	0.8	0.0	0.0
454.70	0.8	0.8	0.0	0.0
454.80	0.9	0.9	0.0	0.0
454.90	0.9	0.9	0.1	0.0
455.00	1.0	0.9	0.1	0.0
455.10	1.1	1.0	0.2	0.0
455.20	1.2	1.0	0.2	0.0
455.30	1.3	1.0	0.3	0.0
455.40	1.3	1.0	0.3	0.0
455.50	1.4	1.1	0.3	0.0
455.60	2.8	1.1	1.7	0.0
455.70	5.3	1.1	4.2	0.0
455.80	8.5	1.2	7.4	0.0
455.90	9.2	1.2	8.0	0.0
456.00	9.3	1.2	8.1	0.0
456.10	10.2	1.3	8.2	0.8
456.20	11.8	1.3	8.3	2.2
456.30	13.8	1.3	8.3	4.1
456.40	16.2	1.4	8.4	6.5
456.50	19.2	1.4	8.5	9.3
456.60	22.5	1.4	8.5	12.5
456.70	25.9	1.5	8.6	15.8
456.80	29.4	1.5	8.7	19.2
456.90	33.2	1.5	8.7	22.9
457.00	**37.2**	**1.6**	**8.8**	**26.8**

Stage-Area-Storage for Pond 1.1P: Infiltration Basin 1.1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
451.00	125	0
451.10	157	14
451.20	189	31
451.30	222	52
451.40	254	76
451.50	286	103
451.60	318	133
451.70	350	166
451.80	383	203
451.90	415	243
452.00	447	286
452.10	492	333
452.20	538	384
452.30	583	441
452.40	629	501
452.50	674	566
452.60	720	636
452.70	765	710
452.80	811	789
452.90	856	872
453.00	902	960
453.10	947	1,053
453.20	992	1,150
453.30	1,038	1,251
453.40	1,083	1,357
453.50	1,129	1,468
453.60	1,174	1,583
453.70	1,220	1,703
453.80	1,265	1,827
453.90	1,311	1,956
454.00	1,356	2,089
454.10	1,420	2,228
454.20	1,484	2,373
454.30	1,548	2,525
454.40	1,612	2,683
454.50	1,676	2,847
454.60	1,739	3,018
454.70	1,803	3,195
454.80	1,867	3,378
454.90	1,931	3,568
455.00	1,995	3,765
455.10	2,059	3,967
455.20	2,123	4,176
455.30	2,187	4,392
455.40	2,251	4,614
455.50	2,315	4,842
455.60	2,378	5,077
455.70	2,442	5,318
455.80	2,506	5,565
455.90	2,570	5,819
456.00	2,634	6,079
456.10	2,707	6,346
456.20	2,780	6,620
456.30	2,852	6,902
456.40	2,925	7,191
456.50	2,998	7,487
456.60	3,071	7,790
456.70	3,144	8,101
456.80	3,216	8,419
456.90	3,289	8,744
457.00	**3,362**	**9,077**

Summary for Pond DS1.2: Diversion Structure 1.2

Inflow Area = 1.047 ac, 69.42% Impervious, Inflow Depth = 7.95" for 100-yr event
Inflow = 7.9 cfs @ 12.04 hrs, Volume= 0.694 af
Outflow = 7.9 cfs @ 12.04 hrs, Volume= 0.694 af, Atten= 0%, Lag= 0.0 min
Primary = 3.1 cfs @ 12.05 hrs, Volume= 0.628 af
Secondary = 4.8 cfs @ 12.04 hrs, Volume= 0.066 af

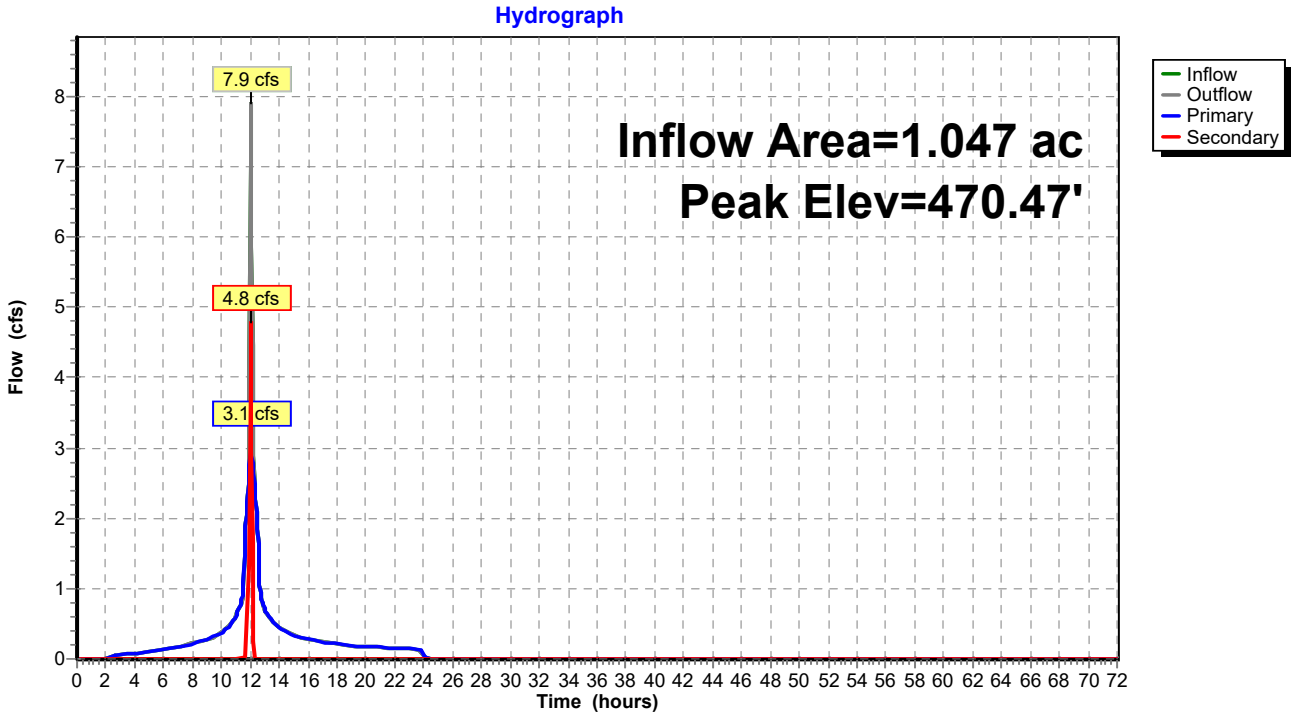
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 470.47' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	466.67'	**8.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 466.67' / 466.60' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 3	469.35'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Secondary	462.28'	**8.0" Round Culvert** L= 103.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 462.28' / 448.16' S= 0.1371 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=3.1 cfs @ 12.05 hrs HW=470.44' TW=466.62' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 3.1 cfs @ 8.92 fps)

Secondary OutFlow Max=4.7 cfs @ 12.04 hrs HW=470.38' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Inlet Controls 4.7 cfs @ 13.42 fps)
└**2=Broad-Crested Rectangular Weir** (Passes 4.7 cfs of 6.9 cfs potential flow)

Pond DS1.2: Diversion Structure 1.2



Stage-Discharge for Pond DS1.2: Diversion Structure 1.2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
462.28	0.0	0.0	0.0
462.38	0.0	0.0	0.0
462.48	0.0	0.0	0.0
462.58	0.0	0.0	0.0
462.68	0.0	0.0	0.0
462.78	0.0	0.0	0.0
462.88	0.0	0.0	0.0
462.98	0.0	0.0	0.0
463.08	0.0	0.0	0.0
463.18	0.0	0.0	0.0
463.28	0.0	0.0	0.0
463.38	0.0	0.0	0.0
463.48	0.0	0.0	0.0
463.58	0.0	0.0	0.0
463.68	0.0	0.0	0.0
463.78	0.0	0.0	0.0
463.88	0.0	0.0	0.0
463.98	0.0	0.0	0.0
464.08	0.0	0.0	0.0
464.18	0.0	0.0	0.0
464.28	0.0	0.0	0.0
464.38	0.0	0.0	0.0
464.48	0.0	0.0	0.0
464.58	0.0	0.0	0.0
464.68	0.0	0.0	0.0
464.78	0.0	0.0	0.0
464.88	0.0	0.0	0.0
464.98	0.0	0.0	0.0
465.08	0.0	0.0	0.0
465.18	0.0	0.0	0.0
465.28	0.0	0.0	0.0
465.38	0.0	0.0	0.0
465.48	0.0	0.0	0.0
465.58	0.0	0.0	0.0
465.68	0.0	0.0	0.0
465.78	0.0	0.0	0.0
465.88	0.0	0.0	0.0
465.98	0.0	0.0	0.0
466.08	0.0	0.0	0.0
466.18	0.0	0.0	0.0
466.28	0.0	0.0	0.0
466.38	0.0	0.0	0.0
466.48	0.0	0.0	0.0
466.58	0.0	0.0	0.0
466.68	0.0	0.0	0.0
466.78	0.0	0.0	0.0
466.88	0.1	0.1	0.0
466.98	0.2	0.2	0.0
467.08	0.4	0.4	0.0
467.18	0.6	0.6	0.0
467.28	0.7	0.7	0.0
467.38	0.9	0.9	0.0
467.48	1.1	1.1	0.0
467.58	1.2	1.2	0.0
467.68	1.3	1.3	0.0
467.78	1.5	1.5	0.0
467.88	1.6	1.6	0.0
467.98	1.7	1.7	0.0
468.08	1.7	1.7	0.0
468.18	1.8	1.8	0.0
468.28	1.9	1.9	0.0
468.38	2.0	2.0	0.0
468.48	2.0	2.0	0.0
468.58	2.1	2.1	0.0
468.68	2.2	2.2	0.0
468.78	2.2	2.2	0.0
468.88	2.3	2.3	0.0
468.98	2.4	2.4	0.0
469.08	2.4	2.4	0.0
469.18	2.5	2.5	0.0
469.28	2.5	2.5	0.0
469.38	2.6	2.6	0.0
469.48	2.9	2.6	0.3
469.58	3.3	2.7	0.6
469.68	3.8	2.7	1.1
469.78	4.5	2.8	1.7
469.88	5.2	2.9	2.3
469.98	6.0	2.9	3.1
470.08	7.0	2.9	4.0
470.18	7.6	3.0	4.6
470.28	7.7	3.0	4.7
470.38	7.8	3.1	4.7
470.48	**7.8**	**3.1**	**4.7**

Stage-Area-Storage for Pond DS1.2: Diversion Structure 1.2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
462.28	**0**	464.92	0	467.56	0	470.20	0
462.32	0	464.96	0	467.60	0	470.24	0
462.36	0	465.00	0	467.64	0	470.28	0
462.40	0	465.04	0	467.68	0	470.32	0
462.44	0	465.08	0	467.72	0	470.36	0
462.48	0	465.12	0	467.76	0	470.40	0
462.52	0	465.16	0	467.80	0	470.44	0
462.56	0	465.20	0	467.84	0	470.48	0
462.60	0	465.24	0	467.88	0		
462.64	0	465.28	0	467.92	0		
462.68	0	465.32	0	467.96	0		
462.72	0	465.36	0	468.00	0		
462.76	0	465.40	0	468.04	0		
462.80	0	465.44	0	468.08	0		
462.84	0	465.48	0	468.12	0		
462.88	0	465.52	0	468.16	0		
462.92	0	465.56	0	468.20	0		
462.96	0	465.60	0	468.24	0		
463.00	0	465.64	0	468.28	0		
463.04	0	465.68	0	468.32	0		
463.08	0	465.72	0	468.36	0		
463.12	0	465.76	0	468.40	0		
463.16	0	465.80	0	468.44	0		
463.20	0	465.84	0	468.48	0		
463.24	0	465.88	0	468.52	0		
463.28	0	465.92	0	468.56	0		
463.32	0	465.96	0	468.60	0		
463.36	0	466.00	0	468.64	0		
463.40	0	466.04	0	468.68	0		
463.44	0	466.08	0	468.72	0		
463.48	0	466.12	0	468.76	0		
463.52	0	466.16	0	468.80	0		
463.56	0	466.20	0	468.84	0		
463.60	0	466.24	0	468.88	0		
463.64	0	466.28	0	468.92	0		
463.68	0	466.32	0	468.96	0		
463.72	0	466.36	0	469.00	0		
463.76	0	466.40	0	469.04	0		
463.80	0	466.44	0	469.08	0		
463.84	0	466.48	0	469.12	0		
463.88	0	466.52	0	469.16	0		
463.92	0	466.56	0	469.20	0		
463.96	0	466.60	0	469.24	0		
464.00	0	466.64	0	469.28	0		
464.04	0	466.68	0	469.32	0		
464.08	0	466.72	0	469.36	0		
464.12	0	466.76	0	469.40	0		
464.16	0	466.80	0	469.44	0		
464.20	0	466.84	0	469.48	0		
464.24	0	466.88	0	469.52	0		
464.28	0	466.92	0	469.56	0		
464.32	0	466.96	0	469.60	0		
464.36	0	467.00	0	469.64	0		
464.40	0	467.04	0	469.68	0		
464.44	0	467.08	0	469.72	0		
464.48	0	467.12	0	469.76	0		
464.52	0	467.16	0	469.80	0		
464.56	0	467.20	0	469.84	0		
464.60	0	467.24	0	469.88	0		
464.64	0	467.28	0	469.92	0		
464.68	0	467.32	0	469.96	0		
464.72	0	467.36	0	470.00	0		
464.76	0	467.40	0	470.04	0		
464.80	0	467.44	0	470.08	0		
464.84	0	467.48	0	470.12	0		
464.88	0	467.52	0	470.16	0		

Summary for Pond DS1.3: Diversion Structure 1.3

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth = 8.80" for 100-yr event
Inflow = 0.4 cfs @ 12.04 hrs, Volume= 0.034 af
Outflow = 0.4 cfs @ 12.04 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.4 cfs @ 12.04 hrs, Volume= 0.034 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

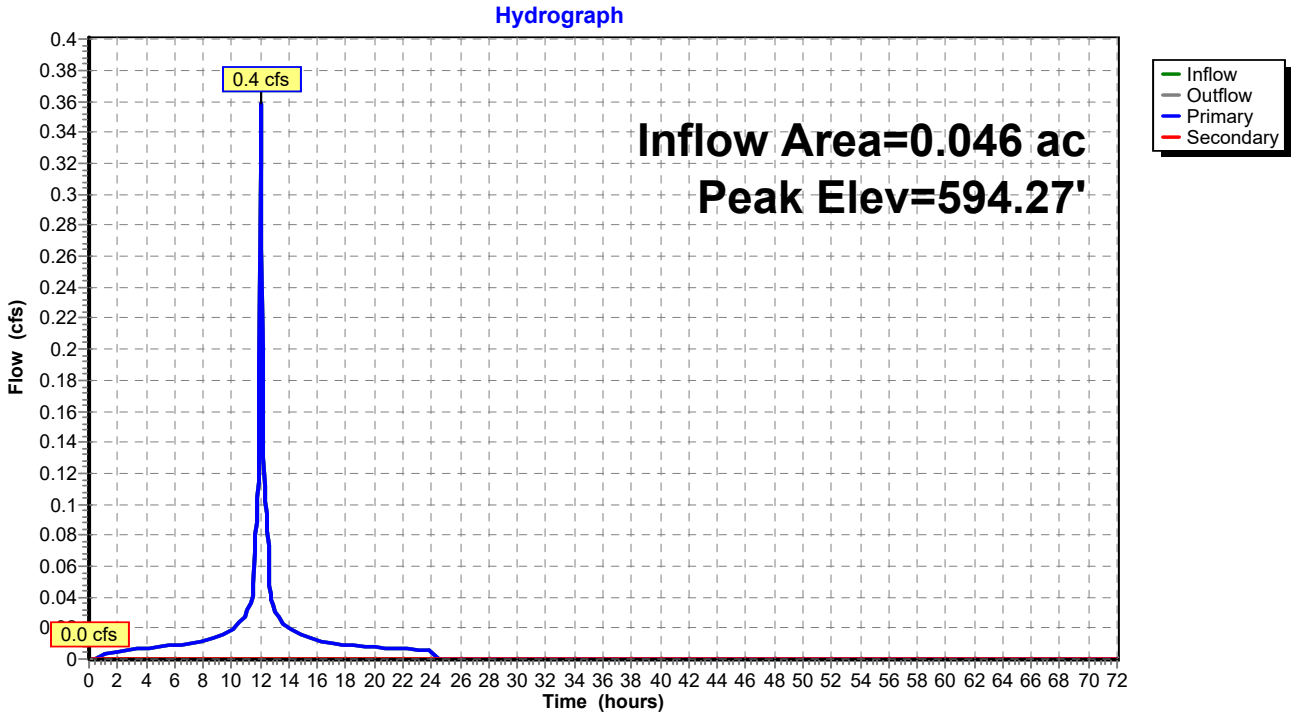
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 594.27' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	593.10'	**4.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 593.10' / 593.00' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Secondary	595.20'	**8.0" Round Culvert** L= 154.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 595.20' / 590.00' S= 0.0338 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.3 cfs @ 12.04 hrs HW=594.17' TW=593.69' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.3 cfs @ 3.34 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=593.10' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Controls 0.0 cfs)

Pond DS1.3: Diversion Structure 1.3



Stage-Discharge for Pond DS1.3: Diversion Structure 1.3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
593.10	0.0	0.0	0.0
593.15	0.0	0.0	0.0
593.20	0.0	0.0	0.0
593.25	0.0	0.0	0.0
593.30	0.1	0.1	0.0
593.35	0.1	0.1	0.0
593.40	0.1	0.1	0.0
593.45	0.2	0.2	0.0
593.50	0.2	0.2	0.0
593.55	0.2	0.2	0.0
593.60	0.2	0.2	0.0
593.65	0.3	0.3	0.0
593.70	0.3	0.3	0.0
593.75	0.3	0.3	0.0
593.80	0.3	0.3	0.0
593.85	0.3	0.3	0.0
593.90	0.3	0.3	0.0
593.95	0.3	0.3	0.0
594.00	0.4	0.4	0.0
594.05	0.4	0.4	0.0
594.10	0.4	0.4	0.0
594.15	0.4	0.4	0.0
594.20	0.4	0.4	0.0
594.25	0.4	0.4	0.0
594.30	0.4	0.4	0.0
594.35	0.4	0.4	0.0
594.40	0.4	0.4	0.0
594.45	0.5	0.5	0.0
594.50	0.5	0.5	0.0
594.55	0.5	0.5	0.0
594.60	0.5	0.5	0.0
594.65	0.5	0.5	0.0
594.70	0.5	0.5	0.0
594.75	0.5	0.5	0.0
594.80	0.5	0.5	0.0
594.85	0.5	0.5	0.0
594.90	0.5	0.5	0.0
594.95	0.5	0.5	0.0
595.00	0.6	0.6	0.0
595.05	0.6	0.6	0.0
595.10	0.6	0.6	0.0
595.15	0.6	0.6	0.0
595.20	0.6	0.6	0.0
595.25	0.6	0.6	0.0
595.30	0.6	0.6	0.0
595.35	0.7	0.6	0.1
595.40	0.7	0.6	0.1
595.45	0.8	0.6	0.2
595.50	0.9	0.6	0.3
595.55	1.0	0.6	0.4
595.60	1.1	0.6	0.5
595.65	1.2	0.6	0.6
595.70	1.3	0.7	0.7
595.75	1.4	0.7	0.8
595.80	1.5	0.7	0.9
595.85	**1.6**	**0.7**	**1.0**

Stage-Area-Storage for Pond DS1.3: Diversion Structure 1.3

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
593.10	**0**	594.42	0	595.74	0
593.12	0	594.44	0	595.76	0
593.14	0	594.46	0	595.78	0
593.16	0	594.48	0	595.80	0
593.18	0	594.50	0	595.82	0
593.20	0	594.52	0	595.84	0
593.22	0	594.54	0	595.86	0
593.24	0	594.56	0		
593.26	0	594.58	0		
593.28	0	594.60	0		
593.30	0	594.62	0		
593.32	0	594.64	0		
593.34	0	594.66	0		
593.36	0	594.68	0		
593.38	0	594.70	0		
593.40	0	594.72	0		
593.42	0	594.74	0		
593.44	0	594.76	0		
593.46	0	594.78	0		
593.48	0	594.80	0		
593.50	0	594.82	0		
593.52	0	594.84	0		
593.54	0	594.86	0		
593.56	0	594.88	0		
593.58	0	594.90	0		
593.60	0	594.92	0		
593.62	0	594.94	0		
593.64	0	594.96	0		
593.66	0	594.98	0		
593.68	0	595.00	0		
593.70	0	595.02	0		
593.72	0	595.04	0		
593.74	0	595.06	0		
593.76	0	595.08	0		
593.78	0	595.10	0		
593.80	0	595.12	0		
593.82	0	595.14	0		
593.84	0	595.16	0		
593.86	0	595.18	0		
593.88	0	595.20	0		
593.90	0	595.22	0		
593.92	0	595.24	0		
593.94	0	595.26	0		
593.96	0	595.28	0		
593.98	0	595.30	0		
594.00	0	595.32	0		
594.02	0	595.34	0		
594.04	0	595.36	0		
594.06	0	595.38	0		
594.08	0	595.40	0		
594.10	0	595.42	0		
594.12	0	595.44	0		
594.14	0	595.46	0		
594.16	0	595.48	0		
594.18	0	595.50	0		
594.20	0	595.52	0		
594.22	0	595.54	0		
594.24	0	595.56	0		
594.26	0	595.58	0		
594.28	0	595.60	0		
594.30	0	595.62	0		
594.32	0	595.64	0		
594.34	0	595.66	0		
594.36	0	595.68	0		
594.38	0	595.70	0		
594.40	0	595.72	0		

Summary for Pond INF 1.2: Infiltration System 1.2

Inflow Area = 1.047 ac, 69.42% Impervious, Inflow Depth = 7.20" for 100-yr event
Inflow = 3.1 cfs @ 12.05 hrs, Volume= 0.628 af
Outflow = 1.8 cfs @ 11.75 hrs, Volume= 0.628 af, Atten= 41%, Lag= 0.0 min
Discarded = 1.8 cfs @ 11.75 hrs, Volume= 0.628 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 467.00' @ 12.49 hrs Surf.Area= 0.076 ac Storage= 0.047 af

Plug-Flow detention time= 4.5 min calculated for 0.628 af (100% of inflow)
Center-of-Mass det. time= 4.5 min (784.9 - 780.4)

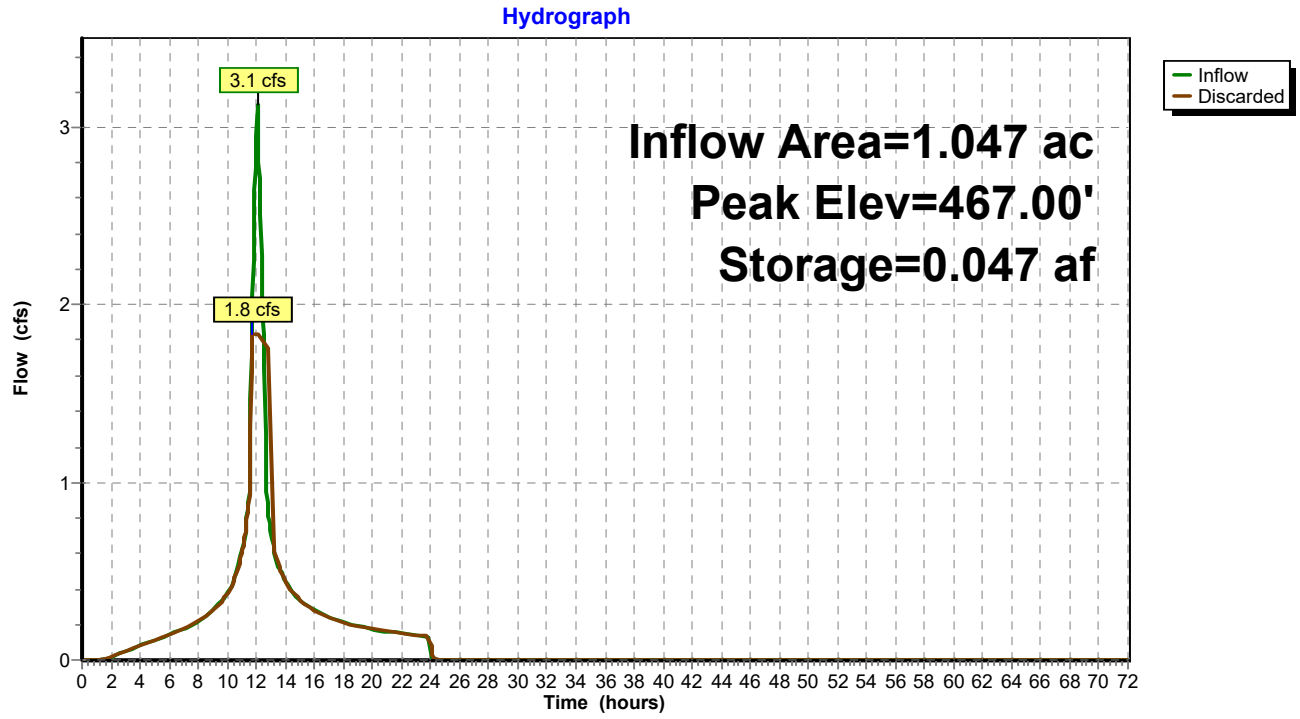
Volume	Invert	Avail.Storage	Storage Description
#1A	466.01'	0.064 af	**30.50'W x 108.50'L x 3.54'H Field A** 0.269 af Overall - 0.109 af Embedded = 0.160 af x 40.0% Voids
#2A	466.51'	0.109 af	**Cultec R-330XLHD** x 90 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
		0.173 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	466.01'	**24.000 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'

Discarded OutFlow Max=1.8 cfs @ 11.75 hrs HW=466.13' (Free Discharge)
1=Exfiltration (Exfiltration Controls 1.8 cfs)

Pond INF 1.2: Infiltration System 1.2



Stage-Discharge for Pond INF 1.2: Infiltration System 1.2

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
466.01	0.0	467.33	1.8	468.65	1.8
466.03	0.4	467.35	1.8	468.67	1.8
466.05	0.7	467.37	1.8	468.69	1.8
466.07	1.1	467.39	1.8	468.71	1.8
466.09	1.5	467.41	1.8	468.73	1.8
466.11	**1.8**	467.43	1.8	468.75	1.8
466.13	1.8	467.45	1.8	468.77	1.8
466.15	1.8	467.47	1.8	468.79	1.8
466.17	1.8	467.49	1.8	468.81	1.8
466.19	1.8	467.51	1.8	468.83	1.8
466.21	1.8	467.53	1.8	468.85	1.8
466.23	1.8	467.55	1.8	468.87	1.8
466.25	1.8	467.57	1.8	468.89	1.8
466.27	1.8	467.59	1.8	468.91	1.8
466.29	1.8	467.61	1.8	468.93	1.8
466.31	1.8	467.63	1.8	468.95	1.8
466.33	1.8	467.65	1.8	468.97	1.8
466.35	1.8	467.67	1.8	468.99	1.8
466.37	1.8	467.69	1.8	469.01	1.8
466.39	1.8	467.71	1.8	469.03	1.8
466.41	1.8	467.73	1.8	469.05	1.8
466.43	1.8	467.75	1.8	469.07	1.8
466.45	1.8	467.77	1.8	469.09	1.8
466.47	1.8	467.79	1.8	469.11	1.8
466.49	1.8	467.81	1.8	469.13	1.8
466.51	1.8	467.83	1.8	469.15	1.8
466.53	1.8	467.85	1.8	469.17	1.8
466.55	1.8	467.87	1.8	469.19	1.8
466.57	1.8	467.89	1.8	469.21	1.8
466.59	1.8	467.91	1.8	469.23	1.8
466.61	1.8	467.93	1.8	469.25	1.8
466.63	1.8	467.95	1.8	469.27	1.8
466.65	1.8	467.97	1.8	469.29	1.8
466.67	1.8	467.99	1.8	469.31	1.8
466.69	1.8	468.01	1.8	469.33	1.8
466.71	1.8	468.03	1.8	469.35	1.8
466.73	1.8	468.05	1.8	469.37	1.8
466.75	1.8	468.07	1.8	469.39	1.8
466.77	1.8	468.09	1.8	469.41	1.8
466.79	1.8	468.11	1.8	469.43	1.8
466.81	1.8	468.13	1.8	469.45	1.8
466.83	1.8	468.15	1.8	469.47	1.8
466.85	1.8	468.17	1.8	469.49	1.8
466.87	1.8	468.19	1.8	469.51	1.8
466.89	1.8	468.21	1.8	469.53	1.8
466.91	1.8	468.23	1.8	469.55	1.8
466.93	1.8	468.25	1.8		
466.95	1.8	468.27	1.8		
466.97	1.8	468.29	1.8		
466.99	1.8	468.31	1.8		
467.01	1.8	468.33	1.8		
467.03	1.8	468.35	1.8		
467.05	1.8	468.37	1.8		
467.07	1.8	468.39	1.8		
467.09	1.8	468.41	1.8		
467.11	1.8	468.43	1.8		
467.13	1.8	468.45	1.8		
467.15	1.8	468.47	1.8		
467.17	1.8	468.49	1.8		
467.19	1.8	468.51	1.8		
467.21	1.8	468.53	1.8		
467.23	1.8	468.55	1.8		
467.25	1.8	468.57	1.8		
467.27	1.8	468.59	1.8		
467.29	1.8	468.61	1.8		
467.31	1.8	468.63	1.8		

Stage-Area-Storage for Pond INF 1.2: Infiltration System 1.2

Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
466.01	**0.076**	0.000	467.33	0.076	0.068	468.65	0.076	0.143
466.03	0.076	0.001	467.35	0.076	0.069	468.67	0.076	0.144
466.05	0.076	0.001	467.37	0.076	0.070	468.69	0.076	0.145
466.07	0.076	0.002	467.39	0.076	0.072	468.71	0.076	0.146
466.09	0.076	0.002	467.41	0.076	0.073	468.73	0.076	0.147
466.11	0.076	0.003	467.43	0.076	0.074	468.75	0.076	0.147
466.13	0.076	0.004	467.45	0.076	0.075	468.77	0.076	0.148
466.15	0.076	0.004	467.47	0.076	0.077	468.79	0.076	0.149
466.17	0.076	0.005	467.49	0.076	0.078	468.81	0.076	0.150
466.19	0.076	0.005	467.51	0.076	0.079	468.83	0.076	0.151
466.21	0.076	0.006	467.53	0.076	0.080	468.85	0.076	0.151
466.23	0.076	0.007	467.55	0.076	0.082	468.87	0.076	0.152
466.25	0.076	0.007	467.57	0.076	0.083	468.89	0.076	0.153
466.27	0.076	0.008	467.59	0.076	0.084	468.91	0.076	0.153
466.29	0.076	0.009	467.61	0.076	0.085	468.93	0.076	0.154
466.31	0.076	0.009	467.63	0.076	0.086	468.95	0.076	0.155
466.33	0.076	0.010	467.65	0.076	0.088	468.97	0.076	0.155
466.35	0.076	0.010	467.67	0.076	0.089	468.99	0.076	0.156
466.37	0.076	0.011	467.69	0.076	0.090	469.01	0.076	0.157
466.39	0.076	0.012	467.71	0.076	0.091	469.03	0.076	0.157
466.41	0.076	0.012	467.73	0.076	0.093	469.05	0.076	0.158
466.43	0.076	0.013	467.75	0.076	0.094	469.07	0.076	0.159
466.45	0.076	0.013	467.77	0.076	0.095	469.09	0.076	0.159
466.47	0.076	0.014	467.79	0.076	0.096	469.11	0.076	0.160
466.49	0.076	0.015	467.81	0.076	0.097	469.13	0.076	0.160
466.51	0.076	0.015	467.83	0.076	0.099	469.15	0.076	0.161
466.53	0.076	0.017	467.85	0.076	0.100	469.17	0.076	0.162
466.55	0.076	0.018	467.87	0.076	0.101	469.19	0.076	0.162
466.57	0.076	0.019	467.89	0.076	0.102	469.21	0.076	0.163
466.59	0.076	0.020	467.91	0.076	0.103	469.23	0.076	0.163
466.61	0.076	0.022	467.93	0.076	0.105	469.25	0.076	0.164
466.63	0.076	0.023	467.95	0.076	0.106	469.27	0.076	0.165
466.65	0.076	0.024	467.97	0.076	0.107	469.29	0.076	0.165
466.67	0.076	0.026	467.99	0.076	0.108	469.31	0.076	0.166
466.69	0.076	0.027	468.01	0.076	0.109	469.33	0.076	0.166
466.71	0.076	0.028	468.03	0.076	0.110	469.35	0.076	0.167
466.73	0.076	0.030	468.05	0.076	0.112	469.37	0.076	0.168
466.75	0.076	0.031	468.07	0.076	0.113	469.39	0.076	0.168
466.77	0.076	0.032	468.09	0.076	0.114	469.41	0.076	0.169
466.79	0.076	0.033	468.11	0.076	0.115	469.43	0.076	0.170
466.81	0.076	0.035	468.13	0.076	0.116	469.45	0.076	0.170
466.83	0.076	0.036	468.15	0.076	0.117	469.47	0.076	0.171
466.85	0.076	0.037	468.17	0.076	0.118	469.49	0.076	0.171
466.87	0.076	0.039	468.19	0.076	0.119	469.51	0.076	0.172
466.89	0.076	0.040	468.21	0.076	0.121	469.53	0.076	0.173
466.91	0.076	0.041	468.23	0.076	0.122	469.55	0.076	**0.173**
466.93	0.076	0.042	468.25	0.076	0.123			
466.95	0.076	0.044	468.27	0.076	0.124			
466.97	0.076	0.045	468.29	0.076	0.125			
466.99	0.076	0.046	468.31	0.076	0.126			
467.01	0.076	0.048	468.33	0.076	0.127			
467.03	0.076	0.049	468.35	0.076	0.128			
467.05	0.076	0.050	468.37	0.076	0.129			
467.07	0.076	0.051	468.39	0.076	0.130			
467.09	0.076	0.053	468.41	0.076	0.131			
467.11	0.076	0.054	468.43	0.076	0.132			
467.13	0.076	0.055	468.45	0.076	0.133			
467.15	0.076	0.057	468.47	0.076	0.134			
467.17	0.076	0.058	468.49	0.076	0.135			
467.19	0.076	0.059	468.51	0.076	0.136			
467.21	0.076	0.060	468.53	0.076	0.137			
467.23	0.076	0.062	468.55	0.076	0.138			
467.25	0.076	0.063	468.57	0.076	0.139			
467.27	0.076	0.064	468.59	0.076	0.140			
467.29	0.076	0.065	468.61	0.076	0.141			
467.31	0.076	0.067	468.63	0.076	0.142			

Summary for Pond INF 1.3: Infiltration System 1.3

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth = 8.80" for 100-yr event
Inflow = 0.4 cfs @ 12.04 hrs, Volume= 0.034 af
Outflow = 0.1 cfs @ 11.80 hrs, Volume= 0.034 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.1 cfs @ 11.80 hrs, Volume= 0.034 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 594.19' @ 12.42 hrs Surf.Area= 0.006 ac Storage= 0.005 af

Plug-Flow detention time= 10.2 min calculated for 0.034 af (100% of inflow)
Center-of-Mass det. time= 10.1 min (750.1 - 739.9)

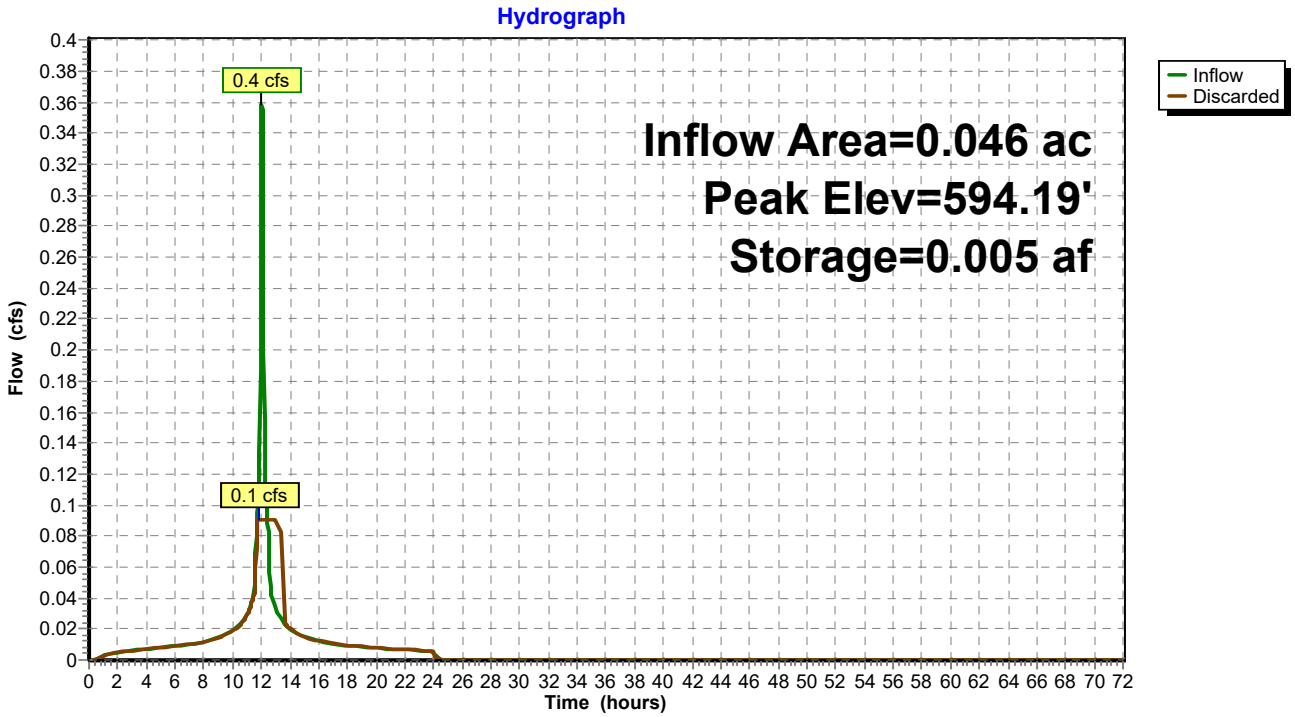
Volume	Invert	Avail.Storage	Storage Description
#1A	593.00'	0.006 af	**16.00'W x 17.50'L x 3.54'H Field A** 0.023 af Overall - 0.008 af Embedded = 0.015 af x 40.0% Voids
#2A	593.50'	0.008 af	**Cultec R-330XLHD** x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
		0.014 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	593.00'	**14.000 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'

Discarded OutFlow Max=0.1 cfs @ 11.80 hrs HW=593.11' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.1 cfs)

Pond INF 1.3: Infiltration System 1.3



Stage-Discharge for Pond INF 1.3: Infiltration System 1.3

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
593.00	0.0	594.32	0.1	595.64	0.1
593.02	0.0	594.34	0.1	595.66	0.1
593.04	0.0	594.36	0.1	595.68	0.1
593.06	0.1	594.38	0.1	595.70	0.1
593.08	0.1	594.40	0.1	595.72	0.1
593.10	**0.1**	594.42	0.1	595.74	0.1
593.12	0.1	594.44	0.1	595.76	0.1
593.14	0.1	594.46	0.1	595.78	0.1
593.16	0.1	594.48	0.1	595.80	0.1
593.18	0.1	594.50	0.1	595.82	0.1
593.20	0.1	594.52	0.1	595.84	0.1
593.22	0.1	594.54	0.1	595.86	0.1
593.24	0.1	594.56	0.1	595.88	0.1
593.26	0.1	594.58	0.1	595.90	0.1
593.28	0.1	594.60	0.1	595.92	0.1
593.30	0.1	594.62	0.1	595.94	0.1
593.32	0.1	594.64	0.1	595.96	0.1
593.34	0.1	594.66	0.1	595.98	0.1
593.36	0.1	594.68	0.1	596.00	0.1
593.38	0.1	594.70	0.1	596.02	0.1
593.40	0.1	594.72	0.1	596.04	0.1
593.42	0.1	594.74	0.1	596.06	0.1
593.44	0.1	594.76	0.1	596.08	0.1
593.46	0.1	594.78	0.1	596.10	0.1
593.48	0.1	594.80	0.1	596.12	0.1
593.50	0.1	594.82	0.1	596.14	0.1
593.52	0.1	594.84	0.1	596.16	0.1
593.54	0.1	594.86	0.1	596.18	0.1
593.56	0.1	594.88	0.1	596.20	0.1
593.58	0.1	594.90	0.1	596.22	0.1
593.60	0.1	594.92	0.1	596.24	0.1
593.62	0.1	594.94	0.1	596.26	0.1
593.64	0.1	594.96	0.1	596.28	0.1
593.66	0.1	594.98	0.1	596.30	0.1
593.68	0.1	595.00	0.1	596.32	0.1
593.70	0.1	595.02	0.1	596.34	0.1
593.72	0.1	595.04	0.1	596.36	0.1
593.74	0.1	595.06	0.1	596.38	0.1
593.76	0.1	595.08	0.1	596.40	0.1
593.78	0.1	595.10	0.1	596.42	0.1
593.80	0.1	595.12	0.1	596.44	0.1
593.82	0.1	595.14	0.1	596.46	0.1
593.84	0.1	595.16	0.1	596.48	0.1
593.86	0.1	595.18	0.1	596.50	0.1
593.88	0.1	595.20	0.1	596.52	0.1
593.90	0.1	595.22	0.1	596.54	0.1
593.92	0.1	595.24	0.1		
593.94	0.1	595.26	0.1		
593.96	0.1	595.28	0.1		
593.98	0.1	595.30	0.1		
594.00	0.1	595.32	0.1		
594.02	0.1	595.34	0.1		
594.04	0.1	595.36	0.1		
594.06	0.1	595.38	0.1		
594.08	0.1	595.40	0.1		
594.10	0.1	595.42	0.1		
594.12	0.1	595.44	0.1		
594.14	0.1	595.46	0.1		
594.16	0.1	595.48	0.1		
594.18	0.1	595.50	0.1		
594.20	0.1	595.52	0.1		
594.22	0.1	595.54	0.1		
594.24	0.1	595.56	0.1		
594.26	0.1	595.58	0.1		
594.28	0.1	595.60	0.1		
594.30	0.1	595.62	0.1		

Stage-Area-Storage for Pond INF 1.3: Infiltration System 1.3

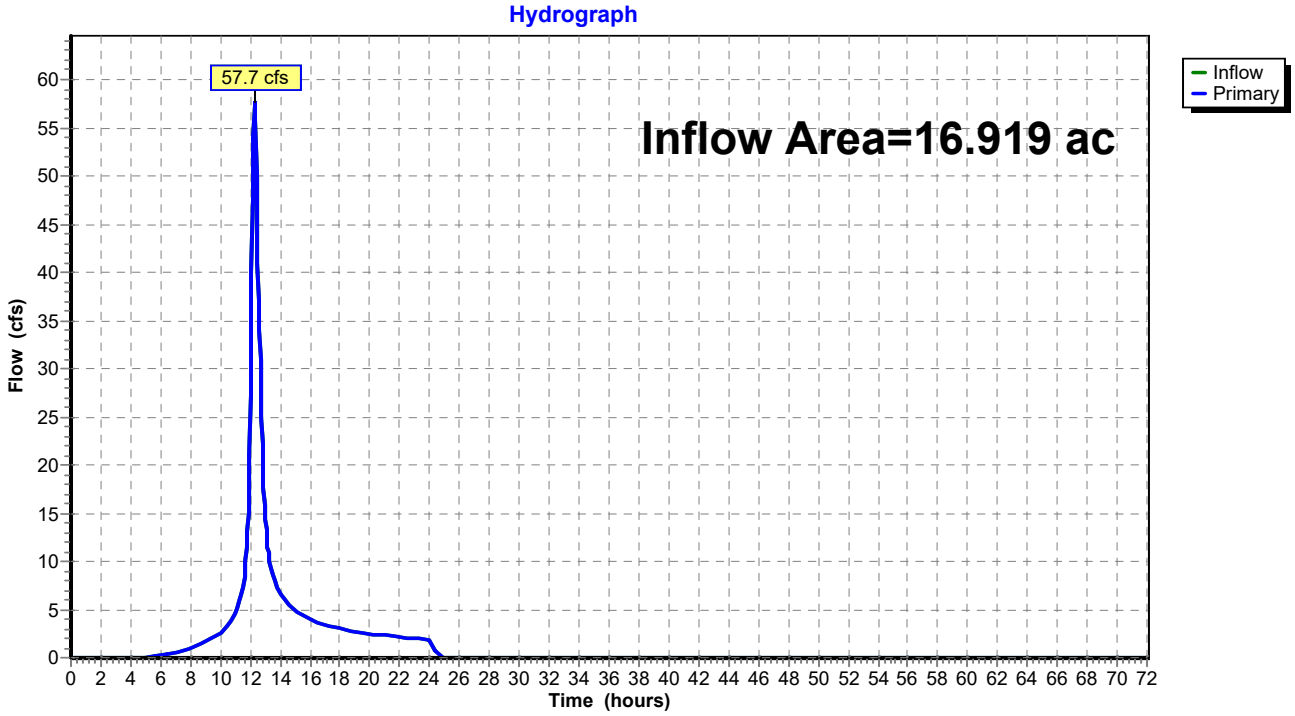
Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)	Elevation (feet)	Horizontal (acres)	Storage (acre-feet)
593.00	**0.006**	0.000	594.32	0.006	0.005	595.64	0.006	0.011
593.02	0.006	0.000	594.34	0.006	0.006	595.66	0.006	0.011
593.04	0.006	0.000	594.36	0.006	0.006	595.68	0.006	0.011
593.06	0.006	0.000	594.38	0.006	0.006	595.70	0.006	0.012
593.08	0.006	0.000	594.40	0.006	0.006	595.72	0.006	0.012
593.10	0.006	0.000	594.42	0.006	0.006	595.74	0.006	0.012
593.12	0.006	0.000	594.44	0.006	0.006	595.76	0.006	0.012
593.14	0.006	0.000	594.46	0.006	0.006	595.78	0.006	0.012
593.16	0.006	0.000	594.48	0.006	0.006	595.80	0.006	0.012
593.18	0.006	0.000	594.50	0.006	0.006	595.82	0.006	0.012
593.20	0.006	0.001	594.52	0.006	0.006	595.84	0.006	0.012
593.22	0.006	0.001	594.54	0.006	0.006	595.86	0.006	0.012
593.24	0.006	0.001	594.56	0.006	0.007	595.88	0.006	0.012
593.26	0.006	0.001	594.58	0.006	0.007	595.90	0.006	0.012
593.28	0.006	0.001	594.60	0.006	0.007	595.92	0.006	0.012
593.30	0.006	0.001	594.62	0.006	0.007	595.94	0.006	0.012
593.32	0.006	0.001	594.64	0.006	0.007	595.96	0.006	0.012
593.34	0.006	0.001	594.66	0.006	0.007	595.98	0.006	0.012
593.36	0.006	0.001	594.68	0.006	0.007	596.00	0.006	0.012
593.38	0.006	0.001	594.70	0.006	0.007	596.02	0.006	0.013
593.40	0.006	0.001	594.72	0.006	0.007	596.04	0.006	0.013
593.42	0.006	0.001	594.74	0.006	0.007	596.06	0.006	0.013
593.44	0.006	0.001	594.76	0.006	0.008	596.08	0.006	0.013
593.46	0.006	0.001	594.78	0.006	0.008	596.10	0.006	0.013
593.48	0.006	0.001	594.80	0.006	0.008	596.12	0.006	0.013
593.50	0.006	0.001	594.82	0.006	0.008	596.14	0.006	0.013
593.52	0.006	0.001	594.84	0.006	0.008	596.16	0.006	0.013
593.54	0.006	0.001	594.86	0.006	0.008	596.18	0.006	0.013
593.56	0.006	0.002	594.88	0.006	0.008	596.20	0.006	0.013
593.58	0.006	0.002	594.90	0.006	0.008	596.22	0.006	0.013
593.60	0.006	0.002	594.92	0.006	0.008	596.24	0.006	0.013
593.62	0.006	0.002	594.94	0.006	0.008	596.26	0.006	0.013
593.64	0.006	0.002	594.96	0.006	0.008	596.28	0.006	0.013
593.66	0.006	0.002	594.98	0.006	0.009	596.30	0.006	0.013
593.68	0.006	0.002	595.00	0.006	0.009	596.32	0.006	0.013
593.70	0.006	0.002	595.02	0.006	0.009	596.34	0.006	0.013
593.72	0.006	0.002	595.04	0.006	0.009	596.36	0.006	0.013
593.74	0.006	0.003	595.06	0.006	0.009	596.38	0.006	0.013
593.76	0.006	0.003	595.08	0.006	0.009	596.40	0.006	0.014
593.78	0.006	0.003	595.10	0.006	0.009	596.42	0.006	0.014
593.80	0.006	0.003	595.12	0.006	0.009	596.44	0.006	0.014
593.82	0.006	0.003	595.14	0.006	0.009	596.46	0.006	0.014
593.84	0.006	0.003	595.16	0.006	0.009	596.48	0.006	0.014
593.86	0.006	0.003	595.18	0.006	0.009	596.50	0.006	0.014
593.88	0.006	0.003	595.20	0.006	0.010	596.52	0.006	0.014
593.90	0.006	0.003	595.22	0.006	0.010	596.54	0.006	**0.014**
593.92	0.006	0.003	595.24	0.006	0.010			
593.94	0.006	0.004	595.26	0.006	0.010			
593.96	0.006	0.004	595.28	0.006	0.010			
593.98	0.006	0.004	595.30	0.006	0.010			
594.00	0.006	0.004	595.32	0.006	0.010			
594.02	0.006	0.004	595.34	0.006	0.010			
594.04	0.006	0.004	595.36	0.006	0.010			
594.06	0.006	0.004	595.38	0.006	0.010			
594.08	0.006	0.004	595.40	0.006	0.010			
594.10	0.006	0.004	595.42	0.006	0.010			
594.12	0.006	0.004	595.44	0.006	0.011			
594.14	0.006	0.005	595.46	0.006	0.011			
594.16	0.006	0.005	595.48	0.006	0.011			
594.18	0.006	0.005	595.50	0.006	0.011			
594.20	0.006	0.005	595.52	0.006	0.011			
594.22	0.006	0.005	595.54	0.006	0.011			
594.24	0.006	0.005	595.56	0.006	0.011			
594.26	0.006	0.005	595.58	0.006	0.011			
594.28	0.006	0.005	595.60	0.006	0.011			
594.30	0.006	0.005	595.62	0.006	0.011			

Summary for Link DP: Design Point

Inflow Area = 16.919 ac, 6.14% Impervious, Inflow Depth = 5.56" for 100-yr event
Inflow = 57.7 cfs @ 12.27 hrs, Volume= 7.834 af
Primary = 57.7 cfs @ 12.27 hrs, Volume= 7.834 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

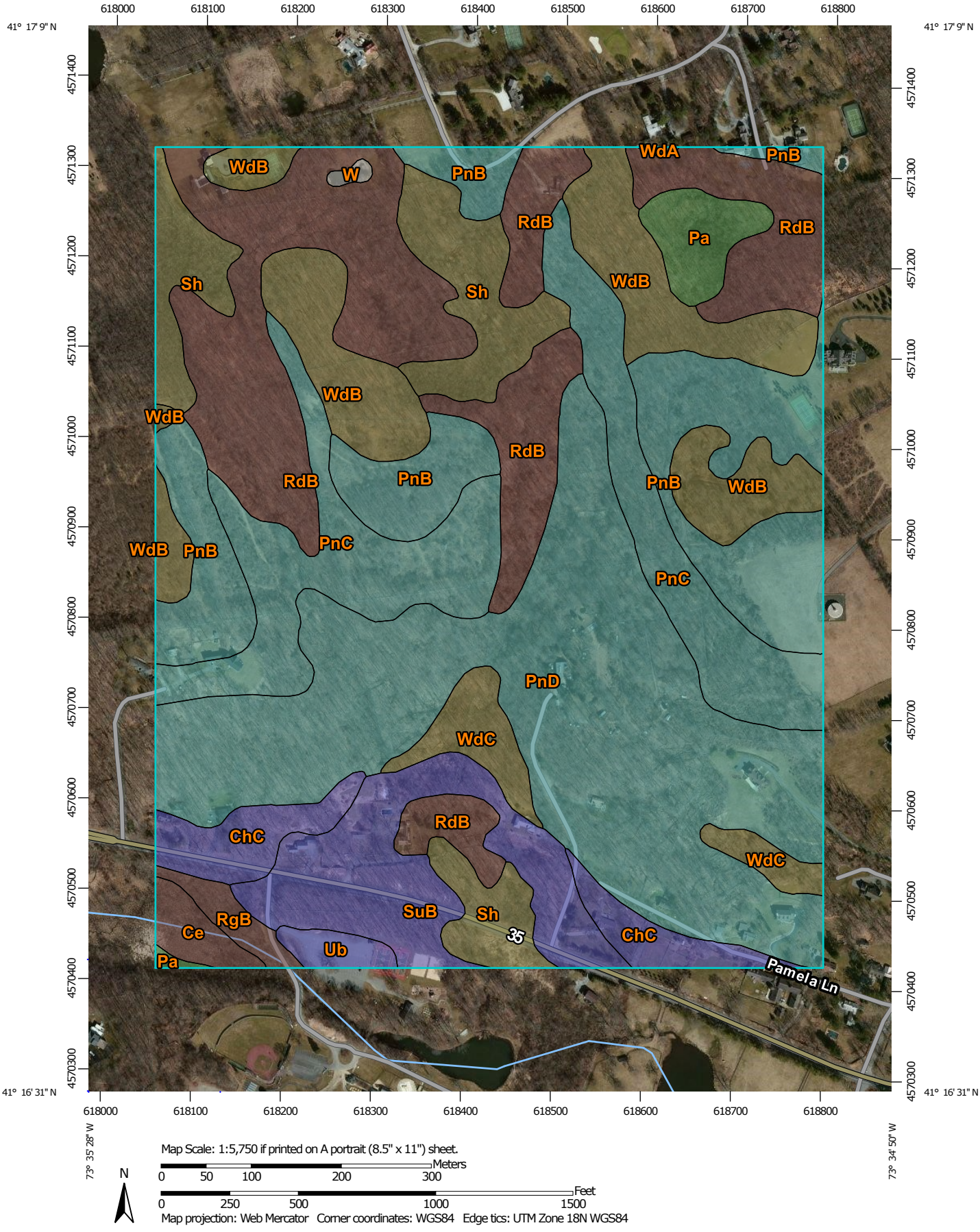
Link DP: Design Point



Appendix D:

NRCS Soil Mapping

Hydrologic Soil Group—Westchester County, New York
(WOLF CENTER SOILS)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Westchester County, New York
Survey Area Data: Version 11, Sep 25, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Apr 16, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Westchester County, New York (NY119)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ce	Catden muck, 0 to 2 percent slopes	B/D	1.5	0.9%
ChC	Charlton loam, 8 to 15 percent slopes	B	5.4	3.2%
Pa	Palms muck	A/D	2.9	1.8%
PnB	Paxton fine sandy loam, 3 to 8 percent slopes	C	20.0	12.0%
PnC	Paxton fine sandy loam, 8 to 15 percent slopes	C	20.1	12.0%
PnD	Paxton fine sandy loam, 15 to 25 percent slopes	C	41.1	24.6%
RdB	Ridgebury loam, 3 to 8 percent slopes	B/D	30.7	18.3%
RgB	Ridgebury loam, 2 to 8 percent slopes, very stony	B/D	1.3	0.8%
Sh	Sun loam	C/D	11.4	6.8%
SuB	Sutton loam, 3 to 8 percent slopes	B	10.9	6.5%
Ub	Udorthents, smoothed	B	1.1	0.7%
W	Water		0.2	0.1%
WdA	Woodbridge loam, 0 to 3 percent slopes	C/D	0.1	0.0%
WdB	Woodbridge loam, 3 to 8 percent slopes	C/D	16.6	9.9%
WdC	Woodbridge loam, 8 to 15 percent slopes	C/D	3.8	2.2%
Totals for Area of Interest			**167.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix E:

New York Standards and Specifications for Erosion and Sediment Control Construction Site Log Book

APPENDIX F
CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG BOOK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

SAMPLE CONSTRUCTION SITE LOG BOOK

Table of Contents

I. Pre-Construction Meeting Documents
   a. Preamble to Site Assessment and Inspections
   b. Pre-Construction Site Assessment Checklist

II. Construction Duration Inspections
   a. Directions
   b. Modification to the SWPPP

I. **PRE-CONSTRUCTION MEETING DOCUMENTS**

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. **Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)	**Date of Inspection**
Qualified Inspector (print name)	**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA
[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA
[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

Appendix F:

Northeast Regional Climate Center Precipitation Estimates

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	No
State	New York
Location	
Longitude	73.585 degrees West
Latitude	41.279 degrees North
Elevation	0 feet
Date/Time	Mon, 28 Dec 2020 10:36:47 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.33	0.51	0.63	0.84	1.03	1.25	**1yr**	0.89	1.22	1.43	1.82	2.28	2.83	3.18	**1yr**	2.50	3.06	3.53	4.23	4.87	**1yr**
2yr	0.39	0.61	0.75	1.02	1.25	1.50	**2yr**	1.08	1.46	1.71	2.20	2.76	3.40	3.82	**2yr**	3.01	3.67	4.21	4.98	5.63	**2yr**
5yr	0.46	0.71	0.89	1.22	1.55	1.84	**5yr**	1.33	1.80	2.11	2.72	3.42	4.27	4.82	**5yr**	3.78	4.64	5.35	6.23	7.00	**5yr**
10yr	0.53	0.81	1.00	1.40	1.81	2.16	**10yr**	1.56	2.11	2.46	3.20	4.03	5.08	5.76	**10yr**	4.49	5.54	6.41	7.38	8.25	**10yr**
25yr	0.63	0.96	1.19	1.71	2.24	2.67	**25yr**	1.94	2.61	3.03	3.97	5.00	6.38	7.29	**25yr**	5.65	7.01	8.16	9.24	10.25	**25yr**
50yr	0.72	1.10	1.37	1.96	2.64	3.13	**50yr**	2.28	3.06	3.55	4.68	5.90	7.59	8.71	**50yr**	6.72	8.37	9.80	10.96	12.09	**50yr**
100yr	0.83	1.26	1.57	2.27	3.11	3.68	**100yr**	2.69	3.60	4.16	5.52	6.96	9.04	10.41	**100yr**	8.00	10.01	11.78	13.00	14.27	**100yr**
200yr	0.96	1.44	1.82	2.63	3.67	4.33	**200yr**	3.17	4.23	4.88	6.52	8.21	10.76	12.46	**200yr**	9.52	11.98	14.15	15.43	16.84	**200yr**
500yr	1.16	1.72	2.22	3.22	4.58	5.36	**500yr**	3.96	5.24	6.03	8.13	10.23	13.56	15.80	**500yr**	12.00	15.19	18.06	19.35	20.98	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.61	0.75	0.95	**1yr**	0.65	0.93	1.21	1.58	2.03	2.53	2.77	**1yr**	2.24	2.66	3.28	3.71	4.57	**1yr**
2yr	0.38	0.59	0.73	0.98	1.21	1.46	**2yr**	1.05	1.42	1.66	2.12	2.69	3.31	3.70	**2yr**	2.93	3.56	4.09	4.83	5.47	**2yr**
5yr	0.42	0.65	0.80	1.10	1.40	1.71	**5yr**	1.21	1.67	1.95	2.51	3.15	3.93	4.44	**5yr**	3.48	4.27	4.93	5.72	6.44	**5yr**
10yr	0.45	0.70	0.86	1.20	1.56	1.92	**10yr**	1.34	1.88	2.20	2.87	3.55	4.48	5.06	**10yr**	3.96	4.87	5.68	6.47	7.27	**10yr**
25yr	0.49	0.74	0.92	1.32	1.74	2.20	**25yr**	1.50	2.15	2.57	3.41	4.15	5.31	6.01	**25yr**	4.70	5.78	6.85	7.65	8.53	**25yr**
50yr	0.51	0.78	0.97	1.39	1.88	2.42	**50yr**	1.62	2.36	2.93	3.90	4.67	6.05	6.86	**50yr**	5.36	6.60	7.91	8.68	9.62	**50yr**
100yr	0.54	0.82	1.03	1.48	2.03	2.65	**100yr**	1.76	2.59	3.33	4.47	5.16	6.92	7.83	**100yr**	6.12	7.53	9.18	9.85	10.86	**100yr**
200yr	0.57	0.86	1.09	1.57	2.19	2.91	**200yr**	1.89	2.84	3.79	5.15	5.81	7.88	8.98	**200yr**	6.98	8.63	10.67	11.18	12.28	**200yr**
500yr	0.61	0.90	1.16	1.69	2.40	3.30	**500yr**	2.08	3.23	4.53	6.26	6.79	9.38	10.80	**500yr**	8.30	10.38	13.05	13.27	14.44	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.37	0.57	0.70	0.94	1.15	1.38	**1yr**	0.99	1.35	1.59	2.03	2.53	3.07	3.43	**1yr**	2.72	3.30	3.80	4.51	5.19	**1yr**
2yr	0.42	0.65	0.80	1.09	1.34	1.56	**2yr**	1.16	1.52	1.78	2.27	2.85	3.52	4.01	**2yr**	3.12	3.85	4.38	5.18	5.84	**2yr**
5yr	0.50	0.77	0.96	1.32	1.68	1.98	**5yr**	1.45	1.93	2.28	2.94	3.68	4.63	5.24	**5yr**	4.10	5.04	5.78	6.75	7.54	**5yr**
10yr	0.59	0.91	1.12	1.57	2.03	2.38	**10yr**	1.75	2.33	2.77	3.57	4.50	5.71	6.47	**10yr**	5.05	6.22	7.16	8.28	9.18	**10yr**
25yr	0.74	1.13	1.40	2.01	2.64	3.08	**25yr**	2.28	3.01	3.56	4.62	5.85	7.53	8.57	**25yr**	6.66	8.24	9.49	10.83	11.91	**25yr**
50yr	0.88	1.34	1.66	2.39	3.22	3.73	**50yr**	2.78	3.65	4.32	5.59	7.16	9.29	10.58	**50yr**	8.22	10.18	11.74	13.30	14.52	**50yr**
100yr	1.05	1.59	1.99	2.88	3.95	4.53	**100yr**	3.41	4.43	5.23	6.79	9.35	11.46	13.08	**100yr**	10.14	12.58	14.47	16.33	17.71	**100yr**
200yr	1.26	1.89	2.40	3.47	4.85	5.50	**200yr**	4.18	5.38	6.32	8.22	11.55	14.14	16.18	**200yr**	12.52	15.55	17.89	20.02	21.60	**200yr**
500yr	1.62	2.41	3.10	4.50	6.40	7.10	**500yr**	5.52	6.94	8.13	10.58	15.34	18.66	21.41	**500yr**	16.51	20.59	23.57	26.16	28.04	**500yr**

Powered by ACIS Northeast Regional Climate Center

Appendix G:

New York State Stormwater Management Design Manual
Maintenance and Inspection Checklist.

Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist

Project _____
Location: _____
Site Status: _____

Date: _____
Time: _____

Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway (Annual, After Major Storms)		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6.Pond, toe & chimney drains clear and functioning		
7.Seeps/leaks on downstream face		
8.Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam “As-Built”		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
2. Riser and principal spillway (Annual)		
Type: Reinforced concrete _____ Corrugated pipe _____ Masonry _____ 1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Permanent Pool (Wet Ponds) (monthly)		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
4. Sediment Forebays		
1.Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
5. Dry Pond Areas		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
6. Condition of Outfalls (Annual , After Major Storms)		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4.Endwalls / Headwalls		
5. Other (specify)		
7. Other (Monthly)		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
2. Complaints from residents		
3.Aesthetics a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
8. Wetland Vegetation (Annual)		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

Comments:

Actions to be Taken:

Infiltration Trench Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Trench surface clear of debris		
Inflow pipes clear of debris		
Overflow spillway clear of debris		
Inlet area clear of debris		
2. Sediment Traps or Forebays (Annual)		
Obviously trapping sediment		
Greater than 50% of storage volume remaining		
3. Dewatering (Monthly)		
Trench dewaters between storms		
4. Sediment Cleanout of Trench (Annual)		
No evidence of sedimentation in trench		
Sediment accumulation doesn't yet require cleanout		
5. Inlets (Annual)		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Good condition		
No evidence of erosion		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repair		
No evidence of erosion		
7. Aggregate Repairs (Annual)		
Surface of aggregate clean		
Top layer of stone does not need replacement		
Trench does not need rehabilitation		

Comments:

Actions to be Taken:

Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

Appendix H:

Cultec Infiltration Chamber Operation and Maintenance Requirements.

Contactor® & Recharger®
Stormwater Chambers

Operation and Maintenance Guidelines
for CULTEC Stormwater Management Systems

The Founder of Plastic Chamber Technology

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CULTEC®

Published by
CULTEC, Inc.
P.O. Box 280
878 Federal Road
Brookfield, Connecticut 06804 USA
www.cultec.com

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Contact Information:
For general information on our other products and services, please contact our offices within the United States at (800)428-5832, (203)775-4416 ext. 202, or e-mail us at custservice@cultec.com.

For technical support, please call (203)775-4416 ext. 203 or e-mail tech@cultec.com.

Visit www.cultec.com/downloads.html for Product Downloads and CAD details.

Doc ID: CULG008 05-17
May 2017

These instructions are for single-layer traffic applications only. For multi-layer applications, contact CULTEC.
All illustrations and photos shown herein are examples of typical situations. Be sure to follow the engineer's drawings.
Actual designs may vary.

This manual contains guidelines recommended by CULTEC, Inc. and may be used in conjunction with, but not to supersede, local regulations or regulatory authorities. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Introduction

The CULTEC Subsurface Stormwater Management System is a high-density polyethylene (HDPE) chamber system arranged in parallel rows surrounded by washed stone. The CULTEC chambers create arch-shaped voids within the washed stone to provide stormwater detention, retention, infiltration, and reclamation. Filter fabric is placed between the native soil and stone interface to prevent the intrusion of fines into the system. In order to minimize the amount of sediment which may enter the CULTEC system, a sediment collection device (stormwater pretreatment device) is recommended upstream from the CULTEC chamber system. Examples of pretreatment devices include, but are not limited to, an appropriately sized catch basin with sump, pretreatment catchment device, oil grit separator, or baffled distribution box. Manufactured pretreatment devices may also be used in accordance with CULTEC chambers. Installation, operation, and maintenance of these devices shall be in accordance with manufacturer's recommendations. Almost all of the sediment entering the stormwater management system will be collected within the pretreatment device.

Best Management Practices allow for the maintenance of the preliminary collection systems prior to feeding the CULTEC chambers. The pretreatment structures shall be inspected for any debris that will restrict inlet flow rates. Outfall structures, if any, such as outlet control must also be inspected for any obstructions that would restrict outlet flow rates. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Operation and Maintenance Requirements

I. Operation

CULTEC stormwater management systems shall be operated to receive only stormwater run-off in accordance with applicable local regulations. CULTEC subsurface stormwater management chambers operate at peak performance when installed in series with pretreatment. Pretreatment of suspended solids is superior to treatment of solids once they have been introduced into the system. The use of pretreatment is adequate as long as the structure is maintained and the site remains stable with finished impervious surfaces such as parking lots, walkways, and pervious areas are properly maintained. If there is to be an unstable condition, such as improvements to buildings or parking areas, all proper silt control measures shall be implemented according to local regulations.

II. Inspection and Maintenance Options

A. The CULTEC system may be equipped with an inspection port located on the inlet row. The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the CULTEC Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment if any in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream manhole or through the CULTEC StormFilter Unit (or other pretreatment device). CCTV inspection of this row can be deployed through this access port to deter mine if any sediment has accumulated in the inlet row.

B. If the CULTEC bed is not equipped with an inspection port, then access to the inlet row will be through an upstream manhole or the CULTEC StormFilter.

1. Manhole Access
This inspection should only be carried out by persons trained in confined space entry and sewer inspection services. After the manhole cover has been removed a gas detector must be lowered into the manhole to ensure that there are not high concentrations of toxic gases present. The inspector should be lowered into the manhole with the proper safety equipment as per OSHA requirements. The inspector may be able to observe sediment from this location. If this is not possible, the inspector will need to deploy a CCTV robot to permit viewing of the sediment.

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2. **StormFilter Access**
Remove the manhole cover to allow access to the unit. Typically a 30-inch (750 mm) pipe is used as a riser from the StormFilter to the surface. As in the case with manhole access, this access point requires a technician trained in confined space entry with proper gas detection equipment. This individual must be equipped with the proper safety equipment for entry into the StormFilter. The technician will be lowered onto the StormFilter unit. The hatch on the unit must be removed. Inside the unit are two filters which may be removed according to StormFilter maintenance guidelines. Once these filters are removed the inspector can enter the StormFilter unit to launch the CCTV camera robot.

C. The inlet row of the CULTEC system is placed on a polyethylene liner to prevent scouring of the washed stone beneath this row. This also facilitates the flushing of this row with high pressure water through a culvert cleaning nozzle. The nozzle is deployed through a manhole or the StormFilter and extended to the end of the row. The water is turned on and the inlet row is back-flushed into the manhole or StormFilter. This water is to be removed from the manhole or StormFilter using a vacuum truck.

III. Maintenance Guidelines

The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:

A. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system's operational capacity.

B. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.

C. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.

D. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

IV. Suggested Maintenance Schedules

A. Minor Maintenance
The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:

Frequency	Action
Monthly in first year	Check inlets and outlets for clogging and remove any debris, as required.
Spring and Fall	Check inlets and outlets for clogging and remove any debris, as required.
One year after commissioning and every third year following	Check inlets and outlets for clogging and remove any debris, as required.

B. Major Maintenance
The following suggested maintenance schedule shall be followed to maintain the performance of the CULTEC stormwater management chambers. Additional work may be necessary due to insufficient performance and other issues that might be found during the inspection of the stormwater management chambers. (See table on next page)

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	Frequency	Action
Inlets and Outlets	Every 3 years	• Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
	Spring and Fall	• Check inlet and outlets for clogging and remove any debris as required.
CULTEC Stormwater Chambers	2 years after commissioning	• Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
	9 years after commissioning every 9 years following	• Clean stormwater management chambers and feed connectors of any debris. • Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
	45 years after commissioning	• Clean stormwater management chambers and feed connectors of any debris. • Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. • Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. • Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. • Attain the appropriate approvals as required. • Establish a new operation and maintenance schedule.
Surrounding Site	Monthly in 1st year	• Check for depressions in areas over and surrounding the stormwater management system.
	Spring and Fall	• Check for depressions in areas over and surrounding the stormwater management system.
	Yearly	• Confirm that no unauthorized modifications have been performed to the site.

For additional information concerning the maintenance of CULTEC Subsurface Stormwater Management Chambers, please contact CULTEC, Inc. at 1-800-428-5832.

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WQMP
Operation & Maintenance (O&M) Plan

Project Name:_____

Prepared for:

Project Name: _____

Address:_____

City, State Zip:_____

Prepared on:

Date:_____

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This O&M Plan describes the designated responsible party for implementation of this WQMP, including: operation and maintenance of all the structural BMP(s), conducting the training/educational program and duties, and any other necessary activities. The O&M Plan includes detailed inspection and maintenance requirements for all structural BMPs, including copies of any maintenance contract agreements, manufacturer's maintenance requirements, permits, etc.

8.1.1 Project Information

Project name	
Address	
City, State Zip	
Site size	
List of structural BMPs, number of each	
Other notes	

8.1.2 Responsible Party

The responsible party for implementation of this WQMP is:

Name of Person or HOA Property Manager	
Address	
City, State Zip	
Phone number	
24-Hour Emergency Contact number	
Email	

8.1.3 Record Keeping

Parties responsible for the O&M plan shall retain records for at least 5 years.

All training and educational activities and BMP operation and maintenance shall be documented to verify compliance with this O&M Plan. A sample Training Log and Inspection and Maintenance Log are included in this document.

8.1.4 Electronic Data Submittal

This document along with the Site Plan and Attachments shall be provided in PDF format. AutoCAD files and/or GIS coordinates of BMPs shall also be submitted to the City.

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Appendix ____

BMP SITE PLAN

Site plan is preferred on minimum 11” by 17” colored sheets, as long as legible.

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BMP OPERATION & MAINTENANCE LOG

Project Name: _____

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

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Minor Maintenance

Frequency		Action
Monthly in first year		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Month 1	Date:	
□ Month 2	Date:	
□ Month 3	Date:	
□ Month 4	Date	
□ Month 5	Date:	
□ Month 6	Date:	
□ Month 7	Date:	
□ Month 8	Date:	
□ Month 9	Date:	
□ Month 10	Date:	
□ Month 11	Date:	
□ Month 12	Date:	
Spring and Fall		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
One year after commissioning and every third year following		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Year 1	Date:	
□ Year 4	Date:	
□ Year 7	Date:	
□ Year 10	Date:	
□ Year 13	Date:	
□ Year 16	Date:	
□ Year 19	Date:	
□ Year 22	Date:	

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Major Maintenance

	Frequency		Action
Inlets and Outlets	**Every 3 years**		Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
			Notes
	□ Year 1	Date:	
	□ Year 4	Date:	
	□ Year 7	Date:	
	□ Year 10	Date:	
	□ Year 13	Date:	
	□ Year 16	Date:	
	□ Year 19	Date:	
	□ Year 22	Date:	
	Spring and Fall		Check inlet and outlets for clogging and remove any debris, as required.
			Notes
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
CULTEC Stormwater Chambers	**2 years after commissioning**		□ Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. □ Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
			Notes
	□ Year 2	Date:	

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Major Maintenance

	Frequency		Action
CULTEC Stormwater Chambers	**9 years after commissioning every 9 years following**		□ Clean stormwater management chambers and feed connectors of any debris. □ Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. □ Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
			Notes
	□ Year 9	Date:	
	□ Year 18	Date:	
	□ Year 27	Date:	
	□ Year 36	Date:	
	45 years after commissioning		□ Clean stormwater management chambers and feed connectors of any debris. □ Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. □ Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. □ Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. □ Attain the appropriate approvals as required. □ Establish a new operation and maintenance schedule.
			Notes
	□ Year 45	Date:	

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Major Maintenance

	Frequency		Action
Surrounding Site	**Monthly in 1st year**		□ Check for depressions in areas over and surrounding the stormwater management system.
			Notes
	□ Month 1	Date:	
	□ Month 2	Date:	
	□ Month 3	Date:	
	□ Month 4	Date:	
	□ Month 5	Date:	
	□ Month 6	Date:	
	□ Month 7	Date:	
	□ Month 8	Date:	
	□ Month 9	Date:	
	□ Month 10	Date:	
	□ Month 11	Date:	
	□ Month 12	Date:	
	Spring and Fall		□ Check for depressions in areas over and surrounding the stormwater management system.
			Notes
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	Yearly		□ Confirm that no unauthorized modifications have been performed to the site.
			Notes
	□ Year 1	Date:	
	□ Year 2	Date:	
	□ Year 3	Date:	
	□ Year 4	Date:	
	□ Year 5	Date:	
	□ Year 6	Date:	
	□ Year 7	Date:	

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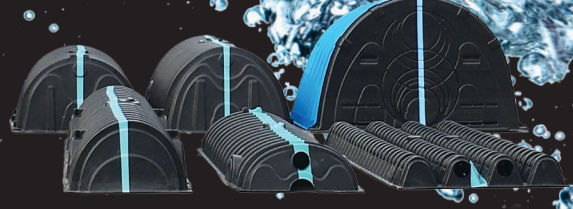


Appendix I:

Soil Testing Data

BIBBO ASSOCIATES, LLP

Consulting Engineers

Sheet: 1 of 2

Project: Wolf Conservation Center
Feature: Deep Test Results

Recorded By: Matthew Gironda
Date: May 25, 2021

Hole ID:	TP D-1
Depth:	Description:
0-24"	Top Soil
24"-56"	Light Brown Fine Sandy Loam
56"-96"	Dark Brown Fine Sandy Loam
	No Rock
	or Water at Full Depth

Hole ID:	TP D-2
Depth:	Description:
0-18"	Top Soil
18"-30"	Red/Brown Fine Sandy Loam
30"-104"	Brown Medium/Fine Sand
	w/ Silt and Cobbles
	No Rock
	or Water at Full Depth

Hole ID:	TP D-3
Depth:	Description:
0-24"	Top Soil
24"-48"	Red/Brown Fine Sandy Loam
48"-120"	Brown Fine/Medium Sand
	w/ Silt and Cobbles
	No Rock
	or Water at Full Depth

Hole ID:	TP D-4
Depth:	Description:
0-18"	Top Soil
18"-30"	Red/Brown Fine Sandy Loam
30"-104"	Brown Medium/Fine Sand w/
	traces of Silt and some cobbles
	No Rock
	or Water at Full Depth

BIBBO ASSOCIATES, LLP

Consulting Engineers

Sheet: 2 of 2

Project: Wolf Conservation Cente
Feature: Infiltration Percolation Test Results

Recorded By: Matthew Gironda
Date: May 25, 2021

Hole ID:	Run #	Time Start (Min.)	Time Stop (Min.)	Depth to Water From Ground Surface		Time (Min.)	Drop (In.)	Rate (In. / Hr.)
				From (In.)	To (In.)			
IT I-1	1	10:30 AM	11:30 AM	48.00	62.00	60	14.00	14.00
	2	11:33 AM	12:03 PM	48.00	60.50	60	12.50	12.50
	3	12:34 PM	1:34 PM	48.00	60.50	60	12.50	12.50
	4	1:36 PM	2:36 PM	48.00	60.50	60	12.50	12.50
IT I-2	1	9:45 AM	10:45 AM	48.00	67.00	60	19.00	19.00
	2	10:47 AM	11:47 AM	48.00	68.00	60	20.00	20.00
	3	11:48 AM	12:48 PM	48.00	68.50	60	20.50	20.50
	4	12:49 PM	1:49 PM	48.00	66.00	60	18.00	18.00
IT I-3	1	9:36 AM	10:36 AM	76.00	97.50	60	21.50	21.50
	2	10:38 AM	11:38 AM	76.00	100.00	60	24.00	24.00
	3	11:40 AM	12:40 PM	76.00	97.00	60	21.00	21.00
	4	12:42 PM	1:42 PM	76.00	97.00	60	21.00	21.00
IT I-4	1	9:30 AM	10:30 AM	52.00	71.50	60	19.50	19.50
	2	10:32 AM	11:32 AM	52.00	71.00	60	19.00	19.00
	3	11:33 AM	12:33 PM	52.00	70.00	60	18.00	18.00
	4	12:34 PM	1:34 PM	52.00	70.00	60	18.00	18.00

Appendix J:

First Defense Stormwater Treatment Unit Operation and Maintenance Manual

BIBBO ASSOCIATES, LLP
Consulting Engineers - Planners

Wolf Conservation Center

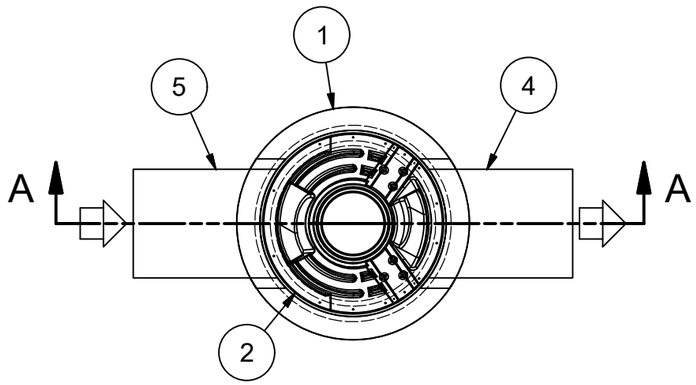
Hydrointernational First Defense Sizing Summary

Structure Number	*First Defense HDS Unit Model No.*	*NJDEP Certified Treatment Capacity * (cfs)*	*1-Year Storm Peak Flow ** (cfs)*	*100-Year Storm Peak Flow *** (cfs)*
HDS #1.1	FD-4HC	1.50	1.1	4.9
H.D.S. #1.2	FD-5HC	2.34	2.3	3.0
H.D.S. #1.3	FD-3HC	0.84	0.1	0.4

* NJDEP Certified Treatment Rates Provided by manufacturer. Refer to detail provided on project drawings

** 1-Year Storm Peak Flow rates obtained from HydroCAD model inculded in Appendix C

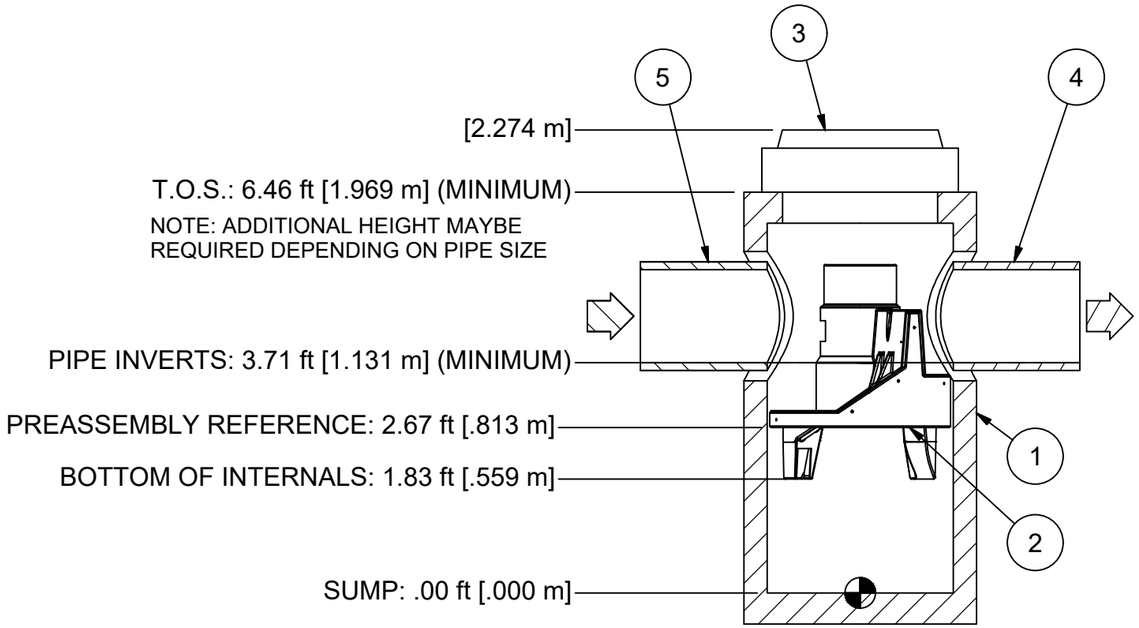
*** 100 Year Peak Flow obtained from HydroCAD model in Appendix C.
Manufacturer rated Peak Hydraulic Flow for Model # FD-3HC = 15.0 cfs. Manufacturer rated Peak Hydraulic Flow for Model # FD-4HC = 18.0 cfs. Manufacturer rated Peak Hydraulic Flow for Model # FD-5HC = 20.0 cfs.



PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS AS REQUIRED



SECTION A-A

PRODUCT SPECIFICATION:

1. PEAK HYDRAULIC FLOW: 15.0 cfs (424 l/s)
2. MIN SEDIMENT STORAGE CAPACITY: 0.4 cu. yd. (0.3 cu. m.)
3. OIL STORAGE CAPACITY: 125 gal. (473 liters)
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 18 in. (450 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.
6. FOR MORE PRODUCT INFORMATION INCLUDING REGULATORY ACCEPTANCES, PLEASE VISIT https://hydro-int.com/en/products/first-defense

GENERAL NOTES:
1. General Arrangement drawings only. Contact Hydro International for site specific drawings.
2. The diameter of the inlet and outlet pipes may be no more than 18".
3. Multiple inlet pipes possible (refer to project plan).
4. Inlet/outlet pipe angle can vary to align with drainage network (refer to project plan.s)
5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

PARTS LIST

ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	36	900	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND COVER (ROUND)
4	1	18 (MAX)	450 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	18 (MAX)	450 (MAX)	INLET PIPE (BY OTHERS)

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PROJECTION

IF IN DOUBT ASK

COMMENTS:

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING FIRST DEFENSE MANHOLE.

3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

DATE:	SCALE:
11/8/2019	1:30

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Title
3-ft DIAMETER

FIRST DEFENSE HIGH CAPACITY

GENERAL ARRANGEMENT

Hydro International®
hydro-int.com
HYDRO INTERNATIONAL

DO NOT SCALE DRAWING
STEEL FABRICATION TOLERANCES
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

LINEAR
000 - 012in = ±0.04in
012 - 024in = ±0.06in
024 - 048in = ±0.08in
048 - 120in = ±0.12in
120in >>>> = ±0.20in

ANGULAR
000 - 120in = ±1°
120 - 240in = ±0.5°
240in >>>> = ±0.25°

WEIGHT:	MATERIAL:
N/A	

STOCK NUMBER:

DRAWING NO.:
3FDHC_FDHC GA

SHEET SIZE:	SHEET:	Rev:
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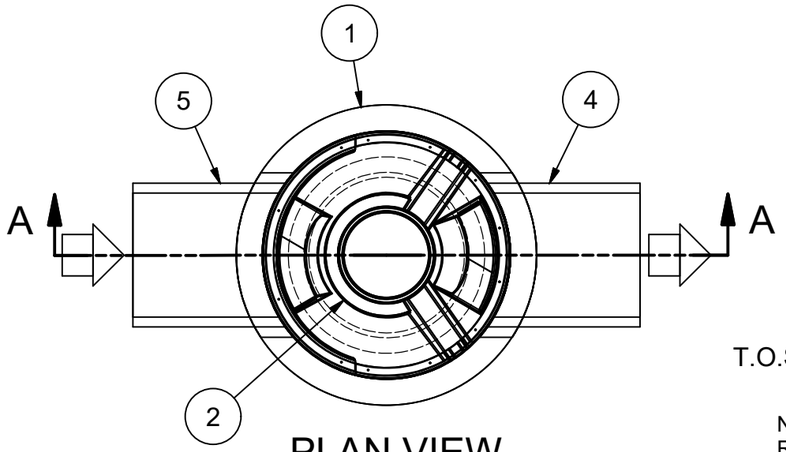
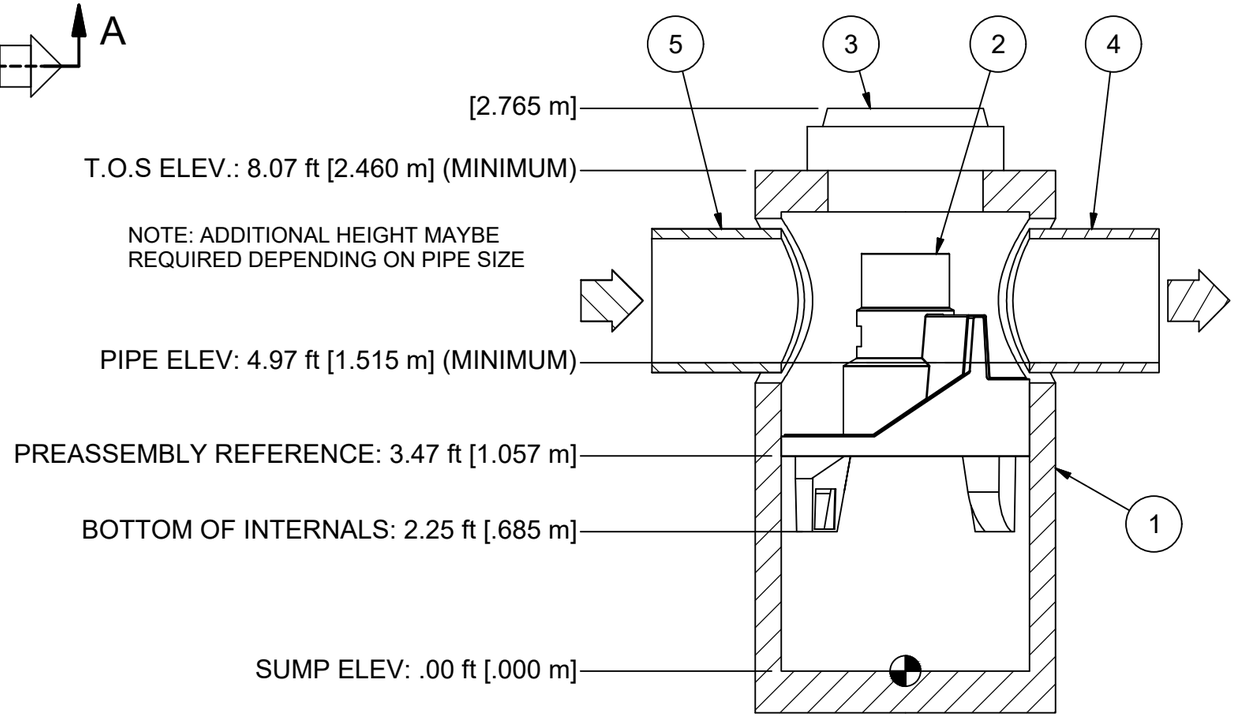


PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS
AS REQUIRED



SECTION A-A

PRODUCT SPECIFICATION:

1. PEAK HYDRAULIC FLOW: 18.0 cfs (510 l/s)
2. MIN SEDIMENT STORAGE CAPACITY: 0.7 cu. yd. (0.5 cu. m.)
3. OIL STORAGE CAPACITY: 191 gal. (723 liters)
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 24 in. (600 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.
6. FOR MORE PRODUCT INFORMATION INCLUDING REGULATORY ACCEPTANCES, PLEASE VISIT https://hydro-int.com/en/products/first-defense

GENERAL NOTES:

1. General Arrangement drawings only. Contact Hydro International for site specific drawings.
2. The diameter of the inlet and outlet pipes may be no more than 24".
3. Multiple inlet pipes possible (refer to project plan).
4. Inlet/outlet pipe angle can vary to align with drainage network (refer to project plan.s)
5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

PARTS LIST

ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	48	1200	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND COVER (ROUND)
4	1	24 (MAX)	600 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	24 (MAX)	600 (MAX)	INLET PIPE (BY OTHERS)

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PROJECTION

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COMMENTS:

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Title
4-ft DIAMETER

FIRST DEFENSE HIGH CAPACITY

GENERAL ARRANGEMENT

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HYDRO INTERNATIONAL

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LINEAR
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WEIGHT:	MATERIAL:
N/A	

STOCK NUMBER:

DRAWING NO.:
4FDHC_FDHC GA STD

SHEET SIZE:	SHEET:	Rev:
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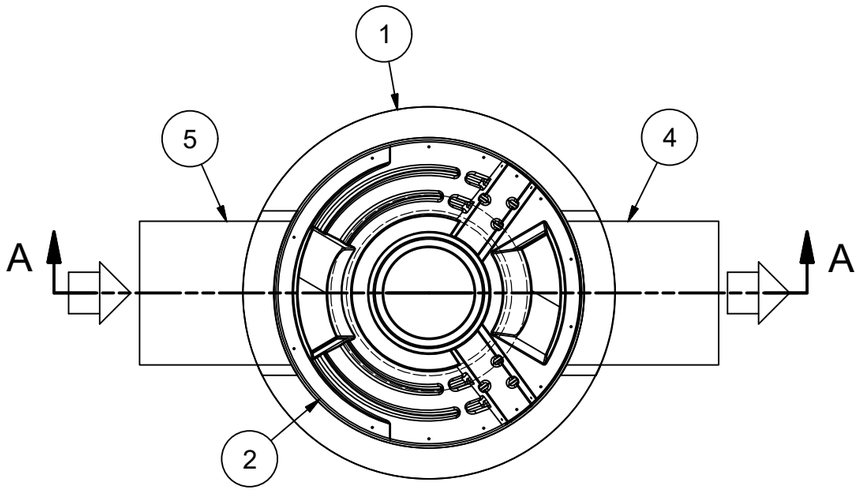
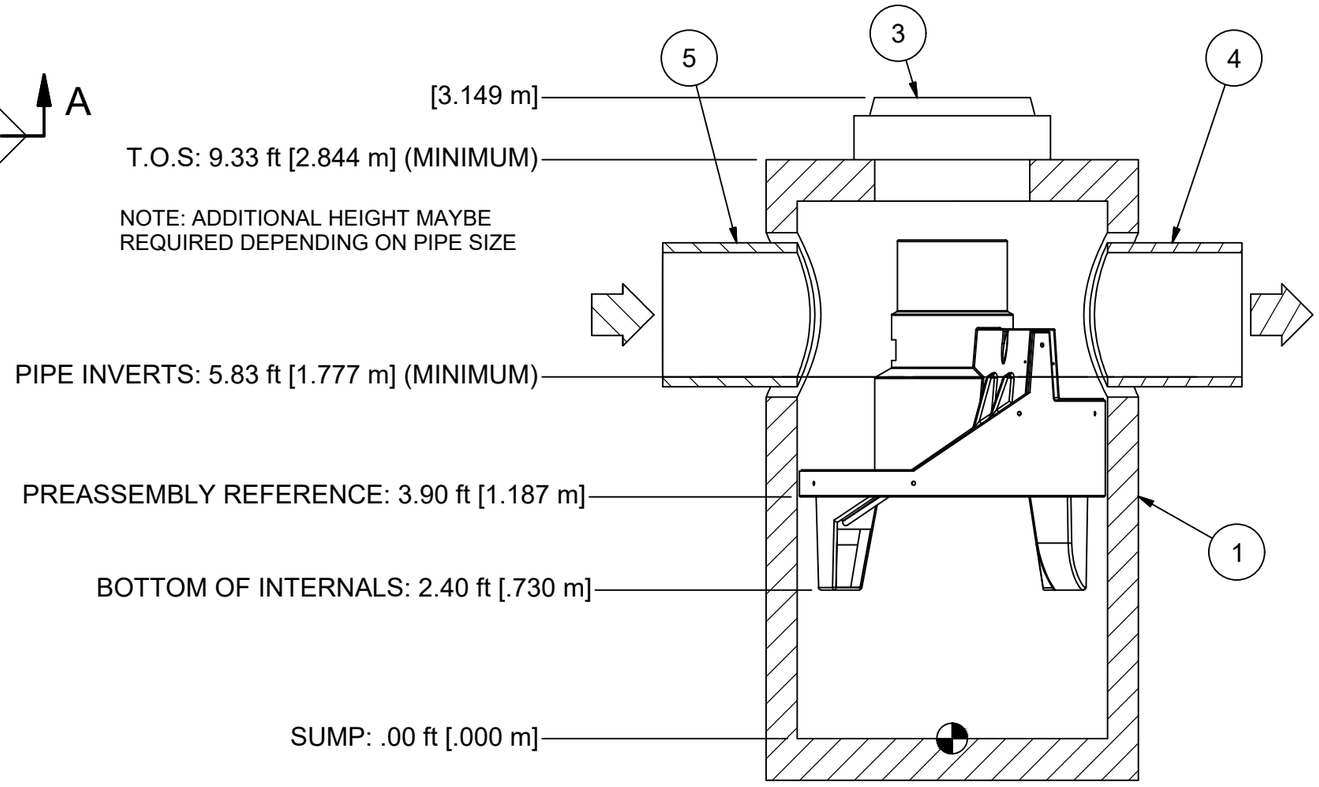


PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS
AS REQUIRED



SECTION A-A

PRODUCT SPECIFICATION:

1. PEAK HYDRAULIC FLOW: 20.0 cfs (566 l/s)
2. MIN SEDIMENT STORAGE CAPACITY: 1.1 cu. yd. (0.8 cu. m.)
3. OIL STORAGE CAPACITY: 300 gal. (1135 liters)
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 24 in. (600 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.
6. FOR MORE PRODUCT INFORMATION INCLUDING REGULATORY ACCEPTANCES, PLEASE VISIT https://hydro-int.com/en/products/first-defense

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3. Multiple inlet pipes possible (refer to project plan).
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5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

PARTS LIST

ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	60	1500	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND COVER (ROUND)
4	1	24 (MAX)	600 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	24 (MAX)	600 (MAX)	INLET PIPE (BY OTHERS)

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Title
5-ft DIAMETER

FIRST DEFENSE HIGH CAPACITY

GENERAL ARRANGEMENT

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HYDRO INTERNATIONAL

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WEIGHT:	MATERIAL:
N/A	

STOCK NUMBER:

DRAWING NO.:
Eng_5FDHC_FDHC GA

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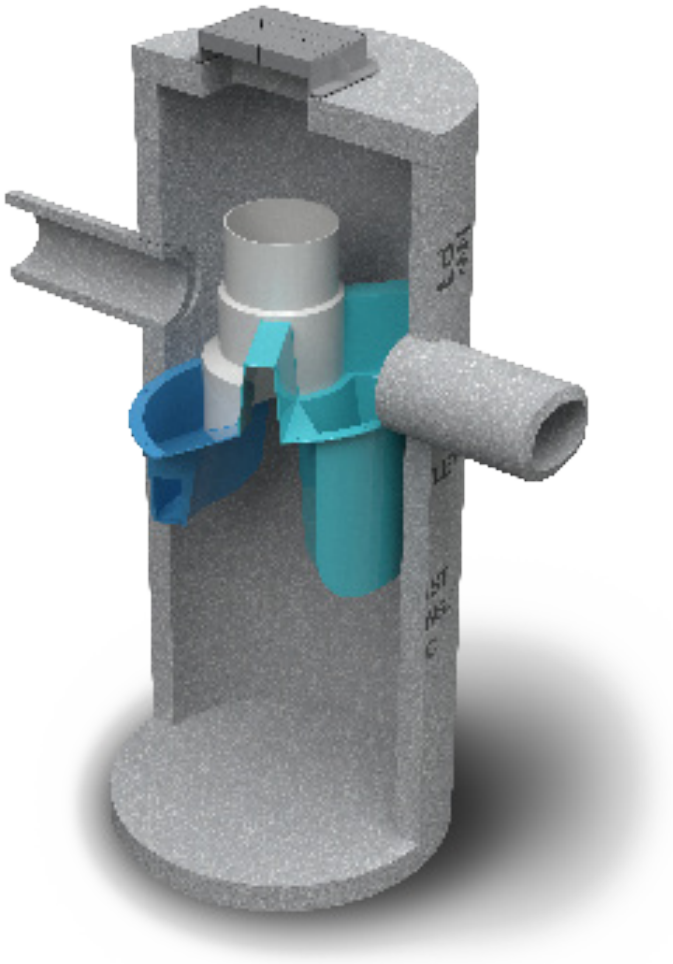
Hydro International



Operation and Maintenance Manual

First Defense® High Capacity and First Defense®Optimum

Vortex Separator for Stormwater Treatment

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3 First Defense® by Hydro International
- Introduction
- Operation
- Pollutant Capture and Retention

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- First Defense® Components

5 Maintenance
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- Maintenance Equipment Considerations
- Determining Your Maintenance Schedule

6 Maintenance Procedures
- Inspection
- Floatables and Sediment Clean Out

8 First Defense® Installation Log

9 First Defense® Inspection and Maintenance Log

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DISCLAIMER: Information and data contained in this manual is exclusively for the purpose of assisting in the operation and maintenance of Hydro International plc's First Defense®. No warranty is given nor can liability be accepted for use of this information for any other purpose. Hydro International plc has a policy of continuous product development and reserves the right to amend specifications without notice.

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

I. First Defense® by Hydro International

Introduction

The First Defense® is an enhanced vortex separator that combines an effective and economical stormwater treatment chamber with an integral peak flow bypass. It efficiently removes total suspended solids (TSS), trash and hydrocarbons from stormwater runoff without washing out previously captured pollutants. The First Defense® is available in several model configurations to accommodate a wide range of pipe sizes, peak flows and depth constraints.

The two product models described in this guide are the First Defense® High Capacity and the First Defense® Optimum; they are inspected and maintained identically.

Operation

The First Defense® operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirement and is fabricated with durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The First Defense® has been designed to allow for easy and safe access for inspection, monitoring and clean-out procedures. Neither entry into the unit nor removal of the internal components is necessary for maintenance, thus safety concerns related to confined-space-entry are avoided.

Pollutant Capture and Retention

The internal components of the First Defense® have been designed to optimize pollutant capture. Sediment is captured and retained in the base of the unit, while oil and floatables are stored on the water surface in the inner volume (Fig.1).

The pollutant storage volumes are isolated from the built-in bypass chamber to prevent washout during high-flow storm events. The sump of the First Defense® retains a standing water level between storm events. This ensures a quiescent flow regime at the onset of a storm, preventing resuspension and washout of pollutants captured during previous events.

Accessories such as oil absorbent pads are available for enhanced oil removal and storage. Due to the separation of the oil and floatable storage volume from the outlet, the potential for washout of stored pollutants between clean-outs is minimized.

Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm drain line
- Pretreatment for filters, infiltration and storage

Advantages

- Inlet options include surface grate or multiple inlet pipes
- Integral high capacity bypass conveys large peak flows without the need for “offline” arrangements using separate junction manholes
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

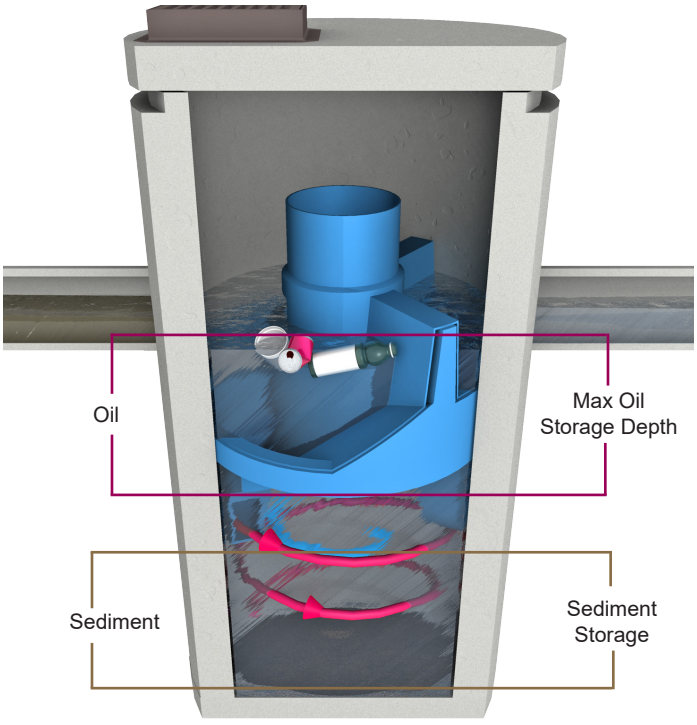

Fig.1 Pollutant storage volumes in the First Defense®.

II. Model Sizes & Configurations

The First Defense® inlet and internal bypass arrangements are available in several model sizes and configurations. The components have modified geometries allowing greater design flexibility to accommodate various site constraints.

All First Defense® models include the internal components that are designed to remove and retain total suspended solids (TSS), gross solids, floatable trash and hydrocarbons (Fig.2). First Defense® model sizes (diameter) are shown in Table 1.

III. Maintenance

First Defense® Components

1. **Built-In Bypass**
2. **Inlet Pipe**
3. **Inlet Chute**
4. **Floatables Draw-off Port**
5. **Outlet Pipe**
6. **Floatables Storage**
7. **Sediment Storage**
8. **Inlet Grate or Cover**

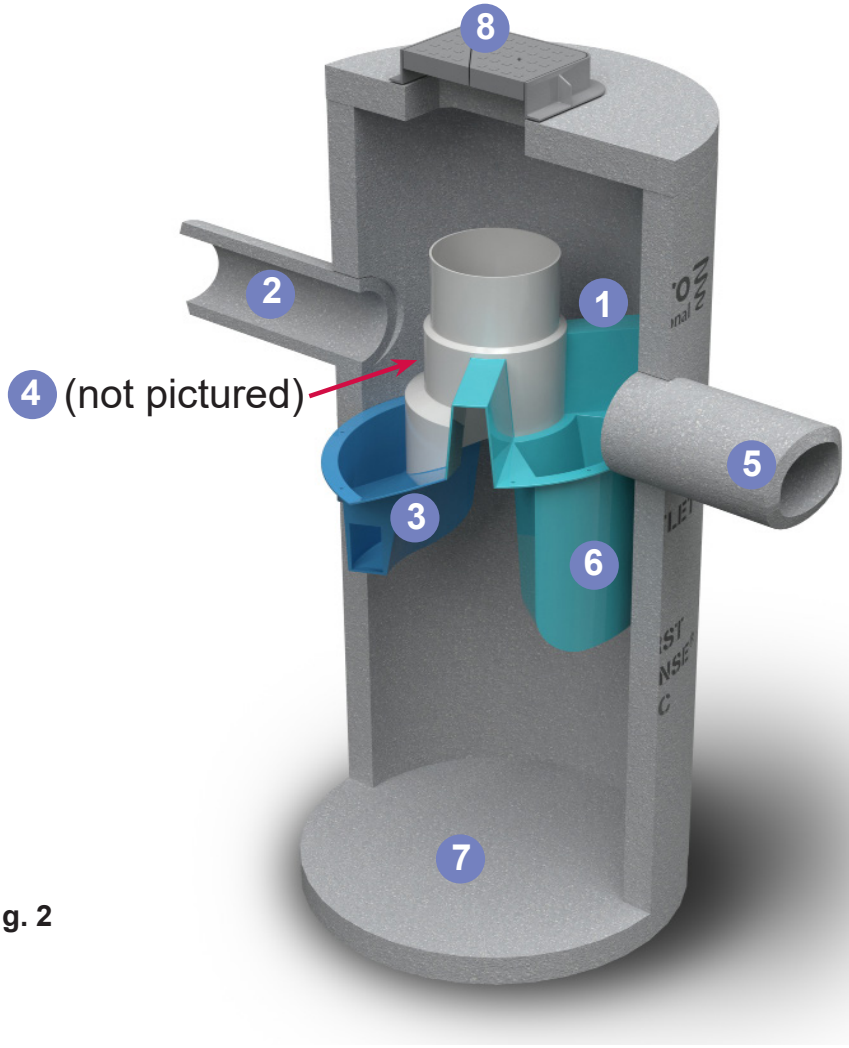

Fig. 2

Table 1

First Defense® Model Sizes
(ft / m) diameter
3 / 0.9
4 / 1.2
5 / 1.5
6 / 1.8
7 / 2.1
8 / 2.4
10 / 3.0

Overview

The First Defense® protects the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the First Defense®. The First Defense® will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the First Defense® will no longer be able to store removed sediment and oil.

The First Defense® allows for easy and safe inspection, monitoring and clean-out procedures. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables. Access ports are located in the top of the manhole.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not require entry into the First Defense®, nor do they require the internal components of the First Defense® to be removed. In the case of inspection and floatables removal, a vactor truck is not required. However, a vactor truck is required if the maintenance event is to include oil removal and/or sediment removal.

Maintenance Equipment Considerations

The internal components of the First Defense® have a centrally located circular shaft through which the sediment storage sump can be accessed with a sump vac hose. The open diameter of this access shaft is 15 inches in diameter (Fig.3). Therefore, the nozzle fitting of any vactor hose used for maintenance should be less than 15 inches in diameter.

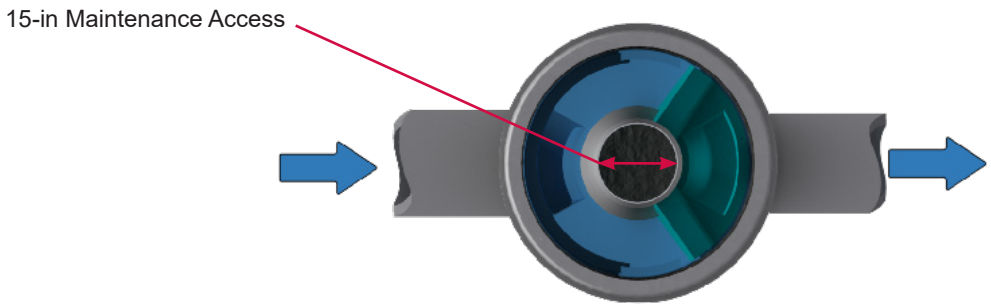

Fig.3 The central opening to the sump of the First Defense®is 15 inches in diameter.

Determining Your Maintenance Schedule

The frequency of clean out is determined in the field after installation. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation. A simple probe such as a Sludge-Judge® can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil / flotables removal, for First Defense® typically takes less than 30 minutes and removes a combined water/oil volume of about 765 gallons.

Inspection Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.

2. Remove the grate or lid to the manhole.

3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. Fig.4 shows the standing water level that should be observed.

4. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the components and water surface.

5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel.

6. On the Maintenance Log (see page 9), record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.

7. Securely replace the grate or lid.

8. Take down safety equipment.

9. Notify Hydro International of any irregularities noted during inspection.

Floatables and Sediment Clean Out

Floatables clean out is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables (Fig.4).

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose to be lowered to the base of the sump.

Scheduling

- Floatables and sump clean out are typically conducted once a year during any season.

- Floatables and sump clean out should occur as soon as possible following a spill in the contributing drainage area.

Fig.4 Floatables are removed with a vactor hose

Recommended Equipment

- Safety Equipment (traffic cones, etc)
- Crow bar or other tool to remove grate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge Judge®)
- Vactor truck (flexible hose recommended)
- First Defense® Maintenance Log

Floatables and Sediment Clean Out Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.

2. Remove the grate or lid to the manhole.

3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.

4. Remove oil and floatables stored on the surface of the water with the vactor hose or with the skimmer or net

5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log (page 9).

6. Once all floatables have been removed, drop the vactor hose to the base of the sump. Vactor out the sediment and gross debris off the sump floor

7. Retract the vactor hose from the vessel.

8. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components, blockages, or irregularly high or low water levels.

9. Securely replace the grate or lid.

Maintenance at a Glance

Inspection	- Regularly during first year of installation - Every 6 months after the first year of installation
Oil and Floatables Removal	- Once per year, with sediment removal - Following a spill in the drainage area
Sediment Removal	- Once per year or as needed - Following a spill in the drainage area
NOTE: For most clean outs the entire volume of liquid does not need to be removed from the manhole. Only remove the first few inches of oils and floatables from the water surface to reduce the total volume of liquid removed during a clean out.	

First Defense® Installation Log

HYDRO INTERNATIONAL REFERENCE NUMBER:	
SITE NAME:	
SITE LOCATION:	
OWNER:	CONTRACTOR:
CONTACT NAME:	CONTACT NAME:
COMPANY NAME:	COMPANY NAME:
ADDRESS:	ADDRESS:
TELEPHONE:	TELEPHONE:
FAX:	FAX:

INSTALLATION DATE: / /

MODEL SIZE (CIRCLE ONE): [3-FT] [4-FT] [5-FT] [6-FT] [7-FT] [8-FT] [10-FT]

INLET (CIRCLE ALL THAT APPLY): GRATED INLET (CATCH BASIN) INLET PIPE (FLOW THROUGH)

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

First Defense® Inspection and Maintenance Log

Date	Initials	Depth of Floatables and Oils	Sediment Depth Measured	Volume of Sediment Removed	Site Activity and Comments

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
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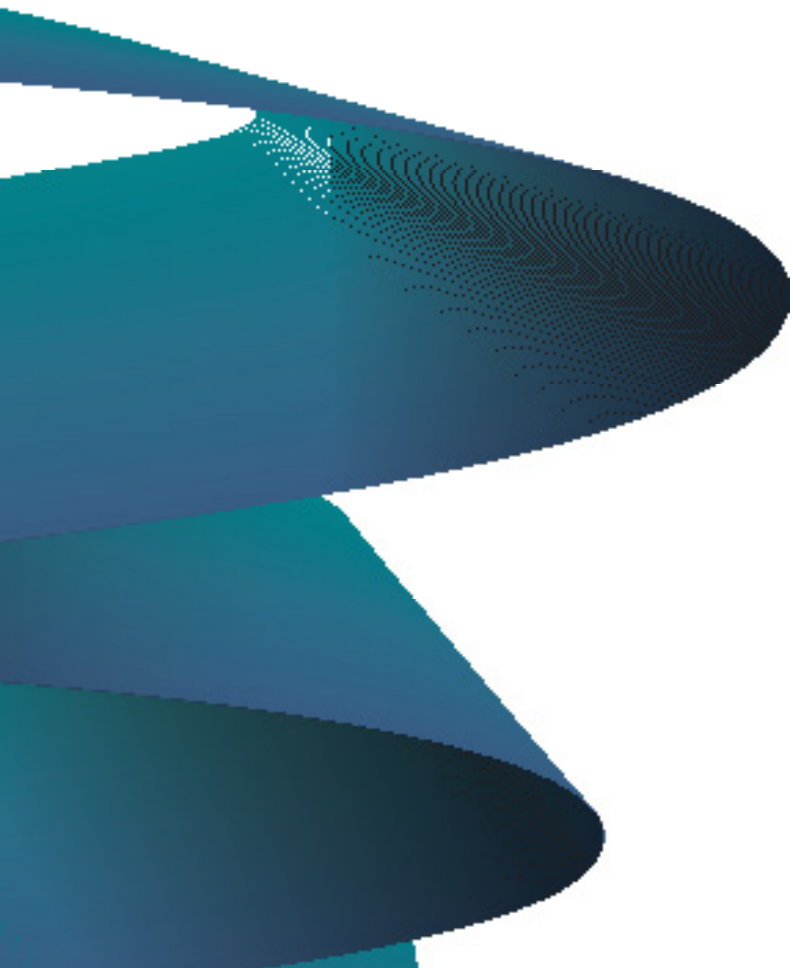


Stormwater Solutions

94 Hutchins Drive
Portland, ME 04102

Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

www.hydro-int.com

Turning Water Around...®

FD_O+M_K_2105

Appendix K:

Construction sequence

CONSTRUCTION SEQUENCING:

1. SURVEY LOCATE THE CENTERLINE OF THE PROPOSED BUCK RUN DRIVEWAY EXTENSION, CENTERLINE OF THE PROPOSED DRIVEWAY TO PROPOSED BUILDING 1 AND 2 AND CENTERLINE OF THE PROPOSED GRAVEL PARKING AREA.
2. SURVEY LOCATE AND STAKE THE PROPOSED LIMITS OF DISTURBANCE, BERM OF THE INFILTRATION BASIN AND LOWER PROPOSED INFILTRATION SYSTEMS.
3. CORDON OFF LOWER INFILTRATION SYSTEMS AND EXISTING SSTS' ADJACENT TO PROPOSED BUILDING 1 WITH CONSTRUCTION FENCING.
4. IDENTIFY TREES TO REMAIN AND PROVIDE PROTECTIVE FENCING. CLEAR TREES WITHIN THE LIMITS OF DISTURBANCE (NOTE: MAINTAIN EXISTING VEGETATIVE GROUND COVER FOR AS LONG AS POSSIBLE ON AREAS NOT REQUIRING GRADING).
5. INSTALL STABILIZED CONSTRUCTION ENTRANCE FROM OLD POST ROAD (ROUTE 35).
6. INSTALL ALL SILT FENCE AS SHOWN.
7. DEMOLISH EXISTING STRUCTURES AS NEEDED AS CONSTRUCTION PROGRESSES FROM OLD POST ROAD NORTH INTO THE SITE.
8. STRIP TOPSOIL FROM THE DRIVEWAY SHOULDERS AND GRAVEL PARKING AREA AND STOCKPILE.
9. STRIP DRIVEWAY SURFACE OF BUCK RUN TO STA. 4+00, EXCAVATE AND FILL TO FORM EMBANKMENTS AND ROUGH GRADE GRAVEL PARKING AREA AND INFILTRATION BASIN.
10. CONSTRUCT PORTION OF DRIVEWAY TO STA. 4+00 AND GRAVEL PARKING AREA TO SUBGRADE. INSTALL CATCH BASIN(S), DRAIN MANHOLE(S), AND DRAINAGE PIPE, FROM STA. 0+00 TO 4+00. INSTALL INFILTRATION SYSTEM INCLUDING DIVERSION STRUCTURES AND HDS UNITS. PROVIDE INLET PROTECTION FOR CATCH BASINS.
11. REINSTALL CONSTRUCTION FENCING TO PROTECT INFILTRATION SYSTEM AREA.
12. ESTABLISH CONSTRUCTION STAGING AREA IN AREA OF GRAVEL PARKING AREA.
13. CONSTRUCT INFILTRATION BASIN.
14. INSTALL CURB AND BINDER COURSE OF PAVEMENT ON PORTION OF COMPLETED DRIVEWAY. BACK-UP CURBS WITH TOPSOIL AND APPLY SEED AND MULCH.
15. DEMOLISH EXISTING STRUCTURES IN AREA OF BUILDINGS 1 AND 2.
16. STRIP DRIVEWAY SURFACE OF BUCK RUN FROM STA. 4+00 TO 7+00, EXCAVATE AND FILL TO FORM EMBANKMENTS AND ROUGH GRADE AS NEEDED. CONSTRUCTION RETAINING WALL AND INSTALL SIDEWALK.

17. CONSTRUCT DRIVEWAY TO SUBGRADE AND RETAINING WALLS ASSOCIATED WITH ACCESS TO BUILDING'S 1 AND 2.
18. CONSTRUCT BUILDING 1 AND 2 AND ASSOCIATED IMPROVEMENTS AND INSTALL ELECTRICAL, TELEPHONE, AND CABLE UTILITIES.
19. INSTALL CATCH BASIN(S), DRAIN MANHOLE(S), AND DRAINAGE PIPE, FROM STA. 4+00 TO 7+00 AND PROPOSED DRIVEWAY TO NEW BUILDINGS. PROVIDE INLET PROTECTION FOR CATCH BASINS.
20. INSTALL CURB AND BINDER COURSE OF PAVEMENT ON PORTION OF COMPLETED DRIVEWAY. BACK-UP CURBS WITH TOPSOIL AND APPLY SEED AND MULCH.
21. STRIP DRIVEWAY SURFACE OF THE REMAINDER OF BUCK RUN, EXCAVATE AND FILL TO FORM EMBANKMENTS AND ROUGH GRADE AS NEEDED. CONSTRUCTION RETAINING WALLS AND PARKING AREA.
22. DEMOLISH EXISTING STRUCTURES AND CONSTRUCT PROPOSED FREEZER FACILITY.
23. INSTALL REMAINING CATCH BASIN(S), DRAIN MANHOLE(S), AND DRAINAGE PIPE ASSOCIATED WITH THE DRIVEWAY IMPROVEMENTS. PROVIDE INLET PROTECTION FOR CATCH BASINS.
24. INSTALL REMAINING ELECTRICAL, TELEPHONE, AND CABLE UTILITIES.
25. INSTALL CURB AND BINDER COURSE OF PAVEMENT ON PORTION OF COMPLETED DRIVEWAY. BACK-UP CURBS WITH TOPSOIL AND APPLY SEED AND MULCH.
26. CONSTRUCT UPPER SITE IMPROVEMENTS (CAMPING PODS AND RESTROOM FACILITIES) AND GRAVEL PATH RESURFACING AND REALIGNMENT.
27. FINE GRADE DRIVEWAY SHOULDERS, LAWN AREA, AND ALL OTHER DISTURBED AREAS TO BE RESTORED TO VEGETATIVE COVER AND COMPLETE RESTORATION OF THESE AREAS WITH SEED AND MULCH. INSTALL LANDSCAPE PLANTINGS AND MULCH BEDS. INDIVIDUAL INFILTRATION SYSTEMS SHALL BE PLACED INTO OPERATION ONLY AFTER FINAL STABILIZATION OF DISTURBED AREA FROM CONTRIBUTING AREA. REMOVE THE SEALS FROM THE PIPE OUTLETS IN DIVERSION STRUCTURES.
28. INSTALL GRAVEL COURSE OF GRAVEL PARKING AREA.
29. CLEANOUT CATCH BASINS AND REMOVE EROSION CONTROLS.
30. INSTALL TOP COURSE OF PAVEMENT.
31. INSTALL PAVEMENT MARKINGS AS NEEDED.
32. RE-VEGETATE ROAD SHOULDERS AND YARD AREAS AS NEEDED.

NOTE: SITE STABILIZATION (80% UNIFORM DENSITY OF PERMANENT VEGETATION OR PERMANENT MULCH/STONE) MUST BE ACHIEVED PRIOR TO REMOVING TEMPORARY EROSION CONTROL MEASURES.

Figure 1:

Pre-development Drainage Basin Plan

LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE

PROPERTY LINE (TYP.)

THE PAUL SALKIN NOW OR QUALIFIED

UTILITY EASEMENT ACCESS &

EASEMENT "A" (REFER TO SURVEY)

EASEMENT "B" (RE

EASEMENT "C" (REFER TO SURVEY)

NOW OR FORMERLY STEPHEN MURRAY & DIANNE McGUINNE

HECTOR ALBERTO GRANDA & MARIA CRISTINA GRANDA

NOW OR FORMERLY PAUL & NESSON SALKIN

1.0S

PnD

PnC

SuB

WdC

RdB

Sh

ChC

D1

D2

D3

D4

TP

DESIGN POINT (EXISTING CULVERT)

50' LOCAL WETLAND BUFFER

100' STATE WETLAND BUFFER

APPROXIMATE LOCATION OF NYSDEC WETLAND —20

DETERMINED BY OBSERVATION BY BETH EVANS,PWS 9/17/20

EXISTING GRAVEL PARKING AREA

EXISTING STONE DRIVE

EXISTING GRAVEL DRIVE

EXISTING STONE DRIVE

EXISTING GRAVEL DRIVE

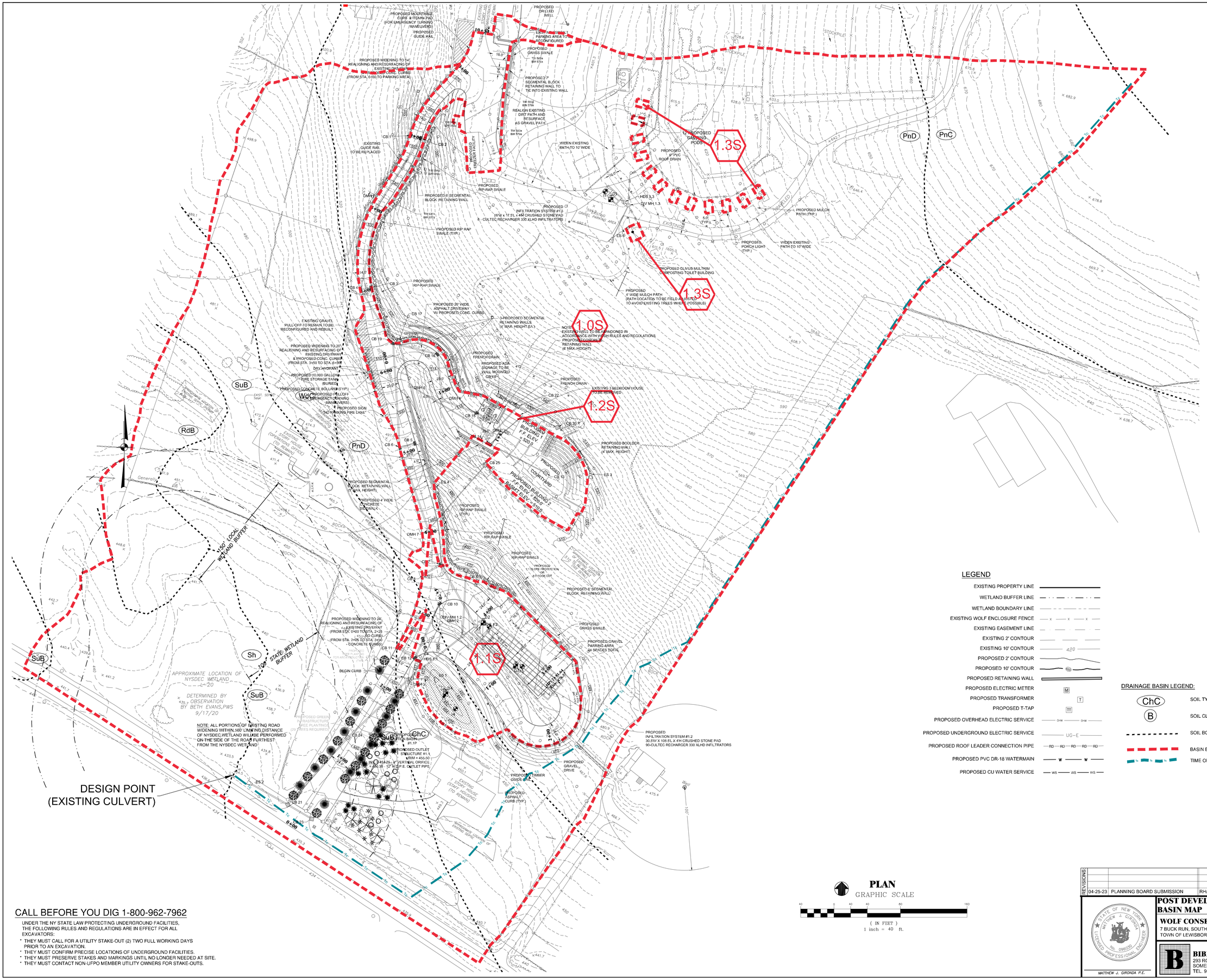
EXISTING STONE DRIVE

EXISTING STONE DRIVE

EXISTING GRAVEL

Figure 2:

Post-development Drainage Basin Plan



LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR — 420
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR — 420
- PROPOSED RETAINING WALL
- PROPOSED ELECTRIC METER — M
- PROPOSED TRANSFORMER — T
- PROPOSED T-TAP — TT
- PROPOSED OVERHEAD ELECTRIC SERVICE — OHW
- PROPOSED UNDERGROUND ELECTRIC SERVICE — UG-E
- PROPOSED ROOF LEADER CONNECTION PIPE — RD
- PROPOSED PVC DR-18 WATERMAIN — W
- PROPOSED CU WATER SERVICE — WS

DRAINAGE BASIN LEGEND:

- ChC — SOIL TYPE
- B — SOIL CLASSIFICATION
- SOIL BOUNDARY
- BASIN BOUNDARY
- TIME OF CONCENTRATION PATH (TC)

PLAN
GRAPHIC SCALE

40 0 40 40 80 160
(IN FEET)
1 inch = 40 ft.

CALL BEFORE YOU DIG 1-800-962-7962

UNDER THE NY STATE LAW PROTECTING UNDERGROUND FACILITIES, THE FOLLOWING RULES AND REGULATIONS ARE IN EFFECT FOR ALL EXCAVATORS:

- THEY MUST CALL FOR A UTILITY STAKE-OUT (2) TWO FULL WORKING DAYS PRIOR TO AN EXCAVATION.
- THEY MUST CONFIRM PRECISE LOCATIONS OF UNDERGROUND FACILITIES.
- THEY MUST PRESERVE STAKES AND MARKINGS UNTIL NO LONGER NEEDED AT SITE.
- THEY MUST CONTACT NON-UFPO MEMBER UTILITY OWNERS FOR STAKE-OUTS.

REVISIONS						
				02-07-23	PLANNING BOARD SUBMISSION	RH/MG
				06-04-21	NYCDEP APPLICATION	RH/MG
				04-27-21	PLANNING BOARD SUBMISSION	RH/MG
04-25-23	PLANNING BOARD SUBMISSION	RH/MG	DATE:	DESCRIPTION		BY/CK

STATE OF NEW YORK — MATTHEW J. GIRONDA — LICENSED PROFESSIONAL ENGINEER — No. 096205
MATTHEW J. GIRONDA P.E.

POST DEVELOPMENT DRAINAGE BASIN MAP

WOLF CONSERVATION CENTER
7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO, WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE:	1-31-2019
SCALE:	1" = 40'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY	RH
SHT NO.	FIGURE 2
DWG NO.	POST

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Figure 3:

Redevelopment Map

LEGEND

- EXISTING IMPERVIOUS AREA TO BE REMOVED (2,520 FT²)
- AREA OF PROPOSED NEW IMPERVIOUS (34,925 FT ²)
- "REDEVELOPMENT AREA" EXISTING IMPERVIOUS WITHIN LIMITS OF DISTURBANCE TO REMAIN IMPERVIOUS (21,510 FT²)
- EXISTING IMPERVIOUS TO REMAIN OUTSIDE OF LIMITS OF DISTURBANCE (22,000 FT²)
- AREA TARGETED FOR G.I.P. AREA REDUCTION (2,900 FT²)

STORMWATER MITIGATION PLANT SCHEDULE

TREES (OR APPROVED EQUAL)

Symbol	Code	Quantity	Scientific Name	Common Name	Size at Planting	Remarks
	AS	15	ACER SACCHARUM	SUGAR MAPLE	2 1/2– 3 IN. CAL.	
	UAP	14	ULMUS AMERICANA "PRINCETON"	PRINCETON ELM	3–3 1/2 IN. CAL.	

LEGEND

- EXISTING PROPERTY LINE
- WETLAND BUFFER LINE
- WETLAND BOUNDARY LINE
- EXISTING WOLF ENCLOSURE FENCE
- EXISTING EASEMENT LINE
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR (420)
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR (420)
- PROPOSED RETAINING WALL
- PROPOSED ELECTRIC METER (M)
- PROPOSED TRANSFORMER (T)
- PROPOSED T-TAP (TT)
- PROPOSED OVERHEAD ELECTRIC SERVICE (OHW)
- PROPOSED UNDERGROUND ELECTRIC SERVICE (UG–E)

DRAINAGE BASIN LEGEND:

- ChC — SOIL TYPE
- B — SOIL CLASSIFICATION
- SOIL BOUNDARY
- BASIN BOUNDARY
- TIME OF CONCENTRATION PATH (TC)

PLAN

GRAPHIC SCALE

40 0 40 80 160

(IN FEET)

1 inch = 40 ft.

UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW.

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REVISIONS						
				02-07-23	PLANNING BOARD SUBMISSION	RH/MG
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04-25-23	PLANNING BOARD SUBMISSION	RH/MG	DATE:		DESCRIPTION	BY/CK

STATE OF NEW YORK · MATTHEW J. GIRONDA · LICENSED PROFESSIONAL ENGINEER · No. 096005

MATTHEW J. GIRONDA P.E.

REDEVELOPMENT DRAINAGE BASIN MAP

WOLF CONSERVATION CENTER

7 BUCK RUN, SOUTH SALEM, NY 10590
TOWN OF LEWISBORO, WESTCHESTER COUNTY, NY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL 914 277 5805

DATE:	4-24-2020
SCALE:	1" = 40'
FILE:	L5
DSGN / CHK:	MG/RH
DRN. BY	RH
SHT NO.	1 OF 1
DWG NO.	FIGURE 3

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